The sources of data, methods of accumulation, and index numbers used for the daily synoptic upper-air reports are quite similar to those used for the surface data and have been explained under "Daily Synoptic Surface Reports". However, the time of observations is different. For upper air reports, the observation at or nearest to 0300Z is shown in all cases. The time of the observation, to the nearest hour, is shown for each station.

## Method of Presentation

The upper air data are presented in three groups as follows:

1. Upper air wind data for all days for stations reporting in the 1949 IMO code.
2. Upper air wind data for all days for stations reporting in the 1950 USSR code.
3. Raob data for all days for stations reporting in the 1949 IMO code and 1950 USSR code.

The data in each group are presented numerically by block numbers and numerically by stations within each block. Upper air wind data are also shown for raobs where the raob balloon was tracked by rawin or rabal methods.

## Upper Air Wind Observations

Each group of the upper air wind data contains all pibals, rabals, and rawins received for that category. The data are shown in two tabulations, the first containing values of wind direction and speed for levels through 20,000 feet, and the second the same type of information for levels above 20,000 feet.

Symbol headings used for upper air winds reported in the 1949 IMO code, referred to as Type I above, are as follows:

dd Direction to 36 points.
ff Speed in knots.

Where an upper air wind observation is not taken and the reason for the missed observation is known, the reason is indicated under surface winds in the following code:

| | |
|---|---|
| 01 - No balloons | 06 - Instrument trouble |
| 02 - Low Clouds | 07 - Smoke |
| 03 - Thick dust | 08 - Rain |
| 04 - Fog | 09 - Unfavorable sea |
| 05 - No gas | 10 - Snow |

11 - High or gusty surface wind

Reports from ships are similar to those from land stations except that position is given instead of station name.

Reports of Upper Air Wind data from Russia are listed in a separate section with POLAND, HUNGARY, RUMANIA, and the U.S.S.R. Zone of Germany necessarily included. The 1950 Russian Code Form used follows:

99999 (or 55999) IIiii YYGGg $0ddf_mf_m$ $3ddf_mf_m$ $6ddf_mf_m$ $9ddf_mf_m$ $0ddf_mf_m$ $1ddf_mf_m$ $2ddf_mf_m$ $3ddf_mf_m$ ..... $Hddf_mf_m$ $77H_1H_1H_1$

IIiii = Group and Station Number
YY = Day
GGg = Time (Moscow) in hours and tenths
dd = Wind direction to 36 points
$f_mf_m$ = Wind speed in m.p.s.

1. In above Code Form indicators give height of the middle of the layer for which the direction and speed are reported.
2. 0-surface (wind vane); 3, 6, and 9--300, 600 and 900 meters above the surface. 0-1000 m; 1-500 m; 2-2000 m; 3-3000 m; etc. above sea level.
3. The indicators 99999 (or 55999) are not shown in the listing as many collections of reports do not include these indicators.
4. The $77H_1H_1H_1$ group is usually not included in the listings.
5. Zones and Sectors are listed as indicated in notation on page headed, DAILY SYNOPTIC SURFACE REPORTS.
6. For complete details of U.S.S.R. 1950 code forms refer to printed code summary issued at Washington, D. C., December 1949.

## Raob Data

Raob data are shown in three different tabulations. The first shows the station index number, the station name, and values of height, temperature, and dew point (and wind direction and speed where rawin or rabal methods were utilized), for the 1,000 mb., 850 mb., 700 mb., and 500 mb. surfaces. The second tabulation shows data for the same elements for the 300 mb., 200 mb., and 100 mb. surfaces. The third tabulation shows values of pressure, temperature, and dew point for significant levels. In all cases, the first significant level contains the surface data. Although station names are not indicated in the latter two tabulations, the index numbers are identical to those used in the first tabulation, which shows the station name for each number. Thus, any station may be easily identified from each tabulation.

Symbol headings used for raobs reported in the 1949 IMO code, referred to as Group 3 under Method of Presentation, are as follows:

hhh = height in tens of geo. feet above mean sea level. The tens of thousands figure is not shown. 250 ft. is indicated as 025, 4720 ft. as 472, and 18,290 ft. as 829.
TT = temperature to whole degrees, the 10ths value being dropped.
$T_dT_d$ = temperature of the dew point to whole degrees, the 10th value being dropped.
Tx = approximate tenths value of air and dew point temperatures. The tenths value of TT and $T_dT_d$ can be determined from the following table.

| Symbol $T_{xo}$ and $T_x$ = Tenths Value | | | | |
|---|---|---|---|---|
| TT \ $T_dT_d$ | 0 | 123 | 458 | 789 |
| 0 | 0 | | | |
| 1 | | | | |
| 2 | | 1 | 2 | 3 |
| 3 | | | | |
| 4 | | | | |
| 5 | | 4 | 5 | 6 |
| 6 | | | | |
| 7 | | | | |
| 8 | | 7 | 8 | 9 |
| 9 | | | | |

dd = wind direction to 36 points, even though code indicates whole degrees.
ff = wind speed in knots. When value is over 100 knots, 50 is added to direction and the 100 figure dropped from the speed. Wind direction 22, speed 108 is shown as 72 - 08.
Hour = time of release of raob to nearest hour, GCT.

Russian raobs are shown in the same manner using code figure 5 below; with the exception that under printed code symbols (ff) wind speed, Russian stations and others as indicated by asterisk (*), have wind speed in meters per second.

Code Type = An indicator to specify the units of height, temperature and wind direction used in the report. Explanation of the code is as follows:

Symbol $x_1$ = Indicator specifying units of height, temperature, and wind direction.

| Code Figure $x_1$ | Specifications |
|---|---|
| 0 | = Feet, °C, wind direction to whole degrees. |
| 1 | = Feet, °C, wind direction to tens of degrees. |
| 2 | = Feet, °F, wind direction to whole degrees. |
| 3 | = Feet, °F, wind direction to tens of degrees. |
| 4 | = Meters, °C, wind direction to whole degrees. |
| 5 | = Meters, °C, wind direction to tens of degrees. |
| 6 | = Feet, °C, winds not reported. |
| 7 | = Feet, °F, winds not reported. |
| 8 | = Meters, °C, winds not reported. |
| 9 | = Not allocated. |

PPP = pressure at significant level, in whole millibars. When value is over 999 mbs., the 1000's value is dropped. 1023.4 mb. is shown as 023.

Ship raobs are shown in the same manner with the ship's location in place of station name.