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SOUNDING-BALLOON OBSERVATIONS MADE AT GROESBECK, TEX., DURING THE INTERNATIONAL MONTH, OCTOBER, 1927

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[Weather Bureau, Washington, D. C., 1929]

Forty-four sounding balloons were released and 37 (84 per cent) of the instruments were returned. Table 1 is a general summary of the individual observations. In Figure 1 are shown the landing places and corresponding dates. Notwithstanding the predominance of easterly winds to considerable heights nearly all of the balloons landed to the east of Groesbeck. This was due of course to the stronger westerly winds which prevailed at the higher levels. (See figs. 4 and 5.)

It will be noted that in the case of the highest observation (27,671 meters) viz., 6:31 a. m., 15th, the instrument landed only 16 kilometers away as compared with a number of others which did not go so high but landed at considerably greater distances. The balloon released at 4:03 p. m., 18th, landed only 6 kilometers from the station although it reached a height of more than 16 kilometers. In this case the horizontal distance traveled during the ascent alone must have exceeded 34 kilometers, in view of the wind velocity and time the balloon was in the air. The fact that the winds were successively NE., E., SE., S., SW., and W. brought the balloon almost back to its starting point.

It is interesting to note the similarity of the landing places in certain consecutive flights, e. g., those of the 13th, 14th, and 15th.

The average free-lift used was 750 grams. The balloons were made of cut sheet rubber, were 1 meter in diameter and inflated to about 1.5 meters. The Fergusson meteorograph was used.[1]

The weather conditions were exceptionally favorable for long theodolite observations and in practically every case the balloon was followed with two theodolites for a considerable time. In 6 cases this exceeded 100 minutes and in 26 cases it exceeded 60 minutes. In 29 cases, including some of those in which the instrument was not returned but followed with two theodolites, the balloon penetrated the stratosphere.

The average height and temperature of the tropopause as determined from 22 observations are shown in Table 1 and were 14,823 meters and −65.5° C., respectively. These figures for Royal Center for the series made in May, 1926 [2] were 12 kilometers and −58.4° C., indicating as was to be expected, a greater height and lower temperature of the tropopause for the more southern station.

The highest observation was that of 6:31 a. m. of the 15th when an altitude of 27,671 meters was reached.

In Figure 2 is shown the mean temperature curve determined from 24 observations made on as many days during the month, practically all being made in the afternoon. It is interesting to compare with this curve, the one based on the morning kite observations made during the same month. It will be noted that the morning temperatures are lowest from the surface to 3 kilometers but slightly higher than the afternoon temperatures from 4 to 5 kilometers.

The altitude and temperature of the base of the stratosphere for the individual observations are indicated in this figure by dots with the corresponding dates. The extreme range was from 17,467 meters, −78.3° C. at 4:43 p. m. of the 9th to 11,695 meters, −55.6° C. at 6:35 a. m. of the 17th, the temperature, it will be noted, varying inversely as the height of the tropopause. This inverse relationship is well shown in Figure 2. At Royal Center [2] the extreme range in the height of the tropopause was from 14.6 kilometers, −70.9° C. to 8.9 kilometers, −44.5° C., the extreme limits of which, as would be expected, were lower in height. The range in height of the tropopause, it will be noted, was practically the same at both stations, viz., 5.7 kilometers, but the range in the temperature of the tropopause was several degrees greater at Royal Center.

The greatest average lapse rate occurred between 7 and 8 kilometers. (See fig. 2.) This was in identical agreement with the Royal Center observations.[2]

Figure 3 shows the average relative humidity as determined from 12 observations on as many days, the reason for the smaller number as compared with those used for temperature in Figure 2, is that not all of the instruments were equipped with humidity elements and also not all of the humidity records were legible due to the number of rotations of the clock cylinder after the instrument had landed. Neither of these objectionable factors, however, are anticipated in the series planned for December, 1929.

The mean humidity curve determined from 24 morning kite observations has been included in this graph for comparison. Since the balloon data in this figure are based on only half the number of kite observations, agreement of a very high order would not be expected. However, with this difference considered, the general similarity is striking. A prominent feature of this graph

[1] S. P. Fergusson, New Aerological Apparatus, MONTHLY WEATHER REVIEW, June, 1920.
[2] International Aerological Soundings at Royal Center, Ind., May, 1926, MONTHLY WEATHER REVIEW, July, 1927.

is the small variation in relative humidity above 10 kilometers, especially in the stratosphere.

In Figure 4 are shown the wind velocity curves for each day. This series of wind observations is probably the highest ever obtained at one station during a single month. A number of striking features are evident. Foremost of these is the consistent decrease of velocity in the stratosphere. It will be noted that the decrease begins, in general, about 2 kilometers below the average height of the stratosphere. In the 11 observations extending to 17 kilometers or higher the velocity dropped to less than 10 m. p. s. at these upper levels. The highest velocities occur at about 12 or 13 kilometers. The maximum velocity recorded in the entire series was 42.5 m. p. s. at 12 kilometers on the 9th.

In Figure 5 are shown the wind direction curves for each day. Several features are strikingly apparent in this diagram, viz., the wide variation in direction at the surface and lower levels; the veering or backing to westerly at about 12 kilometers, i. e., the same height at which the velocity begins to decrease (see fig. 4); the consistent westerly direction between 12 and 17 kilometers and the shift to easterly above 18 kilometers, i. e., where the velocities have again reached a general minimum.[3]

In Figure 6 are shown the mean wind velocity and direction curves based on the same observations as those shown in figures 4 and 5, i. e., not more than one on the same day and mostly in the afternoon. The mean velocities were determined independently of the directions and therefore these should not be considered together for any particular level.

It will be noted that the average velocity reaches a maximum at 13 kilometers or about 2 kilometers below the average height of the tropopause. (See figs. 2 and 4.) Above 13 kilometers the average velocity decreases at about the same rate at which it increases in the levels below.

The mean wind direction considered without regard to velocity (fig. 6), veers sharply between 1.5 and 2 kilometers from south-southeasterly to northwesterly. A large northerly component persists from 2.5 to 6 kilometers, above which the westerly component predominates to 19 kilometers, where a further veering occurs and an easterly component becomes increasingly predominant.

In Figure 7 are shown the individual temperature curves for the series. The temperatures (° C.) for the surface and maximum altitude are indicated in each case. Isotherms for 0° C., −25° C. and −50° C. have been drawn and show the general character of the fluctuations in temperature at these general elevations. It will be noted that the −50° C. line fluctuates more than the two lower lines which fact is in agreement with other sounding balloon series. The small fluctuation in the 0° C. line is striking. A comparison of Figure 7 with a similar chart drawn for the Royal Center observations [2] shows these three isotherms to be, in general, each about 1 kilometer higher at Groesbeck than at Royal Center.

In Figure 8 are shown the free-air isotherms for the month. It will be noted that the stratosphere was relatively cold between the 9th and 14th and again on the 20th. Sea-level barometric pressure gradients were not pronounced at Groesbeck during the month and there was no apparent connection between the height of the tropopause and the sea-level pressure as is usually found in more northerly latitudes. Likewise, no definite relationship was found between the temperature of the stratosphere and the wind direction, there being very little north or south component between 12 and 17 kilometers. (See fig. 5.)

Table 2 contains the tabulated data for each observation.

For references regarding all previous sounding balloon observations made in the United States, see Table 7 of reference.[2]

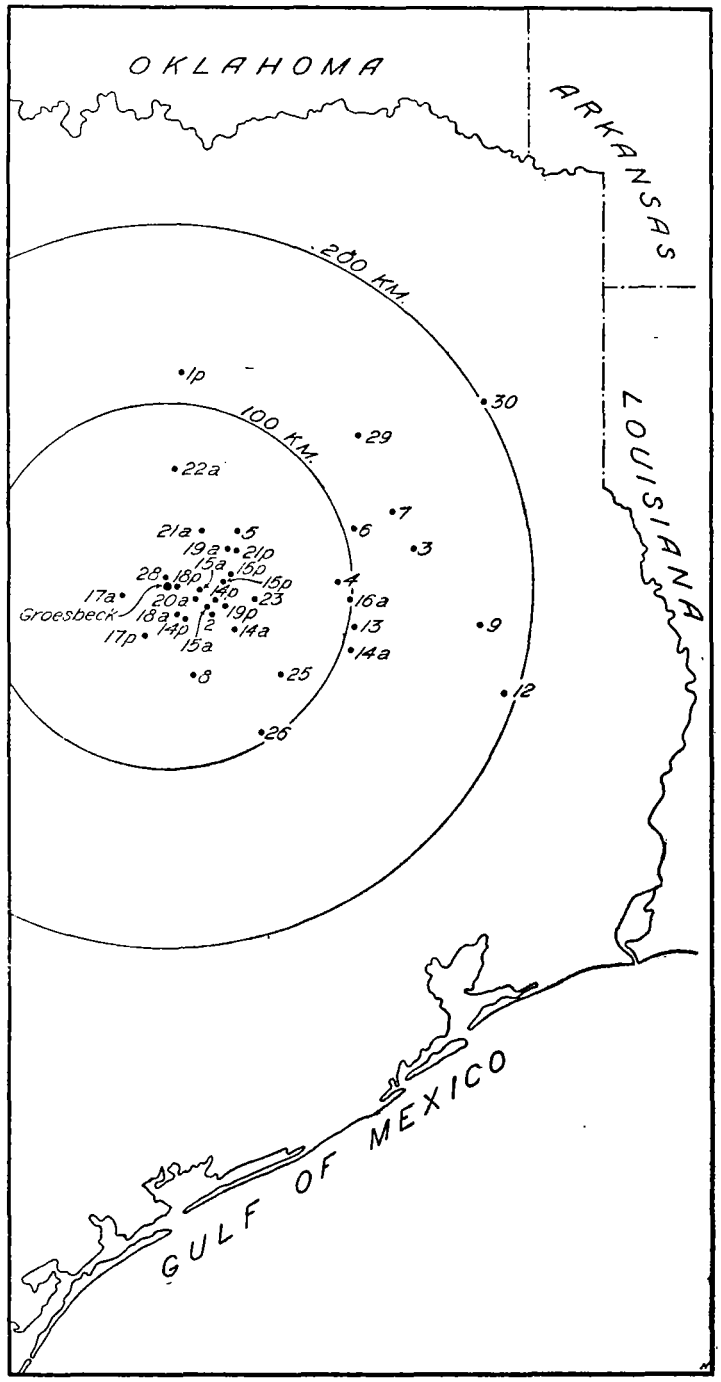

FIGURE 1.—Landing places (with dates) of sounding balloons released from Groesbeck, Tex., during October, 1927

It is expected that these data will be published by the International Commission for the Exploration of the Upper Air, including those for the principal isobaric levels, the latter indicating geo-dynamic meters, instead of geometric heights; also tephigrams.

[3] William R. Blair, The Planetary System of Convection, MONTHLY WEATHER REVIEW, April, 1916.

[2] International Aerological Soundings at Royal Center, Ind., May, 1926, MONTHLY WEATHER REVIEW, July, 1927.

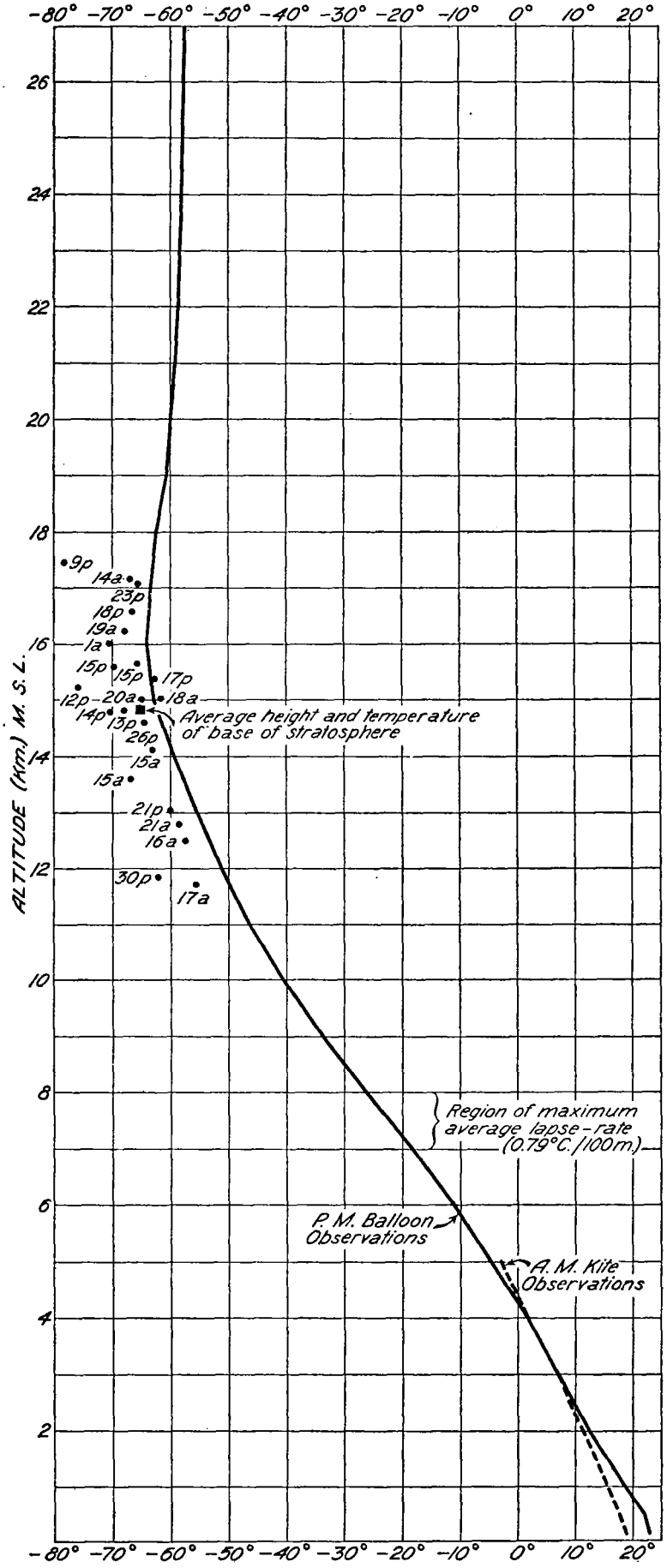

FIGURE 2.—Mean temperature curve (° C.), Groesbeck, Tex., October, 1927

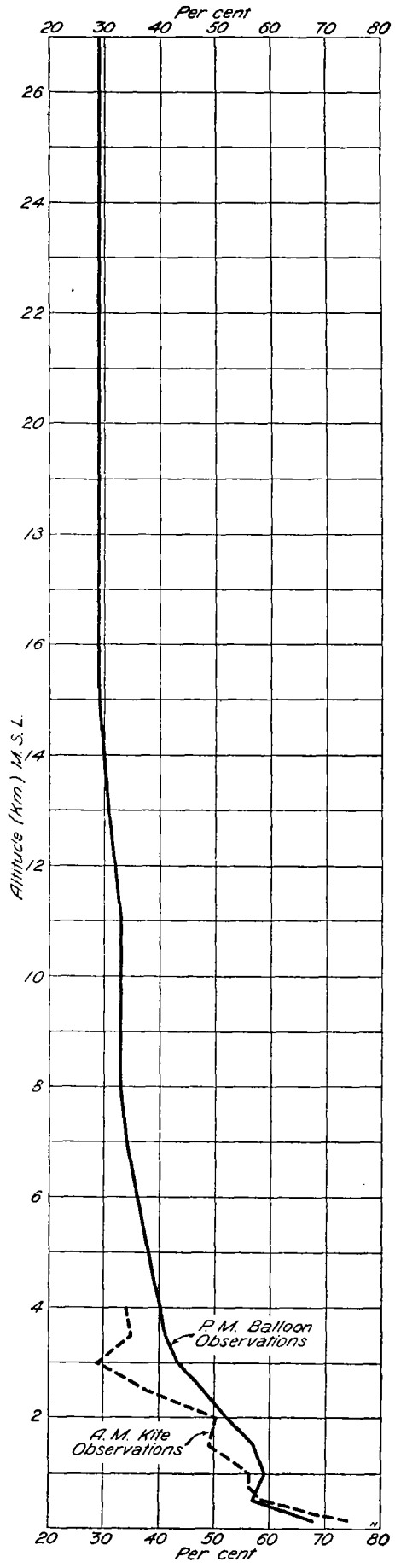

FIGURE 3.—Mean relative humidity curve, Groesbeck, Tex., October, 1927

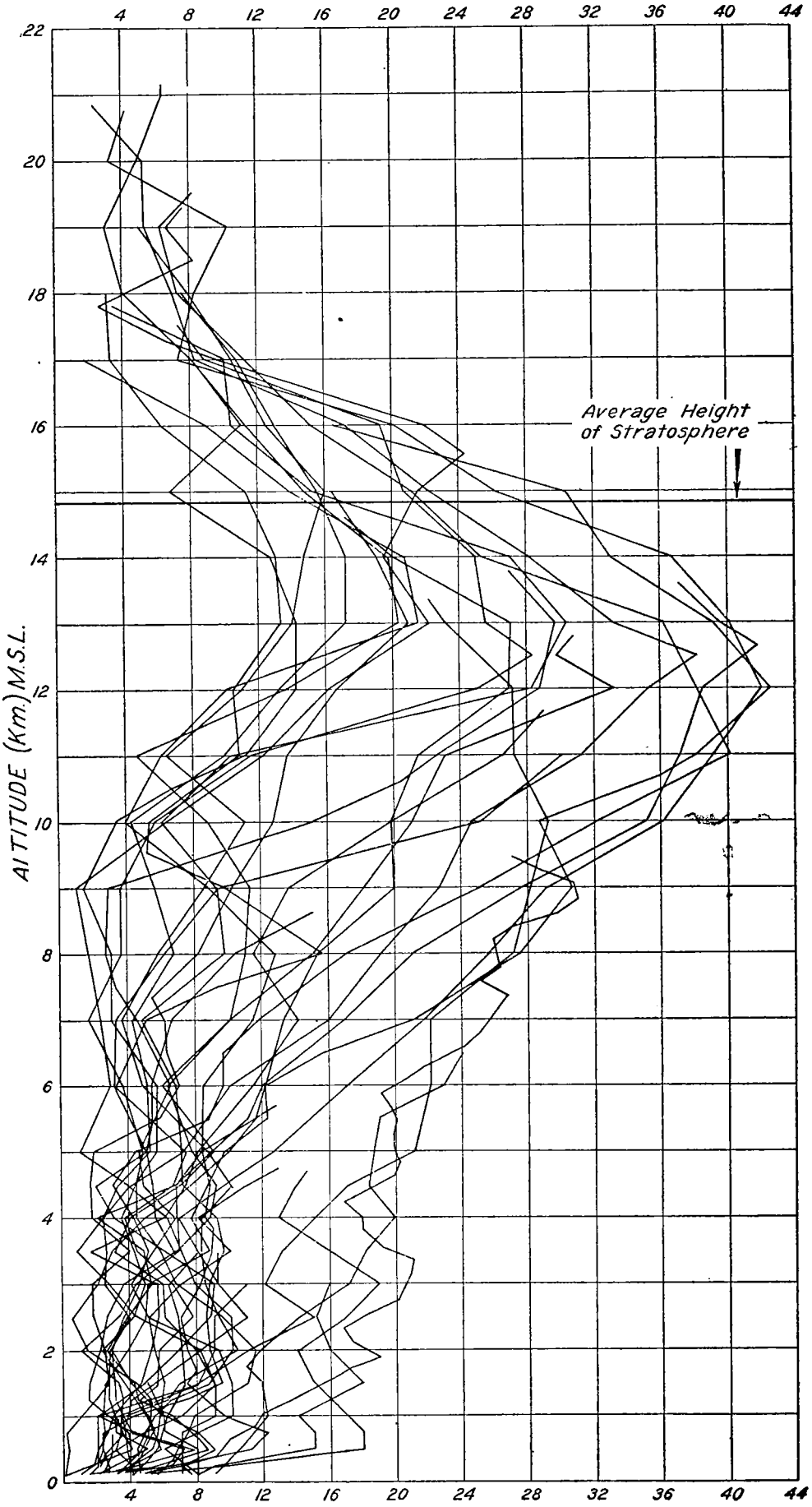

FIGURE 4.—Daily wind velocity curves (m. p. s.), Groesbeck, Tex., October, 1927

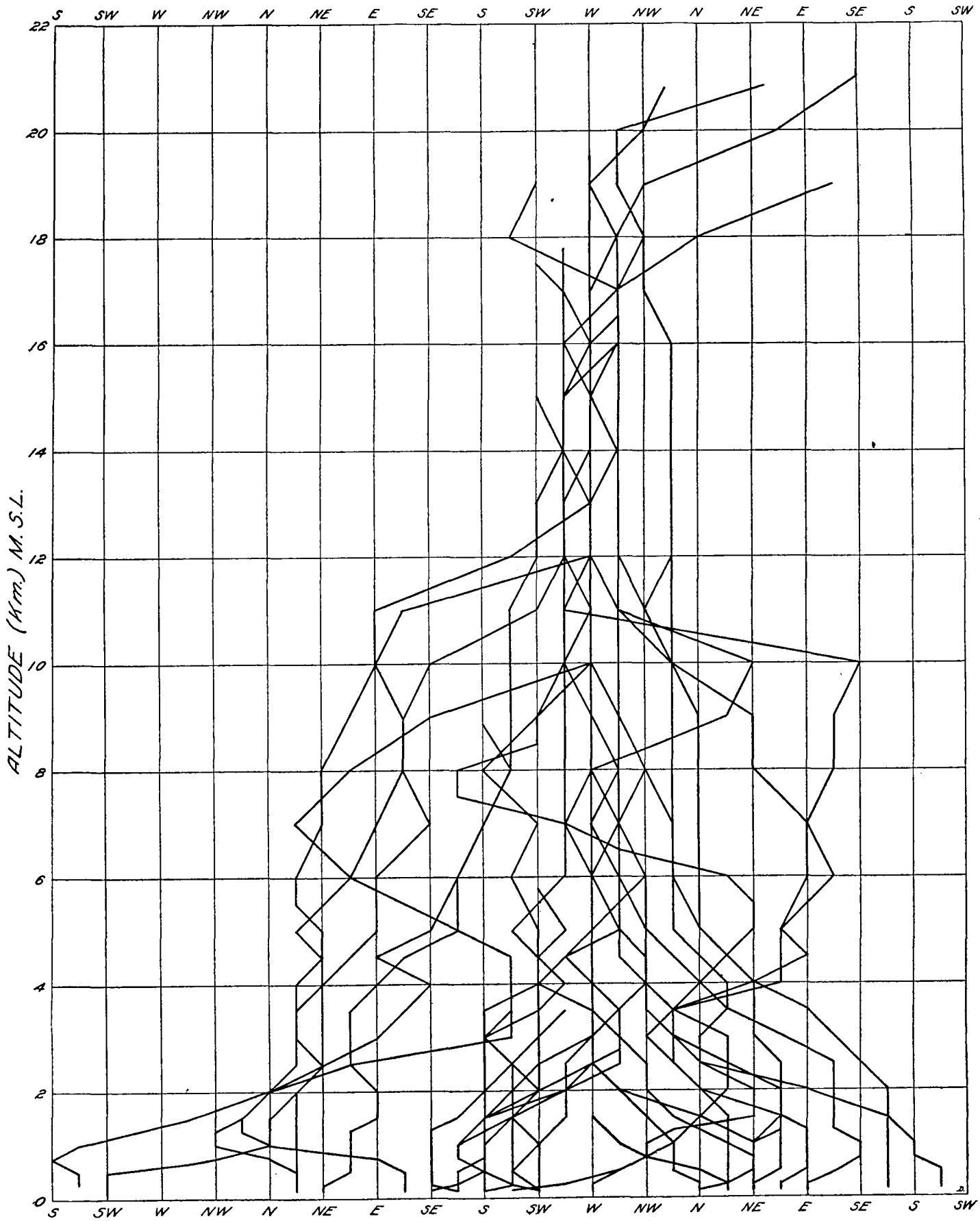

FIGURE 5.—Daily wind direction curves, Groesbeck, Tex., October, 1927

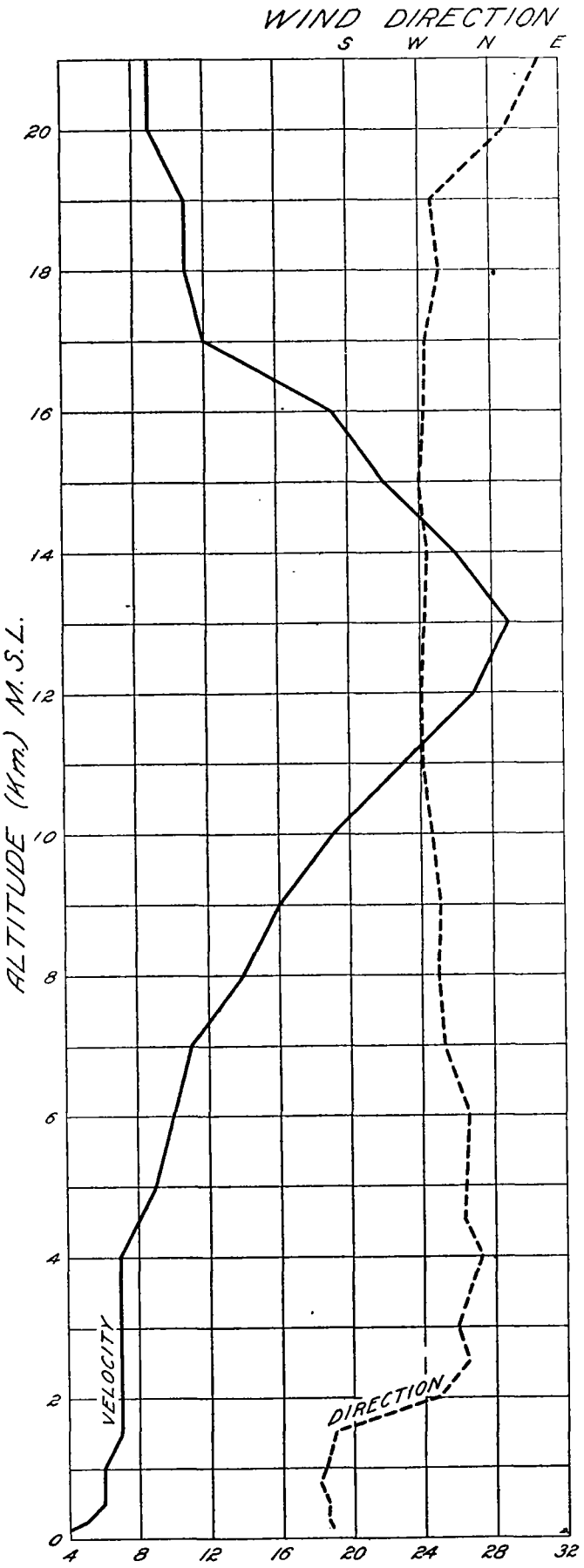

FIGURE 6.—Mean wind velocity (m. p. s.) and direction curves, Groesbeck, Tex., October, 1927

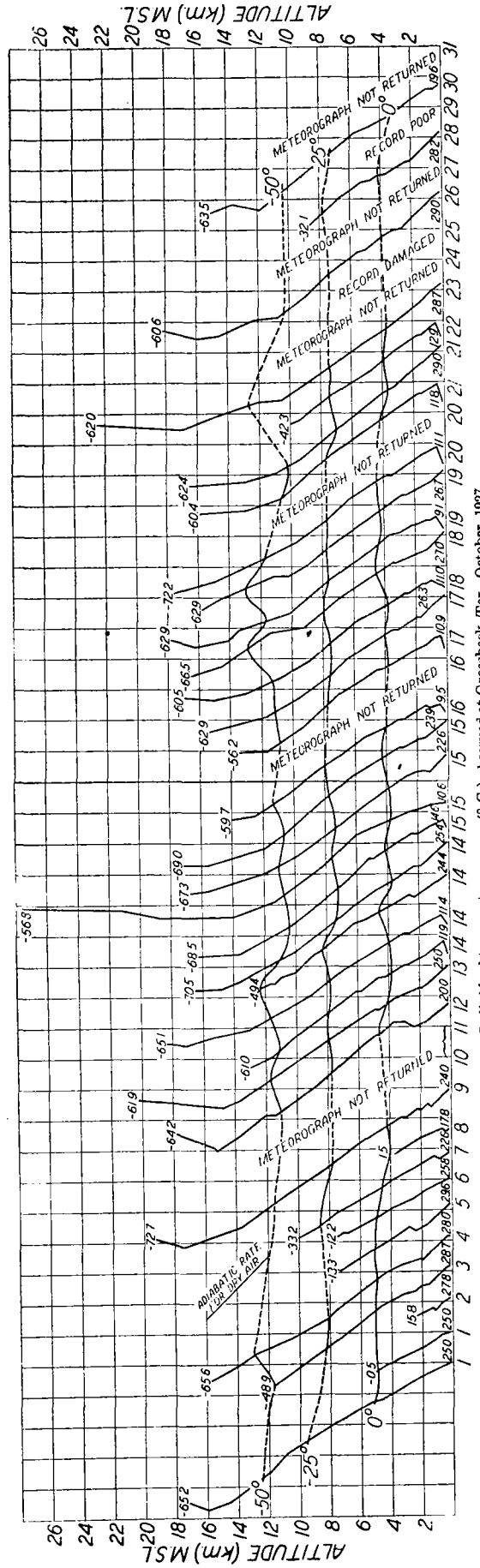

FIGURE 7.—Individual temperature curves (° C.) observed at Groesbeck, Tex., October, 1927

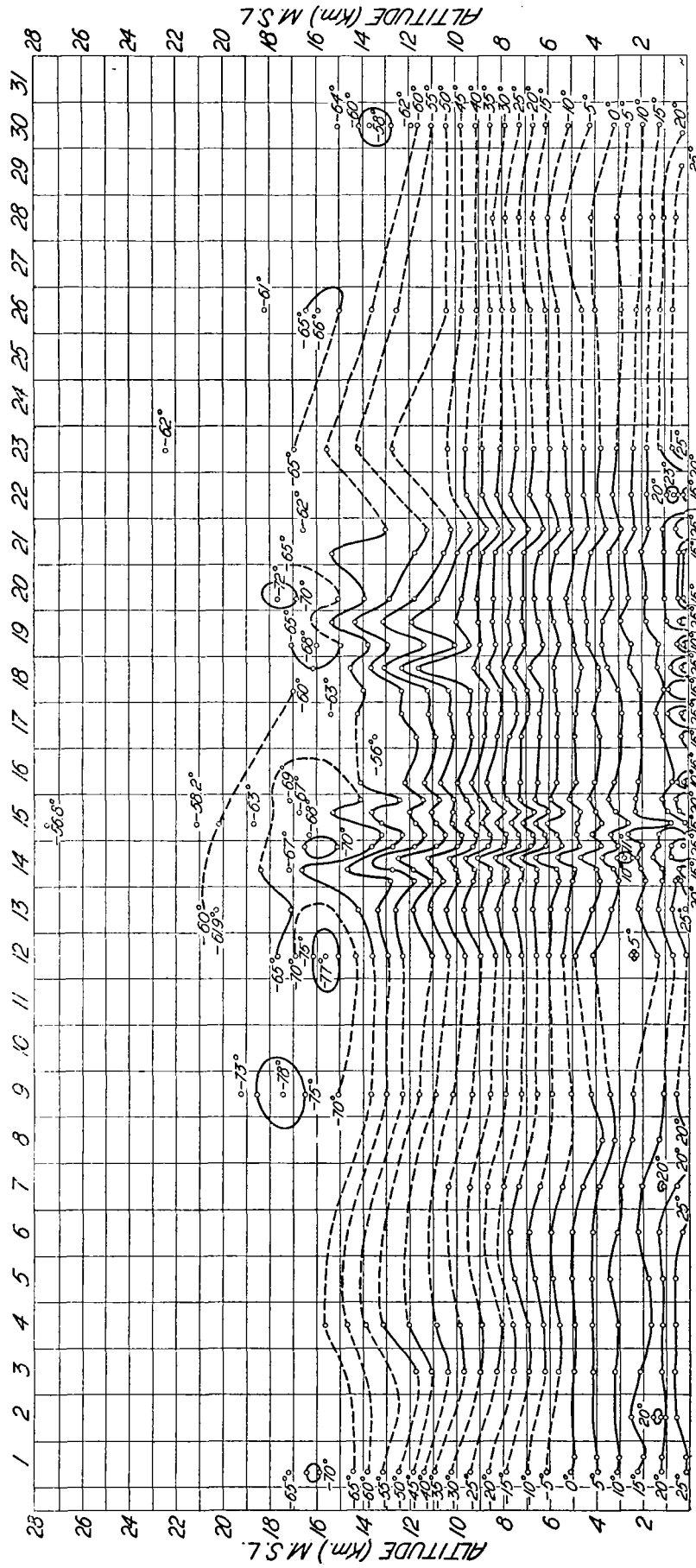

FIGURE 8.—Free-air isotherms (° C.) observed at Groesbeck, Tex., October, 1927

TABLE 1.—*Summary of Observations*

October, 1927	Time of release (ninetieth meridian)	Stratosphere: Height of base above sea level	Stratosphere: Temperature at base	Maximum height reached above mean sea level	Minimum temperature recorded	Meteorograph found place	From Groesbeck—Distance	From Groesbeck—Direction	Balloons, free-lift	Theodolite observations observed with—1 theodolite	Theodolite observations observed with—2 theodolites
		Meters	°*C.*	*Meter*	°*C.*		*Kilometers*		*Grams*	*Minutes*	*Minutes*
1	10:10 a	15,999	−70.3	17,210	−70.3	La Rue, Tex	97	NE.	962	14	2
1	5:09 p			5,054	−0.5	Gastonia, Tex	117	N.	300	8	5
2	4:56 p			2,350	15.8	Farrar, Tex	29	SE.	262	42	0
3	5:16 p			11,619	−48.9	Rusk, Tex	135	ENE.	558	66	65
4	5:22 p	(1)	(1)	19,648	−65.6	Elkhart, Tex	74	ENE.	660	61	61
5	4:48 p			7,461	−14.1	Steward's Mill, Tex	48	NE.	457	77	72
6	4:46 p			7,483	−12.2	Neches, Tex	97	NE.	307	32	32
7	5:20 p			10,077	−33.2	Jacksonville, Tex	116	ENE.	407	2	0
8	5:06 p			3,744	1.5	Easterly, Tex	48	SSE.	320	0	0
9	4:43 p	17,467	−78.3	19,240	−78.3	Lufkin, Tex	166	E.	730	90	83
10	4:35 p			[2] 20,620		Not returned			780	79	79
11	4:42 p			[3] 6,310		do			835	57	24
12	4:54 p	15,198	−75.6	17,833	−76.7	Manning, Tex	180	ESE.	630	45	0
13	4:26 p	14,791	−67.9	20,300	−67.9	Crockett, Tex	113	E.	662	108	108
14	12:04 a			13,007	−61.0	do	109	E.	937	15	15
14	6:28 a	17,165	−66.6	18,406	−66.6	Jewett, Tex	32	E.	790	64	63
14	12:05 p			12,243	−49.4	Oletha, Tex	21	E.	1,187	103	102
14	3:53 p	14,796	−69.9	16,545	−70.5	Farrar, Tex	27	SE.	580	97	89
15	12:06 a	13,591	−67.0	16,316	−68.5	do	24	SE.	997	17	15
15	6:31 a	14,087	−63.0	27,671	−63.4	Personville, Tex	16	SE.	1,005	81	75
15	12:11 p	15,630	−66.1	16,776	−67.3	Freestone, Tex	29	E.	1,190	65	63
15	4:07 p	15,563	−69.4	17,150	−69.4	do	32	E.	780	71	69
16	6:33 a	12,527	−57.3	14,018	−59.7	Grapeland, Tex	97	E.	970	108	106
16	3:58 p			[4] 17,052		Not returned			680	111	110
17	6:35 a	11,695	−55.6	13,512	−56.2	Ben Hur, Tex	23	WSW.	802	44	35
17	4:15 p	15,375	−62.9	17,921	−62.9	Kosse, Tex	29	SSW.	680	123	118
18	6:34 a	15,017	−62.2	16,976	−62.2	Oleatha, Tex	19	SE.	995	70	67
18	4:03 p	16,561	−66.5	16,561	−66.5	Groesbeck, Tex	6	E.	930	74	67
19	6:34 a	16,221	−67.6	17,801	−67.6	Dew, Tex	37	ENE.	950	80	78
19	3:44 p			15,805	−62.9	Donie, Tex	29	ESE.	720	70	62
20	6:27 a	15,033	−64.9	17,631	−72.2	Personville, Tex	19	E.	970	67	65
20	3:45 p			[5] 8,890		Not returned			660	52	52
21	6:30 a	12,833	−58.4	15,908	−60.4	Kirven, Tex	32	NE.	797	64	03
21	4:04 p	13,004	−59.9	16,538	−62.4	Fairfield, Tex	51	NE.	712	63	58
22	6:25 a			10,014	−42.3	Corsicana, Tex	71	N.	592	88	83
23	4:31 p	17,089	−65.8	22,528	−65.8	Buffalo, Tex	43	ESE.	735	108	163
24	3:59 p			[6] 19,325		Not returned			850	77	77
25	3:45 p			[7] 13,490		Dickey, Tex	89	ESE.	710	100	54
26	3:58 p	14,603	−64.5	18,202	−66.2	Iola, Tex	113	SE.	640	97	80
27	3:51 p			[8] 21,450		Not returned			890	73	73
28	4:03 p			8,610	−32.1	Groesbeck, Tex	3	N.	745	33	33
29	4:03 p			[9] 2,060		Chandler, Tex	124	NE.	850	8	8
30	3:51 p	11,853	−62.0	15,019	−63.5	Longview, Tex	188	NE.	820	0	0
31	3:57 p			[10] 2,610		Not returned			750	45	9

[1] Temperature record lost above 15,735 meters.
[2] Height determined from two theodolite observations at end of seventy-eighth minute.
[3] Height determined from two theodolite observations at end of twenty-fourth minute.
[4] Height determined from two theodolite observations at end of one hundred and third minute.
[5] Height determined from two theodolite observations at end of forty-eighth minute.
[6] Height determined from two theodolite observations at end of seventy-seventh minute.
[7] (Record damaged) height determined from two theodolite observations at end of fifty-fourth minute.
[8] Height determined from two theodolite observations at end of seventy-third minute.
[9] (Record inaccurate) height determined from two theodolite observations at end of eighth minute.
[10] Height determined from two theodolite observations at end of ninth minute.

TABLE 2.—*Tabulated data*

OCTOBER 1, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
10:10	141	994.2	25.0		92	29.16	se.	6.7	3 A. St., SW.; 5 St. Cu., S.; 1 Cu. Nb., S.; 1 St., S.
	250		24.5		93	28.62	se.	9.3	
	500	955.0	23.3		94	26.91	sse.	14.1	
	750		22.1		95	25.29	sse	15.9	
10:12	771	925.4	22.0	0.48	95	25.14	sse.	16.1	
	1,000	900.8	20.9		95	23.49			R. B. 5:18 a., E. 5:32 a.
	1,250		19.7		95	21.81			R. B. 7:12 a., E. 7:38 a.
	1,500	849.0	18.5		95	20.24			R. B. 9:55 a., E. 10:03 a.
	2,000	802.3	16.2		95	17.50			R. B. 10:53 a., E. 11:30 a.
10:15	2,056	797.2	15.9	0.47	95	17.17			R. B. 12:24 p., continued showery to 2:48 p.
	2,500	758.9	13.4		94	14.46			
	3,000	716.5	10.6		93	11.89			[illegible] in S. at 12:20 p., moving from SSW. [illegible] in SW. at 4:10 p. moved through W. to NW.
	3,500	675.5	7.8		92	9.73			
	4,000	635.0	4.9		91	7.88			
	4,500	595.0	2.1		90	6.39			

TABLE 2.—*Tabulated data*—Continued

OCTOBER 1, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
10:23	4,642	584.2	1.3	0.56	90	6.04			Cloudy throughout day.
	5,000	559.3	0.4		93	5.85			
10:26	5,325	537.0	−0.5	0.26	95	5.57			
	6,000	492.7	−4.3		95	4.07			
	7,000	434.0	−10.0		95	2.49			
10:32	7,382	413.7	−12.2	0.57	95	2.04			
	8,000	382.5	−16.0		95	1.44			
	9,000	335.5	−22.3		95	0.80			
	10,000	292.9	−28.5		95	0.43			
10:40	10,854	258.9	−33.8	0.62	95	0.25			
	11,000	253.5	−35.4		94	0.20			
	12,000	220.1	−46.5		85	0.05			
10:47	12,023	219.6	−46.7	1.11	85	0.05			Superadiabatic.
	13,000	191.0	−53.8		79	0.02			
	14,000	163.9	−61.1		73	0.01			
10:53	14,552	149.4	−65.1	0.73	70				
	15,000	139.0	−66.7		70				
10:57	15,999	118.9	−70.3	0.36	70				Base of stratosphere.
	17,000	101.3	−66.1		70				
11:00	17,210	97.9	−65.2	−0.42	70				

TABLE 2.—*Tabulated data*—Continued

OCTOBER 1, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
5:09	141	990.2	25.0	-------	92	29.16	sse.	4.5	4 A. St., (?); 1 Cu. Nb., SSW.; 4 Nb., S.; 1 St. Cu., SSE.
	250	-------	24.7	-------	90	28.03	sse.	10.9	
	500	951.0	24.0	-------	86	25.68	sse.	18.5	
5:12	737	925.4	23.3	0.28	82	23.48	sse.	20.1	
	750	-------	23.2	-------	82	23.34	sse.	20.0	
	1,000	898.0	21.2	-------	87	21.92	sse.	18.6	Raining.
5:14	1,050	892.8	20.8	0.80	88	21.63	sse.	18.3	
	1,250	-------	19.5	-------	84	19.05	sse.	17.3	
	1,500	848.2	17.9	-------	78	16.01	-------	-------	Intermittent showers from 4:15 p. to 5:35 p.; also from 6:20 p. to Oct. 2, 7:10 a.
5:18	1,851	813.3	15.6	0.65	70	12.41	-------	-------	
	2,000	799.3	14.9	-------	72	12.20	-------	-------	
	2,500	753.2	12.6	-------	77	11.23	-------	-------	
	3,000	709.9	10.3	-------	83	10.40	-------	-------	
	3,500	668.8	7.9	-------	89	9.48	-------	-------	
5:25	3,593	661.0	7.5	0.46	90	9.33	-------	-------	
	4,000	629.5	5.2	-------	90	7.96	-------	-------	
5:28	4,063	624.6	4.8	0.57	90	7.74	-------	-------	
5:29	4,258	609.9	4.6	0.10	90	7.63	-------	-------	Isothermal.
	4,500	592.1	3.0	-------	92	6.97	-------	-------	
	5,000	557.2	−0.2	-------	95	5.71	-------	-------	
5:36	5,054	553.2	−0.5	0.64	95	5.57	-------	-------	

OCTOBER 2, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.									
4:56	141	993.2	27.8	-------	67	25.06	wnw.	0.9	1 Ci. St., WSW.; 3 cu, N.
	250	-------	27.1	-------	68	24.41	nw.	1.2	
	500	954.0	25.5	-------	70	22.86	nnw.	0.6	
5:02	664	936.2	24.4	0.65	72	22.02	nnw.	0.8	
	750	-------	23.5	-------	75	21.74	n.	0.9	
	1,000	900.6	20.6	-------	85	20.64	n.	2.9	
5:07	1,139	886.4	19.2	1.10	90	20.03	nnw.	4.2	Superadiabatic.
	1,250	-------	20.7	-------	67	16.37	nnw.	6.2	
5:09	1,285	871.4	21.2	−13.7	60	15.11	nnw.	6.5	Inversion.
	1,500	850.3	20.1	-------	58	13.65	nnw.	7.1	
	2,000	802.6	17.6	-------	53	10.67	wnw.	9.0	
5:31	2,350	770.0	15.8	0.51	50	8.98	wnw.	11.2	R. B. 8:01 a., E. 9 a. Total rainfall during 24 hours ending 7:10 a, Oct. 2 was 8.86 inches. Surface wind shifted from W. to NW. at 8:35 a. and to N. at 10:15 a. Cloudy during morning; partly cloudy during afternoon.

OCTOBER 3, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.									
5:16	141	998.0	28.7	-------	55	21.68	n.	1.8	Few Cu., NNW.
	250	-------	28.4	-------	54	20.91	nne.	1.7	
5:18	402	969.0	27.2	0.57	52	18.78	ne.	1.8	
	500	958.3	26.3	-------	54	18.50	ne.	2.0	Clear all day.
	750	-------	23.9	-------	58	17.21	ne.	2.6	
	1,000	905.3	21.6	-------	62	16.01	nne.	2.9	
	1,250	-------	19.2	-------	66	14.69	n.	3.7	
	1,500	854.3	16.9	-------	70	13.48	nnw.	4.7	
5:24	1,528	851.6	16.6	0.94	70	13.23	nnw.	4.8	Adiabatic.
	2,000	805.4	15.3	-------	43	7.48	nw.	5.3	
5:26	2,062	799.8	15.1	0.28	40	6.87	nw.	5.1	
5:28	2,431	765.5	12.1	0.81	44	6.21	nw.	5.5	
	2,500	759.3	11.9	-------	43	5.99	nw.	5.7	
	3,000	715.1	10.6	-------	34	4.35	wnw.	5.6	
5:32	3,221	696.5	10.0	0.27	30	3.68	wsw.	2.8	
	3,500	673.7	8.5	-------	29	3.22	wnw.	1.6	
	4,000	634.0	5.9	-------	26	2.41	nnw.	6.0	
	4,500	596.1	3.2	-------	23	1.77	wnw.	7.3	
5:40	4,731	579.6	2.0	0.53	22	1.55	wnw.	7.7	
	5,000	560.4	−0.1	-------	22	1.33	wnw.	8.0	
	6,000	494.1	−8.0	-------	22	0.69	w.	11.3	
5:49	6,328	474.1	−10.6	0.79	22	0.55	w.	11.2	
	7,000	435.2	−15.6	-------	21	0.33	w.	14.0	
	8,000	381.0	−23.0	-------	20	0.16	w.	11.3	
5:59	8,218	369.5	−24.6	0.74	20	0.13	w.	11.4	
	9,000	340.3	−30.2	-------	20	0.08	w.	13.5	
	10,000	293.9	−37.4	-------	20	0.03	wsw.	19.7	
6:11	10,282	277.4	−39.4	0.72	20	0.03	wsw.	22.4	
	11,000	252.1	−44.5	-------	20	0.01	wsw.	25.4	
6:23	11,619	228.5	−48.9	0.71	20	0.01	-------	-------	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 4, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
5:22	141	998.6	28.0	-------	48	18.16	sse.	2.2	Cloudless.
	250	-------	28.3	-------	41	15.78	se.	4.0	Clear all day.
5:22½	265	984.6	28.3	−0.24	40	15.40	se.	4.1	Inversion.
	500	959.0	26.1	-------	42	14.21	se.	5.2	
	750	-------	23.8	-------	44	12.98	se.	5.6	
5:25	860	920.3	22.8	0.92	45	12.50	se.	5.6	Adiabatic.
	1,000	905.5	21.5	-------	45	11.55	se.	5.7	
	1,250	-------	19.1	-------	44	9.73	se.	5.8	
	1,500	854.4	16.7	-------	43	8.18	sse.	6.0	
5:30	1,954	809.8	12.3	0.96	42	6.01	s.	5.4	Adiabatic.
	2,000	805.3	12.8	-------	42	6.21	s.	5.4	
5:31	2,061	799.7	13.4	−1.03	42	6.46	s.	5.3	Inversion.
	2,500	759.5	12.0	-------	34	4.77	ssw.	5.1	
	3,000	715.3	10.4	-------	25	3.15	s.	4.0	
5:36	3,283	691.0	9.5	0.32	20	2.37	sw.	3.8	
	3,500	673.0	8.4	-------	19	2.09	sw.	5.3	
	4,000	632.9	5.9	-------	17	1.58	sw.	6.6	
5:40	4,312	609.8	4.4	0.50	16	1.34	sw.	5.1	
	4,500	595.4	3.0	-------	16	1.21	sw.	4.8	
	5,000	559.7	−0.6	-------	16	0.93	sw.	4.5	
5:49	5,988	494.9	−7.8	0.73	16	0.51	ssw.	6.5	
	6,000	494.0	−7.9	-------	16	0.50	ssw.	6.4	
	7,000	434.9	−15.4	-------	15	0.24	sw.	4.4	
5:55	7,502	406.3	−19.1	0.75	15	0.17	s.	3.2	
	8,000	380.0	−24.3	-------	15	0.10	s.	2.6	
5:59	8,157	371.8	−25.9	1.04	15	0.09	s.	2.6	Superadiabatic.
	9,000	331.0	−30.4	-------	15	0.06	sw.	2.8	
	10,000	287.5	−35.8	-------	14	0.03	w.	15.0	
6:06	10,635	263.0	−39.2	0.54	14	0.02	w.	20.3	
	11,000	249.9	−40.7	-------	14	0.02	w.	22.5	
	12,000	216.8	−44.8	-------	13	0.01	w.	28.6	
6:14	12,801	192.2	−48.1	0.41	13	0.01	w.	29.4	
	13,000	186.9	−49.4	-------	13	0.01	w.	29.6	
	14,000	160.4	−55.9	-------	15	-------	wnw.	26.0	
6:24	14,313	153.0	−58.0	0.65	15	-------	-------	-------	
	15,000	138.0	−61.7	-------	15	-------	-------	-------	
6:29	[1] 15,735	122.6	−65.6	0.53	15	-------	-------	-------	
	16,000	117.9	-------	-------	15	-------	-------	-------	
	17,000	101.9	-------	-------	15	-------	-------	-------	
	18,000	87.6	-------	-------	15	-------	-------	-------	
	19,000	74.2	-------	-------	15	-------	-------	-------	
	19,648	65.6	-------	-------	15	-------	-------	-------	

OCTOBER 5, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.									
4:48	141	997.3	29.6	-------	59	24.49	s.	4.0	1 Cu., SSW.
	250	-------	28.6	-------	61	23.90	sse.	4.6	
	500	958.1	26.2	-------	64	21.79	sse.	5.8	Cloudy in morning; clear in afternoon.
	750	-------	23.9	-------	68	20.18	s.	6.9	
	1,000	904.7	21.5	-------	71	18.22	s.	7.5	
	1,250	-------	19.2	-------	75	16.70	ssw.	7.1	
4:53	1,266	877.2	19.0	0.94	75	16.48	ssw.	7.0	Adiabatic.
	1,500	852.9	16.9	-------	83	15.99	ssw.	6.8	
4:56	1,698	834.0	15.2	0.88	90	15.55	ssw.	7.6	10/10 Lt. fog B. DN a., E. 9:35 a.
	2,000	805.3	13.6	-------	86	13.40	sw.	6.8	Sprinkle B. 10 a., E. 10:05 a.
4:59	2,375	770.1	11.6	0.53	80	10.93	sw.	5.9	
	2,500	758.9	12.3	-------	64	9.16	sw.	5.4	
5:02	2,817	730.3	14.1	−0.57	25	4.02	ssw.	4.6	Inversion.
	3,000	714.9	11.9	-------	24	3.34	s.	5.0	
	3,500	673.8	9.5	-------	21	2.49	s.	3.9	
	4,000	634.3	6.1	-------	19	1.79	sw.	4.0	
5:11	4,168	621.1	5.0	0.67	18	1.57	wsw.	4.7	
	4,500	596.9	3.1	-------	18	1.37	sw.	7.0	
	5,000	560.8	0.2	-------	17	1.05	sw.	6.1	
5:24	5,672	515.6	−3.7	0.58	16	0.72	wsw.	7.0	
	6,000	495.0	−5.8	-------	16	0.60	wsw.	10.0	
	7,000	435.9	−12.2	-------	14	0.30	wsw.	11.1	
5:45	7,293	419.1	−14.1	0.64	14	0.25	-------	-------	
5:50	7,461	409.9	−13.3	−0.48	14	0.27	-------	-------	Inversion.

OCTOBER 6, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity Relative	Humidity Vapor pressure	Wind Direction	Wind Velocity	Remarks
P. m.									
4:46	141	997.3	25.8	-------	88	29.26	se.	3.1	2 A. St., SSW.; 5 Cu., WSW.
	250	-------	25.1	-------	-------	-------	sse.	6.4	
	500	957.6	23.7	-------	-------	-------	sse.	11.2	Cloudy in morning; partly cloudy in afternoon.
4:49	745	930.9	22.2	0.60	-------	-------	s.	12.2	
	1,000	904.0	21.1	-------	-------	-------	s.	9.7	
	1,250	-------	20.1	-------	-------	-------	s.	8.6	Lt. rain from 9:15 a. to 10 a. about 10 mi. S. of station.
	1,500	853.4	19.1	-------	-------	-------	s.	7.4	

[1] Temperature record lost above 15,735 m.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 6, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
4:55	1,712	832.4	18.2	0.41			s.	8.0	R. B. 1:44 p., E. 2 p.
	2,000	805.0	16.2				ssw.	7.4	☒ in S. at 2:30 p.
	2,500	759.1	12.8				ssw.	7.0	R. B. 3:45 p., E.
5:00	2,540	755.3	12.5	0.69			ssw.	7.0	4 p. (thunder-
	3,000	714.5	10.5				sw.	8.2	squall).
	3,500	672.6	8.3				sw.	8.9	
5:08	3,847	645.7	6.8	0.44			sw.	9.0	
	4,000	633.8	5.9				sw.	8.4	
	4,500	597.0	2.8				sw.	8.8	
5:13	4,780	576.5	1.1	0.61			sw.	8.0	
	5,000	560.9	0.0				wsw.	8.3	
	6,000	494.6	−5.2						
5:23	6,771	448.5	−9.2	0.52					
	7,000	435.5	−9.2						
5:25	7,144	427.4	−9.2	0.00					Isothermal.
5:28	7,483	409.5	−12.2	0.88					

OCTOBER 7, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
5:20	141	999.3	22.6		89	24.42	nne.	5.4	3 St. Cu.; NE.; 7 St., NNE.
	250		21.9		89	23.41			
	500	959.2	20.3		90	21.45			Cloudy all day.
	750		18.6		90	19.30			
5:23	801	925.9	18.3	0.65	90	18.94			
	1,000	905.0	19.4		83	18.71			
5:25	1,133	890.9	20.1	−0.54	78	18.36			Inversion.
	1,250		19.4		79	17.81			
	1,500	853.4	18.0		80	16.52			Intermittent showers from 9 a. to 2:50 p. and from 5:40 p. to Oct. 8, 7:05 a.
	2,000	805.0	15.0		82	13.99			
	2,500	759.7	12.0		85	11.93			
5:34	2,592	750.9	11.6	0.58	85	11.61			
	3,000	717.0	9.4		85	10.02			Surface wind shifted about 11:45 a. from SW. to N.
	3,500	675.0	6.8		85	8.40			
5:40	3,877	643.2	4.8	0.53	85	7.31			
	4,000	634.0	3.9		85	6.86			
	4,500	596.0	0.3		86	5.37			
5:47	4,682	582.5	−1.0	0.72	86	4.84			
	5,000	559.5	−2.7		86	4.21			
	6,000	492.9	−7.8		85	2.69			
5:59	6,184	481.6	−8.8	0.52	85	2.47			
	7,000	433.9	−13.4						
6:08	7,448	408.9	−15.9	0.56					
	8,000	379.3	−20.2						
6:19	8,740	343.7	−26.0	0.78					
	9,000	332.0	−27.4						
	10,000	290.0	−32.8						
6:41	10,077	286.5	−33.2	0.54					

OCTOBER 8, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
5:06	141	999.7	17.8		95	19.37	nne.	4.5	10 St., NNE.
	250		16.8						
5:09	364	973.9	15.7	0.94					Adiabatic.
	500	958.5	16.8						
5:12	620	945.2	17.8	−0.82					Inversion.
	750		17.2						
	1,000	904.3	16.2						Cloudy all day.
5:26	1,161	887.1	15.5	0.43					
	1,250		15.2						Intermittent rain from 9:05 a. to 10:30 a. R. B. 3:26 p., E. 5:30 p.
	1,500	852.0	14.2						
	2,000	803.0	12.3						
5:39	2,045	798.9	12.1	0.38					
	2,500	756.0	9.2						
	3,000	712.0	6.1						
5:57	3,127	701.2	5.3	0.63					
	3,500	670.2	3.0						
6:11	3,744	650.2	1.5	0.62					

OCTOBER 9, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
4:43	141	999.7	24.0		46	13.74	ne.	3.1	Few Ci, W.
	250		22.9				ne.	3.6	
	500	958.5	20.8				ne.	4.5	Cloudy to 10 a., then clear in afternoon.
	750		18.6				ne.	5.0	
	1,000	905.0	16.4				ne.	5.2	
	1,250		14.2				ene.	5.2	
4:47	1,278	875.7	12.6	1.00			ene.	5.2	Adiabatic.
	1,500	852.3	14.2				ene.	4.3	
4:48	1,532	849.5	14.4	−0.71			ene.	4.1	Inversion.
4:50	1,956	807.8	10.5	0.92			n.	1.5	Adiabatic.
	2,000	803.4	10.7				n.	1.4	
4:51	2,190	785.5	11.3	−0.34			nnw.	1.1	Inversion.
	2,500	756.7	9.0				nnw.	0.6	
4:54	2,948	716.8	5.7	0.74			nw.	2.0	
	3,000	712.1	5.7				nw.	2.1	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 9, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
4:55	3,265	689.6	5.7	0.00			nnw.	2.5	Isothermal.
	3,500	669.9	4.3				nnw.	2.9	
	4,000	629.5	1.3				nw.	4.8	Misting B. DNa., E. 7. 7:03 a.
	4,500	591.5	−1.8				nw.	7.6	Misting B. 7:45 a., E. 8:45 a.
	5,000	555.1	−4.8				wnw.	9.8	
5:06	5,529	519.5	−8.0	0.60			w.	11.5	
5:07	5,555	517.9	−7.7	−1.15			w.	11.6	Inversion.
	6,000	489.4	−11.0				w.	12.0	
5:12	6,585	453.2	−15.4	0.75			w.	15.6	
	7,000	430.4	−18.6				wnw.	21.0	
	8,000	375.9	−26.3				wnw.	27.4	
5:21	8,314	359.2	−28.7	0.77			wnw.	33.0	
	9,000	325.0	−33.0				w.	30.6	
	10,000	282.3	−39.3				w.	28.6	
5:31	10,675	257.0	−43.6	0.63			w.	35.8	
	11,000	245.4	−45.9				w.	38.0	
	12,000	212.0	−53.0				w.	42.5	
	13,000	182.3	−60.0				w.	37.0	
5:46	13,807	159.7	−65.7	0.71			w.	31.6	
	14,000	155.7	−66.4				w.	32.8	
	15,000	134.0	−69.8				w.	30.0	
	16,000	113.0	−73.2				w.	16.5	
	17,000	95.0	−76.7						
6:01	17,467	87.8	−78.3	0.34					Base of stratosphere.
	18,000	80.5	−76.6						
	19,000	68.5	−73.5						
6:10	19,240	65.4	−72.7	−0.32					

OCTOBER 12, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
4:54	141	1,002.4	20.0		37	8.66	n.	7.6	Cloudless all day.
	250		19.0				nne.	7.0	
	500	961.1	16.8				nne.	7.3	
4:56	629	946.8	15.7	0.88			nne.	8.4	
	750		14.8				nne.	9.7	
	1,000	905.7	12.9				nne.	11.5	
	1,250		10.9				nne.	12.4	
	1,500	853.2	9.1				nne.	14.8	
5:00	1,611	842.0	8.2	0.76			n.	15.8	
	2,000	803.2	6.5				n.	19.0	
5:03	2,379	767.2	4.8	0.44			nnw.	16.9	
	2,500	755.9	5.6				nnw.	16.8	
5:06	2,958	715.0	8.4	−0.62			nnw.	20.2	Inversion.
	3,000	711.4	8.4				nnw.	20.3	
	3,500	670.0	8.3				nw.	21.0	
5:10	3,741	650.5	8.2	0.03			nw.	19.0	Isothermal.
	4,000	630.6	6.0				nw.	18.1	
	4,500	593.1	1.8				nw.	17.8	
5:14	4,680	579.9	0.3	0.84			nw.	19.4	
5:16	4,830	569.0	0.1	0.13			nw.	20.0	
	5,000	556.9	−1.3				nw.	20.2	
5:20	5,743	506.9	−7.2	0.80			nw.	20.0	
	6,000	490.7	−9.5				nw.	19.1	
5:26	6,909	435.6	−17.5	0.88			nw.	25.0	
	7,000	430.6	−18.3				wnw.	25.1	
	8,000	376.6	−27.0				wnw.	26.3	
5:35	8,657	343.5	−32.7	0.87			wnw.	28.7	
	9,000	327.9	−35.2				wnw.	30.9	
	10,000	283.6	−42.4						
5:44	10,659	257.8	−47.2	0.72					
	11,000	245.2	−49.5						
5:48	11,403	230.7	−52.2	0.67					
5:51	11,985	211.4	−52.4	0.03					Isothermal.
	12,000	211.0	−52.5						
	13,000	180.5	−60.3						
6:00	13,705	162.0	−65.8	0.78					
	14,000	154.9	−67.8						
	15,000	131.9	−74.5						
6:12	15,198	127.1	−75.6	0.66					Base of stratosphere.
6:17	15,369	123.6	−73.8	−1.05					
6:21	15,916	113.0	−76.7	0.53					
	16,000	111.5	−76.2						
	17,000	96.0	−69.6						
6:46	17,833	82.7	−64.2	−0.65					

OCTOBER 13, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
4:26	141	1,005.1	25.0		28	8.88	n.	2.7	Cloudless all day.
	250		24.0		28	8.36	n.	3.4	
	500	964.3	21.8		28	7.32	nnw.	4.3	
	750		19.5		28	6.35	nnw.	4.4	
	1,000	909.8	17.2		28	5.50	n.	4.2	
4:31	1,171	891.9	15.7	0.90	28	5.00	nnw.	4.8	Adiabatic.
	1,250		15.0		29	4.95	nnw.	5.0	
	1,500	858.0	12.9		30	4.46	nnw.	5.5	
4:33	1,783	829.3	10.5	0.85	32	4.06	n.	6.9	
4:34	1,995	808.3	10.3	0.09	30	3.76	n.	9.8	Isothermal.
	2,500	761.0	8.4		34	3.75	n.	12.0	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 13, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P. ct.*	*Mb.*		*M. p. s.*	
4:40	2,971	718.7	6.6	0.38	37	3.60	n.	10.6	
	3,000	716.0	6.5	-------	37	3.58	nnw.	11.0	
	3,500	673.6	4.2	-------	38	3.14	nw.	12.8	
4:43	3,681	658.9	3.4	0.45	38	2.96	nw.	14.8	
	4,000	633.3	1.1	-------	38	2.51	nw.	15.6	
	4,500	595.1	−2.5	-------	38	1.89	nw.	12.2	
4:48	4,677	582.1	−3.8	0.72	38	1.69	nw.	13.4	
4:49	4,924	564.1	−3.3	−0.20	35	1.63	wnw.	14.8	Inversion.
	5,000	559.0	−3.8	-------	34	1.52	wnw.	14.6	
	6,000	492.4	−10.2	-------	27	0.69	wnw.	16.2	
4:55	6,343	470.4	−12.4	0.64	25	0.53	wnw.	12.7	
	7,000	431.6	−16.9	-------	23	0.32	wnw.	15.8	
5:03	[1] 7,813	387.1	−22.5	0.69	20	0.16	wnw.	20.4	
	8,000	377.5	−23.8	-------	20	0.14	wnw.	20.4	
	9,000	329.0	−30.6	-------	20	0.07	w.	26.0	
	10,000	286.3	−37.5	-------	20	0.03	w.	24.0	
	11,000	248.0	−44.3	-------	20	0.02	w.	14.2	
	12,000	213.7	−51.2	-------	20	0.01	wnw.	15.9	
	13,000	183.2	−58.0	-------	20	-------	w.	18.0	
5:37	13,726	163.9	−62.9	0.68	20	-------	w.	12.5	
	14,000	156.9	−64.2	-------	19	-------	w.	14.0	
5:43	14,791	138.6	−67.9	0.47	18	-------	wsw.	14.1	Base of stratosphere.
	15,000	134.2	−67.7	-------	18	-------	wsw.	14.4	
	16,000	114.2	−66.6	-------	18	-------	w.	16.7	
	17,000	97.3	−65.5	-------	18	-------	w.	8.0	
	18,000	83.1	−64.4	-------	18	-------	nw.	5.2	
	19,000	70.8	−63.3	-------	18	-------	w.	4.2	
	20,000	60.3	−62.2	-------	18	-------	nw.	5.1	
6:14	20,300	57.7	−61.9	−0.11	18	-------	nw.	11.2	

OCTOBER 14, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
12:04	141	1,006.4	11.9	-------	89	12.40	w.	2.7	Cloudless all day.
	250	-------	16.3	-------	67	12.42	wnw.	2.1	
12:05	370	979.6	20.8	−3.89	44	10.82	nw.	1.5	Inversion.
	500	965.0	19.8	-------	44	10.17	n.	1.8	
	750	-------	17.9	-------	44	9.03	nne.	3.6	
	1,000	909.9	16.0	-------	44	8.00	n.	4.1	
	1,250	-------	14.1	-------	44	7.08	nnw.	4.8	
	1,500	857.9	12.2	-------	44	6.25	nnw.	5.8	
12:09	1,581	849.6	11.6	0.76	44	6.01	nnw.	6.3	
	2,000	808.0	9.4	-------	43	5.07	nnw.	8.4	
	2,500	761.0	6.7	-------	41	4.02	nne.	11.7	
12:13	2,771	736.0	5.3	0.53	40	3.56	nne.	10.5	
	3,000	715.5	5.0	-------	38	3.31	nne.	9.2	
12:14	3,025	713.2	5.0	0.12	38	3.31	nne.	9.1	
	3,500	673.0	2.2	-------	38	2.72	n.	9.3	
	4,000	632.0	−0.8	-------	37	2.12	nnw.	6.9	
12:19	4,218	615.3	−2.1	0.59	37	1.90	-------	-------	
	4,500	594.0	−2.5	-------	36	1.79	-------	-------	
12:20	4,722	577.7	−2.9	0.16	36	1.73	-------	-------	
	5,000	558.0	−5.2	-------	35	1.39	-------	-------	
12:25	5,746	507.0	−11.2	0.81	32	0.75	-------	-------	
	6,000	491.0	−11.5	-------	31	0.71	-------	-------	
12:26	6,145	481.5	−11.7	0.13	30	0.68	-------	-------	
	7,000	430.3	−18.5	-------	29	0.35	-------	-------	
12:34	7,876	382.4	−25.4	0.79	28	0.17	-------	-------	
	8,000	376.0	−26.3	-------	28	0.16	-------	-------	
	9,000	328.0	−33.5	-------	28	0.07	-------	-------	
	10,000	284.1	−40.7	-------	28	0.03	-------	-------	
12:43	10,166	277.3	−41.9	0.72	28	0.03	-------	-------	
	11,000	245.3	−49.5	-------	27	0.01	-------	-------	
12:53	11,548	225.9	−54.1	0.88	26	0.01	-------	-------	
	12,000	211.0	−56.3	-------	26	-------	-------	-------	
	13,000	180.8	−61.0	-------	26	-------	-------	-------	
1:01	13,007	180.6	−61.0	0.47	26	-------	-------	-------	

OCTOBER 14, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:28	141	1,007.8	11.4	-------	75	10.11	ese.	2.2	Cloudless all day.
	250	-------	13.1	-------	64	9.65	ese.	4.2	
	500	965.6	16.9	-------	40	7.70	ese.	5.4	
6:29	553	959.9	17.7	−1.53	35	7.09	e.	4.5	Inversion.
	750	-------	16.7	-------	35	6.66	ene.	2.0	
	1,000	910.4	15.4	-------	35	6.12	n.	1.6	
	1,250	-------	14.1	-------	34	5.47	n.	2.8	
	1,500	858.1	12.9	-------	34	5.06	n.	4.6	
6:33	1,786	829.7	11.4	0.51	34	4.58	n.	6.5	
	2,000	808.2	10.0	-------	33	4.05	nne.	8.4	
	2,500	761.0	6.9	-------	32	3.18	nne.	10.3	
6:37	2,642	747.9	6.1	0.63	32	3.01	nne.	9.5	
	3,000	715.8	6.0	-------	32	2.99	nne.	6.2	
6:38	3,011	714.8	6.0	0.03	32	2.99	nne.	6.2	Isothermal.
	3,500	672.0	3.0	-------	31	2.35	ne.	7.0	
	4,000	631.0	0.0	-------	31	1.89	ne.	7.2	
	4,500	593.8	−3.0	-------	30	1.43	nne.	4.6	

[1] Altitudes above this obtained from 2 theodolite observations; pressures computed.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 14, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.	*M.*	*Mb.*	°*C.*		*P. ct.*	*Mb.*		*M. p. s.*	
6:43	4,643	583.9	−3.9	0.61	30	1.33	nne.	4.0	
	5,000	559.5	−6.1	-------	30	1.10	n.	4.0	
	6,000	493.0	−12.1	-------	29	0.63	ne.	5.8	
6:50	6,849	439.0	−17.2	0.60	28	0.38	ne.	5.3	
	7,000	430.1	−18.4	-------	28	0.34	ne.	4.6	
	8,000	375.1	−26.1	-------	28	0.16	nne.	6.6	
	9,000	327.0	−33.9	-------	28	0.07	n.	5.0	
6:58	9,038	325.5	−34.2	0.78	28	0.07	n.	5.0	
	10,000	284.0	−39.9	-------	28	0.04	nw.	10.0	
7:04	10,462	265.9	−42.7	0.60	28	0.03	wnw.	14.9	
	11,000	245.6	−45.6	-------	28	0.02	-------	-------	
	12,000	211.1	−51.0	-------	28	0.01	-------	-------	
	13,000	181.9	−56.4	-------	28	0.01	-------	-------	
7:14	13,036	180.8	−56.6	0.54	28	0.01	-------	-------	
	14,000	156.2	−58.7	-------	28	-------	-------	-------	
	15,000	133.9	−60.8	-------	28	-------	-------	-------	
7:21	15,420	125.1	−61.7	0.21	28	-------	-------	-------	
	16,000	114.0	−63.3	-------	28	-------	-------	-------	
	17,000	97.0	−66.1	-------	28	-------	-------	-------	
7:27	17,165	94.6	−66.6	0.28	28	-------	-------	-------	Base of stratosphere.
	18,000	83.0	−65.6	-------	28	-------	-------	-------	
7:33	18,406	77.6	−65.1	−0.12	28	-------	-------	-------	

OCTOBER 14, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
12:05	141	1,008.5	24.4	-------	35	10.71	Calm	-------	Cloudless all day.
	250	-------	23.6	-------	36	10.49	ene.	0.7	
	500	968.0	21.7	-------	37	9.61	ene.	1.8	
	750	-------	19.9	-------	38	8.84	ne.	2.6	
12:06	787	936.1	19.6	0.74	38	8.67	ne.	2.7	
12:07	913	922.5	19.3	0.24	35	7.84	ne.	2.8	
	1,000	913.1	18.7	-------	35	7.55	ne.	2.9	
	1,250	-------	17.0	-------	36	6.98	ne.	3.2	
	1,500	860.9	15.2	-------	36	6.22	nne.	4.4	
	2,000	811.1	11.8	-------	37	5.12	ne.	3.0	
12:12	2,269	785.9	9.9	0.69	38	4.64	ne.	7.4	
	2,500	764.3	10.7	-------	36	4.63	ne.	5.9	
12:13	2,625	753.0	11.1	−0.34	35	4.62	ne.	4.9	Inversion.
	3,000	720.0	9.0	-------	34	3.90	ne.	3.2	
	3,500	677.9	6.2	-------	32	3.03	ene.	3.6	
	4,000	637.5	3.5	-------	30	2.36	ene.	3.6	
12:17	4,047	633.7	3.2	0.55	30	2.30	ene.	3.5	
	4,500	599.3	0.8	-------	28	1.81	ne.	3.3	
	5,000	563.0	−1.9	-------	27	1.41	ne.	5.0	
12:22	5,555	525.2	−4.9	0.54	25	1.02	ene.	5.5	
	6,000	496.8	−6.5	-------	24	0.85	ene.	6.2	
12:24	6,274	479.1	−7.5	0.36	24	0.78	ene.	6.6	
	7,000	437.7	−13.9	-------	23	0.43	ene.	6.7	
	8,000	382.1	−22.6	-------	22	0.18	ne.	6.6	
12:31	8,091	377.5	−23.4	0.87	22	0.16	ne.	6.4	
12:32	8,470	358.3	−26.1	0.71	22	0.13	ne.	5.8	
12:33	8,831	340.8	−27.8	0.47	22	0.11	ne.	5.6	
	9,000	333.0	−29.4	-------	22	0.09	ne.	5.4	
	10,000	289.6	−39.0	-------	24	0.03	nw.	4.9	
12:37	10,037	288.1	−39.4	0.96	24	0.03	nw.	5.1	Adiabatic.
12:40	10,942	252.6	−42.3	0.32	25	0.02	w.	8.6	
	11,000	250.1	−42.9	-------	25	0.02	w.	9.0	
12:41	11,365	237.9	−46.5	0.99	25	0.02	wnw.	10.1	Adiabatic.
12:42	11,661	227.6	−46.6	0.03	25	0.02	w.	10.4	Isothermal.
	12,000	216.3	−48.2	-------	25	0.01	w.	11.8	
12:44	12,243	208.7	−49.4	0.48	25	0.01	w.	14.5	

OCTOBER 14, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
3:53	141	1,003.1	25.4	-------	33	10.72	ene.	2.2	Cloudless all day.
	250	-------	24.4	-------	-------	-------	ene.	2.4	
	500	962.4	22.1	-------	-------	-------	e.	2.5	
	750	-------	19.8	-------	-------	-------	e.	3.5	
3:57	778	932.3	19.5	0.93	-------	-------	e.	3.5	Adiabatic.
	1,000	908.2	17.5	-------	-------	-------	e.	3.8	
	1,250	-------	15.3	-------	-------	-------	e.	4.0	
	1,500	856.4	13.1	-------	-------	-------	ene.	5.0	
4:02	1,833	822.9	10.2	0.88	-------	-------	ene.	7.5	
	2,000	806.6	10.0	-------	-------	-------	ene.	8.1	
4:04	2,297	778.4	9.6	0.13	-------	-------	ene.	6.5	
	2,500	759.2	8.2	-------	-------	-------	nne.	4.3	
	3,000	714.1	4.8	-------	-------	-------	nne.	2.7	
	3,500	672.0	1.4	-------	-------	-------	nnw.	0.8	
4:11	3,595	664.1	0.8	0.68	-------	-------	ne.	1.0	
	4,000	631.8	−1.4	-------	-------	-------	ene.	2.4	
	4,500	593.4	−4.1	-------	-------	-------	ene.	3.2	
4:17	4,862	566.9	−6.1	0.55	-------	-------	ene.	4.5	
	5,000	557.0	−7.1	-------	-------	-------	ene.	5.2	
	6,000	489.3	−14.1	-------	-------	-------	e.	5.0	
4:24	6,235	474.3	−15.8	0.71	-------	-------	e.	5.3	
	7,000	428.3	−21.4	-------	-------	-------	e.	4.2	
4:31	7,711	389.1	−28.2	0.84	-------	-------	ne.	6.2	
	8,000	373.1	−30.4	-------	-------	-------	ne.	6.6	
	9,000	323.0	−38.0	-------	-------	-------	ne.	5.5	
	10,000	280.7	−45.6	-------	-------	-------	nnw.	4.1	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 14, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
4:41	10,035	279.4	−45.9	0.76			nnw.	4.0	
	11,000	243.4	−51.0				wnw.	9.7	
	12,000	208.3	−56.2				w.	13.0	
4:52	12,038	207.0	−56.4	0.52			w.	13.0	
	13,000	178.0	−61.7				w.	17.0	
5:03	13,759	158.1	−65.8	0.55			w.	18.2	
	14,000	152.1	−66.8				w.	17.1	
5:09	14,796	134.1	−69.9	0.40			w.	18.0	Base of stratosphere.
	15,000	130.1	−70.0				w.	15.4	
	16,000	110.8	−70.3				w.	12.8	
5:17	16,545	100.8	−70.5	0.03			wnw.	12.8	

OCTOBER 15, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
12:06	141	1,006.1	14.6		74	12.30	ese.	2.2	Cloudless all day.
	250		17.1		61	11.90	ese.	4.1	
12:07	373	979.1	19.9	−2.28	46	10.70	ese.	5.6	Inversion.
	500	965.0	19.3		46	10.30	ese.	6.2	
	750		18.0		45	9.29	e.	4.1	
	1,000	910.3	16.8		45	8.61	ene.	2.7	
12:09	1,103	899.1	16.3	0.49	45	8.34	ene.	3.6	
	1,250		15.4		44	7.70	ne.	4.7	
	1,500	858.0	13.9		43	6.83	ne.	5.6	
	2,000	808.5	10.9		40	5.22	ene.	5.6	
12:13	2,006	807.9	10.9	0.60	40	5.22	ene.	5.6	
12:14	2,421	768.7	10.9	0.00	34	4.43	ene.	6.3	Isothermal.
	2,500	761.0	10.4		34	4.29	ene.	6.3	
	3,000	716.2	7.3		32	3.27	ene.	7.4	
12:18	3,426	680.6	4.7	0.62	30	2.56	ene.	6.9	
	3,500	674.5	4.2		30	2.48	ene.	6.8	
	4,000	634.7	0.9		28	1.83	ene.	6.7	
	4,500	596.0	−2.4		27	1.35	e.	6.6	
12:23	4,912	565.8	−5.1	0.66	26	1.04	e.	6.4	
	5,000	559.7	−5.1		26	1.04	e.	6.4	
12:24	5,216	544.5	−5.0	−0.03	25	1.01			Inversion.
	6,000	493.4	−13.0		24	0.48			
12:30	6,632	453.1	−19.4	1.02	24	0.27			Superadiabatic.
	7,000	431.0	−22.5		24	0.20			
	8,000	376.0	−30.9		22	0.08			
12:37	8,453	353.1	−34.7	0.84	22	0.05			
	9,000	327.0	−39.0		21	0.03			
	10,000	283.3	−46.7		20	0.02			
12:43	10,318	270.1	−49.2	0.78	20	0.01			
	11,000	244.0	−53.0		20	0.01			
12:51	11,967	209.9	−58.3	0.55	20				
	12,000	208.5	−60.1		20				
	13,000	178.3	−63.8		19				
12:57	13,591	162.9	−67.0	0.54	18				Base of stratosphere.
	14,000	152.4	−67.2		18				
	15,000	129.2	−67.8		18				
	16,000	110.0	−68.3		18				
1:14	16,316	105.2	−68.5	0.06	18				

OCTOBER 15, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
7:48	[1] 27,671	17.7	−56.8	−0.02	10				Cloudless all day.
	27,000	20.2	−56.9						
	26,000	24.1	−57.2						
	25,000	28.2	−57.4						
	24,000	32.8	−57.6						
	23,000	37.9	−57.8						
	22,000	43.7	−58.0						
7:52	21,117	49.5	−58.2	−0.22					
	21,000	50.3	−58.5						
	20,000	58.7	−60.6						
	19,000	69.1	−62.8						
7:55	18,700	72.4	−63.4	0.01					
	18,000	81.9	−63.3						
	17,000	96.5	−63.3						
	16,000	112.4	−63.2						
	15,000	131.0	−63.1						
8:01	14,087	150.8	−63.0	0.35					Base of stratosphere.
	14,000	152.9	−62.7						
	13,000	179.8	−59.2				w.	18.8	
	12,000	208.9	−55.7				w.	15.4	
8:07	11,413	228.1	−53.7	0.73			w.	12.5	
	11,000	242.8	−50.7				w.	9.0	
	10,000	281.6	−43.4				nnw.	1.0	
	9,000	324.0	−36.1				ene.	1.6	
8:12	8,289	358.7	−30.9	0.92			ne.	2.0	Adiabatic.
	8,000	373.2	−28.2				ne.	2.2	
	7,000	428.1	−19.0				e.	2.4	
	6,000	487.2	−9.7				ene.	5.0	
8:18	5,973	489.4	−9.5	0.42			ene.	4.8	
	5,000	555.8	−5.4				ene.	4.0	
	4,500	591.4	−3.3				e.	3.1	
	4,000	628.3	−1.2				ene.	4.8	
	3,500	668.1	0.9				ene.	6.6	

[1] Descent used; temperatures inaccurate on ascent.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 15, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.	M.	Mb.	°C.		P. ct.	Mb.		M. p. s.	
8.18	3,000	710.9	3.0				ene.	7.2	
	2,500	756.2	5.1				ene.	7.6	
8:24	2,436	762.6	5.4	0.20			ene.	8.0	
8:25	1,996	804.6	6.3	0.37			ene.	8.5	
	1,500	854.2	8.1				ene.	9.6	
	1,250	880.3	9.1				ne.	8.5	
8:27	1,077	899.4	9.7	0.10			ne.	6.5	Isothermal.
	1,000	907.1	9.8				ne.	6.3	
	750	935.0	10.0				ene.	4.6	
	500	963.2	10.3				ese.	5.4	
	250	992.2	10.5				ese.	3.0	
8:29	141	1006.4	10.6				ese.	2.2	

OCTOBER 15, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
12:11	141	1,007.1	22.6		38	10.43	ese.	2.7	Cloudless all day.
	250		21.5		38	9.75	e.	2.7	
	500	966.1	18.9		39	8.52	ene.	2.8	
	750		16.2		40	7.37	ene.	3.4	
	1,000	910.6	13.6		40	6.69	ene.	5.4	
12:14	1,223	887.0	11.3	1.04	41	5.49	ene.	7.2	Adiabatic.
	1,250		11.4		40	5.39	ene.	7.6	
12:15	1,492	859.1	12.0	−0.26	36	5.05	ene.	10.2	Inversion.
	1,500	858.1	12.0		36	5.05	ene.	10.2	
12:17	1,989	809.5	11.3	0.14	34	4.55	ene.	9.5	
	2,000	808.3	11.3		34	4.55	ene.	9.5	
	2,500	761.4	9.1		33	3.81	ene.	8.6	
12:20	2,685	744.5	8.3	0.43	32	3.50	ene.	7.8	
	3,000	716.5	6.2		31	2.94	ene.	7.2	
	3,500	674.4	2.8		30	2.24	e.	6.6	
	4,000	633.4	−0.5		28	1.64	e.	6.6	
12:24	4,009	632.6	−0.6	0.67	28	1.63	e.	6.6	
	4,500	595.3	−4.1		27	1.17	e.	6.9	
	5,000	558.7	−7.6		27	0.87	e.	5.0	
	5,500	524.0	−11.2		26	0.61	e.	2.2	
12:30	5,794	504.1	−13.3	0.71	26	0.51	e.	2.8	
	6,000	490.6	−14.9		26	0.44	e.	2.6	
	7,000	429.6	−22.7		25	0.20	ese.	1.3	
12:35	7,505	400.5	−26.7	0.78	25	0.14	ene.	2.0	
	8,000	375.1	−30.3		25	0.09	ene.	3.2	
	9,000	326.0	−37.6		24	0.04	ene.	1.4	
12:42	9,767	291.4	−43.2	0.73	24	0.02	wsw.	3.4	
	10,000	282.0	−44.4		24	0.02	wsw.	4.2	
	11,000	244.4	−49.7		26	0.01	w.	9.0	
12:49	11,961	210.3	−54.8	0.53	28	0.01	w.	10.8	
	12,000	209.3	−54.9		28	0.01	wsw.	11.2	
	13,000	180.5	−58.0		31		wsw.	19.4	
	14,000	154.2	−61.1		34		wsw.	17.4	
1:00	14,819	135.1	−63.6	0.31	36		wsw.	16.4	
	15,000	131.2	−64.2		36		wsw.	18.3	
1:04	15,630	118.4	−66.1	0.31	37		w.	20.2	Base of stratosphere.
	16,000	111.9	−66.5		36		w.	17.5	
1:11	16,776	98.5	−67.3	0.10	35		w.	15.5	

OCTOBER 15, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
4:07	141	1,005.1	23.9		32	9.50	ne.	4.5	Cloudless all day.
	250		23.0		33	9.28	ne.	4.4	
	500	964.0	21.1		35	8.76	ene.	4.3	
	750		19.1		37	8.18	ene.	4.8	
	1,000	908.9	17.1		39	7.61	ene.	5.4	
	1,250		15.1		41	7.04	ene.	6.7	
	1,500	857.9	13.1		43	6.48	e.	8.7	
4:10	1,526	855.1	12.9	0.79	43	6.40	e.	8.8	
4:11	1,866	821.3	12.3	0.18	38	5.44	e.	10.4	
	2,000	808.6	11.6		37	5.05	e.	10.1	
	2,500	761.4	8.9		34	3.88	ene.	10.0	
4:15	2,882	726.7	6.8	0.54	32	3.16	ene.	8.5	
	3,000	716.3	6.8		32	3.16	ene.	7.9	
4:16	3,135	704.5	6.8	0.00	31	3.06	ne.	7.3	Isothermal.
	3,500	674.0	4.6		30	2.54	ene.	7.1	
	4,000	634.0	1.5		29	1.97	e.	6.8	
	4,500	595.8	−1.5		28	1.51	ese.	3.8	
4:21	4,648	584.7	−2.4	0.61	28	1.40	ese.	3.0	
	5,000	559.2	−4.6		27	1.13	sse.	1.0	
	6,000	492.0	−10.7		22	0.54	ene.	2.8	
4:26	6,117	484.6	−11.4	0.61	22	0.51	ene.	3.2	
	7,000	432.5	−18.4		21	0.26	nne.	2.2	
4:31	7,512	403.0	−22.4	0.79	20	0.17	ne.	2.6	
	8,000	378.0	−26.6		20	0.11	ene.	1.5	
	9,000	328.6	−35.1		20	0.04	se.	0.8	
4:38	9,204	319.4	−36.9	0.86	20	0.04	ssw.	1.0	
	10,000	284.7	−44.0		20	0.02	w.	6.2	
4:45	10,620	259.8	−49.6	0.90	20	0.01	w.	9.7	Adiabatic.
	11,000	246.0	−52.2		20	0.01	w.	12.1	
4:51	11,919	213.5	−58.6	0.69	20		wsw.	12.8	
	12,000	211.0	−58.8		20		wsw.	13.2	
	13,000	180.2	−61.7		20		wsw.	22.1	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 15, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
5:00	13,623	163.6	−63.5	0.29	20		wsw.	20.1	
	14,000	154.2	−64.6		20		wsw.	19.4	
	15,000	131.4	−67.7		19		wsw.	21.4	
5:08	15,563	120.1	−69.4	0.30	18		w.	24.1	Base of stratosphere.
	16,000	112.1	−69.3		18		wnw.	19.7	
	17,000	95.1	−69.0		18		wnw.	9.4	
5:17	17,150	92.8	−69.0	−0.03	18		wnw.	7.0	

OCTOBER 16, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:33	141	1,006.1	9.5		88	10.45	ne.	1.3	Few Ci, WSW.
	250		11.3				ene.	3.0	
6:34	492	964.9	15.2	−1.62			ene.	5.6	Inversion.
	500	964.0	15.2				ene.	5.6	
	750		14.3				ene.	5.2	Clear all day.
	1,000	908.2	13.5				ne.	5.0	
6:37	1,138	893.9	13.0	0.34			ene.	5.5	
	1,250		13.4				ene.	6.5	
	1,500	856.2	14.2				ene.	9.0	
6:38	1,535	852.8	14.3	−0.33			ene.	9.1	Inversion.
	2,000	806.1	11.0				ene.	11.2	
	2,500	759.8	7.5				ene.	16.0	
6:42	2,821	730.6	5.3	0.70			ene.	13.4	
	3,000	715.0	5.1				ene.	11.0	
6:44	3,159	701.1	5.0	0.09			ene.	10.4	Isothermal.
	3,500	672.9	2.9				ene.	9.1	
6:47	3,969	634.4	0.0	0.62			ene.	5.1	
	4,000	631.9	−0.1				ene.	5.0	
	4,500	593.4	−2.4				ene.	2.5	
	5,000	557.1	−4.7				ne.	1.4	
6:53	5,418	528.3	−6.6	0.46			nne.	2.1	
	6,000	490.2	−11.0				nne.	1.6	
	7,000	430.0	−18.5				nw.	1.1	
7:01	7,008	429.8	−18.5	0.75			nw.	1.1	
	8,000	375.5	−25.1				w.	3.2	
7:06	8,415	355.1	−27.9	0.67			wnw.	9.0	
	9,000	328.0	−32.6				w.	11.2	
	10,000	284.5	−40.5				w.	9.1	
7:16	10,358	269.8	−43.4	0.80			w.	10.1	
	11,000	245.3	−47.5				w.	11.8	
	12,000	211.0	−53.9				w.	21.8	
7:27	12,527	194.9	−57.3	0.64			w.	26.8	Base of stratosphere.
	13,000	181.6	−58.1				w.	27.6	
	14,000	155.5	−59.7				w.	24.2	
7:33	14,018	155.0	−59.7	0.16			w.	24.1	

OCTOBER 17, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:35	141	1,003.1	10.9		93	12.13	n.	0.9	4 Ci, ESE.
	250		14.9		83	14.07	n.	3.3	
6:36	384	974.7	19.7	−3.62	70	16.07	n.	5.0	Inversion.
	500	961.9	19.3		69	15.46	n.	4.9	
6:37	740	935.5	18.6	0.31	68	14.58	nne.	4.8	Clear after 9 a. m.
	750		18.5		68	14.49	nne.	4.8	
	1,000	907.1	16.3		68	12.61	ne.	4.8	
	1,250		14.2		68	11.02	ne.	4.6	
6:40	1,326	873.1	13.5	0.87	68	10.53	ne.	5.1	
	1,500	855.1	12.7		64	9.40	ne.	6.0	
	2,000	805.6	10.4		52	6.56	ne.	6.3	
6:43	2,251	781.7	9.3	0.45	46	5.39	ne.	6.2	
	2,500	759.3	7.8		44	4.66	ne.	6.6	
	3,000	716.0	4.7		40	3.42	ne.	7.2	
6:47	3,411	678.3	2.1	0.62	36	2.56	nne.	6.0	
	3,500	673.0	1.7		36	2.48	nne.	5.8	
	4,000	630.8	−0.8		34	1.94	ene.	5.2	
6:50	4,152	618.8	−1.6	0.50	34	1.82	ene.	6.4	
	4,500	592.5	−2.5		32	1.59	ene.	8.0	
6:51	4,518	591.2	−2.5	0.25	32	1.59	ene.	7.9	
	5,000	556.2	−5.7		31	1.18	e.	6.2	
6:54	5,473	523.9	−8.8	0.66	30	0.87	e.	6.2	
	6,000	490.1	−12.2		29	0.62	ese.	5.8	
	7,000	429.1	−18.6		28	0.33	e.	7.9	
6:59	7,035	427.1	−18.8	0.64	28	0.33	e.	7.9	
	8,000	374.9	−27.7		28	0.14	ese.	8.3	
7:04	8,201	364.4	−29.6	0.93	28	0.11	ese.	8.7	Adiabatic.
	9,000	325.7	−37.1		28	0.05	ese.	6.7	
7:08	9,315	311.0	−40.1	0.94	28	0.03	ese.	6.4	Adiabatic.
	10,000	281.0	−44.6		28	0.02	e.	10.0	
	11,000	242.0	−51.1		28	0.01			
7:16	11,695	218.4	−55.6	0.65	28	0.01			Base of stratosphere.
	12,000	209.0	−55.8		28	0.01			
	13,000	180.0	−56.0		28	0.01			
7:23	13,512	165.5	−56.2	0.03	28	0.01			

TABLE 2.—*Tabulated data*—Continued

OCTOBER 17, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
4:15	141	1,004.7	26.3		35	11.95	nne.	3.1	2 Ci., ESE.
	250		25.4				nne.	4.1	
	500	965.0	23.2				nne.	5.3	Clear all day.
	750		21.1				nne.	5.4	
4:19	926	918.3	19.6	0.85			nne.	5.3	
	1,000	910.5	18.9				nne.	5.3	
	1,250		16.4				nne.	5.5	
	1,500	859.0	13.9				nne.	5.8	
4:24	1,748	833.5	11.4	1.00			nne.	5.7	Adiabatic.
4:25	1,900	818.5	11.9	−0.33			nne.	5.5	Inversion.
	2,000	809.0	11.2				nne.	5.6	
	2,500	761.8	7.9				ne.	7.7	
	3,000	717.0	4.6				nne.	6.5	
4:31	3,132	705.1	3.7	0.66			nne.	6.3	
	3,500	674.0	3.5				nne.	4.4	
4:33	3,509	673.0	3.5	0.05			nne.	4.3	Isothermal.
	4,000	634.0	0.4				ne.	4.5	
	4,500	595.2	−2.8				ne.	6.8	
	5,000	558.8	−6.0				nne.	7.3	
	6,000	491.7	−12.3				ene.	2.8	
4:47	6,515	459.7	−15.6	0.64			e.	5.1	
	7,000	431.1	−20.7				e.	4.9	
4:54	7,529	401.3	−26.3	1.05			ese.	9.2	Adiabatic.
	8,000	376.0	−29.7				ese.	15.4	
	9,000	327.3	−36.9				ese.	9.6	
5:03	9,563	301.8	−40.9	0.72			ese.	5.0	
	10,000	284.7	−43.4				e.	5.7	
	11,000	246.0	−49.2				e.	12.2	
5:15	11,739	218.9	−53.4	0.58			se.	7.6	
	12,000	209.8	−54.1				ssw.	10.2	
	13,000	178.3	−56.7				w.	13.1	
	14,000	152.5	−59.3				wnw.	12.8	
	15,000	131.8	−61.9				wnw.	11.1	
5:36	[1]15,375	124.9	−62.9	0.26			wnw.	11.4	Base of stratosphere.
	16,000						wnw.	6.0	
	17,000						wnw.	3.0	
5:59	17,921						nw.	3.0	

OCTOBER 18, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:34	141	1,005.8	11.0		93	12.21	ese.	2.1	Cloudless all day.
	250		12.1				ese.	4.0	
6:34½	304	986.3	12.6	−0.98			ese.	4.9	Inversion.
6:35	435	971.0	12.6	0.00			ese.	7.1	Isothermal.
	500	963.7	13.0				ese.	7.6	
	750		14.4				e.	4.1	
6:37	957	913.0	15.6	−0.57			nne.	3.8	Inversion.
	1,000	908.1	15.4				n.	3.8	
	1,250		13.9				nnw.	5.5	
6:38	1,341	872.4	13.4	0.57			nnw.	6.2	
6:39	1,497	856.3	13.5	−0.06			nnw.	7.4	Inversion.
	2,000	807.2	10.2				n.	10.4	
6:41	2,434	765.4	7.4	0.65			nne.	10.2	
	2,500	759.4	7.4				nne.	10.0	
6:42	2,672	743.6	7.4	0.00			nne.	9.2	Isothermal.
	3,000	713.8	5.3				nne.	8.2	
	3,500	671.0	2.1				nne.	8.0	
	4,000	631.0	−1.1				nne.	8.5	
6:47	4,094	623.9	−1.7	0.64			nne.	9.0	
	4,500	593.0	−3.8				ne.	10.0	
	5,000	556.8	−6.4				ne.	8.2	
6:53	5,758	505.3	−10.3	0.52			ne.	5.8	
	6,000	489.8	−12.3				nne.	4.9	
6:57	6,940	432.5	−20.1	0.83			ne.	3.3	
	7,000	429.5	−20.6				ne.	3.5	
	8,000	375.8	−29.3				ne.	5.6	
7:05	8,842	332.7	−36.7	0.87			ene.	7.8	
	9,000	325.4	−37.6				ene.	8.4	
	10,000	280.7	−43.4				e.	11.0	
7:12	10,843	249.0	−48.3	0.58			ese.	7.3	
	11,000	243.2	−49.0				ese.	6.2	
	12,000	210.0	−53.4				w.	10.3	
	13,000	179.4	−57.9				w.	13.8	
7:21	13,023	178.8	−58.0	0.45			w.	13.9	
	14,000	154.0	−60.1				w.	14.5	
	15,000	131.8	−62.2				w.	15.8	
7:29	15,017	131.3	−62.2	0.21			w.	15.8	Base of stratosphere.
	16,000	112.2	−61.3				wsw.	12.6	
7:42	16,976	96.4	−60.5	−0.09			wnw.	10.2	

[1] Altitudes above 15,375 m. obtained from two theodolite observations.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 18, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
4:03	141	1,003.7	27.0	-------	38	13.56	ne.	2.7	Cloudless all day.
	250	-------	25.8	-------	-------	-------	ne.	3.2	
4:05	500	963.0	23.1	-------	-------	-------	nne.	3.8	
	652	946.9	21.4	1.09	-------	-------	nne.	3.8	Superadiabatic.
	750	-------	20.4	-------	-------	-------	nne.	3.9	
4:07	*1,000*	*909.0*	*17.7*	-------	-------	-------	*nne.*	*4.8*	
	1,178	890.5	15.8	1.06	-------	-------	nne.	5.8	Superadiabatic.
	1,250	-------	15.5	-------	-------	-------	nne.	6.3	
	1,500	858.3	14.5	-------	-------	-------	nne.	7.4	
	2,000	809.2	12.4	-------	-------	-------	n.	9.6	
	2,500	762.0	10.3	-------	-------	-------	n.	8.6	
4:15	3,000	717.0	8.3	-------	-------	-------	n.	8.8	
4:16	3,260	694.6	7.2	0.41	-------	-------	nne.	7.6	
	3,389	683.8	7.7	−0.39	-------	-------	nne.	6.8	Inversion.
	3,500	*674.3*	*7.0*	-------	-------	-------	ne.	*6.7*	
	4,000	634.0	3.8	-------	-------	-------	ene.	8.5	
4:21	4,500	596.0	0.5	-------	-------	-------	ene.	9.1	
	4,892	568.3	−2.0	0.65	-------	-------	ene.	8.2	
	5,000	561.0	−2.7	-------	-------	-------	ene.	7.6	
4:28	6,000	495.0	−9.2	-------	-------	-------	ne.	6.2	
	6,744	448.0	−14.1	0.65	-------	-------	e.	9.2	
	7,000	433.5	−16.3	-------	-------	-------	e.	10.0	
	8,000	379.3	−24.8	-------	-------	-------	e.	10.8	
4:38	9,000	330.3	−33.3	-------	-------	-------	e.	11.1	
	9,213	320.8	−35.1	0.85	-------	-------	ese.	10.3	
	10,000	287.0	−36.3	-------	-------	-------	ese.	8.7	
4:47	11,000	248.5	−37.8	-------	-------	-------	ssw.	4.4	
	11,357	235.5	−38.4	0.15	-------	-------	wsw.	7.6	
	12,000	214.4	−42.8	-------	-------	-------	wsw.	13.4	
	13,000	183.6	−49.6	-------	-------	-------	wsw.	20.1	
5:00	14,000	157.4	−56.4	-------	-------	-------	w.	19.8	
	14,526	145.9	−60.0	0.68	-------	-------	wsw.	15.2	
	15,000	136.4	−61.5	-------	-------	-------	wsw.	14.5	
5:10	16,000	118.0	−64.7	-------	-------	-------	w.	10.8	
	16,561	106.1	−66.5	0.32	-------	-------	w.	8.5	Probably base of stratosphere.

OCTOBER 19, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:34	141	1,003.7	9.1	-------	94	10.87	sw.	3.3	Cloudless all day.
	250	-------	11.0	-------	-------	-------	sw.	2.8	
6:36	500	961.0	15.5	-------	-------	-------	sw.	2.2	
	607	949.7	17.4	−1.78	-------	-------	w.	2.2	Inversion.
	750	-------	16.6	-------	-------	-------	nw.	2.4	
6:38	1,000	906.6	15.1	-------	-------	-------	n.	4.1	
6:39	1,071	899.3	14.7	0.58	-------	-------	n.	5.0	
	1,230	882.6	15.2	−0.31	-------	-------	n.	7.0	Inversion.
	1,250	-------	15.1	-------	-------	-------	n.	7.3	
6:41	1,500	854.7	13.9	-------	-------	-------	n.	9.4	
	1,959	809.3	11.8	0.47	-------	-------	nne.	8.8	
6:42	2,000	805.2	11.7	-------	-------	-------	nne.	8.8	
	2,182	788.1	11.4	0.18	-------	-------	ne.	8.7	
6:44	2,500	758.8	9.6	-------	-------	-------	ne.	8.5	
	2,994	714.6	6.9	0.55	-------	-------	ne.	8.4	
	3,000	*714.0*	*6.9*	-------	-------	-------	ne.	8.4	
6:48	3,500	672.0	5.8	-------	-------	-------	ne.	9.6	
	[1] 3,657	659.3	5.5	0.21	-------	-------	ne.	10.1	
	4,000	631.9	2.6	-------	-------	-------	ne.	9.2	
6:53	4,500	593.6	−1.7	-------	-------	-------	ene.	7.0	
	4,971	559.8	−5.7	0.85	-------	-------	e.	7.0	
	5,000	557.6	−5.9	-------	-------	-------	e.	7.0	
	6,000	489.9	−12.9	-------	-------	-------	e.	6.7	
7:03	7,000	426.3	−19.8	-------	-------	-------	se.	4.4	
	7,441	*399.2*	*−22.9*	*0.70*	-------	-------	*ese.*	*6.7*	
	8,000	370.9	−27.6	-------	-------	-------	ese.	9.6	
	9,000	323.6	−36.0	-------	-------	-------	ese.	9.2	
7:15	10,000	282.0	−44.4	-------	-------	-------	se.	6.0	
	10,161	276.0	−45.8	0.84	-------	-------	sse.	4.8	
	11,000	246.0	−48.6	-------	-------	-------	sw.	10.1	
	12,000	213.0	−51.9	-------	-------	-------	wsw.	28.8	
7:27	13,000	182.0	−55.3	-------	-------	-------	wsw.	30.2	
	13,391	169.8	−56.6	0.33	-------	-------	wsw.	27.2	
7:31	*14,000*	*154.9*	*−62.4*	-------	-------	-------	*wsw.*	*26.9*	
	14,091	152.5	−63.3	0.96	-------	-------	wsw.	27.6	Adiabatic.
	15,000	133.0	−65.1	-------	-------	-------	wsw.	15.4	
7:42	16,000	114.3	−67.1	-------	-------	-------	w.	10.2	
	16,221	108.7	−67.6	0.20	-------	-------	w.	10.4	Base of stratosphere.
7:52	17,000	97.0	−65.3	-------	-------	-------	wsw.	9.5	
	17,801	84.4	−62.9	−0.30	-------	-------	wsw.	3.2	

OCTOBER 19, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
3:44	141	1,000.0	26.7	-------	42	14.73	wsw.	2.6	Cloudless all day
	250	-------	25.7	-------	-------	-------	wsw.	2.7	
	500	960.2	23.6	-------	-------	-------	wsw.	3.0	
	750	-------	21.4	-------	-------	-------	w.	3.5	
	1,000	905.9	19.2	-------	-------	-------	nw.	4.4	

[1] Pressures above 3,657 m. computed from heights obtained from 2 theodolite observations and recorded temperatures.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 19, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
3:47	1,035	902.4	18.9	0.87	-------	-------	nw.	4.4	
	1,250	-------	17.8	-------	-------	-------	nnw.	5.0	
	1,500	-------	16.5	-------	-------	-------	nnw.	4.9	
	2,000	805.2	14.0	-------	-------	-------	n.	4.4	
	2,500	759.0	11.5	-------	-------	-------	nne.	6.0	
3:52	2,530	756.5	11.3	0.51	-------	-------	nne.	6.0	
3:54	2,798	732.9	10.8	0.19	-------	-------	ne.	7.1	
	3,000	715.1	9.4	-------	-------	-------	ne.	8.8	
	3,500	673.0	5.9	-------	-------	-------	nne.	8.7	
	4,000	633.0	2.4	-------	-------	-------	nne.	8.5	
	4,500	595.0	−1.0	-------	-------	-------	nne.	8.2	
	5,000	558.2	−4.5	-------	-------	-------	nne.	7.3	
4:05	5,749	508.0	−9.7	0.70	-------	-------	ne.	5.7	
	6,000	492.1	−11.5	-------	-------	-------	ne.	5.4	
	7,000	*432.8*	*−18.8*	-------	-------	-------	ne.	4.8	
4:12	7,588	399.0	−23.1	0.73	-------	-------	e	4.3	
	8,000	377.0	−26.5	-------	-------	-------	ese.	5.5	
	9,000	328.0	−34.7	-------	-------	-------	e	9.9	
4:19	9,010	327.5	−34.8	0.82	-------	-------	e.	9.8	
	10,000	284.8	−40.2	-------	-------	-------	sw.	7.0	
4:22	10,228	275.5	−41.4	0.54	-------	-------	wsw.	13.1	
	11,000	246.1	−41.5	-------	-------	-------	wsw.	18.4	
4:25	11,140	241.3	−41.5	0.01	-------	-------	wsw.	19.5	Isothermal.
	12,000	*213.2*	*−45.2*	-------	-------	-------	*wsw.*	*24.8*	
4:30	12,326	203.0	−46.6	0.43	-------	-------	w.	24.4	
	13,000	184.0	−49.4	-------	-------	-------	wsw.	24.0	
	14,000	158.2	−53.5	-------	-------	-------	wsw.	22.9	
4:39	14,539	146.0	−55.7	0.41	-------	-------	wsw	19.7	
	15,000	136.2	−58.3	-------	-------	-------	wsw.	21.4	
4:44	15,805	119.7	−62.9	0.57	-------	-------	-------	-------	

OCTOBER 20, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:27	141	1,000.0	11.1	-------	93	12.28	ssw.	1.8	Cloudless all day.
	250	-------	14.3	-------	-------	-------	wsw.	6.0	
	500	959.0	21.8	-------	-------	-------	wnw.	9.0	
6:28	524	956.0	22.5	−2.98	-------	-------	wnw.	8.7	Inversion.
	750	-------	*21.4*	-------	-------	-------	*nw.*	*7.1*	
	1,000	904.8	20.1	-------	-------	-------	nw.	6.3	
	1,250	-------	18.8	-------	-------	-------	nnw.	4.7	
6:31	1,492	854.6	17.6	0.51	-------	-------	ne.	4.2	
	1,500	853.6	17.5	-------	-------	-------	ne.	4.2	
	2,000	805.0	14.1	-------	-------	-------	ne.	2.6	
	2,500	758.5	10.7	-------	-------	-------	n.	3.8	
	3,000	713.9	7.2	-------	-------	-------	nnw.	5.2	
6:38	3,481	673.1	3.9	0.69	-------	-------	nnw.	4.7	
	3,500	671.6	3.9	-------	-------	-------	nnw.	4.6	
6:39	3,652	659.1	4.2	−0.18	-------	-------	nnw.	4.0	Inversion.
	4,000	631.3	2.9	-------	-------	-------	ne.	2.0	
6:40	4,034	628.7	2.8	0.37	-------	-------	ene.	2.0	
	4,500	593.4	−0.2	-------	-------	-------	e.	7.4	
	5,000	557.9	−3.5	-------	-------	-------	ene.	8.5	
	6,000	491.0	−10.0	-------	-------	-------	ese.	8.4	
6:45	6,267	474.5	−11.7	0.65	-------	-------	ese.	8.8	
	7,000	431.4	−18.5	-------	-------	-------	e.	11.4	
6:52	7,811	386.3	−26.0	0.92	-------	-------	ese.	13.0	Adiabatic.
	8,000	376.9	−27.3	-------	-------	-------	ese.	12.7	
	9,000	328.0	−34.5	-------	-------	-------	ese.	8.9	
6:59	9,712	295.8	−39.6	0.72	-------	-------	se.	6.3	
	10,000	*283.9*	*−41.1*	-------	-------	-------	se.	4.0	
	11,000	245.9	−46.1	-------	-------	-------	wsw.	6.1	
	12,000	211.8	−51.2	-------	-------	-------	wsw.	10.4	
7:07	12,230	204.2	−52.3	0.51	-------	-------	wsw.	11.8	
	13,000	182.2	−55.8	-------	-------	-------	wsw.	21.3	
	14,000	156.0	−60.2	-------	-------	-------	w.	20.8	
	15,000	133.2	−64.7	-------	-------	-------	w.	13.8	
7:17	15,033	132.6	−64.9	0.45	-------	-------	w.	13.8	Probably base of stratosphere.
	16,000	115.3	−67.6	-------	-------	-------	wnw.	9.0	
	17,000	*99.0*	*−70.4*	-------	-------	-------	-------	-------	
7:25	17,631	87.5	−72.2	0.28	-------	-------	-------	-------	

OCTOBER 21, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:30	141	1,000.0	11.8	-------	89	12.32	n.	1.4	3 Ci, SSW.
	250	-------	15.6	-------	73	12.94	nne.	2.0	
6:31	483	960.7	23.7	−3.48	40	11.73	ene.	2.5	Inversion.
	500	959.0	23.6	-------	40	11.66	ene.	2.6	
	750	-------	22.0	-------	39	10.32	ene.	3.3	Clear in morning; partly cloudy in afternoon.
	1,000	905.0	20.5	-------	39	9.41	ene.	3.6	
	1,250	-------	18.9	-------	38	8.30	ene.	3.4	
6:35	1,486	855.4	17.4	0.63	38	7.55	ne.	3.0	
	1,500	854.0	17.4	-------	37	7.36	ne.	3.0	
6:36	1,700	834.2	17.4	0.00	30	5.96	nne.	2.7	Isothermal.
	2,000	804.0	15.3	-------	30	5.22	nne.	2.5	
	2,500	754.0	11.7	-------	29	3.99	nne.	2.8	
6:40	3,000	714.8	8.2	0.71	28	3.04	ese.	1.8	
	3,500	674.0	4.8	-------	28	2.41	ese.	1.9	
	4,000	634.1	1.4	-------	29	1.96	sse.	2.5	
	4,500	595.7	−2.0	-------	29	1.50	se.	1.8	
	5,000	558.7	−5.5	-------	30	1.16	sse.	2.0	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 21, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.	*M.*	*Mb.*	°*C.*		*P. ct.*	*Mb.*		*M.p.s.*	
6:48	5,313	536.1	−7.6	0.68	30	0.97	se.	2.6	
	6,000	489.3	−12.4	-------	28	0.59	se.	3.4	
	7,000	429.8	−19.5	-------	26	0.29	se.	8.8	
6:54	7,271	414.9	−21.4	0.71	25	0.23	sse.	9.9	
	8,000	377.5	−27.3	-------	24	0.12	sse.	8.3	
7:00	8,542	351.4	−31.7	0.81	24	0.08	ssw.	3.8	
	9,000	329.0	−35.9	-------	24	0.06	ssw.	5.5	
	10,000	283.0	−45.1	-------	24	0.02	sw.	6.8	
7:11	10,655	257.0	−51.1	0.92	24	0.01	sw.	10.1	Adiabatic.
	11,000	244.0	−52.3	-------	24	0.01	sw.	14.9	
	12,000	210.0	−55.6	-------	24	-------	sw.	18.9	
7:22	12,833	184.7	−58.4	0.34	24	-------	sw.	19.4	Base of stratosphere.
	13,000	179.9	−58.5	-------	24	-------	sw.	18.2	
	14,000	153.8	−59.2	-------	23	-------	sw.	18.7	
	15,000	132.0	−59.8	-------	23	-------	wsw.	17.2	
7:31	15,908	114.5	−60.4	0.07	22	-------	-------	-------	

OCTOBER 21, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
4:04	141	997.6	29.0	-------	37	14.84	Calm.		4 Ci., SSW.
	250	-------	28.0	-------	38	14.38	ne.	0.1	
	500	957.0	25.7	-------	39	12.89	nne.	0.3	Clear in morning; partly cloudy in afternoon.
	750	-------	23.4	-------	41	11.81	n.	0.2	
	1,000	903.8	21.1	-------	43	10.77	nw.	1.0	
	1,250	-------	18.8	-------	44	9.55	nw.	2.0	
4:08	1,355	868.0	17.8	0.92	45	9.18	nnw.	2.2	Adiabatic.
4:09	1,453	858.0	17.6	0.20	32	6.44	nnw.	2.5	
	1,500	853.3	17.2	-------	32	6.28	nnw.	2.7	
	2,000	804.8	13.0	-------	30	4.49	n.	2.6	
4:12	2,431	764.0	9.3	0.85	29	3.40	nne.	2.3	
	2,500	757.5	8.7	-------	30	3.38	ne.	1.8	
	3,000	712.9	4.3	-------	33	2.74	e.	2.0	
4:16	3,323	685.2	1.4	0.88	36	2.43	e.	4.3	
	3,500	670.2	−0.1	-------	36	2.18	ese.	4.0	
4:18	3,988	631.2	−2.1	0.53	36	1.85	se.	1.8	
	4,000	630.1	−2.2	-------	36	1.84	se.	1.8	
	4,500	591.6	−6.2	-------	36	1.31	e.	1.6	
	5,000	554.2	−10.2	-------	36	0.93	se.	1.8	
4:23	5,490	520.5	−14.1	0.80	36	0.65	sse.	5.6	
	6,000	488.1	−18.1	-------	33	0.41	sse.	6.9	
	7,000	427.0	−25.9	-------	28	0.16	s.	6.1	
4:30	7,353	405.4	−28.6	0.78	26	0.11	ssw.	5.0	
	8,000	371.1	−34.0	-------	26	0.06	ssw.	8.0	
	9,000	321.8	−42.3	-------	27	0.03	ssw.	9.5	
4:38	9,348	305.4	−45.2	0.83	27	0.02	ssw.	8.8	
	10,000	276.7	−49.3	-------	27	0.01	ssw.	12.6	
4:44	10,937	241.1	−54.2	0.63	27	0.01	ssw.	13.1	
	11,000	239.0	−54.4	-------	27	0.01	ssw.	13.4	
	12,000	206.0	−57.1	-------	27	-------	sw.	16.2	
4:53	13,004	175.5	−59.9	0.28	27	-------	sw.	21.0	Base of stratosphere.
	14,000	153.0	−60.6	-------	27	-------	wsw.	18.9	
	15,000	132.2	−61.3	-------	27	-------	sw.	16.2	
	16,000	111.8	−62.0	-------	27	-------	wsw.	19.8	
5:06	16,538	100.6	−62.4	0.07	27	-------	-------	-------	

OCTOBER 22, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
A. m.									
6:25	141	999.0	12.9	-------	93	13.84	Calm.		
	250	-------	15.9	-------	80	14.46	ssw.	2.4	3 Ci. S. (2 layers), 1 Ci. Cu., SW.
	500	957.8	22.8	-------	52	14.45	ssw.	4.3	
6:27	516	956.1	23.2	−2.75	50	14.23	ssw.	4.3	
	750	-------	21.4	-------	50	12.75	s.	3.8	Inversion.
	1,000	903.8	19.4	-------	50	11.27	ssw.	2.7	
	1,250	-------	17.4	-------	50	9.94	wsw.	1.4	
6:33	1,493	853.6	15.5	0.79	50	8.80	wnw.	1.4	
	1,500	852.8	15.5	-------	50	8.80	wnw.	1.5	
6:34	1,730	830.0	15.1	0.17	38	6.52	nw.	2.4	
	2,000	804.0	13.3	-------	38	5.81	n.	2.3	
	2,500	756.7	10.1	-------	37	4.57	ene.	2.6	
	3,000	713.0	6.9	-------	36	3.58	ssw.	3.6	
6:43	3,210	695.0	5.5	0.65	36	3.25	sw.	4.7	
	3,500	671.0	3.1	-------	36	2.75	ssw.	6.6	
	4,000	631.1	−1.1	-------	37	2.06	ssw.	5.5	
	4,500	592.5	−5.3	-------	38	1.49	ssw.	5.3	
6:53	4,710	576.5	−7.1	0.84	38	1.28	s.	3.4	Partly cloudy to 10 a. m., then cloudy to 5 p. m.
	5,000	555.3	−8.9	-------	37	1.07	sse.	5.0	
	6,000	488.3	−15.3	-------	32	0.52	sse.	5.2	
7:02	6,007	487.9	−15.3	0.63	32	0.52	sse.	5.2	
	7,000	428.2	−21.4	-------	32	0.29	s.	6.5	
7:11	7,376	406.3	−23.7	0.61	32	0.23	s.	7.0	
	8,000	372.8	−28.3	-------	33	0.15	ssw.	10.3	
7:23	8,626	341.8	−33.3	0.74	34	0.09	s.	15.0	
	9,000	324.5	−36.3	-------	34	0.06	-------	-------	
7:34	9,410	306.0	−39.6	0.80	34	0.04	-------	-------	
	10,000	281.0	−42.2	-------	38	0.04	-------	-------	
7:53	[1] 10,014	280.3	−42.3	0.45	38	0.04	-------	-------	

[1] Instrument was carried about 200 m. higher than maximum altitude tabulated but temperature element was affected by excessive insolation, due to slowing up of ascent.

TABLE 2.—*Tabulated data*—Continued

OCTOBER 23, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P. ct.*	*Mb.*		*M.p.s.*	
4:31	141	997.0	28.7	-------	41	16.16	sw.	3.6	1 Ci., E.; 1 A. St; 0 (?).
	250	-------	27.9	-------	-------	-------	ssw.	4.0	
	500	957.9	26.1	-------	-------	-------	s.	4.7	
	750	-------	24.4	-------	-------	-------	s.	5.3	Clear all day.
4:34	926	912.1	23.1	0.71	-------	-------	s.	5.2	
	1,000	904.5	22.3	-------	-------	-------	s.	5.1	
	1,250	-------	19.6	-------	-------	-------	s.	4.4	
4:36	1,497	853.6	17.0	1.07	-------	-------	s.	3.6	Superadiabatic.
	2,000	804.9	13.0	-------	-------	-------	wsw.	2.4	
4:39	2,397	767.4	9.8	0.80	-------	-------	w.	3.2	
	2,500	758.0	9.0	-------	-------	-------	wnw.	4.3	Distant thunder cloud on nw. horizon about 2 p. m.
	3,000	713.2	5.2	-------	-------	-------	wnw.	4.8	
	3,500	670.8	1.5	-------	-------	-------	wnw.	4.4	
4:45	3,642	658.9	0.4	0.75	-------	-------	w.	3.9	
	4,000	630.0	−1.9	-------	-------	-------	w.	3.6	
	4,500	591.3	−5.1	-------	-------	-------	w.	4.2	
	5,000	555.0	−8.2	-------	-------	-------	w.	5.4	
4:52	5,275	536.3	−10.0	0.64	-------	-------	nw.	5.5	
	6,000	489.1	−15.3	-------	-------	-------	nw.	5.5	
4:57	6,514	456.2	−19.0	0.73	-------	-------	nw.	4.6	
	7,000	427.0	−22.4	-------	-------	-------	wnw.	2.8	
5:03	7,934	376.0	−28.9	0.70	-------	-------	w.	3.1	
	8,000	372.9	−29.3	-------	-------	-------	w.	2.9	
	9,000	324.1	−36.1	-------	-------	-------	nne.	1.2	
	10,000	280.4	−42.9	-------	-------	-------	ne.	3.2	
5:13	10,531	259.6	−46.5	0.68	-------	-------	wnw.	6.9	
	11,000	242.8	−46.8	-------	-------	-------	wnw.	11.1	
	12,000	209.2	−47.6	-------	-------	-------	wnw.	14.0	
5:20	12,046	207.9	−47.6	0.07	-------	-------	wnw.	14.0	Isothermal.
	13,000	181.2	−50.8	-------	-------	-------	wnw.	14.0	
	14,000	155.4	−54.2	-------	-------	-------	wnw.	12.7	
5:32	14,829	136.5	−57.0	0.34	-------	-------	w.	6.9	
	15,000	133.1	−57.7	-------	-------	-------	w.	6.5	
	16,000	113.8	−61.5	-------	-------	-------	w.	10.8	
5:38	16,006	113.7	−61.5	0.38	-------	-------	w.	10.8	
	17,000	97.2	−65.2	-------	-------	-------	w.	7.8	
5:45	17,089	95.8	−65.8	0.37	-------	-------	w.	7.2	Base of stratosphere.
	18,000	83.5	−65.2	-------	-------	-------	wnw.	3.3	
	19,000	72.7	−64.5	-------	-------	-------	nw.	2.8	
	20,000	63.4	−63.8	-------	-------	-------	ene.	4.8	
	21,000	55.0	−63.1	-------	-------	-------	se.	6.2	
	22,000	46.0	−62.4	-------	-------	-------	-------	-------	
6:19	22,528	40.2	−62.0	−0.07	-------	-------	-------	-------	

OCTOBER 26, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100\ m.}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.									
3:58	141	1,001.7	29.0	-------	38	15.24	e.	1.8	Few Cu., ESE.
	250	-------	28.2	-------	-------	-------	e.	1.9	
	500	961.9	26.4	-------	-------	-------	ese.	2.2	Clear all day.
4:00	615	949.6	25.6	0.72	-------	-------	se.	2.2	
	750	-------	24.2	-------	-------	-------	se.	2.3	
	1,000	908.1	21.6	-------	-------	-------	se.	2.2	
4:02	1,035	904.9	21.2	1.05	-------	-------	se.	2.2	Superadiabatic.
	1,250	-------	19.2	-------	-------	-------	ese.	2.4	
	1,500	857.7	17.0	-------	-------	-------	ese.	2.5	
4:06	1,862	821.5	13.7	0.91	-------	-------	ese.	3.1	Adiabatic.
	2,000	808.0	12.3	-------	-------	-------	ese.	3.8	
	2,500	760.5	7.3	-------	-------	-------	ese.	5.0	
4:10	2,707	741.9	5.2	1.00	-------	-------	ese.	5.4	Adiabatic.
	3,000	716.0	4.6	-------	-------	-------	ene.	5.0	
4:12	3,261	693.5	4.0	0.22	-------	-------	ne.	6.0	
	3,500	673.7	2.7	-------	-------	-------	nne.	8.9	
4:16	3,960	636.2	0.1	0.56	-------	-------	n.	8.1	
	4,000	633.0	−0.2	-------	-------	-------	n.	7.6	
	4,500	594.0	−4.2	-------	-------	-------	nne.	9.4	
	5,000	557.9	−8.2	-------	-------	-------	n.	9.8	
4:22	5,047	554.5	−8.6	0.80	-------	-------	n.	10.0	
4:25	5,500	523.5	−9.9	0.29	-------	-------	nnw.	12.1	
	6,000	491.6	−13.8	-------	-------	-------	nnw.	12.0	
	7,000	431.4	−21.5	-------	-------	-------	nnw.	13.1	
4:37	7,494	402.2	−25.4	0.78	-------	-------	nnw.	15.4	
	8,000	375.1	−30.2	-------	-------	-------	nnw.	15.4	
4:47	8,939	328.4	−39.0	0.94	-------	-------	nnw.	18.8	Adiabatic.
	9,000	325.6	−39.5	-------	-------	-------	nnw.	19.8	
	10,000	281.4	−47.1	-------	-------	-------	nnw.	19.6	
4:57	10,720	253.1	−52.6	0.76	-------	-------	nnw.	19.8	
	11,000	243.2	−52.9	-------	-------	-------	nw.	21.3	
	12,000	209.1	−53.9	-------	-------	-------	nnw.	27.0	
5:06	12,348	197.7	−54.3	0.10	-------	-------	nw.	26.8	Isothermal.
	13,000	179.0	−57.3	-------	-------	-------	nnw.	26.6	
	14,000	153.3	−61.8	-------	-------	-------	nnw.	19.8	
5:20	14,603	139.6	−64.5	0.45	-------	-------	nnw.	17.1	Base of stratosphere.
	15,000	131.0	−65.0	-------	-------	-------	-------	-------	
5:30	15,936	112.9	−66.2	0.13	-------	-------	-------	-------	
	16,000	112.0	−65.9	-------	-------	-------	-------	-------	
	17,000	96.0	−63.6	-------	-------	-------	-------	-------	
	18,000	81.8	−61.1	-------	-------	-------	-------	-------	
5:52	18,202	78.7	−60.6	−0.25	-------	-------	-------	-------	

TABLE 2.—*Tabulated data*—Continued

OCTOBER 28, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
4:03	141	999.3	28.2		33	12.63	ssw.	5.4	4 Ci. WNW.
	250		27.2				ssw.	6.0	
	500	959.8	24.8				s.	7.1	Clear until 4 p. m.
	750		22.5				s.	7.6	
	1,000	905.9	20.1				sse.	7.6	
4:06	1,181	887.0	18.4	0.94			sse.	7.4	Adiabatic.
	1,250		17.7				sse.	7.4	
	1,500	854.8	15.1				s.	6.8	
	2,000	805.0	10.0				s.	7.4	
4:10	2,034	801.7	9.7	1.02			s.	7.6	Superadiabatic.
4:11	2,331	773.5	9.1	0.20			s.	9.0	
	2,500	758.0	8.1				s.	9.8	
	3,000	713.3	5.1				s.	10.0	
	3,500	671.0	2.0				s.	9.6	
4:16	3,652	658.3	1.1	0.61			s.	8.2	
	4,000	630.5	0.5				ssw.	3.9	
4:19	4,194	615.3	0.1	0.18			sw.	3.2	
	4,500	592.4	−1.9				wsw.	3.2	
4:20	4,679	579.3	−3.0	0.64			wsw.	3.4	
	5,000	556.7	−3.6				wsw.	2.9	
4:22	5,203	542.5	−4.0	0.19			wnw.	2.6	
	6,000	490.2	−9.8				w.	5.8	
4:27	6,585	454.4	−14.0	0.72			w.	4.8	
	7,000	430.0	−17.6				w.	3.6	
4:32	7,605	396.4	−22.9	0.87			wsw.	4.2	
	8,000	376.2	−26.5				wsw.	4.8	
4:36	8,610	345.6	−32.1	0.92			w.	3.8	Adiabatic.

OCTOBER 30, 1927

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
3:51	141	995.6	19.6		78	17.80	wnw.	11.6	8 A. St., SW.; 2 St. Cu.; NW (?).
	250		18.9						

TABLE 2.—*Tabulated data*—Continued.

OCTOBER 30, 1927—Continued

Time 90th mer.	Altitude, M. S. L.	Pressure	Temperature	$\frac{\Delta t}{100 \text{ m.}}$	Humidity: Relative	Humidity: Vapor pressure	Wind: Direction	Wind: Velocity	Remarks
P. m.	*M.*	*Mb.*	°*C.*		*P.ct.*	*Mb.*		*M.p.s.*	
3:15	500	954.8	17.3						Clear to 10 a., then cloudy to 6 p.
3:53	564	947.8	16.9	0.64					
	750		16.9						
3:54	940	907.0	16.9	0.00					Isothermal.
	1,000	900.8	16.5						
	1,250		14.8						Thunder first heard at 3:05 p.; last heard DNp. R. B. 3:18 p. E. DNa. 31 st.
	1,500	849.5	13.2						
	2,000	800.0	9.8						
4:00	2,125	787.7	9.0	0.67					
	2,500	752.0	6.0						
	3,000	707.7	2.0						
4:05	3,326	680.1	−0.6	0.80					
	3,500	665.9	−1.5						
	4,000	626.0	−4.0						
	4,500	587.4	−6.6						
4:10	4,823	563.1	−8.2	0.51					
	5,000	550.3	−8.9						
4:14	5,699	502.8	−11.7	0.40					
	6,000	483.9	−14.3						
	7,000	424.4	−22.8						
4:23	7,532	393.8	−27.4	0.86					
	8,000	368.9	−31.2						
	9,000	320.6	−39.1						
4:32	9,152	314.0	−40.3	0.80					
	10,000	279.3	−47.1						
	11,000	241.3	−55.1						
4:44	11,853	209.5	−62.0	0.80					Base of stratosphere.
	12,000	204.9	−61.7						
	13,000	175.0	−59.6						
4:56	13,636	158.9	−58.2	−0.21					
	14,000	150.4	−59.6						
	15,000	128.2	−63.4						
5:06	15,019	127.9	−63.5	0.38					

THE PASSING OF SIGNAL SERVICE, WEATHER BUREAU ELECTRIC TELEGRAPH AND CABLE SYSTEMS

551.507

ALFRED J. HENRY

In Weather Bureau Topics and Personnel for May, 1929, the following paragraph appears:

> The WEATHER BUREAU's telegraph lines between Cape Henry, Va., and Hatteras, N. C., and between Port Angeles and Tatoosh Island, Wash., the short telegraph line between North Head and Fort Canby, Wash., and the telephone cable between Beaver Island and Charlevoix, Mich., will be transferred to the Coast Guard at the termination of June 30, 1929.

The above order marks the concluding chapter of the period of construction, ownership, and operation by the Signal Service and its successor, the WEATHER BUREAU, of electric telegraph lines and submarine cables for the purpose of obtaining weather reports from and issuing storm warnings to isolated points in various parts of the United States. A brief history of this special activity is presented in the following paragraphs:

In the early seventies the newly organized Signal Service of the Army, having been commissioned by Congress to organize a storm reporting and warning service for the benefit of commerce and navigation, was confronted with the problem of finding ways and means of reaching places not already linked up with any of the existing commercial telegraph or telephone systems. It should also be kept in mind that the Signal Service was a unit in the regular Military Establishment of the country and that one of its functions as such was to provide and maintain prompt communication between the frontier military posts of the Southwest and West with centers of trade and commerce and the War Department in Washington.

The problem of collecting and distributing meteorological information was solved by the organization in 1871 of the circuit system whereby the Western Union Telegraph Co. set aside certain trunk lines connecting the larger cities of the territory east of the Rocky Mountains with Washington, D. C., for the exclusive use of the Weather Service for such time as was required each day.

The establishment of military telegraph lines connecting military posts with the then outposts of civilization was based on the necessity of protecting frontier settlements from the outbreaks of hostile Indians and lawless men. In the early seventies the frontiers were found in the present States of Arizona, New Mexico, Texas, the Dakotas, Montana, Colorado, Wyoming, Idaho, and Washington. In each of these States telegraph lines connecting military posts with each other and the outside world were constructed and operated by the Army Signal Service. At many of the posts a regularly instructed Signal Service man was in charge. It was his duty, moreover, to make at least three meteorological observations daily and telegraph them to the Washington office. At the peak of the period of military telegraph-line construction there were as many as 111 military telegraph stations in operation and at 68 of them full meteorological observations were made and telegraphed daily.

The eastern seaboard of the United States constituted a frontier of a different character, viz, that of isolation, except at a very few points, as regards communication by the electric telegraph; it was moreover, subject to severe and dangerous storms during which the perils of naviga-