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UNITED STATES DEPARTMENT OF COMMERCE

WEATHER BUREAU

CIRCULAR LETTERS

[No. 1-45 -- 101-45]

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January 10, 1946

NUMBERED CIRCULAR LETTERS

Following is a list of the numbered Circular Letters issued and mailed to all first-order stations, January 1, 1945--December 31, 1945:

Serial No.	Date of Issue	Issued by	Subject	File No.
1-45	1-4-45	SR&F Div/ Syn-Jm	Amendment to 1942 Weather Code; Reporting depth of snow on ground.	610
2-45	1-6-45	C&CW-Lu	Routing of Form 4012	750
3-45	1-8-45	SR&F/Syn-Jm	Code for Transmission of Icing Data from Mountain Stations.	610.3
4-45	1-26-45	DYE:Sm	Execution of Certificates of Inspection.	400.2 (200)
5-45	1-26-45	SSS-RAA-p	Submission of Reports on Research Activities.	040
6-45	1-29-45	SATS: WA	Temperature and Precipitation Studies.	700, (042 (600.0) (903.1)
7-45	1-29-45	Adm.-As.	Fixing Maximum temperatures in buildings and restricting use of electric currents.	080
8-45	1-31-45	Opr:Ba	Amendment No. 8 to Weather Bureau Circular N, Effective February 15, 1945.	740.5
9-45	1-31-45	SR&F/Syn-	Coordinating Pibal and Rawin Data.	610 (601.3) (601.4)
10-45	1-31-45	SR&F-Hew	Symbols for Plotting Aircraft Reports of Icing and Turbulence.	610 (730.4)

Serial No.	Date of Issue	Issued by	Subject	File No.
11-45	2-6-45	Pers.-Gr.	Efficiency Rating Instructions for Period Ending March 31, 1945.	150.5
12-45	2-6-45	SR&F-How	Security of Meteorological Information in Canada.	610 (070.2) (622.1) (622.5)
13-45	2-7-45	SR&F-Ke	Amendment to 1942 Weather Code. Figure Groups to Code Pressure Changes over 19.8 Millibars and Whole Inches of Precipitation.	740.1
14-45	2-17-45	Opr:Fe	Helium cylinders.	451.7
15-45	2-20-45	OPR:RTH	Sub-Professional Qualifying Examination No. 2.	151
16-45	2-20-45	SR&F/Syn-Hi	Deletion of Sea Level Pressure and inclusion of Wind Velocity in miles per hour and corrected 5000-feet Pressure in Mt. Washington, N. H., Synoptic Reports.	610
17-45	2-27-45	SR&F-How	Amendment, Combined Analysis Code (CAC).	610.3
18-45	3-2-45	SR&F/Cas	Inclusion of Additional Isentropic Data in Radiosonde Reports in Caribbean Area.	610-3
19-45	3-2-45	SR&F-How	Authorization of Change in Security Classification of Certain Publications.	010, (700 (700.1)
20-45	3-2-45	SR&F/Syn-Jm	Transmission of Weekly and Monthly Mean Data on Schedule "C".	610, (602
21-45	3-2-45	SR&F/Jm	Amendments and Interpretation; 1942 Weather Code.	740.1

Serial No.	Date of Issue	Issued by	Subject	File No.
22-45	*6-12-45	MAT:THE:Du	Empty metal spools for Typewriter Ribbons, Computing and Addressing Machine Ribbons, Stapling Machine (Bates) wire Haloid and Rectigraph Photocopy Paper.	410.3
23-45	3-12-45	Opr:Lo	WB, Forms 1130A and B.	750
24-45	3-21-45	SR&F/Jm	Amendments for Appendix II to Circular N.	740.5
25-45	3-24-45	C&CW-Lu	Discontinuance of Snow and Ice Bulletin.	724.2
26-45	3-26-45	SR&F/Jm	Amendments to "Preparation of Weather Maps".	730.4
27-45	3-28-45	SR&F-Ko	Combined Aircraft Weather Report Form (CAW-C).	610.3
28-45	3-31-45	SR&F-Hew	Amendment to 1943 Radiosonde Code.	610.3 (601.4) (610)
29-45	4-2-45	Opr:Lo	Convective Cloud-Base Height Diagram.	601 (740.5)
30-45	4-18-45	Opr:Lo	Enclosed Instructions for Operation of the Ceilometer.	451.2
31-45	4-20-45	Chf-Ki	Message from the White House regarding V-E Day.	000
32-45	4-20-45	SR&F/AlG/Jm	Transcribing Coded Analyses on Surface Charts.	600.00 (730.4)
33-45	4-20-45	SR&F.-Gr	Savannah temperatures.	610 (601.2)
34-45	4-20-45	AsstChAdm.-Hi	Discontinuance of "Circular I, " (Fiscal)	212
35-45	4-23-45	MAT:JJD:Du	WB Form 2003, Report of Surplus and Unserviceable Property.	750 (400)

* The date of this Circular Letter is **not** in chronological order due to the fact that it was not released until 3 months after the number was assigned.

Serial No.	Date of Issue	Issued by	Subject	File No.
36-45	4-24-45	Pers.-fo.	Salaries and Leave for Employees on Extended Detail	202 (130)
37-45	4-30-45	SR&F-Hew	Security of Meteorological Information in Canada	610 (070.2), (622.1) (622.5)
38-45	4-30-45	AsstChAdm. -Hi	Bills of Lading	260.1
39-45	5-1-45	AsstChAdm. -cs	Bids and contracts for continuing services at field stations.	240, (250)
40-45	5-4-45	Opr./Wh	Application for Training as Electronic Maintenance Technician.	031.1
41-45	5-5-45	SR&F.-Gr	Specialized forecasts and advices for agriculture.	622.1 (622.5) (620.43)
42-45	5-5-45	Opr:Lo	"Amplification of Instructions in Circular S" and "Guide to Coding Clouds"	601
43-45	5-7-45	MAT:THE: Du	Original and Memorandum Bills of Lading	260.1
44-45	5-7-45	SR&F-Ev	Prompt reporting of weather damage.	607
45-45	5-10-45	AsstChAdm. -Hi	Regional Authority to issue Letters of Authority for employment of emergency assistance.	103
46-45	5-14-45	AsstChAdm. -Hi	Authority for Field Purchases	213 (400.2) (212)
47-45	5-15-45	SR&F-Hew	Amendments to Combined Analysis Code and W.B. 1345.	610.3 (610) (622.1) (620.7)

Serial No.	Date of Issue	Issued by	Subject	File No.
48-45	5-30-45	AsstChAdm.-cs	Discontinuance of Circular III.	210.1, (610)
49-45	5-30-45	S&F-Hew	Removal of Weather Security Measures in Certain Areas	000, (622.1) (622.5) (730.4)
50-45	5-30-45	Pers.-fo.	Emergency Assistants - Annual and Sick Leave.	130, (103)
51-45	5-31-45	S&F-Hew	Adoption of Constant Pressure Analysis.	600.0
52-45	6-14-45	Opr:Ba	Amendment No. 9 to Weather Bureau Circular N, Effective July 1, 1945.	740.5
53-45	6-21-45	Opr-Er	Management of Climatological Substations.	531.2 (090) (750)
54-45	6-22-45	AsstChAdm-cs	Field Purchase Order-Vendor's Invoice.	400.2 (213)
55-45	6-22-45	AsstChAdm.-Hi	Preparation, Routing and Certification of Vouchers	200.4
56-45	6-26-45	C&CW:mlh	Instructions on preparing Pages 2-5, W.B. Form 1001 (Effective July 1, 1945).	750
57-45	6-28-45	S&F-Ev	Emergency Flood and Storm Warning Radio Networks.	622.5 (603.21)
58-45	7-9-45	Accts.-lmd	"Federal Employees Pay Act of 1945".	202 (102.4)
59-45	7-17-45	Adm.-La	Penalty Mail	901
60-45	7-20-45	AsstChAdm.-Hi	Payment of Expenses of Transportation of immediate family of Government employees.	080.1
61-45	7-20-45	AsstChAdm.-Hi	Extension of time limit on delay of shipment of household goods.	260.4

Serial No.	Date of Issue	Issued by	Subject	File No.
62-45	7-23-45	C&CW:mlh	Ceiling and Visibility Summarization on Form 1030.	750
63-45	7-23-45	C&CW:mlh	Instructions for preparation of Form 1009 from Form 1130A (WBAN-10A)	750
64-45	7-26-45	SR&F-Wi	Flight Advisory Weather Service Operation Manual.	740.3
65-45	7-27-45	Pers.-fo.	Instructions for Maintaining Time and Attendance Reports and Leave Accounts.	130
66-45	8-13-45	Adm.MSA/Wa	Quarters Information Regarding Expenditures for Janitor Service, Utility Services, Care of Grounds, Alterations, etc.	350.1 (360)
67-45	8-18-45	Opr:Wh	Tephigram, W.B. Form 1125 (Revised 2-21-45).	750 (601.4)
68-45	8-20-45	SR&F-Hew	Combined Aircraft Weather Report Form (CAW-C) Amendment.	610.3 (601.4) (750)
69-45	8-27-45	Opr:Do	Application for Special Assignments.	140.2
70-45	9-7-45	AsstChAdm-cs	Regulations regarding compensation for August 15 and 16, 1945.	202
71-45	9-17-45	SR&F:Fo	Combined Analysis Code.	610.3 (610) (622.1) (620.7)
72-45	9-19-45	MAT/THE/Mo	Transportation of helium gas and return of empty cylinders.	451.7
73-45	9-20-45	AsstChAdm-cs	"Federal Employees Pay Act, 1945".	202 (102.4)
74-45	9-24-45	Opr:Ba	Reversion to Standard Time.	000 (060) (080)

Serial No.	Date of Issue	Issued by	Subject	File No.
75-45	10-2-45	MAT/THE/VCR	Restrictions on Purchase of Selected Items for the Duration of the War.	400
76-45	10-4-45	S&F-How	Weather Security.	000 (604, 610.4) (730.4, 622,5)
77-45	10-12-45	S&F-How	Reporting Constant Pressure Data.	610.3
78-45	10-15-45	S&F-How	Amendment to Code for Transmission of Icing Data from Mountain Stations.	610.3
79-45	10-16-45	S&F:Ja	Uses of UCO (Plain) and Standard UCO Instructions.	610.3 (620.11) (622.5) (603.51)
80-45	10-22-45	S&F-Ko	Increased Responsibility for Service this Winter.	622.1 (621.5) (622.5)
81-45	10-22-45	AsstChAdm-es	Station Records (Forms 1418, 1419, and 1420)	080 (200)
82-45	10-24-45	Chief-Pi	Release of Information on Forecast Verifications.	620.01
83-45	10-25-45	Opr:Do	Information for candidates for Ocean Weather assignment.	140.2
84-45	10-25	AsstChfAdm-Go	Observance of Holidays Falling on Sunday.	080.04
85-45	11-6-45	Pers.-Ma.	Policy on Reemployment of Veterans.	110.3
86-45	11-16-45	MAT/THE/Bl	National Salvage Program - Old Scrap Metal.	400 (080)
87-45	11-20-45	C&CW:mlh	Resumption of Snow and Ice Bulletin.	724.2 (610, (602)

Serial No.	Date of Issue	Issued by	Subject	File No.
88-45	11-26-45	Opr:S	Army Publication "Weather Station Handbook for the Observer".	712.1
89-45	11-30-45	C&CW:mlh	New Sunshine Tables.	740.4 (601) (903.1)
90-45	12-4-45	Pers.-Ma.	Administrative work week for official hours of duty.	102.4
91-45	12-5-45	Opr/Pl	Atlantic Weather Patrol	604 (500.1) (601.4)
92-45	12-5-45	MAT/JJD/BI	Disposition of Surplus Property.	400
93-45	12-5-45	MAT/JJD/BI	Loss of Government Property.	401
94-45	12-5-45	SR&F-Hew	RAREP Reports.	600 (046.0) (610)
95-45	12-6-45	Opr-Er	Pay increases for substation observers.	202
96-45	12-10-45	AsstCHAdm-cs	Administrative work weeks beginning December 23 and December 30, 1945.	102.4
97-45	12-17-45	AsstCHAdm-cs	Authority to Transport Immediate Members of Family.	080.1 (260.4)
98-45	12-18-45	SR&F-Ev	Revised WB Form 4008, Station Service Summary.	903.1 (750)
99-45	12-20-45	Opr/Pl	Discontinuance of WB Form 4048 "Data on Employees Experienced in Radiosonde Observations."	100 (750)
100-45	12-27-45	Accts.-lms	Time and attendance reports and leave computations for the calendar year 1946.	130 (750)
101-45	12-29-45	Opr-Lo	Eyesight Requirements for Operators	100 (601)

Every

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

C&CW-Lu
(File No. 750)

January 6, 1945

CIRCULAR LETTER NO. 2-45
(To All Stations)

Subject: Routing of Form 4012

The present routing procedure for Form 4012 has resulted in general confusion and, in some cases, misplaced weather records, thereby delaying corrections to Climatological Records at the Section Center. Therefore, in the future the following procedure will be followed in routing Form 4012.

1. The original and first carbon of Form 4012, with pertinent observational forms, will be mailed direct to the reporting station.

2. The yellow tissue copy of Form 4012 will be mailed direct to the appropriate Regional Office.

3. The reporting station will return the original of Form 4012 to the Elkins Checking Station, <u>through the Section Center, but not through the Regional Office</u>.

4. The original Form 4012 on which action has been completed will be mailed to the Regional Office by the Elkins Checking Station for permanent file.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Syn-Jm
(File 610.3)

January 8, 1945

Circular Letter No. 3-45
(To All Stations)

Subject: Code for Transmission of Icing Data from Mountain Stations.

Reference: Circular Letter No. 99-43.

Effective 0130 EST (0230 EWT) February 1, 1945, the attached "Code for Transmission of Icing Data from Mountain Stations" will be used by authorized stations.

Coincidental with the effective date of the attached code all previous instructions (Circular Letter No. 99-43) for the coding of these data are rescinded.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Attachment.

"Code for Transmission of Icing Data from Mountain Stations"

This code is divided into two (2) parts; Part I provides for the reporting of icing data in a five-figure group at the end of the 6-hourly synoptic report and Part II provides for the reporting of icing data as an unscheduled report on Schedule "A".

Part I - Code for reporting icing data in the 3 and 6-hourly synoptic observations coded in the 1942 Weather Code and transmitted on Schedule "C".

For the present, icing data will be included in all 3-hourly and 6-hourly synoptic observations from Mount Washington, N. H. and in all 6-hourly observations from Whiteface Mountain, N. Y. when fog and freezing temperatures prevail, or when precipitation in any form is occuring that would be likely to cause ice deposits on aircraft and the current air temperature (surface) is near or below 32° Fahrenheit.

A five-figure group will be used to code the data. This five-figure group will invariably be the last group of the coded synoptic observation and will immediately be preceded by an identification group consisting of five (5) slants. (Note: Instructions for the "Transmission of 24-hour amounts of precipitation," basic Circular Letter No. 72-43, do not apply to Mount Washington, N. H. or Whiteface Mountain, N. Y.)

Icing conditions reported are those prevailing at the station under existing meteorological conditions.

Symbolic Form of Code: "///// $L_w C_b i_i i_f d_s$"

L_w - Liquid water content (Code Table 120)

C_b - Height of cloud base above mean sea level (Code Table 121).

i_i - Intensity of icing, in terms of rate of accumulation during last hour under existing meteorological conditions at the station (Code Table 122).

i_f - Density of type of ice forming under existing meteorological conditions at the station (Code Table 123).

d_s - Effective drop diameter (effective diameter of liquid drop, Code Table 124)

Values used in coding these elements are listed in the following code tables:

Code Table 120

Symbol L_w - Liquid water content of air.

Code Figure	Liquid water content
0	Liquid water content unknown
1	Less than 0.12 g/m^3
2	From 0.12 to 0.239 g/m^3
3	From 0.240 to 0.359 g/m^3
4	From 0.360 to 0.479 "
5	From 0.480 to 0.599 "
6	From 0.600 to 0.719 "
7	From 0.720 to 0.839 "
8	From 0.840 to 0.960 "
9	Greater than 0.96 "

Code Table 121

Symbol C_b - Height of cloud base above mean sea level.

Code Figure	Height of cloud base above mean sea level
0	Less than 2500 ft.
1	From 2500 to 2999 ft.
2	From 3000 to 3499 ft.
3	From 3500 to 3999 ft.
4	From 4000 to 4499 ft.
5	From 4500 to 4999 ft.
6	From 5000 to 5499 ft.
7	From 5500 to 5999 ft.
8	From 6000 to 6300 ft.
9	Height unknown.

Code Table 122

Symbol i_i - Intensity of icing in terms of rate of accumulation during last hour under existing meteorological conditions at the station.

Code Figure	Intensity of Icing
0	No icing or intensity unknown
1	Less than 0.25 in./hr.
2	From 0.25 to 0.49 in./hr.
3	From 0.50 to 0.99 "
4	From 1.00 to 1.49 "
5	From 1.50 to 1.99 "
6	From 2.00 to 2.49 "
7	From 2.50 to 2.99 "
8	From 3.00 to 3.50 "
9	Greater than 3.50 "

Note: This value may be converted to cm/hr. by multiplying the reported value by 2.54, and converted to weight value in $g/cm^2/hr.$ by multiplying the reported value by both 2.54 and the density reported in Code Table 123.

Code Table 123

Symbol i_f - Density of type of ice forming under existing meteorological conditions at the station.

Code Figure	Type of ice forming	Density
0	No icing or type unknown	
1	Hoar rime	Less than 0.2 g/cc
2	Powder rime	From 0.20 to 0.29 g/cc
3	Feathery rime	From 0.30 to 0.39 "
4	Kernel rime	From 0.40 to 0.49 "
5	Rime	From 0.50 to 0.59 "
6	Opaque rime	From 0.60 to 0.69 "
7	Milky ice	From 0.70 to 0.79 "
8	Transparent ice	From 0.80 to 0.84 "
9	Clear ice	From 0.85 to 0.917 "

Code Table 124

Symbol d_s - Effective drop diameter

Code Figure	Effective diameter of liquid drop
0	No icing or drop size unknown
1	Drop size less than 6.00 microns
2	Drop size from 6.00 to 8.99 microns
3	Drop size from 9.00 to 11.99 microns
4	Drop size from 12.00 to 14.99 microns
5	Drop size from 15.00 to 17.99 "
6	Drop size from 18.00 to 20.99 "
7	Drop size from 21.00 to 23.99 "
8	Drop size from 24.00 to 27.00 "
9	(Note: 1 micron =0.001 millimeter)

An example of the data included on Schedule "C" in the Mount Washington report is as follows:

"(Coded 3 or 6-hourly synoptic report) ///// 17212"

Decoded:

Code Figure

///// - Identifying group

1 - Liquid water content; less than 0.12 g/m^3 (L_w, Code Table 120)

7 - Height of cloud base above mean sea level; from 5500 to 5999 feet (C_b, Code Table 121)

2 - Intensity of icing; from 0.25 to 0.49 in./hr (i_i, Code Table Table 122)

1 - Density of type of ice forming; hoar rime, density less than 0.2 g/cc (i_f, Code Table 123)

2 - Effective diameter of liquid drop; from 6.00 to 8.99 microns (d_s, Code Table 124)

Part II - Code for transmission of icing data in unscheduled reports on Schedule "A"

Authorized mountain stations will take icing observations for transmission on Schedule "A" as unscheduled reports in accordance with the instructions listed below. These icing reports will be made when fog and freezing temperatures prevail, or when precipitation in any form is occurring that would be likely to cause ice deposits on an aircraft and the current air temperature (surface) is near or below 32° Fahrenheit.

At the present time two (2) mountain stations (Mount Washington, N. H. and Whiteface Mountain, N. Y.) will report icing data in this category. These stations will file unscheduled icing reports whenever icing data are included in the 3 or 6-hourly report.

These unscheduled reports will include the following data:

(a) Letter identification of the station

(b) Type of observation (these observations are all Specials, SPL)

(c) Time of observation (actual time of observation, local war time on 24 hour basis)

(d) Type of ice forming at station, and intensity (based on rate of accumulation in g/cm^2/hr) assuming 200 mph airspeed, and a 3 inch cylindrical exposed object.

(e) Distance and direction from designated reference station

(f) Letter identification of reference station

(g) Elevation in hundreds of feet above mean sea level of observing station.

Following is a list of possible icing data teletype abbreviations that are used in coding the observed data:

* Type of ice forming at station and intensity of icing assuming 200 mph airspeed	Teletype abbreviation
Rime or opaque ice, trace	ICG--
" " " " , light	ICG-
" " " " , moderate	ICG
" " " " , heavy	ICG†

* See paragraph 2 of explanatory material below.

Clear ice, trace	CLR ICE--
" " , light	CLR ICE-
" " , moderate	CLR ICE
" " , heavy	CLR ICE+

The time shown in these reports will always be the actual time of observation, regardless of the filing or transmission time of the message (local war time on 24-hour clock basis).

Examples:

(Whiteface Mountain)	PWF	SPL	1416E	ICG	35	WSW	JG	49	MSL
(Mount Washington)	PTW	SPL	1415E	CLR ICE-	65	NW	PW	63	MSL

Decoded Mount Washington report:

(a) PTW = Letter identification; Mount Washington

(b) SPL = Type of observation; SPECIAL

(c) 1415E = Time of observation; 2:15 P.M. E.W.T.

(d) CLR ICE-= Type of ice forming at station; clear ice; intensity (assuming 200 mph airspeed), light.

(e) 65 NW = Distance and direction from designated reference station; 65 miles Northwest

(f) PW = Letter identification of reference station; Portland, Maine

(g) 63 MSL = Elevation in hundreds of feet above mean sea level of observing station; 6300 feet.

The following code table (No. 125) is used by the observing station to correlate rates of accumulation of ice to the intensity indicators which are included in the transmitted icing report. Rates of accumulation of ice are never expressed as numerical values in this type of report.

Code Table 125

I_i = Rate of accumulation of ice forming on an aircraft having an speed of 200 mph.

Teletype Symbol	Intensity of Icing	Rate of accumulation
--	Trace	Less than 1.00 g/cm^2/hr.
-	Light	From 1.00 to 5.99 g/cm^2/hr.
	Moderate	From 6.00 to 12.00 g/cm^2/hr.
+	Heavy	Greater than 12.00 g/cm^2/hr.

Explanatory Material:

When clear ice forms on the small cylindrical collector (0.072 inch in diameter) at the station, the type of ice forming will be reported as "Clear Ice" which is coded as "CLR ICE". When any type of rime or opaque ice forms on this collector at the station, the report in code of the type will be "ICG", denoting the formation of rime or opaque ice at the station. (Note: As a rule these types of ice have less density than clear ice).

The speed of an aircraft determines the force of impact and rate of collection of droplets, and hence controls to a considerable degree the density of ice accretion. When an aircraft flies at an airspeed greater than the wind velocity at the station under otherwise identical physical conditions favorable for icing, the density of the ice formed would be greater on the aircraft than on the small collector at the station, in practically all cases. It is thus likely that when clear ice forms at the station, the aircraft flying under similar conditions will also have clear or dense ice. Owing to the effect of speed outlined above, it is also possible for clear or dense, tenacious ice to form on an aircraft flying under conditions which give rise to rime at the station. Consequently, the symbol "ICG" in the report indicates icing conditions present, but density of ice at 200 m.p.h. unknown. In the present state of knowledge it is not practicable to extrapolate the type or density of ice formation from station to aircraft conditions.

However, the station data regarding intensity (rate of accumulation in g/cm^2/hr) are extrapolated to this end, making due allowance for the effects of drop size, cylinder diameter and velocity. In computing the intensity of icing for the aircraft two factors are taken into account, (a) the assumed aircraft speed of 200 mph relative to the surface wind velocity at the observing station and (b) the relative collection efficiency of a typical exposed aircraft component in comparison with the exposed object at the observatory as controlled by the effective drop diameter. In regard to (a) the computations are based on the assumptions that the rate of accumulation is proportional to the relative speed of air against the object and also is proportional to the collection efficiency. In regard to (b), the computations are based on the assumptions that the collection efficiency decreases with increasing collector size and increases with increasing airspeed for constant drop sizes.

As the rate of accumulation of ice will usually vary considerably from one type of airplane to another and from one leading edge to another, depending on their shape and size, this icing re-

port can merely represent the icing intensity on an "average" leading edge. These icing reports are designed to fit mostly closely the icing on a cylinder of 3-inch diameter, which has approximately the same size and curvature as the DC-3 wing leading edge several feet from the wing-tip. Thus, leading edges thicker that this will have less icing while thinner ones will have greater icing. Due to the thinness of the propeller blades, and the speed at which they cut the air (approximately 3 times as fast as the aircraft) the ice that accumulates on them will be approximately 3 times as great as on other parts of the aircraft.

The following definitions of types of ice formations show the different appearance of the various types of ice formation:

1. Hoar rime - with loose structure that has a definite crystalline character, in contrast to the amorphous forms of the denser deposits.

2. Powder rime - with loose structure that separates easily.

3. Feather rime - less dense than 4, large openings between branches of rime showing streamlines along which drops are deposited. This type is structurally weak, and it and 2 may be lost by plane before any appreciable deposit is formed.

4. Kernel rime - loose structure with variable density of particles.

5. Rime - hard, with large bubbles but air spaces not continuous; markedly less dense than 6.

6. Opaque rime - opaque, dense hard.

7. Milky ice - with high density, but bubbles of air are round and very small; translucent.

8. Transparent ice - with few large bubbles.

9. Clear ice - with no bubbles.

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WEATHER BUREAU

DYE:Sm
(File No. 400.2)
(200)

January 26, 1945

CIRCULAR LETTER NO. 4-45
(To all Stations)

Subject: Execution of Certificates of Inspection.

It is noted that in several instances certificates of inspection have been signed indicating the receipt of all items and/or services on a purchase order when actually only a partial delivery has been made of the articles or performance of the service. Vendors frequently submit vouchers covering complete delivery of articles and/or services in advance of receipt of the shipment or performance of the service. If the certificate of inspection is executed in advance of complete delivery of articles and/or services, payment may be effected which is not authorized under Government procedure. Premature execution of certificates of inspection may easily lead to situations necessitating uncalled-for adjustments, corrections; and even refunds on the part of the contractors. THE RECEIPT OF GOODS AND/OR SERVICES MUST BE CAREFULLY CHECKED BEFORE INSPECTION CERTIFICATES ARE SIGNED.

The original inspection certificate should be retained until complete deliveries or services are received in accordance with the purchase order; and then promptly forwarded to the Central Office in an envelope marked "For Materiel Section".

If a voucher is received covering only partial delivery of articles and/or services, a supplemental inspection certificate will be issued immediately by the Central Office covering the items listed on the voucher. The supplemental inspection certificate should be promptly executed and forwarded to the Central Office. When the balance of the articles and/or services are received, the original certificate should be changed accordingly, signed, and promptly returned to the Central Office.

The subject matter relative to partial delivery herein does not apply to certificates of inspection covering subscriptions for periodicals or publications. The inspection certificate in this instance should be signed and promptly returned to the Central Office upon the receipt of the first copy signifying that the subscription has been entered by the vendor.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

Library

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

SSS-RAA-p
(File No. 040)

January 26, 1945

CIRCULAR LETTER NO. 5-45
(To all First Order Stations and Regional Offices)

Subject: Submission of Reports on Research Activities.

Reference: Circular Letter No. 37-44.

On July 1, 1944 there was compiled at the Central Office a list of research projects which were at that time active at Weather Bureau Field Stations and at the Central Office. As of January 1, 1945, a similar list will be compiled which, insofar as possible, will be complete and which will include the following:

1. All projects appearing on the July 1 list, and active as of that date, noting progress and status or date of completion,

2. New projects begun since July 1, 1944,

3. Projects active but not completed before July 1, 1944 which did not appear on the July 1 list.

It is requested that all first order stations reply to this Circular Letter through Regional Offices even though some stations will have no research activities to report. Three copies of the enclosed form will be prepared for each project, the original being furnished to the Central Office, one copy retained at the Regional Office, the third remaining at the station. Additional copies of the form may be obtained from Regional Offices.

The July 1 list, which was furnished to many stations, was far from complete and deductions drawn therefrom regarding the status of research activities in the field are not conclusive. Nevertheless it is noted that a substantial number of the reported projects are studies designed to improve ceiling and visibility forecasts. The Central Office will continue the policy of encouraging such research, but wishes to stress again the need for other types of research studies as outlined in the reference Circular Letter.

Plans are being formulated for the issuance of further material for guidance in forecast research. Meanwhile the Central Office will continue to reply as rapidly as possible to individual requests from the field for advice and assistance on research matters.

The use of cards for reporting research activities, as required by the last paragraph of Circular Letter 37-44, will be discontinued. In the future the enclosed form will be used, pertinent data being extracted at the Central Office and transferred to cards in a visible file index of active research projects.

Respectfully,

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Enclosure.

U. S. DEPARTMENT OF COMMERCE
Weather Bureau

Station _____

Date _____

SEMI-ANNUAL REPORT OF STATUS OF RESEARCH PROJECT

Title of Project _____

_____

In Charge _____ Assistant _____

Begun (Year) _____ Estimated date of completion _____

Statement of Specific Objective (Use terms which are not too general; also state, if possible, what applications are anticipated. A good example of a specific statement is: "To study statistically by correlation and regression procedure the relation of the mean virtual temperature between sea level and 3 kilometers to the simultaneous surface temperature, for the area of the United States, as an aid in forecasting five-day mean surface temperature having given prognostic five-day mean sea-level and 3-kilometer charts"). _____

_____

_____

_____

_____

Plan of Work:

1. Are one or more specified hypotheses to be tested, or does the plan of work call for the development of an hypothesis? _____

_____

2. Describe method of attack briefly: _____

_____

_____

_____

_____

3. Have staff discussions been held to discuss the method of attack on this problem? Yes ( ) No ( ).

Status:

1. Has a bibliography been prepared or have all available papers on the subject been examined? (If a copy of your bibliography is sent to the Central Office, an attempt will be made to furnish additional references to recent papers.) _____

_____

2. If analyzed synoptic maps are required for the study, are well-analyzed maps available? Yes ( ) No ( ). Can the printed Historical Northern Hemisphere Maps be of use? Yes ( ) No ( ).

3. Are sufficient data available for the present phase of the work? Yes ( ) No ( ). If not, what additional data are required? _____

_____

4. What is the approximate number of man hours spent on this project during the past month? _____

5. Approximately what percentage of analysis of collected data is completed?

_____%. Remarks _____

_____

_____

6. What is the status of the presentation and interpretation of results?

_____

_____

7. What reports have been written and where are copies to be found? (Give list including title, author, date, name of publication, if published, and date of submission if copy has been submitted to Central Office).

_____

_____

_____

8. Remarks:

_____

_____

_____

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D.C.

January 29, 1945

SATS:WA
File No. 700
(042)
(600.0)
(903.1)

CIRCULAR LETTER NO. 6-45
(To all Weather Bureau Offices)

Subject: Temperature and Precipitation Studies

The accompanying temperature and precipitation studies have been reproduced in a limited edition to provide a source of climatic information for ready reference.

Forecast centers should find the material of considerable value in determining reasonable prognostic limits of temperature and precipitation for the respective periods. Section Centers and other Bureau offices should find the studies of assistance in replying to inquiries from outside sources as well as in the preparation of local forecasts.

The edition is limited to 3,000 sets, of which 500 are being distributed to Weather Bureau offices and units of other Government agencies; therefore, unofficial interests such as engineers, public utilities, transportation organizations, etc., having need of the studies should be advised to address their requests directly to the Chief U. S. Weather Bureau, Attention of Division of Climate and Crop Weather, from which point orders will be filled.

Requests previously forwarded to the Central Office will be given attention here, and the Weather Bureau Office through which received will be advised.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Attachments.

P.S. This circular letter has already been used to transmit copies of publication as indicated above. Routing distribution of the circular is being completed to support circular files and cross references.

Lary

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

Adm.-As.
(File No. 080)

January 29, 1945

CIRCULAR LETTER NO. 7-45
(To all Stations)

Subject: Fixing maximum temperatures in buildings and restricting use of electric current.

Department Order No. 355, dated January 19, 1945, signed by the Secretary of Commerce, is quoted for the information and guidance of all Weather Bureau personnel.

> "In compliance with instructions of the Director of War Mobilization and Reconversion to meet the existing fuel emergency, it is hereby ordered that the maximum temperatures in all buildings under control of the Department of Commerce shall not exceed 68 degrees, and that effective measures be taken to stop the unnecessary use of electric current such as may be consumed by unnecessary lights burning and failure to turn off fans, machines, motors, etc., when not actually in use.
>
> "To comply fully with the provisions of this Order, it is further ordered that a responsible employee in each affected unit be designated to carry out, at all times, the instructions contained in this Order. This Order shall apply to all buildings under control of the Department in Washington, D. C., and its offices in the field."

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Ba
(File No. 740.5)

January 31, 1945

CIRCULAR LETTER NO. 8-45
(To All Stations and Recipients of Circular N Amendments)

Subject: Amendment No. 8 to Weather Bureau Circular N, Effective February 15, 1945.

Enclosed are revised pages 13-2R, 15-2R, 17-4R, 20-4R, 20a, 21-2R, 22-2R, 23-R, 23a, 24-2R, 26-3R, 27-3R, 27a, 28-4R, 29-2R, 35a-2R, 35b-R, 63-3R, 65-2R, 66-3R, 67-4R, 68-3R, 69-2R, 72-R, 73-3R, 74-2R, 78-R, 81-R, 82-2R, 83-R, 84-4R, 85-R, 174-R, and 174A for Circular N, Fifth Edition.

Briefly, these pages contain the following:

1. Instructions for "abbreviated specials."

2. Instructions for use of six-figure date-time group in transmitting special and local extra observations and four-figure time group for reporting wind shifts, PIREPS, etc., in the body of the report or in remarks.

3. Instructions for taking cloud height measurements.

4. Illustrations of "remarks."

5. Instructions for making time-check lines on barograms.

6. Instructions for use of WB Form 1130B (WBAN 10B). Any reference in Circular N to WB Form 1130 will be inferred to mean WB Form 1130B.

7. Instructions for discontinuance of classification "X-closed" to comply with Part 60 of Civil Air Regulations. In this connection any reference in Circular N to a "closed" airport will be interpreted as "below contact flight minimums," and "X," meaning "closed," will be changed to "N."

8. Instructions for reporting visibilities of 10 miles or more in Alaskan reports.

9. Instructions for taking check observations. Check observations will be taken at all stations where broadcast facilities are available.

10. Illustration of Form 1130B.

All current revised pages of Circular N are listed on the attached sheet.

F. W. Reichelderfer
Chief of Bureau

(Attachment & Enclosures)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Subject: "Instructions for Airway Meteorological Service," Circular N, Amended to February 15, 1945.

Circular N, 5th Edition, should contain the following revised pages after incorporation of the 8th Amendment:

Section II - Observations

Part II	13-2R, 15-2R, 16-3R, 17-4R, 20-4R, 20a, 21-2R, 22-2R, 23-R, 23a, 24-2R, 25-3R, 26-3R, 27-3R, 27a, 28-4R, 28a-R, 29-2R, 30-2R, 33-R, 34-2R, 35-R, 35a-2R, 35b-R, 38-R, 39-2R, 40-R, 42-2R, 43-R, 44-R, 45-R, 46-R, 47-R, 52-R, 61-2R, 62-2R, 63-3R, 63a, 63b, 63c-R, 63d-2R, 65-2R, 66-3R, 67-4R, 68-3R, 69-2R.
Part IV	72-R, 73-3R, 74-2R.
Part V	78-R.
Part VI	81-R, 82-2R, 83-R, 84-4R, 85-R.
Part VIII	88-R, 89-R.
Part X	96-R, 97-R, 98-R, 99-R, 100-R, 101-2R, 102-R, 103-R, 104-R, 105-R, 106-R, 107-R, 108-R, 109-R, 110-R, 111-R, 112-R, 113-R, 114-R, 114a, 114b, 114c, 114d, 114e.

Part X has been amended by the following:

Circular Letter No. 65-43	"Designator for Fixed Level Data in Radiosonde Teletype Transmission."
Circular Letter No. 78-43	"Amendments to 1943 Radiosonde Code."
Circular Letter No. 95-43	"Amendment to 1943 Raob Code."
Circular Letter No. 33-44	"Amendment to 1943 Radiosonde Code."
Circular Letter No. 41-44	"Amendment to 1943 Raob Code."
Circular Letter No. 51-44	"Transmission of Corrected Raob Data."
Circular Letter No. 86-44	"Amendment to 1943 Radiosonde Code: Isentropic Data."

(over)

Section III - Forecasts and Analyses

This section has been superseded by the following:

Multiple Address Letter 10/13/42 (To Forecast Centers Only)	"Airway Forecasts."
Multiple Address Letter 11/26/42 (To Forecast Centers Only)	"Airway Forecasts."
Circular Letter No. 151-42	"Changes in Airway Forecast Service."
Circular Letter No. 164-42	"Changes in Airway Forecast Service."
Circular Letter No. 4-43	"Transmission of Airway Terminal Forecasts on Schedule A Teletype Circuits."
Circular Letter No. 63-43	"Instructions for the Preparation and Issuance of Airway Terminal Forecasts."
Circular Letter No. 75-43	"Revised Assignment for Preparation of Airway Terminal Forecasts."
W.B. No. 1345 (Effective 9/1/44)	"Code for Weather Analysis Transmissions."

An amendment to cover Section III is now being prepared.

Section IV - Instruments

Part I 160-R, 161-R, 162-R, 162a, 162b, 174-R, 174a.

Weather Bureau stations may obtain copies of any of these pages from their Regional Offices; other recipients may obtain them from the Chief, U. S. Weather Bureau, Washington 25, D. C.

CEILING (when other than "unlimited").

SKY (except when precipitation or obstructions to vision reduce the ceiling to zero and/or the visibility to less than 1/4 mile and make the sky unobservable).

VISIBILITY (when less than 10 miles).

WEATHER (when such conditions are present).

OBSTRUCTIONS TO VISION (when such conditions are present).

SEA LEVEL BAROMETRIC PRESSURE (millibars, when station is equipped with approved mercurial barometer).

TEMPERATURE (° F. when station is equipped with an approved thermometer).

DEW POINT (° F. when station is equipped with an approved psychrometer).

WIND DIRECTION, VELOCITY, and CHARACTER (to be estimated when station is not equipped with wind-measuring instruments).

ALTIMETER SETTING (inches, when station is equipped with approved mercurial barometer).

REMARKS (pertinent information not contained elsewhere in the report).

(b) Check observation.—A comparison by actual observation of the present existing values of ceiling, sky, visibility, weather, obstructions to vision, wind, and altimeter setting with those currently reported and in use; made at designated times between the hourly "record" observations, in conformity with the Civil Aeronautics Administration schedule of local broadcasts, to determine whether there has been any change in these elements and to bring the data up to date. If no change has occurred, the current observation will continue to be used in broadcasts with the time designated as that of the "check" observation. If the "check" observation indicates that conditions have changed, but not enough to warrant a designation of "special" observation, then these changed values will be used in place of those given in the current report in subsequent broadcasts until the next "record," or "special" observation. If conditions have changed enough to warrant a "special" observation, the observation will be so designated when entered on WB Form 1130, when broadcast locally, and/or transmitted by teletype or radio. Whether change has occurred or not, such observations will be entered separately on WB Form 1130 (as specifically prescribed further on in these instructions).

(c) Special observations.—(See pars. 2-120 and 2-174 for examples.)—An observation taken when there is a marked change in weather conditions (as defined in par. 2-105) from those reported in the previous "record" or "special" observation. Except as indicated in (1), (2) or (3), below, the special report will include the following elements: classification (at controlled airports), ceiling, sky, visibility, weather, obstructions to vision, and remarks (if pertinent).

1. Wind or altimeter setting may be included if a change in either requires filing a special under the rules for that element.

2. In the interest of making a prompt report the phenomena outlined in par. 2-105 (f), (h) and (i) may be reported without other elements.

3. If the change requiring the special occurs at the time of a record observation, it will for all purposes be designated as a "special" but must contain all the elements included in a record observation.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

CHAPTER IV

TIME AND DISTRIBUTION OF OBSERVATIONS

2-104. GENERAL.—Observations at hourly reporting stations will be taken and distributed in accordance with the following instructions (see also Chapters III, V, VI, X, XII):

(a) Record observation.—One record observation will be taken each hour. This will be used in the collection sequence, and started just sufficiently in advance of the filing time to permit of accurate evaluation of all the elements in the observation.

(b) Observations required at stations having broadcast facilities.—Stations having broadcast facilities will take record, special, check, and in certain cases (see par. 2-103(d)) local extra, observations. The observations used in sequences and broadcasts must be the most recent and have been taken within the preceding 15 minutes. However, this requirement is waived when the observer is taking a pilot balloon observation and a check observation is required for broadcast purposes. Under these circumstances the assumption will be that, in the absence of a special observation, there have been no significant changes in weather and the latest observation filed with Civil Aeronautics Administration may therefore be used for broadcast purposes. Special and local extra observations will be taken as required in pars. 2-103(c) and (d), and 2-105.

(c) Observations required at stations not having broadcast facilities.—Record and special observations only are required at these stations.

(d) Distribution of observations by local interphone.—All types of airway observations will be transmitted promptly to Airway Traffic Control towers having interphone communication (or equivalent) with the Weather Bureau offices. The provisions of this paragraph will be taken to qualify instructions elsewhere in this manual dealing with distribution of observations.

CHAPTER V

RULES FOR TAKING AND FILING SPECIAL OBSERVATIONS

2-105. The foregoing will not eliminate the necessity for maintaining a constant watch of conditions so that special observations may be filed when required by changed conditions. A special observation will be taken and filed without fail at all hourly weather-reporting stations whenever the following changes, or combinations of them, occur:

(a) Special observations required in connection with changes in classification of reports.—At stations in control zones, whenever the weather changes so as to result in a changed classification from that last reported.

(b) Special observations required in connection with precipitation.—Precipitation begins or ends, indicating a change from a period of no precipitation to one with continuous or intermittent precipitation, and vice versa. Under showery conditions it

(h) Special observations required in connection with wind.—Sudden and definite marked increase in wind velocity—a doubling of velocity when the increases are to velocities exceeding 30 miles an hour; marked shift in the wind direction, particularly from east or south to west or north, accompanied by an increase in velocity.

(i) Special observations required in connection with altimeter setting.—A change in altimeter setting, as shown by a change in station pressure, since the previous record or special observation at the rate of 0.08 inch (2.7 mbs.) or more per hour. Special observations due exclusively to rapid changes in pressure as specified above will be filed at 15-minute intervals as long as this rate of change persists. (See par. 2-403 for reporting barogram "V".)

(j) Special observations required but not specifically covered by instructions.—The foregoing will not, of course, cover all conditions under which a special observation should be filed and this is left to the judgment of the observer as to whether it should be done when conditions not specifically covered in the foregoing occur. The intention is that any change of importance to the safety of air traffic will be reported as soon as it occurs.

CHAPTER VI

INSTRUCTIONS GOVERNING "TIME OF OBSERVATION"

As specified below, the time of an observation will be the actual time of the last moment in which it would be possible for the observer to make a change or correction to the observation recorded on Form 1130B. It will be the observer's responsibility to make a last minute check of the visual elements of the observation so that the weather at filing time is accurately expressed in that observation.

2-106. The time of observation will be determined as follows:

(a) Time to be ascribed to record observations.—The time given to a record observation will be the time of filing with the CAA communication station and should be as close as practicable to, but not after, 28 minutes past the hour. At stations where observations are taken and transmitted by the same person, the time of filing will be considered to be the time of making the last entry on Form 1130B. Any changes in the weather requiring a special observation and occurring between the time of filing of the record observation and its entry in the sequence will be noted in a "special" to be filed as soon as possible.

(b) Time to be ascribed to special observations.—The time given to a special observation will be the time of first filing, either by interphone (ATC or local) with the CAA communication station, or making the last entry on Form 1130B (to be used only at stations where observations are taken and transmitted by the same person and where no other dissemination of specials is made).

(c) Time to be ascribed to local extra observations.—The time given to a local extra observation will be the time of filing on the interphone (ATC or local—if such dissemination is made); otherwise, it will be the time of making the last entry on Form 1130B.

(d) Time to be ascribed to check observations.—The time given to a check observation will be the time of making the last entry on Form 1130B.

(e) Basis and standard of time to be used.—The time ascribed to observations will be on the 24-hour-clock system, local standard time.* For example, 1:28 a.m. E.S.T., would be 0128E; 3:28 p.m., C.S.T., would be 1528C; 11:28 p.m., P.S.T., would be 2328P, etc.* "0000" will be beginning of the day and in no case will "2400" be used.

(f) Time to be ascribed to reports sent by telephone or telegraph.—At points from which observations are telephoned or telegraphed to another point to be placed in the sequences, the time of observation will be the time of filing the message.

---

*War-time is being used for the duration.

forms for the purpose of avoiding the taking of observations at the regular times are easily detected by comparison with surrounding station reports and when verified may occasion the immediate dismissal of the responsible observer.

CHAPTER XIII

TRANSMISSION OF AIRWAY WEATHER REPORTS

2-116. It is necessary, of course, that airway observations be transmitted from the station at which they are made to other points where the information is needed. At many points this is done by placing the observations on the teletype or radio circuits of the Civil Aeronautics Administration, while at others it is done by forwarding them by commercial telephone or telegraph, thus requiring different methods of composing the observations for transmission.

A. Instructions for the Transmission of Airway Weather Reports by Teletype and Radio:

2-117. In order to shorten transmissions of reports over the teletype and radio circuits as much as possible, there has been developed a system of symbolizing the observational data therein. This system is to be used invariably when reports are transmitted by teletype and radio, and all concerned should therefore be thoroughly familiar with the use and translation of the symbols. Symbols to be used for the various elements of an airway observation are as follows:

(a) Station designator. This is to be indicated by use of the proper group of two or three letters representing the station at which the report originated.

(b) Classification of report. This is to be indicated by use of one of the proper letters assigned for this purpose when conditions at a controlled airport in a controlled zone fall within the classification standards. No classifying letter is sent by stations not in controlled zones.

(c) Type of report. This is to be indicated by the letters "SPL" meaning "special observation" when such type of report is being transmitted. "Local extra observations," the transmission of which is limited to local teletype circuits, will be indicated on such circuits by "LCL."

(d) Time of report. This is to be indicated (in "special" and "local extra" observations only) by a group of six figures representing the day of the month and the time on the 24-hour clock followed without space or oblique by a letter representing the time zone in which the station rendering the report is located, e. g., "151354E" indicates 1:54 p.m., E.S.T.* on the 15th day of the month; "100022P" indicates 12:22 a.m., P.S.T.* on the 10th day of the month.

(e) Ceiling. 1. "Unlimited" ceiling is to be indicated by the absence of a symbol or figures for this element.

2. The height of the ceiling up to and including 9,750 feet above the station is to be indicated by figures representing the proper number of hundreds of feet which apply, e.g., "35" indicates 3,500; "8" indicates 800; "95" indicates 9,500, etc.

3. When the ceiling is zero, the figure naught (0) is to be used.

4. Ceiling heights will, except as noted in paragraph 2-117 (e)5, always be preceded by one of the following letters:

"M" for measured ceilings.	"B" for balloon ceilings.
"E" for estimated ceilings.	"P" for precipitation ceilings.
"W" for indefinite ceilings.	"A" for ceilings reported from aircraft.

5. When a ceiling measuring balloon is blown out of sight before reaching the clouds, a plus sign (+) will be entered in place of the ceiling classification letter, preceding the figures which represent the last observed height of the balloon. For example, "+14" would indicate that the ceiling is over 1,400 feet, this figure being the last observed height of the balloon.

*War-time is being used for the duration.

6. When the ceiling is below 2,000 feet and is changeable with respect to height, this may be indicated by entering the letter "V" immediately following the ceiling value. For example, "W5V---." For complete instructions in this connection see paragraph 2-134(i).

(f) Sky.—1. The sky condition, when observable, is to be indicated by the following symbols:

○ Clear.

◐ Scattered clouds.

◑ Broken clouds.

⊕ Overcast.

◐/ High scattered clouds.

◑/ High broken clouds.

⊕/ High overcast.

⊕/◑ High overcast, lower broken clouds.

⊕/◐ High overcast, lower scattered clouds.

◑/◑ High broken, lower broken clouds.

◑/◐ High broken, lower scattered clouds.

◐/◑ High scattered, lower broken clouds.

◐/◐ High scattered, lower scattered clouds.

⊕◑ Overcast, lower broken clouds.

⊕◐ Overcast, lower scattered clouds.

◑◑ Broken, lower broken clouds.

◑◐ Broken, lower scattered clouds.

◐◑ Scattered, lower broken clouds.

◐◐ Scattered, lower scattered clouds.

2. The plus (+) or minus (-) sign preceding cloudiness symbols will be used to indicate "dark" and "thin" respectively.

3. Whenever the "scattered clouds" symbol occurs as the last symbol in a sky condition report (the slant mark is considered as a symbol), whether used singly or in combination, the height of such scattered clouds is to be indicated by the insertion of the proper figure or figures preceding the symbol, without space or oblique.

4. When the sky condition cannot be determined due to the presence of heavy fog, heavy dust, heavy rain, heavy snow, etc., or any combinations of precipitation and obstructions to vision, no report of the sky condition, as such, will be made; that is, it will be omitted. The reason for omission in such cases will be apparent from the weather and/or obstructions to vision reported.

(g) Visibility.—1. Except in Alaskan reports, a visibility of 10 miles or more is to be indicated by the absence of a value for this element. If between 9 and 10 miles, the visibility is reported as 9 miles. When the visibility is omitted from the report this element is broadcast by Civil Aeronautics Administration radio operators as "visibility more than 9 miles" and should be so interpreted when reading airway weather reports. This interpretation in no way affects the rule that a visibility of more than 9 miles but less than 10 will be recorded as "9" in the report.

2. Visibilities from zero up to but not including 10 miles are to be indicated by the proper figures representing the values in miles and/or fractions thereof [as prescribed in paragraph 2-142(b)], e.g., "0" indicates a zero visibility; "1 1/4" indicates a visibility of 1 1/4 miles; "3" indicates a visibility of 3 miles, etc.

3. If the visibility is 2 miles or less and is changeable or fluctuating, this may be indicated by entry of the letter "V" immediately following the value. For example, "E6V⊕11/2V——" For complete instructions in this connection see subparagraph 2-142(e).

(h) Weather.—The "weather" element of the report is to be indicated, when appropriate, by the following symbols:

R-	Light rain.	AP-	Light small hail.
R	Moderate rain.	AP	Moderate small hail.
R+	Heavy rain.	AP+	Heavy small hail.
S-	Light snow.	SP-	Light snow pellets.
S	Moderate snow.	SP	Moderate snow pellets.
S+	Heavy snow.	SP+	Heavy snow pellets.
ZR-	Light freezing rain.	T	Thunderstorm.
ZR	Moderate freezing rain.	T+	Heavy thunderstorm.
ZR+	Heavy freezing rain.	SQ-	Light snow squall.
L-	Light drizzle.	SQ	Moderate snow squall.
L	Moderate drizzle.	SQ+	Heavy snow squall.
L+	Heavy drizzle.	RQ-	Light rain squall.
ZL-	Light freezing drizzle.	RQ	Moderate rain squall.
ZL	Moderate freezing drizzle.	RQ+	Heavy rain squall.
ZL+	Heavy freezing drizzle.	SW-	Light snow showers.
E-	Light sleet.	SW	Moderate snow showers.
E	Moderate sleet.	SW+	Heavy snow showers.
E+	Heavy sleet.	RW-	Light rain showers.
A-	Light hail.	RW	Moderate rain showers.
A	Moderate hail.	RW+	Heavy rain showers.
A+	Heavy hail.		
TORNADO (always to be written out in full).			

(Caution.—The symbols SP-, SP, and SP+ will never be interpreted as "sprinkling.")

(i) Obstructions to vision.—The "obstructions to vision" element of the reports is to be indicated, when appropriate, by the following symbols:

F- -	Damp haze.	BS-	Light blowing snow.
F-	Light fog.	BS	Moderate blowing snow.
F	Moderate fog.	BS+	Heavy blowing snow.
F+	Heavy fog.	GS-	Light drifting snow.
GF-	Light ground fog.	GS	Moderate drifting snow.
GF	Moderate ground fog.	GS+	Heavy drifting snow.
GF+	Heavy ground fog.	BD-	Light blowing dust.
H	Hazy. (Dry haze).	BD	Moderate blowing dust.
K-	Light smoke.	BD+	Heavy blowing dust.
K	Moderate smoke.	BN-	Light blowing sand.
K+	Heavy smoke.	BN	Moderate blowing sand.
D-	Light dust.	BN+	Heavy blowing sand.
D	Moderate dust.	IF-	Light ice fog.
D+	Heavy dust.	IF	Moderate ice fog.
		IF+	Heavy ice fog.

(j) Barometric pressure.—The barometric pressure is to be indicated by a group of three figures, the first two of which represent the tens and units of millibars and the last of which represents the tenths of a millibar involved. Thus, a pressure of 987.2 millibars would be sent as "872"; of 1001.5 as "015"; of 1000.0 as "000"; etc.

(k) Temperature.—This is to be indicated in figures giving its value to the nearest degree Fahrenheit.

(l) Dew point.—This is to be indicated in figures, giving its value to the nearest degree Fahrenheit. When sent, it follows the temperature and is separated therefrom by an oblique (slant mark).

Note.—Temperature below zero Fahrenheit is to be indicated by the entry of a minus sign (-) immediately preceding the figures for temperature and/or dew point.

(m) Wind.—The wind direction, velocity, and character (the latter when appropriate) are to be indicated as follows:

1. The wind direction is indicated by arrows, as follows:

↓	North	↑	South
↓↙	North-northeast	↑↗	South-southwest
↙	Northeast	↗	Southwest
←↙	East-northeast	→↗	West-southwest
←	East	→	West
←↖	East-southeast	→↘	West-northwest
↖	Southeast	↘	Northwest
↑↖	South-southeast	↓↘	North-northwest

2. The velocity is to be indicated by figures representing its value in miles per hour, "calm" being indicated by the letter "C". If estimated, this is to be indicated by the entry of the letter "E" immediately following the figures, without space or oblique.

3. The character of the wind is to be indicated, when appropriate, by entry of the following symbols immediately following the velocity, without space or oblique:

-Fresh gusts
+Strong gusts

4. Wind shifts are to be indicated by entry, immediately following the last element of the wind data of the report, of a direction arrow showing direction of wind prior to shift to 16 points of the compass, followed by the local time, the local time zone, and indication of intensity by entry of minus and plus signs for "light" and "heavy," respectively, and the symbols without the plus or minus sign for "moderate;" e.g., "↖1513E-," "↑0053P+," ↑↗ 1822M."

(n) Altimeter setting.—This is to be indicated by a group of three figures, the first of which will represent the inch and the last two will represent the number of hundredths of an inch of the pressure setting for sensitive altimeters. When sent, it follows the wind element of the report and is separated therefrom by a slant (/).

(o) Remarks.—Remarks will be entered by use of proper symbols and authorized abbreviations. When sent, remarks are separated from the preceding element by a slant (/). If the time of the phenomena reported in remarks differs from the time of the report (e.g., RAFRZ, PIREPS or time of lowest pressure in barogram "V"), a 4-figure time group (omitting day of month) with the appropriate letter designating time zone will be used to show the time that the phenomena were observed.

2-118. GROUPING OF SYMBOLS IN TELETYPE AND RADIO TRANSMISSIONS.—Transmission of the reports in symbols by teletype or radio shall be in the order shown below:

(a) STATION DESIGNATOR.
(One space.)
(b) CLASSIFICATION (1) one letter.
(One space.)
(c) TYPE OF REPORT (2).
(One space.)
(d) TIME OF REPORT (3).
(One space.)
(e) CEILING (4).
(f) SKY (5).
(g) VISIBILITY (6).
(h) WEATHER (7).
(i) OBSTRUCTIONS TO VISION (7).
(One space.)
} As one group.
(j) BAROMETRIC PRESSURE (8), (9).
(k) TEMPERATURE (9).
(l) DEW POINT (9).
(m) WIND AND WINDSHIFTS (10).
(n) ALTIMETER SETTING (8), (10).
(o) REMARKS in symbols and authorized abbreviations.
} As one group.

(1) Sent only by stations at controlled airports within controlled zones.

(2) "Type of report" given only in cases of "special" and "local extra" observations.

(3) "Time of report" given only in cases of "special" or "local extra" observations.

(4) The absence of a value for "ceiling" indicates that it is "unlimited".

(5) The absence of sky condition symbols indicates that the true condition of the sky is not observable owing to the presence of intense types of precipitation or obstructions to vision.

(6) The absence of a value for visibility indicates that this is 10 miles or more.

(7) The absence of an entry for "weather" or "obstructions to vision" indicates that phenomena classified as such are not occurring.

(8) Sent only from stations equipped with mercurial barometers.

(9) Not included in abbreviated special report.

(10) Included in special report only if change in this element requires a special.

2-119. REPORTING MISSING ELEMENTS.—Elements normally sent, but for some reason missing from the teletype or radio transmission, will be indicated by the letter "M" entered in the report in place of the missing data. Stations regularly not reporting certain elements will omit these, the order of the report being kept the same. For example, if the dew point is not sent, the temperature will be followed by the wind, etc.

2-120. EXAMPLES.—The following examples indicate the manner in which observations are placed in the symbol form for transmission by teletype. Letters in the left column correspond to those given to the various elements above:

Example 1, Special Observation

Element	Teletype symbol	Translation
(a)--------	CG	Chicago, Illinois
(b)--------	N	Instrument
(c)--------	SPL	Special report
(d)--------	031612C	4:12 p.m., C.S.T.* on the 3d
(e)--------	P3	Precipitation 300 feet
(f)--------	⊕	Overcast
(g)--------	1/2	1/2 mile
(h)--------	S	Moderate snow
(i)--------	----------	None, except the snow
(o)--------	SNW+ OCNLY	Snow occasionally heavy

Written on teletype thus: CG N SPL 031612C P3⊕1/2S/SNW+ OCNLY

Example 2, Special Observation

Element	Teletype symbol	Translation
(a)--------	CV	Cleveland, Ohio
(b)--------	N	Instrument
(c)--------	SPL	Special report
(d)--------	030020E	12:20 a.m., E.S.T.* on the 3d
(e)--------	P2	Precipitation 200 feet
(f)--------	⊕	Overcast
(g)--------	1/4	1/4 mile
(h)--------	T+A+RW+	Heavy thunderstorm, heavy hail, heavy rain showers
(i)--------	----------	None, except precipitation
(m)--------	→30+↖0015E	West 30 miles per hour, strong gusts, moderate wind shift from southeast at 12:15 a.m., E.S.T.*
(n)--------	950	29.50 inches
(o)--------	T OVHD MOVG EWD FQT LTNG CLD TO GND	Thunderstorm overhead, moving eastward; frequent lightning cloud to ground

Written on teletype thus: CV N SPL 030020E P2⊕1/4T+A+RW+ →30+↖0015E/950/T OVHD MOVG EWD FQT LTNG CLD TO GND

* War Time is being used for the duration.

(e) Any element ordinarily included in reports from a particular station, but which cannot be determined for use in a particular report because of broken or defective instruments or other causes, will be indicated by the word "missing" being inserted at the proper point in the message.

(f) Stations regularly not reporting certain elements will omit these, the order of the report being kept the same. For example, if the dew point is not included, the temperature will be followed by the wind, etc.

2-123. EXAMPLES OF TELEGRAPHED REPORTS. For example, the following reports would be telegraphed as indicated:

(a) Precipitation ceiling 200 feet; sky overcast; visibility 1/2 miles; heavy thunderstorm; heavy hail; heavy rain; barometric pressure 999.1 millibars; temperature 75; dew point 73; wind west, 30 miles per hour, strong gusts; moderate southeast wind shift at 12:15 a.m., E.S.T.*; thunderstorm moving east.

Sent as—

Precipitation 200 overcast 1/2 heavy thunderstorm heavy hail heavy rain 9991 7573 west 30 strong gusts moderate southeast wind shift 0015 Eastern Standard thunderstorm moving east.

(b) Ceiling unlimited; clear; visibility 1/8 mile ; heavy ground fog; barometric pressure 1020.4 millibars; temperature 69; dew point 69; wind calm.

Sent as—

Clear 1/8 heavy ground fog 10204 6969 calm.

(c) Classification, airport below contact flight minimums; indefinite 400 feet; sky overcast, lower scattered clouds at 200 feet; visibility 1 1/2 miles; light freezing rain; light fog; barometric pressure 1002.2 millibars; temperature 31; dew point 31; wind east, 12 miles per hour; altimeter setting 29.60.

Sent as—

Instrument indefinite 400 overcast lower scattered 200 1 1/2 light freezing rain light fog 10022 3131 east 12 2960.

(d) Ceiling estimated 5,000 feet; sky overcast, lower broken clouds; visibility 4 miles; light rain; light smoke; barometric pressure 1018.3 millibars; temperature 62; dew point 50; wind west northwest, 8 miles per hour; overcast estimated at 9,000 feet.

Sent as—

Estimated 5000 overcast lower broken 4 light rain light smoke 10183 6250 west northwest 8 overcast estimated 9000.

2-124. TELEPHONE. When reports are telephoned to telegraph offices they will be telephoned in exactly the same form as outlined above, so that the body of the telegram will be as prescribed. When, however, they are telephoned direct to some terminal or station for use there, they will be given in the proper order of elements with inclusion of the specific names of elements as may be required for making the report clear to the one receiving it. No specific rules for doing this can be cited here, it only being necessary that the receiver of the report clearly understand it. There should be no difficulty in the two people concerned arranging a proper system for accomplishing this.

CHAPTER XIV

ABBREVIATIONS FOR USE IN METEOROLOGICAL TRANSMISSIONS BY RADIO AND TELETYPE

2-125. Lists of abbreviations authorized to be used in all transmissions by teletype and/or radio of forecasts, summaries, "remarks" in sequence and special reports, etc., are issued by the Civil Aeronautics Administration. Such lists will be strictly adhered to by all personnel making meteorological transmissions by teletype or radio.

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*War-time is being used for the duration.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

CHAPTER XV

OBSERVING AND REPORTING ELEMENTS OF AIRWAY WEATHER OBSERVATIONS

2-126. Instructions for observing and reporting each element follow in detail.

XV (A) Classification

2-127. CIVIL AIR REGULATIONS REQUIRING CLASSIFICATION.

CAR "60.145 Weather minimums. Weather minimums are ceiling, visibility, and other minimums provided for specified types of flight operation, and below which flight operation is not permitted, unless specifically authorized elsewhere in these regulations or by the Administrator.

"Note: The local United States Weather Bureau reporting station for each control airport will classify existing weather conditions for such airport by one of the following symbols:

Class C—Contact: Weather equal to or better than the minimums specified for the particular airport for flight in accordance with contact flight rules.

Class N—Instrument: Weather less than the minimums specified for the particular airport for flight in accordance with contact rules. Requiring observance of instrument flight rules, unless flight in accordance with contact flight rules has been authorized as provided for in paragraphs 60.440 and 60.441."

CAR "60.44 Weather minimums. The following weather minimums shall govern flight made in accordance with contact flight rules: Provided, however, That an airway traffic control center of the Administrator may for reasons of safety restrict or suspend contact flight operation within the airway traffic control area of such center: Provided, further, That in the interests of safety the Administrator may require higher minimums at any particular control airport, and that such minimums shall govern the control zone in which such control airport lies."

CAR "60.440 Within control zones. Aircraft shall not be flown within a control zone unless the ceiling is at least 1,000 feet and the visibility is at least 3 miles: Provided, however, That a certificated air-traffic control-tower operator on duty in a radio-equipped airport control tower may authorize flight at altitudes of 1,000 feet or less above the ground or water when the visibility is less than 3 miles but not less than 1 mile: And provided further, That such operator may suspend contact flight operation within the control zone when reasons of safety require such actions."

CAR "60.103 Control zone. A control zone is the airspace above that area on the surface of the earth within 3 miles of the center of an airport designated by the Administrator as a control airport, and within one-half mile of a line extending from the center of such airport to the radio range station established for the purpose of directing air traffic to such airport."

CAR "60.21 Control airports. The Administrator, in the interest of safety, and after finding it necessary for the proper control of air traffic may designate as a control airport any airport in the United States."

2-128. Prescribed Minimums and Rules for Classification. (a) Stations designated in accordance with CAR 60.21 will classify weather reports as follows:

Class C—Contact.—Within control zones (day or night):

Ceiling—1,000 feet or more. Visibility—3 miles or more.	Except where the Administrator shall require higher minimums in accordance with CAR 60.44

Class N—Instrument.—Within control zones (day or night): Below Class C minimums.

(b) If either the ceiling or visibility falls below the minimum for Class C described above, the weather report will be given classification N. For example, within control zone, ceiling 600, visibility 4 miles, Class N instead of Class C.

(c) Weather conditions will be classified at the time the observations are made. The letter "C" or "N", denoting such classification will be entered on WB Form 1130B in the proper column.

(d) The symbols C and N will be used for classifying weather conditions in teletype or radio transmissions, such symbols corresponding to class "C" and "N" of weather conditions. These symbols will be entered immediately following the station designator, separated therefrom and from following entries by one space, thus:

WA N SPL 091315E W3@1/2R-F

(e) The importance of properly classifying weather conditions cannot be overemphasized. Pilots on the ground or in flight, and air-line companies, will depend upon and be guided by the classification of weather conditions and will make flight plans and dispatch planes accordingly, or may need to change or alter plans already made if the classification in airway weather sequences changes. Airway weather observing personnel must, therefore, become thoroughly familiar with the classifications of weather conditions outlined above and also with weather conditions minima as set for the particular airport station at which they are employed. It is the responsibility of personnel giving out weather reports orally to pilots and others to make certain that the classification of the report or reports is distinctly and clearly given and that there is no misunderstanding on the part of the inquirer which may lead to later confusion or difficulty.

2-129. LIST OF CONTROLLED AIRPORTS. A list of airway weather-reporting stations at controlled airports within controlled zones has already been issued, and as this list may be changed from time to time, stations concerned will be advised accordingly.

2-130. STATIONS WHICH ARE TO CLASSIFY REPORTS. It should be remembered that only airway weather-reporting stations within control zones are required to classify their weather reports, and further, that the inclusion of the symbol C or N automatically indicates that the report is from a controlled airport.

conditions outlined above and also with weather conditions minima as set for the particular airport station at which they are employed. It is the responsibility of personnel giving out weather reports orally to pilots and others to make certain that the classification of the report or reports is distinctly and clearly given and that there is no misunderstanding on the part of the inquirer which may lead to later confusion or difficulty.

2-129. LIST OF CONTROLLED AIRPORTS. A list of airway weather-reporting stations at controlled airports within controlled zones has already been issued, and as this list may be changed from time to time, stations concerned will be advised accordingly.

2-130. STATIONS WHICH ARE TO CLASSIFY REPORTS. It should be remembered that only airway weather-reporting stations within control zones are required to classify their weather reports, and further, that the inclusion of the symbol C or N automatically indicates that the report is from a controlled airport.

XV (B) CEILING

2-131. CEILING. CEILING IS THE HEIGHT ABOVE GROUND OF THE LOWEST CLOUDS REPORTED AS BROKEN OR OVERCAST. In other words, ceiling is the lowest height above ground at which all clouds at and below that level cover more than 1/2 of the sky.

(a) Unlimited Ceiling. The ceiling will be reported as "unlimited" whenever (1) no broken or overcast layer is reported; or (2) the base of the lowest reported broken or overcast layer is higher than 9,750 feet above ground. See paragraph 2-134(d).

(b) Zero Ceiling. The ceiling will be reported as "zero" whenever (1) precipitation and/or obstructions to vision prevent observation of the sky and reduce the visibility to less than 1/4 mile; or (2) the base of a broken or overcast layer is 50 feet or less above ground. See paragraph 2-134(g).

(c) Estimated Ceiling. The ceiling height will be preceded by an "E" whenever instrumental measurement of the ceiling height is not practicable.

(d) Measured Ceiling. The ceiling height will be preceded by an "M" under the following conditions:

1. Whenever the ceiling projector spot is sharply defined. If the spot fluctuates between cloud layers, the ceiling should be reported as "W". An intervening smoke or haze layer will sometimes cause a brightening of the beam some distance below the "ceiling" spot. Such a condition will be noted in remarks as, for example: "K LYR 200", etc. Care should be taken to determine whether this brightening of the beam is caused by smoke or haze, or by a very thin cloud layer.

2. Whenever the ceiling height can be determined from the known heights of unobscured portions of towers, buildings, etc., within 1 1/2 miles of the station.

(e) Balloon Ceiling. The ceiling height will be preceded by a "B" whenever the balloon disappears abruptly into the cloud base. If the balloon disappears slowly from view, or the cloud base is not clearly defined, the ceiling will not be considered as a balloon ceiling. If the balloon is blown out of sight before reaching the cloud base, a plus sign (+) will be entered (instead of a ceiling classification letter) preceding the figures which represent the last observed height of the balloon. See paragraph 2-117(e).

The subparagraph headings (e), (f), and (g) immediately following on page 28a-R should be changed to (f), (g), and (h).

(b) Use of ceiling-measuring instruments. Wherever available, ceiling-measuring instruments (ceiling projector or ceilometer) will be used if clouds are present unless the observer believes he cannot obtain a cloud height measurement within a reasonable time.

(c) Use of ceiling balloons. Stations equipped with ceiling balloons but not with ceilometers will use the former during daylight hours, provided the clouds are not broken or scattered and moderate or heavy precipitation is not occurring. The frequency of their use will be governed by the following:

Hourly reporting stations. 1. At the discretion of the observer when the ceiling is estimated to be over 2,000 feet, but in no case more frequently than every two hours.

2. At hourly intervals or more frequently beginning with an observation showing a ceiling of 2,000 feet or less and continuing until an observation shows that the ceiling has risen above 2,000 feet.

3. At stations taking local extra observations, at half-hour intervals, or more frequently if necessary to maintain an accurate check on the ceiling, beginning with an observation showing a ceiling of less than 600 feet and continuing until the ceiling rises to 600 feet or more.

Other than hourly reporting stations. 1. At each observation forwarded when the ceiling is estimated to be less than 3,000 feet. Should the occasion arise where at certain periods observations are filed at such frequent intervals that time will not permit the use of a ceiling balloon for each observation, the rules for "hourly reporting stations" above will govern the frequency of use.

(d) Use of ceiling-measuring objects. The unobscured portions of towers, buildings, or other tall objects (excluding land elevations which are to be used only for estimating ceilings) may be used to determine a measured ceiling when such objects are within 1 1/2-mile radius of the station and the object is of such nature that the height of portions can readily be determined. Accordingly, each station shall prepare and maintain a table (separate to the one required under par. 2-132 above) of such objects, within a radius of 1 1/2 miles of the station, suitable for measuring the ceiling.

(e) Ceiling values to be reported. The ceiling height to the nearest 100 feet up to 5,000 feet and above that to the nearest 500 feet up to 9,751 feet above the station will be reported when the total cloudiness below 9,751 feet above the station covers over five-tenths of the sky.

(f) Reporting height of scattered clouds.—If the "sky" condition is given as "scattered clouds," or if the last part of a combination "sky" condition term is given as "lower scattered clouds," the height of this stratum shall be indicated to the nearest 100 feet up to 5,000 feet and above that to the nearest 500 feet up to 9,751 feet above the station, immediately following the term in telegraphed reports and immediately preceding the "scattered clouds" symbol in reports transmitted by teletype. For example, (1) as telegraphed "high broken, lower scattered 1400;" "scattered, lower scattered 2,000;" "scattered clouds 300;" (2) as transmitted by teletype, "Ⓓ/14Ⓞ," "Ⓞ20Ⓓ," "3Ⓓ." It will be noted that this rule does not apply to "high scattered clouds" nor to "scattered clouds" forming the first part of a combination term. It is obvious that the height given in these cases almost always will be estimated, but indication of this need not be made.

2-143. INSTRUCTIONS FOR OBSERVING AND REPORTING VISIBILITY.—Specific Instructions for observing and reporting visibility follow:

*(a) Point of observations.—All observations will be taken from a point where a view of the entire horizon may be had; or, if this is not practicable, the observer will move about in such manner as to obtain a view of the horizon in all directions. This observation point should be on the ground, if at all practicable; otherwise, at the lowest point above the surface at which a satisfactory observation can be made.

(b) Visibility values to be reported.—After viewing the horizon in all directions, if it is decided that the prevailing visibility is 10 miles or more, a value will not be entered on retained WB Form 1130 nor included in the report as transmitted. If, however, the prevailing visibility is adjudged to be less than 10 miles, it will be reported to the nearest whole mile and/or fraction of miles, as follows:

0, 1/16, 1/8, 3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2-1/2, 3, 4, 5, 6, 7, 8, 9, except that if the visibility exceeds 9-1/2 miles but is less than 10 miles, it will be reported as 9 miles. If the visibility falls half way between two of the above values, the lower will be used.

Exception. Alaskan stations will report visibility to the nearest of the following values: 0, 1/16, 1/8, 3/16, 1/4, 5/16, 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2, 1 3/4, 2, 2 1/4, 2 1/2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 20, 25, 30, 35, 40, 45, 50, etc. If the visibility is adjudged to be half-way between two of the above values, the lower will be used.

(c) Reporting greater or less than prevailing visibility in specified directions.—1. If the prevailing visibility is 3 miles or more and the visibility toward one or two quarters (quadrants) of the horizon is twice or more, or half or less of the prevailing visibility, a remark to indicate this will be made giving the direction(s) from the station, and if necessary to completely explain the conditions, the cause thereof.

2. If the prevailing visibility is less than 3 miles and the visibility toward any one-quarter of the horizon is DIFFERENT from this prevailing visibility, a remark giving the visibility in EACH of the four cardinal directions or EACH of the four intermediate directions (NE, SE, SW, NW) will be included in the report. For example, assuming the visibility by quadrants to be 2 miles north, 1 1/2 miles east, 3/4 miles south and 1 1/2 miles west, the prevailing visibility would be 1 1/2 miles and the following remark would be added to the report: "VSBY N2E1 1/2S3/4W1 1/2". If the differing visibility can best be indicated in the "visibility by directions" group by use of the four intermediate directions, NE, SE, SW, and NW, these will be used and in such cases the cardinal directions will be omitted; for example, "VSBY NE3SE2 1/4SW2NW2", etc.

(d) Reporting estimated visibility.—If the actual visibility is evidently much greater than the distance of the farthest visible object, and such object is less than 10 miles distant from the observer, an estimate of the value will be made, based on the transparency of the atmosphere between the observer and the object. If, then, the estimated value is 10 miles or more, no value for the visibility will be included in the report; but if less than 10 miles, it will be reported to the nearest whole mile and/or fraction thereof. The letter "E" or the word "estimated" will not be used in the transmitted reports to show that the value is estimated.

Exception. Reporting estimated visibility in Alaska. If the actual visibility is evidently much greater than the distance to the farthest visible object, and such object is less than 15 miles distant from the observer, an estimate of the value will be made, based on the transparency of the atmosphere between the observer and the object. If, then, the estimated value is greater than 15 miles, it will be reported "fifteen miles plus" (15+); and if 15 miles or less, it will be reported in whole miles. The letter "E" or the word "Estimated" will not be used in the transmitted report to show that the value is estimated. If the farthest visible object

* The provisions of this paragraph are modified at those stations participating in the Control Tower visibility program.

is more than 15 miles distant, its distance to the nearest five miles without the plus sign will be given as the visibility, even though it is known that the visibility is greater than this distance.

(e) Reporting fluctuating visibility.—1. If the prevailing visibility is 2 miles or less and is changing or fluctuating rapidly, this will be indicated in reports sent by teletype or radio by entry of the letter "V" immediately following the visibility value and by giving the range of variability in "Remarks" in each case. For example, if the prevailing visibility is 1 1/2 miles but fluctuating rapidly between 1 and 2 miles, "11/2V" would be given in the visibility position of the report and "VSBY VRBL 1 to 2" would be added as a remark. Stations reporting by telephone or telegraph will indicate a variable visibility by use of the word "variable" following the visibility value and by giving the range of variability in "Remarks".

2. When the prevailing visibility is more than 2 miles and is fluctuating rapidly, this will be indicated by giving the range of variability in "Remarks" and omitting the "V" following the visibility value.

3. When the visibility is changing slowly enough so that time will permit each change to be reported by a special observation, the individual changes will be covered by "Specials" whenever the rules governing special observations given in Chapter V, Page 15, require the filing of a "Special".

2-143. IMPORTANCE OF ACCURATE OBSERVATIONS OF VISIBILITY.—In view of the importance of accurate information concerning visibility to the safety of flying, it is again impressed upon the observer that his observations of this element should be made with extreme care, particularly when the visibility is 3 miles or less.

XV (E)—WEATHER

2-144. DEFINITION AND IMPORTANCE OF "WEATHER".—In the meaning of these instructions, THE "WEATHER" ELEMENT OF AN AIRWAY OBSERVATION CONSISTS OF THOSE PHENOMENA OCCURRING IN CONNECTION WITH ACTIVE OR IMMINENT PRECIPITATION OR METEOROLOGICAL DISTURBANCES OF MORE OR LESS LOCALIZED EXTENT AND EFFECT. Therefore, the reporting of this element will include the occurrence of all rain, snow, sleet, hail, freezing rain, etc., and all thunderstorms, squalls, tornadoes, etc., observed at or from a particular station. Reports of the occurrence of the phenomena treated in this section are of importance to the pilot in order that he may be prepared for the lowering of visibility, accumulations of ice, rough air, etc., which may result. Observations of these phenomena are made visually without the aid of instruments, except where wind velocities are involved as a measure of intensity of the phenomenon in question, in which cases an anemometer is used.

c. Four figure time group followed immediately by E, C, M, or P to indicate time zone.
d. PIREPS.
e. Information on icing conditions, aircraft experiencing electrical discharge or lightning stroke, turbulence, upper air winds over 60 MPH, or tops of overcast.

(a) Examples:—The following are examples of SPL PIREPS as transmitted (for instructions relative to coding see paragraph 2-173 below):

FV SPL 091711C PIREPS ICG- 15-75 N FV 55-80 MSL

AZ SPL 091638E PIREPS DISCHARGE 10 N AZ 35 MSL

BU SPL 091313P PIREPS TURBC- OVR MTNS N

BI SPL 091458M PIREPS WND 315 95 W RK 65 MSL

NT SPL 090441C PIREPS TOVC 85 MSL

CV SPL 090850E PIREPS TOVC 80 MSL CIR ABV TURBC- ALG LAKE

(b) Recording of SPL PIREPS on WB Form 1130B.—A SPL PIREPS will be recorded on WB Form 1130B after the last observation or SPL PIREPS in the following manner:

a. Enter "S" in the column for type of report.
b. Enter filing time (24-hour clock) in column for time.
c. Enter "PIREPS - - - - - - - " in remarks column.
d. Enter initials in proper column.

2-173. CODING OF PILOTS' REPORTS FOR TRANSMISSION.—It is not practicable to give detailed coding instructions to cover all meteorological phenomena that may be reported by pilots; however, instructions for coding phenomena which may be sent as SPL PIREPS are given below and these may be used as guides for coding other phenomena. In this latter connection, reports on meteorological data for which explicit instructions are not contained herein will not be monitored for coding other than that data should be given in a clear and concise manner and authorized abbreviations and symbols used where possible. Pilots' reports should be preceded by the authorized phrase contraction "PIREPS", and figures for heights should always be followed by "MSL" when representing altitudes above mean sea level.

(I) ICING CONDITIONS*

A uniform terminology on degrees of icing has been adopted by the Air Transport Association of America and approved by the C. A. A. and Weather Bureau. The definitions are given here for the information of all concerned.

"Trace of Ice.—An ice accumulation of no consequence, which does not affect the performance of the aircraft but should be reported by air carrier pilots for meteorological purposes.

"Light Ice.—An icing condition which can be handled safely by the normal functioning of the airplane's de-icing equipment. On encountering light ice, it is assumed that the airplane can be flown indefinitely provided the de-icing equipment is used.

"Moderate Ice.—An icing condition which de-icing equipment will safely handle but which for practical flight purposes can be considered the signal to the pilot that it is time to alter the flight plan so as to avoid cruising in that condition.

*Applies to "airfoil" icing only, and not to "carburetor" icing.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

Example No. 3, local extra observation

Element	Teletype symbol	Translation
(a)--------	TL	Toledo, Ohio.
(b)--------	N	Below contact flight minimums.
(c)--------	LCL	Local extra observation.
(d)--------	151215E	12:15 p. m., E. S. T.* on the 15th.
(e)--------	P7	Precipitation ceiling 700 feet.
(f)--------	⊕2Ⓓ	Overcast, lower scattered clouds at 200 feet.
(g)--------	1/2	1/2 mile.
(h)--------	SW3Q	Moderate snow showers, moderate snow squalls.

Written thus on local teletype circuit: TL N LCL 151215E P7⊕2Ⓓ1/2SWSQ

Example No. 4, record observation

Element	Teletype symbol	Translation
(a)--------	PS	Memphis, Tenn.
(b)--------	C	Satisfactory for contact flight.
(c)--------	----------	"Record" observation, no "type of report" or "time of report" required.
(d)--------	----------	
(e)--------	M12	Measured 1200 feet.
(f)--------	Ⓓ	Broken clouds.
(g)--------	8	8 miles.
(h)--------	SW-	Light snow showers.
(i)--------	----------	None.
(j)--------	152	1015.2 millibars.
(k)--------	25	25° F.
(l)--------	19	19° F.
(m)--------	→↘20+	West northwest 20 miles per hour, strong gusts.
(n)--------	997	29.97 inches.
(o)--------	----------	None.

Written thus on teletype: PS C M12Ⓓ8SW- 152/25/19→↘20+/997

Sent thus as body of telegram: CONTACT MEASURED 1200 BROKEN 8 LIGHT SNOW SHOWERS 10152 2519 WEST NORTHWEST 20 STRONG GUSTS 2997

*War Time is being used for the duration.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

Example No. 5, special observation

Element	Teletype symbol	Translation
(a)--------	CG	Chicago, Illinois.
(b)--------	N	Below contact flight minimums.
(c)--------	SPL	Special observation.
(d)--------	160312C	3:12 a. m. C. S. T.* on the 16th.
(e)--------	PO	Precipitation zero.
(f)--------	----------	Omitted, actual sky condition not observable due to heavy snow.
(g)--------	1/8	1/8 mile.
(h)--------	S+	Heavy snow.
(i)--------	----------	None, other than snow.
(m)--------	↘40+↑0308C+	Northwest 40 miles per hour, strong gusts, heavy wind shift from south at 3:08 a. m.
(o)--------	----------	None

Written thus on teletype: CG N SPL 160312C PO1/8S+ ↘40+↑0308C+

Sent thus as body of telegram: INSTRUMENT SPECIAL PRECIPITATION 01/8 HEAVY SNOW NORTHWEST 40 STRONG GUSTS HEAVY SOUTH WIND SHIFT 0308 CENTRAL

Example No. 6, record observation

Element	Teletype symbol	Translation
(a)--------	JM	Jamestown, N. Dak.
(b)--------	----------	Not a controlled airport.
(c)--------	----------	Regular observation.
(d)--------	----------	No time required.
(e)--------	----------	Unlimited.
(f)--------	10D	Scattered clouds at 1,000 feet.
(g)--------	1/4	1/4 mile.
(h)--------	----------	None.
(i)--------	GS+	Heavy drifting snow.
(j)--------	193	1019.3 millibars.
(k)--------	12	12° F.
(l)--------	-2	-2° F.
(m)--------	→28+	West 28 miles per hour, strong gusts.
(n)--------	999	29.99 inches.
(o)--------	----------	None.

Written thus on teletype: JM 10D1/4GS+ 193/12/-2→28+/999

Sent thus as body of telegram: SCATTERED 1000 1/4 HEAVY DRIFTING SNOW 10193 12 MINUS 2 WEST 28 STRONG GUSTS 2999

*War Time is being used for the duration.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

Example No. 7, special observation

Element	Teletype symbol	Translation
(a)--------	WA	Washington, D. C.
(b)--------	N	Below contact flight minimums.
(c)--------	SPL	Special observation.
(d)--------	161122E	11:22 a. m., E. S. T.* on the 16th.
(e)--------	WO	Indefinite zero.
(f)--------	————————	Sky condition not observable.
(g)--------	0	Zero.
(h)--------	————————	None.
(i)--------	F+	Heavy fog.
(o)--------	————————	None.

Written thus on teletype: **WA N SPL 161122E WOOF+**
Sent thus as body of telegram: INSTRUMENT SPECIAL INDEFINITE OO HEAVY FOG

Example No. 8, record observation

Element	Teletype symbol	Translation
(a)--------	NA	Nashville, Tennessee.
(b)--------	N	Below contact flight minimums.
(c)--------	————————	Record observation, no type of report indicated.
(d)--------	————————	Record observation, no time of report indicated.
(e)--------	WO	Indefinite zero.
(f)--------	————————	Sky condition not observable.
(g)--------	1/8	1/8 mile.
(h)--------	ZL+	Heavy freezing drizzle.
(i)--------	F+K	Heavy fog, moderate smoke.
(j)--------	142	1014.2 millibars.
(k)--------	31	31° F.
(l)--------	31	31° F.
(m)--------	←4	East northeast, 4 miles per hour.
(n)--------	992	29.92 inches.
(o)--------	VSBY N 1/2 OCNLY	Visibility north 1/2 occasionally.

Written thus on teletype: **NA N WO1/8ZL+F+K 142/31/31←4/992/VSBY N1/2**
Sent thus as body of telegram: INSTRUMENT INDEFINITE O1/8 HEAVY FREEZING DRIZZLE HEAVY FOG MODERATE SMOKE 10142 3131 EAST NORTHEAST 4 2992 VISIBILITY NORTH 1/2 OCCASIONALLY

*War Time is being used for the duration.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

Example No. 9, special observation

Element	Teletype symbol	Translation
(a)--------	OL	Oklahoma City, Oklahoma.
(c)--------	SPL	Special observation.
(d)--------	311518C	3:18 p. m., C. S. T.* on the 31st.
(h)--------	TORNADO SW	Tornado southwest of station.
(o)--------	MOVG SLWLY NEWD	Moving slowly northeastward.

Written thus on teletype: OL SPL 311518C TORNADO SW MOVG SLWLY NEWD

Sent thus as body of telegram: SPECIAL TORNADO SOUTHWEST MOVING SLOWLY NORTHEASTWARD

Example No. 10, record observation

Element	Teletype symbol	Translation
(a)--------	BW	Boston, Mass.
(b)--------	C	Satisfactory for contact flight.
(c)--------	----------	"Record" observation, no "type of report" or "time of report" required.
(d)--------	----------	
(e)--------	A10	1000 feet - reported from aircraft.
(f)--------	⊕1Ⓓ	Overcast lower scattered clouds at 100 feet.
(g)--------	3	3 miles.
(h)--------	R-	Light rain.
(i)--------	F-	Light fog.
(j)--------	135	1013.5 millibars.
(k)--------	47	47° F.
(l)--------	46	46° F.
(m)--------	↑↖10	South southeast, 10 miles per hour.
(n)--------	992	29.92 inches.
(o)--------	----------	None.

Written thus on teletype: BW C A10⊕1Ⓓ3R-F- 135/47/46↑↖10/992

Sent thus as body of telegram: CONTACT AIRCRAFT 1000 OVERCAST LOWER SCATTERED 100 3 LIGHT RAIN LIGHT FOG 10135 4746 SOUTH SOUTHEAST 10 2992.

*War Time is being used for the duration.

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

Example No. 11, special observation

Element	Teletype symbol	Translation
(a)--------	OA	Oakland, California.
(b)--------	C	Satisfactory for contact flight.
(c)--------	SPL	Special observation.
(d)--------	301519P	3:19 p. m., P. S. T.* on the 30th.
(e)--------	E10	Estimated 1,000 feet.
(f)--------	⊕⦶	Overcast, lower broken clouds.
(g)--------	3	3 miles.
(h)--------	AP-	Light small hail.
(i)--------	H	Hazy.
(o)--------	E60⊕	Overcast estimated at 6,000 feet.

Written thus on teletype: OA C SPL 301519P E10⊕⦶3AP-H/E60⊕

Sent thus as body of telegram: CONTACT SPECIAL ESTIMATED 1000 OVERCAST LOWER BROKEN 3 LIGHT SMALL HAIL HAZY OVERCAST ESTIMATED 6000

Example No. 12, special observation

Element	Teletype symbol	Translation
(a)--------	SL	Salt Lake City, Utah.
(b)--------	C	Satisfactory for contact flight.
(c)--------	SPL	Special observation.
(d)--------	041722M	5:22 p. m., M. S. T.* on the 4th.
(e)--------	E15	Estimated 1,500 feet.
(f)--------	⊕⦶	Overcast, lower broken clouds.
(g)--------	5	5 miles.
(h)--------	TA-	Thunderstorm, light hail.
(i)--------	————————	None, other than hail.
(m)--------	→↘35+	West northwest 35 miles per hour, strong gusts.
(o)--------	E75⊕ T NW MOVG EWD FQT LTNG CLD TO GND ALL QUADS	Overcast estimated at 7,500 feet, thunderstorms northwest moving eastward, frequent lightning cloud to ground all quadrants

Written thus on teletype: SL C SPL 041722M E15⊕⦶5TA- →↘35+/E75⊕ T NW MOVG EWD FQT LTNG CLD TO GND ALL QUADS

Sent thus as body of telegram: CONTACT SPECIAL ESTIMATED 15 OVERCAST LOWER BROKEN 5 THUNDERSTORM LIGHT HAIL WEST NORTHWEST 35 STRONG GUSTS OVERCAST ESTIMATED 7500 THUNDERSTORM NORTHWEST MOVING EASTWARD FREQUENT LIGHTNING CLOUD TO GROUND ALL QUADRANTS

*War Time is being used for the duration.

PART IV.—TRANSMISSION OF REMARKS IN AIRWAY SYMBOL WEATHER REPORTS

CHAPTER I

USE AND EXAMPLES OF REMARKS

2-400. USE OF SYMBOLS AND ABBREVIATIONS.—When it is necessary to include remarks in airway weather reports which are transmitted by teletype or radio, the information included in such remarks will be coded as one or more groups of symbols and abbreviations. Symbols to be used will be those authorized for use in transmission of weather reports by teletype, except that abbreviations will be used for sleet, snow, and snow showers in place of symbols when any of the three are used separately or when sleet and snow are used together in a combination. (The exception to the use of symbols in the particular cases above is to avoid confusion with wind direction abbreviations.)

The abbreviations used in remarks will be those authorized by the Civil Aeronautics Administration and published in that Administration's "Manual of Operations," chapter B, part 4, section 1.

2-401. POSITION IN REPORTS.—The remarks group will be separated from the last element of the report proper by a slant mark. Remarks, if any, will always precede any special meteorological data added to the report.

2-402. WHEN USED.—Remarks will be used to express only elements of phases of the weather which cannot be included in the body of the report. Such conditions prevailing at a distance from the observer will be included in remarks, for example, "T NW"=thunderstorm NW; "K SE"=moderate smoke SE; "DUST DEVILS SW"=dust devils[1] SW, etc. Abbreviations will be used for directions from the station in which phenomena are observed. Intensities of weather and obstructions to vision phenomena will be indicated, e.g., "R+ OCNLY", "VSBY S11/4". When it is necessary to indicate the intensity of sleet, snow, and snow showers in remarks, this will be done by placing a plus sign (+) for heavy, and a minus sign (-) for light, immediately following the abbreviation; for example, "SNW SHWR+ OCNLY"; moderate will be indicated by the abbreviation alone, but <u>only</u> when the whole remark has been so worded as to indicate that an intensity is implied.

2-403. ONLY NECESSARY REMARKS TO BE INCLUDED.—Observers should constantly endeavor to keep remarks as short as possible and include only those which are essential to a valuable report. Remarks which merely repeat some phase of the body of the report in another form are superfluous and should never be included, that is, when -⊕/ is sent as the sky condition, it is unnecessary and inefficient to include "lunar halo" in remarks since the lunar halo indicates a sheet of high, thin clouds reported earlier in the message. Likewise, weather or obstructions to vision given in the body of the report will not be repeated in remarks to explain differing or variable visibility. On the other hand, when snow is occurring and this snow is "wet," a remark such as "SNW WET" is pertinent and should be included.

Whenever the pressure falls and then rises rapidly, thus producing a marked "V" on the barogram, appropriate remarks will be included which give (1) the lowest sea-level pressure (in millibars—giving only tens, units, and tenths) and (2) the time of the lowest pressure. For example, lowest sea-level pressure of 999.0 millibars will be sent as: "LWST PRES 990 AT 2146C."

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[1] Small whirlwinds, usually of short duration, made visible by dust picked up from the ground.

2-404. EXAMPLES OF REMARKS.—In order to illustrate the method of coding remarks in weather reports sent by teletype or radio, the following examples of some of the more important remarks are given:

A. CEILING

"CIG VRBL 3 TO 7"	Ceiling variable from 300 to 700 feet.
"CIG RGD"	Ceiling ragged.
"CIG LWR NE TO S"	Ceiling lower from northeast to south.
"⦶V⦶"	Lower broken clouds variable to scattered (when broken clouds are included in the body of the report).
"E60⊕"	Overcast estimated at 6,000 feet. In cases of ⊕⦶, ⦶⦶, ⦶⦶, or ⦶⦶, the height of the upper layer (preceded by a ceiling classification letter when reporting the height of an ⊕ or ⦶ layer) will always be included in remarks.
"3⦶"	Lower scattered clouds at 300 feet. Used whenever necessary to indicate an additional layer of clouds.
"INTMD LYR ESTD 18 HND"	Intermediate layer at estimated 1,800 feet.

B. SKY

"LARGE BRKS NW"	Large breaks northwest.
"HIR CLDS VSB THRU OCNL BRKS"	Higher clouds visible through occasional breaks.
"ST ALG HRZN NW TO NE"	Stratus clouds along horizon from northwest to northeast.
"⦶ MOVD IN RPDLY FROM SW"	Broken layer moved in rapidly from the southwest.
"⦶ TURBT"	Broken layer turbulent.
"TWRG CU SE"	Towering cumulus clouds in the southeast.
"THDS S"	Thunderheads in the south.
"CB OVR MT TAYLOR"	Cumulonimbus over Mt. Taylor.
"CM OVHD"	Mammatocumulus overhead.
"ACC INCRG NE"	Altocumulus castellatus clouds increasing in the northeast.
"K LYRS ALF"	Smoke layers aloft.
"GF 4 FT DEEP"	Ground fog layer 4 feet deep.
"H ALF"	Haze aloft.

C. VISIBILITY

"VSBY VRBL 1/4 TO 3/4"	Visibility variable from 1/4 to 3/4 mile.
"VSBY N2E11/4S11/2W2"	Visibility in the north 2 miles, east 1-1/4 miles, south 1-1/2 miles, west 2 miles.
"VSBY NE1/4SE3/8SW1/8NW1/2"	Visibility to the northeast 1/4 mile, southeast 3/8 mile, southwest 1/8 mile, northwest 1/2 mile.

D. THUNDERSTORMS

"T+ OVHD"	Heavy thunderstorm overhead.
"T SW MOVG NWD"	Thunderstorm in the southwest moving northward.
"T+ OVHD FQT INTS LTNG CLD TO GND ALL DRCTNS"	Heavy thunderstorm overhead, frequent intense lightning cloud to ground in all directions.
"T MOVD EWD"	Thunderstorm moved eastward.
"OCNL CLD TO CLD LTNG DSNT SW"	Occasional cloud to cloud lightning in distant southwest.

E. PRECIPITATION

"R- VERY FINE"	Light rain very fine (when R- is included in the body of the report).
"OCNL SPKL"	Occasional sprinkle.
"PCPN INTMT"	Precipitation intermittent (not necessary in connection with rain showers).
"OCNL RW-"	Occasional light rain shower.
"SNW OCNLY HVY"	Snow occasionally heavy.
"R+ OCNLY"	Heavy rain occasionally.
"OCNL SLT"	Occasional sleet.
"SNW WET"	Snow wet (when snow is included in the body of the report).
"RW- W TO N"	Light rain shower from west to north.
"RQ ALG RDG W"	Rain squall along ridge west.

F. MISCELLANEOUS

"VIRGA E TO SW"	Virga east to southwest.
"RDG SW VSB ABV GF"	Ridge southwest visible above the ground fog.
"CNDS XTRMLY VRBL"	Conditions extremely variable.
"D DEVILS NW"	Dust devils northwest.
"OCNL BD- ON FLD"	Occasional light blowing dust on field.

4-405. METHODS TO BE USED WHEN OTHER CONDITIONS ARE PRESENT.—The foregoing examples do not cover every condition, but merely illustrate the method of coding. Observers should use their best judgment in so wording remarks that they may be easily translated. Any remarks which are considered necessary, but which cannot be indicated in symbol form or in authorized Civil Aeronautics Administration abbreviations, will be entered in full-length words.

The altimeter settings obtained at the four principal times will be furnished promptly after determination to the proper authorities at the local airport control tower and, if practicable, also to airline (air carrier) dispatching officers or other responsible officials and such other interested parties at the airport as may require the information. It is desirable that the data be disseminated locally as widely as practicable at the four principal times through use of the interoffice airport telephone circuit. The time of the barometer reading forming the basis for any altimeter setting should be given in each case.

If a local airport control tower is not available to receive the data, the altimeter settings at the four times in question should be furnished to airline dispatching officers or other responsible officials at the local airport.

Arrangements regarding dissemination and receipt of the data at the four principal times should be made locally by responsible officials.

2-506. REPORTING ALTIMETER SETTING.—Every weather-reporting station located on teletype or radio circuits and equipped with a mercurial barometer will include the altimeter setting in each record and check observation; it will be included in special observations only as required in 2-103(c). The altimeter setting will be included in the record and check observations immediately following the wind element and separatedfrom it by a slant mark (/). In special observations the altimeter setting will be separated from preceding elements by a slant; if reported alone, it will be in form of remarks, as: ALSTG 990. If a station does not have a mercurial barometer, altimeter settings will be omitted in reports.

The check observation, including the altimeter setting, will be broadcast as the local weather report by the local Civil Aeronautics Broadcasting Station, if any. A uniform style of broadcasting will be used, namely: "altimeter setting - - - - - ", for example: "Altimeter setting twenty-nine ninety-five" for 29.95 inches, "altimeter setting thirty ten" for 30.10 inches, etc. Inches will be understood.

There follow examples of (1) altimeter settings as obtained at a station on the basis of barometric observations, and (2) altimeter settings data corresponding to the values given under column (1) but shown in the form that they are recorded and transmitted in teletype and radio-sequence weather reports:

EXAMPLES

(1) Altimeter settings as obtained at station on basis of barometric observations	(2) Altimeter setting data as recorded and transmitted in sequence reports
Inches	
30.51	051
30.25	025
30.14	014
30.00	000
29.92	992
29.81	981
29.49	949
29.12	912
29.00	900
28.92	892
28.80	880

PART VI.—INSTRUCTIONS FOR THE PREPARATION AND DISPOSITION OF AIRWAY METEOROLOGICAL FORMS

CHAPTER I

IMPORTANCE OF AIRWAY METEOROLOGICAL FORMS

2-600. The conduct of the airway meteorological service requires that certain forms be prepared and rendered at all types of stations engaged in this work which have been directed to do so. These forms are mainly records of observations or compilations of observational data and constitute the only available records for use in studies, court cases, etc. As such, they are highly important and all personnel shall take care to see that the forms assigned to them shall be neatly and legibly prepared and that the data entered thereon is accurate. Instructions for the preparation and disposition of all these forms follow:

CHAPTER II

WB FORM 1130B, AIRWAY WEATHER REPORTS

2-601. PURPOSE AND USE OF WB FORM 1130B.—This form is to be used for the recording of airway weather observations and shall be used for this purpose at all stations rendering such observations. Accordingly, it constitutes the original record of airway observations. However, this does not mean that the data must be entered directly on the form, as it may be inconvenient to carry it while making an observation in windy or rainy weather, but rather that the data entered shall be considered as constituting the original record of the observation itself.

2-602. METHOD OF MAKING ENTRIES.—Entries on WB Form 1130B shall be made by use of a moderately hard pencil. Observations shall be entered in chronological order, placing data in the proper columns as indicated in the headings on the form, using symbols, authorized English abbreviations, and figures. Ditto marks may be used, except in record or special observations, when the data to be entered in any column are the same as the immediately preceding data in the same column.

2-603. GENERAL ENTRIES.—The Standard Time Zones established by the Interstate Commerce Commission will be the basis for time zone indicators used in making weather reports, e.g., E = Eastern, C = Central, etc. The meridian classification is the meridian of time corresponding to the time actually being used at the station. The following table is a guide:

Meridian of time	60th	75th	90th	105th	120th
Standard Time	AST	EST	CST	MST	PST
War Time	EWT	CWT	MWT	PWT	YWT
To convert to GCT add	4 hrs	5 hrs	6 hrs	7 hrs	8 hrs

Enter the meridian classification; enter the number of hours necessary to convert time entries to Greenwich Civil Time, and indicate if it is to be added or subtracted by drawing a line through the inapplicable word. Enter the actual height above sea level of the ivory point of the mercurial barometer (H_Z). No entry for "Security Classification" need be made at Weather Bureau stations unless specifically instructed to make such entries. Enter station name in upper right corner, and latitude and longitude to degrees and minutes. Enter month, day, and year in the spaces provided at the lower right corner of the form. A new sheet will be begun at midnight each day and as many continuation sheets as are necessary will be used.

2-604. "TYPE."—Types of observations will be designated in the first column, as follows: "R" for record, a check mark (✓) for check, "L" for local extra, and "S" for special.

2-605. "TIME."—The local time of observation will be entered on the basis of the 24-hour clock in the second column. Under this system, four figures are always entered, the first two representing the hour and the last two the minute. For example, "0000" indicates 12:00 midnight, "0235" indicates 2:35 a. m., "1346" indicates 1:46 p. m.

2-606. "CLASSIFICATION."—If the station is within a "control zone" as defined in par. 2-127, the observations will be classified in accordance with existing rules to indicate whether the weather is suitable for contact or instrument flying. Classifications will be entered in the third column, and will be "C" or "N" for contact or instrument respectively.

2-607. "CEILING" DATA.—The ceiling will be entered in figures in the fourth column preceded by the appropriate ceiling classification letter. At stations located on teletype or radio circuits the ceiling value will be entered only to hundreds of feet, i.e., the figures for the tens and units will be dropped. For example, 3,000 feet would be entered as "30," 1,500 feet as "15", 300 feet as "3," etc. Stations reporting by telephone or telegraph will enter the complete figures for the values.

2-608. "SKY," "WEATHER," AND "OBSTRUCTIONS TO VISION."—At stations on teletype or radio circuits, sky, weather, and obstructions to vision will be entered according to symbols given in this circular. At other stations these elements may be entered in authorized English abbreviations. The height of scattered clouds will be entered at teletype stations in the sky-condition column preceding the "scattered" symbol and following the word "scattered" at stations reporting by telephone or telegraph.

2-609. "VISIBILITY," "TEMPERATURE," "DEW POINT," AND "SEA-LEVEL PRESSURE."—Visibility, temperature, dew point, and sea-level pressure will be entered in figures. Temperature and dew point, to whole degrees, will be separated by a slant (/). The sea-level pressure at stations on teletype or radio circuits will be entered in three figures representing the tens, units, and tenths of millibars, the thousands and hundreds figures being dropped; that is 1000.2 would be entered as "002," 996.8 would be entered as "968." The sea-level pressure will be separated from the temperature by a slant (/).

2-610. At stations on teletype and radio circuits the wind direction will be entered by use of arrows. At other stations wind directions will be entered by use of authorized abbreviations. The velocity will be in figures immediately following the direction. Character of gustiness, when appropriate, will be entered immediately following the velocity by use of a minus (-) to indicate "fresh" and a plus (+) to indicate "strong" gusts at teletype and radio stations and by the abbreviated words "Frsh gsts" or "Stg gsts" at other stations. When the wind velocity is estimated at stations located on radio or teletype circuits, this will be indicated by entry of the letter "E" immediately following the velocity; at other stations the abbreviation "Estd" will be used.

2-611. "ALTIMETER SETTING."—The altimeter setting will be entered in units, tenths, and hundredths of inches, the tens figure being dropped, at stations on radio or teletype circuits. For example, 29.92 would be entered as "992," and 30.03 as "003." The altimeter setting will be separated from the wind entry by a slant (/).

2-612. "REMARKS AND SUPPLEMENTAL CODED DATA."—Remarks will be entered according to instructions contained in part IV of this section. At stations adding special 3-hourly data to observations, these data will be entered in the prescribed form, following any remarks and separated from them by a slant (/) and one space. The same procedure will also be used at stations which add meteorological data to observations at the 6-hourly periods.

2-612a. "PRECIPITATION."—Entry will be made in Column 18 only by stations not recording the data on WB Form 1083 (unless otherwise instructed) and then only at the observations taken at 1:30 and 7:30 a. m. and p. m. E. S. T. The amount of precipitation measured at the observation will be placed on the line used for the observation and underscored twice. Amounts of precipitation measured at previous 6-hourly observations may be brought forward, when necessary, from one sheet to another for convenience in addition, using as many lines downward as needed. The amounts brought forward and the total will then be set off in brackets. Additional instructions for entry of precipitation data and instructions for coding, etc., are contained in appendix II to this circular.

2-613. "STATION PRESSURE," "DRY BULB," "WET BULB."—Station pressure will be entered to hundredths of an inch, e.g., "29.81," in Column 25. Corrected dry- and wet-bulb temperatures will be entered to tenths of a degree, e.g., "62.1," "54.0," in columns 26 and 27.

2-614. "OBSERVER'S INITIALS."—The observer will initial each observation in Column 30.

2-615. CORRECTION TO ENTRIES.—No erasures or obliterations will be permitted on WB Form 1130B. If an error is discovered before an observation is filed, a line will be drawn through the complete report, and the correct complete observation will be entered on the next line. If the error is discovered after the observation has been filed, the original entries will not be changed or deleted in any manner, but a corrected report will be filed immediately. Such an observation will be indicated by entry of the letters "CQN," signifying correction, in the first column of WB Form 1130B and the time entry will be that of the observation for which the correction was made. If the error is discovered too late to transmit a correct report by teletype, WB Form 3069 will be filled out and routed according to current instructions; if WB Form 3069 is received from another station, the observer responsible for the error will check the form to see that the correct data are entered, sign the form, and give it to the Official in Charge for routing. WB Form 1130B will then be corrected by drawing a red line through the erroneous data and entering the correct data in red.

2-616. DISPOSITION OF WB FORM 1130B.—Instructions for disposition of WB Form 1130B will be issued by the several Regional Offices.

WB Form 1130B

Time entries on this form are 60 th meridian time

To convert to G. C. T. { add / subtract } 4 hours

Height of Barometer 10.72 Ft. (MSL)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

(LAND STATION)

WBAN—10 B

Security Classification

Station Tampa, FLORIDA

Lat. 27°55'N Long. 82°27'W

TYPE (1)	TIME (2)	CLASSIFICATION (3)	CEILING (Hundreds of feet) (4)	SKY (5)	VISIBILITY (Miles) (6)	WEATHER AND/OR OBSTRUCTIONS TO VISION (7)	SEA-LEVEL PRESSURE (Mbs.) (8)	TEMP. AND DEW PT. (°F) (9)	(10)	WIND DIRECTION (11)	WIND VELOCITY (M. P. H.) (12)	WIND CHARACTER AND SHIFTS (13)	ALTIMETER (Inches) (14)	REMARKS AND SUPPLEMENTAL CODED DATA (For Transmission) (15)	PRES. TEND. (16)	NET 3-HR. CHANGE (Inches) (17)	PRECIP. (Inches) (18)	CLOUDS LOW AMT., TYPE, DIRECTION (19)	LOW HEIGHT (Hnds. of Ft.) (20)	MIDDLE AMT., TYPE, DIRECTION (21)	MIDDLE HEIGHT (Hnds. of Ft.) (22)	HIGH AMT., TYPE, DIRECTION (23)	HIGH HEIGHT (Hnds. of Ft.) (24)	STATION PRESSURE (Inches) (25)	DRY BULB (°F) (26)	WET BULB (°F) (27)	WATER TEMP. (°F) (28)	(29)	OBS. INIT. (30)
SR	0528	N	PO		0	R+RQ+	709	M	M	↙	60	+	867	GSTS TO 75MPH BRM FLG RPDLY/										28.67					LFA
														891 5001															LFA
S	0544													ALSTG 854 BRM FLG RPDLY										28.54					LFA
L✓	0600	N	PO		0	R+RQ+				↙	48	+	854	GSTS TO 60 MPH										28.54					LFA
S	0615	N	P1	⊕	1	RRQ+								VSBY NE 1/4 SE 3/4 SW1 NW1 1/2															LFA
SR	0627	N	W2V	⊕	2	R-RQ+	672	74	74	↙	44	+	856	CIG VRBL 2TO4 GSTS TO 60MPH										28.56	74.4	74.3			LFA
S	0636									↙	8																		LFA
S	0646	N	W4	⊕	3V	R-								CNTR OF HURCN OVR STN VSBY															LFA
														VRBL 2TO4															LFA
L✓	0700	N	W4	⊕	3	R-				↙	6		854	CNTR OF HURCN OVR STN										28.54					LFA
S	0715									↘	8	↙	0713	E-/862/BRM RSG RPDLY										28.62					LFA
SR	0724	N	E3	⊕	2	R-	699	74	74	↘	9		864	CNTR OF HURCN PASSED STN										28.64	74.0	73.8			LFA
														BRM RSG RPDLY															LFA
S	0739									↘	36	+	872	BRM RSG RPDLY										28.72					LFA
L	0754	N	B3	⊕	2	R-																							LFA
S	0759													ALSTG 880 BRM RSG RPDLY										28.80					LFA
S	0813													ALSTG 884 BRM RSG RPDLY										28.84					LFA
SR	0828	N	B3	⊕	3	R-	783	75	72	↓↘	36	+	889	VSBY N2 BRM RSG RPDLY/										28.89	74.8	73.0			LFA
														THREE 33710 5006 74															LFA
SR	1125	N	B8	⊕	5	R-	895	72	67	↘	28	+	922	PCPN INTMT RAFRZ 207MSL RH										29.22	72.3	69.0			RCA
														50/358 5006															RCA
S	1140													ALSTG 926										29.26					RCA
✓	1201	N	B9	⊕	7					↘	28		927	R-INTMT										29.27					RCA
S	1206													PIREPS TOVC 35 MSL HIR CLDS															RCA
														ABV															RCA
SR	1226	N	B7	⊕	5	R-	929	72	67	↘	32	+	932	BRM RSG RPDLY PIREPS										29.32	72.3	69.0			RCA
														TURBC 20E TM 50MSL															RCA
R	1428	N	A6	⊕+⊕	6	R-	990	71	68	→↘	21	−	949	PIREPS TOP LWR LYR 15MSL										29.49	71.2	69.1			RCA
														BASE OVC 20 MSL/34617 6206 69															RCA
✓	1459	N	E6	⊕⊕	7	R-				→	19	−	949	E20⊕ BINOVC ⊕V⊕										29.49					RCA
SR	1527	N	E8	⊕			996	71	68	→	14	/	951											29.51	76.0	69.0			RCA
R	2328	C	M24	⊕6⊕			041	68	65	→	8		965	CIG VRBL 22TO28										29.65	68.4	66.3			KK.

Month October Day 19 Year 1944

U. S. GOVERNMENT PRINTING OFFICE 16—41519-1

FIGURE 5.--Illustrating the entry of observations and other data on WB Form 1130B

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

84-4R (Eff. 2/15/45)

INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

CHAPTER III

WB FORM 1135, "PRESSURE-REDUCTION DATA"

2-617. PURPOSE AND INSTRUCTIONS FOR USE OF WB FORM 1135.—This is a form designed to facilitate the computation of data required in connection with the reduction of mercurial barometer readings to sea-level, or to the 5,000-foot plane, or both. Except for those stations which are required to make the computations on WB Form 1083, WB Form 1135 shall be used at all stations having mercurial barometers for the recording of the data called for thereon at observations taken at 1:30 and 7:30 a. m. and p. m., E. S. T. Stations rendering both WB Form 1135 and WB Form 1146 will prepare WB Form 1135 for both sea-level and 5,000-foot pressure. The use of this form under the conditions prescribed above is mandatory, as it is desired that a complete record of the computations required in these observations be available for use or study, if required. The computations made on this form will be checked by checking stations unless the station using the form is manned by commissioned Weather Bureau personnel. In the latter event, computations on the form will invariably be checked by an employee other than the one taking the observation.

2-618. WB FORM 1135 NOT TO BE USED IN CONNECTION WITH ANEROID OR BAROGRAPH READINGS.—Inasmuch as an aneroid barometer or a barograph is usually used for obtaining station pressure at intermediate observations and computations are thus reduced to a minimum, WB Form 1135 will not be used at those times.

2-619. ENTRY OF DATA.—Data will be entered in pencil.

2-620. FILING AND DISPOSITION OF WB FORMS 1135.—At stations manned by commisioned Weather Bureau personnel the forms will be filed in chronological order at the station making the observations. WB Form 1135 from second-order stations manned by Weather Bureau airway observers or Civil Aeronautics Administration personnel will be mailed from the checking station to the general supervising station for permanent filing. In the event the first-order station is discontinued, the forms will be forwarded to the general supervising station for permanent filing.

CHAPTER IV

FILING OF FORMS

2-621. In connection with the filing of forms, officials in charge at general supervising stations should take action which shall result in the consolidation of the above forms for any region at its general supervising station or at a designated general filing point. In this connection, if any forms are on file for a station in another region, those forms should be forwarded to the general supervising station for that region.

4-279. PLACING SHEET ON CYLINDER.—The sheet, once trimmed, will be placed on the barograph cylinder so that it fits the cylinder tightly and its bottom edge is in contact with the flange at the bottom of the cylinder all the way around. If the sheet has been trimmed properly the ends of the horizontal coordinate lines will match after the sheet has been placed on the cylinder in this manner. Should they fail to do so, the sheet should be taken off and retrimmed. It should then be replaced on the cylinder so that the ends of the horizontal lines do match and so that the bottom coordinate line is the usual distance from the flange of the cylinder.

4-280. ADJUSTING PEN READING FOR TIME.—After the clock has been wound and placed on the barograph, the cylinder should be turned forcibly either one way or the other so that the pen, if put on the sheet, would contact the sheet at a point a little to the right of the proper time line. The cylinder should then be turned in a counter-clockwise direction (as viewed from above) until the pen reads correctly with respect to time.

4-281. ELIMINATION OF FRICTIONAL EFFECTS.—After the pen has been placed in contact with the sheet, the barograph should be tapped lightly in order to overcome any frictional effects that may be preventing the various parts and levers from settling into their normal positions. It may be tapped also at the time a pressure reading is taken. This may be done by allowing a pencil to drop lightly, eraser end down, on the top of the case.

4-282. AVOIDING LOSS OF RECORD.—Whenever an observation is taken, the observer should see that the clock is running and that the ink is flowing properly. If a break or unusual discontinuity occurs in the record which cannot be ascribed to actual pressure variations, a note explaining the cause thereof should be written on the face of the sheet just above the break or discontinuity.

4-283. MAKING TIME-CHECK LINES.—After the barograph is put into operation, a time-check line of about one-eighth of an inch in length will be made at each six-hourly observation at the time the correction to the barograph is determined from reading of mercurial barometer. Using the vertical pen release rod as a guide, rest one end of pencil on the pen arm, the other end on the finger so as to cause the pencil to depress the pen because of its weight. Care must be taken not to exert any force on the pencil which will be transmitted to the pen arm. On removing the pencil the pen arm should slowly come back to its original position. If there is excessive friction or play in the pivots, a jog in the trace may result. Depending upon the response of the instrument to the "pencil test," the observer may judge its sensitivity. Consideration must be given to the behaviour of the instrument during winter months when the dash pot liquid may become so cold that the effect of the depression of the pen arm may be noticeable for several hours. In such cases the observer may omit making the time check.

4-284. RECORDING TIME OF MAKING THE CHECK LINE.—The time, to the nearest minute, at which the pen is usually touched will be indicated on the face of the first sheet for each month. If the pen is touched more than 5 minutes from the regular time, a note placed just above the check line will be made stating the actual time of the check.

4-285. LABELLING SHEETS.—The name of the station, the dates of the beginning and end of the record contained on the sheet, and the standard of time on which the records are made (as 75th meridian time, 90th meridian time, etc.) will be written on it in ink. This will be done in the upper left-hand corner of the space on the sheet covered by the coordinate lines, except when the trace interferes. Under the latter circumstance, the data will be entered below the trace on the left-hand part of the sheet. The day of the month will also be put on in ink immediately above the noontime line of each day's record.

4-286. DATES FOR CHANGING SHEETS.—If the cylinder of the barograph makes a complete revolution every 7 days, the sheets should be changed on the 1st, 8th, 15th, 22d, and 29th of each month. If the cylinder revolves once in every 4 days, the sheets should be changed on the 1st, 5th, 9th, 13th, 17th, 21st, 25th, and 29th of each month. The time required for a complete revolution of the cylinder may easily be determined by noting the number of days of record provided for on the sheets furnished for the instrument.

4-287. LIFTING PEN FROM SHEET PRIOR TO REMOVING CYLINDER.—Care should always be taken to see that the pen is lifted from the sheet before any attempt is made to remove the cylinder from the barograph. A lever integral with the instrument is provided for this purpose. The time of changing should be entered at the point where the pen is lifted from the sheet.

4-288. AVOIDING SMEARING INK IN REMOVING SHEETS.—In removing the sheet from the cylinder, the latter portion of the record may not be thoroughly dry. Observers

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(File No. 610)
(601.3)
(601.4)

January 31, 1945.

Circular Letter No. 9-45
(To All Stations)

Subject: Coordinating Pibal and Rawin Data.

Reference: Circular Letter #79-44, dated November 4, 1944.

Some questions have arisen as to the procedures to be followed where pibal and rawin reports are transmitted by the same station and the highest level of the pibal report is not as high as the lowest level of the rawin report, or is missing entirely.

In some instances several groups of slants have been used to indicate the missing levels between the pibal and the rawin. Hereafter, in combined reports, the pibal data should be transmitted to the maximum height and the rawin data should be preceded by a group showing the first level of the rawin. For example, the following report might be transmitted from Richmond, Va.:

"RW04 01806 1908 22012 RAWIN 6THSD 62225 ETC."

In this example, three slant groups would be required to indicate the missing levels, whereas only one group, the level indicator, need be transmitted. This will shorten the messages in a number of instances and also furnish information in a more usable form. If there is no missing level, the level indicator group following "RAWIN" will be omitted.

When the pibal and rawin are taken at different stations and transmitted by the same station (Circular Letter #79-44) the pibal report will be sent up to, but not including, the first level of the rawin. An example of this type of transmission follows:

"BU04 01404 1408 21510 1614 LA04 RAWIN 41720 1825 ETC."

The second station indicator within the report will be used only when the Manual of Operations lists the reports as originating at two different stations as "Burbank (BU) or Los Angeles (LA) (RAWIN)". It is to be noted that since this makes a continuous report, it will be unnecessary to send a level indicator group, such as "6THSD", unless some levels are missing between the pibal and rawin data.

Questions relative to the coordination of pibal and rawin data transmission should be referred to the Central Office, Attention: SR&F Division.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 610)
(730.4)

January 31, 1945

CIRCULAR LETTER NO. 10-45
(For all Stations)

Subject: Symbols for Plotting Aircraft Reports of Icing and Turbulence

In order to obtain uniformity of entry of reports of aircraft icing and turbulence on manuscript charts, the Combined Meteorological Committee has recommended that the symbols shown here be used. Weather Bureau offices plotting aircraft reports are requested to use these symbols beginning upon receipt of this letter.

Preliminary suggestions with regard to plotting these data were contained in a multiple address letter which was sent to selected forecast offices last March. Symbols are also proposed in a preliminary FAWS manual. The symbols given with this circular letter will supersede these previous proposals.

The C.M.C. did not specify colors for these symbols as the requirements of the various services are in variance. The following suggestions regarding color should be followed, where practicable, in Weather Bureau offices. When the symbols are entered as part of an individual aircraft report in station model form the entries will be in black ink or pencil to conform with other entries on the map. When the symbols are entered on manuscript maps, cross sections, etc., to indicate general areas or levels of icing or turbulence they may be entered in color. The colors red for icing and purple for turbulence are recommended.

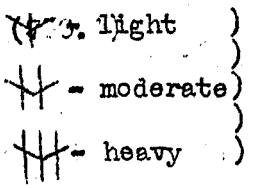
F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

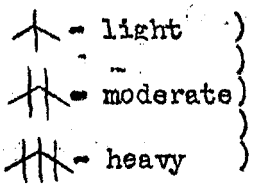
Note: Symbols are given on the reverse side of this letter.

Symbols for Icing and Turbulence

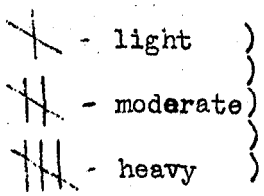
1. Icing (symbol meanings taken from CAC icing code)



rime ice in cloud



clear ice in cloud



clear ice in precipitation not in cloud

Note: When plotting reports not received in code, i.e.: plain language PIREPS, use symbol most appropriate to condition as reported.

2. Turbulence

- light turbulence

- moderate turbulence

- severe turbulence

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

Pers.-Gr
(File No. 150.5)

February 6, 1945

Circular Letter No.11-45
(For all Stations)

Subject: Efficiency Rating Instructions
for Period Ending March 31, 1945

Since there has been no material change in efficiency rating procedures since the last rating period, these instructions will follow the same general pattern as last year. Instructions, Report of Efficiency Rating Form 51, Revised, and other related material are being forwarded well in advance of March 31, 1945, the last day of the current rating period. The material should be distributed at once to field stations, and the rating officers should make a preliminary rating of the employees they are to rate as soon as they have studied the instructions. The preliminary rating should be made in pencil and its purpose is twofold: first, it will bring immediately to attention the employee's weak points and give the supervisor an opportunity to discuss them with the employee before the end of the rating period; second, it will take away much of the pressure at the time the final rating is made since the preliminary rating in many instances will agree with the official rating made at the end of the rating period. Attention is called to the question printed in red at the bottom of the rating form. This question should be answered on the rating forms of all employees rated.

PROCEDURE

1. RATING AND REVIEWING OFFICERS: At small stations the official in charge will serve as rating officer. At larger stations the official in charge may wish to delegate the rating authority to his first assistant or, if the station is engaged in a number of activities, to the supervisor of each activity. In such cases the official in charge will review the forms and sign as reviewing officer. All other ratings and review of ratings will be made by the Regional Offices, which will also look over ratings signed by station reviewing officials, and will return to station with suggestions or comments, any reviewed ratings that appear not to be in conformity with standard practice, to be resubmitted after consideration by station officials.

2. WHO SHOULD BE RATED AS OF MARCH 31, 1945:

(a) All regular employees who are not serving a probational or trial period, except as indicated in 3 (a).

(b) Temporary and part-time employees who have served at least 90 calendar days without change in grade immediately prior to the rating period. Persons given war service appointments not to exceed one year are considered temporary employees and must be rated.

(c) Employees not on active duty on March 31, 1945 due to leave without pay or furlough shall be rated on service to the date within the year when active duty stopped.

3. WHO SHOULD NOT BE RATED AS OF MARCH 31, 1945:

(a) Employees who received promotion in grade in the period from January 1 to March 31, 1945, provided, however, that an employee should be rated if the increase in grade did not result in an appreciable change in duties and responsibilities. For example, an employee who is promoted from SP-4 to SP-5 and continues to perform observational duties should be rated.

(b) Airway Observers.

(c) Emergency Assistants.

(d) Employees serving probational or trial period (now one year).

(e) Employees transferred from other bureaus or agencies whose transfers became effective after January 1, 1945.

4. PREPARATION AND USE OF FORM 51, REPORT OF EFFICIENCY RATING:

Forms should be prepared in duplicate, one copy for the Central Office and one for the Regional Office.

Heading - - -

(a) Check "Regular" in upper right hand corner.
(b) Rating period is from April 1, 1944 to March 31, 1945. If employee has been at present station for a shorter period, indicate.
(c) Enter name as it appears on payroll, title of position, grade, and salary.
(d) After Bureau, if field office, give name of station followed by AP if at Airport.
(e) If position is administrative, supervisory, or planning, place check mark in upper box; if not, then in lower box.

Rating elements - - -

(a) Read carefully instructions at head of form.
(b) Same items should be underlined for employees engaged in the same type of work.
(c) Only administrative, supervisory, or planning employees should be rated on items in italics.
(d) As far as practicable, rate elements given on standard patterns attached, which also indicate standard underlinings.
(e) After items have been rated, arrive at adjective rating by following instructions at bottom of rating form.

(f) A rating of "Excellent" may be made with one underlined element marked with a "check", unless that element is numbered 10, 15, 19, or 27, provided there is a justifying statement on the reverse of the form to indicate the reasons for this deviation from the standard.
(g) Answer question in red at bottom of rating form.
(h) Rating and reviewing officers are required to be familiar with and keep in mind the instructions contained in the Manual relative to rating and review.

5. DEFINITION OF SUPERVISORY RATING ELEMENTS: The definitions contained in the Rating Official's Guide, pages 10 to 14, for elements 1 to 20 inclusive will be followed in rating those items. The following definitions for supervisory elements have been prepared by the Civil Service Commission as a supplement to the Rating Official's Guide and should be used in rating these elements:

Efficiency Rating Element	Type of Function or Activity to which the Element Applies	Type of Matters to be Considered in Rating Work Performance if the Element is Used
21. Effectiveness in planning broad programs.	Having administrative responsibility for establishing and managing an overall program and organization. In a staff capacity, having responsibility for formulating and recommending overall program and organizational structure. (Not applicable where the overall program and organizational structure are stable or where an established plan is being duplicated.)	Seeing the objectives and scope of the overall program. Determining and outlining the nature and size of organization necessary to attain the objectives of the program. Applying sound management principles in matters of organization structure, budgeting, personnel administration, decentralization of operations, delegation of authority, and other matters of program and organization planning. Considering the nature and size of organization and providing, accordingly, for balanced, integrated, and effective management.

22.	Effectiveness in adapting the work program to broader or related programs.	Having administrative responsibility for managing a definite program and organization and for adjusting and revising them to keep in line with a more general or related program and organization under changing conditions. In a staff capacity, having responsibility for formulating and recommending adjustments and revisions in program and organizational structure.	Shaping the program to reach the larger objectives and to eliminate conflict or duplication. Coordinating one program with another so the combined effort accomplishes more than the separate efforts. Adaptability in modifying the program or organizational structure to meet changing conditions and then managing it in its altered state. Grasping the import of changing demands and responding accordingly. Making the organization an integral part of the larger organization. Ascertaining and developing opportunities for coordinating services with related services.
23.	Effectiveness in devising procedures.	Having administrative responsibility for establishing new methods, analyzing existing methods, and devising improved methods for carrying out the functions of an organizational unit. In a staff capacity, having responsibility for analyzing functions and recommending new and improved methods.	Analyzing functions and breaking them down into processes, methods, flow of work, required forms, material, equipment. Knowing how jobs should be done and keeping alert to new and improved methods of doing work. Preventing the creation of bottlenecks. Preparing procedures that take care of problems that will be encountered with sufficient flexibility to meet changing conditions, yet keeping procedures as simple as possible. Knowing what to include in written procedures.

24.	Effectiveness in laying out work and establishing standards of performance for subordinates.	Having supervisory responsibility for breaking down functions and processes into work assignments, for directing such assignments to particular positions, and for determining the level and quality of production and operation to be required in every position, and of every employee, under his direct supervision. (This function is present in practically every supervisory position).	Apportioning work fairly and impartially with due regard to the capabilities of subordinates (without overloading) and the production of the unit as a whole. Making assignments according to a plan or policy. Issuing written instructions, when necessary, to avoid misunderstandings. Establishing and securing a general understanding of quality, quantity of work, manner of working, and other such matters, required in the various kinds and levels of positions as a guide for subordinates and as a measure of accomplishments.
25.	Effectiveness in directing, reviewing, and checking the work of subordinates.	Having responsibility for the direct supervision of immediate subordinates (more than a secretary) for the purpose of getting work accomplished in accordance with required standards.	Giving clear direction. Maintaining control of work progress and quality. Keeping subordinates working at purposeful tasks consistent with the position grades. Maintaining smooth flow of work. Expediting work and personally refraining from becoming a bottleneck.

26.	Effectiveness in instructing, training, and developing subordinates in the work.	Having direct supervisory responsibility for improving the work performance of immediate subordinates. In a staff capacity, giving instructions and training supplementing the activities of line supervisors.	Anticipating and recognizing need for training, devising training materials and methods, and making plans and arrangements for the actual giving of instruction. Analyzing abilities and improving them; helping subordinates to analyze their own abilities and assisting them in self-improvement. Helping, showing, coaching and following up with tact and patience. Giving group and individual instruction with the use of practical demonstration or other training aids. Developing understudies.
27.	Effectiveness in promoting high working morale.	Having direct supervision over a number of immediate subordinates with responsibility for developing and maintaining interest in the work, confidence in the supervisor, loyalty to the organization and smooth working relations.	Knowing employee attitudes. Taking proper disciplinary action at proper time and place. Criticizing helpfully. Giving credit where due. Having no favorites. Setting a proper example by being fair, loyal, enthusiastic, and stimulating, and knowing what and how the subordinates are doing. Actively dispelling rumors. Explaining objectives timely. Effectively representing management to subordinates, and subordinates to management. "Standing behind" and protecting subordinates. Settling grievances promptly. Displaying calm, cheerful, tolerant, and diplomatic attitudes. Being accessible to subordinates. Giving attention to working conditions and hazards to safety.

28.	Effectiveness in determining space, personnel, and equipment needs.	Having administrative responsibility to plan space, personnel, and equipment requirements of a program, organization, or operation for annual budgeting or immediate use. In a staff capacity, having responsibility for formulating and recommending such plans or making recommendations on annual or immediate plans of administrative officials.	Being aware of program requirements for space, personnel, and equipment and knowing how to measure these needs. Keeping estimates for space, personnel, and equipment to a narrow margin of error. Planning the use of secondary facilities and sources when the extent and duration of the job to be done is limited or temporary and does not justify an increase in costs, personnel, or space. Reappraising needs in the interest of economy when conditions change or work load decreases.
29.	Effectiveness in setting and obtaining adherence to time limits and deadlines.	Having administrative responsibility for determining when an assignment or activity is to be completed or having supervisory responsibility for securing the completion by subordinates of work, assignments, or activities within a definite time period or by a definite date.	Knowing the value of setting schedules. Setting schedules that are possible of being met, that take into consideration the nature of the assignments or activity, and that are related to the urgency of the matters for completion. Checking on progress, helping by personally setting the pace if necessary, and clearing out hindrances. Looking for easier and less time-consuming methods. Maintaining a steady pace of work which if maintained will meet the deadline or time limit, rather than permitting procrastination and then requiring speed up. Giving rush matters timely attention.

30.	Ability to make decisions.	Having administrative authority to make decisions and establish courses of action for others to follow. (The accuracy of decisions made is not involved here.)	Being decisive. Making decisions or establishing courses of action in time without procrastinating, vacillating, or failing to take a stand or reach a conclusion at all. Having courage to say "yes" or "no" and saying it with conviction so that others can rely on it. Taking a reasonable chance on a course of action when necessary rather than waiting to be absolutely sure of its infallibility or remaining in a state of suspended judgment.
31.	Effectiveness in delegating clearly defined authority to act.	Having administrative authority to delegate parts of own authority to act to subordinates who can then act for and in the name of the superior.	Delegating authority to act directly rather than by implication. Delegating definite authority with limits clearly defined. Delegating authority without divorcing himself of his responsibility for proper administration. Being willing to delegate such authority to act which would free him to carry out the more important functions and responsibilities. Delegating responsibility with equal authority.

6. MAKING THE RATING: The procedure to be followed in evaluating the elements on the rating form and arriving at the final rating are fully discussed in the Rating Manual and Rating Official's Guide. Rating officials are expected to study both carefully.

7. RATINGS FOR OFFICIALS IN CHARGE: Ratings for officials in charge and head forecasters (which are to be prepared in the Regional Office) will, prior to review by the Regional Board, be submitted by mail to officials concerned so that any protest or appeal for modification may be considered before the Regional register is completed. All statements appealing or protesting initial ratings will be forwarded to the Regional Office in duplicate, and the original copy will

accompany the rating sheet when the Regional Register and attendant rating forms are submitted to the Central Office.

8. SCHEDULE: The ratings of March 31 will be used to determine eligibility for automatic promotions for the quarter beginning July 1. For this reason it will be necessary for the registers to be completed and approved well before that date and the following schedule must be strictly observed:

Preliminary ratings to be made as soon as supplies are distributed and rating material and instructions studied;

March 16 to March 23 --- Final ratings made by rating officials;

March 24 to April 15 --- Forms forwarded to Regional Office and reviewed by proper review official;

April 16 to April 30 --- Review of ratings accomplished by Regional Efficiency Rating Review Committee;

May 1 to May 15 --- Preparation of Regional efficiency rating register and forwarding of register and all rating forms to Central Office marked, "Attention of Personnel Office";

May 16 to May 31 --- General review of Central Office and all field registers by the Bureau Efficiency Rating Review Committee, and forwarding of same to the Department and the Civil Service Commission. Mailing of notification of rating to all employees following approval by Department.

9. REGIONAL EFFICIENCY RATING REVIEW COMMITTEE: The Regional Efficiency Rating Review Committee will review the ratings submitted by the field stations to ascertain whether or not comparable standards have been applied. Any set of ratings entirely out of line should be returned to the field station concerned with suitable instructions if time permits, or adjustments may be made by the Regional Committee if it has sufficient information in its possession to do so, in which case the changes should be reported back to the field station concerned. When the Regional Committee has completed its review, the Regional register will be prepared.

10. REGIONAL EFFICIENCY RATING REGISTERS: Each Region will prepare its own efficiency register. Eight copies of the register must be forwarded to the Central Office. One copy will be returned to the Regional Office following approval by Department, with any corrections that may have been made noted thereon. (Two typings of the register will be necessary to insure legible copies).

Notifications of ratings to employees will be prepared in the Regional Offices. If an additional copy of the register is retained in the Regional Office, the notifications may be prepared in advance but should not be mailed to employees until the approved copy of the register has been received. If the approved copy contains any corrections, new notifications should be prepared for the employees involved.

F. W. Reichelderfer,
Chief of Bureau.

Attachment

RATING PATTERNS 1945

Select one of the 21 patterns below as the basis for the rating. Write the serial number of the selected pattern in the blank space to right of the word "Standard" in the heading over adjective definitions. (Underscore element numbers according to marks under the numerals within the selected pattern.)

1.	OIC - (working alone)	3, 4, 5, 6, 8, 9, 10, 11, 14, 15, 19
2.	OIC - station with 3-5 employees, (without experienced first assistant)	3, 5, 6, 8, 9, 10, 11, 15, 16, 17, 19, 24, 25, 26, 27, 30
3.	OIC - station with 6-8 employees and first assistant sharing supervision	3, 9, 10, 11, 15, 16, 17, 18, 19, 22, 24, 26, 27, 30
4.	OIC - at large station where there are two or more subordinate supervisors	3, 9, 10, 11, 15, 16, 17, 18, 19, 22, 23, 24, 26, 27, 30, 31
5.	First Assistant at small station, or group supervisor at large station, (duties include observing or map work)	3, 4, 6, 8, 9, 11, 15, 16, 17, 19, 25, 26, 27, 30.
6.	First assistant at large station where duties are mainly administrative and technical	3, 8, 9, 10, 11, 15, 16, 17, 19, 22, 24, 25, 26, 27, 30
7.	Subprofessional assistant with general observing and/or map responsibilities	3, 4, 6, 8, 9, 11, 12, 15, 16, 17, 19
8.	Radiosonde observer	1, 3, 4, 6, 8, 9, 11, 12, 15, 16, 17, 19
9.	Radiosonde technician	1, 3, 5, 6, 7, 9, 10, 11, 15, 16, 17, 18, 19, 20, 26, 27
10.	Professional assistant at station (other than first assistant); or FAWS forecaster; or fruit-frost field representative	3, 5, 6, 8, 9, 10, 11, 14, 15, 16, 17, 19, 30

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11.	Head forecaster, and fruit-frost or fire weather general supervisor	3, 9, 10, 11, 12, 15, 16, 17, 19, 22, 23, 24, 25, 26, 27, 29, 30, 31
12.	Staff forecaster, including fire-weather district representative	3, 5, 6, 9, 10, 11, 12, 14, 15, 16, 17, 19, 23, 25, 27, 30
13.	RTRCL instructor	3, 5, 6, 9, 10, 11, 14, 15, 16, 17, 19, 23, 25, 26, 27
14.	Liaison official (first order station)	3, 6, 9, 10, 11, 14, 15, 16, 17, 18, 19, 20, 22, 26, 27, 28, 30
15.	Liaison official (second order stations)	2, 3, 5, 6, 9, 10, 11, 15, 16, 17, 18, 19, 20, 26, 27, 28, 30
16.	Regional engineer	3, 6, 9, 10, 11, 14, 15, 16, 17, 19, 22, 23, 26, 30
17.	Hydroclimatic inspector	2, 3, 6, 9, 10, 11, 15, 16, 17, 19, 20, 26, 27, 30
18.	CAF - supervisory	3, 5, 8, 9, 10, 11, 15, 16, 17, 19, 24, 25, 26, 27
19.	CAF - secretary	3, 4, 5, 6, 8, 10, 11, 13, 15, 16, 17, 19
20.	CAF - general (non-supervisory)	3, 4, 6, 7, 11, 13, 16, 19
21.	Printer	1, 3, 4, 6, 7, 11, 13, 16, 19

RESTRICTED

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No.610)
(070.2,622.1,
622.5)

February 6, 1945

CIRCULAR LETTER NO. 12-45
(To All Stations)

Subject: Security of Meteorological Information in Canada

Canadian Department of Transport Circular No. 664-R effective January 1, 1945, is reproduced for the information of Weather Bureau personnel.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

This circular is a redraft of Circular 548-R of July 10, 1944. It consolidates all amendments to date, and both Circular 548-R and the preceding 481-R are now to be destroyed.

SECURITY OF METEOROLOGICAL INFORMATION IN CANADA

A. All newspapers in Eastern Canada are permitted to publish generalised weather forecasts. Otherwise, for the region east of but not including Quebec City and Megantic, the present restrictions on the dissemination of meteorological information are to remain in effect as at present; viz., no weather information for the area may be transmitted by radio except in a cipher approved by the Controller of Meteorological Services, or except storm warnings issued by the Meteorological Services of Canada and authorized for broadcasting. In this zone UCO Code is to be used, but ALACO-AIRMETCO will be held and weather information may be given in this code, on request of a pilot.

B. The following seven sub-sections apply only west of the longitude of Megantic:

1. Radio Range Stations and Control Towers may broadcast on schedule their own hourly weather reports in clear, and on request the weather for any two stations but not more. If a Range is off the air, an adjacent station may broadcast its weather in addition to its own, provided that not more than two reports are included in any one transmission. Stations on the Northwest Staging Route are not limited to two reports per transmission. Reports for stations east of Megantic may be broadcast in the UCO code on request. Each station is to broadcast its own "special" weather reports as soon as available, also the "specials" of the other stations (if any) listed in its hourly broadcast schedule. On request, Ranges may broadcast in plain language the winds aloft from the nearest pilot balloon station available, west of the longitude of Megantic.

2. Radio transmission of weather information, including forecasts but not including weather maps, analyses, and synopses, pertaining to Canadian stations, may be made in clear between aircraft and ground, aircraft and aircraft, or point to point, whenever requested or initiated by a pilot, ground operator, or controller, provided not more than two station reports are included in any one transmission.

3. Terminal forecasts, flight plans and changes therein, landing instructions and any other weather information relating to Canadian stations may be transmitted unscheduled in clear in accordance with Section B.2.

4. The use of the ALACO-AIRMETCO at stations within the area will be discontinued, but supplies of forms and instructions will be retained at all stations and offices so that, should an emergency arise, strict weather security measures can be reinstituted on short notice.

5. Radio transmission of weather maps and analyses in whole or in part must be in cipher.

6. (a) Synoptic observations and hourly sequences from stations north of Edmonton in the region from the MacKenzie River to the Alaskan boundary may be transmitted in clear either singly or collectively within that region only.

(b) In British Columbia, radiophone broadcasts of weather information are permitted if the transmitter has not over 100 W. antenna output, and operates on a frequency not over 3 Mc/sec.

(c) The transmission of synoptic observations and hourly sequences from stations not covered by (a) and (b) but except as in (d) may be transmitted in clear provided not more than two reports are included in any one transmission. Collectives, however, must be in cipher.

(d) Transmission of synoptic reports by W/T from stations on the coasts of Hudson Bay and in the Eastern Arctic, either as individual reports or as collectives, shall be in cipher.

7. Transmission from commercial radio stations shall contain no direct mention of wind direction (except for storm warnings), barometric pressure, ceiling or visibility. Forecasts as issued by the Meteorological Service of Canada may be broadcast for the districts normally covered by the broadcasting station and in accordance with the directive issued by the Chief Censor of Publications - Radio.

C. The following three sub-sections apply to all Canada:

1. All current weather information originating in or pertaining to Canadian stations, will be accessible to the public at Department of Transport offices for legitimate use compatible with national interests.

2. Identification will no longer be required for persons requesting either in person or by telephone or telegraph meteorological information, exclusive of synoptics, relating to stations in non-secret areas.

3. Publication of weather information in the Press will be in accordance with the directive issued by the Chief Censor of Publications - Press.

/s/ J. Patterson
Controller, Meteorological Services of Canada

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Ke
(File No. 740.1)

February 7, 1945

CIRCULAR LETTER NO. 13-45
(To all Stations)

Subject: Amendment to 1942 Weather Code.
Figure Groups to Code Pressure Changes over 19.8 Millibars and Whole Inches of Precipitation.

In order to provide figure groups instead of words for coding pressure changes over 19.8 millibars and whole inches of precipitation, the Combined Meteorological Committee has recommended the procedures given in this letter. These instructions are effective in Weather Bureau offices beginning 0230 EWT, March 1, 1945.

1. Pressure change.

When the amount of pressure change (pp) is more than 99 fifths of millibars (19.8 millibars), pp will be coded as 99 and the exact amount will be coded in a figure group of the form 99ppp immediately following the group in which pp appears. The figures for ppp in 99ppp will give the actual amount of pressure change in fifths of millibars.

Example: Suppose actual amount of pressure change is 0.595 inches or 20.2 millibars. Figures 99 are coded for pp in group UC_Happ and the group 99101 is inserted immediately following the UC_Happ group.

2. Whole inches of precipitation.

When precipitation in amount of one inch or more is reported, a group in the form 000R'R' will be inserted immediately following the group in which RR appears. The figures for RR will give the hundredths of inches as heretofore and the figures for R'R' will give the whole inches.

Examples: Suppose precipitation amount is 2.14 inches. Code figures 14 are coded for RR in the group $8R_sR_tRR$ and the group 00002 is inserted immediately following. Similarly, for an amount of 15.79 inches, RR is coded 79 and the group 00015 is added.

Detailed instructions concerning changes to be made in the 1942 Weather Code publications will be issued later. Pending their receipt, station officials should make suitable notes or references in station copies of the code to insure use of these figure groups instead of words in coded observations beginning 0230 EWT, March 1, 1945.

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Fe
(File No. 451.7)

February 17, 1945

CIRCULAR LETTER NO. 14-45
(To All First- & Second-Order Stations)

Subject: Helium cylinders

All helium cylinders shipped from the Bureau of Mines Helium Plant now have a black body and a 3-inch orange band around the neck of the cylinder upon which is printed "Property of the Bureau of Mines, Amarillo, Texas." Navy helium cylinders also have a black body but have a 6-inch orange band around the neck of the cylinder and have no ownership markings.

Cylinders shipped from the Helium Plant which do not bear the Bureau of Mines' markings, will not be accepted by Weather Bureau stations. In cases where by special arrangement a station receives a shipment of helium from a Navy station, the cylinders bearing the Navy color code will be returned, when empty, to the nearest point specified below:

Naval Air Station (LTA), South Weymouth, Mass.
" " " " Lakehurst, New Jersey
" " " " Weeksville, Elizabeth City, N. C.
" " " " Richmond, Florida
" " " " Houma, Louisiana
" " " " Santa Ana, California
" " " " Moffett Field, California
" " " " Tillamook, Oregon
Bureau of Mines Helium Plant, Soncy, Texas

This matter should be brought to the attention of all personnel responsible for receiving and returning helium cylinders.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

OPR:RTH
(File No. 151)

February 20, 1945

CIRCULAR LETTER NO. 15-45
(To all Stations)

Subject: Sub-Professional Qualifying Examination No. 2

Sub-Professional Qualifying Examination No. 2 will be given during the week of March 26-31. As in the preceding qualifying examination, a distinction will be made between "airway observing" and "non-airway observing" personnel. All examinees whose duties include the taking or supervising of airway observations will be classified as airway observing personnel. All others, whether or not their duties include the taking of six-hourly or synoptic observations, will be classified as non-airway observing personnel.

All observers in the SP-5 grade or higher are eligible to take this examination. Those wishing to do so should notify their Regional Office immediately through their official in charge, specifying whether they are "airway observing" or "non-airway observing" personnel according to the above definitions. On March 3 the Regional Office will forward to the Central Office a memorandum indicating the number of examinees in each category. This procedure must be followed in order to allow sufficient time for distribution of material to stations, which will be done in a manner similar to past examinations. Late applications will be accepted only at the discretion of the Regional Director. The examination date for Alaskan stations may be postponed if necessary.

In general the examination will test airway observing personnel for their ability to take observations, including observational judgment, knowledge of regulations, accurate facility with figures, and the use of tables such as those for reduction to sea-level pressure, dew point, barometer correction, and altimeter settings. Non-airway observing personnel will be tested for their knowledge of observational procedures, forms, regulations, and the significance of weather data, with emphasis mainly on comprehension. Thus the examination will not penalize non-airway observers for lack of actual experience in airway observations, but will require them to recognize the various elements of a weather report, and to know how these are obtained and what use is made of them.

(OVER)

A promotional examination must measure potentialities as well as current abilities, and it is considered that personnel seeking promotional preference through examination should display general competence and a basic knowledge of weather fundamentals, however specialized their present duties may be. This examination has been prepared in response to many requests for one which would more nearly approximate the actual working conditions in a field station. While taking it, the examinees will in effect be on duty, and reacting to problems such as they may at any time be called upon to handle in daily assignments.

Examinees will be permitted to use or refer to any circulars, manuals, slide rules, tables, or charts they wish, if these can be made available at their stations. There will also be a barograph trace, a "clock" to watch, an hourly temperature record, a visibility chart, and various other observational aids that are common to most weather stations.

The suggested method of reviewing for this examination is to take a Form 1130B column-by-column and study, in Circular N, Circular S, the Correspondence Course, and other manuals, whatever material applies to each column. Also perform a similar review of the various requirements of Form 1083. Such a study should leave prospective examinees systematically prepared to take or to comprehend any weather observation. Stations lacking Form 1130B, Form 1083, Combined Code Tables (1942 Weather Code), or the Circular N revisions effective February 15, 1945 should obtain them so that they will be available for study as well as for the examination.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

SR&F/Syn--Hi
(File No. 610)

February 20, 1945

CIRCULAR LETTER NO. 16-45
(To all Stations)

Subject: Deletion of Sea Level Pressure and inclusion of Wind Velocity in miles per hour and corrected 5000-foot pressure in Mt. Washington, N.H., Synoptic Reports.

Reference: (a) 1942 Weather Code
(b) Circular Letter No. 3-45

1. Effective with the 0130EST (0230EWT) observation of March 15, 1945 all 3 and 6-hourly coded, synoptic reports from Mt. Washington, N.H., will be altered as follows:

(a) Omit - values for sea level pressure,
(b) Include - corrected 5000-foot pressures,
(c) Include - station wind velocity in miles per hour,
(d) Include - indicator that wind velocity is estimated, when appropriate.

2. Values for sea level pressure will be omitted from the report and three slants will be coded for PPP of the PPPTT group; i.e., ///TT.

3. Values of the 5000-foot pressure corrected for the effect of current wind velocity will be included in the report and will be used to code $P_mP_mP_m$ in group $9P_mP_mP_ma_3$ of the report.

4. Station wind velocity in miles per hour at the time of observation will be included in the report and will be coded in accordance with present instructions in the 1942 Weather Code for coding special phenomena; i.e., the $OS_pS_ps_ps_p$ group. When special phenomena groups for other phenomena are included the wind velocity group will be the last special phenomena group in the report.

5. When the station wind velocity is an estimated value, the standard abbreviation ESTD for ESTIMATED will be inserted in the report between the last special phenomena group and the icing code indicator of five slants. When the reported wind velocity is an anemometer recorded value, the abbreviation ESTD will be omitted from the report.

6. The following examples in symbolic form show the latter portion of the report (a) when the wind velocity is estimated and (b) when the wind velocity is a recorded anemometer value:

(a) etc., $OS_pS_ps_ps_p$ ESTD ///// $L_wC_bi_ii_fd_s$

(b) etc., $OS_pS_ps_ps_p$ ///// $L_wC_bi_ii_fd_s$

Where $OS_pS_ps_ps_p$ is the special phenomena group for wind velocity in mph and the group of five slants (/////) is the icing code indicator (Cir. Let. No. 3-45).

7. Extended comparisons have been made between the observed station pressures at Mt. Washington, N.H., and the radiosonde pressures over Portland, Maine, at the same level as the Mt. Washington station. It has been found that the Mt. Washington pressures are lower than the Portland pressures by an amount which depends on the wind direction and velocity at Mt. Washington. This discrepancy is apparently due largely to the Bernoulli effect, that is, a reduction of pressure caused by the speeding up of the air attending its motion through cross-sections restricted by mountainous configurations.

Some modifying factors which contribute to the phenomena are: (a) the convergence and divergence of streamlines influenced by the flow characteristics along, around, and above the mountain top; (b) the scouring out of air from the superposed air column depending on eddies formed in the neighborhood, and (c) the gravitationally-controlled motion of currents which tend to dam air up on the windward side and to remove it on the leeward side where the particular characteristics of motion depend greatly on the prevailing stability and moisture conditions, as well as on the terrain and surface roughness.

The pressures at the mountain station are therefore discrepant with respect to the pressures at the same level in the free air some distance to the windward from the observatory where flow conditions are comparatively undisturbed. The difference is roughly proportional to the square of the wind velocity, the proportionality factor depending on the wind direction.

A study of Mt. Washington and Portland pressure data, in conjunction with other factors involved, has yielded appropriate correction factors so that Mt. Washington observed station pressure values can be corrected for the effects of wind velocity. The corrected station pressure is used in determining the corrected 5000-foot pressure which is the value used in coding $P_mP_mP_m$ in the $9P_mP_mP_ma_3$ group of the report.

As new data are accumulated the factors employed in correcting the Mt. Washington station pressures will improve, resulting in more accurate 5000-foot pressures. The corrected 5000-foot pressures reported at this time must be regarded as approximations.

F. W. Reicheldorfer.

F. W. Reicheldorfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 610.3)

February 27, 1945

CIRCULAR LETTER NO. 17-45
(To all First-Order Stations)

Subject: Amendment, Combined Analysis Code (CAC).

Reference: W.B. No. 1345, Code For Weather Analysis Transmissions.

By agreement in the Combined Meteorological Committee, the Combined Analysis Code (CAC), printed by the Weather Bureau in W.B. No. 1345, is amended to provide for reporting of heights of contours on isobaric surfaces in hundreds of meters as well as hundreds of feet. As a result of this amendment it is expected that CAC will be used by France and other allied nations.

In code table "uuu", which is used in conjunction with code table "e", the specification for code figure "0" is amended to read - "hundreds of feet or hundreds of meters".

The type of analysis and pressure value will be given by the groups 8xxx8 00xxx in the message heading (example: 82228 00750 for 750 millibar analysis). Whether feet or meters are reported can be recognized from the values coded. Actually, in practice only certain services will use feet and others meters so that it will be known by the origin of the analysis which units are used.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Cas
(File No. 610.3)

March 2, 1945

CIRCULAR LETTER NO. 18-45
(To All First Order Stations)

Subject: Inclusion of Additional Isentropic Data In Radiosonde Reports in Caribbean Area.

Reference: 1943 Radiosonde Code.

In connection with a special study of isentropic analysis, raob reports from the Caribbean area will include pressure, condensation pressure and stream function data for surfaces 305° and 315° A. for a limited time. Inclusion of these additional isentropic data will begin as soon as practicable and end with the 0400Z raob report of April 16, 1945.

The U. S. Weather Bureau stations at San Juan, P. R. and Swan Island will participate in this program as well as other raob stations in the Caribbean and Central American areas.

These additional isentropic data will be coded in three five-figure groups in accordance with present instructions for coding isentropic data except that the first figure of each group will be the hundreds, tens and units figure, respectively, of the lower additional surface which is 305° A. These three additional groups will be included in the second transmission and will follow the present isentropic groups.

Instructions in the 1943 Radiosonde Code (Page 25-R) provide for the inclusion of isentropic data for surface 305° during the months of March and April. However, data for this surface will be included in the additional groups. This duplicate transmission of data for the 305° surface is necessary to insure correct decoding of the additional data groups.

As the reporting of these additional data is only a temporary measure, these instructions are not considered to be an amendment to the Radiosonde Code.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 010)
(700)
(700.1)

March 2, 1945

CIRCULAR LETTER NO. 19-45
(To all First-Order Stations)

Subject: Authorization of Change in Security Classification of Certain Publications

By agreement in the Joint Meteorological Committee, the security classification RESTRICTED, now assigned to the publications listed below, is removed and the publications are unclassified. These publications have been given a selected distribution. Stations holding copies are requested to cross out the word RESTRICTED and enter a reference to this circular letter as authority for the declassification.

Publications affected by this agreement are:

1. Weather Map Types - For use in Daily Forecasting of Winter Rainfall Amounts at Los Angeles, California - by Jean A. Brown.

2. Methods of Extended Forecasting - Practiced by the Five-Day Forecast Section - by Jerome Namias.

3. Methods for the Preparation of Six-Day Forecasts - by Edgar A. Aime and Ernest C. Johnson.

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 010)
(700)
(700.1)

March 2, 1945

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F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Syn-Jm
(File No. 610)
(602)

March 2, 1945

Circular Letter No. 20-45
(To All Stations Except those in 8th Region)

Subject: Transmission of Weekly and Monthly Mean Data on Schedule "C".

Reference: Instructions for computing and coding weekly and monthly means, dated September 1, 1944.

Because it is necessary to effect considerable savings in telegraph and telephone toll expenditures, the present method of transmitting weekly and monthly mean data will be changed, effective March 2, 1945.

Effective with the 0830EWT observation on March 6, 1945, the weekly mean data will be added to the Tuesday morning 0830E six-hourly report and transmitted on Schedule "C".

At locations where the city office prepares the weekly means and the airport station makes the 6-hourly observation, it will be the responsibility of the city office to telephone the data to the airport in time to be included in the 0830EWT observation. Stations which telegraph their 6-hourly observations to Denver and those who telephone or telegraph their observations to some other station, for transmission on Schedule "C" will include these data with the regular 0830EWT observation on Tuesdays. These data will be coded and transmitted in accordance with the following instructions:

A. Weekly means.

The reporting of weekly mean temperature, precipitation and degree day data will require an additive group containing 9 figures. The reporting of snow and/or ice on the ground and ice in river or harbor will require an additional group of 5 figures.

1. Mean temperature, precipitation and degree day data:

(a) Temperature.- The weekly mean temperature will be the first two figures of the group and will be computed according to the current instructions.

(b) Precipitation.- The total precipitation for the week will be indicated by four figures following the mean temperature and will be given in tens, units, tenths and hundredths. Precipitation will always require four characters. Four zeros will indicate no precipitation, four nines will indicate a trace and four slants will be used when the precipitation information is missing.

(c) Degree days.- The total degree days for the week will be expressed in the last three figures of the 9-figure group. Three zeros will be used if no degree days have been recorded and three slants will indicate missing data.

2. Snow and/or ice on the ground and ice in river or harbor.

These data will be transmitted in a separate five-figure group following the 9-figure group and separated from it by a space. This 5-figure group may be omitted if there is neither snow or ice on the ground nor ice in river or harbor, but if either is present the full group will be sent.

(a) Snow and/or ice on the ground.- The depth of snow and/or ice on the ground in whole inches will be indicated in the first two figures of this group with "99" sent when a trace is present, "00" when none is present and two slants used to mean unknown. Measurements will be made in accordance with current instructions.

(b) Ice in river or harbor.- Ice in river or harbor will be indicated by the last 3 figures of this group with "000" used to mean none, "999" a trace, "888" measurement impracticable, "777" shore ice, "666" floating ice and "555" an ice gorge. These data will be computed and sent only by those stations so authorized. When a station, not authorized to send ice in river or harbor, has snow and/or ice on the ground, three slants will be used to complete the 5-figure group.

B. Monthly means.

The monthly mean data will be transmitted in practically the same manner as the weekly means with the following exceptions:

1. Monthly means will be transmitted as additive data on the 1430EWT observation on the first day of the month.

2. No snow and/or ice on the ground and ice in river or harbor group will be sent.

3. When the total degree days for a month exceed 999 four figures will be used instead of three, thus making a ten-figure group.

C. General comments.

1. Stations which prepare degree day data only will transmit a complete group consisting of six slants followed by their degree day data, but, when average temperatures reach the point that there are no more degree day data to report, the use of the 9-figure group by these stations will be discon-

C. General comments. (cont'd)

tinued and the Central Office, Climate and Crop Weather Division, will be so informed by letter.

2. The inclusion of weekly and monthly mean data with the 6-hourly report will in no way affect current instructions for taking and coding 6-hourly observations, contained in the 1942 Weather Code and subsequent amendments.

3. These reports will be given national distribution over the Schedule "C" teletype system and will be available at all offices having Schedule "C" drops.

D. Examples and explanation.

1. 570267085 02/// meaning a mean of 57°, a total precipitation of 2.67 inches, 85 degree days, 2 inches of snow on the ground and ice in river or harbor measurement not authorized.

2. 689999000 meaning a mean of 68°, a trace of precipitation, no degree days and no snow on ground or ice in river, indicated by the absence of the 5-figure group.

3. 52////102 00045 meaning a mean of 52°, precipitation total missing, 102 degree days, no snow or ice on the ground and ice in river or harbor 4.5 inches.

4. 651135/// 00777 meaning a mean of 65°, a total precipitation of 11.35 inches, degree day data missing, no snow nor ice on the ground, and shore ice in river or harbor.

5. A monthly mean group. 610562205 meaning a mean of 61°, a total precipitation of 5.62 inches, and 205 degree days. Note that 5-figure group is not sent on monthly mean.

Questions or comments relative to this means of distribution should be sent to the Central Office, Attention SR&F Division, through the appropriate Regional Office.

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Jm
(File No. 740.1)

March 2, 1945

Circular Letter No. 21-45
(To All Stations)

Subject: Amendments and Interpretations; 1942 Weather Code.

Reference: (a) Parts I and II, 1942 Weather Code.
(b) Circular Letter No. 13-45.

The amendments and interpretations of the 1942 Weather Code contained in Attachments A, B and C, (with the exception of instructions for coding precipitation amounts of one inch or more and pressure changes of 20 millibars or more which become effective March 1, 1945, Circular Letter No. 13-45) become effective 0130 EST (0230 EWT) April 1, 1945.

Following is a resume of the subject matter of these attachments:

1. Attachment A contains instructions for the coding of ceiling, visibility, pressure change, precipitation and past weather.

2. Attachment B contains interpretations of the coding of precipitation ceiling, ceiling and height of lower clouds, cloud types when the sky is obscured and past weather.

3. Attachment C contains reprints of several of the paragraphs in Attachment A. These reprints may be removed from the circular letter and inserted in Parts I and II, 1942 Weather Code as appropriate.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

Attachments (3).

ATTACHMENT "A"

Amendments to 1942 Weather Code

Part I

Paragraph 28:

Change to read as follows:

28. Group $7h_ch_cVV$ is sent ONLY when (a) more than five-tenths of the sky is covered with clouds at or below 9,750 feet or (b) visibility is less than 10 miles. When the "ceiling" is 9,751 feet or higher AND when the visibility is 10 miles or greater, group $7h_ch_cVV$ is omitted entirely from the report.

Paragraph 52:

Change lines 6 and 7 to read as follows:

(b) When visibility at the time of observation is less than 10 miles.

Paragraph 86:

Change the first sentence to read as follows:

86. When visibility is less than 10 miles, Group Seven will always be included in the coded message.

Paragraph 110:

Delete this paragraph and insert the following:

110. Symbol "pp" is the amount of barometric tendency (net change) during the 3-hour period preceding the time of observation and is coded in FIFTHS of millibars. When the amount of change is 20 millibars (0.590 inch of mercury) or more, "99" is coded for "pp" and an additional five-figure group (99ppp) is inserted in the report immediately FOLLOWING the UC_Happ group. In group "99ppp", "99" is the group identifier and "ppp" is the 3-hour net change in FIFTHS of millibars. Examples: (a) for a 3-hour net change of 3.4 millibars (0.100 inch) "17" is coded for "pp"; i.e., 17 FIFTHS of millibars, (b) for a 3-hour net change of 23.4 millibars (0.690 inch) "99" is coded for "pp" and "117" is coded for "ppp"; i.e., 0.590 inch equals 100 FIFTHS of millibars, 0.690 inch minus 0.590 inch leaves 0.100 inch or 17 FIFTHS of millibars, therefore, the value coded for "ppp" is the sum of 100 and 17 FIFTHS of millibars or "117".

Paragraph 136:

Change the phrase - "(less than 0.005 inch)" to read "0.005 inch or less)".

The paragraph should read: 136. When the amount of precipitation is a TRACE (0.005 inch or less), the Symbol RR is coded as 99.

Paragraph 138:

Delete this paragraph and insert the following:

138. When the amount of precipitation is one inch or more an additional five-figure group (000R'R') is inserted in the report immediately FOLLOWING the $8R_sR_tRR$ group to indicate the number of "whole inches" of precipitation. In the group "000R'R'", "000" is the group identifier and the "whole inches" of precipitation are coded for "R'R'". The "hundredths" of an inch of precipitation are coded for "RR" in the $8R_sR_tRR$ group. Examples: (a) precipitation ending 2 to 3 hours ago, amounting to 2.14 inches in the preceding 6 hours is coded "80314 00002"; (b) precipitation ending 2 to 3 hours ago, amounting to 12.14 inches in the preceding 6 hours is coded "80314 00012".

Example No. 9

From first line of coded report delete the word "TWENTY".

In second line of coded report change group 80401 to 80499 and insert the group 99101 between groups 80499 and 69777. Also, delete the word "TWO" and insert group 00002 between groups 80735 and 03982.

Make the following changes in the three columns of explanatory material:

(a) delete line "TWENTY Amount of Tendency 20.0 mb. (plus)"

(b) change line "01 pp Amount of Tendency etc." to read "99 pp Amount of Tendency +20.2 mb. (see below)"

(c) insert the following 2 lines between the "pp" line and the T_sT_s line: "99 99 Group identifier"
"101 ppp Amount of Tendency +20.2 mb."

(d) delete line "TWO Amount of Precipitation 2.00 inches (plus)"

(e) in line "35 RR, etc.," change last phrase to read "0.35 inches (see below) (Total amount 2.35 inches)"

(f) insert the following 2 lines between the "RR" line and the "0" line:

"000 000 Group identifier"
"02 R'R' Amount of precipitation 2.00 inches (see above) (Total amount 2.35 inches)

(g) change NOTE at bottom of page to read: NOTE:-This example shows how an additional "plain language word" is used to indicate wind at time of observation over force 9. This is also one of the rare cases where more than three Special Phenomena groups are used.

ATTACHMENT "A"

Part II

Code Table 58:

Insert an asterisk (*) immediately to the left of code figures 0, 1 and 2.

Below code table insert the following footnote:

*"When determing appropriate values for code figures 0, 1 and 2 the following criteria are used:

0 = from no clouds up to but not including one tenth,
1 = from exactly one tenth to exactly five tenths,
2 = over five tenths up to and including ten tenths.

Code Table 64:

Delete the footnote designated by the double dagger (‡) and insert the following:

‡ When the 3-hour barometer change is 20 millibars or more (100 fifths of millibars or 0.590 inch or mercury) "pp" is coded as "99" and a five-figure group (99ppp) is inserted in the report immediately FOLLOWING the UC_Happ group, where "99" is the group identifier and "ppp" is the 3-hour net pressure change in FIFTHS of millibars.

Code Table 59 (Printed edition of Part II, dated April 1, 1943):

Change 30.52 in. = 1035.5 mb. to 30.52 in. = 1033.5

Code Table 68:

Change explanation of code figure 9 from "less than 0.5 inch*" to "0.5 inch or less*".

After asterisk note at bottom of table add the following: (0.5 inch or less of snow ground is considered a TRACE for synoptic coding purposes only).

Code Table 70:

In the footnote designated by the asterisk (*) change "less than 0.005 inch" to "0.005 inch or less" so that the footnote reads: *A "trace" of precipitation is an amount generally considered too small to measure; actually it is 0.005 inch or less.

Delete the footnote indicated by the dagger (†) and insert the following:

† When more than 0.99 inch of precipitation occurs a five-figure group (000R'R') is inserted in the report immediately FOLLOWING the $8R_sR_tRR$ group to indicate the "whole inches" of precipitation. In this additional group (000R'R') the "whole inches" are coded for symbol "R'R'" and the remaining "hundredths" are coded for symbol "RR" in group "$8R_sR_tRR$".

ATTACHMENT "B"

Interpretations of the 1942 Weather Code

1. Symbols C_L, C_M, C_H, D_c, h, N_h, h_ch_c, and N

Letters received from field stations indicate that there is some doubt as to the correct code values for symbols C_L, C_M, C_H, D_c, h, N_h, h_ch_c and N when a precipitation ceiling exists; also, as to how data for these elements shall be entered on Form 1083.

The following interpretations apply when a precipitation ceiling exists:

Element	Form 1083		Instructions for 1083 (paragraph no.)	1942 Weather Code		
	Line No.	Enter		Part I (paragraph no.)	Part II (Code Table No.)	Coded As:
C_L	2	X	2	47	50	0
C_M	3	X	3	46	51	0
C_H	4	X	4	46	62	0
D_c	5	X	5	49	65	0
h	6	**X	6	55	54	0
N_h	7	X	7	63	55	9
*h_ch_c	8	P1100	8	55	66	11
N	9	X	9	66	55	9

*Assuming 1100 foot precipitation ceiling as an example.

**Paragraph 6 - In the next printing of "Instructions to Form 1083" paragraph 6 will be amended to include, "If sky is obscured by dust, fog, etc., enter "X" for unknown." In the meantime, this amending line may be entered on the record station copy for guidance of all personnel.

2. Symbols h and h_ch_c

It has been noted, also, that some observers are confusing paragraphs 55 and 56 of Part I. Paragraph 55 states that h_ch_c may be coded in a higher figure than "h" whenever the effective ceiling is more than 50 feet. In other words, when the sky is obscured by fog, duststorm, sandstorm, rain, etc., so that it is impossible to observe the clouds and there is an "effective" ceiling formed by the obscuring phenomena, the value coded for h_ch_c represents the height of the obscuring phenomena and will be different from the value coded for "h". In above example h_ch_c is coded as 11 to indicate that the effective (precipitation) ceiling is 1100 feet, even though "h" is coded as 0.

Paragraphs 8 and 56; Attention is directed to the first sentence of paragraph 8 which states that a slant (/) will NOT be used in the case of obscured sky. Accordingly, a slant will not be coded for "h" when the sky is obscured.

3. Symbols C_L, C_M and C_H

Regarding coding of cloud types when the sky is obscured. It is not desired to have the observer determine the appropriate cloud type by deduction. Therefore, when the sky is obscured by precipitation or other phenomena to the extent that the observer can not accurately observe the cloud types present they will be reported as obscured; i.e., C_L, C_M and C_H will be coded as 0.

4. Symbol "W"

Question has also arisen regarding the correct value to be coded for Symbol "W" when smoke (visibility below 1100 yards) best describes the weather during the past 6 hours.

Until such time as the International Meteorological Organization makes a ruling on this question it appears that smoke logically falls within the category indicated by code figure 4 (Code Table 58).

The following paragraphs may be cut out and inserted in Parts I and II, 1942 Weather Code as appropriate:

Part I, Paragraph 110. (Effective March 1, 1945)
(Circular Letters Number 13-45 and 21-45)

110. Symbol "pp" is the amount of barometric tendency (net change) during the 3-hour period preceding the time of observation and is coded in FIFTHS of millibars. When the amount of change is 20 millibars (0.590 inch of mercury) or more, "99" is coded for "pp" and an additional five-figure group (99ppp) is inserted in the report immediately FOLLOWING the UC_Happ group. In group "99ppp", "99" is the group identifier and "ppp" is the 3-hour net change in FIFTHS of millibars. Examples: (a) for a 3-hour net change of 3.4 millibars (0.100 inch) "17" is coded for "pp"; i.e., 17 FIFTHS of millibars, (b) for a 3-hour net change of 23.4 millibars (0.690 inch) "99" is coded for "pp" and "117" is coded for "ppp"; i.e., 0.590 inch equals 100 FIFTHS of millibars, 0.690 inch minus 0.590 inch leaves 0.100 inch or 17 FIFTHS of millibars, therefore, the value coded for "ppp" is the sum of 100 and 17 FIFTHS of millibars or "117".

Part I, Paragraph 138. (Effective March 1, 1945)
(Circular Letters Number 13-45 and 21-45)

Delete this paragraph and insert the following:

138. When the amount of precipitation is one inch or more an additional five-figure group (000R'R') is inserted in the report immediately FOLLOWING the $8R_sR_tRR$ group to indicate the number of "whole inches" of precipitation. In the group "000R'R'", "000" is the group identifier and the "whole inches" of precipitation are coded for "R'R'". The "hundredths" of an inch of precipitation are coded for "RR" in the $8R_sR_tRR$ group. Examples: (a) precipitation ending 2 to 3 hours ago, amounting to 2.14 inches in the preceding 6 hours is coded "80314 00002"; (b) precipitation ending 2 to 3 hours ago, amounting to 12.14 inches in the preceding 6 hours is coded "80314 00012".

Part II, Code Table 58. (Effective April 1, 1945)
(Circular Letter Number 21-45)

*When determining appropriate values for code figures 0, 1 and 2 the following criteria are used:

0 = from no clouds up to but not including one tenth
1 = from exactly one tenth to exactly five tenths
2 = over five tenths up to and including ten tenths

Part II, Code Table 64

(Effective March 1, 1945)
(Circular Letters Number 13-45 and 21-45)

Delete the footnote designated by the double dagger (‡) and insert the following:

‡ When the 3-hour barometer change is 20 millibars or more (100 FIFTHS of millibars or 0.585 inch of mercury) "pp" is coded as "99" and a five-figure group (99ppp) is inserted in the report immediately FOLLOWING the UC_Happ group, where "99" is the group identifier and "ppp" is the 3-hour net pressure change in FIFTHS of millibars.

Part II, Code Table 70

(Effective March 1, 1945)
(Circular Letters Number 13-45 and 21-45)

Delete the footnote indicated by the dagger (†) and insert the following:

† When more than 0.99 inch of precipitation occurs a five-figure group (OOOR'R') is inserted in the report immediately FOLLOWING the $8R_sR_tRR$ group to indicate the "whole inches" of precipitation. In this additional group (OOOR'R') the "whole inches" are coded for symbol "R'R'" and the remaining "hundredths" are coded for symbol "RR" in group "$8R_sR_tRR$".

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

MAT:THE:Du
(File No. 410.3)

June 12, 1945

CIRCULAR LETTER NO. 22-45
(To All First Order Stations)

Subject: Empty metal spools for Typewriter Ribbons, Computing and Addressing Machine Ribbons, Stapling Machine (Bates) wire Haloid and Rectigraph Photocopy Paper.

The following types of empty metal spools should be accumulated and turned over to the local collecting agency for disposal as scrap metal. (See Circular Letter No. 7-44, dated January 13, 1944)

Typewriters
Teletypewriters
Computing and Adding Machines
Addressing Machine
Stapling Machines (Bates) Wire

The practice of forwarding empty Haloid and Rectigraph spools to the Central Office should be continued.

Circular Letters 115-41 and 157-41 are hereby rescinded.

F. W. Reichelderfer
Chief of Bureau

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Lo
(File No. 750)

March 12, 1945

CIRCULAR LETTER NO. 23-45
(To All First-and Second-Order Stations)

Subject: WB Forms 1130A and B

Central Office supplies of WB Form 1130B have become depleted. It is therefore requested that requisitions for this form be addressed to the Regional Offices. Regional Directors will supply stations in their region with WB Form 1130B as long as the supply lasts, after which they will fill the requisitions with WB Form 1130A, supplies of which will be sent to them in the near future.

Copies of WB Form 1130A are attached. It will be noted that it is similar to WB Form 1130B but has an additional space captioned "Summary of the Day." Entries will not be made in this portion of the form, or in columns 16 to 24 inclusive, until further instructions are received.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Enclosure

WB Form 1130A

Time entries on this form are _____ th meridian time

To convert to G. C. T. { add / subtract } _____ hours

Height of Barometer _____ Ft. (MSL)

UNITED STATES DEPARTMENT OF COMMERCE

WEATHER BUREAU

SURFACE WEATHER OBSERVATIONS

(LAND STATION)

WBAN—10A

Security Classification _____

Station _____

Lat. _____ Long. _____

TYPE (1)	TIME (2)	CLASSIFICATION (3)	CEILING (Hundreds of Feet) (4)	SKY (5)	VISIBILITY (Miles) (6)	WEATHER AND/OR OBSTRUCTIONS TO VISION (7)	SEA-LEVEL PRESSURE (Mbs.) (8)	TEMP. AND DEW PT. (°F) (9)	(10)	WIND: DIRECTION (11)	WIND: VELOCITY (M. P. H.) (12)	WIND: CHARACTER AND SHIFTS (13)	ALTIMETER (Inches) (14)	REMARKS AND SUPPLEMENTAL CODED DATA (For Transmission) (15)

PRES. TEND. (16)	NET 3-HR. CHANGE (Inches) (17)	PRECIP. (Inches) (18)	CLOUDS: LOW AMT., TYPE, DIRECTION (19)	CLOUDS: LOW HEIGHT (Hnds. of Ft.) (20)	CLOUDS: MIDDLE AMT., TYPE, DIRECTION (21)	CLOUDS: MIDDLE HEIGHT (Hnds. of Ft.) (22)	CLOUDS: HIGH AMT., TYPE, DIRECTION (23)	CLOUDS: HIGH HEIGHT (Hnds. of Ft.) (24)	STATION PRESSURE (Inches) (25)	DRY BULB (°F) (26)	WET BULB (°F) (27)	WATER TEMP. (°F) (28)	(29)	OBS. INIT. (30)

SUMMARY OF DAY (midnight to midnight)

Time of sunrise _____ Time of sunset _____

24-hr. Max. Temp. _____ °F. 24-hr. Min. Temp. _____ °F.

24-hr. Precip. (water equivalent) _____ in. 24-hr. Snowfall (unmelted) _____ in.

Total hours of fog: Light _____ Moderate _____ Heavy _____

Max. wind (5 min.) _____ (m.p.h., knots) Direction _____ Time _____

Extreme wind (fastest single mile) _____ (m. p. h., knots) Direction _____ Time _____

Peak gust _____ (m.p.h., knots) Direction _____ Time _____

Thickness of ice on water _____ in.

Ground frozen from _____ in. to _____ in.

6-HOURLY OBSERVATIONS

Time of Obs.					Midnight
Precip. (in.)					
Snowfall (in.)					
Snow Depth (in.)					
Max. Temp.					
Min. Temp.					
5,000 ft. Pressure					
Rel. Hum. %					
Soil Temp.					
State of Ground					

Time of Obs.				
State of Sea and Dir.				
Swell Ht. and Dir.				
Swell Period				
Surf ($L_bL_wK_sP_sD$)				
Barograph Reading				
Attached Thermometer				
Observed Reading				
Total Correction				

Remarks, Notes, and Miscellaneous Phenomena

Types of air masses and frontal passages determined from synoptic maps, severe storms, miscellaneous hydrometeors, floods

Month _____ Day _____ Year _____

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Library (2)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Jm
(File No. 740.5)

March 21, 1945.

Circular Letter No. 24-45
(To All Stations)

Subject: Amendments for Appendix II to Circular N.

References: (a) Manual of Instructions for Coding Additive Data Groups for Hourly Observations, effective February 1, 1945 (Appendix II to 1941 Edition of Circular N).
(b) Circular Letter No. 13-45.
(c) Circular Letter No. 21-45.

The amendments contained in Attachment "A" of this circular letter become effective with the 0130 EST (0230 EWT) report of April 1, 1945. These amendments will bring Appendix II into conformity with current instructions in the 1942 Weather Code for reporting pressure changes of 20 millibars or more and precipitation amounts of one inch or more.

Attachment "B" contains reprints which may be inserted in the publication as appropriate.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Attachments.

Extra copy received 4/6/45

one sent to catalog room

ATTACHMENT "A"
(Circular Letter No. 24-45)

Amendments for "Manual of Instructions for Coding Additive Data Groups for Hourly Observations"
(Appendix II to 1941 Edition of Circular N)

Page 2, Section II, 1st Paragraph, 1st Sentence:

Delete last 7 words of 1st sentence: "unless otherwise instructed by the Regional Office."

Page 2, Section II, 1st Paragraph:

Alter the symbolic form at end of first paragraph by inserting groups "99ppp" and "OOOR'R'" so that it reads:

(hourly report) / appRR (99ppp and/or OOOR'R') $C_LC_MC_HD_Ch_+M_+$

(or $C_LC_MC_HD_C$) $9P_mP_mP_ma_3$ $T_{n/x}T_{n/x}$ $OS_pS_pS_pS_p$.

Page 2, Section II, Last Paragraph:

Delete the last paragraph on page 2 and first line on page 3.

Substitute the following in place of above deleted material:

"When the amount of pressure change is 20 millibars (0.590 inch of mercury) or more, "99" is coded for "pp" and an additional five-figure group (99ppp) is inserted in the report immediately FOLLOWING the "appRR" group. In group "99ppp", "99" is the group identifier and "ppp" is the 3-hour net change in FIFTHS of millibars. Examples: (a) for a 3-hour net change of 3.4 millibars (0.100 inch) "17" is coded for "pp" (i.e., 17 FIFTHS of millibars); (b) for a 3-hour net change of 23.4 millibars (0.690 inch) "99" is coded for "pp" and "117" is coded for "ppp" (i.e., 0.690 inch equals 100 FIFTHS of millibars, 0.690 inch minus 0.590 inch leaves 0.100 inch or 17 FIFTHS of millibars, therefore, the value coded for "ppp" is the sum of 100 and 17 FIFTHS of millibars or "117").

Page 3, Section II, Example in 1st Paragraph:

The 5 examples at end of 1st paragraph will be altered as follows:

4th example delete "TWENTY a00RR" and replace with "a99RR 99100".
5th example delete "TWENTY a01RR" and replace with "a99RR 99101".

Page 3, Section II, paragraph 7:

Delete 7th paragraph (When the total precipitation to be reported is one inch or more, etc.) and substitute the following paragraph:

ATTACHMENT "A"

"When the amount of precipitation is one inch or more an additional five-figure group (000R'R') is inserted in the report FOLLOWING the "appRR" or the "99ppp" group (if the latter group is reported) to indicate the number of "whole inches" of precipitation. In the group "000R'R'", "000" is the group identifier and the "whole inches" of precipitation are coded for "R'R'". The "hundredths" of an inch of precipitation are coded for "RR" in the "appRR" group. Examples: (a) 0.77 inches is coded "app77", (b) 2.77 inches is coded "app77 00002" or "app77 99ppp 00002" if the "99ppp" group is also included.

Page 4, Section II, Examples:

In center of page alter the block of examples so that they conform to the following:

OBSERVED VALUES:		CODE FIGURES:			TIME PERIOD	CODED AS:
pp (in.)	RR (in.)	a	pp	RR		
.005	zero	1	01	00	6 hours	10100
.045	trace	3	08	99	6 hours	30899
.590	0.63	4	99,99100	63	6 hours	49963 99100
.030	2.31	8	05	31,00002	6 hours	80531 00002
.675	3.57	9	99,99114	57,00003	6 hours	99957 99114 00003
.010	0.43	2	02	43	12 hours	202/43
.015	trace	1	03	99	12 hours	103/99
.015	missing	1	03	//	6 hours	103//

Page 4, Note, 3rd Sentence:

Insert "in the additive data group" so that the sentence reads:

When precipitation under these conditions occurs during this interval (between filing times) it will always be coded as a Trace in the additive data group regardless of the amount of precipitation that falls.

Page 4, Note, 4th Sentence:

Delete the fourth sentence (Accordingly, "RR" will be coded etc.) and substitute the following: In accordance with instructions in the 1942 Weather Code, the $8R_sR_tRR$ group will not be included in the coded 6-hourly synoptic report; however, "99" (Trace) will be coded for "RR" in the additive data precipitation group (appRR).

Page 11, Section III, 2nd and 3rd Lines:

In 2nd and 3rd lines delete the 12 words "unless specifically authorized by the Regional Office NOT to include the data."

Page 11, Section III, 2nd Paragraph:

Alter the symbolic form so that it reads:

(hourly report) / app(and 99ppp) $C_LC_MC_HD_Ch_+M_+$(or $C_LC_MC_HD_C$) $9P_mP_mP_ma_3$

Page 11, Section III, 3rd Paragraph:

In first sentence insert "or 4, as appropriate" so that the sentence reads: It will be noted that only 3 or 4, as appropriate, additive data groups are added, etc.

Add the following sentence at end of paragraph: If the "99ppp" group is inserted in the report the first, second, third and fourth groups will consist of 3, 5, 4(or 6) and 5 figures respectively.

ATTACHMENT "B"
(Circular Letter No. 24-45)

Amendments for "Manual of Instructions for Coding Additive Data Groups for Hourly Observations"
(Appendix II to 1941 Edition of Circular N)

Section II, Page 2, 1st Paragraph: (Circular Letter No. 24-45) (Effective April 1, 1945)

(hourly report) / appRR (99ppp and/or 000R'R') $C_L C_M C_H D_C h_+ M_+$

(or $C_L C_M C_H D_C$) $9P_m P_m P_m a_3$ $T_{n/x} T_{n/x}$ $0S_p S_p s_p s_p$.

Page 2, Section II, Last Paragraph: (Circular Letter No. 24-45) (Effective April 1, 1945)

"When the amount of pressure change is 20 millibars (0.590 inch of mercury) or more, "99" is coded for "pp" and an additional five-figure group (99ppp) is inserted in the report immediately FOLLOWING the "appRR" group. In group "99ppp", "99" is the group identifier and "ppp" is the 3-hour net change in FIFTHS of millibars. Examples: (a) for a 3-hour net change of 3.4 millibars (0.100 inch) "17" is coded for "pp" (i.e., 17 FIFTHS of millibars), (b) for a 3-hour net change of 23.4 millibars (0.690 inch) "99" is coded for "pp" and "117" is coded for "ppp" (i.e., 0.590 inch equals 100 FIFTHS of millibars, 0.690 inch minus 0.590 inch leaves 0.100 inch or 17 FIFTHS of millibars, therefore, the value coded for "ppp" is the sum of 100 and 17 FIFTHS of millibars or "117").

Page 3, Section II, Paragraph 7: (Circular Letter No. 24-45)
(Effective April 1, 1945)

"When the amount of precipitation is one inch or more an additional five-figure group (000R'R') is inserted in the report FOLLOWING the "appRR" or the "99ppp" group (if the latter group is reported) to indicate the number of "whole inches" of precipitation. In the group "000R'R'", "000" is the group identifier and the "whole inches" of precipitation are coded for "R'R'". The "hundredths" of an inch of precipitation are coded for "RR" in the "appRR" group. Examples: (a) 0.77 inches is coded "app77", (b) 2.77 inches is coded "app77 00002" or "app77 99ppp 00002" if the "99ppp" group is also included.

Symbol "RR" is always represented by either a code figure or slants (//). Accordingly, if no precipitation has occurred during the reporting period "RR" will always be coded "00", or if precipitation has occurred and for any reason the actual amount is unknown, slants (//) will be used in coding "RR".

Page 4, Section II, Examples: (Circular Letter No. 24-45)
(Effective April 1, 1945)

OBSERVED VALUES:		CODE FIGURES:			TIME PERIOD	CODED AS:
pp (in.)	RR (in.)	a	pp	RR		
.005	zero	1	01	00	6 hours	10100
.045	trace	3	08	99	6 hours	30899
.590	0.63	4	99,99100	63	6 hours	49963 99100
.030	2.31	8	05	31,00002	6 hours	80531 00002
.675	3.57	9	99,99114	57,00003	6 hours	99957 99114 00003
.010	0.43	2	02	43	12 hours	202/43
.015	trace	1	03	99	12 hours	103/99
.015	missing	1	03	//	6 hours	103//

Page 11, Section III, 2nd Paragraph: (Circular Letter No. 24-45)
(Effective April 1, 1945)

(hourly report) / app(and 99ppp) $C_L C_M C_H D_C h_+ M_+$(or $C_L C_M C_H D_C$) $9P_m P_m P_m a_3$

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

C&CW-Lu
(File No. 724.2)

March 24, 1945

CIRCULAR LETTER NO. 25-45
(To all stations)

Subject: Discontinuance of Snow and Ice Bulletin

The Weekly Snow and Ice Bulletin, season of 1944-45, at present included in the Weekly Weather and Crop Bulletin, will be discontinued with the reports for the week ending Monday, March 26, 1945. All telegraphic and other reports of snow depth and ice thicknesses now being sent for use in this publication will cease after Tuesday, March 27, until further notice.

Section directors who arranged for reports of snow depth from cooperative observers are requested to notify them concerning this action and express the Weather Bureau's appreciation for their kind assistance.

Respectfully,

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/Jm
(File No. 730.4)

March 26, 1945

Circular Letter No. 26-45
(To First Order Stations)

Subject: Amendments to "Preparation of Weather Maps".

Reference: "Preparation of Weather Maps", dated July 1, 1942.

The amendments, contained in Attachments "A" and "B", for the U. S. Weather Bureau publication entitled "Preparation of Weather Maps", dated July 1, 1942 become effective 0130 EST (0230 EWT) May 1, 1945.

Following is a resume of the subject matter of these attachments:

1. Attachment "A" contains instructions for the entry of MANDATORY, OPTIONAL and ABRIDGED data, ceiling, visibility, maximum and minimum temperatures, squall lines and intertropical fronts.

2. Attachment "B" contains reprints of sections of the instructions in Attachment "A". These reprints may be detached and inserted in the publication as appropriate.

F. W. Reichelderfer,
Chief of Bureau.

Attachments (2).

ATTACHMENT "A"
(Circular Letter No. 26-45)

Page 8, Section IV, A.

Delete Section A and insert the following:

A. Observation Data Entered

Data entered on manuscript weather maps from reports coded in the 1942 Weather Code come under three categories; i.e., MANDATORY, OPTIONAL and ABRIDGED. Detailed listing of the data to be entered under each of these categories is as follows:

1. MANDATORY - All stations preparing maps that are regularly used in general forecasting work and/or consultation with pilots will enter data for the following symbols: C_L; C_M; ww; N_h; DD; F; W; N; PPP; TT; C_H; a; pp; T_sT_s; D_C; h_ch_c; VV; R_t; RR.

   Data for symbols V and h may be plotted instead of data for h_ch_c and VV, if desired, on maps used in trans-oceanic forecast work. These cases are exceptions to the general rule that h_ch_c and VV are mandatory and provide for consistency on maps that contain data from reports coded in the 1942 Weather Code and foreign reports coded in International Code Forms that do not include h_ch_c and VV values.

   OPTIONAL - Data for the following symbols are not required, but may be entered if desired; V; h; R_s; $P_mP_mP_m$; a_3; $S_pS_pS_pS_p$.

   OPTIONAL data entries will not be considered as substitutes for MANDATORY data entries. When all OPTIONAL data are entered at a station the "Complete U.S. Station Model" is used.

   ABRIDGED (CITY OFFICE) - Those stations (mostly city offices) which do not come under the specifications of (1), above, and which plot maps for local forecasting purposes and special work, come under this category. In these cases it will be left to the judgement of the Official in Charge as to whether MANDATORY or ABRIDGED data will be entered for the selected stations plotted. When ABRIDGED data are entered, the Map Analysis (MA) will be plotted in accordance with Circular Letter No. 24-43.

   Data for the following symbols will be entered on maps under the ABRIDGED category: ww; DD; F; N; PPP; TT; RR. In addition, values for symbols "a" and "pp" and maximum and minimum temperatures may be entered as optional ABRIDGED data.

   When ABRIDGED data are entered on the map, the complete station model will be used as a guide and the data will be entered in their appropriate places. These data will

be entered in accordance with "Detailed Instructions for the Entry of Observation Data", Section IV, E, of this publication.

Page 8, Section IV, B.

Change first sentence of last paragraph to read:

"Where there exists a need for the entry of maximum and/or minimum temperatures, these data are NOT entered on the basic weather map unless conditions given in A,3 above are met; i.e., the station is authorized to enter ABRIDGED data."

Page 9, C:

Delete present paragraphs 1 and 2 and insert the following paragraphs in lieu of the deleted paragraphs:

1. When entering MANDATORY data the following order of entry is recommended: DD; F; C_L; C_M; ww; N_h; W; N; PPP; TT; C_H; pp; a; T_sT_s; D_C; h_ch_c; VV; R_t; RR.

2. When entering both MANDATORY and OPTIONAL data, the following order of entry is recommended: DD; F; C_L; C_M; ww; V; h; N_h; W; N; PPP; TT; C_H; pp; a; T_sT_s; D_C; h_ch_c; VV; R_s; R_t; RR; $P_mP_mP_m$; a_3; $S_pS_pS_pS_p$.

3. When entering ABRIDGED data, the following order of entry is recommended: DD; F; N; ww; PPP; TT; RR; (a; pp; $T_{n/x}T_{n/x}$).

4. The order of entry of data given in paragraphs 1, 2 and 3 is recommended; however, the Official in Charge is authorized to rearrange the entry sequence of these data to meet special requirements. It is essential, however, that DD and F be entered before other symbols in order to prevent partial obliteration of other data by the direction shaft and feathers for DD and F.

Page 14, Paragraph 6:

Insert the following sentence above line 1:

"The entry of symbol V is OPTIONAL at U. S. Weather Bureau stations".

Page 14, Paragraph 7:

Insert the following above line 1:

"The entry of symbol h is OPTIONAL at U. S. Weather Bureau stations".

Insert the following after the last sentence:

"Whenever the code figure reported for symbol "h" is entered in addition to the two figures entered for symbol h_ch_c a slant will always be drawn immediately to the left of the figure entered for symbol h, thereby separating the two entries for "ceiling" and "height of lower cloud" (see footnote on page 21).

Page 20, Paragraph 20:

Delete lines 1, 2 and 3 and add the following line after deleted line 3:

"The entry of symbol h_ch_c is MANDATORY at U. S. Weather Bureau stations".

In line 8 delete the following underlined parenthetical words; (or the space reserved for Symbol "h").

Page 21, Paragraph 21:

Delete lines 1, 2, 3 and 4 and add the following line after deleted line 4:

"The entry of symbol VV is MANDATORY at U. S. Weather Bureau stations".

In line 6, delete the period and add the words "whenever a figure for symbol V is entered; otherwise the figures for VV are entered in the space reserved for V in the model".

In line 7, change by insert so that the first four words read: "Whenever both VV and V are entered", etc.

In line 10, delete the three underlined words "and a slant" and add the word "and" after the word "figures" so that lines 10 and 11 will read: "TWO figures and a decimal point are always entered for Symbol VV."

Add the following note after last sentence at bottom of page:

"Note: Since nearly all U. S. Weather Bureau stations will exercise the option of omitting the entry of symbol V data, the provisions outlined below will apply to the entry of visibility data from areas which do not report $7h_ch_cVV$. On charts containing data from reports not coded in the 1942 Weather Code, it will be evident that the international code figure for V is entered on the chart, since two figures will always be entered when the value is in "units" and "tenths" of miles, and one figure will always be entered when the international code for visibility is entered as received. The international code represents a "range" of visibility rather than a specific distance.

ATTACHMENT "A"

Page 25, Section IV, E, 28:

Insert the following paragraphs numbered 28 after paragraphs numbered 27:

28. Symbol T_nT_n and T_xT_x = Minimum and Maximum Temperatures.

The entry of minimum and maximum temperatures is OPTIONAL at Weather Bureau stations (City Offices) authorized to enter ABRIDGED data. The minimum or maximum temperature will be entered above the station circle in the position normally occupied by C_H in the station model and it will be enclosed in parentheses. If both the maximum and minimum temperatures are entered on the same map they will be entered in the same manner as if the temperatures were entered separately except that the maximum temperature is entered to the left and separated from the minimum by a comma; e.g. (75,50).

Maximum and minimum temperatures will be entered in degrees Fahrenheit.

Squall Lines and Intertropical Fronts

Page 31, Part V, A, 1a:

At end of paragraph delete period and add; squall line or instability front; intertropical front.

Page 36, E, 2:

After instructions for Frontolysis insert the following instructions for indicating squall lines or instability fronts and intertropical fronts:

*Squall line or instability front - Alternating purple dots and dashes arranged in series of two dots and a dash (length of dash will be 1/2 inch).

Intertropical front - Two thin red parallel lines spaced about 1/8 inch apart.

*Note: Definition of the term "Squall line or instability front" is under consideration; however, until such time as a more appropriate term is assigned to this phenomenon the above term will be used.

Page 43:

Front Symbols, after number 13 insert:

	Character of Front	On working charts	On printed charts	Typical Cross Section
13a	Squall line or instability front	Alternating purple dots (2) and dash; ——— . . ———	——— . . ——— (Squall Line)	↕ (Squall Line)
13b	Intertropical Front	Two thin red parallel lines (1/8 inch apart)	(Intertropical Front)	(Intertropical Front)

ATTACHMENT "B"
(Circular Letter No. 26-45)

The following paragraphs may be cut out and inserted in "Preparation of Weather Maps", dated July 1, 1942, as appropriate;

Page 8, Section IV, A:

(Effective May 1, 1945)
(Circular Letter No. 26-45)

A. Observation Data Entered

Data entered on manuscript weather maps from reports coded in the 1942 Weather Code come under three categories; i.e., MANDATORY, OPTIONAL and ABRIDGED. Detailed listing of the data to be entered under each of these categories is as follows;

1. MANDATORY - All stations preparing maps that are regularly used in general forecasting work and/or consultation with pilots will enter data for the following symbols; C_L; C_M; ww; N_h; DD; F; W; N; PPP; TT; C_H; a; pp; T_sT_s; D_C; h_ch_c; VV; R_t; RR.

   Data for symbols V and h may be plotted instead of data for h_ch_c and VV, if desired, on maps used in trans-oceanic forecast work. These cases are exceptions to the general rule that h_ch_c and VV are mandatory and provide for consistency on maps that contain data from reports coded in the 1942 Weather Code and foreign reports coded in International Code Forms that do not include h_ch_c and VV values.

2. OPTIONAL - Data for the following symbols are not required but may be entered if desired; V; h; R_s; $P_mP_mP_m$; a_3; $S_pS_ps_ps_p$.

   OPTIONAL data entries will not be considered as substitutes for MANDATORY data entries. When all OPTIONAL data are entered at a station the "complete U.S. Station Model" is used.

3. ABRIDGED (CITY OFFICE) - Those stations (mostly city offices) which do not come under the specifications of (1), above, and which plot maps for local forecasting purposes and special work, come under this category. In these cases it will be left to the judgement of the Official in Charge as to whether MANDATORY or ABRIDGED data will be entered for the selected stations plotted. When ABRIDGED data are entered, the Map Analysis (MA) will be plotted in accordance with Circular Letter No. 24-43.

   Data for the following symbols will be entered on maps under the ABRIDGED category; ww; DD; F; N; PPP; TT; RR. In addition, values for symbols "a" and "pp" and maximum and minimum temperatures may be entered as optional ABRIDGED data.

   When ABRIDGED data are entered on the map, the complete station model will be used as a guide and the data will be entered in their appropriate places. These data will be entered in accordance with "Detailed Instructions for the Entry of Observation Data", Section IV, E, of this publication.

Page 9, Section C:

(Effective ~~April~~ May 1, 1945)
(Circular Letter No. 26-45)

1. When entering MANDATORY data the following order of entry is recommended: DD; F; C_L; C_M; ww; N_h; W; N; PPP; TT; C_H; pp; a; T_sT_s; D_C; h_ch_c; VV; R_t; RR.

2. When entering both MANDATORY and OPTIONAL data, the following order of entry is recommended: DD; F; C_L; C_M; ww; V; h; N_h; W; N; PPP; TT; C_H; pp; a; T_sT_s; D_C; h_ch_c; VV; R_s; R_t; RR; $P_mP_mP_m$; a3; $S_pS_pS_pS_p$.

3. When entering ABRIDGED data, the following order of entry is recommended: DD; F; N; ww; PPP; TT; RR; (a; pp; $T_{n/x}T_{n/x}$).

4. The order of entry of data given in paragraphs 1, 2 and 3 is recommended; however, the Official in Charge is authorized to rearrange the entry sequence of these data to meet special requirements. It is essential, however, that DD and F be entered before other symbols in order to prevent partial obliteration of other data by the direction shaft and feathers for DD and F.

Page 21, Footnote: (Effective May 1, 1945)
(Circular Letter No.26-45)

Note: Since nearly all U.S. Weather Bureau stations will exercise the option of omitting the entry of symbol V data, the provisions outlined below will apply to the entry of visibility data from areas which do not report group $7h_ch_cVV$. On charts containing data from reports not coded in the 1942 Weather Code, it will be evident that the International code figure for V is entered on the chart, since two figures will always be entered when the value is in "units" and "tenths" of miles, and one figure will always be entered when the International code represents a "range" of visibility rather than a specific distance.

Page 25, Section IV, E, 28: (Effective May 1, 1945)
(Circular Letter No. 26-45)

28. Symbol T_nT_n and T_xT_x = Minimum and Maximum Temperatures.

The entry of minimum and maximum temperatures is OPTIONAL at Weather Bureau stations (City Offices) authorized to enter ABRIDGED data. The minimum or maximum temperature will be entered above the station circle in the position normally occupied by C_H in the station model and it will be enclosed in parentheses. If both the maximum and minimum temperatures are entered on the same map they will be entered in the same manner as if the temperatures were entered separately except that the maximum temperature is entered to the left and separated from the minimum by a comma; e.g., (75,50).

Maximum and minimum temperatures will be entered in degrees Fahrenheit.

Page 43, Front Symbols: (Effective May 1, 1945)
(Circular Letter No.26-45)

	Character of Front	On Working Charts	On Printed Charts	Typical Cross Section
13a	Squall line of instability front.	Alternating purple dots (2) and dash;	(Squall Line)	↕ (Squall Line)
13b	Intertropical front.	Two thin red parallel lines (1/8 inch apart)	(Intertropical Front)	(Intertropical Front)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Ke
(File No. 610.3)

March 28, 1945

CIRCULAR LETTER NO. 27-45
(To All First Order Stations)

Subject: Combined Aircraft Weather Report Form (CAW-C).

By agreement in the Combined Meteorological Committee, the services represented have adopted the Combined Aircraft Weather Report Code (short title CAW-C, pronounced CAW-SEE) as the standard aircraft weather code. A copy of the complete master form is furnished as enclosure A. This code will be used for: (a) in-flight and post-flight reports on long-distance over-water or international flights; (b) meteorological reconnaissance flights and (c) aircraft ascents. It is not intended as a pilot report form for domestic or internal civil flights.

It is expected that CAW-C will be introduced by the several services in the near future. Reports will be identified by the key groups listed in table 1 except that the key word AIREP will be used in place of key group 92229 for in-clear transmissions of CAW-C Form 0 or Form 1.

The Weather Bureau expects to receive a supply of the forms which will be used by Army and Navy flights and these will be made available, upon request, to offices requiring them for briefing pilots.

To assist in decoding in-flight and post-flight reports received in CAW-C, we have printed a small supply of the complete Form 0. One copy is attached. Additional copies may be obtained upon request.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Attachments.

ENCLOSURE "A"

COMBINED AIRCRAFT WEATHER REPORT CODE (CAW-C)

I. INTRODUCTION

The Combined Meteorological Committee has recommended the Combined Aircraft Weather Report Code (short title CAW-C) for use by all constituent services as an aircraft weather reporting code. The Master Form has three main variants covering separately the requirements of:

a. In-Flight/Post-Flight Reports

b. Meteorological Reconnaissance Reports

c. Aircraft Ascents

For operational reasons it has been found necessary to allow certain latitude in the choice of the methods of reporting visibilities and heights. This has led to a further subdivision of the three main variants into five code forms. These forms and the units employed in each are indicated by a characteristic introductory group and are detailed in the sections immediately following the Master Form.

Neither the title "Combined Aircraft Weather Report Code" nor the short title "CAW-C" shall be applied to code forms which differ from the code forms approved by the Combined Meteorological Committee.

Services wishing to adopt forms of CAW-C other than those recommended in the table for Z and outlined in Part V of this paper should refer them to the Combined Meteorological Committee for approval and for assignment of a form number before making them effective.

No alterations, additions, or amendments to the approved CAW-C code forms, tables or specifications should be made without prior reference to and approval of the Combined Meteorological Committee.

Washington, D. C.

February, 1945.

II. MASTER FORM

xxxxx 000Zi $\frac{YQLLL}{DDDSS}$ $\frac{111GG}{OGGnn}$ $\frac{hhh}{ppp}$ $\frac{f_c}{V_H}$ $\frac{V}{V_E}$ wmBWM $d_w ddvv$

$1kN_1N_2N_3$ $\frac{ChhHH}{ppPP}$ $\frac{ChhHH}{ppPP}$ $\frac{ChhHH}{ppPP}$ $2TTUU$ $\frac{t_n t_n}{t_s t_s}$ $3I_c g_I \frac{h_I h_I}{p_I p_I}$

$4W_s g_w W_c D_w$ $5j\frac{PPP}{HHH}$ $6DFSD_k$ $7d_r d_r s_w A$ 8 (Reserved for electronics or other future needs)

$9CnD_c O_r$ 77777 (Optional groups follow)

Explanatory Notes

(1) Services requiring reports of how position of aircraft is determined may include P_d in an optional group following 77777.

(2) In any particular working form prepared for use by aircrew any or all of the groups with indicator figures may be deleted. If the group with indicator 1 is deleted, then the ChhHH groups must also be deleted.

(3) Items shown below another item are variants required for specific purposes or to meet operational requirements. Details of their choice are given in the section dealing with specific forms.

(4) The group 000Zi must be repeated for every message, but if a message contains more than one observation, employing the same form and identical units, the group 000Zi shall be given for the first observation and may be omitted from subsequent observations. Exception to this rule is permitted in areas where forms and units are completely standardized. For such areas the group 000Zi may be omitted entirely if the reports are to be disseminated internally within the area. The group must be inserted in all messages disseminated externally from that area.

(5) Groups without indicator figures must be included in each report with the exception of $d_w ddvv$. The order of these groups is invariant. The table for d_w is so arranged that figures 1 and 2 have no specification. This allows the wind group to be dropped when there is no observation as it is considered that in all cases the following group will be either a cloud or temperature group and will therefore begin with either a 1 or a 2 and be recognizable.

(6) Any group with an indicator figure may be omitted from a report if none of the data for that group is available.

(7) Groups with indicator figures may be repeated as necessary.

(8) Retention of the consecutive numerical order for the appearance of groups with indicator figures is not essential. The consecutive numerical order will normally be followed, but for special purposes (e.g., ascents) any desired order may be used.

III. SYMBOLS

xxxxx Type of report indicator (Key Group). (Table 1).

Z Form indicator. (Table 2).
i Units index figure. (Table 3).

Y Day of the week (1 = Sunday, 2 = Monday, etc. The day refers to G.C.T. and not to local time).
Q Globe Octant. (Table 4). (Int. Code 70).
LLL Latitude, degrees and tenths.

lll Longitude, degrees and tenths (hundreds omitted).
GG Time G.C.T. of observation. If it is desired to report time to nearest quarter hour, the convention of adding 25 to GG for H+15, 50 for H+30 and 75 for H+45 will be used. The following table is furnished:

Between H- 7 1/2 and H+ 7 1/2	GG=00 to 23	
" H+ 7 1/2 and H+22 1/2	GG=25 to 48	(i.e.: Add 25)
" H+22 1/2 and H+37 1/2	GG=50 to 73	(i.e.: Add 50)
" H+37 1/2 and H+52 1/2	GG=75 to 98	(i.e.: Add 75)

DDD Track of aircraft, whole degrees true.
SS Distance in tens of nautical miles between successive position numbers (nn) on a fixed track.

nn Numbers of successive positions, SS nautical miles apart, along a track specified by LLL, lll and DDD.

hhh Altitude of aircraft (hundreds of feet above M.S.L.)
ppp Pressure at height of aircraft in millibars (thousands figure omitted).
f_c Flight conditions. (Table 5).
V_H Horizontal visibility. (Table 6).
V Visibility. (Table 7). (Int. Code 85).
V_E Oblique visibility (the horizontal distance from a point on the earth's surface immediately below the aircraft to the farthest point visible on the earth's surface). (Table 8).

w Present weather. (Table 9)
m Remarks on phenomenon reported by w. (Table 10).
B Turbulence. (Table 11)
W Past weather (weather in previous half to one hour or weather since previous report). (Table 9).
M Remarks on phenomenon reported by W. (Table 10).

d_w How wind determined. (Table 12).
dd Wind direction at flying level in tens of degrees.
vv Wind speed at flying level in knots (add 50 to dd if speed is over 99 knots; actual speed is then 100+vv knots).

l Group indicator figure
k Number of cloud layers reported (k = 9 = cloud in indefinite layers).
N_1)
N_2) Cloud amount in layers in ascending order.
N_3) (Table 13)

C Type of cloud. (Table 14). (Int. Code 10).
hh Height above M.S.L. of base of cloud reported by C. (Table 15).
(01-55 = hundreds of feet)
(56-97 = thousands of feet plus 50) (98 = cloudless)
(99 = unknown)
pp Pressure at base of cloud reported by C, tens of millibars.

HH Height above M.S.L. of tops of cloud reported by C--units as for h
PP Pressure at tops of cloud reported by C, tens of millibars.

2 Group indicator figure.
TT Air temperature (corrected for air speed) in whole degrees.
(50 added for negative values, e.g. -2 coded as 52 etc.)
UU Relative humidity, per cent.
$t_n t_n$ Wet bulb depression in units of half a degree.) Corrected for
$t_s t_s$ Dewpoint depression in units of half a degree.) Air Speed

3 Group indicator figure.
I_c Aircraft icing. (Table 16).
g_I Time or duration of I_c. (Table 17).
$h_I h_I$ Altitude at which icing occurred. (As for hh).
$p_I p_I$ Pressure at the height at which icing occurred, tens of millibars.

4 Group indicator figure.
W_s Significant weather changes. (Table 18).
g_w Time of W_s. (Table 17)
W_c Weather off course. (Table 19).
D_w Bearing of W_c from aircraft. (Table 20).

5 Group indicator figure.
j Index pertaining to $\frac{PPP}{HHH}$. (Table 21).

PPP Pressure data, whole millibars, indicated by j.
HHH Height data, tens of feet, indicated by j.

6 Group indicator figure.
D Direction of surface wind. (Table 20).
F Force of surface wind. (Table 22). (Int. Code 30).
S State of sea. (Table 23). (Int. Code 75).
D_k Direction of swell. (Table 20).

7 Group indicator figure.
$d_r d_r$ Bearing of disturbance, tens of degrees.)
s_w Distance of disturbance, tens of miles.) Obtained by
(0 = 100 miles or more)) electronic means
A Area of disturbance. (Table 24).)

8 Group indicator figure.

9 Group indicator figure.
C Type of cloud. (Table 14). (Int. Code 10).
n Amount of cloud. (Table 13). or
D_c Bearing of C from aircraft. (Table 20).
O_r Orientation of leading edge of cloud. (Table 25).

77777 Figure group indicating optional groups follow.

P_d How position of aircraft determined. (Table 26).

IV. CODE TABLES

Table 1: xxxxx

92229 In-flight/Post-flight report in CAW-C

93339 Aircraft vertical ascent report in CAW-C

94449 Met-Recco report in CAW-C. To be used for those meteorological reconnaissance flights to which no specific key group has been allocated.

Table 2: Z

0	Form 0)	In-flight/Post-flight forms
1	Form 1)	
2		
3		
4	Form 4)	Met-Recco forms
5	Form 5)	
6		
7		
8	Form 8)	Form for Aircraft Vertical Ascent
9		

Table 3: i

0)		(No humidity reported.
1)	degs.	(Relative humidity reported.
2)	C.	(Wet-bulb depression reported.
3)		(Dewpoint depression reported.
5)		(No humidity reported.
6)	degs.	(Relative humidity reported.
7)	F.	(Wet-bulb depression reported.
8)		(Dewpoint depression reported.

Table 4: Q

0	0- 90W)	North Latitude
1	90-180W)	
2	180- 90E)	
3	90- 0E)	
5	0- 90W)	South Latitude
6	90-180W)	
7	180- 90E)	
8	90- 0E)	

Table 5: f_c

0 Contact flight at all levels.
1 Contact flight below clouds.
2 On top (above cloud).
3 Between layers not on instruments.
4 Between layers on instruments.
5 Avoiding clouds.
6 In and out of clouds, on instruments 25 P.C. of time.
7 --Ditto--50 P.C. of time.
8 --Ditto--75 P.C. of time.
9 Continuous instrument flight in clouds.

Table 6: V_H

0 No report.
1 Aircraft in dense cloud--wing tips either not or barely visible.
2 Aircraft in thick cloud.
3 Aircraft in thin cloud.
4 Visibility bad) Aircraft not in cloud
5 " poor)
6 " mod.)
7 " good)

Table 7: V

0 Under 50 yds.
1 50-200 yds.
2 200-500 yds.
3 500-1000 yds.
4 1000 yds.-1 nautical mile
5 1-2 nautical miles
6 2-5 " "
7 5-10 " "
8 10-30 " "
9 30 nautical miles or over

Table 8: V_E

0 Surface not visible due to darkness.
1 Surface not visible due to cloud.
2 Less than 1 mile.
3 1-2 miles
4 2-5 miles
5 5-10 miles
6 10-20 miles
7 20-50 miles
8 50-100 miles
9 more than 100 miles

Table 9: w, W

0 Clear (no cloud at any level).
1 Partly cloudy.
2 Continuous layer(s) of cloud.
3 Sandstorm, duststorm, storm of drifting snow.
4 Fog or thick dust haze.
5 Drizzle
6 Rain
7 Snow
8 Showers
9 Thunderstorm

Table 10: m, M

0 No remarks
1 Light intermittent
2 Light continuous
3 Moderate intermittent
4 Moderate continuous
5 Heavy intermittent
6 Heavy continuous
7 With rain
8 With snow
9 With hail

Table 11: B

0 None
1 Light intermittent
2 Light continuous
3 Moderate intermittent
4 Moderate continuous
5 Severe intermittent
6 Severe continuous

Table 12: d_w

0 Estimation
1 -) Not to be used
2 -)
3 Wind lane and single drift
4 Celestial fixes
5 Radio fixes
6 Loran fixes
7 Multiple drift or reciprocal course and ground fixes
8 Visual fixes
9 Radar, or Air Position Indicator with Wind Finding Attachment and ground fix

Table 13: $N_1N_2N_3n$

0 Clear or overcast (refer to k, C or w to determine which)
1 1 tenth
2 2 tenths
3 3 "
4 4 "
5 5 "
6 6 "
7 7 "
8 8 "
9 9 "

Table 14: C

1 Cirrus (*or none)
2 Cirrostratus
3 Cirrocumulus
4 Altocumulus
5 Altostratus (thin)
6 Stratocumulus
7 Nimbostratus or Altostratus (Thick)
8 Cumulus or Fractocumulus
9 Cumulonimbus
0 Stratus or Fractostratus

*For use in codes of the F*17 and F*42 type.

Table 15: hh HH h_Ih_I

00 Zero or less than 50 feet
01 100 feet
02 200 "
03 300 "
04 400 "
etc.
50 5000 feet
51 5100 "
52 5200 "
53 5300 "
54 5400 "
55 5500 "
---
56 6000 feet
57 7000 "
58 8000 "
etc.
60 10,000 feet
etc.
97 47,000 feet or over
98 Cloudless*
99 Unknown

*For use in codes of the F*17 and F*42 type.

Table 16: I_c

0 No icing
1 Light rime in cloud, or frost
2 Moderate rime in cloud
3 Heavy rime in cloud
4 Light clear ice in cloud
5 Moderate clear ice in cloud
6 Heavy clear ice in cloud
7 Light ice) In precipitation,
8 Moderate ice) not in cloud.
9 Heavy ice)

Table 17: g_I, g_W

0 No report
1 10 minutes before reaching the position LLL 111, or nn
2 20 " " " " " " " " "
3 30 " " " " " " " " "
4 40 " " " " " " " " "
5 50 " " " " " " " " "
6 1 hour or more before reaching the position LLL 111, or nn
7 Has continued 0-30 minutes) For g_I only - ice still forming at
8 Has continued 30 min. - 1 hr.) time of observation
9 Has continued over 1 hour)

Table 18: W_s

0 No change.
1 Marked wind shift.
2 Beginning or ending of marked turbulence.
3 Marked temp. change (not with altitude).
4 Precipitation begins or ends.
5 Change in cloud forms.
6 Fog bank begins or ends.
7 Warm front.
8 Cold front.
9 Front, type not specified.

Table 19: W_c

0 No report.
1 Signs of hurricane.
2 Ugly, threatening sky.
3 Duststorm or sandstorm.
4 Fog.
5 Waterspout.
6 Cs cloud shield or bank.
7 As or Ac cloud shield or bank.
8 Line heavy cumulus.
9 Cb heads or thunderstorm.

Table 20: D_w, D_l, D_k or D_c

0	Calm	4	S	7	NW
1	NE	5	SW	8	N
2	E	6	W	9	All directions, no definite direction, or unknown.
3	SE				

Table 21: j

0 Surface pressure in whole millibars (thousands figure omitted).
1 Pressure (or height) of flying level.
2 5000 ft. pressure, whole millibars or height of 1000 mb. surface, tens of feet above MSL. (If negative add 500).
3 10,000 ft. pressure, whole millibars or height of 700 mb. surface, tens of feet above MSL.
4 15,000 ft. pressure, whole millibars or height of 500 mb. surface, tens of feet above MSL, tens of thousands figure omitted.
5 20,000 ft. pressure, whole millibars or height of 300 mb. surface, tens of feet above MSL, tens of thousands figure omitted.
6 Altimeter sub-scale reading, millibars, thousands figure omitted.
7 True height (radio altimeter or other method) HHH, tens of feet (tens of thousands figure omitted) of preceding ppp or hhh of pressure altimeter.
8 True height HHH (radio altimeter or other method) minus height recorded by pressure altimeter set at 1013 mb., tens of feet. (If negative add 500).
9 Next group is wind group in form $d_w$ddvv at height PPP.

Table 22: F

	m.p.h.	Knots
0	Calm	Calm
1	1 to 3	1 to 3
2	4 to 7	4 to 6
3	8 to 12	7 to 10
4	13 to 18	11 to 16
5	19 to 24	17 to 21
6	25 to 31	22 to 27
7	32 to 38	28 to 33
8	39 to 46	34 to 40
9	47 to 54 or over	41 to 47 or over

Table 23: S

0 Calm (glassy)
1 Calm (rippled)
2 Smooth (wavelets)
3 Slight
4 Moderate
5 Rough
6 Very rough
7 High
8 Very high
9 Phenomenal

Table 24: A (Area in square miles)

1	0- 10
2	11- 30
3	31- 60
4	61- 100
5	101- 500
6	501- 1000
7	1001- 5000
8	5001-10000
9	greater than 10000

Table 25: O_r

0 no observation
1 NNE-SSW
2 NE-SW
3 ENE-WSW
4 E-W
5 ESE-WNW
6 SE-NW
7 SSE-NNW
8 S-N
9 uncertain

Table 26: P_d

1 Dead reckoning
2 Single line of position
3 Radio bearing and line of position
4 Radio fix
5 Celestial fix
6 Visual fix
7 Radio bearing line

V. SPECIAL FORMS

1. Forms for In-Flight/Post-Flight Reports

a. Form 0.

92229 00001 YQLLL 111GG $hhhf_cV$ wmBWM d_wddvv

$1kN_1N_2N_3$ ChhHH ChhHH ChhHH $2TTUU$ $\overline{t_nt_n}$ $\underline{t_st_s}$ $3I_cg_Ih_Ih_I$

$4W_sg_WW_CD_W$ $5j\underline{PPP}$ $\overline{HHH}$ $6DFSD_K$ $7d_rd_rS_WA$ $9CnD_CO_R$ 77777 (optional groups follow)

b. Form 1. (Same as Form 0 with V_E replacing V)

92229 00001 YQLLL 111GG $hhhf_cV_E$ wmBWM d_wddvv

$1kN_1N_2N_3$ ChhHH ChhHH ChhHH $2TTUU$ $\overline{t_nt_n}$ $\underline{t_st_s}$ $3I_cg_Ih_Ih_I$

$4W_sg_WW_CD_W$ $5j\underline{PPP}$ $\overline{HHH}$ $6DFSD_K$ $7d_rd_rS_WA$ $9CnD_CO_R$ 77777 (optional groups follow)

Explanatory Notes

(1) On printed forms for issue to pilots, all of the groups <u>without</u> indicator figures (those preceding the "1" group) will be included.

(2) On printed forms for issue to pilots, any or all of the groups <u>with</u> indicator figures may be omitted. For this purpose, the ChhHH groups are considered to be part of the "1" group and will be omitted if the "1" group is omitted.

(3) In the coded report, groups <u>with</u> indicator figures may be repeated as necessary. They also may be omitted from the report if data are not available.

(4) In the coded report, all groups <u>without</u> indicator figures will be included except that the wind group (d_wddvv) may be omitted if no wind observation is made.

(5) The group 92229 will appear once only as the first group in each message unless the function of the group is covered by a message heading (e.g., PR on U.S.-Canadian teletypes). In these latter cases the group can be omitted entirely.

2. Forms for Meteorological Reconnaissance Reports

a. Form 4.

xxxxx 0004i (YQLLL 111GG DDDSS) OGGnn $pppV_HV_E$ wmBWM

d_wddvv $1kN_1N_2N_3$ CppPP CppPP CppPP $2TTUU\ \frac{t_nt_n}{t_st_s}$ $3I_cg_Ip_Ip_I$

$4W_sg_WW_CD_W$ $5j\frac{PPP}{HHH}$ $6DFSD_K$ $7d_rd_rS_WA$ $9CnD_CO_R$ 89998 51PPP

$2TTUU\ \frac{t_nt_n}{t_st_s}$ ----- 51PPP $2TTUU\ \frac{t_nt_n}{t_st_s}$ $1kN_1N_2N_3$ CppPP CppPP

CppPP $3I_cg_Ip_Ip_I$ $3I_cg_Ip_Ip_I$ $5j\frac{PPP}{HHH}$ 59PPP d_wddvv

Explanatory Notes

(1) On printed forms for issue to pilots the groups without indicator figures will invariably appear. Groups with indicator figures may be omitted as desired from the pilots' form, or, if on the form and data are absent, from the message reported.

(2) Groups with indicator figures may be repeated as necessary.

(3) If the group xxxxx uniquely defines a particular meteorological reconnaissance flight (e.g., 24442 = Magnum), then the group 0004i may be omitted entirely as the form and units will be detailed in the flight specifications published and distributed to all recipients.

(4) For meteorological reconnaissance flights not having a specific key group, 94449 will be used for xxxxx and the group 0004i will be subject to the same provisions as laid down in II (4) preceding, for 000Zi.

(5) The groups in parentheses are reported at the beginning of every message but are not repeated for reports from later positions in the same message unless a change of track has been made.

(6) When j = 2, 3, 4 or 5 the heights of the 1000 mb., 700 mb., 500 mb. or 300 mb. surface will be given. Therefore, on forms where the 5-group is given the table for j will be shown as allowing for this alternative only in respect of values 2, 3, 4 and 5.

(7) In the coded message the key group 89998 precedes the first group of the ascent.

(8) The convention is adopted that, for ascents, the 51PPP groups for levels intermediate between the lowest and highest standard levels are omitted and the successive "2" and other groups refer to successive standard levels. In-flight reports should, however, contain one 51PPP group for an intermediate standard level to facilitate decoding. Levels of inversions or significant change are indicated by appropriate "5", "2" and other groups following the groups for standard levels.

(9) The lowest and highest levels of icing may be given by repeating the "3" group.

b. Form 5:

xxxxx 0005i YQLLL 111GG DDDSS OGGnn $hhhf_cV$ wmBWM

d_wddvv $1kN_1N_2N_3$ ChhHH ChhHH ChhHH $2TTUU\ \underline{t_nt_n}\ \underline{t_st_s}$ $3I_cg_Ih_Ih_I$

$4W_sg_WW_cD_W$ $5j\underline{PPP}\ \underline{HHH}$ $6DFSD_K$ $7d_rd_rS_WA$ $9CnD_CC_R$ 89998 51HHH

$2TTUU\ \underline{t_nt_n}\ \underline{t_st_s}$ $2TTUU\ \underline{t_nt_n}\ \underline{t_st_s}$ ----- 51HHH $2TTUU\ \underline{t_nt_n}\ \underline{t_st_s}$ $1kN_1N_2N_3$ ChhHH

ChhHH ChhHH $3I_cg_Ih_Ih_I$ $3I_cg_Ih_Ih_I$ $5j\underline{PPP}\ \underline{HHH}$

Explanatory Notes

(1) On printed forms for issue to pilots the groups without indicator figures will invariably appear. Groups with indicator figures may be omitted as desired from the pilots' form, or, if on the form and data are absent, from the message reported.

(2) Groups with indicator figures may be repeated as necessary.

(3) If the group xxxxx uniquely defines a particular meteorological reconnaissance flight (e.g., 24442 = Magnum), then the group 0005i may be omitted entirely as the form and units will be detailed in the flight specifications published and distributed to all recipients.

(4) For meteorological reconnaissance flights not having a specific key group, 94449 will be used for xxxxx and the group 0005i will be subject to the same provisions as laid down in II (4) preceding for 00OZi.

(5) In the coded message the key group 89998 precedes the first group of the ascent.

(6) The lowest and highest levels of icing may be given by repeating the "5" group.

(7) Certain Services may desire to employ other recognized codes for vertical ascents. This can be done by replacing the key group 89998 by the appropriate key group of the code to be used (e.g., 17171 for raob in U.S.-Canada form) and repeating the Form 5 group (0005i) at the end of this ascent section of the message to indicate return to CAW-C Form 5.

(8) If the flight is proceeding along a fixed track and reporting at regular intervals, then the groups YQLLL 111GG DDDSS are not repeated for reports from later positions unless a change of track has been made.

If the flight is not proceeding along a fixed track or is not reporting at regular intervals, then the groups DDDSS and OGGnn will not be used and each report will commence with YQLLL 111GG.

(9) The convention detailed in (8) under Form 4 is optional. If significant levels only are reported then the group 51HHH will be given for each level.

(10) When j = 2, 3, 4, 5 the pressures of the 5, 10, 15 or 20 thousand foot levels will be given. Therefore on the forms where the 5-group is given the table for j will be shown as allowing for this alternative only in respect of values 2, 3, 4 and 5.

3. Forms for Reports of Aircraft Vertical Ascents

a. Form 8.

Temperature, humidity, and other data as necessary, are given for the surface, 500 ft., 1000 ft., 1500 ft., and then for 950 mb., 900 mb., by steps of 50 mb. to 400 mb. or higher.

Symbolic Form

xxxxx	0008i	YQLLL	111GG	50PPP	2TTUU $\frac{t_n t_n}{t_s t_s}$	51PPP
2TTUU $\frac{t_n t_n}{t_s t_s}$	2TTUU $\frac{t_n t_n}{t_s t_s}$	-----	51PPP	2TTUU $\frac{t_n t_n}{t_s t_s}$	$1kN_1N_2N_3$	CppPP
CppPP	CppPP	$3I_og_IP_IP_I$	$3I_og_IP_IP_I$	5jPPP	59PPP	d_wddvv

Explanatory Notes

(1) The convention is adopted that, for ascents, the 51PPP groups for levels intermediate between the lowest and highest standard levels are omitted and the successive "2" and other groups refer to successive standard levels. In-flight reports should, however, contain one 51PPP group for an intermediate standard level to facilitate decoding. Levels of inversions or significant change are indicated by appropriate "5", "2" and other groups following the groups for standard levels.

(2) The lowest and highest levels of icing may be given by repeating the "3" group.

COMBINED AIRCRAFT WEATHER REPORT CODE (CAW-C)

FORM O

For complete details and instructions see CAW-C Master Form

CAW-C
WB FORM O
MARCH, 1946

OCTANT	LATITUDE DEGREES AND TENTHS			LONGITUDE DEGREES AND TENTHS			TIME G.C.T. 24 HOUR CLOCK ADD 25 FOR H:15, 50 FOR H:30, 75 FOR H:45		ALTITUDE OF AIRCRAFT HUNDREDS OF FEET ABOVE M.S.L.			FLIGHT CONDITIONS	VISIBILITY	PRESENT WEATHER	REMARKS ON w	TURBULENCE	PAST WEATHER	REMARKS ON W	HOW WIND DETERMINED	WIND AT FLYING LEVEL: DIRECTION TENS OF DEGREES		WIND AT FLYING LEVEL: VELOCITY IN KNOTS (ADD 50 TO dd IF vv OVER 100)		GROUP INDICATOR	NUMBER OF CLOUD LAYERS REPORTED. (9 INDEFINITE LAYERS)	CLOUD AMOUNT IN LAYERS REPORTED BY "k" IN ASCENDING ORDER		
4	-			-			-		-			5	7	9	10	11	9	10	12	-		-		-	-	13		
Q	L	L	L	l	l	l	G	G	h	h	h	f_o	V	w	m	B	W	M	d_w	d	d	v	v	1	k	N_1	N_2	N_3

CLOUD TYPE AND HEIGHT GROUPS. ONE GROUP WILL BE GIVEN FOR EACH LAYER REPORTED BY "k"

HEIGHTS ARE IN FEET ABOVE M.S.L.

01 to 55 = 100's of feet
56 to 97 = 1,000's of feet plus 50
98 = Cloudless (Not used in CAW-C)
99 = Unknown

TYPE	BASE		TOPS		TYPE	BASE		TOPS		TYPE	BASE		TOPS		GROUP INDICATOR	AIR TEMPERATURE WHOLE DEGREES. ADD 50 TO BELOW ZERO (-2= 52)		RELATIVE HUMIDITY PERCENT	
14	See Above				14	See Above				14	See Above				-	-		-	
C	h	h	H	H	C	h	h	H	H	C	h	h	H	H	2	T	T	U	U

GROUP INDICATOR	ICING THIS GROUP MAY BE REPEATED TO SHOW TOP AND BOTTOM OF LAYER: KIND	TIME OR DURATION	ALTITUDE		GROUP INDICATOR	SIGNIFICANT WEATHER	TIME OF W_s	WEATHER OFF COURSE	BEARING OF W_o	GROUP INDICATOR	INDEX FOR PPp/HHH	PRESSURE DATA OR HEIGHT DATA AS INDICATED BY j			GROUP INDICATOR	SURFACE WIND: DIRECTION	FORCE	STATE OF SEA	DIRECTION OF SWELL
-	16	17	See hh		-	18	17	19	20	-	21	-			-	20	22	23	20
3	I_o	ε_I	h_I	h_I	4	W_s	ε_w	W_o	D_w	5	j	P/H	P/H	P/H	6	D	F	S	D_k

GROUP INDICATOR	OBSERVATIONS OF DISTURBANCES OBTAINED BY ELECTRONIC MEANS: BEARING 10's OF DEGREES	DISTANCE 10's OF MILES	AREA	GROUP INDICATOR	SPECIAL CLOUD ORIENTATION GROUP: CLOUD TYPE	CLOUD AMOUNT	BEARING OF C	ORIENTATION OF LEADING EDGE
-	-	-	24	-	14	13	20	25
7	d_r	d_r	s_w	A	9	C	n	D_c	O_r

Table 4: Q

North Latitude
0 0 - 90 W
1 90 - 180 W
2 180 - 90 E
3 90 - 0 E

South Latitude
5 0 - 90 W
6 90 - 180 W
7 180 - 90 E
8 90 - 0 E

Table 5: f_o

0 Contact flight at all levels
1 Contact flight below clouds
2 On top (above cloud)
3 Between layers not on instruments
4 Between layers on instruments
5 Avoiding clouds
6 In and out of clouds, on instruments 25 P.C. of time
7 --Ditto--50 P.C. of time
8 --Ditto--75 P.C. of time
9 Continuous instrument flight in clouds

Table 7: V

0 Under 50 yds.
1 50-200 yds.
2 200-500 yds.
3 500-1000 yds.
4 1000 yds.-1 nautical mile
5 1- 2 nautical miles
6 2- 5 " "
7 5-10 " "
8 10-30 " "
9 30 nautical miles or over

Table 9: w, W

0 Clear (no cloud at any level)
1 Partly cloudy
2 Continuous layer(s) of cloud
3 Sandstorm, duststorm, storm of drifting snow
4 Fog or thick dust haze
5 Drizzle
6 Rain
7 Snow
8 Showers
9 Thunderstorm

Table 10: m, M

0 No remarks
1 Light intermittent
2 Light continuous
3 Moderate intermittent
4 Moderate continuous
5 Heavy intermittent
6 Heavy continuous
7 With rain
8 With snow
9 With hail

Table 11: B

0 None
1 Light intermittent
2 Light continuous
3 Moderate intermittent
4 Moderate continuous
5 Severe intermittent
6 Severe continuous

Table 12: d_w

0 Estimation
1 - } Not to be used
2 - }
3 Wind lane and single drift
4 Celestial fixes
5 Radio fixes
6 Loran fixes
7 Multiple drift or reciprocal course and ground fixes
8 Visual fixes
9 Radar, or Air Position Indicator with Wind Finding Attachment and ground fix

Table 13: $N_1N_2N_3n$

0 Clear or overcast (refer to k, C or w to determine which)
1 1 tenth
2 2 tenths
3 3 "
4 4 "
5 5 "
6 6 "
7 7 "
8 8 "
9 9 "

Table 14: C

1 Cirrus (*or none)
2 Cirrostratus
3 Cirrocumulus
4 Altocumulus
5 Altostratus (thin)
6 Stratocumulus
7 Nimbostratus or Altostratus (thick)
8 Cumulus or Fractocumulus
9 Cumulonimbus
0 Stratus or Fractostratus

*For use in codes of the F*17 and F*42 type

Table 16: I_o

0 No icing
1 Light rime in cloud, or frost
2 Moderate rime in cloud
3 Heavy rime in cloud
4 Light clear ice in cloud
5 Moderate clear ice in cloud
6 Heavy clear ice in cloud
7 Light ice } In precipitation, not in cloud
8 Moderate ice }
9 Heavy ice }

Table 17: ε_I, ε_w

0 No report
1 10 minutes) before
2 20 ") reaching
3 30 ") the
4 40 ") position
5 50 ") LLL, lll
6 1 hour or more) or nn
7 (Has con-tinued) 0-30 min. (For ε_I only. (Ice still forming at time of observation
8 (Has con-tinued) 30 min.-1 hr. (Ice still forming at time of observation
9 (Has con-tinued) over 1 hr. (Ice still forming at time of observation

Table 18: W_s

0 No change
1 Marked wind shift
2 Beginning or end of marked turbulence
3 Marked temp. change (not with altitude)
4 Precipitation begins or ends
5 Change in cloud forms
6 Fog bank begins or ends
7 Warm front
8 Cold front
9 Front, type not specified

Table 19: W_o

0 No report
1 Signs of hurricane
2 Ugly, threatening sky
3 Duststorm or sandstorm
4 Fog
5 Waterspout
6 Cs cloud shield or bank
7 As or Ac cloud shield or bank
8 Line heavy cumulus
9 Cb heads or thunderstorm

Table 20: D_w, D_r, D_k or D_o

0 Calm
1 NE 5 SW
2 E 6 W
3 SE 7 NW
4 S 8 N
9 All directions, no definite direction, or unknown

Table 21: j

0 Surface pressure, whole millibars (thousands figure omitted)

1 Pressure of flying level

(For complete specifications for j see CAW-C Master Form)

Table 22: F

	m.p.h.	Knots
0	Calm	Calm
1	1 to 3	1 to 3
2	4 to 7	4 to 6
3	8 to 12	7 to 10
4	13 to 18	11 to 16
5	19 to 24	17 to 21
6	25 to 31	22 to 27
7	32 to 38	28 to 33
8	39 to 46	34 to 40
9	47 to 54 or over	41 to 47 or over

Table 23: S

0 Calm (glassy)
1 Calm (rippled)
2 Smooth (wavelets)
3 Slight
4 Moderate
5 Rough
6 Very rough
7 High
8 Very high
9 Phenomenal

Table 24: A (Area in square miles)

1	0- 10
2	11- 30
3	31- 60
4	61- 100
5	101- 500
6	501- 1000
7	1001- 5000
8	5001-10000
9	greater than 10000

Table 25: O_r

0 No observation
1 NNE-SSW
2 NE-SW
3 ENE-WSW
4 E-W
5 ESE-WNW
6 SE-NW
7 SSE-NNW
8 S-N
9 Uncertain

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 610.3)
(601.4)
(610)

March 31, 1945

CIRCULAR LETTER NO. 28-45
(To all First Order Stations)

Subject: Amendment to 1943 Radiosonde Code

For the purpose of furthering international uniformity, agreement has been reached by the Weather Bureau, Army and Navy to change from constant level to constant pressure analysis of upper air data.

In order that the change can be made at an early date in a manner permitting forecast offices to compare the two methods, two transitional periods have been agreed upon. The first, or introductory period, will be from May 1, 1945 (0400Z), to June 30, 1945. During this introductory period, constant level data will continue to be transmitted as at present in both the first and second transmissions. Constant pressure data will be added to the second transmission in place of isentropic data in order that personnel may become familiar with drawing constant pressure charts. Transmission of isentropic data will be discontinued.

The second, or overlap period, will be from July 1, 1945 (0400Z), to December 31, 1945. During this period, the code form for the first and second transmissions will be changed to include data for selected constant pressure surfaces instead of the present constant level surfaces. Data for the present constant levels will be transferred to the second transmission. This arrangement will permit offices wishing to do so to continue constant level charts for comparative or other purposes. After December 31, the constant level data will be discontinued.

The procedures agreed upon are outlined in ENCLOSURE "A" to this circular. Steps should be taken by all concerned to make the changes necessary on the dates and times specified. Present instructions in the 1943 radiosonde code and amendments will continue in force except as amended by this circular and attachment.

Action will be taken as soon as practicable to distribute appropriate information regarding techniques in constant pressure analysis and recommended charting procedures. Operational instructions to accord with this circular will be issued separately to raob stations.

Offices desiring to do so may change to constant pressure charts at any time during the introductory period and may then discontinue constant level charts if desired. However, it is thought that most offices will want to continue constant level charts until the beginning of the overlap period and to draw constant pressure charts during the introductory period only for comparative purposes.

During the second or overlap period, all regular district and airway forecast offices will substitute constant pressure charts for constant level charts for regular forecast work but may continue to draw constant level charts if required for comparative purposes while gaining experience with

the new charts. Forecast units working on special problems may continue constant level charts during the overlap period at their own discretion but should be prepared to change to constant pressure at the end of the overlap period.

The code forms outlined in ENCLOSURE "A" are interim codes adapted from our present code and are not in international use. It is hoped that before the expiration of the overlap period, agreement will be reached on a radiosonde code for combined use in all countries concerned, and that it can be introduced by January 1, 1946.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

ENCLOSURE "A"

ENCLOSURE "A"

PROCEDURES FOR U. S. METEOROLOGICAL SERVICES

A. Procedures for North America

1. Effective dates

a. Introductory period -- May 1 to July 1, 1945

b. Overlap period -- July 1, 1945 to January 1, 1946

2. Codes

a. Introductory period

i. Present first transmission to be unchanged.

ii. Second transmission to drop isentropic data and add constant pressure data in the form:
10197 OOTTU HHH$m_r m_r$ 85TTU HHH$m_r m_r$ ..... etc. for the 1000, 850, 700, 500 and 300 millibar levels in that order. These data will be included in the part of the message now occupied by the isentropic data and will be followed by other special data in accordance with present instructions.

b. Overlap period

i. The first transmission code form will be:
IIIGG PPPTT UUeee PPTTU ..... 10171 L$m_r m_r m_r m_r$ .....
OOHHH 85HHH 70HHH 50HHH
The only new symbol introduced is "eee" which is station elevation as explained later. Instructions are changed to make the 1000, 850, 700 and 500 millibar levels the standard mandatory levels for the first transmission instead of the 5, 10, 15 and 20 thousand foot levels as at present. At the present time the height of the 500 millibar level is being computed and added to the first transmission in the form 50HHH. This "overlap period" code provides for the heights of three additional surfaces.

Note: For identification, a period (.) will be inserted following the PPTTU groups for the constant pressure levels in the first transmission, that is, following the groups for the 1000, 850, 700 and 500 millibar levels.

ii. The second transmission code form will be:
III$G_{50}G_{50}$ $Y_m Y_m$eee PPTTU ..... 30HHH 20HHH 10HHH 10198 PPTTU PPTTU ..... 10171 L$m_r m_r m_r m_r$ .....
Instructions are changed to make the 300, 200 and 100 millibar levels the standard mandatory levels instead of the 10, 13 and 16 kilometer levels as at present. The groups following 10198 give pressure, temperature, humidity and mixing ratio for the 5, 10, 15 and 20 thousand foot levels and pressure and temperature for the 10, 13 and 16 kilometer levels. Isentropic data will be omitted but other special data now sent will be continued.

B. Procedures outside North America

1. Effective dates

a. Introductory period

Outside of North America the introductory period will be optional depending upon present practices. Where an introductory period is required the dates will correspond with A-1-a above and the codes in A-2-a will be used. In areas where an introductory period is not required the codes for the "overlap period" given in A-2-b above may be used as early as required and the section following the indicator group 10198 giving constant level data will be optional and may be omitted.

b. Overlap period.

In areas where an overlap period is required the dates and codes will correspond with those given under A-1-b and A-2-b above.

C. Explanation of Codes and Symbols

1. HHH - heights

In North America, heights of surfaces will be given in tens of feet above M.S.L. If the height of the 1000 millibar surface is below sea level, 5000 will be added to the number of feet below sea level and the thousands, hundreds and tens figures of the resulting amount will be coded for HHH. Example: If the height of the 1000 millibar surface is 1280 feet below sea level, 5000 is added and the figures 628 are coded for HHH. PPTTU and $m_r m_r$ will be omitted for any levels below the station elevation.

Outside North America, HHH may be coded either in tens of feet or in tens of meters as required by the particular service or area. The same convention for levels below sea level and below station will apply.

2. eee - station elevation

In North America, "eee" will give elevation in tens of feet of the reference level to which the initial or surface pressure included in the radiosonde report are reduced.

Outside North America, "eee" will be reported in tens of feet or in whole meters as required by the particular service or area.

3. 10197

Code table 101 is amended to include the following definition for 97: "constant pressure data in form 00TTU $HHHm_r m_r$, 85TTU $HHHm_r m_r$ etc. follow".

4. 10198

Code table 101 is amended to include the following definition for 98: "constant level data for 5, 10, 15 and 20 thousand foot and 10, 13 and 16 kilometer levels in form PPTTU PPTTU ..... 10171 $Lm_r m_r m_r m_r$ ..... follow".

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Lo
(File No. 601)
(740.5)

April 2, 1945

CIRCULAR LETTER NO. 29-45
(To All First- and Second-Order Stations)

Subject: Convective Cloud-Base Height Diagram.

It is requested that the enclosed convective cloud-base height diagram be used in estimating cloud-base heights when the clouds are formed through convection in accordance with Note "e." on the back of the diagram. The diagram is based upon a theoretically exact formula and should be used in preference to the dew point formula, which is an approximation only.

Before using the diagram, observers should become thoroughly familiar with instructions, including the footnotes, printed on the reverse side of it. Since local influences often affect the accuracy of the diagram in computing the heights of the bases of clouds formed through convection, it is recommended that observers compare, whenever possible, the heights obtained by means of the diagram with measured heights. In this way a correction factor peculiar to each station under various conditions of weather may be established and applied to indicated heights to secure a closer estimation.

A copy of the diagram printed on paper should be inserted in Circular N after page 28-4R. Copies printed on Bristol board may be displayed at any convenient point for daily use.

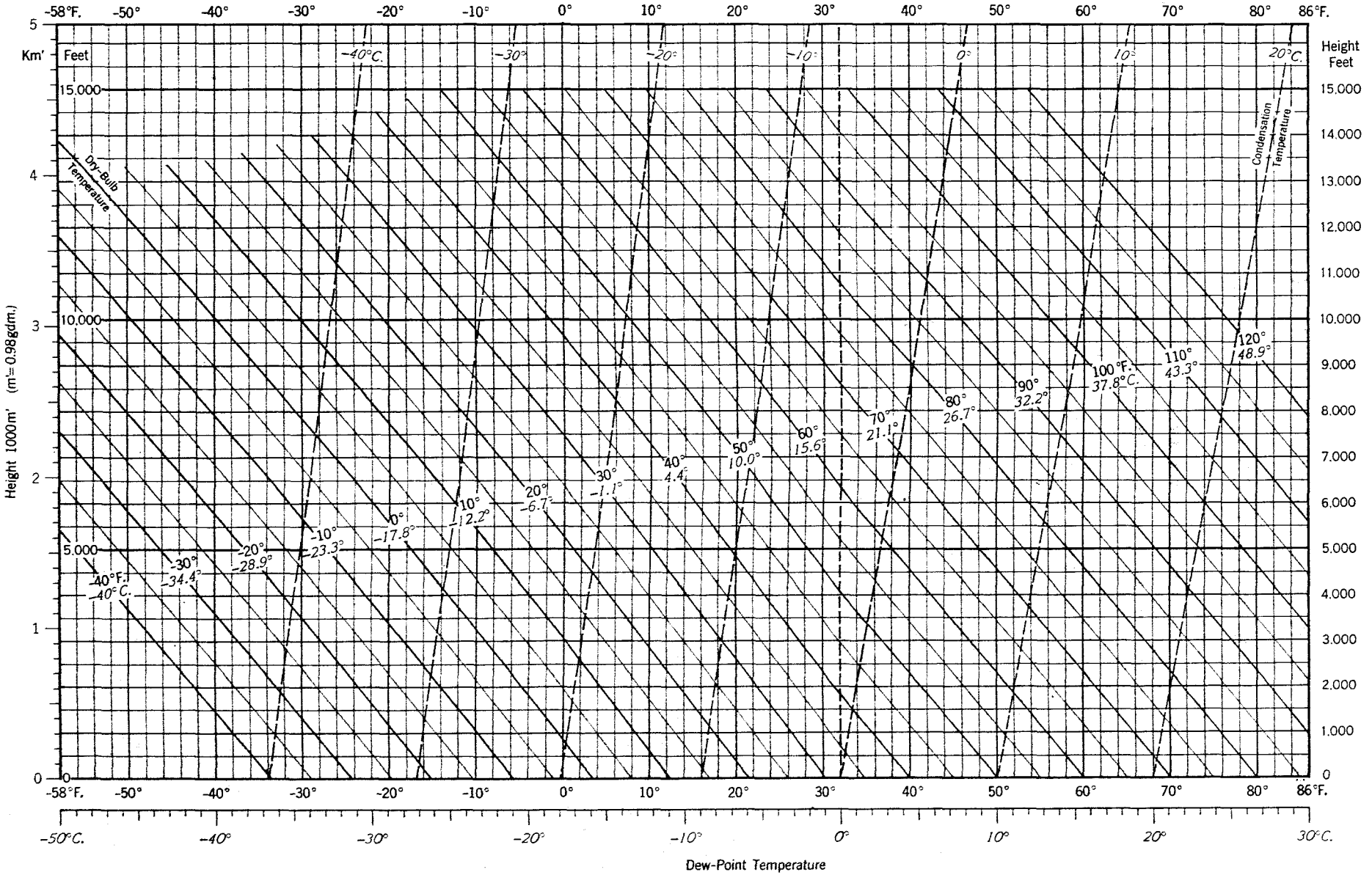
F. W. Reichelderfer
Chief of Bureau

Enclosure

WB Form 1113E

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

CONVECTIVE CLOUD-BASE HEIGHT DIAGRAM



INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

CONVECTIVE CLOUD-BASE HEIGHT DIAGRAM

DESCRIPTION

1. Abscissas (horizontal scale values) represent observed dew point temperatures (see notes 3b and 3c).

2. Ordinates (vertical scale values) represent **estimated** heights of convective cloud bases *above the point of observation*, in accordance with the assumptions given below.

3. Solid curves sloping upwards towards the left represent isopleths of observed dry-bulb temperatures, labeled in °F. and °C. in center of diagram.

4. Dashed curves sloping upwards towards the right represent isopleths of the *lifting condensation temperature* (LCT) of an air particle whose temperature and dew point are observed. The lifting condensation temperature is the temperature of the specified air parcel at the instant condensation of its water vapor occurs, after the parcel has been lifted dry adiabatically (see notes 1b and 3a).

INSTRUCTIONS

CAUTION: This diagram is applicable only to cloud types formed by active convection originating near the point of observation (see note 1e).†

1. To obtain the **estimated** height of a cloud base above the point of observation:—

a. locate the point of intersection of the following two lines: (I) the vertical line corresponding to the observed dew-point temperature* (abscissa), and (II) the curve corresponding to the observed dry-bulb temperature.

b. determine the ordinate of the point of intersection; this scale value represents the **estimated** height of the convective cloud base above the observation point.

2. To obtain the **estimated** height of the cloud above mean sea level, add the elevation of the point of observation to the value obtained by Instruction 1.

3. To obtain the **estimated** temperature of the cloud base:—

a. follow the procedure given in 1a.

b. determine the value pertaining to the dashed line passing through the intersection of the coordinates specified in 1a. (Interpolate where necessary between adjacent curves.)

NOTES

1. The diagram is based on the following assumptions:—

a. the height of the cloud base is identical with the *lifting condensation level*, i. e., the level at which condensation begins in the dry-adiabatically lifted air parcel.

b. the water vapor in the parcels of air raised by convection to this level is condensed in the form of *liquid water*.

c. the cooling of the parcels during the lifting is in accord with Poisson's equation for a dry-adiabatic process, viz.,

$$\frac{T_2}{T_1} = \left(\frac{P_2}{P_1}\right)^{\frac{AR}{C_p}}$$

where T = absolute temperature (°A.) of the parcel
P = pressure
R = gas constant for dry air (ergs/gm. °A.)
A = reciprocal of mechanical equivalent of heat (calories/erg)
C_p = specific heat of dry air at constant pressure (calories/gm. °C.)

The adopted value of AR/C_p was 0.286.
(T°A. = 273.16°A. + t°C.)

d. the mixing ratio during convection is constant.

e. the air in the parcels forming the cloud base is representatively sampled by the air at the point of observation; specifically, that the values of temperature and moisture content of the observed sample are identical with those which characterized the cloud-forming parcels when those parcels were at a level where the pressure was equal to that existing at the point and time of observation.

f. the lapse rate of the air intervening between the point of observation and the cloud base is dry-adiabatic, viz., 0.975°C./100m′ (m′ = 0.98 geodynamic meter).

2. In reference to the ordinate scale (height), 1 geometric meter = 3.2808 feet is regarded as equivalent to 0.98 geodynamic meter. (Computations are actually based on the latter unit.)

3. Vapor pressures used in constructing this diagram were taken as follows:—

a. Vapor pressures with respect to water were used for *lifting condensation temperatures* both above and below the freezing point of water.‡

b. Vapor pressures with respect to water were used for *dew-point temperatures 32°F. (0°C.) and higher.*

c. Vapor pressures with respect to ice were used for *dew-point temperatures below 32°F. (0°C.)*‡

REFERENCES

1. The equation for the saturation vapor pressure of water at temperatures above 0°C. was obtained from: "Thermal Properties of Saturated Water and Steam," by N. S. Osborne, H. F. Stimson, and D. C. Ginnings, Journal of Research of the National Bureau of Standards, Vol. 23, page 263, August 1939.

2. The ratios of the saturation vapor pressures below 0°C. with respect to ice to the saturation vapor pressures at 0°C. were obtained from: "Vapor Pressure of Ice from 32°F. to −280°F.," by John A Goff, Heating, Piping, and Air Conditioning, ASHVE Journal Section, Vol. 14, No. 2, pp. 121-124, February 1942.

3. The formula for ratios of the saturation vapor pressures with respect to water to the saturation vapor pressures with respect to ice was derived in: "The Vapor Pressure of Ice and and of Water Below the Freezing Point," by E. W. Washburn, Monthly Weather Review, Vol. 52, pp. 488-490, October, 1924. (See also International Critical Tables, Vol. III, p. 210, McGraw-Hill Book Co., 1928.)

4. The ratios referred to in (3), were obtained from a computed table of data published in the article, "Tables (in millibars) of the Pressure of Saturated Aqueous Vapor over Water at Temperatures from 0° to −50°C.," by L. P. Harrison, Monthly Review, Vol. 62, pp. 247-248, July 1934.

*Dew-point temperatures less than 32°F. should be based on saturation vapor pressures with respect to ice (see note 3c). The Psychrometric Tables, W. B. 235, and the psychrometic slide rule (W. B. issue 8-23-42) are constructed on this basis.

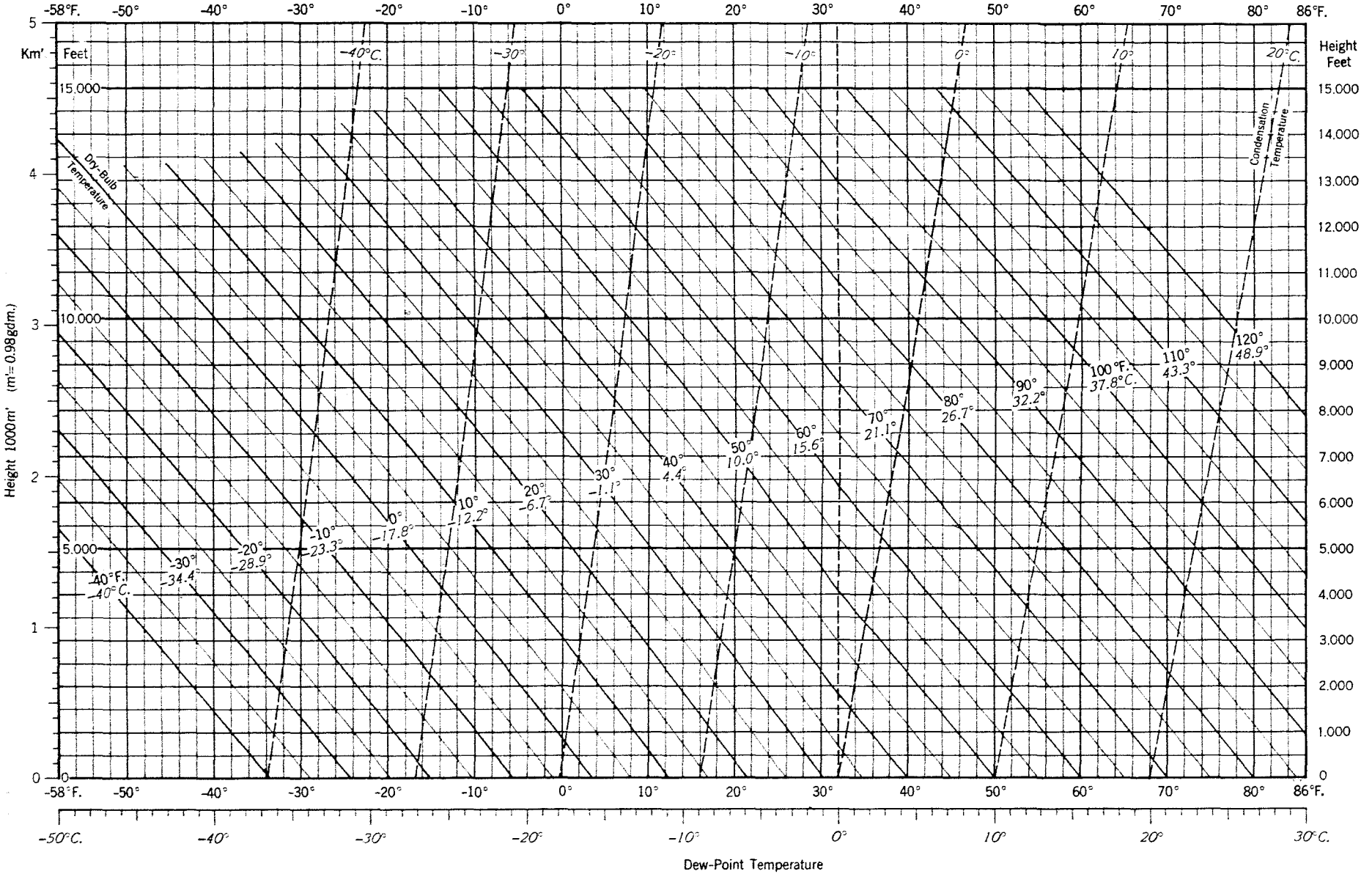
†In mountainous or hilly terrain, insolation, radiation, wind and orographic effects like air drainage may produce dissimilar temperature and dew-point distributions under different topographic situations, e. g. slopes and valleys. Where the convection originates at a radically different elevation from that of the point of observation with discordant temperature and dew-point conditions as is common in rugged terrain, use should *not* be made of the diagram to obtain estimated heights of the convective cloud base, since the results will necessarily be errroneous under such circumstances. An additional consideration is as follows: when the air below a convective cloud is not thoroughly stirred, the ascending convective parcels that approach the cloud base mix to some extent with the surrounding, usually less-moist air, so that the moisture content of the parcels as a rule undergoes some change during convection. In consequence of this, the estimated heights of convective cloud bases will generally be less reliable for heights of cloud bases above say 5000 feet than for lower ones. During precipitation the diagram will not give representative results because the underlying assumptions are not fulfilled.

‡The dew-point scale is not in accord with the observed dry-bulb temperature scale at zero (0) height for dew-points below 32°F., because of the joint use of the assumptions under notes 3(a) and 3(c). This also causes a kink in the dry-bulb temperature isopleths along the vertical line corresponding to dew-point 32°F.

WB Form 1113E

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

CONVECTIVE CLOUD-BASE HEIGHT DIAGRAM



INSTRUCTIONS FOR AIRWAY METEOROLOGICAL SERVICE

CONVECTIVE CLOUD-BASE HEIGHT DIAGRAM

DESCRIPTION

1. Abscissas (horizontal scale values) represent observed dew point temperatures (see notes 3b and 3c).

2. Ordinates (vertical scale values) represent estimated heights of convective cloud bases *above the point of observation*, in accordance with the assumptions given below.

3. Solid curves sloping upwards towards the left represent isopleths of observed dry-bulb temperatures, labeled in °F. and °C. in center of diagram.

4. Dashed curves sloping upwards towards the right represent isopleths of the *lifting condensation temperature* (LCT) of an air particle whose temperature and dew point are observed. The lifting condensation temperature is the temperature of the specified air parcel at the instant condensation of its water vapor occurs, after the parcel has been lifted dry adiabatically (see notes 1b and 3a).

INSTRUCTIONS

CAUTION: This diagram is applicable only to cloud types formed by active convection originating near the point of observation (see note 1e).†

1. To obtain the estimated height of a cloud base above the point of observation:—

a. locate the point of intersection of the following two lines: (I) the vertical line corresponding to the observed dew-point temperature* (abscissa), and (II) the curve corresponding to the observed dry-bulb temperature.

b. determine the ordinate of the point of intersection; this scale value represents the estimated height of the convective cloud base above the observation point.

2. To obtain the estimated height of the cloud above mean sea level, add the elevation of the point of observation to the value obtained by Instruction 1.

3. To obtain the estimated temperature of the cloud base:—

a. follow the procedure given in 1a.

b. determine the value pertaining to the dashed line passing through the intersection of the coordinates specified in 1a. (Interpolate where necessary between adjacent curves.)

NOTES

1. The diagram is based on the following assumptions:—

a. the height of the cloud base is identical with the *lifting condensation level*, i. e., the level at which condensation begins in the dry-adiabatically lifted air parcel.

b. the water vapor in the parcels of air raised by convection to this level is condensed in the form of *liquid water*.

c. the cooling of the parcels during the lifting is in accord with Poisson's equation for a dry-adiabatic process, viz.,

$$\frac{T_2}{T_1} = \left(\frac{P_2}{P_1}\right)^{\frac{AR}{C_p}}$$

where T = absolute temperature (°A.) of the parcel
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R = gas constant for dry air (ergs/gm. °A.)
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The adopted value of AR/C_p was 0.286.
(T°A. = 273.16°A. + t°C.)

d. the mixing ratio during convection is constant.

e. the air in the parcels forming the cloud base is representatively sampled by the air at the point of observation; specifically, that the values of temperature and moisture content of the observed sample are identical with those which characterized the cloud-forming parcels when those parcels were at a level where the pressure was equal to that existing at the point and time of observation.

f. the lapse rate of the air intervening between the point of observation and the cloud base is dry-adiabatic, viz., 0.975°C./100m′ (m′ = 0.98 geodynamic meter).

2. In reference to the ordinate scale (height), 1 geometric meter = 3.2808 feet is regarded as equivalent to 0.98 geodynamic meter. (Computations are actually based on the latter unit.)

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‡The dew-point scale is not in accord with the observed dry-bulb temperature scale at zero (0) height for dew-points below 32°F., because of the joint use of the assumptions under notes 3(a) and 3(c). This also causes a kink in the dry-bulb temperature isopleths along the vertical line corresponding to dew-point 32°F.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Lo
(File No. 451.2)

April 18, 1945.

CIRCULAR LETTER NO. 50-45
(To All First-Order Stations)

Subject: Enclosed Instructions for Operation of the Ceilometer.

The enclosed instructions are furnished all stations for information and guidance in the operation of the ceilometer.

We should appreciate receiving suggestions from personnel at whose stations ceilometers have been installed, concerning additional procedures that might have been developed in using it and that are not included in the instructions.

Please bind the instructions in Circular N between pages 179 and 180.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Enclosure

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

Station Operations Division
March 28, 1945

OBTAINING CLOUD HEIGHTS BY MEANS OF THE CEILOMETER

General

The pamphlets listed hereunder, which describe the operating principles of and the various adjustments on the ceilometer, should be available at every station.

1. "Instructions, Novalux Ceilometer for Cloud Height Measurements."

This pertains to the General Electric Model.

2. (a) Installation of ceilometer equipment.

   (b) Wiring and Foundation Requirements for Ceilometer Installations.

These pamphlets are issued by the Weather Bureau Instrument Division, and the terminology used in these instructions is taken from them.

Preliminary

The operations necessary to secure a cloud height measurement should be performed in the order listed below. Wherever given, the performance-check should be made at the time of each operation.

(1) Turn on the switch for the ceilometer projector. The beam will be visible at nighttime.

(2) Inspect the amplifier gain control to insure that the instrument is adjusted for optimum performance. On the ceilometer manufactured by the General Electric Company it should be set between positions 7 and 4. In general it will be found that the best performance is obtained with a gain setting of 4 for low clouds and either 6 or 7 for high clouds.

(3) Adjust the meter sensitivity control to the position found by experience to be most effective under the existing meteorological conditions. Care must be exercised that this control is never turned beyond the red mark on the graduations, as otherwise damage to the meter will result.

Note: Experience may indicate that the adjustments under (2) and (3) above are not always required. However, the adjustment under (3) should always be checked if a satisfactory signal output is not received and the ceilometer is so placed that a reaction at zero can be received when the projector is on.

(4) Turn on the amplifier switch. This is a gland-type switch and may occasionally stick. The observer will soon become accustomed through experience to a characteristic touch reaction when it is functioning properly.

(5) Turn on the output meter switch. When this switch is turned on, the pilot lamp above the output meter should light.

A summation check of the foregoing may now be made by turning the crank at the side of the ceilometer to bring the scanning drum into a horizontal position. This is indicated when the angle of elevation, as read on the angle scale or angle indicator, is zero. If the ceilometer is operating normally and there is no obstruction between it and the projector, and the projector is approximately at the same level as the ceilometer, the hand on the output meter should be strongly deflected to the right. This reaction, which may be called the signal output, indicates that the projector is turned on -- a fact that might not otherwise be evident in daytime, when the beam from the projector is usually invisible. If no signal is received when one might normally be expected, and the check made in accordance with the above indicates that the ceilometer is operating satisfactorily, the projector should be inspected to determine that the arc is burning. If the projector is operating satisfactorily and the ceilometer is not, the technician should be informed through the Regional Office. When the ceilometer is so placed with respect to the projector that a signal at a zero elevation angle might not normally be expected, the observer will assume, lacking indications to the contrary, that the projector and ceilometer are functioning normally.

Operation to Determine Cloud Height

The crank that operates the scanning drum should be turned at an even speed. Since the angular increments decrease with cloud height, the speed at which the crank is turned will be based on the estimated cloud height. If the clouds are estimated to be within a few thousand feet from the ground, the drum would be elevated rather slowly; but with clouds that are considerably higher, the drum may be raised more rapidly until it is at an angle where a reaction might be expected. The elevation of the drum would then be decreased to avoid passing the spot on the cloud base so rapidly that there is not time for the ceilometer to react. The correct elevation of the drum is that where a maximum deflection of the output meter occurs. If the drum is elevated further, the meter deflection will fall off. As a check on the required point and also when it is expected that the spot on the cloud base has been passed, the drum should be lowered to the point where a signal is first indicated. It should then be elevated slowly to the point of

maximum deflection on the output meter. At this point the elevation angle should be read, and by means of tables prepared for this purpose, the corresponding height of the clouds above the surface determined. When the ceilometer is not mounted on the ground, its elevation above the surface must be added to that of the indicated height.

Variable Reactions

In using the ceilometer, it will be helpful to keep in mind that its operation is closely analogous to that of a ceiling light. The reaction of the output meter on the ceilometer may be considered similar to the reaction of the eye when viewing the beam from a ceiling light. For instance, several layers of clouds may cause the ceilometer to react at more than one angle, just as several spots from the ceiling light may become visible under identical conditions at night. Or an overcast above thin scattered clouds may produce a reaction when, owing to the thinness of the lower clouds, no reaction can be secured from them. When the ceiling light is used at night, the penetration of its beam into clouds or fog can be seen, and often its emergence from the top of the cloud also. When the light from the ceilometer projector penetrates clouds, fog, snow, etc., it will be found that the conditions existing within them can often be surmised from the reaction of the output meter. The maximum reaction may occur at a higher angle than that pertaining to the base of the clouds and therefore represents to a certain extent the penetration of the beam into the cloud. Following this maximum reaction, the decrease may be either abrupt or gradual, depending upon whether the beam of the projector emerges from the top of the cloud or is completely extinguished within it. When medium penetration occurs, such as with stratus and altostratus, the reaction may increase to a maximum over a whole degree or more. In this case, the midpoint of the reaction would be taken, just as the center of the spot made by a ceiling light would be used when determining its angle of elevation with a clinometer. When, however, the reaction of the output meter cannot be interpreted with certainty, the ceilometer should be used only as a guide in estimating the ceiling or in describing it as "indefinite."

Uses Under Various Conditions of Weather

The usefulness and efficiency of the ceilometer is often qualified by the presence of hydrometeors and lithometeors. When the horizontal visibility becomes less than the length of the base-line, or when the visibility is restricted and a smoke or dust layer exists aloft, the use of a ceilometer may become impracticable and its reactions useless even as an indication of vertical visibility. Precipitation may prevent the use of a ceilometer to determine the cloud base height, but the reaction of the ceilometer to the reflection of light from the precipitation may be used as a guide in estimating a precipitation ceiling. The ceilometer's behavior in the event of precipitation ceilings is in general characterized by a strong signal at low angles which falls off to zero as the angle is increased. The angle at which the reading approaches zero is an index of beam penetration. After some experience in using the ceilometer, the observer will be able to determine the conditions under which it should not be used.

Standby Operation of Ceilometer

Upon completion of an observation, the output meter and the light projector switches should be turned off. Except during extended periods of clear weather, the amplifier switch may be left on to keep the ceilometer in readiness for immediate use. The scanning drum should be returned to an angular reading of 10° to 20° to avoid injury to the output meter. If the ceilometer is so situated that rays of the sun may enter the drum, the latter should be adjusted to an angle that most completely eliminates this danger.

Performance Reports on the Ceilometer

The observer will render these reports in accordance with instructions from the Instrument Division or the Regional Office.

UNITED STATES DEPARTMENT OF COMMERCE
Weather Bureau
Washington

Chf-Ki
(File No. 000)

April 20, 1945.

CIRCULAR LETTER NO. 31-45
(To All Stations)

Subject: Message from the White House regarding V-E Day.

Subject message has been received through the Director of Personnel of the Department of Commerce by direction of the Secretary with request that it be brought to attention of all supervisors and employees.

"When Victory in Europe comes, the Nation will, of course, be moved to express its profound gratitude. Like millions of civilian war workers in private industry, we, who are privileged to serve in the Federal Government, could find no expression of thanksgiving more fitting than staying at our posts of duty and rededicating ourselves to the winning of the war against Japan.

"Honorable James F. Byrnes, in his recent report to the President, stated: 'No one can tell when V-E Day will come. But when we are advised by General Eisenhower that organized resistance of the German Army has ceased, I hope the American people will make that day a day of work and worship. I recommend that all Government agencies observe the spirit of this request.'

"Accordingly, officials and employees in all Federal departments and agencies will, I am sure, observe the spirit of teamplay so necessary for final victory by working together on V-E Day and on all the days to follow as long as our services are needed to achieve final victory."

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F/AlG/Jm
(File No. 600.00)
(730.4)

April 20, 1945.

CIRCULAR LETTER NO. 32-45
(To All Stations)

Subject: Transcribing Coded Analyses on Surface Charts.

In view of recent establishment of some new weather reporting stations and several additions to index number assignments which do not appear on many of the charts currently used at field stations, there is attached a copy of the base chart now in use at the Analysis Center which will serve as a reference in plotting analyses when the coded transmissions refer to stations not shown on some maps in use at field stations. This base, WB-1524, is not available for use as a manuscript chart at field stations.

While all manuscript bases are being revised in accordance with corrected lists, numerous recent changes in teletype letter identifications have retarded the program and it is believed that the attached base will assist materially until a supply of revised base charts can be furnished to all stations.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Attachment -
Map WB-1524.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F.-Gr
(File No. 610)
(601.2)

April 20, 1945.

CIRCULAR LETTER NO. 33-45
(To All Stations)

Subject: Savannah temperatures.

Reference: Circular Letter No. 89-40.

Effective with the termination of April 30, 1945, distribution of the Savannah, Georgia, city office temperatures as an additive group to the 0830 and 2030 Savannah code sequence reports will be discontinued. Thereafter, temperatures for Savannah used on Weather Bureau bulletins furnished newspapers and press associations or otherwise distributed to the public will be those for the Weather Bureau airport station.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(File No. 212)

April 20, 1945

CIRCULAR LETTER NO. 34-45
(To all First Order Stations)

Subject: Discontinuance of "Circular I," (Fiscal)

Effective with the fiscal year beginning July 1, 1945, the regional offices will be assigned allotments for specified regional operations. Three of these allotments, "Station and Office Operation," "Installation and Maintenance of Instruments and Other Technical Equipment," and "Non-Instrumental Equipment" will be for expenditures formerly charged to "Circular I," (all paragraphs) which will be discontinued after June 30, 1945.

The authorizations for local officials to expend funds, now contained in "Circular I," will be incorporated in Bureau fiscal regulations. It is planned to develop procedures for authorization for incurring obligations in the field service which will not require the allotment of funds to each field station.

The regional offices will annually submit estimates of funds required for each allotment. To do this adequately each regional office will call on field stations for estimates of local expenses. These estimates, to be prepared by officials in charge of field stations, should therefore be based on the most careful analysis of station needs for the ensuing fiscal year. In order that the Bureau may plan the most effective use of funds it is necessary that estimates represent only known requirements. Estimates for contingencies can best be made at the regional level. When contingencies, such as emergency repair of equipment, are included in station estimates too much money is earmarked for eventualities, all of which will not come to pass.

While allotments will not be made to stations, it is expected that station officials will keep forseeable expenditures within their estimates in incurring obligations. This statement is not to be regarded, however, as a restriction when in emergency the procurement of supplies or services, within the authority of the official, is urgently necessary and essential to the continued operation of the station.

Very soon the regional offices will issue a call for station estimates for the fiscal year 1946. At that time stations will be provided with forms and instructions for the preparation of estimates.

W. F. McDonald

W. F. McDonald
Assistant Chief for Administration

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT:JJD:Du
(File No. 750)
(400)

April 23, 1945

CIRCULAR LETTER NO. 35-45
(To all First Order Stations)

Subject: WB Form 2003, Report of Surplus and Unserviceable Property.

The use of the above referenced form will be discontinued as soon as your present supply is exhausted. Department of Commerce Stock Form No. 3, Survey of Public Property, will thereafter be used to report all surplus or unserviceable property.

The reporting station will prepare an original and four copies of the form, listing the items to be declared on the reverse side; filling in the date, name of station, signature and title of the Property Officer on the other side; detach one copy and forward the original and remaining copies to the Regional Office. The Regional Office will make the recommendation in the space headed "Report of Survey", detach one copy and forward the original and two remaining copies to the Chief, Material Section.

Requests for Department of Commerce Stock Form No. 3 should be made on WB Form 4020B.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

Pers.-fo.
(File No. 202)
(130)

April 24, 1945

CIRCULAR LETTER NO. 36-45
(To all first order stations)

Subject: Salaries and Leave for Employees on Extended Detail

The regionalization of payrolls and new procedures for attendance and leave reports has made the issuance of new instructions on the above subject necessary. Circular Letter No. 3-44 on this subject is hereby cancelled and should be marked accordingly.

1. Details of employees for temporary duty away from permanent headquarters will not interrupt maintenance of pay and leave status at headquarters station. Procedures are outlined herein to standardize pay roll and leave action for employees on temporary detail.

2. The Official in Charge of station at which employee is detailed (or employee himself if on detached duty or serving temporarily as Official in Charge) will prepare a separate Standard Form 72 (or statement of attendance and leave in memorandum form) for the detailed employee and will forward this record at the close of each pay period to the Regional Office of the region in which permanent headquarters are located. This will serve as certification of duty status for payroll purposes.

3 The employee on detail will submit, through his regular official in charge to his regional office, written direction regarding the mailing of any pay checks due during period of detail and if circumstances demand, will make any change in such directions in writing. These written directions may provide for either of the following procedures.

(a) Pay check to be forwarded to headquarters station as usual for remailing or other disposition; if the latter, the matter should be separately covered by additional written directions left with local official in charge, or power of attorney filed with bank, etc.

(b) Regional office to mail pay check directly to official in charge of the station where employee is detailed for recording and delivery to the employee by the official in charge.

5. Standard Form 71 will be prepared in duplicate for non-routine leave chargeable to an employee on temporary detail or detached duty. The original and copy will be forwarded to the Regional Office of the permanent headquarters station with recommendation of the Official in Charge of temporary headquarters. After approval, the original will be forwarded to the permanent headquarters and the carbon copy returned to the temporary headquarters. All leave slips on file at temporary headquarters are to be forwarded to the permanent headquarters station with the copy of 1416 at the termination of detail.

6. Appropriate leave charges will be entered on permanent record, Form 1416, at headquarters station, and also on the copy of Form 1416 covering temporary detail. The latter will be returned to the employee's permanent headquarters on termination of temporary detail and, after comparison with the permanent station record, may be destroyed.

7. Any request for leave of absence en route to or from station of temporary detail will as a rule be cleared by agreement of officials in charge at both stations concerned, although in exceptional cases it may be approved by the Regional Director without such concurrent agreement. Such requests will be appropriately covered by Standard Form 71 and by entries on Forms 1416.

8. Employees should be duly advised that any leave of absence en route or within a period of detail covered by a grant of per diem allowance is subject to deduction from per diem payments in accordance with fiscal and travel regulations.

9. Permanent officials at a station to which an employee is temporarily detailed should make every effort to aid the employee in finding suitable living quarters, in adapting himself to transportation and subsistence problems, and in general will extend a friendly continuing interest in the welfare of the temporary assignee. The employee will look to his temporary official in charge for official guidance and direction, and will conform to station rules and procedures in the same manner as if permanently assigned.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

RESTRICTED

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No.610)
(070.2,622.1,
622.5).

April 30, 1945

CIRCULAR LETTER NO. 37-45
(To All Stations)

Subject: Security of Meteorological Information in Canada

Reference: Circular Letter 12-45

Canadian Department of Transport Circular No. 732-R effective April 20, 1945, is reproduced for the information of Weather Bureau personnel.

F. W. Reichelderfer
Chief of Bureau.

This circular is a redraft of Circular 664-R of January 1, 1945. All previous circulars with the same title should now be destroyed. All revisions are in paragraphs A and B.7.

SECURITY OF METEOROLOGICAL INFORMATION IN CANADA

A. All newspapers in Eastern Canada are permitted to publish generalised weather forecasts. Otherwise, for the region east of but not including Quebec City and Megantic, the present restrictions on the dissemination of meteorological information are to remain in effect as at present; viz., no weather information for the area may be transmitted by radio except in a cipher approved by the Controller of Meteorological Services, or except storm warnings issued by the Meteorological Services of Canada and authorized for broadcasting. In this zone UCO Code is to be used.

B. The following seven sub-sections apply only west of the longitude of Megantic:

1. Radio Range Stations and Control Towers may broadcast on schedule their own hourly weather reports in clear, and on request the weather for any two stations but not more. If a Range is off the air, an adjacent station may broadcast its weather in addition to its own, provided that not more than two reports are included in any one transmission. Stations on the Northwest Staging Route are not limited to two reports per transmission. Reports for stations east of Megantic may be broadcast in the UCO code on request. Each station is to broadcast its own "special" weather reports as soon as available, also the "specials" of the other stations (if any) listed in its hourly broadcast schedule. On request, Ranges may broadcast in plain language the winds aloft from the nearest pilot balloon station available, west of the longitude of Megantic.

2. Radio transmission of weather information, including forecasts but not including weather maps, analyses, and synopses, pertaining to Canadian stations, may be made in clear between aircraft and ground, aircraft and aircraft, or point to point, whenever requested or initiated by a pilot, ground operator, or controller, provided not more than two station reports are included in any one transmission.

3. Terminal forecasts, flight plans and changes therein, landing instructions and any other weather information relating to Canadian stations may be transmitted unscheduled in clear in accordance with Section B.2.

4. The use of the ALACO-AIRMETCO at stations within the area will be discontinued, but supplies of forms and instructions will be retained at all stations and offices so that, should an emergency arise, strict weather security measures can be reinstituted on short notice.

5. Radio transmission of weather maps and analyses in whole or in part must be in cipher.

6. (a) Synoptic observations and hourly sequences from stations north of Edmonton in the region from the MacKenzie River to the Alaskan boundary may be transmitted in clear either singly or collectively within that region only.

(b) The transmission of synoptic observations and hourly sequences from stations not covered by 6(a) and 7(a), but except as in 6(c), may be transmitted in clear provided that not more than two reports are included in any one transmission. Collectives, however, must be in cipher.

7. (a) In British Columbia, radiophone broadcasts of complete weather information are permitted if the transmitter has not over 100W. antenna output, and operates on a frequency not over 3Mc/sec.

(b) Transmissions from government and commercial radio stations not governed by 7(a) shall contain no direct mention of wind direction (except for storm warnings), barometric pressure, ceiling, or visibility. Forecasts as issued by the Meteorological Service of Canada may be broadcast for the districts normally covered by the broadcasting station.

(c) Private commercial broadcasting stations may broadcast forecasts as issued by the Meteorological Service of Canada for the districts normally covered by the broadcasting station and in accordance with the directive issued by the Chief Censor of Publications - Radio.

C. The following three sub-sections apply to all Canada:

1. All current weather information originating in or pertaining to Canadian stations, will be accessible to the public at Department of Transport offices for legitimate use compatible with national interests.

2. Identification will no longer be required for persons requesting either in person or by telephone or telegraph meteorological information, exclusive of synoptics, relating to stations in non-secret areas.

3. Publication of weather information in the Press will be in accordance with the directive issued by the Chief Censor of Publications - Press.

/s/ J. Patterson
Controller, Meteorological Services of Canada

MAP NO SCANNED DUE TO FRAGILITY

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(File No. 260.1)

April 30, 1945

CIRCULAR LETTER NO.38-45

(To All Stations)

Subject: Bills of Lading

In effecting new plans for control of allotments involving expenditures for the transportation of things, beginning July 1, 1945, memorandum copies of bills of lading will be forwarded to the Central Office through the regional office by field offices. These copies will serve the purpose in mind only if an estimate of the cost is obtained and entered thereon. All officials issuing bills of lading are therefore directed, if possible, to obtain an estimate of the transportation cost at the time the shipment is made. This estimate should be placed only on the memorandum copy of the bill of lading overprinted in red ink, "This copy must be returned to the Chief, U. S. Weather Bureau, Washington 25, D. C."

It is believed that freight agents can generally furnish cost data on freight shipments inasmuch as the government now pays the same rates as commercial concerns and private individuals.

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-cs
(File No. 240)
(250)

May 1, 1945

CIRCULAR LETTER NO. 39-45
(To all First Order Stations)

Subject: Bids and contracts for continuing services at field stations

Brief mention was made in Circular Letter No. 34-45 of the pending plans for decentralization of allotment operation and control to become effective July 1, 1945. The purpose of this letter is to outline a procedure for the handling of bids and contracts for continuing services necessary to the operation of field stations in accordance with overall plans for revised allotment control and operation for the new fiscal year.

Station officials are requested to solicit bids and prepare informal agreements for required services as heretofore. All bids solicited should be forwarded to the Central Office through the regional office as soon as possible.

I. Bids:

Instructions contained in Paragraph 2014.3 of the Fiscal Manual will continue to govern the solicitation and procedures for handling of bids with the following exceptions:

(1) The bid recommended for acceptance should be prepared in sextuplicate -- the original copy for the General Accounting Office, one copy for the person or company submitting the bid, one copy for the station files, one copy for the Fiscal Section in the Central Office, one copy for the Materiel Section in the Central Office, and one copy for the Regional Office.

(2) All bids received and all copies except the station file copy of the recommended bid will be sent to the regional office.

(3) The Regional Director will review all bids received, pass upon the recommendation, and forward all copies to the Materiel Section in the Central Office.

(4) The Materiel Section will review bids and make recommendations of all awards to the contracting officer for acceptance of the lowest bid meeting the specifications and requirements; this action may be taken prior to the passage of the Appropriation Act if necessary, but in such instances with the condition that acceptance is contingent on the availability of funds pending passage of the Appropriation Act.

AsstChAdm.-cs

I. Bids: (Continued)

(5) The Materiel Section will return one contract numbered copy of the accepted bid to the regional office, and one contract numbered copy directly to the station where the bid was solicited, for transmission to the person or company submitting the accepted bid. The station official will number his own copy upon receipt of the copy from the Central Office.

Station officials are requested to include in a letter transmitting the bids an estimate of the total cost of the service under the bid recommended for acceptance.

II. Informal Agreements:

Instructions contained in Paragraph 2015 of the Fiscal Manual will continue in effect with the following exceptions:

(1) Station officials will prepare an original and four copies of W.B. Forms 1430 and 1431 or Standard Form 40.

(2) The original and three carbons will be sent to the Central Office through the regional office. The regional office will forward all copies to the Central Office, with one copy marked for the Fiscal Section. This copy should be initialed by an official in the regional office.

(3) After review of contracts in the Central Office, Fiscal Section will number all copies of the contract and return one numbered copy to the regional office and a numbered copy directly to the station official for transmission to the contractor. The station official will number his own copy after receipt of the contractor's copy from the Central Office.

The Central Office will prepare a copy of the existing contract for the regional office in instances where new contracts for telephone service (Standard Form 40) or for other public utility services (W.B. Form 1431) are not required for the ensuing fiscal year because the existing contracts contain provisions for continuation beyond the close of the current fiscal year. All amendments to contracts for telephone and other utility service will be handled in accordance with revised instructions for Standard Form 40 and W.B. Form 1431 given above.

Since provision is not made in W.B. Form 1431 for an estimate of the total annual expenditure under the contract, an estimate must be furnished for each such contract; this will be entered on the lower margin of the form, in statement that "Total annual cost is estimated at $- - - - ."

AsstChAdm.-cs

Station officials preparing informal contracts are urged to review and study existing instructions in addition to those contained in this Circular Letter. Accuracy in the preparation of informal contracts is especially important this year in order that decentralization of allotment and budget control may take place with a minimum of difficulty. Care should be taken to see that the Fair Employment Practice clause is included in each bid or informal contract.

The changes in procedure for handling bids and contracts as outlined above are necessary in order that the regional office may be fully informed of the fiscal actions relating to bids and contracts, in maintaining records for assigned allotments including expenditures authorized by acceptance of bids or contracts.

F. V. Reichelderfer

F. V. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
Weather Bureau
Washington 25, D. C.

Opr./Mh
(File No. 031.1)

May 4, 1945.

CIRCULAR LETTER NO. 40-45
(To All First-Order Stations)

Subject: Application for Training as Electronic Maintenance Technician.

In anticipation of a greatly increased use of electronic equipment at field stations, the Central Office is compiling a roster of Bureau personnel who have had experience and training in electronics and related fields. The attached questionnaire, designed to disclose employee skills in the radio and other electronic fields, should be completed by employees who are interested in this type of work.

For information of those who may wish to be considered for an assignment as an electronic maintenance technician, grades of SP-6 have been allocated to the training positions, and SP-8 to the positions for fully qualified technicians. Two or three employees will ultimately be assigned in each region, and it is expected that they will spend two-thirds or more of their time in a travel status inspecting and servicing equipment. It is desired to emphasize that this is a new field of employment within the Bureau, and that developments in the post-war period when many of the discoveries in the use of electronic equipment may be applied to the recording of weather data are likely to lead to raises in grades well above their present level.

Employees selected for assignment as electronic maintenance electricians will be given special training either in the Instrument Division at the Central Office or by travel for two or three months in company with a senior regional technician for on-the-ground experience. Employees contemplating assignments of this kind should therefore consider themselves available for extended travel as may be necessary.

Applications should be submitted in quadruplicate through the Regional Office, one copy to be retained there, and the remaining three to be forwarded to the Central Office, Station Operations Division. One copy will then be attached to the employee's permanent personnel file. Only one application is attached to this Circular Letter; additional copies will be supplied by the Regional Office upon request.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
Weather Bureau
Washington 25, D. C.

REPORT OF TRAINING AND EXPERIENCE IN ELECTRICITY, RADIO, ELECTRONICS, AND INSTRUMENTS.

(APPLICATION FOR TRAINING AS ELECTRONIC MAINTENANCE TECHNICIAN)
Prepare four copies: Submit through Regional Office.

Date

1. Name Title and Grade

2. Station

3. FORMAL TRAINING (i.e., training in an organized class or school in electricity, radio, electronics, and instruments. Give name of school, if any, and location. Give brief description of each course studied in these fields, as well as length of course.):

4. Other training in electricity, radio, electronics and instruments. (Describe.)

5. Experience in electricity, radio, electronics, and instruments. (Indicate the amount of experience obtained in unpaid and paid work or jobs.)

(a) UNPAID WORK:

(b) SUMMARY OF PAID EMPLOYMENT in electrical, radio, electronics, instrumental or maintenance positions:

Name & Address of Employer	From		To		Position and Description of Duties	Salary	
	Mo.	Yr.	Mo.	Yr.		Entrance	Final
1.							
2.							
3.							
4.							

6. Indicate the types of instruments or equipment used during the formal training and experience noted above and the tolerances permitted for such equipment.

7. If a radio amateur, please answer the following:

(a) Did you build your transmitter?____If so, give tube line up:

(b) Did you build your receiver?____If so, give tube line up:

(c) Have you held an amateur's license?____If so, indicate date: Class A_____; Class B_____; Class C_____

(d) Have you held any commercial radio operator's license?_____ If so, state kind and date:_____

8. Are you willing to travel and be away from the headquarters station for at least one-half time?_____

9. If selected for training in Weather Bureau electronic maintenance work, are you willing to accept and remain in a position as regional technician for a period of at least two years?_____

---

10. In Column "A" below, the applicant will indicate his estimate of his interest and capabilities as strong (+), average (✓) or below average (-).

In Column "B", the applicant's immediate supervisor will rate the applicant in the same manner except that an asterisk (*) will be entered for any point on which the immediate supervisor feels that he is not qualified to rate the applicant.

	A	B
a. Interest in repair and maintenance work as indicated by work at the station	_____	_____
b. Interest in use, care, and adjustment of meteorological instruments	_____	_____
c. Mechanical ability as shown by facility in the use of hand tools	_____	_____

	A	B
d. Accuracy in written work as shown in the preparation of observational reports and other forms	_____	_____
e. Interest in meteorology	_____	_____
f. Cooperation with supervisors	_____	_____
g. Cooperation and tact in dealing with associates	_____	_____
h. Tact in dealing with less experienced workers	_____	_____

_____
(Signature of Applicant)

COMMENTS OF IMMEDIATE SUPERIOR:

_____
(Signature)

_____
(Title)

_____
(Date)

COMMENTS OF REGIONAL OFFICE:

_____
(Signature of Regional Director)

_____
(Date)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F.-Gr
(File No. 622.1)
(622.5)
(620.43) CIRCULAR LETTER NO. 41-45.
(To All Stations)

May 5, 1945.

Subject: Specialized forecasts and advices for agriculture.

Reference: Circular Letter 54-44.

The Weather Bureau made significant progress last year in the development of its specialized forecast service for agriculture in collaboration with State Extension Service specialists and agents. Demand for these advices is increasing. Information received through Department of Agriculture channels indicates that Extension Service officials in many areas are anxious to cooperate in making available to farmers and growers the special weather information required for seasonal activities. Weather Bureau officials are requested to effect further expansion of this service and increase its usefulness where possible within existing capacity of staff to handle.

Although relief has been obtained from restrictions on communication tolls, there still is a statutory limitation on the total amount that may be spent for tolls during the present fiscal year. This restriction will require that prior approval by Central Office be obtained before establishing arrangements for regular messages in connection with this service. Special warnings or urgent messages in connection therewith are not affected. It should be understood, however, that the Central Office stands ready to approve necessary telegraphic expense for farm advisory service so far as current allotments permit and will be glad to consider recommendations in the order of presentation.

The cooperation of radio stations in providing regular daily schedules for broadcasts is essential. As this is primarily a service to farmers and growers, it is desirable that whenever possible the forecasts and advices be given on Extension Service farm programs. Where this is not feasible, special programs may be set up specifically for this purpose. Other means of dissemination such as distribution over rural telephone lines or through county agents is also appropriate but general dissemination via press and radio news association channels is not desired. This would (1) parallel our regular forecast service and (2) result in loss of control over broadcasting and other methods of dissemination.

It is essential that Weather Bureau offices and forecast centers issuing agricultural forecasts keep informed regarding

farm activities. Where service is on a state basis Section Directors should obtain this information through State Extension Service sources and forward it to the appropriate forecast center. Where a Weather Bureau office renders a local service for a surrounding area the plan should be worked out in co-operation with the Section Director to assure that arrangements for obtaining crop information and issuing specialized forecasts are properly coordinated to render the best service with a minimum of overlap or confusion. Regional Offices will be kept informed.

Regional Directors are requested to render a report regarding service in each state when organized for the 1945 season. It is also requested that all stations originating farm advisory broadcasts send in sample copies weekly for Central Office files.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Lo
(File No. 601)

May 5, 1945

CIRCULAR LETTER NO. 42-45
(To All Stations)

Subject: "Amplification of Instructions in Circular S" and "Guide to Coding Clouds"

Enclosed are copies of "Amplification of Instructions in Circular S" and "Guide to Coding Clouds."

These instructions accord, so far as possible, with comments received from the field on the amplification proposed last year by the Cloud Committee. They will be used with Circular S rather than independently of it, and they have been sent in this form because a complete revision of Circular S, incorporating this material, is not possible at the present time. The instructions should be clipped and pasted in Circular S adjacent to pages to which the instructions refer.

The "Guide to Coding Clouds" is not intended as a substitute for the coding instructions in the circular, but should be used only after the observer is familiar with instructions in Circular S. It is hoped that in this use the observer may find it simpler to select a code figure by consulting the guide than by consulting several pages in Circular S.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Enclosures (2)

AMPLIFICATION OF INSTRUCTIONS IN CIRCULAR S

Supp. err. 6/1/45 Page 5, at end of "B. Explanatory Remarks" add:

In using the points specified in Circular S for distinguishing cirrostratus from altostratus and either one from nimbostratus, observers should keep in mind the effect which angular altitude, that is relative nearness to the horizon, has on cloud appearance. Low angular altitude has two effects: (1) it introduces a longer light path through the cloud, thereby affecting characteristic optical phenomena; and (2) by perspective, it causes characteristic cloud features to appear to merge.

When the sun (or moon) is low (less than about 30 degrees) the relatively longer light path through cirrostratus clouds of uniform thickness may reduce the light intensity to a point where a halo, shadows of objects on the ground, or a sharp outline of the disk of the sun or moon - all criteria of cirrostratus - may be partly or completely absent. If the sun is below an altitude of 8 degrees and cirrostratus clouds are present, usually not even the upper portion of a 22 degree halo would appear; whereas if the sun were above 52 degrees, the halo would probably be complete.

Just as perspective may cause cumulus clouds near the horizon to appear to merge into stratocumulus at low angular altitudes, cirrus may be mistaken for cirrostratus; and cirrostratus, even though not of uniform thickness, for altostratus.

Accordingly, in distinguishing cirrostratus from altostratus, it may be assumed that the sky is all cirrostratus (1) whenever any part of a halo is present, (2) whenever with a fibrous sheet in which no halo appears, the sharp outline of the disk of the sun or moon is visible, and (3) when at an altitude of more than 30 degrees the sun casts shadows of objects on the ground.

Supp. eff. 5/1/45 Page 14, continuation as follows:

As a feature which applies to all the clouds and about which there has been some misunderstanding, this explanation concerning precipitation should be considered: Precipitation can fall from any kind of cloud; also, any cloud form may be observed in the absence of precipitation. Therefore, the simple occurrence or absence of precipitation is not definitive for cloud nomenclature or coding.

Page 23, insert between the fourth and fifth paragraph of "3. Cumulonimbus:" Supp. eff. 5/1/45

When the tops of huge cumuliform clouds are visible, code $C_L=3$ is to be used only when tops show icy qualities. It is not necessary always to code $C_H=3$ with $C_L=3$. In cases where the cumulonimbus is degenerating, the anvil will be coded $C_H=3$ when the lower cumuliform parts are virtually gone.

Page 23, at the end of "4. Stratocumulus Formed by the Flattening of Cumulus Clouds" add: Supp. eff. 5/1/45

The designation "flattening" in the title of $C_L=4$ should be borne in mind as an essential feature for coding $C_L=4$. Fusion of an increasing number of growing cloud elements without flattening is to be coded $C_L=5$. This is necessary because, although the stratocumulus may result from cumulus, the process is one of continuing active convection, and, in fact, represents to the forecaster a decidedly different picture than does the flattening of cumulus to form stratocumulus ($C_L=4$).

Supp. eff. 5/1/45 Page 24, under "7. Cumulus of Fine Weather and Stratocumulus" add:

The first sentence should be amplified to read: "Cumulus or fractocumulus of fine weather may form below an already existing sheet of stratus or stratocumulus, with which they do not merge or which they do not penetrate."

Supp. eff. 5/1/45 Page 24, at end of the first sentence of the first paragraph under "8. Heavy or Swelling Cumulus, or Cumulonimbus, and Stratocumulus" add:

The important point conveyed by this code is that there are heavy and swelling cumulus at least in part below another layer of "low" clouds, but they do not have to penetrate the layer to be coded as C_L=8.

Supp. eff. 5/1/45 Page 24, at the close of the paragraphs under "8. Heavy or Swelling Cumulus, or Cumulonimbus, and Stratocumulus" add:

This state of low clouds must not be confused with $C_L=4$. Without previous knowledge of the state of the sky the observer cannot always be sure whether the stratocumulus was there before the lower clouds entered it or whether the stratocumulus was formed from the flattening out of the lower clouds. Upon careful inspection of the stratocumulus layer at the point where the cumulus enters it, one generally notices a somewhat gradual turning of the side of the cumulus cloud from vertical to horizontal and a tendency to downward protuberances provided it is flattening out and forming the stratocumulus layer. On the other hand, if the cumulus penetrates a stratocumulus layer already present, there will appear to be an abrupt discontinuity at the edge of the cumulus cloud, from vertical to horizontal, and often a thinning of the stratocumulus sheet as well. This formation is unlikely to be observed in very small amounts.

Page 25 at the end of the fifth line add: Supp. eff. 5/1/45

Change punctuation from a colon to a period. This is a misprint. The two cases referred to in this sentence are those of the two preceding paragraphs, and not items A and B which follow the sentence.

Supp. eff. 5/1/45 Page 26, at the end of "4. Altocumulus in Small Isolated Patches, ..." add:

Caution must be exercised in observing the clouds near the horizon. Altocumulus clouds that have very little thickness may appear lenticular when they lie near the horizon, owing to perspective. These clouds should not be classified as lenticular until their lenticular character is definitely established.

Page 29, at end of "8. Altocumulus Castellatus or Scattered Cumuliform Tufts" add: Supp. eff. 5/1/45

If either altocumulus castellatus or altocumulus floccus is present in the sky, even in small amounts with another type predominating, C_M=8 must be coded, except when the sky is chaotic, and C_M=9 is appropriate.

Supp. eff. 5/1/45 Page 30, at end of "2. Cirrus, Delicate, not Increasing, ..." add:

The amount of C_H clouds, if recorded as C_H=2, should be at least 4/10, but not more than 9/10, in order to be classed as "abundant."

Supp. eff. 5/1/45 Page 30, under "3. Cirrus of Anvil Clouds, Usually Dense" add:

At times there are large, dense cirrus masses which, while they were evidently formed by strong convection, were never actually part of a full cumulonimbus cloud. These also are to be coded $C_H=3$.

Whenever the cumulonimbus is degenerating, the anvil will be coded $C_H=3$ when the lower cumulonimbus parts either are separated or are virtually gone.

As long as the observer can see sufficient edges of the cloud to determine its anvil characteristics, it will be coded as $C_H=3$.

Page 31, at end of "7. Veil of Cirrostratus Covering the Whole Sky" add: Supp. eff. 5/1/45

If lower clouds are present or the horizon is invisible, the observer must determine whether or not the cirrostratus covers the whole sky. If it appears to, it will be coded as $C_H=7$. If there are breaks in the layer, $C_H=6$ or $C_H=8$ will apply.

Page 31, after the first paragraph of "8. Cirrostratus not Increasing and not Covering the Whole Sky" add: Supp. eff. 5/1/45

When the edge of the cloud sheet is broken, the cirrostratus may not reach the horizon as a continuous sheet. $C_H=8$ includes all cirrostratus that is not covering the whole sky and is remaining the same in amount or decreasing.

Page 31, at the end of "8. Cirrostratus not Increasing and not Covering the Whole Sky" add: Supp. eff. 5/1/45

The International Cloud Atlas does not state definitely how cirrus or cirrostratus that is decreasing or remaining constant in amount and concentrated near one horizon is coded. This situation satisfies the C_H=8 specifications more clearly than those for any other code number; the state of the sky is essentially the same.

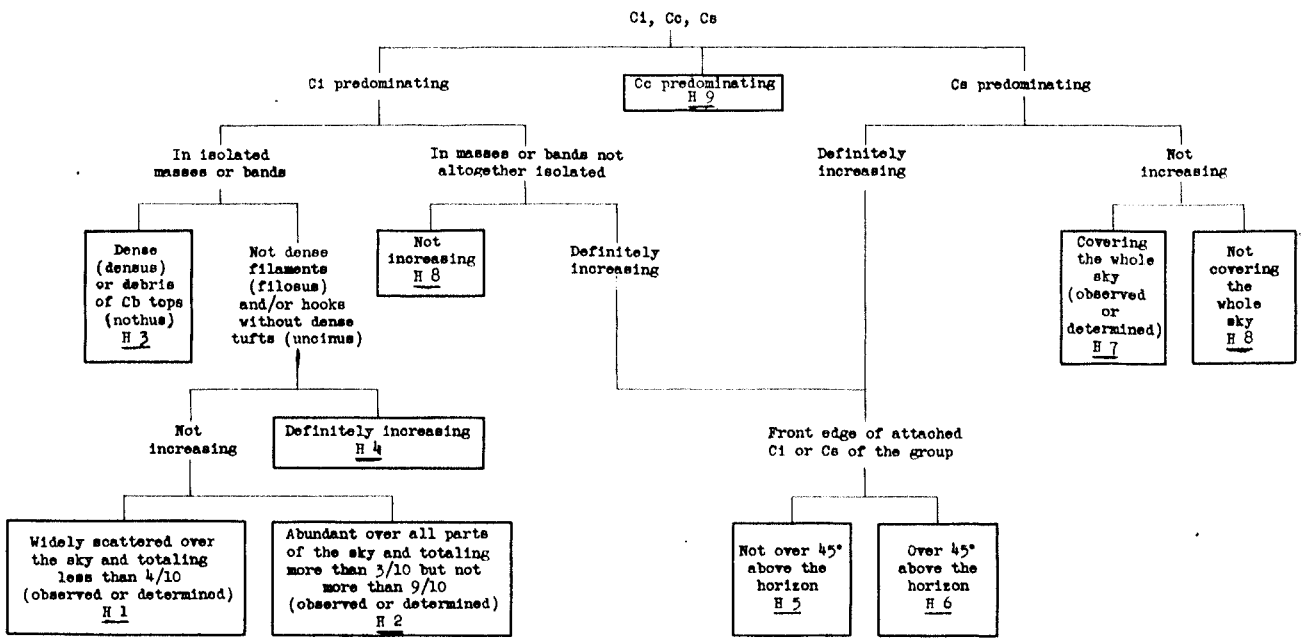
Page 31, last paragraph under "9. Cirrocumulus Predominating, Associated with a Small Quantity of Cirrus" add: Supp. eff. 5/1/45

If the bank of cirrus or cirrostratus degenerates by more than one-half of its original amount into cirrocumulus, it is also coded as C_H=9.

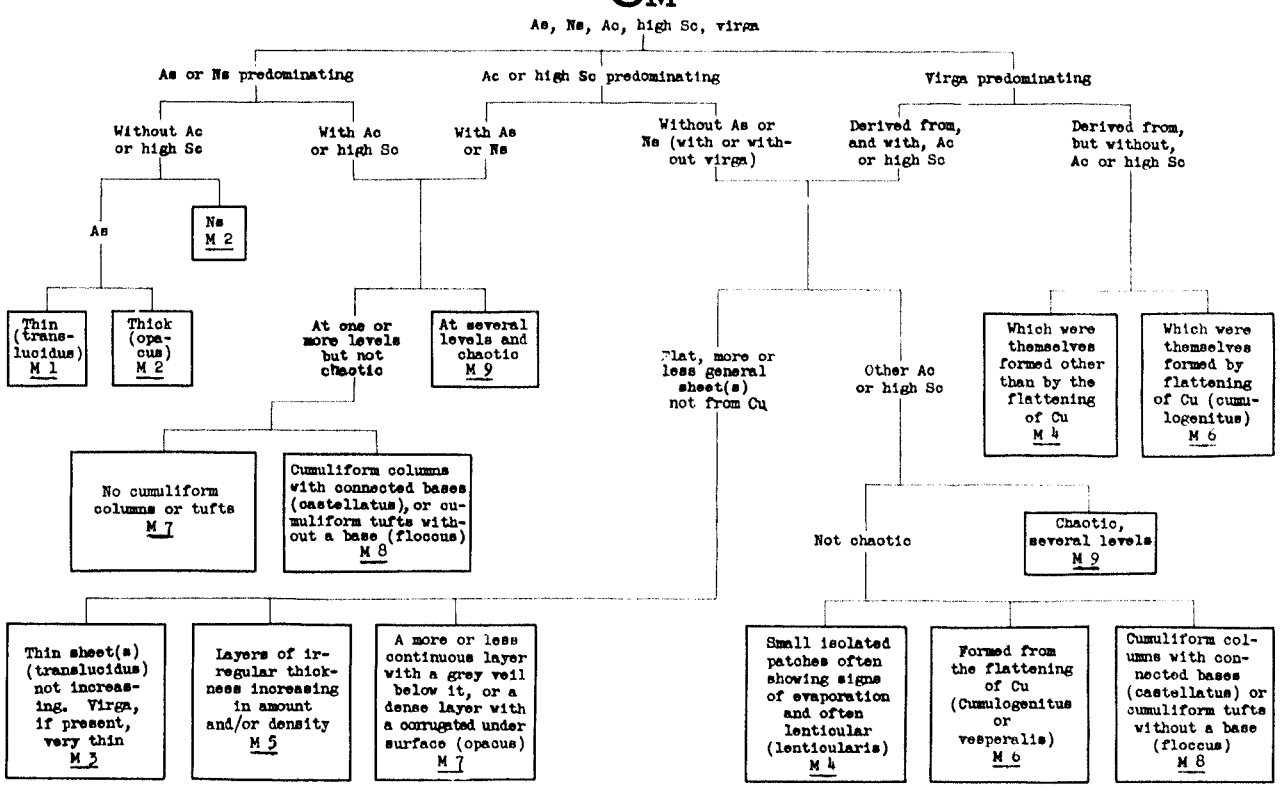
U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU

GUIDE TO CODING CLOUDS

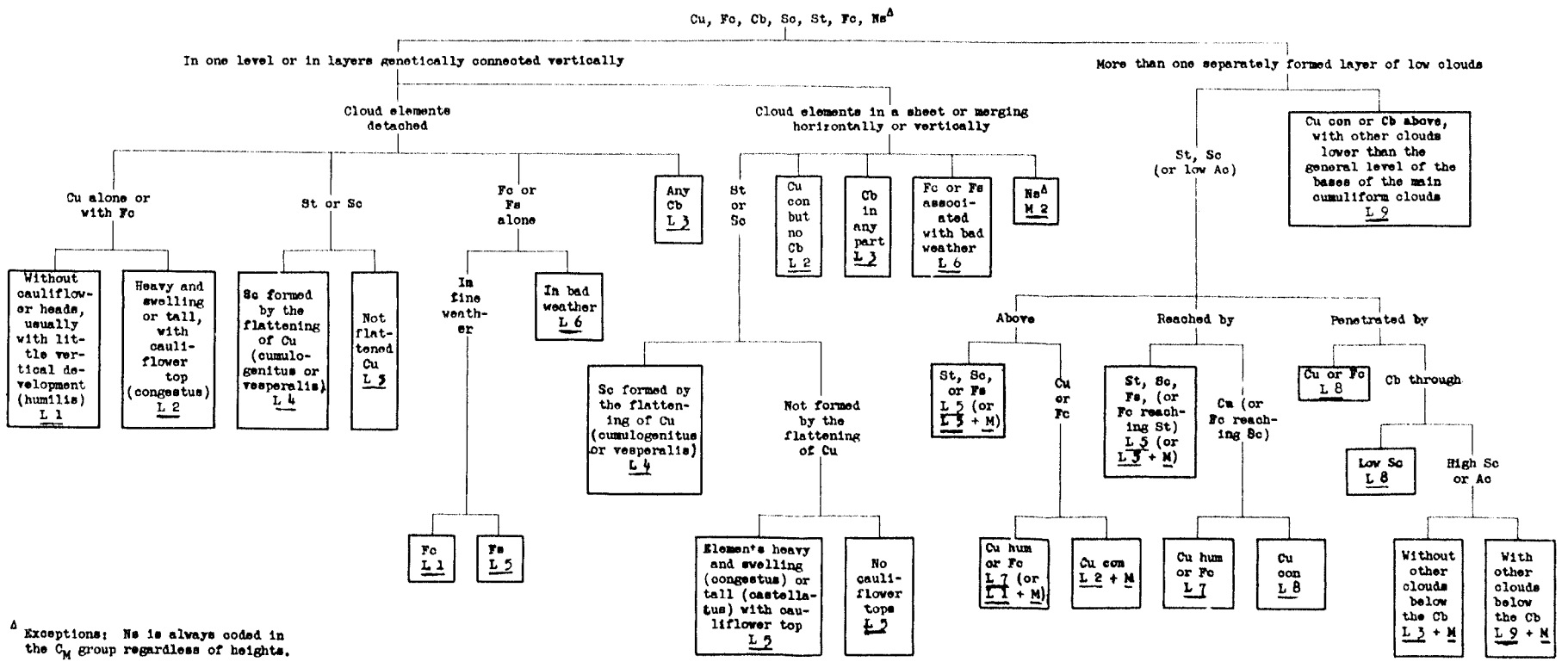
C_H



C_M



C_L



[Δ] Exceptions: Ns is always coded in the C_M group regardless of heights.

May 1945

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

MAT:THE:Du
(File No.260.1)

May 7, 1945

CIRCULAR LETTER NO. 43-45

(To All First Order Stations)

Subject: Original and Memorandum Bills of Lading

Freight and express shipments are being received at the Central Office, from time to time, without Government bills of lading. The majority of such shipments are by express.

Only in cases of extreme emergency should freight or express shipments be made without a supporting Government bill of lading and in any of these cases a bill of lading should be prepared promptly by the consignor, or the official station authorizing the shipment. In such cases, the original commercial bill of lading, or express receipt, must be attached to the original copy of Government bill of lading with appropriate reference thereto on all copies of the Government bill of lading before surrendering the shipping order to the initial carrier.

The original Government bill of lading, after being receipted by the initial carrier, should be forwarded promptly to the consignee with the commercial bill of lading or express receipt attached thereto. The memorandum copy, overprinted in red ink, "This copy must be returned to the Chief, U. S. Weather Bureau, Washington 25, D. C.", should be mailed to the Central Office. Frequently memorandum bills of lading are not received at the Central Office and unnecessary clerical work with consequent delay in settlement of transportation vouchers results from failure to forward memorandum bills of lading immediately as required by instructions.

Upon arrival of a shipment for which a Government bill of lading has not been received, the consignee should prepare and issue a temporary receipt therefor, pending arrival of the original Government bill of lading. When the latter is received, the consignee's "Certificate of Delivery" will be executed and the original Government bill of lading, together with the commercial bill of lading, or the express receipt, will then be surrendered to the delivering carrier.

-OVER-

If and when orders are placed with the Procurement Division, or any other Government department or agency, requiring shipment on either a Weather Bureau or another department or agency bill of lading, such department or agency should be instructed to mail a memorandum copy thereof to the Central Office for record or fiscal action if the Bureau is to settle the transportation account. However, when the supplying department or agency assumes the transportation charges in connection with a procurement, and bills the Bureau with such charges included in the total cost, or as a separate item in the account, a memorandum copy of a bill of lading issued by such department or agency is not required for record or fiscal action in the Bureau. Consequently, no bill of lading will be prepared by the Weather Bureau to cover the receipt of such shipments.

The cooperation of all concerned is requested with a view to reducing the delay and extra work in handling of transportation accounts.

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

SR&F-Ev
(File No. 607)

May 7, 1945

CIRCULAR LETTER NO. 44-45
(To All First-Order Stations)

Subject: Prompt reporting of weather damage.

Reference: Paragraphs 4 and 7 of Circular Letter 55-44.

During the series of violent local storms that occurred throughout Texas and Louisiana and other Gulf States in late March and early April, the Central Office received no reports from local officials concerning the nature and extent of damage resulting from these storms.

As indicated in previous instructions on this subject, the Central Office has frequent calls from other government agencies and private organizations having headquarters in Washington requesting specific information on the location and nature of damage from violent weather conditions. All local officials are urged to determine from whatever source available, at least a rough estimate of the nature and extent of such damage and to report this information to the Central Office through their respective district forecast centers as provided in Paragraph 7 of the reference circular letter. An effort should be made to determine the exact time of occurrence and this fact should be included in the dispatch whenever possible, with the standard of time indicated.

Messages to the Central Office containing current storm damage information should be addressed: "Observer, Washington, D. C., Emergency Attention SR&F, Official on Duty", and should be sent as promptly as possible and not held for transmission during normal working hours.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(File No. 103)

May 10, 1945.

CIRCULAR LETTER NO. 45-45
(To All First-Order Stations)

Subject: Regional Authority to issue Letters of Authority for employment of emergency assistance

The Regional Directors and officials authorized to act in their absence, are hereby authorized, effective July 1, 1945, to issue letters of authorization to provide for employment of emergency assistance to perform duties of regular positions when such positions are temporarily vacant, as for example, when employees are absent due to extended illness, or to meet other emergent demands and avoid failure of essential station program. This authorization is subject to the issuance, at the beginning of each fiscal year, of authority by the Secretary of the Department of Commerce to the Weather Bureau to employ emergency assistance. Authorizations will not ordinarily be issued for emergency assistance to permit employees to take regular annual leave, except at the smallest stations where detail of MOBEU personnel will not be advisable due to the limited nature of duties to be covered.

Employment of the same person in emergency assistance status cannot exceed $540 during any 12-month period. The rate of pay must in each case be the minimum daily rate of the grade in which it is determined that the employment will fall. (See Topics and Personnel, June 1937, page 394). If assistance is hired on an hourly basis the hourly rate will be one-eighth of the daily rate. Sample letter of authorization is attached.

All Letters of Authority issued for emergency assistance, travel, etc., will be numbered in a single series according to the plan laid down for regional travel authorizations. It will no longer be necessary to include the letter "W" in the numbers assigned to these authorizations.

Forms 2022 and 2023 will continue to be used for reporting emergency assistance employments to the regional office, but after June 30, 1945, copies need not be furnished to the Central Office. Form 2021 is hereby canceled.

RRK 5/12/45

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Attachment

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON, 25

AUTHORIZATION

NO.

You are hereby authorized to employ an emergency assistant in the position of
at , at the rate of $
a day for a period not to exceed days, Sundays and holidays included. In no case, however, is authority granted for the employment of any one person for a period the aggregate compensation of which would exceed $540 per annum during any 12-month period. The Secretary of Commerce has approved this assistance.

Subject to the provisions of the Fiscal Regulations of the Department, payment for the service will be made from the appropriation "Salaries and Expenses, Weather Bureau, Department of Commerce, 19 ," not to exceed $

Respectfully,

Acting Chief of Bureau.

(WB—6-28-48) 310

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(File No. 213)
(400.2)
(212)

May 14, 1945

CIRCULAR LETTER No. 46-45
(To all First-Order Stations)

Subject: Authority for Field Purchases

Reference: Circular Letter 34-45, April 20, 1945

Effective July 1, 1945, Liaison Officials, Officials in Charge, and employees authorized to act in the absence of any of these officials are hereby authorized, without other prior approval, to issue purchase orders not in excess of $25.00 for local purchases at stations or while in travel status when engaged in liaison, inspection, or maintenance work. Prescribed forms for these procurements will be provided before the effective date of change in procedure.

Prior approval of the Regional Director must be obtained for all expenditures for articles or services in excess of $25.00.

This authority is only for purchases of miscellaneous supplies (expendable) and services and not otherwise covered by contract of the kind formerly made under "Circular I," and should be exercised in conformity with the contents of Circular Letter No. 34-45. Fiscal regulations will be amended accordingly.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

SR&F-Hew
(File No. 610.3)
(610)
(622.1)
(620.7)

May 15, 1945

CIRCULAR LETTER NO. 47-45
(All First-Order Stations)

Subject: Amendments to Combined Analysis Code and W.B. 1345

References: W.B. No. 1345 (Revised effective September 1, 1944) and Multiple Address Letter, December 12, 1944

The following amendments to W.B. No. 1345 are issued for information of all holders. Multiple Address Letter of December 12, 1944 was issued to Weather Bureau forecast centers and Regional offices. Amendments to that letter should be made by all holders as indicated. Three of the amendments are repeated on the attached sheet so that they may be cut out and inserted in W.B. 1345. The change in Table uuu is an approved amendment to the Combined Analysis Code. The other amendments are changes in Weather Bureau procedures.

F. W. Reichelderfer
F. W. Reichelderfer,
Chief of Bureau.

- -

Amendments to W.B. No. 1345

Page 7, Table uuu, code figure 0, change specification to read "hundreds of feet or hundreds of meters".

Page 11, Part B, Section III, add the following paragraph (h):

(h) Contour profiles (always transmitted as a supplemental portion of a mean chart for the corresponding time period and contour surface):

$55H_{70}H_{70}H_{70}$ Indicator group, contour profile, where 55 is the indicator and $H_{70}H_{70}H_{70}$ is mean height in 10's of feet at 70° north latitude. (Example: 10,750 coded as 075)

$H_{65}H_{65}H_{65}H_{60}H_{60})$
$H_{60}H_{55}H_{55}H_{55}H_{50})$
$H_{50}H_{50}H_{45}H_{45}H_{45})$ Height values at various latitudes.
$H_{40}H_{40}H_{40}H_{35}H_{35})$ See Section IV for explanation.
$H_{35}H_{30}H_{30}H_{30}H_{25})$
$H_{25}H_{25}H_{20}H_{20}H_{20})$

Page 13, Part B, Section IV (a), add the following supplemental code groups:

$55H_{70}H_{70}H_{70}$ Contour profile follows. 55 is the indicator and $H_{70}H_{70}H_{70}$ is the mean height in 10's of feet at 70° north latitude.

$H_{65}H_{65}H_{65}H_{60}H_{60})$
$H_{60}H_{55}H_{55}H_{55}H_{50})$
$H_{50}H_{50}H_{45}H_{45}H_{45})$
$H_{40}H_{40}H_{40}H_{35}H_{35})$
$H_{35}H_{30}H_{30}H_{30}H_{25})$
$H_{25}H_{25}H_{20}H_{20}H_{20})$

Mean heights of contour profile at various latitudes. Values are in 10's of feet. For example, 10,750 coded as 075.

Page 14, Part B, Section IV (b), add the following supplemental symbols:

$H_{70}H_{70}H_{70})$ Mean heights of contour profile along 70°N, 65°N, etc.
$H_{65}H_{65}H_{65})$ Values are in 10's of feet. For example: 10,750 coded
etc.) as 075, etc.

Amendments to Multiple Address Letter, December 12, 1944
(All Weather Bureau Forecast Centers and Regional Offices)

Subject: Amendment to "INSTRUCTIONS FOR TRANSMISSION AND USE OF 5-DAY FORECASTS".

Under II, 1, change d. and e. to read:

d. Observed mean 700-millibar map
e. Observed mean 700-millibar contour profile

Under II, 2, change c. to read:

c. Prognostic mean 700-millibar map

Note: These changes will be effective as soon as arrangements to compute the mean constant pressure data are completed, probably this month. The change from constant level to constant pressure for these 5-day data will be indicated by use of the group 82228 instead of 81118 in the analysis heading. In addition, it is expected that announcement of the change will be included in the last transmission of the mean 10,000-foot data.

Page 11, Part B, Section III, add the following paragraph (h):

(h) Contour profiles (always transmitted as a supplemental portion of a mean chart for the corresponding time period and contour surface):

$55H_{70}H_{70}H_{70}$ Indicator group, contour profile, where 55 is the indicator and $H_{70}H_{70}H_{70}$ is mean height in 10's of feet at 70° north latitude. (Example: 10,750 coded as 075)

$H_{65}H_{65}H_{65}H_{60}H_{60})$
$H_{60}H_{55}H_{55}H_{55}H_{50})$
$H_{50}H_{50}H_{45}H_{45}H_{45})$ Height values at various latitudes.
$H_{40}H_{40}H_{40}H_{35}H_{35})$ See Section IV for explanation.
$H_{35}H_{30}H_{30}H_{30}H_{25})$
$H_{25}H_{25}H_{20}H_{20}H_{20})$

Page 13, Part B, Section IV (a), add the following supplemental code groups:

$55H_{70}H_{70}H_{70}$ Contour profile follows. 55 is the indicator and $H_{70}H_{70}H_{70}$ is the mean height in 10's of feet at 70° north latitude.

$H_{65}H_{65}H_{65}H_{60}H_{60})$
$H_{60}H_{55}H_{55}H_{55}H_{50})$
$H_{50}H_{50}H_{45}H_{45}H_{45})$ Mean heights of contour profile at various latitudes.
$H_{40}H_{40}H_{40}H_{35}H_{35})$ Values are in 10's of feet. For example, 10,750
$H_{35}H_{30}H_{30}H_{30}H_{25})$ coded as 075.
$H_{25}H_{25}H_{20}H_{20}H_{20})$

Page 14, Part B, Section IV (b), add the following supplemental symbols:

$H_{70}H_{70}H_{70})$ Mean heights of contour profile along 70°N, 65°N, etc.
$H_{65}H_{65}H_{65})$ Values are in 10's of feet. For example: 10,750 coded
etc. as 075, etc.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-cs
(File No. 210.1)
(610)

May 30, 1945

CIRCULAR LETTER NO. 48-45
(To all First Order Stations)

Subject: Discontinuance of Circular III

Effective with the fiscal year beginning July 1, 1945, the issuance of Circular III will be discontinued. The required authorizations heretofore contained in that circular will be placed in fiscal regulations.

Field officials will continue to obtain prior approval from the Central Office before expanding or reducing scheduled and established communication services.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 000)
(622.1)
(622.5)
(730.4)

May 30, 1945

CIRCULAR LETTER NO. 49-45
(All first and second-order stations)

Subject: Removal of Weather Security Measures in Certain Areas

Reference: Circular Letter 101-43

1. The following announcement to Weather Bureau field stations was contained in a WAMES (Washington message) on Schedules "A" and "C" on May 11, 1945:

"In accordance agreement Joint United States Chiefs of Staff and Weather Bureau, effective May 11 at 0001Z (2001 EWT, May 10) all weather security measures for weather information originating in or pertaining to the following areas, except those applicable to reports from ships at sea, have been removed:

a. North Atlantic west of 30°W;

b. Arctic Ocean west of 30°W to 168°W;

c. All continental United States;

d. Alaska except the Aleutian Islands and portions of Alaskan peninsula south of 58°N and west of 158°W.

Security measures on weather information originating in or pertaining to Canada were removed at the same time by Canadian authorities."

2. Similar action has been taken by authorities regarding other areas which are listed below. This list does not include all in-clear areas but it does include those in-clear areas in which Weather Bureau offices will be most interested. It should be noted that the Pacific Ocean is not included as an in-clear area.

a. North and South America (except Alaskan area south of 58°N and west of 158°W)

b. North and South Atlantic

c. Greenland and Iceland

d. Arctic Ocean from 30°W to 168°W

e. Western Europe

f. North Sea

g. Africa

h. Mediterranean

i. Near and Middle East

j. India except for Bengal, Assam and 50 mile strip on east coast

3. So far as weather security is concerned, Weather Bureau offices will, with minor exceptions, revert to normal peacetime procedures with regard to all weather information (except ship reports) originating in or pertaining to these in-clear areas. Special rules will govern reports from ships at sea. Unclassified reports may be available from ships of neutral nations. As a general rule, ship reports received in clear will be unclassified, those received by secure means will be kept secure. Special instructions regarding ship reports may be issued, from time to time, to stations concerned.

Certain specific points were covered by lettered paragraphs in section 5 of C.L. 101-43 and new instructions applying to weather information (except ship reports) originating in or pertaining to the in-clear areas are given in the following paragraphs which are lettered to correspond:

a. All security restrictions are removed on the number or contents of weather observations for in-clear radio transmission;

b. Published weather maps and unclassified maps (and reports) may contain summaries, forecasts and analyses from these in-clear areas. Maps and other records which include data from classified areas or classified ship reports will continue to be safeguarded as at present;

c. Questions concerning publication of maps at field stations should be referred to the Central Office. Paper and personnel limitations still apply;

d. Copies of maps now being prepared for military and other agencies under authority of the Chief of Bureau may be continued as required but additional copies of manuscript maps (carbon, ditto, ozalid, etc.) or glass or other special maps will not be prepared or furnished for public display, distribution or other purposes until approval is received from the Central Office.

e. The note "Information regarding barometric pressure, wind direction, (also fronts, visibility and ceilings if included) less than seven days old is not for broadcast" now included in bulletins, maps, or other publications, will be removed;

f. Forms 1030 and similar publications will continue to be released on day of issue as at present;

g. State and local forecasts for press and radio may contain reference to wind direction or any other weather information;

Security restrictions on ocean, coastal and marine forecasts for the Gulf and Atlantic are removed.

h. Fire-weather reports and forecasts for in-clear radio transmission may contain reference to wind direction or any other weather information;

i., j., k. Fruit-frost, fruit-spray, fruit-drying, shippers' and other special forecasts including specialized forecasts for agriculture and river and flood forecasts are no longer restricted as to weather elements;

l. Forecasts for Great Lakes for publication, broadcast by standard radio stations etc. may contain wind direction and other information in-clear. (Transmission of forecasts in plain or in-clear numeral code, by coastal harbor stations will be continued);

m., n. Broadcasts of street and highway conditions as well as news stories and news roundups for press and radio may contain any weather information.

o. Arrangements have been made to delete all "CONIC" material from Schedules "A" and "C". Tapes or sheets from these circuits need not be burned unless material for limited distribution is later scheduled, in which case all stations will be notified.

Schedule "O" and some other circuits may continue to contain classified data so that machines and transmissions from these circuits will continue to be safeguarded as at present;

p. No clearance will be required for storm and small craft warnings for the Atlantic or Gulf coasts but the hurricane warning service coordination organization will continue. Clearance procedures for the Pacific will continue as at present;

q. There is no security limitation on the number of off-teletype, Coast Guard station or other reports for in-clear radio transmission;

r. All registered and classified cryptographic publications now on hand will be maintained under strict security safeguards as heretofore. Destruction of some of this material may later be authorized and some may be called in for reissue. No change should be made in handling, storage or accounting for this material except on receipt of definite instructions.

4. This Circular Letter supersedes Circular Letter No. 101-43.

-----oOo-----

Note: These instructions may be modified locally or nationally by the military or naval commander having jurisdiction if such change is required by wartime emergency. Except in extreme emergencies, Weather Bureau field stations should refer such changes to the Chief of Bureau before adoption for coordination with the War and Navy Departments in interest of uniformity in security measures.

-----oOo-----

Distribution: From Central Office to Regional Offices for all Weather Bureau and CAA stations.

From Central Office to Army, Navy, air carriers, CAA, CAB, Office of Censorship and other interested agencies.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(600.0)

May 31, 1945.

CIRCULAR LETTER NO. 51-45
(To all First-Order Stations)

Subject: Adoption of Constant Pressure Analysis.

Reference: Circular Letter No. 28-45.

In order to implement the change to constant pressure analysis as announced in Circular Letter 28-45, the Weather Bureau, Army, Navy, and Canadian Meteorological Service are cooperating in a program to familiarize personnel of the various services with methods of constant pressure analysis, and to provide the necessary charts, diagrams, and general instructions. At most Weather Bureau stations, other than forecast centers, the change from constant level to constant pressure maps will involve only slight changes in the routine of preparation and methods of interpretation of the charts. For those stations, the necessary information and instructions are largely contained in this circular letter, and very little difficulty should be experienced in making the change on July 1st. Additional instructions, tables, and other information needed by forecast centers will be supplied as rapidly as the material can be assembled and reproduced.

The decision to change to constant pressure analysis was reached after careful study and discussions over a period of three years. The value of the methods for forecast purposes has been amply tested by the meteorological services of other countries and by forecasters experienced in aviation operations. Immediately prior to the decision to adopt constant pressure, the charts were tested on a limited basis in the Weather Bureau Analysis Center. It was found that essentially all the information that can be gained from constant level charts can also be obtained from constant pressure charts, and that no additional labor is involved when they are analyzed in a manner similar to our present analysis of constant level charts. When prepared on this basis, constant pressure charts have the advantage of requiring only one wind scale for all levels, and also of permitting easier interpretation of isotherms in terms of density or potential temperature, or of mixing ratio in terms of dew point or wet bulb temperature. With a minimum of additional effort it is possible, by use of differential methods, to obtain further information of forecast value that cannot readily be obtained from constant level charts.

For the present, the extent to which differential analysis methods are used will be left to the discretion of the individual station; at forecast centers and other offices where conditions permit, it is expected that differential analysis will be found a useful aid to forecasting. However, at forecast centers it will be found advisable in most cases to begin the use of constant pressure charts without differential methods, and to introduce differential analysis as employees become familiar with the methods. The two-month introductory period was provided in order that weather personnel may become familiar with the charts prior to July 1, 1945, when constant pressure data will appear in the first transmission of radiosonde observations.

Changes in the radiosonde code outlined in Circular Letter 28-45, to permit transmission of constant pressure data, are intended to be only temporary, and it is expected that a new radiosonde code will be adopted about January 1, 1946 for use by each of the services of the countries concerned. A tentative proposal has been drafted and has been submitted to forecast centers and regional offices for comment.

The following information and instructions relative to constant pressure charts are issued as a result of recommendations made by a committee composed of representatives of the Weather Bureau, Army, Navy and Canadian Meteorological Service. Many of the provisions are tentative and further comments, based on experience during the next few months, will be welcomed.

1. SELECTION OF CONTOUR LEVELS

a. Stations now drawing the 5,000-foot chart will draw the 850-mb. chart; stations now drawing the 10,000-foot chart will draw the 700-mb. chart; stations now drawing the 20,000-foot chart will draw the 500-mb. chart.

b. Each office is at liberty to construct additional charts as required for its use.

2. AMOUNT OF DATA TO BE UTILIZED

a. Each station may utilize as many data as available personnel and operating procedures will permit. In addition to contour lines, isotherms and thickness lines should be drawn where practicable.

3. BASE MAPS

a. All constant pressure charts drawn at any one station will be on map bases having the same scale and projection. This is necessary in order to carry out differential analysis and to permit use of the same wind scale for all levels.

b. The scale of the map should not be smaller than 1:15,000,000. Map W.B. 1774 is recommended for use at stations in continental United States.

4. STATION MODEL

a. Recommended station models for contour charts and cross sections are shown on the attached sheet.

b. Two station models for contour charts are shown, one containing the minimum number of data necessary for simplified single-surface analyses and one showing the complete model used in differential analysis. Until more detailed instructions are issued, stations may use either of these models or may add to the simplified model any of the data indicated on the complete model. However, in such modifications the data should be entered in the spaces shown by the lettered symbols on the complete model.

5. LABELS, UNITS, AND COLORING OF LINES

a. Standard intervals between contour lines on the 700- and 500-mb. surfaces will be 200 feet; intermediate contours at 100-foot intervals may be drawn on the 1000- and 850-mb. surfaces, and 400-foot intervals may be drawn on levels above 500-mbs. Contour lines will be drawn for even multiples of the contour interval; for example, contour lines at 700-mbs. will include 9,800, 10,000, 10,200 feet, etc. The method of labelling contour lines will be optional for the present.

b. Isotherms will be for intervals of 5C° and for values divisible by 5, preferably labelled in C°. When necessary, intermediate isotherms may be drawn for intervals of 2½C°.

c. The method of entering humidity data will be optional for the present. Mixing ratio will continue to be transmitted, at least until adoption of a new code.

d. Thickness lines will be drawn for intervals of 100, 200, or 400 feet as required by the intervals at the given constant pressure levels. Thickness lines may be labelled both in terms of height-difference and in terms of mean virtual temperature.

e. Contour lines will be drawn in black. The color of other lines will be optional pending further instructions.

6. SELECTION OF WIND LEVELS

a. During the introductory and overlap period, or pending further instructions, pilot balloon winds should be used as follows:

1,000-millibars - No winds required as this is essentially a surface map and winds will be available on the surface chart.

850-millibars - 5,000-foot winds.

700-millibars - 10,000-foot winds.

500-millibars - both 15,000- and 20,000-foot winds, to be entered in such a way that one may be distinguished from the other. The 20,000-foot wind will usually be selected for computing the thermal winds.

300-millibars - 30,000-foot winds.

7. AUXILIARY CHARTS

a. No changes in other auxiliary charts such as PIBAL or adiabatic charts due to the introduction of constant pressure analysis are recommended.

8. AUXILIARY COMPUTATION CHARTS AND TABLES

a. Forecast centers will be supplied with tables giving height differences of the mandatory constant pressure levels from the 1000-millibar

surface. These tables will also indicate the thickness between adjacent constant pressure surfaces. Weather Bureau Forms 1154 and 1154A provide a graphical means of obtaining these height differences within a limited range of pressure. Additional data of this character may be derived with the aid of W.B. Forms 1153.

b. All stations will be supplied with tables showing the mean virtual temperatures corresponding to the height differences for which thickness lines are drawn between various standard levels. Eventually additional tables will be furnished giving dew points corresponding to various mixing ratios and actual temperatures corresponding to various potential temperatures, for the respective mandatory pressure levels. Other special tables are also contemplated for issuance to stations at a later date.

9. WIND SCALES

a. All forecast stations will be supplied with transparent geostrophic wind scales for the 1:15,000,000 Lambert conformal conic projection map, and possibly for other map bases. Printed copies of these scales on paper stock will be issued to all stations.

10. WIND FORECASTS FOR AVIATION

a. Winds at any given level required for aviation or other purposes may be computed: (1) from the nearest contour surface; (2) by interpolation between surfaces; or (3) by computation of a thermal wind vector. The method to be used will be determined by the circumstances; for example, it would not be valid to compute winds from the nearest contour surface if it is more than one or two thousand feet from the desired level, except when the gradient of temperature is negligible. The thermal wind vector may be computed from the isotherms (if the desired level is not too far from the constant pressure level), and added or subtracted vectorially from the gradient wind or geostrophic wind in the constant pressure surface to obtain the wind at the required level. See Fulks (Sec. 6) for information on the method.

11. FORECASTING ICING AND CLOUDS

a. Procedures for forecasting icing and clouds should not be materially affected by the change to constant pressure analysis, because for this purpose there is no essential difference in the data presented as compared to constant level analysis.

12. EQUIPMENT

a. On forecast centers or other stations where differential methods of constant pressure analysis are used, light tables will be required, and such stations not already equipped with light tables should take steps to obtain them. Where prognostic upper level charts are drawn, sheets of clear celluloid may be found useful.

13. MISCELLANEOUS

a. For the present it is not expected that analyses of constant

pressure data will be transmitted by the Analysis Center. At a later date it is possible that an analysis to include only fronts, troughs, wedges, and pressure centers for some of the standard levels will be prepared and transmitted.

b. In order to avoid confusion in the use of upper air temperatures, all persons using constant pressure charts are reminded that the temperatures shown on such charts are not at constant levels and may vary considerably due to differences in height over any given chart.

c. The Special Committee recommended that a training class be established to train a group of instructors from each of the services. These instructors would then train personnel of their respective services "on-station" in constant pressure analysis methods. Final arrangements for such a training class have not been completed and at the present time the project must be considered tentative. However, if the plan is carried out, it is expected that one Weather Bureau instructor will be provided for each region.

14. CONSTRUCTION OF 1000-MILLIBAR CHART

a. The 1000-mb. chart will be required only on stations where differential methods are used.

b. The 1000-mb. chart may be rapidly constructed from the sea-level pressure map over areas at low elevations. For areas with topography at higher elevations, such as the western mountain region, the contour lines may be omitted or may be constructed by using the reported 1000-mb. heights from RAOB stations as a guide. The method of constructing 1000-mb. contours from sea-level isobars is explained in several of the reference papers, and necessary tables, charts, or nomograms are either included in the papers or will be furnished to stations.

c. RAOB data are nearly synchronous with the three-hourly surface maps at 11:30 a.m. and p.m., E.W.T., and on stations where those maps are drawn, the 1000-mb. contours may be obtained from them. Where three-hourly maps are not drawn, it will be necessary to use six-hourly maps and correct for the pressure change on the basis of reported tendencies.

15. SUMMARIZATION OF CONSTANT PRESSURE DATA BY RAOB STATIONS

a. During the remainder of this year, data from RAOB stations will continue to be summarized for constant levels. Plans are being formulated for summarization of data in terms of constant pressures when the use of constant pressure data is placed on a permanent basis.

16. REFERENCE PUBLICATIONS

a. The following publications are being reproduced and will be distributed to stations as rapidly as possible:

Gold, E. - "An Elementary Note on the Significance of Contour Lines on an Isobaric Surface". Meteorological Office, Air Ministry, May, 1943.

U. S. Navy - "Constant Pressure Analysis". NAVAER 50-1R-177, May, 1945.

Fulks, J. R. - "Constant Pressure Maps - Methods of Preparation and Advantages in Their Use". January, 1945.

Harrison, L. P. - "Fundamental Relationships Involving Fields of Pressure and Geopotential", May, 1945.

Carstensen, L. P. - "Construction and Use of Constant Pressure Charts". May, 1945.

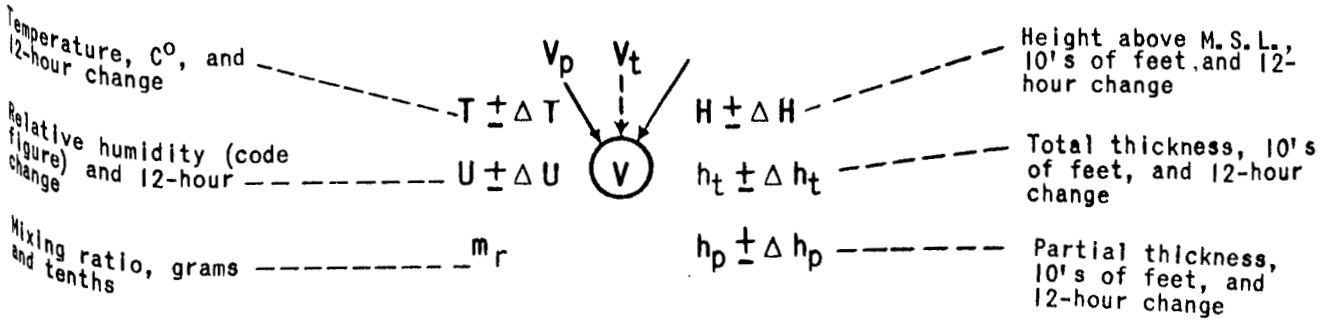
F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Attachment.

RECOMMENDED STATION MODELS FOR CONSTANT PRESSURE ANALYSIS

Constant Pressure Charts -- Complete Model

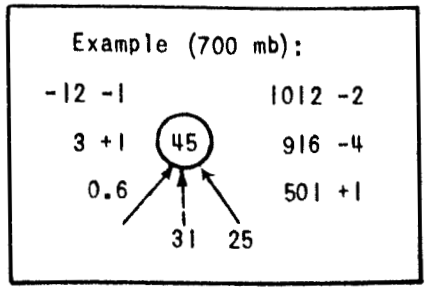


Winds (Arrows fly with the wind, speeds in miles per hour):

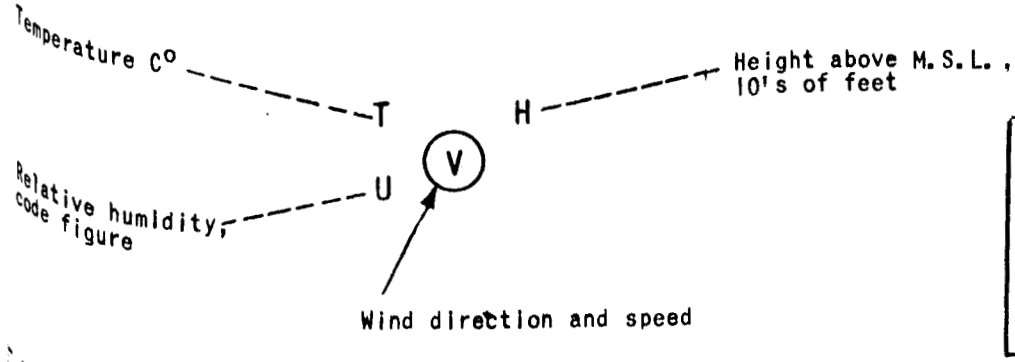
V - Wind at pressure level or adopted constant level.

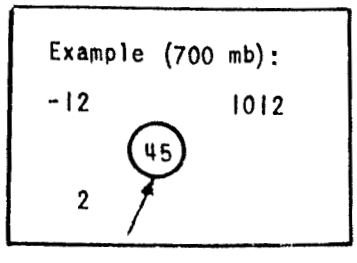
V_p - Partial thermal wind.

V_t - Total thermal wind.

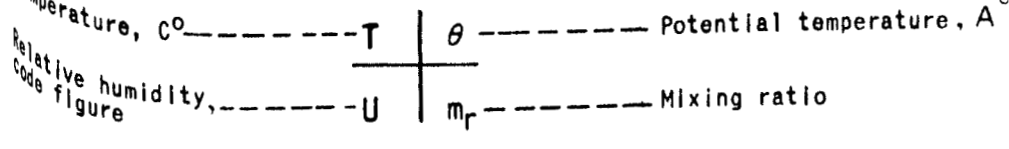


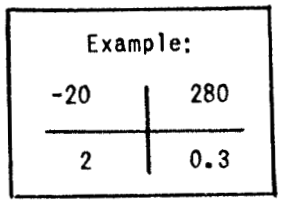
Constant Pressure Charts -- Abridged Model





Cross Sections





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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Ba
(File No. 740.5)

June 14, 1945

CIRCULAR LETTER NO. 52-45
(To All Stations and Recipients of Circular N Amendments)

Subject: Amendment No. 9 to Weather Bureau Circular N, Effective July 1, 1945.

Enclosed are the following revised pages for Circular N, Fifth Edition:

13-3R	23a-R	27a-R	58b	66-4R	82-3R	85c	88-2R
15-3R	24-3R	28-5R	62-3R	67-5R	83-2R	85d	
16-4R	25-4R	28a-2R	63-4R	68-4R	84-5R	85e	
18-R	25a	35a-3R	63a-R	69-3R	85-2R	85f	
20-5R	26-4R	35b-2R	63b-R	72-2R	85a	85g	
21-3R	27-4R	58a	63c-2R	81-2R	85b	85h	

Also enclosed are two unnumbered pages. One of these pages lists deletions to be made in all copies of Circular N. The other contains instructions for making snow surface temperature observations. These pages should be bound in the back of the circular.

The above revisions have been made in part to bring the provisions of Circular N into agreement with the changed requirements of the Civil Air Regulations of the Civil Aeronautics Administration and of organized air transport, and in part to facilitate the transfer of observational data for punch card uses. All personnel concerned with the taking, handling, or use of weather observations are requested to note that these revised instructions considerably affect many particulars of the form and content of observational entries and transmissions. Any instructions or illustrative examples found at variance elsewhere in Circular N will not be construed to qualify the provisions of the ninth amendment, but will instead be qualified by them. Wherever only a portion of a page has been revised, the revision has been set off by small, black, triangular identification marks, for ready reference.

Special attention is directed to the following changes in procedure:

1. All special weather reports will be serially numbered daily, on forms and in transmissions, the day beginning at 0000 local war time (as defined by national legislation, not state or local action).

2. The date will not be entered or transmitted in the heading of special weather reports.

3. Weather reports will no longer include "classification" (C, N).

4. All special weather reports will include wind data.

5. Special weather reports are required for ceiling or visibility changes involving values important to air traffic control, viz., ceilings of 1,000 feet or 500 feet, visibilities of three miles or one mile. At stations where the operating minimums are above 1,500 feet, special weather reports are required when the cloudiness at or below these minimums changes from scattered to broken or vice versa.

6. Regional Offices will specify whether WB Form 3024B is to be used.

7. All observations will be interphoned to control towers unless Civil Aeronautics Administration authorities request modification of this regulation.

8. Check observations will be taken by all first-order Weather Bureau airport stations and by other designated stations.

9. Instructions for entries on Forms WBAN-10A and WB 1083 have been amended. WB Form 1113 is discontinued. All airway stations that include 3- and 6-hourly additive data in their reports and all synoptic stations will use WB Form 1130A (WBAN-10A). Airway stations that do not include 3- and 6-hourly additive data in their reports may use either WB Form 1130A or WB Form 1130B.

WB Forms 1082 and 1083 will be used chiefly for pressure computation and reduction and coding. Entries made on WB Form 1130A or 1130B and not having to do with pressure computation or reduction will not be made on WB Form 1082 or WB Form 1083, i.e., ceiling, visibility, dry- and wet-bulb temperatures, dew point, wind, pressure tendency, net 3-hourly pressure change, cloud amounts, type, direction, height, precipitation, snow depth, maximum and minimum temperatures, relative humidity, and remarks. The coded synoptic report will remain unchanged except that the data will be taken from both the airway and synoptic forms. WB Form 1135 will be used only at those stations that include 5,000-foot pressure data in 3-hourly reports. (A new form, "Pressure Computation and Coding," will soon replace WB Forms 1082, 1083, and 1135.)

10. <u>All</u> stations will enter data in the body of weather reports by using figures and symbols, not contractions. The use of contractions is restricted to the "remarks" portion of an observation.

11. Liquid precipitation will take precedence over frozen precipitation in all entries under "Weather and Obstructions to Vision," regardless of intensities.

12. Provision is made for reporting visibilities of ten miles or more.

13. Definitions of the various ceiling classifications have been revised.

14. If intensity of phenomena mentioned in remarks is unknown, the remark will so indicate. Intensities of phenomena expressed in contractions will also be expressed in contractions, not symbols.

15. Instructions for coding and handling of Pireps have been revised. Pireps will include time of occurrence of phenomena reported and the type of aircraft involved, whenever known. Hail is added to the list of phenomena for which special Pireps are required.

The following Circular Letters are cancelled by the ninth amendment:

No. 124-41
No. 130-41
No. 166-41
No. 174-41
No. 51-42
No. 83-42
No. 49-43
No. 114-43
No. 121-43

All current revised pages of Circular N are listed on the attached sheet.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

(Enclosures)

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Subject: "Instructions for Airway Meteorological Service," Circular N, Amended to July 1, 1945.

Circular N, 5th Edition, should contain the following revised pages after incorporation of the ninth amendment.

Section II - Observations

Part II	13-3R, 15-3R, 16-4R, 17-4R, 18-R, 20-5R, 20a, 21-3R, 22-2R, 23-R, 23a-R, 24-3R, 25-4R, 25a, 26-4R, 27-4R, 27a-R, 28-5R, 28a-2R, 29-2R, 30-2R, 33-R, 34-2R, 35-R, 35a-3R, 35b-2R, 38-R, 39-2R, 40-R, 42-2R, 43-R, 44-R, 45-R, 46-R, 47-R, 52-R, 58a, 58b, 61-2R, 62-3R, 63-4R, 63a-R, 63b-R, 63c-2R, 63d-2R, 65-2R, 66-4R, 67-5R, 68-4R, 69-3R.
Part IV	72-2R, 73-3R, 74-2R.
Part V	78-R.
Part VI	81-2R, 82-3R, 83-2R, 84-5R, 84a, 85-2R, 85a, 85b, 85c, 85d, 85e, 85f, 85g, 85h.
Part VIII	88-2R, 89-R.
Part X	96-R, 97-R, 98-R, 99-R, 100-R, 101-2R, 102-R, 103-R, 104-R, 105-R, 106-R, 107-R, 108-R, 109-R, 110-R, 111-R, 112-R, 113-R, 114-R, 114a, 114b, 114c, 114d, 114e.

Part X has been amended by the following:

Circular Letter No. 65-43	"Designator for Fixed Level Data in Radiosonde Teletype Transmission."
Circular Letter No. 78-43	"Amendments to 1943 Radiosonde Code."
Circular Letter No. 95-43	"Amendment to 1943 Raob Code."
Circular Letter No. 33-44	"Amendment to 1943 Radiosonde Code."
Circular Letter No. 41-44	"Amendment to 1943 Raob Code."
Circular Letter No. 51-44	"Transmission of Corrected Raob Data."
Circular Letter No. 86-44	"Amendment to 1943 Radiosonde Code: Isentropic Data."
Circular Letter No. 28-45	"Amendment to 1943 Radiosonde Code."

Section III - Forecasts and Analyses

This section has been superseded by the following:

Multiple Address Letter Oct. 13, 1942 (To Forecast Centers Only)	"Airway Forecasts."
Multiple Address Letter Nov. 26, 1942 (To Forecast Centers Only)	"Airway Forecasts."
Circular Letter No. 151-42	"Changes in Airway Forecast Service."
Circular Letter No. 164-42	"Changes in Airway Forecast Service."
Circular Letter No. 4-43	"Transmission of Airway Terminal Forecasts on Schedule A Teletype Circuits."
Circular Letter No. 63-43	"Instructions for the Preparation and Issuance of Airway Terminal Forecasts."
Circular Letter No. 75-43	"Revised Assignment for Preparation of Airway Terminal Forecasts."
W.B. No. 1345 (Effective Sept. 1, 1944)	"Code for Weather Analysis Transmission."
Circular Letter No. 47-45	"Amendments to Combined Analysis Code and W.B. 1345."

Section IV - Instruments

Part I 160-R, 161-R, 162-R, 162a, 162b, 174-R, 174a.

Weather Bureau stationsmay obtain copies of any of these pages from their Regional Offices; other recipients may obtain them from the Chief, U. S. Weather Bureau, Washington 25, D. C.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 400.2)
(213)

June 22, 1945.

CIRCULAR LETTER NO. 54-45
(To all First Order Stations)

Subject: Field Purchase Order - Vendor's Invoice

Reference: Circular Letter No. 46-45

The following instructions regarding the new Field Purchase Order - Vendor's Invoice are effective July 1, 1945:

1. In addition to issuing Field Purchase Orders for miscellaneous purchases of materials or goods, station officials will execute the Field Purchase Order for services rendered on demand, as distinguished from continuing services. The former will ordinarily be those of special or occasional character such as repairs to office machines or field equipment.

2. The Field Purchase Order will also be used, however, for continuing services that cannot be contracted for directly with the vendor or supplier on the normal contractual basis. For example, the rental of a post office box, or the Weather Bureau pro rata share of charges for telephone service supplied through a building switchboard maintained by another Government agency, are proper subjects for use of the Field Purchase Order form.

3. In instances such as those indicated in paragraph 2, the Field Purchase Order will be drawn to cover estimated costs for the full period within the current fiscal year, for which the service is required. Purchase Orders issued for such continuing service will serve in lieu of formal contracts to establish the amount of funds to be set aside for such expenditures as a matter of budgeting and fiscal control. In these cases, purchase orders will not be used as invoices supporting vouchers, but separate claims for payment will be presented on Standard Form 1034, as required from time to time by the supplying agency.

4. In all cases involving amounts in excess of $25.00 the prior approval of the Regional Office is required before the issuance of a Field Purchase Order can be accomplished. In such instances the purchaser will forward all five copies of the order to the Regional Director with a brief letter of explanation and justification. The Regional Director will indicate approval or disapproval on all copies of the order and return the entire set to office of origin. On placing an approved order, the copies will thereafter be distributed in accordance with instructions on the forms.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAm.-Hi
(File No. 200.4)

June 22, 1945

CIRCULAR LETTER NO. 55-45.

(To all First-Order Stations)

Subject: Preparation, Routing and Certification of Vouchers

Effective July 1, 1945, vouchers (Standard Forms 1012, 1034, 1080, and 1113) will be prepared, routed and certified according to the following instructions:

1. Vouchers for local purchases will be prepared in quadruplicate (and in summary form) by the regional office whenever the new Field Purchase Order is used by the vendor as a certified invoice forwarded directly to the regional office in accordance with the instructions on that form. Such vouchers will be held for receipt in the Regional Office of the fourth copy of the order, certifying delivery of goods or services ordered. In processing the voucher, one copy will be sent to the station originating the order; the original (certified by the Regional Director or his designated assistant) and first carbon will be forwarded to the Central Office.

2. If the Field Purchase Order - Vendor's Invoice is not used as a certified bill and the vendor elects to claim payment on Standard Form 1034, the purchaser will provide the vendor with the necessary forms and instructions for executing the voucher. The vendor should be instructed to prepare his voucher in quadruplicate and submit it directly to the regional office (the name and address of which appears after "invoice to" on the Field Purchase Order). Whenever there is undue delay in the receipt of a voucher or certified invoice at the regional office after the fourth copy (inspection certificate) has been received from the station where the purchase was made, the regional office will ask the station concerned to request from the vendor the submission of a voucher or a certified invoice.

3. Continuing services (whether under regular contract, W.B. Forms 1430, 1431, Standard Forms 2, 40, etc., or covered by use of Field Purchase Order, as discussed in Circular Letter No. 54-45) and costs of travel, communications, or any other procurement not supported by individual Field Purchase Order processed as a vendor's invoice to regional office, will be covered as heretofore by voucher prepared at the station incurring the expense. All such vouchers will be prepared in quadruplicate

at the field office, and the original and two copies of such vouchers will be forwarded to the regional office. (Supporting copies of telegrams will be forwarded directly to the Central Office as heretofore for use in the audit of vouchers involving telegraph costs.)

4. All vouchers whether prepared at the regional office or forwarded to the Central Office through the regional office will be certified by the Regional Director or authorized assistant as "Authorized Certifying Officer." This certification will be based on ascertainment of the general authenticity of the account, and will be subject to official Bureau audit to be made (after certification) by the Fiscal Section in the Central Office. With respect to the class of vouchers described in (1) above, a check on authenticity of the vendor's claim for payment will await the receipt of the fourth copy of the purchase order, which carries the certificate of inspection signed by station or field officials.

5. Vouchers or certified bills for transportation of household goods are usually submitted directly to the Central Office by the transportation company in accordance with instructions on the Bill of Lading. These vouchers will be certified in the Central Office. This instruction amends the procedure prescribed in the Manual of Instructions for Regional Administration of Field Travel (Revised July 1, 1945). (See paragraph 26(c) (3)).

The above instructions regarding forwarding of vouchers to the Central Office do not apply to cases where payments are made in the field, as in Alaska and San Juan, P. R.

F. W. Reicholderfer,

F. W. Reicholderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington, 25, D. C.

C&CW:mlh
(File No. 750)

June 26, 1945.

CIRCULAR LETTER NO. 56-45.
(To All First-Order Stations)

Subject: Instructions on preparing Pages 2-5, W.B. Form 1001 (Effective July 1, 1945)

The adoption of W.B. Form 1130A (WBAN-10A) as the basic observational form for record purposes has made it necessary to revise the instructions for preparing pages 2-5, W.B. Form 1001, effective July 1, 1945.

Copies of the instructions, which are being forwarded under separate cover, should be pasted over the old page (3a) of W.B. Form 1001 for July to December 1945, inclusive.

F. W. Reichelderfer
Chief of Bureau

W. F. McDonald

W. F. McDonald
By Direction

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

SR&F-Ev
(File No. 622.5)
(603.21)

June 28, 1945.

CIRCULAR LETTER NO. 57-45
(To all First-Order Stations)

Subject: Emergency Flood and Storm Warning Radio Networks.

Before the war, emergency flood warning amateur radio networks were organized in several river districts in cooperation with the American Radio Relay League. With the advent of war it became necessary to disband these networks. Although in operation only a short time, they showed promise of serving as a valuable aid for transmitting reports and warnings when all other means of communication failed. Such a network is now being reorganized in the Potomac Basin, based on the existing War Emergency Radio Service and it is proposed to expand similar networks to other river districts as soon as practicable.

The organization of these networks has become possible through a recent amendment to the Federal Communications Commission regulations regarding amateur radio operation during war time. This amendment authorizes radio amateurs in the existing War Emergency Radio Service, to cooperate with government agencies in exchanging communications necessary to alleviate, or prevent any emergency which jeopardizes or may jeopardize public safety, and to engage in such practice exchanges during authorized periods as are necessary for the proper maintenance of the communication system. Licenses for the WERS stations hereafter may be issued or renewed even though the United States Citizens' Defense Corps, or equivalent civilian defense organizations are no longer active in the involved areas. The Commission considers that the ability of widely separated municipalities to cope with public emergencies created by fires, floods, storms, earthquakes, etc., without regard to whether such situations relate to the national defense or security can be considerably strengthened by the emergency communications service provided by the civilian defense class of stations.

Public notice of the amendment has been issued by the Federal Communications Commission, and an article on the plans by the Weather Bureau has been published by the American Radio Relay League in the June issue of the magazine QST. This article solicits the cooperation of radio aides now participating in the War Emergency Radio Service. It is requested that the Regional Director, through the Regional Engineer, work in cooperation with the local river official to investigate the possibilities for this new service, and to contact county and local government authorities having jurisdiction over radio aides for the purpose of coordinating the proposed program and organizing the networks.

In organizing these networks, it is necessary that the licensee (generally the radio aide) of any participating War Emergency Radio Service

station make an application for this service to the Federal Communications Commission in the form of a notarized letter in triplicate signed by the licensee and submitted to the "Secretary, Federal Communications Commission, Washington, D. C., through U. S. Weather Bureau, Washington." This letter should designate the selected stations of the licensee to be covered in the new network. The application should include a brief description of the equipment, its location, and names of the operating personnel. One copy is retained by the Central Office.

The networks (operating on frequencies of 112 to 116 megacycles) will require two types of circuits: (1) "Long haul" circuits made up of existing WERS stations capable of transmitting and receiving over comparatively long distances; and (2) "Short haul", or local circuits which tie in with the "long haul" circuits for the local collection and dissemination of reports for transmission to and from the forecast center over the "long haul" circuits.

The proposed radio networks will function as follows:

1. River and rainfall reports will be forwarded by the Weather Bureau substation observer to the nearest participating WERS radio station for transmission to the river forecast center. For drill purposes, the reports may be telephoned or mailed to the radio operator; in an emergency, the reports must be delivered immediately to the operator by whatever lines of communication are available (perhaps via mobile radio installations), or if the observer and operator reside in the same locality, the reports may be delivered personally.

2. Form of reports to be transmitted:

   The messages relayed by the radio operator to the Weather Bureau Office, containing the observer's report, will consist usually of the following information in the order named: Number of message, station of origin, check, name of observation station, time filed, date, address, observer's report, last name of observer. A sample message would read: NR8, WIDD1, 11, Hancock, Md., 6:30 p.m., June 10, 1945, Observer, Washington, D. C., River 14.25 rising, rainfall 2.65, raining, snow 6 inches, temperature 42 - Jones.

Forms for recording the above information will be prepared in the Central Office for issue to stations upon request.

3. The radio operators will also be expected to transmit and receive forecasts and warnings issued by the Weather Bureau, relaying these warnings to flood warning representatives and other persons affected by floods as designated by the Weather Bureau.

4. Drill periods for the proposed networks have been authorized on Fridays at 8-11 p.m., E.W.T., for the purpose of testing and developing routine procedures. As required, additional drills may be called by the Regional Director, by the Official in Charge of the local Weather Bureau Office, or by an employee acting in such capacity, or by a member of the Central Office staff.

The Weather Bureau has been specifically authorized to organize and control these networks because of its legal responsibility for the issuance and dissemination of forecasts and warnings. However, the Weather Bureau is expected to cooperate with other agencies such as the Red Cross, Army Engineers, Coast Guard, Geological Survey in offering the use of these networks for the purpose of carrying out their related functions in emergencies.

This Circular Letter refers specifically to the organization of emergency radio networks in relation to the operation of the river and flood service. A separate letter will be issued later regarding the organization of similar networks for the transmission of hurricane, cold wave or other severe storm warnings. However, this does not mean that in an emergency use cannot be made of any established flood warning radio network for transmission of severe storm warnings when such is feasible.

F. W. Reichelderfer,
Chief of Bureau.

W. F. McDonald

W. F. McDonald,
By Direction

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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

Accts.-lmd
(File No. 202)
(102.4)

July 9, 1945

CIRCULAR LETTER NO. 58-45
(To all First-Order Stations)

Subject: "Federal Employees Pay Act of 1945".

The sections of the Act pertinent to wage computations are quoted in full on the reverse side of the attached salary table No. 21, which covers computations for a 44-hour week. Comments are given below relative to the sections quoted, and also as to some of the remaining sections (not quoted) insofar as interpretations are at this time obtainable as they pertain to the compensation of Weather Bureau employees.

Section 101. Coverage. All classified employees of the Weather Bureau appointed on an annual basis, whether permanent, temporary, or part-time, are covered. Substation wage employees, including airway observers, are not covered; the amount of increase to be provided for these employees will be covered by administrative determination now being sought. An interpretation of the law in its relation to emergency assistants employed under letters of authorization has also been requested but not yet obtained.

Section 201. The annual overtime amounts in the schedule quoted from the law are those for 416 hours or a 48-hour work week. These overtime amounts are reduced to hourly rates in the complete salary table herewith. Please note that overtime is payable only at the hourly rates given in the column headed "Overtime- Hourly". The "regular" rate of pay does not enter into overtime computation for salaries above $2,980 per annum.

Section 202. Compensatory Time for Irregular or Occasional Overtime Work. Compensatory time off may be given for overtime in excess of the 44-hour week if requested by the employee; request should be recorded in writing. Otherwise, such overtime must be paid for at rates given in the table. Compensatory time is not allowable for any part of the four hours of overtime included in the administrative workweek of 44 hours. Additional instructions as they apply to Weather Bureau personnel will be issued later.

Section 203 covers the computation of wages of wage-board employees appointed at annual or monthly rates and is not applicable to the Weather Bureau.

Section 301. Night Pay Differential. Employees to whom the Pay Act of 1945 applies who are assigned to a regularly-scheduled tour of duty, any part of which falls between the hours of 6:00 p.m. and 6:00 a.m. will be paid extra compensation at a rate of 10% in excess of their basic or "regular" rates of compensation for the time actually worked on schedules during those hours. It is our present understanding that the 10% differential is not payable except for night hours

regularly scheduled and actually worked within the prescribed time limits and then only for hours comprising the basic workweek; in other words, the night differential does not accrue for time on leave nor for hours worked for which overtime compensation is payable. Night differential is not payable for irregular non-scheduled hours of duty occasionally worked within the hours of 6:00 p.m. to 6:00 a.m. Payment for night differential is not included when computing the retirement deductions.

Section 302. Compensation for Holiday Work. Employees who are assigned to duty on a holiday designated by Federal statute or Executive Order will be paid for work performed on such holiday at the rate of one and one-half times the basic rate of compensation. The extra pay is not due for holidays which during the present war have been declared work days; i. e., Christmas Day is at the present time the only holiday on which extra compensation may be earned.

Sections 401, 402, 403, 404, and 405. Information relative to these sections will be furnished later, insofar as applicable to the Weather Bureau.

Section 603(a), Limitation on Reductions in Compensation does not at the present time apply to the Weather Bureau since establishment of a 44-hour week results in an increase rather than a decrease in compensation of the employees involved who were in the Service on June 30, 1945.

Section 604(a). Establishment of an Administrative Workweek. The workweek of employees in the Weather Bureau who do not work on rotating shifts has been established as 44 hours, with Monday through Friday constituting the basic workweek of forty hours and four hours on Saturday constituting the overtime portion of the workweek. Additional information as to the administrative workweek of employees on rotating shifts will be given in another communication.

Section 604(b). Pay Periods. Beginning with July 1, 1945, each pay period for classified employees will consist of 14 days, and the pay roll lag in issue of checks for the Weather Bureau will be 12 days. Disbursing Offices will deliver pay checks regularly on Friday except for the period July 1 to 14; i. e., checks will be delivered to Regional Offices on July 25 for the period July 1 to 14, 1945; on August 10 for the period July 15 to 28, 1945; on August 24 for the period July 29 to August 11, 1945, and on alternate Fridays thereafter. Stations will have variable dates for receipt of checks, depending on mailing schedules beyond the regional office.

W. F. McDonald

W. F. McDonald,
Assistant Chief for Administration.
By direction of Chief of Bureau

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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

Adm.-La
(File No. 901)

July 17,1945

CIRCULAR LETTER NO. 59-45
(To all First Order Stations)

Subject: Penalty Mail

The following notice has been received from the Post Office Department regarding Penalty Mail:

> "On this date, July 2, 1945, there were received from your agency penalty envelopes, wrappers, cards, labels or tags which failed to comply with the requirements of Public Law No. 364 which became effective July 1, 1945, on which the symbols 'GPO' or 'PMGC' did not appear under the 'Penalty for Private Use to Avoid Payment of Postage $300' or the permit number, required when penalty stationery is secured from private contractor, did not show under the return address as required by the above named law."

All offices are requested to carefully examine outgoing mail to see that identifying symbols have not been omitted.

F. W. Reichelderfer,
Chief of Bureau.

W. F. McDonald

W. F. McDonald,
By Direction.

Rex
M.M.
E.a.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(FSRO.No.080.1)

July 20, 1945.

CIRCULAR LETTER NO. 60-45
(To all First-Order Stations)

Subject: Payment of Expenses of Transportation of immediate family of Government employees

Under Executive Order 9587, dated July 6, 1945, and effective July 1, 1945, issued pursuant to the provisions of Section 201 (a) of the Independent Offices Appropriation Act for 1946, approved May 3, 1945, the Government is permitted to pay the expenses of transportation of immediate family of Government employees who are transferred from one official station to another for permanent duty, when authorized in the order directing such transfer.

Effective July 1, 1945, Weather Bureau employees with families will be authorized to transport the members of their household at Government expense. Such authorization will not provide for reimbursement for subsistence nor per diem in lieu of subsistence expenses except for the employee himself.

Immediate family, as defined under the Executive Order, includes any of the following members of the employee's household: spouse, children (including stepchildren and adopted children) unmarried and under twenty-one years of age or physically or mentally incapable of self-support regardless of age, and dependent parents.

The transportation of the immediate family of an employee shall be subject to those provisions of the Standardized Government Travel Regulations which relate to transportation.

No payments will be authorized in the event transportation of immediate family does not begin within six months after the effective date of transfer of the employee, unless an extension of time is specifically requested by the employee and granted by the Chief of Bureau or a Regional Director prior to expiration of the six-month period.

Instructions regarding issuance and use of transportation requests for transportation of family will be issued later as amendments to the Fiscal Manual.

F. W. Reichelderfer,
Chief of Bureau.

W. F. McDonald

W. F. McDonald,
By Direction.

P.S. Form 118 must hereafter show age and dependency status of all members of family for whom transportation at Government expense is to be claimed.

W.F.McD.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm.-Hi
(File No. 260.4)

July 20, 1945.

CIRCULAR LETTER NO. 61-45.
(To all First-Order Stations)

Subject: Extension of time limit on delay of shipment of household goods

The time limit on the period of delay of shipment of household goods after the effective date of the transfer of the employees has been extended from six months to one year effective July 1, 1945 by Section 12 of Executive Order 9587 dated July 6, 1945. This new regulation will apply to all travel orders issued on or since July 1, 1945.

Employees may request if necessary an extension of the one year limit from the official who issued the travel order authorizing the transfer. Such a request, however, must be approved prior to the expiration of the one year limit. The responsibility for securing such extension of time when needed is on the employee and not on the authorizing officer.

The pertinent paragraphs of the Fiscal Manual related to the subject of this Circular Letter will be amended in agreement with the new regulations at a later date.

F. W. Reichelderfer,
Chief of Bureau.

W. F. McDonald

W. F. McDonald,
By Direction.

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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON, 25, D. C.

C&CW:mlh
(File No.750)

July 23, 1945.

CIRCULAR LETTER NO. 62-45
(To All First-Order Stations)

Subject: Ceiling and Visibility Summarization on Form 1030.

The increase in air traffic has created a demand for a greater and more precise breakdown of flying weather than the contact and instrument classifications carried on Form 1030. In view of the growing importance of this phase of our climatic service, it is requested that a summarization of the ceiling and visibility at hourly reporting stations be published on Form 1030, beginning with the July 1945 issue, or as soon thereafter as practicable.

City offices issuing Form 1030 will prepare this summarization from observations taken at the local airport stations. When more than one airport station is located in the same vicinity the Official in Charge should publish these data for the one that more nearly represents the general conditions in the area, unless more than one location can conveniently be published. The source of data should be clearly indicated.

The tabulation should show the total number of hours (based on hourly record observations) that the ceiling and visibility during the month were within the limits indicated in the following sample:

Ceiling and Visibility Frequencies for July 1945
(Based on hourly record observations)

Visibility (miles)	Ceiling (feet)									
	0	100-200	300-400	500-900	1000-1900	2000-2900	3000-4900	5000-9500	Over 9500	Total
0 to 1/8	1	1	1	0	0	0	0	0	0	3
3/16 to 3/8	0	1	1	1	0	1	0	0	1	5
1/2 to 3/4	1	1	2	4	3	3	3	2	4	23
1 to 2½	1	1	2	4	5	7	11	13	26	70
3 to 6	0	0	3	6	8	10	20	39	119	205
7 to 15	0	1	0	6	9	13	53	50	142	274
20 to 30	0	0	0	2	2	6	15	20	70	115
35 or more	0	0	0	2	0	2	5	10	30	49
Total	3	5	9	25	27	42	107	134	392	744

It will only be necessary to tally this material from the record hourly observations as entered on Form 1130A (WBAN-10A), disregarding data on special, check, and local extra observations. The check total in the lower extreme right hand corner should always equal the number of hours in the month. Work (tally) sheets are provided to facilitate the computation of these totals. The standard organization of data shown above will not be modified for purposes of publication.

F. W. Reichelderfer
Chief of Bureau

W. F. McDonald

W. F. McDonald
By Direction

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DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington, D.C.

Pers.-fo.
(File No. 130)

July 27, 1945

CIRCULAR LETTER NO. 65-45.
(To All Stations)

Subject: Instructions for Maintaining Time and Attendance Reports and Leave Accounts.

The attached Departmental Circular No. 504, Supplement No. 2, issued by the Civil Service Commission July 18, 1945 explains and illustrates the manner in which Standard Form 72, 72a, and 73 should be used in maintaining employee leave accounts to comply with the provisions of the Federal Employees Pay Act of 1945.

Time and Attendance clerks should experience little difficulty in adopting Standard Form 72 and 72a for use for employees assigned regularly to day shifts and for whom Sunday is the regular day off and Saturday the overtime day. In the sample Time and Attendance Report, Standard Form 72, attached to the Departmental Circular, note the circle around the check for Saturday of the first work week in the case of Joe Collette. This is a suggestion by the Central Office to indicate that although four hours were worked on the overtime day the employee was not entitled to overtime pay. It is believed that this would facilitate audit of the total base and overtime hours worked during the pay period.

Standard Form 73 which must be used for employees assigned to rotating shifts and all other employees whose work schedules require them to work any of the hours between 6:00 P.M. and 6:00 A.M. is an individual form. The sample shown in the Departmental Circular pictures a normal work week and does not provide for recording hours worked between 6:00 P.M. and 6:00 A.M. Additional samples have been prepared and attached illustrating its use for employees assigned to rotating shifts.

Columns headed "Paid O/T", "Comp. Time" and "Comp. Leave" are redesignated "Base Pay Hours", "Overtime Hours" and "Night Differential Hours" respectively. Initials as BH, base hours, OH, overtime hours, and DH, differential hours may be used for convenience. Entries in "Base Pay Hours", and "Overtime Hours" columns should be made in accordance with instructions contained in the Departmental Circular. The number of hours worked between 6:00 P.M. and 6:00 A.M. should be entered in the night differential column. It should be remembered that night differential is not allowed for overtime hours worked or for hours between 6:00 P.M. and 6:00 A.M. covered by leave with pay, sick or annual. If desired both the day of the week and month can be entered in the date column (See Sample No. 2).

Samples No. 1 and 2 do not necessarily depict existing schedules but will serve to illustrate the use of Standard Form 73 as adopted to meet payroll needs where rotating shifts and night differentials are involved.

Sample No. 1 illustrates a regular schedule, Sunday being the day off and Saturday the overtime day. The overtime day for the first week was not worked and the weekly overtime for that week was two hours, properly authorized, worked on Tuesday. Note also that although the overtime day was worked in the second week the employee was not entitled to overtime pay because of 4 hours leave without pay on Wednesday. In this case the four hours worked on Saturday are entered in the Base Pay Hours column. Since overtime was not allowed the employee is entitled to two hours night differential for the hours 6 to 8 P.M. Since absence on overtime day must be approved by the supervisor, approval of absence should be requested by submission of application for leave, Standard Form No. 71.

Sample No. 2 illustrates the manner in which the designated day off may be moved about to provide greater flexibility in scheduling. The overtime day may be either the day preceding or following the day off, but must fall within the same calendar week as the designated off day. The schedule should be fixed at the beginning of the pay period and days off and overtime days should not be changed thereafter to suit the convenience of the individual.

In connection with night shifts overlapping 12 o'clock midnight, the Department has issued the following instructions: "For the purpose of computing the total work hours within a given administrative work week and other administrative purposes, the actual hours of duty performed on any night shift overlapping 12 o'clock midnight shall be credited consistently to the day on which the shift begins, provided however, that nothing herein shall be construed to affect the payment of night differential for work performed between the hours of 6 P.M. and 6 A.M.".

Attention of leave clerks is called to the provision on page 2 of the Departmental Circular which states that leave taken during a pay period should be posted to the leave record under the month during which the pay period ends and to the added proviso for posting leave for the last pay period of the calendar year.

Instead of using "from and to" dates as instructed in the Departmental Circular to indicate the pay period as July 15 - 29, 1945 use July 15 - 28, 1945, July 29 - Aug. 11, 1945, etc. This is considered the better procedure for two reasons, first the dates will then coincide with the dates used in preparing payrolls and second, since Sunday is a regular work day in many Bureau installations any chance for error by crediting hours worked to the wrong Sunday will be eliminated.

A supply of Standard Form 73 will be forwarded as soon as they are received from the Government Printing Office. The original supply will be small since the Government Printing Office stock must be allocated to all Agencies that will now be required to use the form.

The use of the forms may raise questions not discussed in the instructions. Such questions should be submitted to the Central Office, attention Personnel Division, so that additional instructions may be issued when necessary to all regions to insure uniformity.

Officers of the Bureau to whom authority has or may hereafter be delegated to authorize or approve occasional or intermittent overtime must restrict such authorization or approval to units of hours. In other words overtime in fractions of hours will not be authorized or approved.

The fractional hour restriction does not apply to night differential for hours worked between 6 P.M. and 6 A.M. and such franctional hours should be carried on the Timeand Attendance Report. However, when the night differential hours for the pay period are totaled payment should be made for even hours and the fraction if any should be dropped. For example if the employee worked 55-3/4 night differential hours during the pay period payment should be made for 55 hours.

F. W. Reichelderfer,
Chief of Bureau

W. F. McDonald

W. F. McDonald
By Direction

D 504 S2-1
(F.P.M. Chapters H2, L1,12)

UNITED STATES CIVIL SERVICE COMMISSION

WASHINGTON, D. C.

July 18, 1945

DEPARTMENTAL CIRCULAR NO. 504, Supplement No. 2

TO HEADS OF DEPARTMENTS AND INDEPENDENT ESTABLISHMENTS:

SUBJECT: Standard forms and methods for maintaining employee leave accounts

The Federal Employees Pay Act of 1945 contains the following provisions which will necessitate certain minor modifications in the standard forms and methods for maintaining employee leave accounts, to provide adequate information on which to base payrolls:

Sec. 201: "Officers and employees to whom this title applies shall, in addition to their basic compensation, be compensated for all hours of employment, officially ordered or approved, in excess of forty hours in any administrative workweek, at overtime rates..."

Sec. 604(b): "Beginning not later than October 1, 1945, each pay period for all officers and employees of the organizations referred to in subsection (a)... shall cover two administrative workweeks..."

The latter change will become effective not later than October 1, 1945, or at such earlier date as the agency may adopt pay periods which cover two administrative workweeks, as prescribed. The present standard forms may be used without modification until such time as Sec. 604(b) is put into effect in the agency.

The standard leave forms which are in use will not be revised at this time in view of possible additional changes prior to January 1, 1946, and the large stocks on hand in both the agencies and the Government Printing Office. These forms should be used until further notice, with the minor modifications indicated below and illustrated on the attached exhibits.

Standard Forms 72 and 72a

a. Indicate the inclusive dates in appropriate space in heading, instead of the date on which the pay period ends.

b. Strike out present pay period dates in the heading and insert days of the week, beginning with the day of the week on which the agency's pay period begins.

c. Insert two additional column headings in spaces under "30" and "31":-

(1) "Base Pay Hours" under which will be indicated the number of base pay hours worked during the two basic work weeks in each pay period, (if 80 hours have been worked, including leave with pay, indicate by a check mark; if less than 80 hours, indicate the number of hours);

(2) "Overtime Hours", under which will be recorded the number of overtime hours worked during the period (if the full period of regular overtime authorized for the administrative workweek has been worked,

indicate with a check mark; otherwise give the number of overtime hours worked).

Note: Heretofore, the reporting of overtime on the Time and Attendance Report has been optional. In view of Sec. 201 of the Pay Act, it is no longer feasible to report attendance and leave on one form and overtime on another.

Standard Form 73

a. Under "Reporting Period," enter "from" and "to" dates for the pay period.

b. Change columns headed "Paid O/T" and "Comp. Time" to read "Base Pay Hours" and "Overtime Hours" respectively. Under the column "Base Pay Hours" indicate the number of base pay hours worked during the two basic work weeks in each pay period; under "Overtime Hours" indicate the number of overtime hours worked during the pay period.

Standard Forms 70 and 70a

Both Standard Forms 70 and 70a are readily adaptable to posting leave on the basis of pay periods covering two administrative workweeks.

Pay periods should be numbered consecutively starting with No. 1 for the first pay period of each calendar year. Leave taken during a pay period should be posted to the Leave Record under the month during which the pay period ends.

Inasmuch as leave accrues on the basis of a calendar year and the last pay period will overlap into the new year, it will be necessary to split the posting of leave for the pay period, i.e., to post leave taken in December under 1945 and leave taken during January under 1946.

Miscellaneous

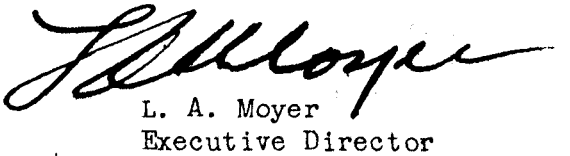
In view of the fact that the administrative workweek will vary in some agencies, it will be necessary for the releasing agency in the case of an employee transferring to another Federal agency to (a) furnish the employee with a statement showing the period covered by the administrative workweek, and the number of base pay hours the employee has worked since the end of the last pay period, or (b) to transfer Standard Forms 70 or 70a immediately showing this information under "Remarks."

Requests for Further Information

Requests for further information with regard to the standard forms and methods covered by this circular may be referred to Mrs. Elliott, Administrative Services, Civil Service Commission, Washington, D. C., Branch 705.

By direction of the Commission:

Very respectfully,



L. A. Moyer
Executive Director
and Chief Examiner

Attachments:
Standard Form 72 and Standard Form 73.

Standard Form 72
October 1944
U. S. CIVIL SERVICE COMMISSION

TIME AND ATTENDANCE REPORT

Form approved.
Budget Bureau No. 50-R022.

See reverse side for certification of sick leave.

16—42354-1

Code
V—Full day worked
A—Annual leave
S—Sick leave
O—Other leave with pay
W—Leave without pay

SUS—Suspension
AWL—Absence without leave
C—Compensatory overtime leave
CT—Compensatory time worked
OT—Paid overtime worked

Period ending 7/15-29/45 | Division | Section or other unit | Location | Extension

NAME (Last Name First)	1/16 S	2/17 M	3/18 T	4/19 W	5/20 T	6/21 F	7/22 S	8/23 S	9/24 M	10/25 T	11/26 W	12/27 T	13/28 F	14/29 S	15/30 Base Pay Hrs.	31 Overtime Hrs.	TIME ABSENT Annual	Sick	Other	LWOP	AWOL
1. Anderson, John		✓	✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓					
2. Boulton, Louis		✓	✓	8A LB	✓	✓	✓		✓	✓	✓	8S LB	✓	O	✓	4	8	8			
3. Collette, Joe		✓	8W	8W JC	✓	✓	✓		8S JC	✓	✓	✓	✓	✓	68	4		8		16	
4. Delaney, Harry		✓	✓	✓	8W HD	✓	✓		✓	✓	8W HD	✓	✓	✓	72	0				16	
5. Ellsworth, Mary J.		✓	✓	✓ 4/OT	✓	✓	✓		✓	✓	✓	4W	✓	✓	✓	✓				4	
6. Fulton, Hugh T.		✓	✓	✓	✓	✓	8		✓	✓	✓	✓	✓	✓	✓	12					
7.																					
8.																					
9.																					
10.																					
															TOTALS:						

REMARKS:

I CERTIFY that attendances and absences recorded above are correct and that all overtime and leave were approved in accordance with existing laws and regulations.

Supervisor.

- 3 -

D 504 S2-3

BASED ON 44 HOUR WEEK

REPORTING PERIOD 7/15-29/45

Base Pay Hours) (Overtime Hours

TOUR OF DUTY:

TIME WORKED					TIME ABSENT						
DATE	TOTAL HOURS OR IN	OUT	[illegible]	[illegible]	COMP LEAVE	ANNUAL	SICK	OTHER	LWOP	AWOL	INITIALS*
S											
M	9	5 30	8								
T	9	5 30	8								
W	9	5 30	8								
T	9	5 30	8								
F	9	5 30	8								
S	9	1 00		4							
S											
M	9	5 30	8								
T									8		wga
W	9	5 30	8								
T	9	5 30	8								
F	9	5 30	8								
S	9	1 00	4								
		TOTALS	76	4					8		

*Certification for Sick Leave

I CERTIFY THAT THIS ABSENCE WAS DUE TO ILLNESS WHICH INCAPACITATED ME FOR DUTY.

REMARKS (COMPUTATIONS, CHANGES IN TOUR OF DUTY, ETC.):

CERTIFICATION

ATTENDANCE AND ABSENCES CERTIFIED CORRECT, OVERTIME APPROVED IN ACCORDANCE WITH EXISTING LAWS AND REGULATIONS:

(SIGNATURE OF SUPERVISOR)

Standard Form No. 73
REVISED
MARCH 1945
U. S. CIVIL SERVICE COMMISSION

TIME AND ATTENDANCE REPORT
(Graded per annum employees)

BUDGET BUREAU
APPROVAL NO. 30-R025

(1)

ROWN, ROY H.
RICHMOND

REPORTING PERIOD July 15-28, 1945

Base Pay Hours
Overtime Hours
Night Differential Hours

TOUR OF DUTY:

TIME WORKED					TIME ABSENT					
TOTAL HOURS OR IN	OUT	[illegible]	[illegible]	[illegible]	ANNUAL	SICK	OTHER	LWOP	AWOL	INITIALS*
P.M.	A.M.									
4	12:30	8		6						
4	2:30	8	2	6						*
4	P.M. 8	8		2	4					S.F.-71
4	A.M. 12:30	8		6						
4	12:30	8		6						
-	-	0								S.F. 71
4	12:30	8		6						
4	12:30	8		6						
8	12:30	4		4				4		S.F. 71
4	12:30	8		6						
6	12:30	8		6		2				S.F. 71
4	P.M. 8	4		2						
TOTALS		80	2	56						

*Certification for Sick Leave
I CERTIFY THAT THIS ABSENCE WAS DUE TO ILLNESS WHICH INCAPACITATED ME FOR DUTY

REMARKS (COMPUTATIONS, CHANGES IN TOUR OF DUTY, ETC.)

* Overtime Authorized

CERTIFICATION

ATTENDANCE AND ABSENCES CERTIFIED CORRECT, OVERTIME APPROVED IN ACCORDANCE WITH EXISTING LAWS AND REGULATIONS:

(SIGNATURE OF SUPERVISOR)

Standard Form No. 73
OCTOBER 1944
U. S. CIVIL SERVICE COMMISSION

TIME AND ATTENDANCE REPORT
(Graded per annum employees)

BUDGET BUREAU APPROVAL No. 50-R025

(2)

REPORTING PERIOD July 15-28, 1945

JACKSON, MELVIN A.
BALTIMORE

TOUR OF DUTY:

TIME WORKED			B.H.	O.H.	D.H.	TIME ABSENT					
DATE	TOTAL HOURS OR IN	OUT	[illegible]	[illegible]	[illegible]	ANNUAL	SICK	OTHER	LWOP	AWOL	INITIALS*
S-15	P.M. 10	A.M. 6:30	8		8						
M-16	10	2		4						Overtime Day	
T-17	DAY	OFF									
W-18	10	6:30	8		8						
T-19	10	4	8		6	2					SF-71
F-20	10	6:30	8		8						
S-21	10	6:30	8		8						
S-22	10	6:30	8		8						
M-23	10	6:30	8		8						
T-24	10	6:30	8		8						
W-25	DAY	OFF									
T-26	10	2		4						Overtime Day	
F-27	10	6:30	8		8						
S-28	10	6:30	8		8						
TOTALS			80	8	78						

*Certification for Sick Leave
I CERTIFY THAT THIS ABSENCE WAS DUE TO ILLNESS WHICH INCAPACITATED ME FOR DUTY

REMARKS (COMPUTATIONS, CHANGES IN TOUR OF DUTY, ETC.)

CERTIFICATION

ATTENDANCE AND ABSENCES CERTIFIED CORRECT, OVERTIME APPROVED IN ACCORDANCE WITH EXISTING LAWS AND REGULATIONS:

(SIGNATURE OF SUPERVISOR)

Standard Form No. 73
OCTOBER 1944
U. S. CIVIL SERVICE COMMISSION

TIME AND ATTENDANCE REPORT
(Graded per annum employees)

BUDGET BUREAU APPROVAL No. 50-R025

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

Adm. MSA/Wa
(File No. 350.1)
(360)

August 13, 1945

CIRCULAR LETTER No. 66-45
(To all Stations)

Subject: Quarters Information Regarding Expenditures for Janitor Service, Utility Services, Care of Grounds, Alterations, etc.

Reference: Circular Letter No. 75-44, dated October 14, 1944 (which is hereby revoked, and superseded).

Paragraph 2014.1(f) of the Fiscal Manual requires that, when bids are submitted, information be given by the Station Officials as to the quarters for which such services as janitor, care of grounds, heat, electrical energy, fuel, etc., are to be furnished. It is also a requirement of the General Accounting Office that definite information be furnished as to the premises for which the Government pays for such services. The certifying officer is held responsible if payments are made for services which the lessor has assumed under the terms of the lease or agreement covering the premises.

In order that the Central Office may definitely establish the responsibility for furnishing of the services, the letter transmitting the recommended bid for approval should clearly indicate the following information, depending on the circumstances involved:

1. Government-owned building and/or grounds. (State whether premises are Weather Bureau-owned, provided by Civil Aeronautics Administration, under Military control, etc.)

2. Site and/or quarters provided by gratuitous agreement dated _____, which contains no provision for the furnishing by the lessor of _____ _____.

3. Premises leased under Contract No. Cwb-_____, dated _____ (Renewed_____), which contains no provision for the furnishing by the lessor of _____.

Purchase requisitions for items such as electric light bulbs, etc. (not in excess of $100.00 and not requiring bid action) should also be supported by similar information.

Purchase requisitions for minor alterations, additions, etc., should also contain one of the following statements (whichever is applicable):

A. Paragraph 8 of formal lease (Contract No. Cwb-_____), dated _____ (Renewed _____), gives the Government the right to make any necessary alterations, attach fixtures, erect additions, etc.

B. Gratuitous agreement, dated _____, covering the premises, gives the Government the right to make necessary alterations, attach fixtures, erect additions, etc.

In this connection, see also Section 7 of the Quarters Manual concerning alterations and improvements to leased quarters, and/or premises occupied under gratuitous agreements.

All statements made by the station official are, of course, subject to verification by the Regional Office, since further review will not be made at the Central Office, unless specific request for such action is forwarded by the Regional Director.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

Opr:Wh
(File No, 750)
(601.4)

August 18, 1945

CIRCULAR LETTER NO. 67-45
(To all First-Order Stations)

Subject: Tephigram, W. B. Form 1125 (Revised 2-21-45).

We are forwarding herewith copies of a new tephigram, U. S. Weather Bureau Form 1125, which was recently revised. The pressure and surface temperature range of this diagram are from 1050 mb. to 300 mb., and from +48°C. to -50°C., respectively.

This diagram was designed with a view to increasing the ease and accuracy of plotting and analyzing an upper-air sounding. For the plotting, it was desirable to obtain as great a separation of the printed isobars as possible for the fixed, final dimensions of the chart, as well as to utilize fully the available paper area. These objectives were realized through the employment of an angle of 60° between the coordinates of log θ and T rather than the conventional angle of 90° (θ = potential temperature, °A; T = absolute temperature, °A).

The use of coordinates having an included angle of 60° also causes the isotherms to become more nearly perpendicular to the isobars. By suitably orientating the grid upon the paper, the revised tephigram now has the following characteristics:

1. Pressure decreases nearly vertically
2. The angle between the isotherms and the isobars at the point t = 0°C. and P = 1000 mb. is about 72°.

With oblique coordinates, the area representing a specified amount of energy is equal to (the area representing the same amount of energy on a chart with orthogonal coordinates having the same scale factors) x (the sine of the angle included between the coordinates). Thus, on the revised tephigram, the area representing a given amount of energy is 0.866 times as large as it would be if the coordinates were perpendicular to each other. However, no loss of generality ensues; all the features of the tephigram, including that of equality of energy for equal areas, are preserved.

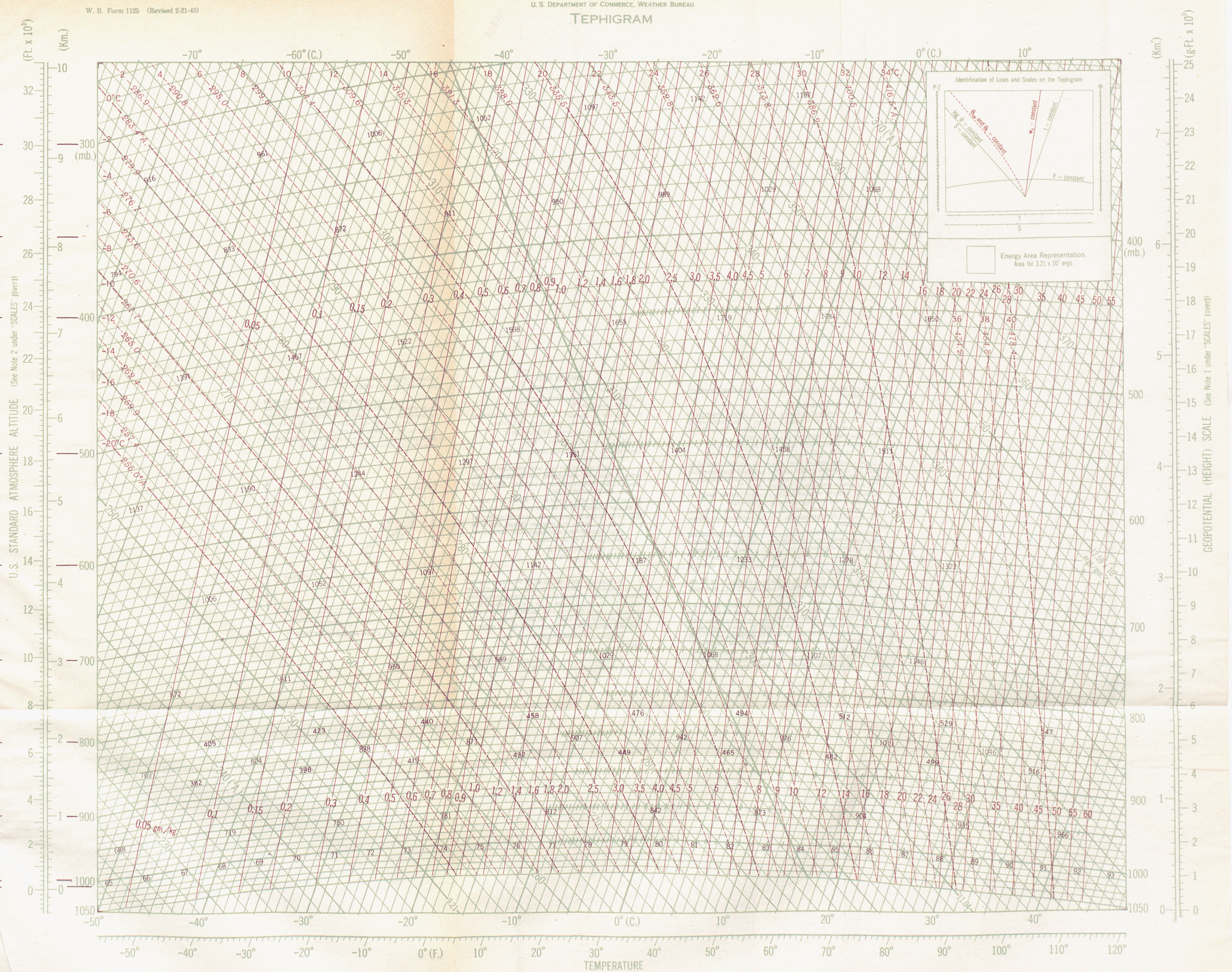
F. W. Reichelderfer,

F. W. Reichelderfer,
Chief of Bureau.

W. B. Form 1125 (Revised 2-21-45)

U. S. DEPARTMENT OF COMMERCE, WEATHER BUREAU

TEPHIGRAM



Prepared by the U. S. Coast and Geodetic Survey,
Washington, D. C.
July, 1945

Station .....

Date (Z) .....

Hour (Z) ..... Drawn by .....

LEGEND

Note. The use of oblique coordinates in no way alters the true energy area relationship of the tephigram

1 Abscissas are temperatures (t) in °C

2 Ordinates are isopleths of log θ and S, where θ = potential temperature in °A, and S = entropy of dry air in millions of ergs/gm °C The reference point of entropy, S = 0, is defined by T = 100°A, P = 1000 mb Values of θ are printed for every 10°A, while values of S are printed for every 50°A of θ

3 Approximately horizontal arcs of slight curvature are isobars, where

$$P = 1000\,(T / \theta)^{1/n} = \text{pressure in millibars, where } n = 0.288$$

4 Broken overprinted curves are pseudo adiabats, (θ_E = constant) based on the *assumption that condensation products consist of particles of liquid water which* precipitate immediately Figures on these curves are equivalent potential temperature (θ_E in °A) and potential pseudo wet bulb temperature (θ_{sw} in °C)

5 Unbroken overprinted curves are isopleths of constant saturation mixing ratio (w_s) with respect to liquid water, $w_s = 622\, e_s / (P - e_s)$ gm / Kg

6 The approximately vertical printed curve on the base passing thru the point t = 15°C, P = 1013 25 mb represents the U S Standard Atmosphere pressure *temperature relationship*

7 Differences of height between two consecutive standard pressure levels, indicated by dashes projected horizontally from the left edge of the tephigram, are printed in the third color for mean virtual temperatures (t_{mv}) of every whole 10°C The necessary interpolation required for other values of t_{mv} involving unit degrees from 1° to 9°, inclusive, is facilitated by numerals within the boxes, left Heights are in terms of the unit m′=0 98 geodynamic meter

Data are also given to enable the computation of the height of the 850 mb surface, and thence to the 800 mb surface, for every whole 5°C of t_{mv} No interpola*tion boxes are provided for this intermediate pressure*

Integral values of distance in m′ between the isobaric surfaces of 1000 mb and 1010 mb are printed at the related values of t_{mv} *With a pressure* P > 1010 mb and a specified t_{mv}, the following approximation will provide the distance between P and 1000 mb generally to within 3 m′ $Z = (A - 1\,5)\,\Delta P / 10$, where A = indicated difference in height between 1000 mb and 1010 mb at the specified t_{mv}, $\Delta P = P - 1000$, and Z = difference in height, in m′, between the pressure P mb and 1000 mb

The height from the last standard pressure level to the top of the sounding, or from the bottom of the sounding to the first standard pressure level, may be obtained by using the *geopotential scale, right* (See Note 1 under "SCALES")

CONSTANTS USED

R = gas constant for dry air = $28\,71 \times 10^5$ *cm*^{2}/°A *sec*^{2}

C_p = specific heat-of-dry air at-constant-pressure = 0 238 calories / gm °C

L = *latent heat of vaporization, in calories, of 1 gm of liquid water* = 596 73 − 0 6010 t (t in °C) calories/gm (15°C calorie)

C = specific heat of liquid water = 1 00 calorie/gm °C

n = AR / C_p (R and C_p for dry air) = 0 288

Temperatures are in the approximate absolute scale
T°A = (t°C + 273°)

Saturation vapor pressures (e_s), taken with respect to a flat surface of liquid water, were obtained from the following sources

above 0°C from Table 79 published in Smithsonian Meteorological Tables, Fifth Revised Edition, 1931,

0°C and below from tables published by L P Harrison on the basis of Washburn's equations (see Mo Wea Rev, vol 62, p 247, July 1934)

NOTE For the dry adiabats, pseudo adiabats, mixing ratio isopleths, and isobars, the constants listed above were employed, while for the energy, entropy, and geopotential determinations, evaluation was made from the more recent constants

C_p = 1 005 absolute joules/gm °A,

and R = $28\,688 \times 10^5$ cm^2/°A sec^2

SCALES

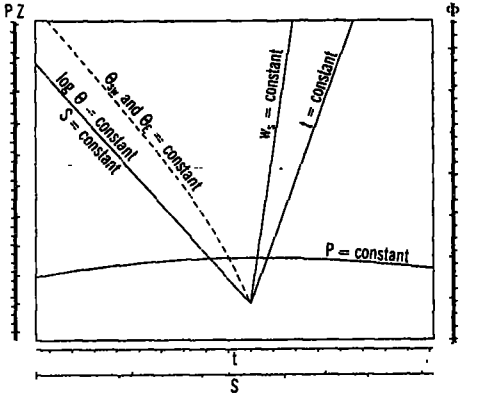
1 *The geopotential scale, right, yields the difference of geopotential* (Φ) between two points of the sounding from the length of the *mean log θ isopleth intercepted by the isobars passing through those* points The mean log θ isopleth of the stratum is obtained by the process of area equalization for the areas bounded by the isobars, sounding trace, and mean log θ isopleth The unit of geopotential is 0 98 geodynamic kilometer (*Km′*) *In* the conversion to feet, the relationship

0 98 geodynamic kilometer = $3\,280833 \times 10^3$ g-ft

was used

2 The U S Standard Atmosphere Pressure Altitude Scale, left, which is practically identical with the ICAN scale, shows the standard relationship of pressure to height This scale is projected horizontally from the left edge of the tephigram

3 The entropy scales, bottom are used to determine the entropy change between two points of known potential temperatures either from the perpendicular distance between the log θ isopleths passing through the two points or from the slant distance along an isotherm intercepted by these two log θ isopleths When entropy changes thus obtained are used in conjunction with the values of entropy printed on the chart, the entropy from the reference point is obtained by addition



Identification of Lines and Scales on the Tephigram

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 610.3)
(601.4)
(750)

August 20, 1945

CIRCULAR LETTER NO. 68-45
(To all First Order Stations)

Subject: Combined Aircraft Weather Report Form (CAW-C) Amendment.

Reference: Circular Letter No. 27-45.

1. By agreement of the Combined Meteorological Committee, CAW-C has been amended to include provision for reporting wind speeds over 199 knots by using the group 00200 immediately after the wind group to signify "add 200". The same convention is contained in the new radiosonde code (CORAC), soon to be introduced.

   a. For speeds of 200 to 299 knots, the group 00200 is inserted immediately following the $d_w$ddvv group. The direction to 10's of degrees is coded for dd and the actual speed minus 200 is coded for vv. Example: A speed of 217 knots from the north (360 degrees) is coded d_w3617 00200.

   b. For speeds of 300 to 399 knots, the group 00200 is inserted immediately following the $d_w$ddvv group. The direction to 10's of degrees plus 50 is coded for dd and the actual speed minus 300 is coded for vv. Example: A speed of 317 knots from the north (360 degrees) is coded d_w8617 00200.

   Note: The definition of 00200 as "add 200" is valid in both examples. In a, the group d_w3617 is decoded as N-17. When 200 is added, the correct value 217 is obtained.

   In b, the group d_w8617 is decoded as N-117. When 200 is added, the correct value 317 is obtained.

   Provision for these high values of wind speed was necessitated partly by the requirement for use of kilometers per hour by some services.

2. It was also agreed that the instruction "For missing data use X" would appear on the forms. This will be accomplished when the forms are reprinted.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

August 27, 1945

CIRCULAR LETTER NO. 69-45
(To All Stations)

Opr:Do
(File No. 140.2)
Subject: Application for Special Assignments.
Reference: Circular Letter 93-44.

In view of an urgent need for employees who will accept assignments at stations in Alaska, on the Atlantic Weather Patrol, and at several outlying places in the northwest, the Central Office desires to bring its roster of volunteers for such assignments up to date. Regardless of previous statements of preference, an employee willing to accept any assignment discussed below is urged to advise the Central Office at once through his Regional Office.

The following information supplements that outlined in the reference Circular Letter:

ALASKA: A considerable number of openings will occur within the next two or three months. Many of the vacancies will occur at radiosonde stations, and there are good opportunities for advancement to the SP-6 grade in these assignments. Women observers are now being assigned in groups of two or more to several of our outlying stations in the Territory. Overtime compensation for employees under the new pay schedules is computed on the total of the basic salary plus the 25% differential.

ATLANTIC WEATHER PATROL: Ten to fifteen able-bodied male employees are needed within the next several months as replacements for personnel who have been on the Atlantic Weather Patrol for a year or more.

TATOOSH ISLAND: Vacancies exist in the SP-5 and SP-6 grades for which applications are desired from married couples with no children.

STAMPEDE PASS, WASHINGTON - SEXTON SUMMIT, OREGON: Both of these stations are located at high levels and are somewhat isolated. Furnished quarters are provided for which $60 per annum is deducted from the employee's salary for bachelor quarters and $120 for family accommodations. The work program at these stations includes hourly surface observations, Schedule A teletype communications, and administrative duties incidental thereto.

Only male employees can be accommodated at Stampede Pass, but man and wife or women observers may be assigned to Sexton Summit. The staff at each of these stations consists of four employees — one SP-6 Official in Charge and three SP-5 observers. Information relative to local conditions at Stampede Pass and Sexton Summit is available at the Seattle Regional Office.

SWAN ISLAND, SAN JUAN, and MT. WASHINGTON Applications will be considered for assignment to these stations; however, we have no information to offer in addition to that outlined in the reference Circular Letter.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 202)

September 7, 1945.

CIRCULAR LETTER NO. 70-45
(To all First Order Stations)

Subject: Regulations regarding compensation for August 15 and 16, 1945

The Secretary of Commerce has obtained from the Comptroller General a decision (No. 51947, dated September 4, 1945) regarding the computation of pay and leave charges for the days August 15 and 16, 1945, on which employees were excused from duty at the request of the President. This decision is summarized as follows:

(1) Employees who were required to work on August 15 and 16, 1945, are not entitled to extra holiday compensation. These employees will be paid at the basic rate of compensation for the hours worked on those two days unless one of these days was a scheduled overtime day, in which case payment is due as usual at the regular overtime rate.

(2) Compensatory time off is not authorized for employees who were required to work on August 15 and 16, 1945.

(3) Employees who were excused from duty for the two days and whose overtime day did not fall on one of the two days are entitled to compensation at the overtime rate for the hours of employment on the designated overtime day and for any other hours of irregular or occasional overtime scheduled during the calendar week August 12-18.

(4) Employees who were on extended annual or sick leave for August 15 and 16 where such leave was requested and granted prior to the President's announcement shall not be relieved of leave charges for August 15 and 16.

(5) Employees for whom either the 15th or 16th was scheduled as an overtime day and who were excused from duty for the two days are not entitled to the overtime compensation they would have earned had they not been excused from duty. Likewise employees for whom either the 15th or 16th was a scheduled day off are not entitled to compensation for that day nor shall they be considered as being in pay status for that day for purpose of computing overtime.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

SR&F:Fo
(File No. 610.3)
(610)
(622.1)
(620.7)

September 17, 1945

CIRCULAR LETTER NO. 71-45.
(All First-Order Stations)

Subject: Combined Analysis Code

Reference: W.B. No. 1345 and C. L. No. 47-45

A new supplemental section to the Combined Analysis Code (CAC), for use in coding tropical analyses, has been agreed upon for experimental use in Pacific areas. A copy is attached for information.

This section is proposed as a permanent addition to CAC and the comments of offices concerned with tropical analyses will be appreciated.

F.W. Reichelderfer

F.W. Reichelderfer,
Chief of Bureau

Attachment

SPECIFICATIONS OF RECOMMENDED SUPPLEMENTAL SECTION "$55T_tT_iT_c$" FOR INCLUSION IN CAC

1. This group ($55T_tT_iT_c$) would be included immediately following $66F_tF_iF_c$.

2. The group $55T_tT_iT_c$ would be followed by the normal position groups - QLL11 QLL11 ------.

3. The specification tables for tropical indicators are as follows:

T_t	T_i	T_c
Tropical Circulation System Type	Tropical System Intensity	Tropical System Characteristics
0 Density discontinuity	no specification	no specification
1 Shear line	weak, decreasing (Frontolysis)	diffuse
2 Line of convergence	weak, little or no change	sharply defined
3 Equatorial front	weak, increasing (Frontogenesis)	semi-stationary
4 Polar trough	moderate, decreasing	forming or suspected
5 Easterly trough	moderate, little or no change	fairly certain
6 Low area	moderate, increasing	known to exist
7 Depression	strong, decreasing	position certain
8 Storm	strong, little or no change	movement doubtful
9 Typhoon or hurricane	strong, increasing	position doubtful

4. The definitions of the "Tropical Circulation System Type, T_t" are as follows:

a. Density discontinuity. Derived from a cold front by loss of the assoiated pressure trough and wind shear. It is characterized by strong density gradient only, but the term is used loosely to include those cases which still have shear.

b. Shear line. A discontinuity of wind velocity, or line of cyclonic wind shear. It is derived from a cold front or density discontinuity by subsidence of the polar high, and has no associated pressure trough or density gradient.

c. Line of convergence. Any line of weather resulting from the convergence of two wind streams not included in the category of shear line or equatorial front.

d. Equatorial front. The line or zone of convergence between air streams originating in the northern and southern hemispheres, and which lies in the equatorial trough.

e. Polar trough. A cyclonic perturbation of the mid-latitude westerlies, and the extension of that perturbation or its surface expression into the tropical easterlies (trough in the tropical easterlies caused by overlapping polar westerlies).

f. Easterly trough. A cyclonic perturbation of the tropical easterlies which moves from east to west and is usually oriented normal to the air stream. It is associated with a pressure trough but no appreciable density gradient.

g. Low area. Any large area of comparatively low pressure and no systematic circulation.

h. Depression. Tropical cyclonic circulation in which winds near the center are Beaufort 6 or under.

i. Storm. Tropical cyclonic circulation in which winds near the center are in the range Beaufort 7 through 11 inclusive.

j. Typhoon or hurricane. Tropical cyclonic circulation in which winds near the center are Beaufort 12 or greater.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT/THE/Mo
(File No. 451.7)

September 19, 1945

CIRCULAR LETTER NO. 72-45
(To all First Order Stations)

Subject: Transportation of helium gas and return of empty cylinders.

Reference: Circular Letters 24-44 dated March 16, 1944, 42-44 dated May 26, 1944.

The referenced Circular Letters contain instructions relative to the routing of helium gas shipments and the return of empty cylinders.

In this connection, when practicable, empty cylinders should be returned via the same routing as received, in order to take advantage of the lower return rate. When applicable all copies of the bill of lading should bear the following statement:

> "The empty containers listed herein were carried when full by _____ and are therefore entitled to return by delivering carrier at one half rate."

This statement will apply on all return rail freight shipments. However, station officials should contact motor freight companies in their locality to determine whether or not a similar rate schedule is applicable for motor freight.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 202)
(102.4)

September 20, 1945

CIRCULAR LETTER NO. 73-45
(To all First Order Stations)

Subject: "Federal Employees Pay Act, 1945"

This letter summarizes regulations issued to date (August 30, 1945) under the "Federal Employees Pay Act, 1945".

EXTENT OF THE NEW PAY ACT

Weather Bureau employees to whom the regulations of the Act apply.

1. The Act applies to employees who occupy positions (SP, P, CAF and CPC grades) subject to the Classification Act of 1923, as amended, including employees who occupy such positions temporarily, such as emergency assistants. It applies to such employees paid from a working fund as well as those paid from direct appropriations to the Weather Bureau.

Weather Bureau employees to whom the regulations of the Act do not apply.

2. The Act does not apply to employees appointed under Schedule A (except emergency assistants, to whom the Act does apply).

3. The Act does not apply to employees outside the continental limits of the United States, including those in Alaska, who are paid in accordance with local prevailing native wage rates for the area in which employed.

4. The Act, except sections 203 and 607 thereof, does not apply to employees who are employed under wage board compensation schedules. (Section 203 establishes the overtime rates of pay for this group of employees which by Section 607 are included in personnel employment ceilings)

ADMINISTRATIVE WORK WEEK

Definition.

5. The administrative work week consists of a basic week of 40 hours, normally embraced in five eight-hour days but which may be distributed over six work days if required in the best interests of the Government.

Administrative work weeks established by the Secretary of Commerce.

6. With respect to employees engaged in activities not requiring continuous operations the normal administrative work week shall consist of a basic work week of five eight-hour days, Monday through Friday of each calendar week, for which the basic rate of compensation shall be paid. Sunday and Saturday of each calendar week shall normally be non-work days.

7. With respect to employees engaged in activities requiring continuous operations the administrative week shall normally consist of a basic work week of five eight-hour days during a calendar week for which the basic rate of compensation shall be paid, and the responsible supervisory officer may designate any two days of the calendar week as non-work days in lieu of Sunday and Saturday.

8. With respect to any group of employees whose duties are of such a nature as to require in the best interests of the Government the establishment of tours of duty different from those mentioned above, an administrative work week (40 hours) may be established consisting of any six days or less of the calendar week. Responsible supervisory officers desiring to establish an administrative work week in conformity with the instructions in this paragraph must secure approval from the Central Office through the Regional Office. Such approval will be made only on the basis of the strongest possible justification.

OVERTIME WORK & OVERTIME COMPENSATION

Overtime compensation authorized.

9. Employees to whom the Act applies shall be paid overtime compensation at the rates established by the Act for all hours of employment officially ordered or approved and actually worked in excess of forty hours of duty status in any administrative work week including irregular or occasional overtime duty, except for compensatory time off granted upon request by an employee who has rendered overtime duty in excess of 48 hours of work in any administrative work week (See paragraph 23). (See section 17 regarding rates of pay for duty on holidays)

10. Employees may not be absent from duty during any assigned overtime period for any reason whatever without loss of overtime pay.

11. The authorization or approval of overtime will be restricted to units of whole hours.

Overtime while in travel status.

12. Overtime is not payable for time spent in official travel in excess of the basic 40-hour work week, unless work in excess of 40 hours of duty status is actually ordered or performed in pursuit of the assigned purpose of the travel. Duty status while performing official travel is limited to eight hours per day for five days during each calendar week. (Departmental decision is pending on a request for authority to establish an administrative work week in excess of 40 hours for employees required to be in continuous travel status)

Authority to authorize or approve overtime work.

13. The Chief of the Weather Bureau, the Regional Directors, and officials authoriz ed to act in their absence have authority to order or approve irregular or occasional overtime duty in excess of the 40 hours comprising the administrative work week, provided funds are available for payment of such overtime work. (See paragraph 14)

14. Authority to schedule regular overtime duty in excess of the 40 hours constituting the administrative work week must be obtained from the Central Office. Recurring requests for authorization of irregular overtime involving the same or similar circumstances affecting more than two pay periods will be regarded as requests for scheduled overtime, and will be subject to approval by the Central Office. (See paragraph 8 regarding employees in continuous travel status)

NIGHT PAY DIFFERENTIAL

When authorized.

15. The compensation for work actually performed, between the hours of 6:00 p.m. and 6:00 a.m., when scheduled by the responsible supervisory officer, shall be paid at a rate 10% in excess of the basic rate of compensation for the grade of the employee, and may be computed in minimum intervals of 15 minutes.

16. Night pay differential shall not be paid for hours of duty for which overtime or holiday rates of compensation will be paid.

COMPENSATION FOR WORK PERFORMED ON HOLIDAYS

When authorized.

17. Employees who are assigned to duty on a holiday designated by Federal statute or Executive Order shall be compensated for such duty, in lieu of their regular pay for that day, at a rate one

and one-half times the regular basic rate of compensation. This regulation is effective after August 23, 1945, the date on which the President declared that the following legal holidays will be non-work days: January 1; February 22; May 30; July 4; 1st Monday in September; November 11; 4th Thursday in November; and December 25.

Computing basic and overtime pay.

18. Extra holiday pay is not overtime pay and shall not serve to reduce the amount of overtime compensation to which an employee would have been entitled had the holiday been a regular work day.

19. With respect to personnel engaged in activities requiring continuous operations:

a) Employees not performing work on a holiday when such a holiday has been previously scheduled as a day off or a designated overtime day (in cases where 44 or 48-hour week is authorized) will not be considered as being in pay status for the holiday.

b) Employees performing work on a holiday when such a holiday has been previously scheduled as an overtime day, will be compensated at the holiday rate for the number of hours of work performed, but no overtime pay will be due the employee for such holiday work.

Compensatory time off in lieu of holiday.

20. No other day in lieu of a holiday may be designated as a day off for employees for whom the holiday falls upon a regularly scheduled day off. For example, in the case of employees scheduled to a basic work week Monday through Friday compensatory time off will not be granted by supervisors for holidays that may occur on either Saturday or Sunday.

21. Employees on leave with pay, annual or sick, during the regularly scheduled basic work week will be considered as being in duty status while on leave.

Absence on days not included in the basic work week.

22. Leave of absence with pay shall not be charged for any absence which does not occur during the forty hours comprising the basic work week.

COMPENSATING TIME OFF

When authorized.

23. Any per annum employee may request compensatory time off, in lieu of overtime pay, for irregular or occasional duty in excess of 48 hours in any administrative work week. Unless compensatory time off for such irregular or occasional overtime duty is specifically requested by the employee it shall be paid as salary due him.

Granting compensatory time off.

24. Any compensatory time taken off from duty, (which must be requested by the employee), may be granted hour for hour for the excess overtime worked.

RETIREMENT DEDUCTIONS

25. Retirement deductions are not to be taken from amounts paid for night differential or from overtime pay.

26. With respect to holiday compensation (See paragraph 17) retirement deductions will be made only from that portion of the pay which is normally the employee's basic pay.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

October 22, 1945.

AsstChAdm-cs

(To all First Order Stations)

AMENDMENT TO PARAGRAPH 12 OF
CIRCULAR LETTER NO. 73-45

Employees for whom either a 44 or 48-hour administrative work week has been set up under approved scheduling, will be compensated at overtime rates of pay for time spent in travel, either by common carrier or by Government or privately owned vehicle, up to but not in excess of the number of overtime hours scheduled in such authorized work week. For example, an employee in more or less continuous travel status, who has been authorized to work 48 hours per week, and who travels eight hours or more on Saturday while in official travel status will be compensated for eight hours of overtime provided he has been in duty status for 40 hours (including travel time if appropriate) in the same calendar week prior to his travel on Saturday. An employee will not receive compensation for hours in excess of his authorized administrative work week unless he actually performs work which has been authorized or is approved, at a point or points of duty on the itinerary, as distinguished from time in transit between such places of work.

This amendment is applicable to employees engaged in inspection and liaison work for whom a 48-hour administrative work week has been established (See MAL to all Regional Offices dated October 5, 1945), and all other employees authorized to work regularly in excess of 40 hours per week, whenever the latter may assume travel status incident to their assignments.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT/THE/VCR
(File No. 400)

October 2, 1945

CIRCULAR LETTER NO. 75-45
(To all First Order Stations)

Subject: Restrictions on Purchase of Selected Items for the Duration of the War.

Reference: Circular Letter No. 58-43 to all stations, dated June 7, 1943

Bureau of the Budget Circular A-28 revised, dated September 10,1945, rescinds Circular A-28-revised, dated August 1, 1943, (formerly Circular No. 420, dated May 21, 1943), which restricted the purchases of selected items for the duration of the war. It is also stipulated that while Circular A-28-revised, dated August 1, 1943 was designed to safeguard commodities in critical, short supply, the future emphasis should be on economy and the full utilization of Government surpluses. As stipulated in Section 12(b) of the Surplus Property Act of 1944, it is incumbent upon agencies to ascertain that their requirements cannot be filled from surplus stocks before making purchases through commercial channels.

Circular Letter No. 58-43 to all first order stations dated June 7, 1943 is hereby cancelled, and reference thereto in the fourth paragraph of Circular Letter No. 92-44, dated December 13, 1944, should also be disregarded.

However, station officials should ascertain that requirements cannot be filled from surplus stocks before submitting requisitions for new articles.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 000)
(604, 610.4)
(730.4, 622.5) CIRCULAR LETTER NO. 76-45
(To all First Order Stations)

October 4, 1945

Subject: Weather Security.

Reference: Circular Letter No. 49-45.

1. Action taken by the various governments and meteorological services following V-J Day has resulted in the lifting of weather security restrictions in all areas. There are no longer any classified weather areas.

2. Vessel weather reports in all areas are now unclassified.

3. Action is now being taken to delete classified index numbers from international index number lists so that unclassified lists may be published, with abridged classified supplements to include a few military station locations which will remain classified temporarily. Reports from classified stations will not be contained in in-clear collections or broadcasts.

4. Weather maps will be unclassified unless reports are entered which are not received in clear.

5. Publications, correspondence or other material which is classified or registered will continue to be safeguarded according to instructions previously issued until their destruction, return, or declassification is authorized.

6. The following material has been declassified and all copies should be so marked, with reference made to this circular:

a. All C.M.C. code forms and code tables;

b. Frequencies, call signs, schedules, and contents of in-clear radio broadcasts of weather information;

c. Complete lists of C.M.C. key groups and key words.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR2F-Hew
(File No. 610.3)

October 12, 1945

CIRCULAR LETTER NO. 77-45
(To all First Order Stations)

Subject: Reporting Constant Pressure Data.

Reference: (a) Circular Letter No. 28-45 (File No. 610.3, 601.4 and 610.).

(b) 1945 Radiosonde Code.

The present agreement between the U. S. Army, Navy, and Weather Bureau and the Canadian Meteorological Service provides for the inclusion of data for selected constant levels in coded radiosonde reports until January 1, 1946. However, as the 1945 Radiosonde Code does not provide for the coding of constant level data, it is necessary to continue the special instructions for reporting these data as given in Circular Letter No. 28-45 for the period between the effective date of the 1945 Radiosonde Code (0400Z November 1, 1945) and January 1, 1946.

These instructions provide for the inclusion, at the end of the second transmission, of pressure, temperature, humidity and mixing ratio data for the 5, 10, 15 and 20 thousand foot levels and pressure and temperature data for the 10, 13, and 16 kilometer levels. This additional section will continue to be in the form 10198 PPTTU PPTTU ..... etc. 10171 $1m_rm_rm_rm_r$ $3m_rm_rm_rm_r$. The instructions are effective for the period beginning with the 0400Z report of November 1, 1945, and ending with the 1600Z report of December 31, 1945.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25, D. C.

SR&F-Hew
(File No. 610.3)

October 15, 1945

CIRCULAR LETTER NO. 78-45
(To all Stations)

Subject: Amendment to Code for Transmission of Icing Data from Mountain Stations.

Reference: Circular Letter No. 3-45 (File 610.3).

Effective with the 0130 EST (0630Z) report of November 1, 1945, the following amendments will become part of the "Code for Transmission of Icing Data from Mountain Stations" (Circular Letter No. 3-45, dated January 8, 1945).

Change No. 1. Attachment, Part I, Page 2, delete present symbol i_1 and its definition and insert the following: I_1 - Intensity of icing, in terms of rate of accumulation of ice (in $g/cm^2/hr.$) on a 3 inch cylindrical exposed object having an assumed air speed of 200 MPH (Code Table 122).

Change No. 2. Attachment, Part I, Page 3, delete Code Table 122 and insert the following code table. (Attached is a reprint of the code table that may be detached and pasted on Circular Letter No. 3-45).

Code Table 122

Symbol I_1 - Intensity of icing in terms of rate of accumulation of ice (in $g/cm^2/hr.$) on a 3 inch cylindrical exposed object having an assumed air speed of 200 MPH.

Code Figure	Intensity of Icing
0	No icing
1	Unknown
2	Trace of rime
3	Trace of clear ice
4	Light rime
5	Light clear ice
6	Moderate rime
7	Moderate clear ice
8	Heavy rime
9	Heavy clear ice

(In this code table the term rime means any form of opaque ice).

(The quantitative limits of the intensity terms used in this table are:

Intensity of Icing	Rate of Accumulation
Trace	Less than 1.00 $g/cm^2/hr.$
Light	From 1.00 to 5.99 $g/cm^2/hr.$
Moderate	From 6.00 to 12.00 $g/cm^2/hr.$
Heavy	Greater than 12.00 $g/cm^2/hr.$

Change No. 3. Attachment, Part I, Code Table 124: Change symbol d_s to d_d.

Change No. 4. Attachment, Part I, Page 4, Example, Decoded: Change "2 - Intensity of icing; from 0.25 to 0.49 in/hr. (i_1, Code Table 122) to read: "2 - Intensity of icing; trace of rime (I_1, Code Table 122).

Change No. 5. Attachment, Part II, Page 6, Code Table 125, change symbol definition to read "I_1 - Intensity of icing in terms of rate of accumulation (in $g/cm^2/hr.$) on a 3 inch cylindrical exposed object having an assumed air speed of 200 MPH.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Attachment

ATTACHMENT
(CIRCULAR LETTER NO. 78-45)

Following is a reprint of Code Table 122 which may be cut out and attached to Circular Letter No. 3-45:

- (Circular Letter No. 78-45)

Code Table 122 (Effective November 1, 1945)

Symbol I_1 - Intensity of icing in terms of rate of accumulation of ice (in g/cm²/hr.) on a 3 inch cylindrical exposed object having an assumed air speed of 200 MPH.

Code Figure	Intensity of Icing
0	No icing
1	Unknown
2	Trace of rime
3	Trace of clear ice
4	Light rime
5	Light clear ice
6	Moderate rime
7	Moderate clear ice
8	Heavy rime
9	Heavy clear ice

(In this code table the term rime means any form of opaque ice).

(The quantitative limits of the intensity terms used in this table are:

Intensity of Icing	Rate of Accumulation
Trace	Less than 1.00 $g/cm^2/hr.$
Light	From 1.00 to 5.99 $g/cm^2/hr.$
Moderate	From 6.00 to 12.00 $g/cm^2/hr.$
Heavy	Greater than 12.00 $g/cm^2/hr.$

- -

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

SR&F:Ja
(File No. 610.3)
(620.11)
(622.5)
(603.51)

October 18, 1945.

CIRCULAR LETTER NO. 79 -45
(To All First Order Stations)

Subject: Uses of UCO (Plain) and Standard UCO Instructions.

1. The Universal Landing Code (UCO) has been provided by international agreement for supplying current or forecast terminal weather conditions to aircraft in flight. Now that weather information may be transmitted in clear, the standard UCO will be UCO (Plain), which consists of the alphabet in normal order applied to successive values or ranges of each element coded. (See attachment.)

2. By recent international agreement, standard instructions for the use of UCO (Plain) have been adopted.

3. UCO (Plain), with the standard instructions, will be used by the Weather Bureau for the benefit of aircraft operating on transoceanic and intercontinental air routes for the following purposes, effective 0001Z, November 1, 1945:-

   a) for routine broadcast of current terminal weather conditions, for one or more designated international terminal stations as required;

   b) in reply to requests from aircraft for current terminal weather conditions in UCO;

   c) in reply to requests from aircraft for forecasts of terminal weather conditions in UCO.

4. Current procedures for furnishing current and forecast terminal weather conditions to aircraft operating on domestic United States routes, Alaskan routes, U. S.-Mexico routes and U.S.-Canada routes will remain unchanged, but Weather Bureau Airport Stations should be prepared to use UCO (Plain) in reply to requests from foreign aircraft for UCO landing weather reports or UCO terminal forecasts.

5. Copies of the UCO (Plain) card and of the standard UCO instructions are enclosed for information. Stations which require a supply for use in flight forecast folders or in preparing reports for routine broadcasts should send requests to the Central Office.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

COMBINED INSTRUCTIONS FOR UNIVERSAL LANDING CODE -- UCO (PLAIN)

I. INTRODUCTION

1. The following instructions for the use of the Universal Landing Code--UCO (PLAIN)--have been adopted by the Combined Meteorological Committee to apply to all areas where UCO (PLAIN) is used. The instructions are divided into two parts, those applying to voice (R/T) transmissions and those applying to C/W (W/T) transmissions.

2. UCO (PLAIN) is the complete UCO card containing all 17 items in the standard UCO order. On the UCO (PLAIN) card the alphabet in normal sequence is entered in all items except items 1 to 4. The values for items 1 to 4 are invariably given in complete figures.

3. A suitable selection of the items will be made, by the Services concerned in each area, for broadcast purposes. Where possible, the UCO (PLAIN) cards for use in those areas should be printed (or marked) so as to indicate clearly those items selected for broadcast.

4. The following instructions determine the forms of the TEXTS of the various types of messages. It is understood that all procedures governing preambles, station identification and endings will be in accordance with the practices required by the signals (communications) authorities of the Services concerned. The TEXTS must be transmitted as laid down hereafter regardless of the nature of the signals appendages (communications procedures) required.

5. There are three basic types of transmission:

a. Broadcasts
b. Request-reply
c. Forecast request-reply

II. VOICE (R/T) TRANSMISSIONS

1. The following general rules apply to voice (R/T) transmissions of UCO (PLAIN):

a. The order of the items will be that given on the UCO card except as modified in b below.

b. The name of each item as given on the UCO card will precede the value of the item except as the optional abbreviations and omissions listed below may apply:

i. Item 1 - QFE

ii. Item 2 - QFF

iii. Item 3 - QFE/ALT

iv. Item 4 - ALTIMETER

v. Items 5 and 7 may be combined under the one heading - CEILING (viz. CEILING TWO THOUSAND FEET SIX TENTHS)

vi. Items 6 and 8 may be combined under the one heading - OTHER CLOUD (viz. OTHER CLOUD EIGHT HUNDRED FEET FOUR TENTHS)

vii. Where item 10 is not given, item 9 may be abbreviated to - VISIBILITY

viii. Items 11 and 12 may be combined under the one heading - WIND (viz. WIND WEST TEN)

ix. Items 14 and 15 may be combined under the one heading - WEATHER (viz. WEATHER INTERMITTENT RAIN) and the word WEATHER may be omitted by regional agreement if no danger of ambiguity exists.

x. Item 16 - TEMPERATURE

xi. Item 17 - DEW POINT DIFFERENCE

c. The exact values of all items will be given in plain language.

Note:

i. Item 1 (QFE) and Item 2 (QFF) will be given (in both voice and C/W) in millibars in all broadcasts and will be given in millibars in request-reply traffic unless specifically requested in some other unit in which case the unit requested will be used in the replies.

ii. Whenever the height value reported for Item 3 (QFE ALT) is negative, the value will be preceded by the word "minus".

d. Item 8 is not reported when a sky condition symbol is reported for item 7. The title SKY CONDITION may be shortened to SKY. (Viz. SKY BROKEN)

2. Broadcasts

a. Standard form (single station)

UCO WEATHER (Time of observation) (Name of station) (Selected item names and values in UCO order) I SAY AGAIN UCO WEATHER (Time of observation) (Name of Station) (Selected item names and values in UCO order)

Example:

UCO WEATHER ONE TWO THREE ZERO ZEBRA NASSAU QUEEN FOX EASY ONE ZERO ONE THREE etc.

Note - When the transmitting station is also the station to which the report refers, the name of the station may be omitted from the text if it appears in the signals preamble.

b. Standard form for collective broadcasts

i. When the reports from all stations appearing in the broadcast are for the same time:

UCO WEATHER (Time of observation) I SAY AGAIN UCO WEATHER (Time of observation) (name of first station) (Selected item names and values) I SAY AGAIN (Name of first station) (Data) (Name of second station) (Selected item names and values) I SAY AGAIN (Name of second station) (Data) (Name of third station) etc.

Example:

UCO WEATHER ONE TWO THREE ZERO ZEBRA I SAY AGAIN UCO WEATHER ONE TWO THREE ZERO ZEBRA
LA GUARDIA ---- etc. ---- I SAY AGAIN
LA GUARDIA ---- etc. ----
PHILADELPHIA ---- etc. ---- I SAY AGAIN
PHILADELPHIA ---- etc. ----
BALTIMORE ---- etc. ----

ii. If there are reports for a different time to be sent, they will be sent in a separate message or in a separate part of the same message headed as follows:

UCO WEATHER (Time of observations in this section) I SAY AGAIN UCO WEATHER (Time again) (Name of first station in this section) (Selected item names and values) I SAY AGAIN (Name of first station) (Data) (Name of second station in this section) etc.

Example:

UCO WEATHER ONE ONE THREE ZERO ZEBRA I SAY AGAIN UCO WEATHER ONE ONE THREE ZERO ZEBRA WASHINGTON ---- etc. ---- I SAY AGAIN
WASHINGTON ---- etc. ----
RICHMOND ---- etc. ----

Note - Examples in bi and bii may be combined but complete UCO WEATHER and time heading of each part will be retained.

Example:

UCO WEATHER ONE TWO THREE ZERO ZEBRA I SAY AGAIN UCO WEATHER ONE TWO THREE ZERO ZEBRA
LA GUARDIA ---- etc. ---- I SAY AGAIN
LA GUARDIA ---- etc. ----
PHILADELPHIA ---- etc. ---- I SAY AGAIN
PHILADELPHIA ---- etc.

BALTIMORE ---- etc. ----
UCO WEATHER ONE ONE THREE ZERO ZEBRA I SAY AGAIN UCO WEATHER ONE ONE THREE ZERO ZEBRA
WASHINGTON ---- etc. ---- I SAY AGAIN
WASHINGTON ---- etc.
RICHMOND ---- etc. ---- I SAY AGAIN
RICHMOND ---- etc. ----

3. Request-Reply

a. Standard form for complete report (i.e. for report in the complete broadcast form in use in that region).

i. Request

REQUEST UCO WEATHER FOR (Station name). (Selection of items 1 to 4 required)

Example:

REQUEST UCO WEATHER FOR NASSAU QUEEN FOX EASY

ii. Reply

UCO WEATHER (Time of observation) (Station name) (Selection of items 1 to 4 required followed by the selection of items 5 to 17 normally included on the broadcast)

Example:

UCO WEATHER ONE TWO THREE ZERO ZEBRA NASSAU QUEEN FOX EASY ONE ZERO ONE THREE etc.

Note - If the station for which the weather is required is the station called, then the station named may be omitted from both request and reply.

b. Standard form for request-reply of selected items

i. Request

REQUEST UCO WEATHER FOR (Station name) (Selection of items required) ONLY

Example:

1. REQUEST UCO WEATHER FOR NASSAU QUEEN FOX EASY VISIBILITY WIND ONLY

2. REQUEST UCO WEATHER FOR NASSAU QUEEN FOX EASY ONLY

Note - The word ONLY is always used in requests for selected items to differentiate from requests for complete report (3a above).

ii. Reply

UCO WEATHER (Time of observation) (Station name) (Items requested)

Example:

UCO WEATHER ONE TWO THREE ZERO ZEBRA NASSAU QUEEN FOX EASY ONE ZERO ONE THREE VISIBILITY etc.

Note - If the station for which the weather is required is the station called, then the station name may be omitted from both request and reply.

4. Forecast Request-Reply

a. Standard Form

i. Request

REQUEST FORECAST UCO WEATHER (Time for which forecast is required) FOR (Name of station) (Selection of items required) ONLY

Example:

REQUEST FORECAST UCO WEATHER ONE SIX ZERO ZEBRA FOR NASSAU ALTIMETER CEILING VISIBILITY WIND WEATHER ONLY

ii. Reply

FORECAST UCO WEATHER (Valid time of forecast) (Name of station) (Selection of items required)

Example:

FORECAST UCO WEATHER ONE SIX ZERO ZERO ZEBRA NASSAU etc.

III. C/W (W/T) TRANSMISSIONS

1. The following general rules apply to C/W (W/T) transmissions of UCO (PLAIN)

a. The order of items will be that given on the UCO card.

b. The number of each item will precede the value of the item. The item numbers will be those given on the UCO card.

c. The actual values of items 1 to 4 will be given in complete figures, values of other items will be given by the appropriate letter from the UCO (PLAIN) card.

Note -

i. Item 1 (QFE) and Item 2 (QFF) will be given (in both voice

and C/W) in millibars in all broadcasts and will be given in millibars in request-reply traffic unless specifically requested in some other unit in which case the unit requested will be used in the replies.

ii. Whenever the height value reported for Item 3 (QFE ALT) is negative, the value will be preceded by the word "minus".

d. Break signs (=) ($\overline{BT}$) will precede and follow the text of the message, if necessary, to separate the text from signals (communications) preamble and ending.

e. Item 8 is not reported when a sky condition symbol is reported for item 7.

f. UCOP will be written and transmitted as one group to avoid any confusion with the priority designator P.

2. Broadcasts

a. Standard form for single station

= UCOP (Time of observation) (Call sign of station) (Selected item numbers and values in accordance with 1 above) $\overline{IMI}$ UCOP (Time of observation) etc. =

Example:

= UCOP 1230Z VR5 1 1013 4 2998 5R 7J etc. $\overline{IMI}$ UCOP 1230Z VR5 etc.=

Note - If the report refers to the transmitting station, the call sign may be omitted from the text if it is contained in the preamble.

b. Standard form for collective broadcasts

i. When the reports from all stations appearing in the broadcast are for the same time

=UCOP (Time of observation) $\overline{IMI}$ UCOP (Time of observation)= (Call sign of first station) (Selected items for first station) $\overline{IMI}$ (Call sign of first station) etc.=

Example:

= UCOP 1230Z $\overline{IMI}$ UCOP 1230Z=
VR5 1 1013 etc. $\overline{IMI}$ VR5 etc. =
9C5 1 998 etc. $\overline{IMI}$ 9C5 etc. =

ii. If there are reports for a different time to be sent, they will be sent in a separate message or in a separate part of the same message headed as follows:

= UCOP (Time of observations in this section) IMI UCOP (Time again) = (Call sign of first station in this section) (Selected items) IMI (Call sign of first station) (Items) = etc. =

Example:

= UCOP 1130Z IMI UCOP 1130Z =
LG 1 998 etc. IMI LG 1 998 etc. =
PG 1 1002 etc. IMI PG 1 1002 etc. =
etc.

Note - Examples in bi and bii may be combined but complete UCOP and time heading of each part will be retained.

Example:

= UCOP 1230Z IMI UCOP 1230Z=
VR5 1 1013 ---- etc. ---- IMI VR 5 ---- etc. ---- =.
9C5 1 998 ---- etc. ---- IMI 9C5 ---- etc. ---- =
UCOP 1130Z IMI UCOP 1130Z =
LG 1 998 ---- etc. ---- IMI LG ---- etc. ---- =
PG 1 1003 ---- etc. ---- IMI PG ---- etc. ---- =.

3. Request-Reply

a. Standard form for complete report (i.e. for report in the complete broadcast form in use in that region).

i. Request

= (INT) UCOP (Station call sign) (Selection of items 1 to 4 required =

Example:

= INT UCOP VR5 4 =

Note - The use of INT is optional but preferred.

ii. Reply

= UCOP (Time of observation) (Station call sign) (Selection of items 1 to 4 requested followed by the selection of items 5 to 17 normally included in the broadcast) =

Example:

= UCOP VR5 1230Z 4 2998 5R etc. =

Note - If the station for which the weather is required is the station called, then the station name may be omitted from both request and reply.

b. Standard form for request-reply of selected items

i. Request

= (INT) UCOP (Call sign of station) (Selection of items desired) ONLY =

Example:

= INT UCOP VR5 4 5 9 ONLY =

Notes - The use of INT is optional but preferred. The word ONLY is used to differentiate between requests for complete reports (3 a above) and requests for selected items.

ii. Reply

= UCOP (Time of observation) (Call sign of station) (Selection of items requested) =

Example:

= UCOP 1230Z VR5 4 2998 5J 9C =

Note - If the station for which the weather is required is the station called, then the station name may be omitted from both request and reply.

4. Forecast Request-Reply

a. Standard form

i. Request

= (FORECAST) / (INT QFZ) UCOP (Time for which forecast is required) (Call sign of station) (Numbers of items desired) =

Example:

= INT QFZ UCOP 1600Z VR5 4 5 9 =

Note - The word FORECAST may be used instead of INT QFZ.

ii. Reply

- (FORECAST) / (QFZ) UCOP (Valid time of forecast) (Call sign of station) (Selection of items requested) =

Example:

= QFZ UCOP 1600Z VR5 4 2998 5J 9C =

Notes - If the station for which the weather is required is the station called, then the station name may be omitted from both request and reply.

The word FORECAST may be used in place of QFZ.

IV. INSTRUCTIONS TO W/T OPERATORS

1. The figure-letter combinations 5J etc. will be sent as one group.

2. Short symbols or abbreviated procedures are not to be employed - in particular short zeros and short break signs must not be used.

Item No.			
1		QFE (pressure at airfield level) in millibars	**PRESSURE** QFE and QFF will be given to the nearest whole millibar. The complete number will be sent, e.g., 1013 millibars will be transmitted as 1013, and 987 millibars will be transmitted as 987.
2		QFF (pressure at sea level) in millibars	
3		QFE ALT (height recorded by Altimeter on landing if sub scale set at 1013·2 mb.) in feet	QFE ALT will be given to the nearest foot.
4		ALTIMETER SETTING in inches.	ALTIMETER SETTING will be given to the nearest hundredth of an inch. The complete number will be sent, e.g., 29.86 in. will be transmitted as 2986.

		0	100	200	300	400	500	600	800	1000	1200	1600	2000	3000	4000	5000	6000	8000	Unlimited 10,000	15,000 or more	None
	CLOUD BASE (feet above airfield)																				
5	"CEILING" (lowest height where clouds cover more than half sky)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
6	OTHER CLOUD (either above or below ceiling)	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

		Nil	1/10	2/10	3/10	4/10	5/10	6/10	7/10	8/10	9/10	10/10	Sky obscured	SKY CONDITION ⦶	⦷	⊕	⊕⦷	⦷⦷	⦶⦷	⊕⦶	⦷⦶
	CLOUD AMOUNT																				
7	Ceiling Cloud (Item 5) ..	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
8	*Other Cloud (Item 6) ..	A	B	C	D	E	F	G	H	I	J	K	L	*Item No. 8 is not reported when a sky condition symbol is used to report Item 7							

	VISIBILITY	yards ..	0	100	200	300	400	600	800	1000	1200										
		miles ..	0	1/16	1/8	3/16	1/4	5/16	1/2	5/8	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4	6	8	12	30 or more
9	Land		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
10	Sea		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

		Calm	N	NNE	NE	ENE	E	ESE	SE	SSE	S	SSW	SW	WSW	W	WNW	NW	NNW	Variable	Unknown
	WIND DIRECTION																			
11	At Surface	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S

		0	5	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90 or more	Unknown
	WIND SPEED (m.p.h.) ..																				
12	Mean speed at surface ..	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
13	Gust speed at surface	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

		0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
14	WEATHER	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
		20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39
15	REMARKS	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

16	TEMPERATURE °F .. .. at Surface	0 / 100	10 / 110	15 / 115	20 / 120	25 / 125	28	30	31	32	33	35 / −65	40 / −60	45 / −55	50 / −50	55 / −45	60 / −40	65 / −35	70 / −30	80 / −20	90 / −10
		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T

		0	1	2	3	4	5	6	7	8	9	10	12	15	20 or more
17	DEW POINT DIFFERENCE °F	A	B	C	D	E	F	G	H	I	J	K	L	M	N

SKY CONDITION

NIL = Clear (less than 1 tenth).
⦶ = Scattered (1 to 5 tenths).
⦷ = Broken (6 to 9 tenths).
⊕ = Overcast (over 9 tenths).
⊕⦷ = Overcast, lower broken.
⦷⦷ = Broken, lower broken.
⦶⦷ = Scattered, lower broken.
⊕⦶ = Overcast, lower scattered.
⦷⦶ = Broken, lower scattered.

WEATHER

0 or A = Clear (no clouds).
1 B = Sctd., brkn., or overcast.
2 C = Ground fog.
3 D = Haze (of smoke or dust).
4 E = Blowing snow.
5 F = Blowing dust or sand.
6 G = Duststorm or sandstorm.
7 H = Fog in patches.
8 I = Fog.
9 J = Drizzle.
10 K = Rain.
11 L = Rain and snow mixed.
12 M = Ice pellets.
13 N = Snow.
14 O = Rain showers.
15 P = Snow showers.
16 Q = Hail.
17 R = Freezing rain.
18 S = Thunderstorm near station.
19 T = Thunderstorm over station.

REMARKS

20 or A = No remarks.
21 B = Variable.
22 C = Improving.
23 D = Deteriorating.
24 E = Heavy, severe, or dense.
25 F = Intermittent.
26 G = Ceiling (cloud base).
27 H = Visibility.
28 I = Precipitation.
29 J = Icing in cloud.
30 K = Lightning.
31 L = Thunderheads.
32 M = Occ'l. breaks in overcast.
33 N = Gusts.
34 O = Pass closed.
35 P = Mountain tops obscured.
36 Q = To North.
37 R = To East.
38 S = To South.
39 T = To West.

A = Able.
B = Baker.
C = Charlie.
D = Dog.
E = Easy
F = Fox.
G = George
H = How.
I = Item.
J = Jig.
K = King.
L = Love.
M = Mike.
N = Nan.
O = Oboe.
P = Peter.
Q = Queen.
R = Roger.
S = Sugar.
T = Tare.
U = Uncle.
V = Victor.
W = William
X = X ray.
Y = Yoke.
Z = Zebra.

Make sure you obtain a UCO (PLAIN) card before take-off.
Get from the Meteorological Office a forecast for the route, a general idea of the weather situation and an estimate of the terminal QFE, QFF, QFE ALT., or ALTIMETER setting, whichever is to be used.

HOW TO REQUEST A LANDING REPORT

(i) Call ground station in the usual way.

(ii) Ask for weather report by transmitting code word "UCO". Note.--On certain routes the terminal stations broadcast landing reports at fixed times in UCO (Broadcast). On these routes UCO (Request) cards are provided, as a means of obtaining supplementary information if this is considered necessary.

(iii) State what pressure is required by transmitting one of the following:--
"QFE" -- if station level pressure in whole millibars is required (QFE = pressure setting for Altimeter to read zero on landing).
"QFF" -- if sea level pressure in whole millibars is required (QFF = pressure at mean sea level).
"QFE ALT" -- if QFE ALT procedure is to be used (QFE Alt = height recorded by Altimeter on landing if sub-scale set at 1013.2 millibars).
"ALTIMETER" -- if landing pressure in hundredths of inches is required (Altimeter = pressure setting for Altimeter to read airfield height on landing.

(iv) Example of message by R/T or W/T requesting weather report from ground station:--

UCO QFE

In reply to this message the ground station will send a full weather report giving in this case station level pressure in millibars since this was the pressure requested in the example.

(v) If, however, only certain selected items of weather are needed (as opposed to a complete report) state the items required immediately after the code word and indicator groups.

(a) If by R/T --
Name the items.

Example: -- UCO QFF Cloud Base, Visibility.

(b) If by W/T --
Quote the item numbers from the extreme left-hand column.

Example: -- If QFF, Cloud Base and Visibility are required, transmit: --

UCO Items 2, 5 and 9.

(vi) FORECASTS
Unless a forecast is specifically requested the ground station will report present weather. If a forecast is wanted add to your request the word "Forecast" and the time and call sign of the place for which the forecast is required.

Example: -- UCO Forecast Items 5 and 9 at 1430 at ABC; i.e. -- "Send me forecast of Cloud Base and Visibility at 1430 hours at Thrums".

REPLY BY GROUND STATION

(i) By R/T
The ground station will name each item and give the appropriate code letter or letters.

By W/T
The ground station will give the item number from the extreme left-hand column, followed by the appropriate code letter or letters.

(ii) First write message in space provided. Then tick off the code letter given for each item. The actual value of the item will be found above the code letter given.

(iii) The station level pressure or sea level pressure will be given in whole numbers.

(iv) The value of all items other than pressure will be represented by one code letter.

BROADCAST

The broadcast will normally contain items, 1,4,5,6,7,8,9,11 and 12. For CW broadcasts the value of the item will be preceded by the item number. For voice broadcasts the value of the item will be preceded by either the name or the item number.

BRARY

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Ko

October 22, 1945.

(File No. 622.1)
(621.5)
(622.5)

CIRCULAR LETTER NO. 80-45
(To All Stations)

Subject: Increased Responsibility for Service this Winter.

The subject of winter service has been covered in Circular Letter No. 72-44 and instructions referenced therein. All Weather Bureau personnel appreciate the vital need for an adequate and efficient warning service and will be on the alert again this winter to assure that so far as possible all weather situations requiring measures for the protection of life or property, including crops and livestock, are covered by timely and effective warnings. Existing instructions call for transmission of warnings at government expense to radio stations in affected areas and complete distribution by this means as the individual situation requires.

There are several types of service recently developed that can be further intensified. (1) Use of police and highway department radio and teletype networks for distribution of warnings (Topics & Personnel December 1944); (2) Arrangements for warning service to school bus drivers (Topics & Personnel October 1944); and (3) Issue and distribution by radio and otherwise of warnings regarding dangerous highway conditions, including "safety tips" to drivers.

It has been suggested by the Safe Winter Driving League that the Weather Bureau is in a position to render service of much value not only by broadcasting warnings of weather and road conditions dangerous to motorists but also by including in such warnings brief safety advices. Examples are, advices to motorists to check windshield wipers, lights, tire chains and brakes, and to drive carefully and maintain a safe distance behind the car ahead. The League has agreed to furnish a variety of sample safety messages and a pamphlet on safe driving that will be helpful and suggestive in connection with this type of service. When copies of this material are received from the Safe Winter Driving League, they will be distributed to Weather Bureau offices for information and possible adaptation to broadcast purposes.

Severe winter conditions are not far away. All instructions for issue of warnings should be reviewed, distribution lists carefully checked, and forms and blanks made ready. Details regarding direct distribution of warnings by wire to radio stations and Weather Bureau offices in affected areas should be worked out in advance by forecast centers to guard against any possibility of failure. This direct distribution should be carried out regardless of general dissemination over press association wire or transmission on Service "C". Unless we do this we have no assurance that the warnings will receive the distribution that the public interest requires.

F. W. Reichelderfer.

F. W. Reichelderfer.
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 080)
(200)

October 22, 1945

CIRCULAR LETTER NO. 81-45
(To All First Order Stations)

Subject: Station Records (Forms 1418, 1419, and 1420)

Recent delegation of authority to Regional Offices in fiscal and allotment administration and attendant modification of station allotment and purchase procedures necessitates revision of "Station Records".

Hereafter station officials will no longer be required to maintain Form 1419, "Station Record - Fiscal Allotments" and Form 1420, "Station Record - Special Letters of Authority and Purchase Orders". The "Station Record of Vouchers" (Form 1418) will be kept as heretofore, except entries in extreme right hand column will be discontinued since station allotments are no longer made. Also, the column headed "Passed for Payment" may be disregarded since station officials no longer receive the information required for making entries in this column.

F. W. Reichelderfer,
Chief of Bureau.

U. S. WEATHER BUREAU
Washington, D. C.

RESTRICTED

October 24, 1945.

Chief-Pi
(File No. 620.01)

CIRCULAR LETTER NO. 82-45

Subject: Release of Information on Forecast Verifications.

From time to time Weather Bureau Offices receive requests for information about the verification scores of Weather Bureau forecasts. In some cases the information is wanted for publication. Because of the wide variety of systems of verification used by various official and private meteorological agencies, release of information on the subject may lead to misinterpretation unless there is proper coordination. Therefore no information about the verification scores of Weather Bureau forecasts will be released for public dissemination except by the Central Office over the signature of the Chief of Bureau. After information has been released by the Central Office it may be quoted by field offices for public and press without further authorization.

The importance of coordination is shown by instances where verification figures have been used by private interests to mislead the public and to claim superiority of private forecasts by using a much more lenient verification system than that used by the Bureau. Careful examination has shown that in most instances the claims were unfounded and the forecasts were less reliable than Weather Bureau forecasts.

F. W. Reichelderfer,

F. W. Reichelderfer,
Chief of Bureau.

LIBRARY

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

Opr:Do
(File No. 140.2)

October 25, 1945

CIRCULAR LETTER NO. 83-45
(To all First - Order Stations)

Subject: Information for candidates for Ocean Weather assignments.

Effective October 1, 1945, Weather Bureau personnel assigned to the Ocean Weather Project will no longer be enrolled in the Coast Guard Temporary Reserve. Employees hereafter scheduled for transfer to Patrol duty will have to bring sufficient clothing with them to compensate for the uniforms previously furnished by the Coast Guard. It has been suggested that employees bring at least one business suit and three or four suits of work clothes, preferably khaki. Business suits are satisfactory for work.

Observers reporting to Boston for Ocean Weather duty should be prepared for an extended absence from Boston since present ship schedules may require them to be away for a minimum of twenty-five days or a maximum of several months.

Candidates for the Ocean Weather Project are urgently needed and any employee interested in Patrol duty should forward his application to the Central Office through the Regional Director marked for the attention of the Station Operations Division. Further information concerning grades, salaries, etc., may be found in Circular Letter 96-44.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChfAdm-Go

(File No. 080.04)

October 25, 1945

CIRCULAR LETTER NO. 84-45
(First Order Stations)

Subject: Observance of Holidays Falling on Sunday
Reference: Executive Order 9636

Whenever the first day of January, the twenty-second of February, the thirtieth of May, the fourth of July, the eleventh of November, or the twenty-fifth of December falls on a Sunday, the following Monday will be observed as a holiday, and staffing for operation of Weather Bureau services will be reduced to the minimum consistent with public requirements.

In administering the provisions of this law relating to pay and leave of absence, the Monday will be treated as a holiday except as follows: (a) In the case of employees whose regularly scheduled basic work week includes both the Sunday and the Monday referred to above, either day, but not both days, will be treated as a holiday; (b) In the case of employees whose regularly scheduled work week includes Sunday as a work day but not the Monday referred to above, only the Sunday will be treated as a holiday.

In applying exception "a", the official in charge or responsible supervisor will determine which of the two days, Sunday or Monday, will be treated as the holiday, and time and attendance reports will clearly indicate any hours that are properly subject to increased rate of compensation for holiday duty.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE

WEATHER BUREAU
Washington 25

Pers.-Ma.
(File No. 110.3)

November 6, 1945

CIRCULAR LETTER NO. 85-45
(To All Stations)

Subject: Policy on Reemployment of Veterans

The enclosed memorandum from the Director of Personnel, Department of Commerce is an expression of Departmental policy with respect to the restoration to duty of department employees on military furlough and is distributed so that all employees of the Bureau may become conversant with it. A later communication from the Department called attention to the last paragraph of the memorandum and discussed it as follows:

> "The paragraph does not mean that vacancies are to be 'Frozen' for returning veterans. It is intended as a reminder that most appointments, save in certain exceptions, must be War Service Indefinite appointments. In this connection, attention is invited to the recent change in policy of the Civil Service Commission, whereby arrangements can be made for giving permanent status to disabled veterans."

Action will be taken to assign an employee, preferably an experienced meteorologist returning from military service, in each Regional Office to devote his full-time to dealing with returning veterans. In the meantime, actions for restoration to duty of Weather Bureau employees returning from military furlough must be given all possible priority since restoration in such cases must be effected within 30 days after the veteran files his application for restoration.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Enc.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT/THE/B1
(File No. 400)
(080)

November 16, 1945

CIRCULAR LETTER NO. 86-45
(To all First Order Stations)

Subject: National Salvage Program - Old Scrap Metal.

Reference: Circular Letter No. 7-44 dated January 13, 1944.

The last paragraph of the referenced circular letter; requiring field stations to report to the Central Office the disposition of old scrap metal, to whom transferred, and the estimated cost; is hereby rescinded.

The procedure for disposing of accumulated old scrap metal is otherwise unchanged.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington, 25, D. C.

C&CW:mlh
(File No. 724.2)
(610)
(602)

November 20, 1945

CIRCULAR LETTER NO. 87-45
(To All First-Order Stations)

Subject: Resumption of Snow and Ice Bulletin

Snow and ice reports for the "Weekly Weather and Crop Bulletin" will begin this year with those for the 7:30 p.m. observation, Monday, December 17, 1945.

Stations that forwarded reports last year either by special message or by adding snow depth or ice code groups to their weekly means message will resume such reports based on the 7:30 p.m. observation, Monday, December 17, 1945. Coding will be in accordance with the "Instructions for Computing and Coding Weekly and Monthly Mean Temperatures, Total Precipitation, Degree Days and Snow and Ice Data, effective September 1, 1944". Reference is also made to Circular Letter No. 20-45 "Transmission of Weekly and Monthly Mean Data on Schedule C". The absence of the snow group will be taken to indicate bare ground and of the ice group that there is not sufficient amount to warrant telegraphing.

Section centers and other collecting points will arrange for opening service under the same conditions as last year. The composite message should reach the Central Office as soon as conveniently possible on Tuesday a.m., beginning December 18, 1945. A report, showing the stations number or order in the telegram, the elevation of each, and their positions plotted on a map, should be submitted by December 10. 1945. It is also desired that rivers, bays, harbors, etc., in which ice measurements are made be given.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:S
(File No. 712.1)

November 26, 1945

CIRCULAR LETTER NO. 88-45
(To All First-Order Stations)

Subject: Army Publication "Weather Station Handbook for the Observer".

All first-order stations are being furnished one copy of the restricted Army publication TM 1-235, "Weather Station Handbook for the Observer".

Since this publication and Circular N deal with common problems in observational meteorology, it is believed that observing personnel will profit from a knowledge of the approach to these problems as described in the handbook. It will be understood that the handbook is furnished for information only, and the instructions and directives in it do not modify, in any way, Weather Bureau instructions contained in Circular N and other operational circulars.

F. W. Reichelderfer.

F. W. Reichelderfer,
Chief of Bureau.

U. S. DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington, 25, D. C.

C&CW:mlh
(File No. 740.4)
(601)
(903.1)

November 30, 1945.

CIRCULAR LETTER NO. 89-45
(To All First-Order Stations)

Subject: New Sunshine Tables.

Enclosed is the recent official publication entitled "Tables of Sunrise, Sunset and Twilight" by the United States Naval Observatory and two sets of blank cards for the preparation of new station sunshine tables at those stations having sunshine recorders.

It is desired that at each station sunshine tables be prepared in duplicate in accordance with the instructions and material contained in this publication. One set of tables is to be retained at the station and the other forwarded to the Central Office, "Attention C&CW Division". The arrangement of data on the cards will be the same as on those now in use at the station. The tables should be completed in time to be used in the regular station work, beginning January 1, 1946.

In the States, the times of sunrise and sunset can be satisfactorily obtained by applying the correction for conversion to Standard Time and by interpolating for the decimal part of a degree of latitude. (See pages 12 to 15.) The margin of error in the sunrise and sunset tables prepared in accordance with the above will be about one minute for all years at stations which do not have important local irregularities in horizon that affect the actual time of appearance and disappearance of the sun.

At Alaskan stations, in addition to the procedure outlined above, it will be necessary to use the "Reduction to a Particular Longitude and Year by Table IV". (See pages 15, 16 and 188.)

It is realized that it will not be possible at most stations to prepare the complete sunshine tables by January 1, 1946. However, the table for January should be prepared before that date and a copy should be forwarded to the Central Office, "Attention C&CW Division", for checking. If errors are found the station will be advised. Copies of tables for the remainder of the year should be forwarded as soon as practicable, and in any case, not later than April 1, 1946.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

Pers.-Ma.
(File No. 102.4)

December 4, 1945.

CIRCULAR LETTER NO. 90-45
(To all Stations)

Subject: Administrative work week for official hours of duty.

On October 10, 1945 the Secretary of Commerce issued Order No. 383, Amendment No. 1, amending Section 5 of Order No. 383 dated August 28, 1945. To conform therewith, the fourth paragraph on page 2 of Circular Letter No. 65-45 is hereby amended to read as follows:

"In connection with night shift overlapping 12 O'clock midnight, the Department has issued the following instructions: 'For the purpose of computing the total work hours within a given administrative work week and for other administrative purposes, the actual hours of duty performed on any night shift overlapping 12 O'clock midnight may be credited either to the day on which the shift begins or to the day on which the shift ends, provided however that such hours shall be consistently credited either to the day on which the shift begins or to the day on which the shift ends for the entire period during which any individual employee works the shift, provided however that nothing herein shall be construed to affect the payment of night differential for work performed between the hours of 6:00 p.m. and 6:00 a.m.'"

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

December 5, 1945

Opr/P1
(File No. 604)
(500.1)
(601.4)

CIRCULAR LETTER NO. 91-45
(To all First-Order Stations)

Subject: Atlantic Weather Patrol

The Atlantic Weather Patrol project is no longer classified and the positions of the ocean weather stations are given for the information of all offices. The locations indicated are either already effective or will become effective as soon as possible. Weather vessels on station will usually remain within a five-mile radius of the position given for the station. However, these vessels are used for rescue operations and therefore occasionally they may be some distance from their normal positions. Scheduled observations are also made while the ships are enroute to and from their assigned positions. The coded weather reports give the latitude and longitude at the time of observation. Scheduled observations from weather ships include 3-hourly surface, 4-daily pibals and twice-daily raobs.

Station Number	Position	Remarks
1	Discontinued	
2	60° 30' N, 33° 00' W	No change
3	55° 30' N, 44° 00' W	No change
4	51° 45' N, 35° 30' W	Changed location
5	Discontinued	
6	44° 30' N, 46° 00' W	No change
7	40° 00' N, 37° 00' W	Changed location
8	34° 00' N, 52° 00' W	No change
9	Discontinued	
10	33° 15' N, 70° 00' W	Changed location
11	Discontinued	
12	01° 05' N, 30° 10' W	New location
13	07° 05' S, 24° 40' W	New location
14	Not assigned	
15	Not assigned	
16	60° 40' N, 13° 40' W	No change (British)
17	53° 50' N, 18° 38' W	No change (British)
18	45° 00' N, 11° 30' W	No change (British)
19	41° 30' N, 18° 30' W	No change (British)
20	35° 20' N, 16° 10' W	No change (British)
21	08° 00' N, 23° 50' W	New location (British)
22	01° 40' S, 11° 05' W	New location (British)

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT/JJD./BI
(File No. 400)

December 5, 1945

CIRCULAR LETTER NO. 92-45
(To all First Order Stations)

Subject: Disposition of Surplus Property

Surplus Property Board Regulation No. 9, Paragraph 8309.16 (copy attached) authorizes the disposition of surplus property, the value of which does not exceed $300 at any one location at any one time, by the owning agency. To conform to this regulation, the property regulations governing the reporting and disposition of surpluses, either serviceable or unserviceable, are hereby amended and revised, as follows:

Surplus and unserviceable property shall be reported on Department Stock Form 3, Survey of Public Property. The station declaring the property surplus shall prepare an original and four copies of this form, entering thereon the following information:

1. A complete description of the property
2. Property and serial numbers
3. Property Card Value
4. Date of acquisition
5. Appropriation from which purchased
6. Condition

The declaring station shall retain one copy of Form 3 and forward the original and three copies to the Regional Office.

Where surpluses can be utilized within a region, the Regional Director shall authorize the transfer to the location where the property is required. Printing equipment shall not be transferred or disposed of without approval of the Central Office. Where surpluses are not required within a region, the Regional Director shall endorse the first line under the section headed, "Report of Survey", Stock Form 3, retain one copy, and forward the original and two copies to the Materiel Section, Central Office. After approval of action by the Department of Commerce, the Regional Office will be advised as to the disposition on WB Form 2004, Authority to Dispose of Property. The original of this form will be forwarded to the Regional Office and a copy furnished to the declaring station. The Central Office (Materiel Section) will issue the authorization for disposal and the procedure will be as follows:

1. Property of no value will be disposed of by scrapping or other means.

2. Property reports where the total value is not in excess of $300 will be disposed of in accordance with Surplus Property Administration Regulation No. 9, as follows:

   (a) Invitations (cash offers) shall be issued for the sale of surplus property on Standard Bid Form 33. Three or more bids should be invited and notice posted in public places. The specification should be headed: "Cash offers are invited for:" The articles to be sold shall be listed by items or "For the lot" whichever wording is more appropriate or applicable for the articles to be sold. If the articles are unrelated it would be advisable to list them by item number to insure the highest offers from one or more bidders. The descriptions furnished should be complete to enable the prospective bidder to properly evaluate the goods to be sold. Also, the condition of the articles "new", "needs repairs", etc., should be indicated in the specifications. Prospective bidders should be informed that goods may be inspected at _____
   between _____
   (naming hours and days) not including Saturdays.
   The bid most advantageous to the Government, (highest offer received) meeting the specifications, should be recomended for acceptance. The papers should then be forwarded to the Central Office through the Regional Office for action.

   (b) The attached sample bid Form 33, is furnished for your information and guidance in setting up specification for cash offers. After the property has been disposed of, an original and three copies of Weather Bureau Form 2005 shall be prepared; the station shall retain one copy and forward the original and two copies, with check or money order attached thereto, to the Regional Office; the Regional Director shall retain one copy, endorse the original and remaining copy and forward both to the Fiscal Section, Central Office; the Fiscal Section will retain the original and the check or money order, note the receipt of payment on the remaining copy which will be forward to the Materiel Section, Central Office. The Materiel Section will prepare WB Form 2055, Authority to Drop Property; forward the original to the station charged with the property; and furnish one copy to the Regional Office.

3. Property reports, where the total value exceeds $300, will be submitted by the Materiel Section, Central Office, to the Surplus Property Disposal Agency on SPB-1, Declaration of Surplus Personal Property, copies will be forwarded to the Regional Office and the declaring station. This Form SPB-1 shall be the authority for the station to release the property to the disposal agency, or its authorized representative. Stations will be advised by the disposal agency as to the manner of disposition and any instructions issued by such disposal agency shall be carried out. After the property has been disposed of a re-

port shall be made on WB Form 2005, Report of Disposition of Property, forwarding the original and one copy, to the Regional Office; the Regional Office shall detach one copy, endorse and forward the original to the Materiel Section, Central Office. The Materiel Section will prepare WB Form 2055, Authority to Drop Property; forward the original to the declaring station; and furnish one copy to the Regional Office.

Property once declared surplus must not again be placed in service without immediately notifying the Central Office in order that action may be taken to withdraw such property from the list already on file with the Surplus Property Agencies.

Reports of surpluses shall be checked against the Regional property records, to insure accuracy of property numbers and description. A note should be entered on the cards to the effect that the property is being reported surplus in order to prevent a duplicate report and withdrawal of the property without notifying the Central Office.

Regulations governing the reporting and dispositions of surplus or unserviceable property as issued in Circular letter 52-43, dated May 27, 1943 and Circular Letter 12-44, dated Feb. 2, 1944 are hereby amended.

F. W. Reichelderfer

F. W. Reichelderfer
Chief of Bureau

SURPLUS PROPERTY ADMINISTRATION
REGULATION NO.9

Subject: Disposals by OWNING AGENCIES

8309.16 Sale of small lots. (a) The Administrator believes that the cost of care, handling and disposition of small lots of property will generally exceed the proceeds of sale, and that small lots should therefore, in accordance with sections 13 (b) of the act, be disposed of by owning agencies rather than declared to disposal agencies as surplus. It is recognized that the definition of what constitutes a small lot and the cost of care, handling, and disposition will vary according to the nature of the property. Therefore, the Administrator may from time to time issue orders hereunder setting forth standards to be applied and procedures to be followed in connection with small lots of various classes of property.

(b) Except as specified in any order issued under paragraph (a) of this section, any owning agency is authorized to sell at the best price obtainable any item or group of items of property in its possession which the owning agency determines to be substantially similar when the cost (estimated if not known) of all such items available at any one location at any one time does not exceed $300. Small lots should be disposed of by owning agencies under this section to the fullest extent possible. Notwithstanding the foregoing, if, in the opinion of a disposal agency, such disposition of small lots of any given type of property interferes with the orderly marketing of such type of property by it, such agency may direct the owning agencies to cease sales of such property and to report such property as surplus pursuant to the act.

Cash Offers are invited for:

One (1) Machine, Elliott, addressing, #70401, (used); and five (5) Trays, stencil metal, for use with Elliott Addressing Machine, (used).

For the lot: - - - - - - - - - - - - - - - - $ _____

Prospective purchaser can inspect the addressing machine and trays at the following address:

Printing Section
U. S. Weather Bureau
24th and M Streets
Washington 25, D. C.

between the hours of 8:30 A.M. and 5:00 P.M. from Monday through Friday, November 5-9, 1945.

Above to be turned over to the successful purchaser,"as is," at the Weather Bureau, address listed above without additional cost to the Government.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

MAT/JJD/ BI
(File No. 401)

December 5, 1945

CIRCULAR LETTER NO. 93-45
(To all First Order Stations)

Subject: Loss of Government property.

During the war period there has been a marked increase in the number of cases of property reported lost, with consequent requests for adjustment of accountability. All employees are responsible for safeguarding Government property entrusted to their custody. In order that employees may fulfill their responsibilities it is necessary that all be continuously mindful of requirements for protection and care of Government property made available for their use.

Authority to drop lost or damaged property from official property records requires approval of the Department of Commerce. To obtain this approval it is necessary that the Bureau furnish full justification supporting the request to drop the property. A mere statement to the effect that property has been lost or has probably been stolen is not acceptable. The explanatory statement must give information regarding: (1) The measures taken to safeguard the property at all times, (2) The circumstances under which the property was lost or damaged, and (3) What efforts were made to retrieve the property by reporting the loss to the Federal Bureau of Investigation, Police Department, or other authorized agency of law enforcement.

Items of a personal nature issued for use of employees should be held accountable and the user required to execute an individual receipt therefore. These items are:

Bottles, thermos
Cameras and other photographic equipment or accessories
Radios, portable
Watches, stop
Pens, fountain
Skis
Tapes, steel
Cases, brief
Compasses, magnetic
Glasses, reading or magnifying, binocular
Fountain pen sets, desk
Bicycles
Drawing & lettering sets
Slide rules
Gloves, rubber
Typewriter, portable

The employee using special items of property should be impressed with the importance of safeguarding the articles against loss and damage at all times, and be advised that he may be personally charged with their value if lost through negligence on his part.

In order to avoid loss of property the following actions are recommended:

(1) Make periodic check on accountable property, with careful inspection of storerooms and offices. (Such checks should be made quarterly, or at least semi-annually)

(2) Give increased attention to lock and key protection of property during unofficial hours, or when employees may be engaged in official duties outside their offices.

(3) Institute personal accountability, with periodic report from individuals who have receipted for special items that are most liable to loss by careless handling or theft.

(4) Take actual physical inventories in preparing annual property reports. (Copying of card records or inventory lists should not be permitted and investigation should be made at once upon discovery of a discrepancey in physical inventory. Any loss should be reported promptly with statement of steps taken to recover.)

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
WASHINGTON 25

SR&F-Hew
(File No. 600)
(046.0)
(610)

CIRCULAR LETTER NO. 94-45
(To All Stations)

December 5, 1945

Subject: RAREP Reports.

Certain Army stations in the United States now have radar equipment which is used to locate thunderstorms in the vicinity of the station. Their simplified explanation of the method states that directional impulses are originated at the station and the reflection or "echo" is recorded. A measurement of the time interval permits calculation of the distance of the source of the echo and the directional beam gives its location.

The following information is quoted from an Army publication: -

"Intensity and Range. The intensity of the echo received from a source of precipitation decreases as the range of the source increases. The attenuation factor has a value between the square and the fourth power of the range, depending upon the size of the source relative to the cross-section of the radar beam. An estimate of the intensity of a storm can usually be made from the range and intensity of the echo received from it, but extensive correlations between simultaneous weather and radar observations for the particular type of set are required in order to do so. Correlations which have been established between simultaneous radar and weather observations indicate that light rain showers can be detected only at short ranges and that the percentage of echoes which prove to be received from thunderstorms increases with (*) increasing range. It can be said, in general, that the sources of (*) strong radar echoes offer extreme hazards to aircraft and should be avoided. If the horizon is unobstructed, the absence of precipitation echoes within the effective range of the set may be taken as evidence of the absence of thunderstorms and heavy showers.

"Applications of Radar Storm Detection. Information obtained from storm detection radar sets can be used for the following purposes:

a. To guide aircraft in flight around thunderstorms and showers.

b. To provide a chart showing the locations of convective disturbances which may close airfields in the vicinity so that local flight plans may be more carefully controlled.

c. To give warning of the approach of violent storms so that precautionary measures can be taken to avoid damage to aircraft on the ground.

d. To furnish additional synoptic weather data for the use of forecasters. Since weather observing stations are sparsely distributed, local precipitation areas may escape detection unless radar observations are made. The amount of activity (*) detected by radar is an indication of the extent of convective activity in a given air mass.

e. To furnish precise data on the development, dissipation, movement, and horizontal extent of precipitation areas for use in the study of the structure and formation of thunderstorms and showers and for meteorological research in general."

Arrangements have been made at a few locations, and probably will be extended, for the transmission of RAREP reports on the teletype, either as separate reports or as additional remarks in the hourly reports. The RAREP message will be a brief plain language report giving the direction, range, and intensity of the echo or group of echoes.

Examples of RAREP messages:

a. RAREP GRP MDT ECHOES 30 MI NW MOVG ENE 20 MPH.

b. RAREP GRP STG ECHOES SW QUAD BTWN 25 AND 50 MI MOVG ENE. SVR STM.

c. RAREP ECHOES AT 15 MI INTERVALS IN E-W LINE 60 MI LONG 25 MI S MOVG E 30 MPH.

d. RAREP STG ECHO 100 SQUARE MI 30 MI S MOVG E 30 MPH.

For transmission purposes, the observations may be considered as falling into two categories: (a) those from stations entering them as remarks in connection with teletype sequence reports from regularly scheduled hourly reporting stations; and (b) those from stations transmitting them as separate unscheduled reports. In either case the observations may be taken as frequently as every 30 minutes but it is not desired that they be transmitted that often. The following general rules will apply: (i) in category (a) the first observation of moderate or strong echoes will be sent in a regular or special observation as appropriate and will be continued in subsequent regularly scheduled reports so long as they persist except that important changes in location or movement may be reported as specials when necessary; (ii) in category (b) the first observation of moderate or strong echoes will be sent as soon as observed but will not be reported again unless important changes in location or movement are observed.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

(*) This is a direct quotation from the publication referred to. Some authorities believe that further confirmatory tests are required.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

December 6, 1945

Opr-Er
(File No. 202)

CIRCULAR LETTER NO. 95-45
(To All Weather Bureau Offices)

Subject: Pay increases for substation observers.

Reference: Our Airmailgram October 15, 1945

Executive Order No. 9653, dated November 1, 1945, contains amendments to Schedules A and B of the Civil Service Rules to provide for changes as follows applicable to Weather Bureau employees:

(1) The maximum aggregate compensation in any 12-month period under Par. 6, Subdivision I of Schedule A has been increased from $540 to $648. This new limit applies to emergency assistants as well as to substation observers.

(2) The maximum monthly rate under Par. 11, Subdivision XI of Schedule A has been increased from $100 to $120 (exclusive of Alaskan and foreign differential). There is no additional increase for employees in critical labor areas where payment has already been authorized at the rate of $120 a month.

This Executive Order, by raising the ceiling limitation 20%, permits an increase in the base pay rates of substation observers comparable to that received by full-time employees under the provisions of Public Law 106. In effecting changes in substation pay rates it is necessary to adjust each rate individually and to make the increased rate approximately 20% higher than the basic rate heretofore authorized. (Less than 20% is allowable in some of the cases covered by (2) above.) Rates in Circular II are being adjusted by the Central Office, as indicated below. Odd cents have been avoided in fixing new rates, and the Regional Offices should be similarly guided in revising pay rates for employees for whom new appointment papers (SS-116) are to be issued in accordance with (2) below.

The following procedures will be adhered to:

(1) $648 or less per annum - A revised edition of Circular II, dated Oct. 1, 1945, is in course of preparation which will indicate the adjusted rate and the effective date for each substation at which observers are to be compensated at rates of $648 or less per annum. Observers compensated under Circular II authorization can be given an increase effective Oct. 1, 1945, except those now receiving from $451 to $540 per annum can not be paid in excess of $540 per annum prior to Nov. 1, 1945. Circular II, dated Oct. 1, 1945, should be quoted on all pay rolls, quarterly, monthly, or supplemental, for personal services rendered on or after Oct. 1, 1945. The revised edition of Circular II

will be available to all offices in time for preparation of pay rolls for the quarter ending Dec. 31, 1945. Pending receipt thereof, observers paid monthly should be compensated at existing rates and amounts due as a result of adjustments in wage rates should be included in the next regular pay roll. It will be necessary for field offices to submit, as soon as possible after receipt of a copy of the revised Circular II, Standard Form 50 (to be prepared at the Regional Office) and WB Form 4076A in support of these increases. The nature of action on these forms should be indicated as "Pay increase, administrative" and Circular II dated Oct. 1, 1945, should be quoted on WB Forms 4076A but omitted on Standard Form 50.

(2) In excess of $648 per annum - For persons to be paid in excess of $648 per annum, effective Nov. 1, 1945, new Forms SS-116 (prepared at the Regional Office) will be required. The nature of action on this form should also be indicated as "Pay increase, administrative" and the following statement included under remarks: "This increase is in accord with provisions of Executive Order No. 9653, dated Nov. 1, 1945". It should be noted that observers now receiving $120 per month can not be granted an increase.

The limit for total compensation paid to one person by the Weather Bureau and another government agency has not been increased; therefore, the restrictions outlined in Pars. 2313-16 of the Fiscal Manual must be observed in connection with any proposed pay increases for persons also employed by another government agency.

Appointments of all substation personnel to be paid at rates of $648 or less per annum will be effected on Form 4076A and Standard Form 50 and appointments at rates in excess of $648 will be effected on Form SS-116, as heretofore.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 102.4)

December 10, 1945.

CIRCULAR LETTER NO. 96-45
(To all First Order Stations)

Subject: Administrative work weeks beginning December 23 and December 30, 1945

Reference: Circular Letter 73-45 dated September 20, 1945

At the request of the President the Secretary of Commerce has established for employees whose normal basic work week consists of five eight-hour days, Monday through Friday, (See Paragraph 6, Circular Letter No. 73-45) a basic work week for the week beginning December 23 and the week beginning December 30, 1945, from Tuesday through Saturday, with Sunday and Monday of each week being the normal non-work days in lieu of Sunday and Saturday. Since Tuesday of each of these weeks is a holiday (December 25th and January 1st), the working days will be Wednesday, Thursday, Friday, and Saturday.

At field stations where continuous service and operation is required, minimum schedules should be maintained on December 25 and January 1, and employees working these holidays will be compensated at holiday pay rates.

With the exception of changing the normal basic work week for the weeks beginning December 23 and December 30 this Circular Letter has no effect on Circular Letter No. 73-45.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25

AsstChAdm-cs
(File No. 080.1)
(260.4)

December 17, 1945

CIRCULAR LETTER NO. 97-45
(To all First Order Stations)

Subject: Authority to Transport Immediate Members of Family

Reference: Circular Letter No. 60-45, dated July 20, 1945

The Comptroller General, in Decision No. B-53715 dated November 26, 1945, has stated: "the provision of Public Law 61, approved May 21, 1945, authorizing the Secretary of Commerce to delegate his authority to authorize expenses of travel and transportation of household goods of officers and employees on change of official station does not extend to the transportation of the immediate families of the officers or employees so transferred". It will be necessary therefore to submit all letters of authority covering transportation of immediate family to the Department of Commerce for approval and signature by the Secretary which must be obtained prior to the employee's departure from his present headquarters. Letters of Authority can not be amended to provide for transportation of members of immediate family.

Obviously, this ruling by the Comptroller General necessitates that the Request for Authority to Travel (Form 118) or regional letters of authority to travel, whenever transportation of immediate family is involved, be submitted to the Central Office promptly and sufficiently far enough in advance of the time when the employee intends to travel to permit the Central Office adequate time, minimum of four days, to secure the required approval and signature by the Secretary. In instances when there is insufficient time to obtain authority by mail, telegraph facilities may be utilized in which case the following information must be communicated: Name of traveler, date on which travel will begin, the name of the station from which the employee is departing and the name of the station to which the employee is traveling, and number of the Letter of Authority if the latter is to be prepared by the Regional Office. Likewise the Central Office will if necessary telegraph authorization to travel, in order that the employee will not be delayed in departing on the planned date. The employee when authorized by telegraph to travel shall attach a copy of the telegram to his reimbursement voucher.

All employees are requested to cooperate with the Regional Offices and the Central Office in submitting promptly the information required for issuance of Letters of Authority to move members of family at Government expense, and to plan such travel far enough in advance to permit sufficient time to obtain the Secretary's approval. With respect to the latter it is realized that the employee is sometimes requested to depart with very little advance notice. However, in the

future it will be the policy to limit such requests to occasions when extreme urgency requires that the employee depart almost immediately, but in no case should an employee depart before receipt of a Letter of Authority to travel or telegraphic authority in lieu of formal authorization. Authorization for the transportation of members of the immediate family can not be secured after the travel has been accomplished.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Library

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington

SR&F-Ev
(File No. 903.1)
(750)

December 18, 1945

CIRCULAR LETTER NO. 98-45
(To all First Order Stations)

Subject: Revised WB Form 4008, Station Service Summary.

It is requested that all stations use Revised WB Form 4008 Station Service Summary in the regular January report of service actions. The revision is intended to clarify certain instructions and make the data received from different offices more nearly comparable. Station officials are requested to review Circular Letter No. 50-44 before making out the January report.

Changes in the form include the listing of aviation contacts under two general categories and reduction of the number of general public categories from 15 to 9. All changes in procedure are given in Instructions 4, 5, and 6 on the bottom of the form. It should be noted that the definition of formal briefing (number 4) determines the type of service action to be tallied under the aviation category, "Formal Briefing." In order that FAWS data may be more easily obtained, Instruction 5 requires all FAWS units to maintain separate forms, including those showing weekly totals.

Instruction 6 provides that all contacts, whether routine or otherwise, shall be tallied. The old form did not make this point clear with the result that some stations were counting all contacts while others were recording only those of irregular character. It should be emphasized that it is the number of individual contacts that is desired, not the quantity of data furnished. For example, the furnishing of several different terminal forecasts to the same individual or company during any one contact will be tallyed only once. However, if an individual or company contacts the office at five different times during the day, each time asking for a single forecast, a total of five tallys would be recorded.

The procedure of making out a form in triplicate at the close of the week showing weekly totals only has not been changed. The original and first carbon will be sent to the Regional Office as heretofore.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

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UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr/P1
(File No. 100)
(750)

December 20, 1945

CIRCULAR LETTER NO. 99-45
(To All First-Order Stations)

Subject: Discontinuance of WB Form 4048 "Data on Employees Experienced in Radiosonde Observations."

In view of the relatively large number of Weather Bureau employees that have now acquired raob experience, the need for the subject form no longer exists. Form 4048 will therefore be discontinued on December 31, 1945 and paragraph A360 in Addendum to Circular P, 5th Edition, should be deleted.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D.C.

Accts.-lms
(File No. 130)
(750)

December 27, 1945

CIRCULAR LETTER NO. 100-45
(To all stations)

Subject: Time and attendance reports and leave computations for the calendar year 1946.

Time and attendance reports will be prepared on Standard Forms 1130 (facsimile of the form and instructions for use attached hereto) effective with the pay period beginning December 30, 1945. A supply of the new forms will be furnished by the regional office.

Standard Forms 1130 will be prepared in duplicate, and both copies will be sent to the regional office at the close of the pay period. The duplicate copy will be returned for station files after leave and hours of work have been checked in the regional office. The use of Forms 1130 will obviate the necessity for recording leave on Weather Bureau Form 1416, the use of which form is hereby discontinued.

Annual and sick leave for the calendar year 1946 will be computed on the basis of the accrual tables (4 sheets) attached hereto. It will be noted that accruals of leave are on the basis of the pay-roll period rather than on a monthly basis. As the first pay period involved includes two days of the calendar year 1945, December 30 and 31, which will be non-work days for employees whose administrative workweek is Monday to Friday, inclusive, those two days will not enter into the computation of leave for such employees. Leave taken December 30 and/or 31, 1945, by employees whose workweek is other than Monday to Friday, inclusive, will be charged against leave accumulated prior to or accrued during the calendar year 1945.

Since the tables of accrual of annual leave cover 26 days of leave they will not be applicable to leave for temporary employees who are allowed 30 days during the calendar year. Definite information is not available as to accruals of leave for temporary employees but it is assumed from information obtained from the General Accounting Office that the amounts in the 15-day accrual table for sick leave may be doubled to compute such annual leave. Computations should be made on that basis unless further advice is given.

The balances of leave at the termination of December 29, 1945, or at the close of a pay period subsequent thereto will be furnished by the regional office to stations for entry on Standard Forms 1130.

Use of Forms 71 will be discontinued except for sick leave requiring the certifications of a physician or sick leave extending into a subsequent pay period. The employee will be required to certify on Standard Forms 1130 for all annual and sick leave taken during the pay period, except when the sick leave extends into the subsequent period in which case Form 71 must be submitted. If annual leave extends into

subsequent pay periods, Forms 1130 for such periods will be prepared and certified at the time of request to cover all periods involved; should the employee return to duty prior to the termination of the leave requested, necessary corrections will be made on the appropriate Form 1130 and such corrections will be initialed by him.

Form 71, or a letter in duplicate, will be used to submit to the regional office such requests for leave as require the approval of that office.

F. W. Reichelderfer

F. W. Reichelderfer,
Chief of Bureau.

Attachments

MEMORANDUM-REMARKS

(Printed size 8 x 5 inches)

Agency:	Name:

Leave balance brought forward from prior period			Block
Leave accrued during this reporting period			Reporting Period
Aggregate of leave available during this period			Hours of duty, if N/D or other than regular

	HOURS IN PAY STATUS								TIME ABSENT			
DATE	O/T	N/D	REGULAR	AWOL	LWOP	SICK	ANNUAL	OTHER	OUT	IN	DATE	Absences Certified Correct.
Sun.											Sun.	
Mon.											Mon.	
Tue.											Tue.	
Wed.											Wed.	
Thu.											Thu.	
Fri.											Fri.	
Sat.											Sat.	
Sun.											Sun.	
Mon.											Mon.	
Tue.											Tue.	
Wed.											Wed.	
Thu.											Thu.	
Fri.											Fri.	
Sat.											Sat.	
TOTALS												

TIME AND ATTENDANCE REPORT
Standard Form No. 1130
General Regulations No. 102 - Revised)
Form Prescribed by Comptroller General U.S. December 7, 1945

Balance at close of this period	XXX	
W.O.P. total for calendar year to end of prior period		
W.O.P. total for calendar year to end of this period		

IMPORTANT
For all L.W.O.P. reduce leave accruals according to reduction tables.

Certified correct:

---------- ----------
Supervisor Timekeeper

Telephone No.

Such Standard Form No.1130, Time and Attendance Report, will be initiated (one for each employee), maintained and subscribed to supervisory personnel as are administratively designated.

The information to be shown thereon should be progressively entered as follows:

1. Name of employee, section or unit (Block), reporting period, and hours of duty if such hours include night differential or are other than regular hours. The section or unit and reporting period should be coded.
2. Leave balance brought forward from prior pay period, and W.O.P. total for calendar year to end of prior period,
3. Clock time of daily absences (Out and In); the employee to initial each absence.
4. Daily notation of number of hours in pay status, A.W.O.L., L.W.O.P., sick, annual, or other leave.
5. At close of pay period: Total N/D, Regular, A.W.O.L., and L.W.O.P. and determine that the aggregate thereof equals the total hours in the pay period. Total the O/T service also.
6. Leave accrued during current reporting period, and aggregate of leave available during current period.
7. Subtract the totals of sick and annual leave used in the pay period from the aggregate of leave available during the period, and enter the balances.
8. Add the total hours L.W.O.P. in the current period to the hours of L.W.O.P. at the end of the prior period to produce the total hours L.W.O.P. to date for the calendar year.
9. Leave taken in excess of the number of hours available during the pay period and which has been approved as advanced leave, will be reflected in the balance at the close of the pay period as a "minus" number of hours by circling the number of hours indicating such minus balance, and will be circled in ensuing reports until the advanced leave is liquidated by pay-period accruals. Leave taken beyond the expiration date of a period of advanced leave will be recorded on the time and attendance report as LWOP.
10. The balances of leave (Item 7) should be brought forward and entered on the time and attendance report for the ensuing pay period.

The space under Memorandum-Remarks may be used for explanation of unusual adjustments, cost accounting memoranda, etc.

After the leave balance and L.W.O.P. is brought forward to the time and attendance report for the ensuing pay period, the completed reports should be forwarded to the pay roll office where they will be subject to administrative examination and then retained in alphabetical order, by pay roll units, pending an agency audit of the pay roll records by the General Accounting Office.

PAY-PERIOD LEAVE ACCRUAL TABLES
General Accounting Office - General Regulations No. 102-Revised

ANNUAL LEAVE

Accrual of Annual Leave on a Calendar Year (208-hours) Basis

			1945	1946 Per Pay Period	1946 Calendar Year Accumulation	1947
1.	Dec. 30/45	to Jan. 12/46	0	7	7	
2.	Jan. 13/46	Jan. 26		8	15	
3.	Jan. 27	Feb. 9		8	23	
4.	Feb. 10	Feb. 23		8	31	
5.	Feb. 24	March 9		8	39	
6.	March 10	March 23		8	47	
7.	March 24	April 6		7	54	
8.	April 7	April 20		8	62	
9.	April 21	May 4		8	70	
10.	May 5	May 18		8	78	
11.	May 19	June 1		8	86	
12.	June 2	June 15		8	94	
13.	June 16	June 29		8	102	
14.	June 30	July 13		8	110	
15.	July 14	July 27		8	118	
16.	July 28	Aug. 10		8	126	
17.	Aug. 11	Aug. 24		8	134	
18.	Aug. 25	Sept. 7		8	142	
19.	Sept. 8	Sept. 21		8	150	
20.	Sept. 22	Oct. 5		8	158	
21.	Oct. 6	Oct. 19		8	166	
22.	Oct. 20	Nov. 2		8	174	
23.	Nov. 3	Nov. 16		8	182	
24.	Nov. 17	Nov. 30		8	190	
25.	Dec. 1	Dec. 14		8	198	
26.	Dec. 15	Dec. 28		8	206	
	Dec. 29	Jan. 11/47		2	208	6

SICK LEAVE

Accrual of Sick Leave on a Monthly (10-hours per month) Basis

			1945	1946 Per Pay Period	1946 Calendar Year Accumulation	1947
1.	Dec. 30/45	to Jan. 12/46	0	3	3	
2.	Jan. 13/46	Jan. 26		5	8	
3.	Jan. 27	Feb. 9		5	13	
4.	Feb. 10	Feb. 23		5	18	
5.	Feb. 24	March 9		4	22	
6.	March 10	March 23		5	27	
7.	March 24	April 6		5	32	
8.	April 7	April 20		4	36	
9.	April 21	May 4		5	41	
10.	May 5	May 18		4	45	
11.	May 19	June 1		5	50	
12.	June 2	June 15		5	55	
13.	June 16	June 29		5	60	
14.	June 30	July 13		4	64	
15.	July 14	July 27		4	68	
16.	July 28	Aug. 10		5	73	
17.	Aug. 11	Aug. 24		4	77	
18.	Aug. 25	Sept. 7		5	82	
19.	Sept. 8	Sept. 21		5	87	
20.	Sept. 22	Oct. 5		4	91	
21.	Oct. 6	Oct. 19		5	96	
22.	Oct. 20	Nov. 2		4	100	
23.	Nov. 3	Nov. 16		5	105	
24.	Nov. 17	Nov. 30		5	110	
25.	Dec. 1	Dec. 14		4	114	
26.	Dec. 15	Dec. 28		5	119	
	Dec. 29	Jan. 11/47		1	120	3

1 day	NOT	reduced	accrual	1 hour	
2 days	"	"	"	2 hrs.	
3 "	"	"	"	3 "	
4 "	"	"	"	4 "	
5 "	"	"	"	4 "	
6 "	"	"	"	5 "	
7 "	"	"	"	6 "	
8 "	"	"	"	7 "	
9 "	"	"	"	(8 or)*	
10 "	"	"	"	(7 hrs.)	

(*) Per Pay-Period Accrual Table.

DAILY LEAVE ACCRUAL TABLES

General Accounting Office - General Regulations No. 102-Revised

1 day	NOT	reduced	accrual	1 hour	
2 days	"	"	"	1 "	
3 "	"	"	"	2 hrs.	
4 "	"	"	"	2 "	
5 "	"	"	"	3 "	
6 "	"	"	"	3 "	
7 "	"	"	"	4 "	
8 "	"	"	"	4 "	
9 "	"	"	"	(5 or)*	
10 "	"	"	"	(4 hrs.)	

(*) Per Pay-Period Accrual Table.

ANNUAL LEAVE

Accrual of Annual Leave on a Calendar Year (208-hours) Basis

1946	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan.	0	1	2	3	X	X	3	4	5	6	7	X	X	7	8	9	10	11	X	X	11	12	13	14	15	X	X	15	16	17	18
Feb.	19	X	X	19	20	21	22	23	X	X	23	24	25	26	27	X	X	27	28	29	30	31	X	X	31	32	33	34	--	--	--
Mar.	35	X	X	35	36	37	38	39	X	X	39	40	41	42	43	X	X	43	44	45	46	47	X	X	47	48	49	50	51	X	X
Apr.	51	52	53	54	54	X	X	55	56	57	58	58	X	X	59	60	61	62	62	X	X	63	64	65	66	66	X	X	67	68	--
May	69	70	70	X	X	71	72	73	74	74	X	X	75	76	77	78	78	X	X	79	80	81	82	82	X	X	83	84	85	86	86
June	X	X	87	88	89	90	90	X	X	91	92	93	94	94	X	X	95	96	97	98	98	X	X	99	100	101	102	102	X	X	--
July	103	104	105	105	106	X	X	107	108	109	109	110	X	X	111	112	113	113	114	X	X	115	116	117	117	118	X	X	119	120	121
Aug.	121	122	X	X	123	124	125	125	126	X	X	127	128	129	129	130	X	X	131	132	133	133	134	X	X	135	136	137	137	138	X
Sept.	X	139	140	141	141	142	X	X	143	144	145	145	146	X	X	147	148	149	149	150	X	X	151	152	153	153	154	X	X	155	---
Oct.	156	156	157	158	X	X	159	160	160	161	162	X	X	163	164	164	165	166	X	X	167	168	168	169	170	X	X	171	172	172	173
Nov.	174	X	X	175	176	176	177	178	X	X	179	180	180	181	182	X	X	183	184	184	185	186	X	X	187	188	188	189	190	X	---
Dec.	X	191	192	192	193	194	X	X	195	196	196	197	198	X	X	199	200	200	201	202	X	X	203	204	204	205	206	X	X	207	208

1 day's accrual for a 261-day year is .7969 hour
1 day's accrual for a 262-day year is .7938 hour (leap year)

SICK LEAVE

Accrual of Sick Leave on a Monthly (10-hours per month) Basis

1946	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan.	0	0	1	1	X	X	2	2	3	3	3	X	X	4	4	5	5	6	X	X	6	6	7	7	8	X	X	8	9	9	10
Feb.	10	X	X	11	11	12	12	13	X	X	13	14	14	15	15	X	X	16	16	17	17	18	X	X	18	19	19	20	--	--	--
Mar.	20	X	X	20	21	21	22	22	X	X	23	23	24	24	25	X	X	25	26	26	27	27	X	X	28	28	29	29	30	X	X
Apr.	30	30	31	31	32	X	X	32	33	33	34	34	X	X	35	35	35	36	36	X	X	37	37	38	38	39	X	X	39	40	--
May	40	40	41	X	X	41	42	42	43	43	X	X	43	44	44	45	45	X	X	46	46	46	47	47	X	X	48	48	49	49	50
June	X	X	50	51	51	52	52	X	X	53	53	54	54	55	X	X	55	56	56	57	57	X	X	58	58	59	59	60	X	X	--
July	60	60	61	61	62	X	X	62	63	63	63	64	X	X	64	65	65	66	66	X	X	66	67	67	68	68	X	X	69	69	70
Aug.	70	70	X	X	71	71	72	72	73	X	X	73	74	74	75	75	X	X	75	76	76	77	77	X	X	78	78	79	79	80	X
Sept.	X	80	80	81	81	82	X	X	82	83	83	84	84	X	X	85	85	86	86	87	X	X	87	88	88	89	89	X	X	90	--
Oct.	90	90	91	91	X	X	92	92	93	93	93	X	X	94	94	95	95	96	X	X	96	96	97	97	98	X	X	98	99	99	100
Nov.	100	X	X	100	101	101	102	102	X	X	103	103	104	104	105	X	X	105	106	106	107	107	X	X	108	108	109	109	110	X	---
Dec.	X	110	110	111	111	112	X	X	112	113	113	114	114	X	X	115	115	115	116	116	X	X	117	117	118	118	119	X	X	119	120

1 day's accrual for a 20-day month is .5 hour - February and June, 1946
1 day's accrual for a 21-day month is .4761 hour - March, Sept., and Nov., 1946
1 day's accrual for a 22-day month is .4545 hour - April, Aug., and Dec., 1946
1 day's accrual for a 23-day month is .4347 hour - Jan., May, July and Oct., 1946

TABLE OF LEAVE ACCRUALS
ANNUAL LEAVE

"A" - Shows the number of work days from the beginning of the calendar year to the close of each work day of the year.
"B" - Shows the number of work days remaining in the calendar year from the beginning of each work day of the year.
"C" - Shows the hours of leave an employee can accrue from the beginning of each work day to the end of the calendar year.

Mo.	CODE	DAYS OF THE MONTH																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan.	A	1	2	3	4	X	X	5	6	7	8	9	X	X	10	11	12	13	14	X	X	15	16	17	18	19	X	X	20	21	22	23
	B	261	260	259	258	X	X	257	256	255	254	253	X	X	252	251	250	249	248	X	X	247	246	245	244	243	X	X	242	241	240	239
	C	208	207	206	205	X	X	204	204	203	202	201	X	X	200	200	199	198	197	X	X	196	196	195	194	193	X	X	192	192	191	190
Feb.	A	24	X	X	25	26	27	28	29	X	X	30	31	32	33	34	X	X	35	36	37	38	39	X	X	40	41	42	43	---	---	---
	B	238	X	X	237	236	235	234	233	X	X	232	231	230	229	228	X	X	227	226	225	224	223	X	X	222	221	220	219	---	---	---
	C	189	X	X	188	188	187	186	185	X	X	184	184	183	182	181	X	X	180	180	179	178	177	X	X	176	176	175	174	---	---	---
Mar.	A	44	X	X	45	46	47	48	49	X	X	50	51	52	53	54	X	X	55	56	57	58	59	X	X	60	61	62	63	64	X	X
	B	218	X	X	217	216	215	214	213	X	X	212	211	210	209	208	X	X	207	206	205	204	203	X	X	202	201	200	199	198	X	X
	C	173	X	X	172	172	171	170	169	X	X	168	168	167	166	165	X	X	164	164	163	162	161	X	X	160	160	159	158	157	X	X
Apr.	A	65	66	67	68	69	X	X	70	71	72	73	74	X	X	75	76	77	78	79	X	X	80	81	82	83	84	X	X	85	86	---
	B	197	196	195	194	193	X	X	192	191	190	189	188	X	X	187	186	185	184	183	X	X	182	181	180	179	178	X	X	177	176	---
	C	156	156	155	154	153	X	X	153	152	151	150	149	X	X	149	148	147	146	145	X	X	145	144	143	142	141	X	X	141	140	---
May	A	87	88	89	X	X	90	91	92	93	94	X	X	95	96	97	98	99	X	X	100	101	102	103	104	X	X	105	106	107	108	109
	B	175	174	173	X	X	172	171	170	169	168	X	X	167	166	165	164	163	X	X	162	161	160	159	158	X	X	157	156	155	154	153
	C	139	138	137	X	X	137	136	135	134	133	X	X	133	132	131	130	129	X	X	129	128	127	126	125	X	X	125	124	123	122	121
June	A	X	X	110	111	112	113	114	X	X	115	116	117	118	119	X	X	120	121	122	123	124	X	X	125	126	127	128	129	X	X	---
	B	X	X	152	151	150	149	148	X	X	147	146	145	144	143	X	X	142	141	140	139	138	X	X	137	136	135	134	133	X	X	---
	C	X	X	121	120	119	118	117	X	X	117	116	115	114	113	X	X	113	112	111	110	109	X	X	109	108	107	106	105	X	X	---
July	A	130	131	132	133	134	X	X	135	136	137	138	139	X	X	140	141	142	143	144	X	X	145	146	147	148	149	X	X	150	151	152
	B	132	131	130	129	128	X	X	127	126	125	124	123	X	X	122	121	120	119	118	X	X	117	116	115	114	113	X	X	112	111	110
	C	105	104	103	102	102	X	X	101	100	99	98	98	X	X	97	96	95	94	94	X	X	93	92	91	90	90	X	X	89	88	87
Aug.	A	153	154	X	X	155	156	157	158	159	X	X	160	161	162	163	164	X	X	165	166	167	168	169	X	X	170	171	172	173	174	X
	B	109	108	X	X	107	106	105	104	103	X	X	102	101	100	99	98	X	X	97	96	95	94	93	X	X	92	91	90	89	88	X
	C	86	86	X	X	85	84	83	82	82	X	X	81	80	79	78	78	X	X	77	76	75	74	74	X	X	73	72	71	70	70	X
Sep.	A	X	175	176	177	178	179	X	X	180	181	182	183	184	X	X	185	186	187	188	189	X	X	190	191	192	193	194	X	X	195	---
	B	X	87	86	85	84	83	X	X	82	81	80	79	78	X	X	77	76	75	74	73	X	X	72	71	70	69	68	X	X	67	---
	C	X	69	68	67	66	66	X	X	65	64	63	62	62	X	X	61	60	59	58	58	X	X	57	56	55	54	54	X	X	53	---
Oct.	A	196	197	198	199	X	X	200	201	202	203	204	X	X	205	206	207	208	209	X	X	210	211	212	213	214	X	X	215	216	217	218
	B	66	65	64	63	X	X	62	61	60	59	58	X	X	57	56	55	54	53	X	X	52	51	50	49	48	X	X	47	46	45	44
	C	52	51	51	50	X	X	49	48	47	47	46	X	X	45	44	43	43	42	X	X	41	40	39	39	38	X	X	37	36	35	35
Nov.	A	219	X	X	220	221	222	223	224	X	X	225	226	227	228	229	X	X	230	231	232	233	234	X	X	235	236	237	238	239	X	---
	B	43	X	X	42	41	40	39	38	X	X	37	36	35	34	33	X	X	32	31	30	29	28	X	X	27	26	25	24	23	X	---
	C	34	X	X	33	32	31	31	30	X	X	29	28	27	27	26	X	X	25	24	23	23	22	X	X	21	20	19	19	18	X	---
Dec.	A	X	240	241	242	243	244	X	X	245	246	247	248	249	X	X	250	251	252	253	254	X	X	255	256	257	258	259	X	X	260	261
	B	X	22	21	20	19	18	X	X	17	16	15	14	13	X	X	12	11	10	9	8	X	X	7	6	5	4	3	X	X	2	1
	C	X	17	16	15	15	14	X	X	13	12	11	11	10	X	X	9	8	7	7	6	X	X	5	4	3	3	2	X	X	1	0

TABLE OF LEAVE EARNINGS
SICK LEAVE

Showing the hours of leave an employee can accrue from the beginning of each work day to the end of the calendar year

Mo.	DAYS OF THE MONTH																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Jan.	120	119	119	118	X	X	118	117	117	116	116	X	X	116	115	115	114	114	X	X	113	113	113	112	112	X	X	111	111	110	110
Feb.	110	X	X	109	109	108	108	107	X	X	107	106	106	105	105	X	X	104	104	103	103	102	X	X	102	101	101	100	---	---	---
Mar.	100	X	X	99	99	98	98	97	X	X	97	96	96	95	95	X	X	94	94	93	93	92	X	X	92	91	91	90	90	X	X
Apr.	90	89	89	88	88	X	X	87	87	86	86	85	X	X	85	85	84	84	83	X	X	83	82	82	81	81	X	X	80	80	---
May	80	79	79	X	X	78	78	77	77	76	X	X	76	76	75	75	74	X	X	74	73	73	73	72	X	X	72	71	71	70	70
June	X	X	70	69	69	68	68	X	X	67	67	66	66	65	X	X	65	64	64	63	63	X	X	62	62	61	61	60	X	X	---
July	60	59	59	58	58	X	X	57	57	56	56	56	X	X	55	55	54	54	53	X	X	53	53	52	52	51	X	X	51	50	50
Aug.	50	49	X	X	49	48	48	47	47	X	X	46	46	45	45	45	X	X	44	44	43	43	42	X	X	42	41	41	40	40	X
Sep.	X	40	39	39	38	38	X	X	37	37	36	36	35	X	X	35	34	34	33	33	X	X	32	32	31	31	30	X	X	30	---
Oct.	30	29	29	28	X	X	28	27	27	26	26	X	X	26	25	25	24	24	X	X	23	23	23	22	22	X	X	21	21	20	20
Nov.	20	X	X	19	19	18	18	17	X	X	17	16	16	15	15	X	X	14	14	13	13	12	X	X	12	11	11	10	10	X	---
Dec.	X	10	9	9	8	8	X	X	7	7	6	6	5	X	X	5	5	4	4	3	X	X	3	2	2	1	1	X	X	0	0

UNITED STATES DEPARTMENT OF COMMERCE
WEATHER BUREAU
Washington 25, D. C.

Opr:Lo
(File No. 100)
(601)

December 29, 1945

CIRCULAR LETTER NO. 101-45
(To All Stations)

Subject: Eyesight Requirements for Observers.

INSTRUCTIONS FOR MAKING EYESIGHT TESTS
(Revised November 1945)

1.0. VISUAL ACUITY. Snellen Test Charts, 24 x 11 inches in size, illuminated by a 200-watt incandescent lamp, will be used. The distance from the card to the subject will be 20 feet. Each eye will be examined separately, while the other is covered with an opaque shield furnished with the test charts. The subject should not be permitted to squint but must read with eyes open in natural position. If one eye is known or thought to be weaker than the other, that eye should be tested first. If vision is defective and glasses are worn, visual acuity should be tested first without the glasses and then with the glasses. The examiner should watch the subject and not the test card.

1.1. The row of smallest letters read by the subject determines the denominator of the fraction used to grade visual acuity. The numerator is always 20. For example, 20/20 or 20/30. If the subject misses one or two letters in a line, but can read one or two (as the case may be) in the line next below, his visual acuity will be graded as of the upper line.

1.2. To observe weather satisfactorily, the visual acuity of an observer must be at least 20/50 (twenty-fifty) in each eye separately, without correction: provided, that if the vision in either or both eyes is poorer than 20/50 (twenty-fifty) but is corrected by glasses to 20/30 (twenty-thirty) or better in each eye, the observer may be qualified on the condition that glasses correcting to 20/30 (twenty-thirty) or better in each eye be worn while taking weather observations. It is recommended that observers with uncorrected vision poorer than 20/50 (twenty-fifty) provide themselves with an extra pair of glasses for use in emergencies that might arise due to breakage or misplacement.

1.3. Observers with records of better than average accuracy in visual observations but who do not meet the above requirements for each eye separately may be retained provisionally on observational work if uncorrected vision in one eye is 20/20, regardless of the corrected or uncorrected vision of the other eye.

2.0. COLOR PERCEPTION. Pseudo-Isochromatic Plates (American Optical Company) will be used. These plates are composed of patterns (figures, letters, etc.) made up of variously shaded dots set on differently colored backgrounds of similar dots in confusion colors. A person having normal vision can read the figures but a color-blind individual cannot read them because he cannot distinguish them from the background. A self-explanatory key and complete instructions for testing color perception accompany each set of plates.

2.1. While normal color vision should be considered as the standard, the Weather Bureau maintains no color vision requirement. Nevertheless, any employee taking weather observations, or any prospective observer, should be tested for color perception for record purposes.

2.2. When color-perception deficiency is indicated, the subject will take a series of observations accompanied by an observer having normal color vision. If this deficiency prevents the subject from taking accurate observations, he should be relieved of these duties.

3.0. REPORTS. Form 6057 will be used for reporting periodic checks on eyesight. The form is self-explanatory. Copies will be furnished as follows: The original to the Central Office marked "For Station Operations"; 1 copy for file at the station to which the observer is assigned; 1 copy to the Regional Office; 1 copy for the examinee.

3.1. If an examination establishes the advisability of a change in status of an observer, a report, with a properly executed Form 6057 attached thereto, should be made to the Central Office. If the observer consults an oculist for correction of defects disclosed by the Weather Bureau eyesight check, the oculist will fill out Form 6057, signing it as "Examiner."

SUMMARY

Personnel to be assigned observer duties for the first time must meet requirements as stated in paragraphs 1.2, 2.1, and 2.2.

Personnel now assigned observer duties must meet requirements as stated in paragraphs 1.3, 2.1, and 2.2.

F. W. Reichelderfer.

F. W. Reichelderfer
Chief of Bureau