METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR OCTOBER 1948

AEROLOGICAL OBSERVATIONS

[For description of change in Table 1 and Charts, see REVIEW, January 1946, p. 6]

Relative humidity data, beginning with October 1, 1948, were computed, and expressed in these tables, on the basis of the vapor pressure over water. Upper air values of relative humidity at levels with temperatures less than 0° C. have formerly been computed and expressed on the basis of the vapor pressure over ice. Therefore, relative humidity data for the period after October 1, 1948, should not be combined with earlier data without necessary conversion.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1948*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,008.8 mb.)				Albuquerque, N. Mex. (839.3 mb.)				Atlanta, Ga. (984.4 mb.)				Big Spring, Tex. (929.2 mb.)				Bismarck, N. Dak. (956.1 mb.)				Boise, Idaho (916.5 mb.)				Brownsville, Tex. (1,015.5 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	86	7.6	82	31	1,620	14.5	41	31	300	13.8	75	31	774	17.6	52	31	505	7.2	62	31	868	11.5	53	31	6	22.1	84
1,000	31	158	(*)	----	31	106	(*)	----	31	166	(*)	----	31	138	(*)	----	31	130	(*)	----	31	127	(*)	----	31	140	23.1	77
950	31	588	8.4	63	31	562	(*)	----	31	603	16.3	56	31	583	(*)	----	31	560	(*)	----	31	517	(*)	----	31	590	20.7	75
900	31	1,028	6.1	61	31	1,027	(*)	----	31	1,060	13.5	56	31	1,047	17.6	47	31	1,005	9.0	48	31	1,021	14.6	40	31	1,053	18.2	66
850	31	1,494	3.6	56	31	1,513	(*)	----	31	1,540	10.5	56	31	1,533	14.7	47	31	1,477	6.9	48	31	1,503	13.1	35	31	1,541	15.6	63
800	31	1,985	1.8	53	31	2,025	13.8	38	31	2,043	8.6	43	31	2,043	12.2	47	31	1,973	4.5	49	31	2,009	9.7	37	31	2,054	13.4	53
750	31	2,511	−.7	53	31	2,569	10.0	40	31	2,580	6.5	33	31	2,587	9.2	43	31	2,503	1.9	47	31	2,545	6.2	40	31	2,603	11.1	44
700	31	3,051	−3.6	51	31	3,134	5.9	43	31	3,137	4.2	29	31	3,150	5.5	42	31	3,050	−.9	44	31	3,103	2.3	40	31	3,169	8.1	45
650	31	3,639	−6.4	46	31	3,736	1.2	48	31	3,739	1.0	26	31	3,755	1.5	41	31	3,639	−4.2	38	31	3,700	−1.8	39	31	3,782	4.9	46
600	31	4,256	−9.6	40	31	4,375	−3.4	50	31	4,376	−2.4	----	31	4,392	−2.8	40	31	4,264	−7.9	31	31	4,329	−5.8	38	31	4,426	1.3	45
550	31	4,926	−13.7	40	31	5,055	−8.0	48	31	5,061	−6.4	----	31	5,077	−6.8	32	31	4,939	−12.1	31	31	5,005	−10.1	35	31	5,122	−2.8	42
500	31	5,640	−18.7	38	31	5,790	−12.5	38	31	5,799	−11.2	----	31	5,814	−11.4	----	30	5,657	−16.8	30	31	5,734	−14.9	----	31	5,870	−7.5	37
450	31	6,423	−23.9	----	31	6,593	−17.9	35	31	6,605	−16.8	----	31	6,621	−16.7	----	30	6,445	−22.3	----	31	6,527	−20.5	----	31	6,692	−13.0	36
400	31	7,266	−30.0	----	31	7,456	−24.3	----	31	7,473	−23.0	----	31	7,490	−22.8	----	30	7,295	−28.9	----	31	7,383	−26.9	----	31	7,571	−18.7	36
350	30	8,200	−37.1	----	31	8,414	−31.5	----	31	8,437	−29.9	----	31	8,455	−30.2	----	30	8,237	−35.9	----	30	8,335	−33.6	----	31	8,552	−25.7	----
300	30	9,249	−44.2	----	31	9,486	−39.6	----	31	9,517	−37.6	----	31	9,532	−38.6	----	30	9,290	−44.0	----	30	9,398	−41.7	----	31	9,650	−33.7	----
250	30	10,451	−51.1	----	30	10,713	−47.8	----	31	10,752	−46.1	----	31	10,761	−46.9	----	30	10,490	−52.2	----	30	10,609	−50.4	----	31	10,903	−43.0	----
200	30	11,889	−54.5	----	30	12,159	−55.2	----	31	12,206	−54.5	----	30	12,209	−54.3	----	27	11,908	−56.1	----	30	12,040	−57.1	----	31	12,372	−53.5	----
175	29	12,751	−55.4	----	28	13,004	−58.8	----	31	13,053	−58.4	----	29	13,053	−58.8	----	26	12,752	−56.4	----	29	12,887	−59.4	----	29	13,215	−59.2	----
150	28	13,731	−57.3	----	23	13,979	−62.6	----	29	14,015	−62.1	----	26	14,018	−62.5	----	23	13,729	−57.1	----	26	13,855	−60.5	----	29	14,167	−64.9	----
125	27	14,880	−59.4	----	14	15,086	−65.4	----	27	15,134	−65.8	----	21	15,135	−66.3	----	20	14,871	−57.6	----	18	15,001	−62.2	----	26	15,258	−70.4	----
100	21	16,268	−60.5	----	7	16,444	−68.0	----	13	16,481	−67.0	----	9	16,507	−68.7	----	13	16,292	−57.2	----	12	16,385	−63.6	----	17	16,565	−73.8	----
80	15	17,665	−59.1	----	----	----	----	----	6	17,839	−65.0	----	----	----	----	----	5	17,719	−56.6	----	9	17,758	−61.7	----	10	17,879	−71.0	----
60	7	19,465	−59.9	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7	19,552	−61.1	----	----	----	----	----
50	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	7	20,687	−59.5	----	----	----	----	----

Standard pressure surface (mb.)	Buffalo, N. Y. (992.8 mb.)				Camaguey, Cuba [1] (-------- mb.)				Caribou, Maine (996.1 mb.)				Charleston, S. C. (1,017.4 mb.)				Ciudad Victoria, Mexico (976.4 mb.)				Columbia, Mo. (989.8 mb.)				Dodge City, Kans. (926.7 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	221	8.5	81	----	----	----	----	31	191	4.9	86	31	13	13.9	88	31	335	22.9	73	31	239	12.2	65	31	792	13.7	44
1,000	31	160	(*)	----	----	----	----	----	31	158	(*)	----	31	159	17.0	71	31	124	(*)	----	31	151	(*)	----	31	139	(*)	----
950	31	591	9.1	66	----	----	----	----	31	581	6.5	65	31	598	15.8	58	31	574	21.5	71	31	587	13.9	47	31	583	(*)	----
900	31	1,031	6.5	62	----	----	----	----	31	1,021	4.2	62	31	1,054	13.2	58	31	1,040	18.1	73	31	1,038	11.3	48	31	1,039	15.8	35
850	31	1,498	4.1	58	----	----	----	----	31	1,484	1.8	59	31	1,534	10.9	47	31	1,528	15.0	77	31	1,513	8.9	44	31	1,521	12.8	36
800	31	1,989	1.4	56	----	----	----	----	31	1,971	1.0	54	31	2,038	9.3	42	31	2,039	12.2	77	31	2,012	6.5	42	31	2,027	10.0	35
750	31	2,516	−.9	48	----	----	----	----	31	2,489	−2.1	47	31	2,576	7.2	36	31	2,582	9.6	74	31	2,546	3.9	41	31	2,565	6.9	36
700	31	3,054	−3.5	46	----	----	----	----	31	3,031	−4.6	43	31	3,136	4.7	33	30	3,150	6.7	71	31	3,098	1.3	41	31	3,124	3.5	33
650	31	3,643	−6.8	44	----	----	----	----	31	3,614	−7.6	43	31	3,736	1.3	33	30	3,760	3.9	59	31	3,693	−2.2	40	31	3,722	−.5	33
600	31	4,259	−10.0	44	----	----	----	----	31	4,230	−10.9	37	31	4,377	−2.1	----	29	4,404	.7	51	31	4,321	−6.0	37	31	4,356	−4.5	32
550	31	4,932	−14.2	42	----	----	----	----	31	4,896	−14.9	34	31	5,060	−6.2	----	28	5,098	−3.6	52	31	4,999	−10.2	35	31	5,034	−9.2	----
500	31	5,614	−18.9	39	----	----	----	----	30	5,607	−20.1	37	31	5,803	−10.6	----	28	5,846	−8.3	51	31	5,726	−15.0	33	31	5,765	−14.5	----
450	31	6,424	−24.4	----	----	----	----	----	30	6,384	−25.6	----	31	6,611	−16.0	----	27	6,667	−13.3	44	31	6,522	−20.6	----	31	6,556	−20.2	----
400	30	7,263	−31.0	----	----	----	----	----	30	7,223	−31.9	----	31	7,483	−22.2	----	26	7,544	−19.1	38	31	7,375	−26.8	----	31	7,416	−26.5	----
350	30	8,198	−37.2	----	----	----	----	----	30	8,153	−38.7	----	31	8,450	−29.2	----	26	8,524	−26.0	----	31	8,324	−34.0	----	31	8,365	−33.8	----
300	30	9,248	−43.6	----	----	----	----	----	29	9,189	−46.1	----	31	9,534	−36.8	----	26	9,622	−34.5	----	31	9,386	−41.9	----	31	9,428	−41.8	----
250	27	10,461	−49.1	----	----	----	----	----	27	10,388	−51.7	----	27	10,767	−45.7	----	26	10,871	−44.5	----	31	10,599	−49.8	----	31	10,639	−50.4	----
200	22	11,904	−51.9	----	----	----	----	----	18	11,862	−57.1	----	26	12,226	−55.2	----	26	12,329	−56.0	----	31	12,036	−55.4	----	27	12,071	−56.0	----
175	12	12,768	−54.8	----	----	----	----	----	13	12,705	−56.4	----	26	13,068	−59.8	----	25	13,171	−62.3	----	30	12,879	−57.0	----	16	12,926	−58.5	----
150	----	----	----	----	----	----	----	----	----	----	----	----	20	14,038	−65.0	----	25	14,108	−68.9	----	28	13,850	−58.5	----	10	13,906	−60.6	----
125	----	----	----	----	----	----	----	----	----	----	----	----	15	15,122	−67.9	----	21	15,190	−74.8	----	20	14,997	−60.3	----	----	----	----	----
100	----	----	----	----	----	----	----	----	----	----	----	----	12	16,454	−69.1	----	11	16,484	−76.4	----	9	16,405	−61.8	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1948*—Continued

Standard pressure surface (mb.)	El Paso, Tex. (882.4 mb.)				Ely, Nev. (810.0 mb.)				Fort Worth, Tex. (993.4 mb.)				Glasgow, Mont. (939.8 mb.)				Grand Junction, Colo. (853.8 mb.)				Great Falls, Mont. (887.7 mb.)				Greensboro, N. C. (987.8 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	30	1,195	18.1	45	31	1,908	7.1	45	31	211	18.7	47	31	648	8.4	45	31	1,474	12.5	37	31	1,128	10.8	41	30	273	10.6	81
1,000	30	105	(*)	----	31	122	(*)	----	31	153	(*)	----	31	125	(*)	----	31	117	(*)	----	31	118	(*)	----	30	170	(*)	----
950	30	561	(*)	----	31	565	(*)	----	31	597	19.3	40	31	560	(*)	----	31	565	(*)	----	31	561	(*)	----	30	602	13.7	57
900	30	1,030	(*)	----	31	1,024	(*)	----	31	1,058	16.2	43	31	1,009	11.9	37	31	1,029	(*)	----	31	1,018	(*)	----	30	1,056	11.2	56
850	30	1,516	18.2	39	31	1,504	(*)	----	31	1,542	13.7	46	31	1,485	9.0	37	31	1,511	(*)	----	31	1,490	10.9	35	30	1,531	8.4	54
800	30	2,032	14.5	42	31	2,011	10.3	36	31	2,051	11.3	46	31	1,984	6.0	39	31	2,023	12.7	31	31	1,993	7.7	37	30	2,029	6.3	47
750	30	2,577	10.4	49	31	2,552	8.2	34	31	2,593	8.4	44	31	2,517	2.8	33	31	2,563	8.8	35	31	2,526	3.8	38	30	2,559	3.9	44
700	30	3,144	6.3	49	31	3,113	3.9	37	31	3,154	5.1	40	31	3,064	−.6	36	31	3,132	4.4	40	31	3,077	−.1	37	30	3,115	1.4	36
650	30	3,748	1.7	53	31	3,712	−.4	39	31	3,757	1.2	37	31	3,655	−3.9	32	31	3,729	.0	42	31	3,672	−3.8	34	30	3,713	−1.4	30
600	30	4,387	−2.5	53	31	4,346	−4.3	35	31	4,394	−2.9	35	31	4,279	−7.6	30	31	4,362	−4.7	41	31	4,294	−7.5	34	30	4,342	−5.0	28
550	30	5,075	−6.4	45	31	5,022	−8.9	33	31	5,079	−7.4	----	31	4,953	−12.0	----	31	5,043	−9.2	39	31	4,968	−11.9	35	30	5,024	−9.0	----
500	30	5,812	−10.8	35	31	5,756	−14.2	----	31	5,814	−11.7	----	31	5,674	−16.9	----	29	5,777	−13.8	35	31	5,688	−17.0	34	30	5,753	−13.8	----
450	30	6,623	−16.2	34	31	6,553	−19.6	----	31	6,623	−17.1	----	31	6,465	−22.4	----	29	6,577	−19.6	33	31	6,474	−23.0	----	30	6,555	−19.1	----
400	30	7,490	−22.7	----	31	7,411	−26.3	----	31	7,487	−23.3	----	31	7,312	−28.9	----	29	7,433	−26.2	----	31	7,321	−29.5	----	30	7,412	−25.3	----
350	30	8,455	−29.8	----	31	8,362	−33.1	----	31	8,450	−30.5	----	31	8,254	−35.9	----	29	8,385	−33.1	----	31	8,259	−36.4	----	30	8,367	−32.4	----
300	29	9,530	−38.0	----	31	9,428	−41.0	----	31	9,527	−38.7	----	30	9,309	−44.0	----	29	9,449	−41.5	----	31	9,310	−44.2	----	29	9,435	−39.9	----
250	29	10,762	−46.4	----	30	10,639	−49.6	----	31	10,755	−47.4	----	29	10,503	−52.4	----	29	10,663	−49.7	----	30	10,506	−51.9	----	29	10,659	−47.7	----
200	29	12,215	−54.6	----	30	12,072	−57.1	----	31	12,203	−55.3	----	27	11,929	−57.4	----	27	12,105	−55.9	----	29	11,935	−58.1	----	27	12,103	−54.6	----
175	25	13,067	−58.8	----	29	12,909	−59.0	----	31	13,046	−59.4	----	25	12,759	−57.5	----	27	12,949	−57.9	----	28	12,769	−58.8	----	25	12,954	−58.0	----
150	23	14,039	−63.3	----	27	13,861	−61.9	----	31	14,003	−63.1	----	24	13,737	−58.0	----	25	13,903	−60.4	----	27	13,744	−59.3	----	22	13,913	−61.6	----
125	16	15,155	−67.4	----	21	14,967	−63.6	----	30	15,113	−66.6	----	20	14,877	−59.0	----	13	15,011	−61.9	----	24	14,883	−60.5	----	15	15,014	−63.3	----
100	13	16,469	−70.9	----	15	16,325	−65.4	----	20	16,447	−68.0	----	17	16,286	−59.2	----	10	16,382	−63.6	----	21	16,275	−61.8	----	10	16,374	−63.4	----
80	6	17,794	−68.9	----	8	17,676	−64.2	----	13	17,783	−66.3	----	12	17,677	−58.0	----	----	----	----	----	18	17,661	−60.2	----	----	----	----	----
60	----	----	----	----	6	19,450	−62.2	----	7	19,517	−62.9	----	----	----	----	----	----	----	----	----	10	19,443	−58.3	----	----	----	----	----
50	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	6	20,585	−58.4	----	----	----	----	----

Standard pressure surface (mb.)	Hatteras, N. C. (1,018.0 mb.)				Havana, Cuba[1] (.....mb.)				Honolulu, T. H. (1,014.7 mb.)				International Falls, Minn. (973.3 mb.)				Joliet, Ill. (997.5 mb.)				Lake Charles, La. (1,017.6 mb.)				Lander, Wyo. (830.9 mb.)			
Surface	31	3	16.1	81	----	----	----	----	31	3	26.5	64	31	360	5.7	72	31	178	8.5	77	31	5	17.3	77	31	1,696	8.1	47
1,000	31	154	16.0	75	----	----	----	----	31	131	25.1	66	31	136	(*)	----	31	157	(*)	----	31	155	20.6	63	31	128	(*)	----
950	31	592	13.6	67	----	----	----	----	31	587	21.4	71	31	564	8.6	60	31	586	10.4	60	31	601	18.3	52	31	573	(*)	----
900	31	1,043	11.2	62	----	----	----	----	31	1,047	17.9	75	31	1,004	6.3	58	31	1,033	7.8	58	31	1,059	15.3	52	31	1,030	(*)	----
850	31	1,518	9.2	54	----	----	----	----	31	1,535	14.7	75	31	1,471	3.8	55	31	1,502	5.3	52	31	1,541	13.2	44	31	1,506	(*)	----
800	31	2,019	7.5	46	----	----	----	----	31	2,046	12.5	60	31	1,961	2.1	44	31	1,995	3.2	46	31	2,049	11.0	40	31	2,011	10.3	37
750	31	2,552	5.8	42	----	----	----	----	31	2,592	11.6	36	31	2,484	−.3	42	31	2,520	1.1	41	31	2,589	8.4	37	31	2,552	7.3	36
700	31	3,111	3.6	39	----	----	----	----	31	3,160	9.0	29	31	3,028	−3.2	42	31	3,068	−1.5	39	31	3,152	5.1	36	31	3,109	3.4	39
650	31	3,712	.3	38	----	----	----	----	31	3,775	5.8	----	31	3,614	−6.3	42	31	3,658	−4.8	36	31	3,755	1.9	29	31	3,709	−1.2	39
600	31	4,347	−3.4	37	----	----	----	----	31	4,421	2.0	----	31	4,233	−9.8	35	31	4,280	−8.5	38	31	4,395	−1.9	----	31	4,338	−5.5	39
550	31	5,031	−7.7	36	----	----	----	----	31	5,116	−2.2	----	31	4,903	−13.6	33	31	4,952	−12.4	36	31	5,084	−5.9	----	31	5,018	−10.0	36
500	31	5,765	−12.4	35	----	----	----	----	30	5,867	−7.0	----	31	5,617	−18.4	35	31	5,672	−17.1	----	31	5,822	−10.5	----	31	5,743	−15.3	35
450	31	6,570	−17.9	----	----	----	----	----	30	6,687	−12.4	----	30	6,397	−24.2	----	31	6,456	−23.0	----	31	6,636	−15.7	----	30	6,542	−21.4	----
400	31	7,432	−24.0	----	----	----	----	----	30	7,571	−18.6	----	30	7,239	−30.5	----	31	7,306	−29.4	----	31	7,504	−22.0	----	30	7,390	−27.9	----
350	31	8,393	−31.0	----	----	----	----	----	30	8,553	−25.8	----	30	8,174	−37.3	----	31	8,246	−36.4	----	31	8,472	−29.2	----	30	8,334	−35.0	----
300	30	9,466	−38.4	----	----	----	----	----	30	9,650	−34.1	----	30	9,221	−44.9	----	30	9,310	−44.1	----	31	9,556	−37.0	----	30	9,392	−43.0	----
250	30	10,698	−46.0	----	----	----	----	----	29	10,902	−43.7	----	30	10,418	−52.4	----	30	10,511	−51.5	----	31	10,793	−46.2	----	29	10,602	−51.7	----
200	30	12,153	−54.4	----	----	----	----	----	29	12,367	−54.0	----	30	11,845	−56.0	----	29	11,945	−55.5	----	31	12,243	−56.2	----	25	12,039	−58.0	----
175	29	12,992	−58.4	----	----	----	----	----	29	13,212	−59.9	----	28	12,696	−55.7	----	29	12,793	−56.6	----	31	13,080	−61.5	----	18	12,876	−59.5	----
150	28	13,949	−62.0	----	----	----	----	----	27	14,164	−64.9	----	22	13,676	−55.0	----	28	13,764	−58.2	----	31	14,024	−66.5	----	9	13,817	−59.9	----
125	23	15,051	−64.3	----	----	----	----	----	22	15,263	−69.0	----	16	14,820	−55.2	----	21	14,901	−60.0	----	29	15,115	−70.7	----	----	----	----	----
100	14	16,413	−64.9	----	----	----	----	----	18	16,589	−72.0	----	7	16,236	−55.2	----	14	16,286	−61.6	----	25	16,431	−72.5	----	----	----	----	----
80	----	----	----	----	----	----	----	----	15	17,907	−70.4	----	----	----	----	----	----	----	----	----	14	17,754	−70.7	----	----	----	----	----
60	----	----	----	----	----	----	----	----	13	19,655	−62.9	----	----	----	----	----	----	----	----	----	11	19,485	−65.8	----	----	----	----	----
50	----	----	----	----	----	----	----	----	11	20,784	−60.1	----	----	----	----	----	----	----	----	----	8	20,602	−62.8	----	----	----	----	----
40	----	----	----	----	----	----	----	----	9	22,196	−56.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
30	----	----	----	----	----	----	----	----	5	24,024	−51.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Las Vegas, Nev. (945.8 mb.)				Little Rock, Ark. (1,009.4 mb.)				Mazatlan, Mexico (1,008.0 mb.)				Medford, Oreg. (969.2 mb.)				Merida, Mexico (1,010.2 mb.)				Miami, Fla. (1,015.6 mb.)				Nantucket, Mass. (1,017.2 mb.)			
Surface	31	574	21.2	24	31	79	14.0	77	31	14	27.5	75	31	401	12.8	72	31	27	25.6	82	30	4	23.8	83	24	14	10.9	86
1,000	31	85	(*)	----	31	158	17.5	61	31	84	27.0	74	31	135	(*)	----	31	117	25.1	81	30	140	23.5	81	24	156	12.5	78
950	31	538	(*)	----	31	598	17.3	50	31	542	24.0	71	31	572	14.5	58	31	569	22.8	81	30	589	20.6	83	24	587	10.2	70
900	31	1,006	22.3	22	31	1,057	14.3	51	31	1,010	22.0	62	31	1,025	12.6	52	31	1,038	19.9	81	30	1,053	17.6	83	24	1,033	8.0	64
850	31	1,498	18.4	25	31	1,537	11.4	52	31	1,505	19.6	50	31	1,502	9.6	53	31	1,530	17.2	79	30	1,541	15.0	78	24	1,503	5.9	61
800	31	2,013	14.0	29	31	2,041	9.5	43	31	2,023	16.5	46	31	2,003	7.0	48	31	2,046	14.5	73	30	2,053	12.7	66	24	1,997	3.4	52
750	31	2,558	9.2	36	31	2,579	6.7	40	31	2,578	12.8	45	31	2,537	4.5	38	31	2,592	12.0	66	30	2,594	10.3	58	24	2,525	1.1	50
700	31	3,120	4.7	39	31	3,137	3.8	42	31	3,147	9.0	49	31	3,091	1.8	35	31	3,166	9.0	61	30	3,165	7.6	51	24	3,070	−1.5	48
650	31	3,723	1.0	34	31	3,739	.0	41	31	3,762	5.1	50	31	3,687	−1.5	36	31	3,777	5.8	49	30	3,772	4.2	45	24	3,662	−4.7	----
600	31	4,359	−2.8	32	30	4,371	−3.6	36	31	4,406	1.2	42	31	4,318	−5.2	33	31	4,428	2.2	44	28	4,419	.7	49	24	4,284	−7.5	----
550	31	5,045	−7.0	----	29	5,052	−7.8	34	31	5,104	−2.6	40	31	4,996	−9.4	33	29	5,126	−1.7	41	27	5,114	−3.1	45	23	4,958	−11.7	----
500	31	5,780	−12.2	----	29	5,788	−12.4	----	31	5,852	−7.0	----	31	5,725	−14.3	34	29	5,879	−6.2	39	27	5,862	−7.3	45	22	5,679	−16.4	----
450	31	6,584	−18.1	----	29	6,589	−18.0	----	31	6,675	−12.2	----	30	6,530	−19.6	37	29	6,704	−11.2	31	27	6,684	−12.5	39	22	6,471	−21.7	----
400	31	7,446	−25.0	----	29	7,453	−24.4	----	31	7,557	−18.3	----	30	7,390	−26.0	----	29	7,591	−16.9	----	26	7,566	−18.7	42	22	7,320	−27.9	----
350	29	8,400	−32.1	----	28	8,412	−31.7	----	31	8,539	−25.5	----	30	8,344	−33.2	----	29	8,577	−24.2	----	26	8,548	−25.3	----	21	8,263	−34.6	----
300	29	9,470	−40.2	----	28	9,483	−39.6	----	31	9,639	−33.7	----	30	9,409	−41.5	----	29	9,680	−63.1	----	26	9,648	−33.7	----	20	9,325	−41.1	----
250	28	10,689	−48.7	----	28	10,707	−47.8	----	31	10,892	−43.6	----	30	10,620	−50.5	----	29	10,935	−43.6	----	26	10,900	−43.6	----	18	10,543	−47.0	----
200	27	12,128	−55.7	----	28	12,154	−54.8	----	26	12,348	−55.5	----	29	12,052	−57.4	----	28	12,391	−56.4	----	26	12,362	−55.2	----	18	11,999	−53.0	----
175	23	12,974	−58.8	----	28	13,001	−58.1	----	21	13,171	−62.2	----	29	12,889	−60.2	----	28	13,224	−63.5	----	25	13,203	−61.7	----	17	12,847	−55.2	----
150	18	13,930	−61.3	----	23	13,965	−61.3	----	16	14,106	−68.0	----	29	13,845	−62.0	----	27	14,150	−70.6	----	20	14,153	−68.1	----	17	13,825	−57.5	----
125	10	15,037	−64.6	----	17	15,091	−64.3	----	7	15,164	−72.0	----	21	14,968	−62.7	----	22	15,213	−76.6	----	9	15,218	−73.9	----	16	14,978	−60.3	----
100	----	----	----	----	7	16,449	−65.4	----	----	----	----	----	12	16,331	−63.7	----	10	16,505	−80.1	----	----	----	----	----	10	16,377	−61.6	----
80	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	17,786	−75.6	----	----	----	----	----	7	17,796	−61.0	----
60	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	19,598	−58.8	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1948*—Continued

Standard pressure surface (mb.)	Nashville, Tenn. (998.6 mb.)				New Orleans, La. (1,017.9 mb.)				North Platte, Nebr. (919.2 mb.)				Oakland, Calif. (1,014.1 mb.)				Oklahoma City, Okla. (972.1 mb.)				Omaha, Nebr. (981.4 mb.)				Phoenix, Ariz. (971.8 mb.)			
Standard pressure surface (mb.)	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	177	13.5	69	31	2	18.6	80	31	849	8.9	56	31	6	15.1	79	31	391	15.5	48	31	308	11.8	62	30	339	22.7	42
1,000	31	165	(*)	----	31	155	20.5	68	31	136	(*)	----	31	124	15.0	75	31	148	(*)	----	31	149	(*)	----	30	86	(*)	----
950	31	602	14.5	51	31	598	18.0	60	31	574	(*)	----	31	565	15.3	60	31	589	17.9	40	31	584	13.6	45	30	543	27.1	27
900	31	1,054	11.6	49	31	1,058	15.3	54	31	1,025	12.7	45	31	1,018	14.9	44	31	1,047	15.3	39	31	1,034	10.7	44	30	1,013	23.5	29
850	31	1,529	8.7	52	31	1,540	13.1	48	31	1,503	10.6	44	31	1,500	12.9	37	31	1,529	12.5	38	31	1,508	8.4	42	30	1,507	19.3	34
800	31	2,029	6.2	45	31	2,048	11.3	35	31	2,005	7.6	45	31	2,006	10.2	33	31	2,035	10.3	37	31	2,007	6.1	40	30	2,024	15.0	38
750	31	2,563	4.0	37	31	2,593	9.0	31	31	2,538	4.3	45	31	2,545	7.2	33	31	2,575	7.7	36	31	2,538	3.4	37	30	2,572	10.6	40
700	31	3,114	1.7	34	30	3,153	6.0	----	31	3,092	1.3	42	31	3,104	3.7	----	31	3,135	4.6	36	31	3,090	.5	38	30	3,137	6.2	40
650	31	3,712	−1.4	33	30	3,762	3.0	----	31	3,686	−2.2	39	31	3,704	.6	----	31	3,735	.5	38	31	3,686	−3.0	39	29	3,743	2.1	32
600	31	4,341	−5.1	32	29	4,402	−.8	----	30	4,318	−6.1	35	31	4,340	−3.4	----	31	4,372	−4.0	38	31	4,311	−6.6	38	29	4,381	−1.9	28
550	30	5,027	−8.8	33	29	5,094	−4.8	----	30	4,993	−10.9	33	31	5,023	−7.6	----	31	5,054	−8.5	----	31	4,990	−11.0	35	29	5,070	−5.9	----
500	30	5,756	−13.5	----	28	5,834	−9.4	----	30	5,718	−16.1	----	31	5,758	−12.9	----	31	5,786	−13.2	----	30	5,709	−15.8	----	29	5,808	−10.8	----
450	30	6,564	−19.2	----	28	6,653	−14.7	----	30	6,508	−21.9	----	31	6,560	−18.8	----	31	6,585	−18.5	----	30	6,501	−21.4	----	29	6,621	−16.7	----
400	30	7,416	−25.6	----	28	7,523	−20.9	----	30	7,358	−28.7	----	31	7,422	−24.6	----	31	7,449	−24.7	----	30	7,354	−27.8	----	29	7,486	−23.2	----
350	30	8,370	−33.0	----	28	8,496	−27.9	----	30	8,299	−36.0	----	31	8,379	−32.2	----	31	8,406	−32.0	----	30	8,299	−35.2	----	29	8,448	−31.0	----
300	28	9,438	−40.3	----	27	9,584	−36.0	----	30	9,353	−43.8	----	31	9,449	−40.1	----	30	9,473	−40.1	----	30	9,356	−43.2	----	29	9,523	−38.8	----
250	25	10,654	−48.5	----	27	10,825	−45.4	----	29	10,552	−51.9	----	31	10,671	−48.3	----	30	10,694	−48.8	----	30	10,560	−52.2	----	29	10,752	−47.1	----
200	22	12,096	−55.6	----	27	12,278	−55.9	----	23	11,963	−57.4	----	30	12,113	−55.9	----	29	12,138	−56.1	----	28	11,983	−56.6	----	28	12,201	−55.2	----
175	21	12,947	−57.8	----	26	13,114	−60.8	----	18	12,804	−59.0	----	30	12,956	−58.9	----	29	12,980	−59.1	----	25	12,829	−57.4	----	27	13,046	−59.0	----
150	21	13,909	−61.2	----	23	14,060	−65.4	----	8	13,741	−60.0	----	28	13,925	−61.3	----	24	13,951	−62.0	----	20	13,793	−58.3	----	25	14,006	−62.2	----
125	19	15,030	−64.5	----	14	15,165	−68.8	----	----	----	----	----	22	15,052	−63.7	----	21	15,074	−64.4	----	15	14,936	−59.4	----	15	15,105	−65.8	----
100	14	16,383	−64.8	----	----	----	----	----	----	----	----	----	15	16,415	−65.2	----	11	16,453	−66.4	----	11	16,326	−59.7	----	9	16,406	−67.0	----
80	----	----	----	----	----	----	----	----	----	----	----	----	9	17,766	−61.7	----	5	17,791	−65.5	----	8	17,719	−58.6	----	----	----	----	----

Standard pressure surface (mb.)	Pittsburgh, Pa. (974.4 mb.)				Portland, Maine (1,016.6 mb.)				Rapid City, S. Dak. (904.3 mb.)				St. Cloud, Minn. (978.8 mb.)				San Antonio, Tex. (988.9 mb.)				San Juan, P. R. (1,012.0 mb.)				Santa Maria, Calif. (1,006.3 mb.)			
Surface	31	382	9.3	76	29	20	7.3	83	31	980	7.6	51	31	317	7.5	73	31	240	20.1	67	31	15	25.9	83	31	71	13.6	84
1,000	31	166	(*)	----	29	155	9.5	68	31	133	(*)	----	31	138	(*)	----	31	142	(*)	----	31	120	25.7	82	31	124	13.5	83
950	31	598	9.5	69	29	583	8.1	59	31	570	(*)	----	31	570	10.0	58	31	590	20.9	52	31	575	22.9	81	31	563	15.1	68
900	31	1,040	7.8	62	29	1,025	5.6	57	31	1,019	(*)	----	31	1,012	7.8	54	31	1,054	17.7	55	31	1,042	19.8	81	31	1,017	15.9	48
850	30	1,508	5.4	59	29	1,491	3.8	53	31	1,496	10.9	37	31	1,481	5.8	49	31	1,540	14.6	60	31	1,534	16.9	79	31	1,501	14.0	44
800	30	2,001	2.8	59	29	1,982	1.5	49	31	1,999	8.0	39	31	1,975	3.5	49	31	2,050	12.0	60	31	2,050	14.4	72	31	2,009	11.3	37
750	30	2,529	.5	53	29	2,507	−.8	45	31	2,536	5.0	40	31	2,504	.9	46	31	2,593	9.6	51	31	2,596	12.0	62	31	2,551	8.3	33
700	30	3,072	−2.5	53	29	3,048	−3.5	44	31	3,088	1.5	41	31	3,048	−1.4	39	31	3,159	6.4	48	31	3,169	9.1	54	31	3,112	5.2	28
650	30	3,659	−5.8	51	29	3,636	−6.6	41	31	3,686	−2.1	37	31	3,640	−4.5	36	31	3,768	2.6	44	31	3,782	5.7	54	31	3,718	2.0	----
600	30	4,280	−9.1	45	29	4,252	−10.0	35	31	4,313	−6.2	35	31	4,262	−8.1	37	31	4,407	−.6	37	31	4,432	2.1	45	31	4,355	−1.7	----
550	30	4,952	−12.8	41	29	4,920	−14.0	----	31	4,990	−10.5	33	31	4,934	−12.1	33	31	5,101	−5.0	35	31	5,130	−1.7	39	31	5,042	−5.8	----
500	30	5,669	−17.1	42	28	5,636	−18.9	----	31	5,715	−15.4	31	31	5,656	−16.8	----	31	5,839	−9.8	38	31	5,882	−6.1	38	31	5,781	−11.0	----
450	30	6,459	−22.7	----	28	6,418	−24.3	----	31	6,507	−21.4	----	30	6,444	−22.6	----	31	6,654	−15.1	35	31	6,706	−11.2	34	31	6,590	−16.9	----
400	30	7,304	−28.7	----	28	7,261	−30.5	----	31	7,359	−27.8	----	30	7,292	−29.0	----	31	7,526	−21.2	----	31	7,594	−17.1	31	31	7,457	−23.3	----
350	30	8,246	−35.4	----	28	8,197	−37.4	----	31	8,304	−35.4	----	30	8,233	−36.1	----	31	8,497	−28.4	----	31	8,581	−24.1	----	30	8,416	−30.9	----
300	30	9,304	−42.3	----	28	9,243	−44.5	----	31	9,358	−43.4	----	30	9,285	−43.8	----	30	9,581	−36.2	----	31	9,687	−32.7	----	30	9,493	−38.5	----
250	29	10,514	−48.7	----	28	10,446	−50.5	----	31	10,561	−52.0	----	30	10,489	−50.9	----	30	10,824	−44.6	----	31	10,945	−42.6	----	30	10,724	−46.8	----
200	28	11,962	−53.3	----	28	11,885	−55.1	----	31	11,988	−56.5	----	30	11,922	−55.3	----	30	12,286	−53.8	----	31	12,412	−54.6	----	27	12,168	−54.9	----
175	28	12,818	−55.3	----	28	12,735	−56.0	----	31	12,832	−57.5	----	30	12,772	−56.0	----	29	13,129	−58.7	----	31	13,253	−61.1	----	26	13,010	−57.9	----
150	26	13,797	−57.4	----	28	13,710	−57.9	----	26	13,800	−58.4	----	28	13,741	−56.3	----	26	14,082	−63.0	----	31	14,196	−67.7	----	24	13,968	−60.8	----
125	24	14,947	−59.5	----	25	14,848	−59.5	----	12	14,913	−57.7	----	27	14,890	−57.5	----	19	15,170	−66.6	----	31	15,273	−74.4	----	23	15,091	−63.9	----
100	20	16,351	−59.5	----	22	16,245	−59.9	----	6	16,268	−55.8	----	20	16,294	−57.8	----	8	16,534	−70.0	----	15	16,563	−77.3	----	19	16,454	−65.6	----
80	14	17,755	−59.4	----	14	17,644	−59.5	----	----	----	----	----	17	17,714	−57.6	----	----	----	----	----	----	----	----	----	14	17,815	−63.7	----
60	7	19,596	−56.7	----	10	19,439	−58.2	----	----	----	----	----	7	19,581	−55.8	----	----	----	----	----	----	----	----	----	----	----	----	----
50	----	----	----	----	5	20,592	−56.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Sault Ste. Marie, Mich. (991.5 mb.)				Spokane, Wash. (933.2 mb.)				Swan Island, W. I. (1,011.1 mb.)				Tacubaya, Mexico (774.5 mb.)				Tampa, Fla. (1,016.3 mb.)				Tatoosh Island, Wash. (1,012.8 mb.)				Toledo, Ohio (996.5 mb.)			
Surface	31	221	6.1	90	31	721	8.7	64	31	10	26.4	85	29	2,306	15.5	68	31	9	21.0	81	31	31	10.6	87	31	191	7.6	81
1,000	31	149	(*)	----	31	142	(*)	----	31	107	26.4	82	29	68	(*)	----	31	149	21.5	72	31	137	11.0	78	31	161	(*)	----
950	31	576	6.7	75	31	573	(*)	----	31	571	23.0	84	29	529	(*)	----	31	596	19.0	70	31	568	10.2	65	31	587	9.0	60
900	31	1,015	5.0	67	31	1,023	10.4	52	31	1,031	20.3	82	29	1,006	(*)	----	31	1,056	16.0	72	31	1,012	7.8	59	31	1,033	6.2	57
850	31	1,480	2.7	62	31	1,497	8.2	47	31	1,523	17.6	78	29	1,501	(*)	----	31	1,541	13.3	67	31	1,482	5.6	56	31	1,499	3.6	54
800	31	1,968	.7	55	31	1,995	5.8	41	31	2,040	14.8	75	29	2,027	(*)	----	31	2,050	11.5	54	31	1,976	3.7	49	31	1,990	1.7	49
750	31	2,491	−1.7	50	31	2,522	3.0	38	31	2,595	12.1	69	29	2,579	13.9	67	31	2,591	8.9	46	31	2,503	1.3	42	31	2,515	−.3	43
700	31	3,030	−4.1	46	31	3,076	−.3	39	31	3,161	9.0	66	29	3,157	9.6	73	31	3,156	6.3	38	31	3,050	−1.2	40	31	3,058	−2.9	35
650	31	3,615	−7.6	41	31	3,665	−3.8	36	31	3,782	5.5	63	29	3,771	5.0	80	31	3,761	3.1	----	30	3,645	−4.3	37	31	3,645	−6.3	33
600	31	4,229	−11.4	43	31	4,293	−7.4	33	31	4,423	1.8	64	29	4,408	.7	83	31	4,405	−.2	----	30	4,268	−8.0	40	31	4,263	−10.1	34
550	31	4,895	−15.6	43	31	4,967	−11.5	33	31	5,125	−2.0	55	29	5,116	−2.8	71	31	5,095	−4.3	----	30	4,941	−12.4	45	31	4,931	−14.1	33
500	31	5,604	−20.1	40	31	5,670	−16.3	32	31	5,873	−6.2	53	29	5,865	−7.1	60	31	5,841	−8.8	----	30	5,660	−16.8	44	31	5,646	−18.6	----
450	31	6,385	−25.5	----	30	6,475	−22.1	----	31	6,707	−11.2	51	29	6,689	−12.1	51	31	6,657	−14.0	----	29	6,450	−22.0	----	31	6,429	−23.9	----
400	31	7,223	−31.6	----	30	7,328	−28.3	----	31	7,586	−16.6	46	28	7,571	−18.1	46	31	7,534	−20.0	----	29	7,297	−27.6	----	31	7,273	−30.0	----
350	29	8,172	−37.9	----	30	8,271	−35.4	----	31	8,574	−23.8	----	27	8,556	−25.0	----	31	8,510	−27.0	----	28	8,247	−34.0	----	31	8,211	−36.7	----
300	28	9,218	−45.6	----	30	9,326	−43.4	----	30	9,680	−32.2	----	25	9,656	−33.7	----	30	9,604	−34.8	----	28	9,308	−41.6	----	31	9,262	−44.1	----
250	24	10,428	−51.8	----	30	10,531	−51.4	----	30	10,939	−42.4	----	25	10,908	−43.8	----	30	10,851	−44.3	----	28	10,521	−49.9	----	30	10,460	−50.5	----
200	20	11,876	−56.0	----	30	11,961	−56.5	----	29	12,405	−54.7	----	23	12,365	−55.9	----	29	12,311	−55.7	----	27	11,960	−56.8	----	27	11,907	−54.5	----
175	12	12,733	−55.2	----	30	12,803	−58.0	----	29	13,245	−61.7	----	21	13,201	−62.6	----	27	13,154	−61.7	----	25	12,807	−58.1	----	25	12,763	−56.0	----
150	8	13,736	−57.0	----	29	13,773	−59.2	----	29	14,182	−69.0	----	17	14,137	−68.7	----	26	14,092	−67.9	----	24	13,776	−58.5	----	24	13,735	−57.2	----
125	----	----	----	----	25	14,927	−60.3	----	25	15,253	−76.0	----	16	15,214	−74.6	----	18	15,162	−73.1	----	20	14,909	−58.7	----	20	14,890	−59.2	----
100	----	----	----	----	19	16,316	−60.0	----	11	16,528	−78.8	----	8	16,496	−79.3	----	10	16,452	−75.0	----	11	16,271	−57.8	----	12	16,265	−60.4	----
80	----	----	----	----	13	17,690	−57.7	----	----	----	----	----	5	17,769	−76.6	----	----	----	----	----	8	17,667	−57.4	----	5	17,684	−58.4	----
60	----	----	----	----	9	19,474	−56.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of table.

TABLE 1.—*Mean dynamic height (geopotential) in units of 0.98 dynamic meters, temperature in degrees centigrade, and relative humidity in percent, for standard pressures, as obtained by radiosondes during October 1948*—Continued

Standard pressure surface (mb.)	Washington, D. C. (1,016.3 mb.)			
	Number of observations	Dynamic height	Temperature	Relative humidity
Surface	31	25	12.8	73
1,000	31	161	13.2	65
950	31	590	11.3	58
900	31	1,041	8.6	60
850	31	1,512	6.4	57
800	31	2,008	4.0	57
750	31	2,537	1.5	50
700	30	3,085	−1.4	44
650	30	3,676	−4.2	41
600	30	4,300	−7.7	41
550	30	4,972	−11.5	----
500	30	5,696	−16.3	----
450	30	6,484	−21.7	----
400	30	7,337	−27.9	----
350	30	8,282	−34.8	----
300	30	9,340	−42.1	----
250	30	10,555	−48.8	----
200	28	11,999	−54.3	----
175	27	12,855	−56.9	----
150	23	13,799	−59.3	----
125	19	14,913	−61.2	----
100	15	16,304	−63.2	----
80	11	17,683	−62.4	----

[1] Data not yet received.

(*) Temperature and relative humidity data for this level are not available or are available only for certain days. See note entitled "Change in Summarization of Radiosonde Data," p. 6, in the January 1946 issue of the MONTHLY WEATHER REVIEW.

NOTE.—All observations scheduled between 0300 and 0500, G. C. T., except at Ciudad Victoria, Mazatlan, and Merida, where they are taken near 0200 G. C. T. "Number of observations" refers to those of dynamic height only. (In a few cases temperature or humidity data may be missing for one or more standard pressure surfaces of some observations.) Relative humidity data are not published for standard pressure surfaces having a corresponding mean temperature below −20° C.

All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the values occurring below the operating range of the humidity element. For explanation of the adjustment see article entitled "Curve Method for Obtaining Monthly Means of Relative Humidity," p. 241, MONTHLY WEATHER REVIEW, December 1944.

None of the means included in these tables are based on less than 15 observations at the surface or 5 observations at a standard pressure level.

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 2200 G. C. T., during October 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Speeds in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Atlanta, Ga. (299 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (512 m.)			Boise, Idaho (868 m.)			Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)			Denver, Colo. (1,618 m.)			El Paso, Tex. (1,198 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	145	1.5	31	226	1.7	31	333	1.0	31	273	2.0	31	276	2.0	30	305	2.8	30	95	3.3	25	260	2.1	28	316	1.5	29	3	1.1	30	288	1.6	31	12	1.5	31	208	1.8
500	---	---	---	---	---	---	31	338	.9	---	---	---	---	---	---	---	---	---	30	89	4.4	25	255	2.8	28	320	1.6	29	343	1.5	30	283	2.3	---	---	---	---	---	---
1,000	31	170	2.4	---	---	---	30	280	.7	---	---	---	31	285	2.9	30	300	2.8	28	95	3.0	23	242	3.0	27	307	1.7	29	329	2.5	29	274	2.8	---	---	---	---	---	---
1,500	27	187	1.8	---	---	---	28	287	1.4	31	273	3.6	28	290	4.0	30	308	1.1	26	90	2.1	18	239	3.0	26	303	2.6	28	327	3.8	28	268	3.5	---	---	---	31	213	2.0
2,000	26	231	2.1	31	224	2.6	28	299	2.7	30	268	5.0	26	287	5.4	30	174	1.0	25	90	.9	16	223	2.1	24	302	3.3	28	309	4.8	27	277	5.3	31	27	1.7	31	204	1.9
2,500	24	275	2.7	31	236	2.4	26	311	4.0	30	272	5.5	25	294	7.3	28	194	2.1	23	31	1.2	13	157	1.6	22	304	3.6	28	298	5.6	25	282	6.7	30	40	1.2	31	220	2.2
3,000	24	270	3.0	31	241	3.2	26	304	5.7	29	274	7.3	25	292	8.6	28	216	2.8	20	345	1.3	11	144	2.5	19	328	4.3	27	286	5.9	22	290	7.7	30	320	.9	31	227	3.4
4,000	23	278	5.1	30	260	4.6	25	282	9.2	28	279	8.3	24	289	10.9	25	238	4.4	17	288	3.3	10	191	1.6	18	333	4.0	26	283	9.4	18	289	9.1	30	291	5.6	29	243	5.3
5,000	23	275	8.2	29	266	6.4	23	282	11.3	26	286	10.3	22	297	14.1	24	244	6.1	15	267	5.0	---	---	---	16	347	6.2	25	274	11.7	17	300	10.2	29	286	6.3	26	247	5.8
6,000	18	288	7.5	27	275	7.5	18	290	12.7	22	282	9.3	20	290	11.2	23	250	5.1	12	264	6.7	---	---	---	15	321	6.2	23	278	13.9	16	309	11.0	27	294	7.8	18	265	7.1
8,000	14	277	13.6	25	282	13.1	12	292	16.8	19	287	10.2	10	279	9.5	15	263	10.6	10	265	10.7	---	---	---	---	---	---	21	274	20.6	14	299	14.3	22	284	7.7	15	270	12.5
10,000	---	---	---	21	273	16.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11	278	29.4	11	287	16.7	19	287	11.1	12	269	20.2
12,000	---	---	---	20	283	20.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	17	293	13.5	---	---	---
14,000	---	---	---	18	283	19.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	15	281	16.9	---	---	---

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,475 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (575 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)			New York N. Y. (15 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	239	1.0	31	280	2.3	30	301	1.0	30	272	3.2	29	46	4.0	29	235	1.8	31	129	1.2	30	165	0.7	31	297	1.4	30	64	3.2	31	61	1.5	30	274	1.0	29	331	1.1
500	---	---	---	---	---	---	30	263	1.5	---	---	---	29	42	3.9	29	232	1.9	---	---	---	30	171	.6	31	295	1.2	30	68	5.5	31	66	1.5	30	260	1.2	29	288	1.1
1,000	---	---	---	---	---	---	30	270	1.9	30	265	4.6	28	29	2.8	29	245	3.5	31	121	1.9	29	232	1.4	31	214	.4	30	60	5.2	31	32	1.6	29	260	1.8	27	310	2.7
1,500	---	---	---	31	279	2.3	30	284	3.1	30	258	7.0	26	312	2.3	29	259	4.7	31	133	1.6	28	279	2.1	31	183	1.8	26	63	4.1	28	12	2.4	29	264	3.1	27	288	2.7
2,000	31	233	1.0	31	284	3.0	28	309	5.0	30	260	8.2	24	307	3.1	24	267	6.6	31	174	1.0	28	300	3.7	28	192	3.7	22	50	2.7	27	358	2.2	29	287	3.8	27	298	4.1
2,500	31	230	1.9	31	270	3.1	27	308	6.1	30	267	9.7	23	301	3.7	21	269	7.0	31	209	1.3	28	296	4.5	25	200	4.4	21	51	1.1	23	340	2.4	27	286	4.9	24	304	4.4
3,000	31	225	2.4	29	255	2.7	24	298	7.8	30	272	9.6	22	305	4.5	20	272	7.7	30	194	1.4	27	300	6.3	23	217	4.5	18	318	1.3	20	312	3.8	26	286	7.3	18	335	4.4
4,000	31	219	2.3	28	248	2.5	24	283	10.0	26	275	11.1	20	285	7.5	15	298	11.3	29	237	2.5	25	298	8.0	21	250	4.1	15	258	4.6	17	288	5.9	23	286	10.5	12	301	6.3
5,000	25	250	2.2	26	284	3.6	20	282	11.3	23	282	11.9	19	280	9.6	10	298	8.6	28	248	5.0	23	284	10.2	20	230	5.2	12	271	6.4	16	292	6.7	21	302	12.7	---	---	---
6,000	25	263	3.3	25	300	6.8	19	280	13.0	17	302	10.9	17	275	12.3	---	---	---	27	262	5.8	20	286	10.6	18	245	7.4	11	275	7.8	16	281	10.2	20	299	15.7	---	---	---
8,000	23	263	8.1	20	301	9.9	16	282	18.7	---	---	---	14	280	18.6	---	---	---	23	283	9.5	---	---	---	13	233	6.3	---	---	---	12	278	15.9	14	294	17.3	---	---	---
10,000	17	275	9.7	16	303	9.7	11	287	20.8	---	---	---	---	---	---	---	---	---	15	299	14.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000	10	285	12.5	10	300	11.9	---	---	---	---	---	---	---	---	---	---	---	---	13	279	18.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 2200 G. C. T., during October 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Speeds in meters per second*—Continued

Altitude (Meters) m. s. l.	Oakland, Calif. (8 m.)			Oklahoma City, Okla. (396 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Cloud, Minn. (318 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (13 m.)			Sault Ste. Marie, (221 m.) Mich.			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	267	3.9	31	204	1.9	31	225	1.0	31	149	1.2	30	351	2.3	30	199	1.5	29	179	0.6	31	116	1.3	31	275	3.7	24	274	0.5	28	340	1.2	30	238	0.9	29	303	1.5
500	31	294	2.6	31	215	2.1	31	247	1.4	31	157	1.3	---	---	---	30	226	1.7	29	232	1.1	31	117	2.3	31	277	2.8	24	275	1.3	28	207	.9	---	---	---	29	292	2.6
1,000	29	298	1.2	31	222	2.6	30	235	2.6	31	148	1.9	30	351	2.3	30	256	2.0	29	246	2.3	31	110	1.8	30	216	.9	24	246	1.7	27	214	2.7	30	220	1.7	28	300	2.7
1,500	29	265	1.2	30	225	3.8	29	242	4.2	31	153	2.2	30	324	3.1	29	257	3.8	29	261	3.8	31	114	2.5	27	148	1.7	21	227	2.3	26	219	4.1	30	217	3.5	27	303	3.5
2,000	28	243	1.3	30	237	4.3	28	270	6.2	30	161	2.9	30	295	4.7	26	270	4.5	25	286	4.5	30	156	1.9	25	149	2.6	16	197	2.3	21	213	5.2	28	228	4.8	26	310	5.2
2,500	28	243	1.8	29	247	5.2	28	280	7.4	29	170	3.2	29	285	6.0	25	288	6.1	24	292	5.7	26	192	2.0	23	137	3.0	14	251	2.2	19	227	4.2	27	229	6.5	24	304	5.4
3,000	27	215	1.1	29	261	5.3	28	286	7.9	28	171	2.4	28	289	7.3	25	294	6.6	24	297	7.2	21	184	1.4	21	138	2.7	13	302	3.2	19	231	5.4	26	239	7.6	22	303	8.2
4,000	27	251	1.6	23	299	7.8	27	289	9.7	28	223	2.7	25	300	8.7	22	300	9.1	22	297	8.8	17	275	3.2	21	193	2.5	13	299	4.6	16	237	6.7	24	250	8.6	17	286	10.7
5,000	25	280	4.1	21	303	8.3	26	295	10.2	25	266	3.8	25	300	10.1	20	300	9.4	19	308	9.3	15	284	5.4	20	241	4.3	12	296	4.8	15	247	8.6	24	256	9.8	16	283	11.1
6,000	22	268	4.4	17	290	7.0	23	302	10.8	23	270	7.9	23	304	10.7	20	306	11.8	17	307	10.8	12	287	8.8	18	258	6.8	---	---	---	11	252	8.3	18	240	9.8	14	286	12.1
8,000	19	291	3.6	11	286	12.4	20	303	13.4	14	265	13.8	21	301	12.4	14	310	14.7	14	308	10.5	---	---	---	13	260	11.7	---	---	---	10	270	10.6	11	285	8.1	---	---	---
10,000	15	273	8.5	---	---	---	18	307	15.4	---	---	---	16	309	14.3	12	308	13.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000	11	287	9.1	---	---	---	15	291	10.9	---	---	---	12	306	17.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3.—*Free-air resultant winds based on rawin observations made near 0300 G. C. T., during October 1948. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Speeds in meters per second*

Altitude (meters) m. s. l.	Albuquerque, N. Mex. (1,636 m.)			Big Spring, Tex. (774 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Caribou, Maine (191 m.)			Charleston, S. C. (13 m.)			Columbia, Mo. (237 m.)			Grand Junction, Colo. (1,473 m.)			Greensboro, N. C. (275 m.)			Hatteras, N. C. (3 m.)			International Falls, Minn. (358 m.)			Litte Rock, Ark. (80 m.)			Miami, Fla. (12 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	31	125	2.3	30	137	3.4	31	3	0.6	31	69	1.1	28	288	1.9	31	358	0.4	31	115	1.4	31	92	0.3	28	337	0.4	30	344	2.3	31	158	0.9	31	338	0.2	30	45	1.9
500	---	---	---	---	---	---	---	---	---	31	97	4.9	28	312	3.4	31	28	2.2	31	183	1.3	---	---	---	28	321	1.3	30	346	4.0	31	198	2.2	31	162	2.0	30	77	5.2
1,000	---	---	---	31	150	5.7	27	300	2.7	31	96	4.2	26	322	4.0	31	341	1.8	31	256	3.1	---	---	---	28	294	3.2	30	337	3.7	31	238	3.3	31	220	2.2	30	83	4.7
1,500	---	---	---	31	174	5.1	27	300	4.6	31	90	2.5	26	314	4.1	31	323	2.2	31	254	4.5	31	107	.4	28	296	3.9	30	318	4.5	31	257	4.3	31	263	3.3	30	88	4.4
2,000	31	219	1.9	30	201	3.5	28	310	5.6	31	90	1.3	25	306	3.5	31	289	2.9	31	286	5.3	31	267	.9	26	308	4.6	30	297	5.8	31	279	3.7	30	282	4.1	30	85	1.9
2,500	31	242	2.6	30	233	3.5	28	308	7.6	31	31	.9	22	293	4.6	31	273	4.3	31	287	6.7	31	270	1.2	26	300	5.6	30	292	6.3	31	297	4.0	30	289	4.0	30	211	.6
3,000	31	266	3.1	30	258	4.0	30	306	8.1	31	327	1.1	22	272	4.7	31	275	5.9	31	292	7.7	31	260	1.9	25	298	7.0	31	280	7.5	31	290	4.7	29	294	4.3	30	242	1.9
4,000	31	270	4.3	30	275	5.1	29	304	9.6	31	285	2.9	13	272	8.5	31	277	8.2	31	290	8.5	31	251	2.9	20	297	9.5	31	264	9.9	31	290	6.3	28	289	7.4	29	260	3.8
5,000	31	264	6.0	28	281	5.7	28	305	10.9	31	273	5.0	12	277	8.0	31	274	11.1	31	289	10.3	31	269	4.5	18	295	11.2	31	270	12.7	31	304	7.9	25	283	8.3	27	266	5.3
6,000	28	274	6.0	28	272	8.6	27	304	10.3	31	264	6.5	---	---	---	31	277	13.9	31	286	11.5	29	281	6.2	13	288	12.0	31	268	15.3	31	304	9.1	21	257	9.5	26	263	7.4
8,000	26	269	10.1	23	273	13.0	25	292	8.6	30	257	11.7	---	---	---	28	271	18.7	28	294	14.7	26	269	5.1	---	---	---	26	272	17.3	25	264	8.3	17	263	13.7	26	257	13.0
10,000	13	286	7.4	17	269	24.4	25	285	8.9	30	257	17.3	---	---	---	25	268	27.8	26	291	16.7	26	271	9.7	---	---	---	20	267	26.2	24	264	10.5	13	246	15.7	26	263	17.3
12,000	---	---	---	---	---	---	19	281	13.6	30	259	19.8	---	---	---	15	268	29.6	22	284	15.2	23	279	14.0	---	---	---	18	267	35.3	22	265	14.8	10	239	20.2	25	260	19.7
14,000	---	---	---	---	---	---	17	284	10.8	25	260	17.6	---	---	---	---	---	---	18	284	15.8	18	285	10.9	---	---	---	---	---	---	13	283	7.8	---	---	---	20	261	19.7
16,000	---	---	---	---	---	---	10	286	7.4	18	263	13.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m. s. l.	Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (6 m.)			Oklahoma City, Okla. (392 m.)			Rapid City, S. Dak. (980 m.)			St. Cloud, Minn. (318 m.)			San Antonio, Tex. (242 m.)			San Juan, P. R. (28 m.)			Santa Maria, Calif. (72 m.)			Sault Ste. Marie, Mich. (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Island Wash. (33 m.)		
Surface	29	50	1.0	31	180	1.1	31	54	1.2	29	285	2.2	30	146	2.2	31	277	2.3	29	340	0.4	31	117	2.1	31	158	1.4	31	260	1.0	31	141	0.2	31	198	0.6	30	67	2.4
500	29	349	1.1	31	210	.9	31	77	3.6	27	300	2.3	28	157	3.4	---	---	---	29	250	.7	31	121	4.2	31	102	4.1	31	359	1.7	31	173	1.3	---	---	---	28	166	2.5
1,000	29	337	1.5	30	243	2.1	31	69	3.3	26	306	.5	27	183	3.3	31	276	2.3	28	297	2.5	31	128	3.5	31	93	4.3	31	49	2.1	31	231	2.8	30	236	.7	28	186	4.4
1,500	28	281	1.7	30	260	2.5	31	71	2.3	25	189	.8	28	211	3.3	31	285	3.0	27	304	5.2	31	129	2.4	31	87	4.2	31	69	2.1	30	253	2.2	30	248	2.2	29	207	4.6
2,000	27	280	1.4	30	285	3.6	31	47	.7	24	168	1.0	28	249	3.3	30	290	5.5	28	296	5.3	31	177	1.1	31	85	3.9	31	75	1.6	30	272	3.1	31	243	3.8	30	217	4.9
2,500	25	285	2.5	29	297	4.7	31	320	1.6	24	189	.8	28	272	4.7	30	298	7.3	28	298	6.1	31	215	.8	31	87	3.7	31	76	1.4	30	269	4.0	31	242	5.1	30	230	5.5
3,000	24	281	3.4	29	294	6.2	31	289	3.1	24	190	1.1	29	275	6.5	30	310	8.4	28	302	7.6	31	266	1.9	31	78	3.5	30	267	1.8	30	275	3.8	31	247	7.1	29	240	6.1
4,000	20	262	7.0	29	293	9.9	29	289	5.2	22	267	2.5	28	282	8.1	30	308	9.2	28	299	8.2	31	276	3.8	31	74	3.5	30	277	3.6	26	309	4.5	31	254	8.4	29	246	8.0
5,000	18	262	9.9	25	290	11.0	29	279	8.1	22	282	4.7	28	289	9.3	30	299	11.0	28	301	9.2	31	278	7.0	31	74	2.9	30	277	5.8	25	305	6.1	28	271	8.8	28	249	10.1
6,000	15	260	12.1	24	289	13.3	28	274	11.4	22	280	5.3	28	291	10.7	29	292	11.6	26	304	9.4	31	275	9.1	31	61	2.2	29	277	8.3	23	313	6.7	26	271	9.2	28	250	13.5
8,000	11	258	14.0	20	278	17.6	27	268	18.1	11	259	11.2	28	277	13.1	28	298	7.7	23	290	10.7	31	266	14.0	31	62	1.8	26	283	8.5	21	300	10.3	20	268	10.2	23	250	16.5
10,000	---	---	---	14	284	23.6	26	257	25.3	---	---	---	25	274	19.1	28	294	11.7	22	291	11.1	29	257	23.2	31	19	3.2	20	284	15.1	16	284	9.6	17	269	11.2	19	250	16.5
12,000	---	---	---	---	---	---	24	264	30.9	---	---	---	22	273	21.2	26	282	15.4	19	290	13.0	26	267	27.2	31	356	6.9	16	277	23.2	10	284	10.9	13	268	8.0	16	265	19.8
14,000	---	---	---	---	---	---	15	263	30.1	---	---	---	12	277	17.1	15	285	11.1	15	295	9.4	16	261	20.3	31	2	6.7	12	281	17.4	---	---	---	---	---	---	14	260	17.2
16,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	312	8.6	---	---	---	22	8	5.4	---	---	---	---	---	---	---	---	---	---	---	---

NOTE:—Resultants prepared from rawins at high altitudes are biased toward lower wind speeds. Values appearing in this table should therefore be used with caution when the number of observations missing is greater than three. See note following Table 3 in the June 1948 issue of the MONTHLY WEATHER REVIEW.