AEROLOGICAL OBSERVATIONS FOR THE YEAR 1948

TABLE 1A.—*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 the year 1948*

STATIONS AND MEAN SURFACE PRESSURES

Standard pressure surface (mb.)	Albany, N. Y. (1,006.6 mb.)				Albuquerque, N. Mex. (837.0 mb.)				Atlanta, Ga. (983.1 mb.)				Big Spring, Tex. (926.4 mb.)				Bismarck, N. Dak. (954.9 mb.)				Boise, Idaho (915.1 mb.)				Brownsville, Tex. (1,013.7 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	365	86	6.9	78	366	1,620	14.3	39	365	300	15.7	75	364	774	17.6	46	363	505	5.2	73	365	868	10.7	57	366	6	21.7	83
1,000	365	139	(*)	----	366	85	(*)	----	365	153	(*)	----	364	111	(*)	----	363	123	(*)	----	365	118	(*)	----	366	123	21.7	80
950	365	567	6.9	67	366	538	(*)	----	365	593	16.2	66	364	558	(*)	----	363	549	(*)	----	365	556	(*)	----	366	572	19.7	75
900	365	1,005	4.7	67	366	1,004	(*)	----	365	1,050	14.2	66	364	1,021	17.8	43	363	989	5.7	60	365	1,006	12.0	47	366	1,034	18.3	63
850	365	1,470	2.4	66	366	1,489	(*)	----	365	1,531	11.9	63	364	1,508	15.5	42	363	1,456	3.9	59	365	1,483	9.3	46	366	1,523	16.6	53
800	365	1,958	.2	63	366	2,001	13.1	37	365	2,037	9.4	58	364	2,020	12.6	43	363	1,947	1.7	57	365	1,982	5.7	49	366	2,038	14.7	45
750	365	2,479	−2.1	60	366	2,545	9.4	39	365	2,574	6.8	52	364	2,563	9.3	42	363	2,470	−1.0	57	365	2,509	1.9	53	366	2,586	12.1	40
700	365	3,019	−4.6	55	366	3,109	5.2	43	365	3,134	4.0	46	364	3,127	5.8	40	363	3,012	−4.0	55	365	3,059	−1.9	56	365	3,156	8.8	40
650	364	3,605	−7.2	52	366	3,711	.7	48	364	3,737	.8	46	364	3,733	1.9	39	363	3,597	−7.4	53	365	3,647	−5.9	56	365	3,767	5.0	41
600	363	4,219	−10.5	46	366	4,347	−4.1	51	363	4,372	−2.8	----	363	4,370	−2.5	----	363	4,212	−11.2	51	364	4,267	−9.9	57	365	4,413	1.0	----
550	363	4,887	−14.4	45	365	5,027	−8.8	52	362	5,058	−6.8	----	361	5,056	−7.0	----	363	4,877	−15.4	50	364	4,933	−14.4	56	364	5,107	−3.4	----
500	360	5,600	−19.0	47	365	5,758	−13.9	----	359	5,794	−11.4	----	361	5,792	−11.8	----	359	5,589	−20.1	51	362	5,648	−19.3	57	364	5,854	−8.3	----
450	358	6,383	−24.0	----	364	6,557	−19.1	----	359	6,601	−16.7	----	358	6,598	−16.9	----	354	6,369	−25.5	53	358	6,429	−24.6	----	363	6,671	−13.7	----
400	357	7,226	−29.8	----	362	7,417	−25.0	----	359	7,469	−22.8	----	356	7,467	−22.9	----	351	7,207	−31.6	----	354	7,273	−30.6	----	363	7,551	−19.9	----
350	352	8,163	−36.5	----	358	8,373	−31.8	----	357	8,434	−30.0	----	355	8,432	−29.9	----	344	8,138	−38.4	----	349	8,206	−37.5	----	360	8,525	−27.0	----
300	349	9,215	−43.7	----	353	9,446	−39.4	----	353	9,514	−38.2	----	354	9,513	−37.8	----	331	9,184	−45.5	----	347	9,254	−45.1	----	358	9,618	−35.3	----
250	326	10,419	−50.5	----	336	10,675	−47.6	----	348	10,743	−47.4	----	349	10,745	−46.6	----	303	10,386	−51.7	----	332	10,449	−51.9	----	350	10,861	−44.8	----
200	294	11,858	−55.6	----	297	12,158	−54.8	----	335	12,187	−56.0	----	311	12,195	−54.5	----	273	11,821	−54.3	----	294	11,883	−55.2	----	327	12,319	−54.9	----
175	----	----	----	----	----	----	----	----	319	13,029	−59.4	----	269	13,043	−57.7	----	261	12,676	−54.4	----	259	12,728	−55.0	----	303	13,162	−59.6	----
150	----	----	----	----	----	----	----	----	292	13,986	−62.5	----	----	----	----	----	236	13,670	−54.5	----	225	13,707	−55.6	----	262	14,118	−64.2	----
125	----	----	----	----	----	----	----	----	252	15,119	−65.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Buffalo, N. Y. (990.5 mb.)				Caribou, Maine (992.4 mb.)				Charleston, S. C. (1,016.5 mb.)				Ciudad Victoria, Mexico (973.0 mb.)				Columbia, Mo. (987.9 mb.)				Dodge City, Kans.[2] (924.2 mb.)				El Paso, Tex. (880.6 mb.)			
Surface	365	221	8.0	76	366	191	2.1	82	366	13	16.3	88	352	335	25.0	57	364	239	12.0	71	361	792	11.5	63	364	1,195	18.6	33
1,000	365	141	(*)	----	366	128	(*)	----	366	152	17.6	81	352	92	(*)	----	364	135	(*)	----	361	121	(*)	----	364	85	(*)	----
950	365	569	7.8	68	366	546	2.8	69	366	595	16.7	71	352	546	23.6	57	364	570	12.0	63	361	560	(*)	----	364	541	(*)	----
900	365	1,009	5.3	68	366	980	.6	68	366	1,051	14.6	68	352	1,014	20.0	60	364	1,018	9.9	62	361	1,012	12.9	55	364	1,012	(*)	----
850	365	1,474	2.9	66	366	1,437	−1.6	68	366	1,533	12.2	63	351	1,504	16.8	63	364	1,491	7.9	60	361	1,491	11.1	51	364	1,498	18.1	31
800	365	1,963	.6	62	366	1,918	−3.6	65	366	2,040	9.8	57	351	2,019	14.1	64	364	1,990	5.8	54	361	1,996	8.8	48	364	2,013	14.6	33
750	365	2,486	−1.6	57	366	2,431	−5.8	62	366	2,579	7.2	52	351	2,567	11.4	61	364	2,523	3.3	52	361	2,531	5.9	45	364	2,558	10.7	36
700	365	3,026	−4.2	54	366	2,964	−8.1	58	366	3,139	4.3	48	349	3,136	8.3	55	364	3,073	.5	50	361	3,089	2.5	45	364	3,125	6.4	38
650	364	3,614	−6.9	51	366	3,542	−10.8	54	365	3,743	1.0	47	343	3,748	4.5	49	362	3,669	−2.8	48	361	3,687	−1.3	44	364	3,729	1.8	43
600	363	4,229	−10.3	49	365	4,149	−14.0	52	363	4,379	−2.7	45	337	4,394	.7	46	362	4,295	−6.5	46	359	4,317	−5.5	44	364	4,368	−2.7	45
550	358	4,897	−14.2	46	364	4,805	−17.8	51	361	5,066	−6.7	----	331	5,090	−3.4	----	358	4,972	−10.7	43	359	4,994	−10.2	----	361	5,053	−7.3	46
500	355	5,611	−18.6	----	363	5,510	−22.4	53	358	5,803	−11.2	----	328	5,836	−8.2	----	358	5,697	−15.3	----	356	5,713	−15.2	----	358	5,788	−12.3	----
450	351	6,397	−23.7	----	362	6,281	−27.5	----	352	6,612	−16.5	----	326	6,657	−13.4	----	355	6,494	−20.6	----	355	6,516	−20.5	----	353	6,594	−17.6	----
400	344	7,242	−29.7	----	360	7,116	−33.1	----	350	7,481	−22.5	----	322	7,534	−19.4	----	354	7,348	−26.7	----	355	7,370	−26.7	----	351	7,459	−23.7	----
350	330	8,178	−36.3	----	356	8,041	−39.5	----	347	8,447	−29.5	----	320	8,512	−26.9	----	351	8,299	−33.5	----	355	8,320	−33.6	----	345	8,420	−30.8	----
300	317	9,232	−43.3	----	349	9,081	−45.7	----	344	9,528	−37.6	----	316	9,605	−35.4	----	341	9,366	−41.0	----	351	9,385	−41.3	----	340	9,496	−39.0	----
250	287	10,443	−50.1	----	334	10,280	−50.5	----	328	10,760	−47.2	----	276	10,853	−45.1	----	322	10,589	−49.0	----	336	10,603	−49.3	----	317	10,723	−48.1	----
200	246	11,881	−54.4	----	285	11,719	−52.7	----	310	12,208	−56.6	----	----	----	----	----	264	12,032	−55.1	----	305	12,046	−55.7	----	290	12,162	−56.3	----
175	188	12,767	−55.7	----	250	12,577	−52.7	----	295	13,049	−60.2	----	----	----	----	----	220	12,878	−57.2	----	253	12,891	−57.6	----	263	13,006	−59.9	----
150	----	----	----	----	170	13,604	−53.2	----	258	14,005	−63.3	----	----	----	----	----	168	13,876	−59.3	----	180	13,855	−59.5	----	235	13,965	−63.2	----
125	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	168	15,086	−67.3	----

Standard pressure surface (mb.)	Ely, Nev. (807.8 mb.)				Fort Worth, Tex. (990.6 mb.)				Glasgow, Mont. (938.1 mb.)				Grand Junction, Colo. (851.5 mb.)				Great Falls, Mont. (885.3 mb.)				Greensboro, N. C. (986.5 mb.)				Hatteras, N. C. (1,017.7 mb.)			
Surface	365	1,908	7.2	48	305	211	19.9	58	366	648	6.4	62	366	1,474	10.9	48	366	1,128	7.2	56	363	273	12.9	71	365	3	16.9	82
1,000	365	105	(*)	----	305	127	(*)	----	366	115	(*)	----	366	105	(*)	----	366	110	(*)	----	363	157	(*)	----	365	152	16.9	78
950	365	551	(*)	----	305	574	19.3	54	366	545	(*)	----	366	551	(*)	----	366	546	(*)	----	363	593	13.8	66	365	593	14.9	71
900	365	1,006	(*)	----	305	834	16.7	56	366	988	7.5	54	366	1,010	(*)	----	366	996	(*)	----	363	1,046	11.7	65	365	1,046	12.6	66
850	365	1,483	(*)	----	305	1,520	14.2	56	366	1,457	5.3	53	366	1,488	(*)	----	366	1,463	6.6	50	363	1,522	9.3	65	365	1,524	10.3	61
800	365	1,989	9.2	----	305	2,030	11.8	52	366	1,950	2.5	55	366	1,995	10.1	41	366	1,958	3.4	53	363	2,023	7.1	61	365	2,027	8.1	56
750	365	2,524	6.1	43	305	2,573	8.9	46	366	2,474	.9	56	366	2,531	6.3	44	366	2,482	−.1	56	361	2,557	4.6	56	365	2,561	5.8	51
700	365	3,082	1.8	45	305	3,135	5.6	41	366	3,017	−4.0	56	366	3,090	2.2	49	366	3,027	−3.7	59	361	3,112	1.9	52	365	3,120	3.0	48
650	365	3,677	−2.6	48	304	3,742	1.8	----	366	3,602	−7.7	54	365	3,686	−2.3	54	366	3,613	−7.5	58	359	3,707	−1.3	49	360	3,718	−.2	47
600	365	4,304	−7.2	50	304	4,378	−2.4	----	366	4,216	−11.5	52	365	4,314	−6.9	57	363	4,227	−11.6	59	358	4,341	−4.9	47	356	4,353	−3.8	44
550	365	4,976	−12.0	52	302	5,067	−6.8	----	365	4,879	−15.8	49	365	4,988	−11.6	57	360	4,890	−16.2	57	355	5,022	−8.9	----	354	5,036	−7.9	42
500	363	5,698	−17.0	53	302	5,801	−11.5	----	363	5,590	−20.6	53	362	5,711	−16.6	56	359	5,600	−21.1	57	354	5,753	−13.4	----	351	5,770	−12.5	44
450	361	6,487	−22.3	----	299	6,610	−17.0	----	361	6,367	−26.1	----	359	6,503	−22.0	56	358	6,373	−26.7	58	349	6,554	−18.8	----	350	6,573	−17.7	----
400	357	7,337	−28.5	----	299	7,475	−23.1	----	358	7,203	−32.3	----	358	7,352	−28.1	----	356	7,208	−32.8	----	347	7,415	−24.7	----	347	7,438	−23.8	----
350	353	8,281	−35.2	----	299	8,438	−30.4	----	352	8,131	−39.2	----	353	8,298	−34.9	----	352	8,134	−39.6	----	343	8,373	−31.6	----	342	8,400	−30.7	----
300	346	9,337	−42.6	----	297	9,515	−38.6	----	344	9,169	−46.5	----	351	9,357	−42.5	----	348	9,172	−46.6	----	328	9,449	−39.4	----	335	9,475	−38.6	----
250	332	10,549	−50.3	----	293	10,743	−47.6	----	324	10,364	−52.6	----	342	10,569	−49.9	----	338	10,364	−52.8	----	314	10,672	−48.2	----	318	10,705	−47.5	----
200	306	11,986	−55.8	----	283	12,190	−55.9	----	283	11,798	−54.7	----	322	12,010	−55.3	----	302	11,793	−55.3	----	279	12,109	−56.3	----	284	12,153	−56.4	----
175	276	12,831	−57.1	----	269	13,032	−59.4	----	249	12,650	−54.0	----	296	12,858	−56.6	----	263	12,643	−54.3	----	256	12,952	−59.1	----	246	12,996	−59.4	----
150	224	13,811	−59.2	----	253	13,996	−62.6	----	227	13,643	−54.6	----	244	13,835	−58.2	----	220	13,630	−54.3	----	220	13,935	−61.8	----	190	13,956	−62.0	----
125	----	----	----	----	----	----	----	----	172	14,835	−55.1	----	179	14,975	−60.3	----	177	14,816	−55.8	----	155	15,059	−63.7	----	----	----	----	----

See footnotes at end of table.

TABLE 1A.—*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 the year 1948*—Continued

Standard pressure surface (mb.)	Honolulu, T. H. (1,014.4 mb.)				International Falls, Minn. (973.6 mb.)				Joliet, Ill. (995.6 mb.)				Lake Charles, La. (1,015.9 mb.)				Lander, Wyo. (827.4 mb.)				Las Vegas, Nev.[1] (945.3 mb.)				Little Rock, Ark. (1,007.2 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	366	3	25.7	64	366	360	2.5	78	365	178	8.2	78	365	5	18.5	83	366	1,696	6.6	51	352	574	20.2	22	365	79	15.4	75
1,000	366	129	23.8	66	366	141	(*)	----	365	140	(*)	----	365	140	19.4	76	366	105	(*)	----	366	83	(*)	----	365	139	17.0	70
950	366	579	20.1	72	366	561	4.2	69	365	570	8.8	67	365	586	17.6	70	366	546	(*)	----	366	533	(*)	----	365	579	15.5	62
900	366	1,040	16.6	76	366	997	2.6	66	365	1,012	6.9	64	365	1,043	15.6	65	366	1,001	(*)	----	366	998	19.7	----	365	1,034	13.3	63
850	366	1,525	13.8	74	366	1,459	.9	62	365	1,481	5.0	60	365	1,527	13.6	58	366	1,473	(*)	----	366	1,486	15.9	----	365	1,513	11.1	61
800	366	2,035	11.8	58	366	1,944	−1.1	58	365	1,974	3.0	57	365	2,036	11.6	51	366	1,974	7.7	44	366	1,997	11.9	28	365	2,018	9.1	56
750	366	2,580	10.0	42	366	2,462	−3.4	55	365	2,500	.7	53	365	2,579	9.1	46	366	2,507	4.4	43	366	2,537	7.8	30	365	2,555	6.7	50
700	366	3,144	7.4	----	366	3,000	−6.0	53	365	3,046	−.7	51	364	3,143	6.1	45	366	3,061	.4	47	366	3,097	3.5	33	365	3,114	3.7	47
650	366	3,755	4.2	----	366	3,581	−9.0	51	365	3,636	−4.5	48	362	3,749	2.6	42	366	3,654	−3.9	50	366	3,655	−.7	34	363	3,716	.4	46
600	366	4,398	.6	----	366	4,192	−12.6	50	365	4,257	−8.8	48	361	4,389	−1.4	----	366	4,278	−8.4	52	365	4,328	−5.1	36	362	4,351	−3.3	45
550	366	5,091	−3.5	----	366	4,854	−16.6	52	364	4,928	−12.8	48	361	5,077	−5.7	----	366	4,948	−13.2	53	365	5,007	−9.5	----	359	5,035	−7.5	42
500	365	5,837	−8.3	----	366	5,561	−21.2	50	363	5,646	−17.5	----	358	5,818	−10.5	----	366	5,665	−18.4	53	365	5,736	−14.4	----	358	5,770	−12.2	----
450	363	6,654	−13.9	----	364	6,337	−26.5	----	362	6,434	−22.8	----	353	6,628	−15.9	----	364	6,451	−24.1	51	365	6,533	−20.0	----	357	6,573	−17.5	----
400	363	7,532	−20.2	----	362	7,171	−32.5	----	362	7,281	−28.8	----	352	7,499	−22.1	----	363	7,292	−30.3	----	365	7,390	−25.5	----	354	7,439	−23.6	----
300	362	8,507	−27.3	----	359	8,100	−39.2	----	361	8,223	−35.5	----	350	8,467	−29.1	----	363	8,227	−37.3	----	360	8,341	−33.4	----	347	8,401	−30.6	----
350	362	9,599	−35.1	----	355	9,139	−46.1	----	355	9,281	−42.8	----	346	9,550	−37.4	----	363	9,275	−44.7	----	357	9,406	−41.3	----	335	9,476	−38.4	----
250	360	10,847	−43.6	----	339	10,338	−51.7	----	338	10,494	−49.9	----	337	10,782	−47.0	----	352	10,474	−51.7	----	350	10,621	−49.7	----	315	10,704	−47.0	----
200	359	12,315	−53.2	----	317	11,774	−53.2	----	284	11,934	−55.1	----	318	12,227	−56.7	----	296	11,906	−55.6	----	333	12,059	−56.1	----	279	12,187	−55.4	----
175	354	13,164	−58.3	----	297	12,635	−52.9	----	226	12,785	−56.4	----	301	13,067	−60.7	----	232	12,753	−56.0	----	303	12,901	−57.9	----	----	----	----	----
150	343	14,123	−63.3	----	262	13,607	−53.0	----	190	13,773	−57.8	----	279	14,019	−64.7	----	149	13,726	−56.7	----	238	13,864	−59.7	----	----	----	----	----
125	326	15,227	−67.5	----	201	14,835	−54.1	----	----	----	----	----	237	15,125	−68.8	----	----	----	----	----	----	----	----	----	----	----	----	----
100	295	16,564	−70.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
80	253	17,890	−69.1	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
60	203	19,632	−63.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
50	168	20,758	−60.3	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
40	118	22,169	−56.5	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Standard pressure surface (mb.)	Mazatlan, Mexico (1,008.4 mb.)				Medford, Oreg. (969.4 mb.)				Merida, Mexico (1,009.9 mb.)				Miami, Fla. (1,016.9 mb.)				Nantucket, Mass. (931.4 mb.)				Nashville, Tenn.[2] (996.3 mb.)				New Orleans, La. (1,016.6 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	358	14	25.4	75	364	401	11.9	67	365	27	26.1	75	364	4	23.4	83	348	14	8.5	86	361	177	14.9	70	359	2	19.1	83
1,000	358	88	24.8	73	364	138	(*)	----	365	122	25.6	75	364	151	23.3	80	348	143	9.4	80	361	146	(*)	----	359	143	19.7	78
950	358	544	23.4	60	364	574	12.1	61	365	573	23.2	73	364	600	20.6	80	348	573	8.7	71	361	584	14.0	64	359	587	17.8	72
900	358	1,009	21.7	53	364	1,021	9.6	59	365	1,043	20.4	73	364	1,064	17.8	76	348	1,015	6.6	65	361	1,036	11.6	63	359	1,047	15.9	66
850	358	1,503	19.0	49	363	1,493	6.3	62	365	1,535	17.3	73	364	1,552	15.2	71	348	1,483	4.5	60	361	1,512	9.4	62	359	1,531	13.8	58
800	358	2,022	15.9	49	363	1,987	3.1	64	365	2,051	14.3	69	363	2,064	12.7	62	348	1,975	2.5	56	360	2,014	7.1	58	359	2,041	11.6	52
750	358	2,573	12.5	48	363	2,513	.1	61	365	2,596	11.6	59	363	2,608	10.2	53	348	2,500	.4	51	359	2,548	4.6	53	359	2,583	9.1	47
700	357	3,142	8.7	48	363	3,057	−2.9	56	363	3,169	8.8	54	363	3,176	7.3	49	348	3,046	−1.9	48	359	3,103	2.0	48	358	3,147	6.2	46
650	356	3,754	4.6	50	363	3,645	−6.1	50	362	3,780	5.5	48	362	3,784	3.9	47	345	3,635	−5.0	47	356	3,700	−1.3	46	355	3,753	2.8	----
600	351	4,399	.4	----	360	4,263	−9.9	48	359	4,429	1.7	----	360	4,428	.1	48	343	4,258	−8.3	47	353	4,331	−4.9	43	350	4,396	−1.0	----
550	348	5,093	−4.0	----	359	4,929	−14.1	48	355	5,124	−2.5	----	359	5,121	−3.9	45	337	4,929	−12.2	----	351	5,012	−8.9	----	346	5,086	−5.2	----
500	346	5,839	−8.6	----	357	5,646	−18.9	49	351	5,875	−7.2	----	356	5,867	−8.5	----	332	5,650	−16.8	----	347	5,743	−13.5	----	341	5,827	−9.9	----
450	341	6,656	−13.8	----	353	6,429	−24.2	----	350	6,695	−12.6	----	353	6,684	−13.9	----	331	6,440	−21.9	----	340	6,544	−18.8	----	338	6,643	−15.2	----
400	340	7,534	−19.7	----	353	7,273	−30.2	----	347	7,578	−18.7	----	346	7,562	−20.0	----	327	7,290	−27.9	----	338	7,404	−24.9	----	335	7,514	−21.4	----
350	334	8,512	−27.0	----	352	8,210	−37.0	----	342	8,557	−26.2	----	344	8,537	−27.1	----	320	8,236	−34.3	----	331	8,361	−31.8	----	330	8,485	−28.4	----
300	333	9,604	−35.4	----	351	9,258	−44.4	----	341	9,652	−35.0	----	337	9,629	−35.5	----	310	9,298	−41.6	----	318	9,436	−39.5	----	324	9,581	−36.3	----
250	300	10,855	−44.9	----	347	10,460	−53.2	----	330	10,897	−45.0	----	331	10,871	−45.3	----	281	10,513	−49.0	----	294	10,662	−48.2	----	318	10,810	−46.1	----
200	206	12,318	−55.5	----	333	11,889	−55.7	----	256	12,359	−56.1	----	311	12,327	−55.7	----	230	11,960	−55.1	----	266	12,104	−56.1	----	309	12,261	−56.2	----
175	----	----	----	----	319	12,738	−56.2	----	215	13,192	−62.0	----	291	13,168	−60.7	----	182	12,858	−57.1	----	233	12,948	−58.8	----	285	13,103	−60.4	----
150	----	----	----	----	297	13,713	−56.9	----	----	----	----	----	244	14,119	−65.6	----	----	----	----	----	182	13,902	−60.7	----	262	14,053	−64.0	----
125	----	----	----	----	247	14,862	−58.4	----	----	----	----	----	169	15,222	−70.0	----	----	----	----	----	----	----	----	----	203	15,160	−67.5	----

Standard pressure surface (mb.)	North Platte, Nebr. (916.7 mb.)				Oakland, Calif. (1015.9 mb.)				Oklahoma City, Okla. (969.6 mb.)				Omaha, Nebr. (978.5 mb.)				Phoenix, Ariz. (971.9 mb.)				Pittsburgh, Pa. (972.4 mb.)				Portland, Maine (1014.3 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	366	849	8.9	67	366	6	13.3	75	365	391	14.5	67	363	308	11.4	68	364	339	21.8	35	363	382	10.1	71	364	20	5.7	79
1,000	366	116	(*)	----	366	138	12.8	72	365	126	(*)	----	363	131	(*)	----	364	89	(*)	----	363	146	(*)	----	364	136	7.0	72
950	366	553	(*)	----	366	575	12.2	63	365	564	15.6	59	363	563	10.8	62	364	542	24.3	26	363	580	9.8	68	364	561	6.0	66
900	366	1,002	10.6	60	366	1,022	11.7	51	365	1,021	13.7	57	363	1,010	8.8	60	364	1,007	20.9	26	363	1,023	7.8	66	364	999	3.8	66
850	366	1,477	8.7	56	366	1,498	9.7	45	365	1,501	11.8	54	363	1,482	6.9	57	364	1,498	17.0	29	362	1,493	5.3	65	364	1,462	1.6	65
800	366	1,976	6.1	55	366	2,000	7.4	37	365	2,007	9.7	50	363	1,979	4.8	54	364	2,011	13.0	32	361	1,986	3.0	62	364	1,949	−.5	62
750	366	2,507	3.2	54	366	2,535	4.7	----	365	2,545	7.0	47	363	2,508	2.2	50	364	2,555	8.9	34	361	2,514	.6	58	364	2,467	−2.8	58
700	366	3,059	−.1	54	366	3,087	1.5	----	365	3,105	3.9	44	363	3,057	−.9	49	364	3,117	5.0	35	360	3,058	−2.1	55	364	3,007	−5.1	54
650	365	3,652	−4.0	52	364	3,684	−2.0	----	365	3,706	.2	43	363	3,650	−4.4	49	363	3,721	1.1	35	357	3,649	−5.1	52	362	3,590	−8.0	52
600	363	4,276	−8.2	51	364	4,312	−5.9	----	364	4,341	−4.0	42	361	4,272	−8.2	48	360	4,356	−3.2	----	356	4,269	−8.4	51	361	4,205	−11.4	50
550	362	4,948	−12.7	51	364	4,991	−10.2	----	358	5,021	−8.5	42	360	4,945	−12.5	48	360	5,042	−7.8	----	354	4,943	−12.3	49	360	4,868	−15.2	51
500	361	5,667	−17.7	----	362	5,717	−15.0	----	351	5,753	−13.3	----	360	5,664	−16.6	----	356	5,774	−12.8	----	352	5,661	−16.7	----	357	5,582	−19.7	52
450	360	6,455	−23.1	----	360	6,513	−20.5	----	343	6,553	−18.7	----	358	6,453	−22.7	----	351	6,579	−18.4	----	347	6,455	−21.9	----	355	6,361	−24.9	----
400	359	7,299	−29.3	----	360	7,367	−26.8	----	337	7,415	−24.8	----	358	7,301	−28.7	----	349	7,439	−24.6	----	346	7,304	−27.9	----	352	7,203	−30.8	----
350	354	8,239	−36.0	----	358	8,317	−33.8	----	327	8,375	−31.6	----	356	8,243	−35.6	----	341	8,399	−31.9	----	344	8,250	−34.5	----	348	8,138	−37.2	----
300	349	9,294	−43.4	----	357	9,380	−41.6	----	311	9,448	−39.3	----	353	9,299	−43.1	----	336	9,472	−39.9	----	336	9,311	−42.0	----	344	9,186	−44.1	----
250	342	10,501	−50.5	----	352	10,595	−49.5	----	273	10,673	−47.7	----	350	10,506	−50.5	----	323	10,693	−48.5	----	321	10,523	−49.7	----	334	10,388	−50.5	----
200	298	11,940	−55.8	----	335	12,032	−55.4	----	221	12,134	−55.3	----	318	11,947	−55.4	----	295	12,135	−55.9	----	292	11,968	−55.6	----	309	11,817	−54.5	----
175	254	12,806	−56.8	----	325	12,880	−56.9	----	185	13,038	−59.1	----	269	12,797	−56.4	----	262	12,970	−58.6	----	262	12,809	−57.1	----	292	12,666	−55.4	----
150	203	14,234	−58.3	----	306	13,855	−58.4	----	----	----	----	----	222	13,800	−58.1	----	186	13,960	−61.9	----	220	13,775	−58.7	----	263	13,641	−56.2	----
125	----	----	----	----	250	14,994	−60.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	219	14,821	−57.8	----
100	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	171	16,243	−58.2	----

See footnotes at end of table.

TABLE 1A.—*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 the year 1948*—Continued

Standard pressure surface (mb.)	Rapid City, S. Dak. (901.9 mb.)				St. Cloud, Minn. (977.7 mb.)				San Antonio, Tex. (984.4 mb.)				San Juan, P. R. (1,014.5 mb.)				Santa Maria, Calif. (1,008.0 mb.)				Sault Ste. Marie, Mich. (989.3 mb.)				Spokane, Wash. (931.0 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	362	980	6.4	68	366	317	5.1	78	366	240	19.9	66	365	15	25.3	81	366	71	12.7	76	366	221	3.4	83	364	721	8.6	65
1,000	362	117	(*)	----	366	130	(*)	----	366	122	(*)	----	365	141	24.5	81	366	135	12.6	75	366	132	(*)	----	364	124	(*)	----
950	362	551	(*)	----	366	558	6.5	67	366	571	19.6	61	365	593	21.3	82	366	570	12.9	63	366	555	4.5	70	364	555	(*)	----
900	362	998	(*)	----	366	994	5.1	62	366	1,031	17.2	62	365	1,058	18.2	81	366	1,020	13.5	46	366	990	2.8	66	364	1,001	7.7	62
850	362	1,469	8.1	52	366	1,460	3.4	59	366	1,526	14.9	60	365	1,546	15.3	78	366	1,500	11.7	42	366	1,451	.6	65	364	1,470	4.8	61
800	362	1,968	5.3	52	365	1,950	1.3	57	366	2,029	12.7	53	365	2,059	13.1	66	366	2,005	9.0	36	366	1,936	−1.5	63	364	1,961	1.5	62
750	362	2,497	2.3	52	365	2,473	.3	54	366	2,574	10.2	45	365	2,604	10.9	51	366	2,541	6.4	----	366	2,454	−3.7	58	363	2,482	−1.7	63
700	362	3,046	−1.1	52	365	3,016	−3.6	51	366	3,140	7.1	41	365	3,173	8.1	45	366	3,099	3.5	----	366	2,991	−6.1	55	363	3,024	−5.1	62
650	362	3,638	−4.8	51	365	3,602	−6.8	49	362	3,748	3.5	38	364	3,785	4.8	----	364	3,699	.1	----	364	3,573	−9.1	53	363	3,606	−8.6	59
600	361	4,259	−9.0	51	364	4,219	−10.5	49	361	4,390	−.6	----	363	4,430	1.2	----	363	4,333	−3.9	----	363	4,185	−12.4	53	362	4,219	−12.4	58
550	361	4,929	−13.4	50	363	4,885	−14.5	47	358	5,081	−5.0	----	361	5,127	−2.8	----	362	5,016	−8.1	----	362	4,847	−16.4	51	361	4,880	−16.6	57
500	360	5,646	−18.2	49	362	5,601	−19.1	50	357	5,821	−9.8	----	359	5,874	−7.3	----	360	5,748	−13.0	----	355	5,555	−20.9	50	361	5,589	−21.3	57
450	358	6,429	−23.8	49	360	6,382	−24.5	----	356	6,626	−15.3	----	355	6,696	−12.7	----	359	6,551	−18.6	----	350	6,335	−26.1	----	360	6,363	−26.6	57
400	356	7,273	−30.1	----	358	7,226	−30.5	----	356	7,506	−21.5	----	352	7,575	−18.9	----	358	7,411	−25.0	----	346	7,170	−32.0	----	357	7,198	−32.6	----
350	355	8,210	−37.0	----	354	8,161	−37.4	----	350	8,476	−28.6	----	351	8,555	−26.1	----	353	8,364	−32.1	----	335	8,105	−38.3	----	356	8,126	−39.4	----
300	347	9,259	−44.3	----	344	9,209	−44.5	----	344	9,561	−36.6	----	346	9,653	−34.3	----	350	9,435	−40.1	----	306	9,159	−44.9	----	351	9,165	−46.4	----
250	338	10,459	−50.9	----	318	10,416	−50.6	----	326	10,799	−45.6	----	343	10,903	−43.8	----	335	10,657	−48.7	----	----	------	------	----	340	10,358	−52.5	----
200	323	11,897	−54.2	----	257	11,860	−53.7	----	297	12,252	−55.1	----	341	12,365	−54.8	----	298	12,094	−56.0	----	----	------	------	----	301	11,792	−53.9	----
175	303	12,749	−54.7	----	211	12,740	−53.8	----	274	13,102	−59.0	----	327	13,207	−60.7	----	270	12,940	−58.0	----	----	------	------	----	279	12,640	−53.4	----
150	257	13,728	−55.2	----	----	------	------	----	----	------	------	----	287	14,154	−66.6	----	244	13,906	−60.0	----	----	------	------	----	261	13,644	−53.9	----
125	184	14,885	−56.4	----	----	------	------	----	----	------	------	----	207	15,242	−72.0	----	208	15,037	−62.8	----	----	------	------	----	----	------	------	----

Standard pressure surface (mb.)	Swan Island, W. I. (1,012.7 mb.)				Tacubaya, Mexico (773.8 mb.)				Tampa, Fla. (1,016.7 mb.)				Tatoosh Island, Wash. (1,012.3 mb.)				Toledo, Ohio (994.1 mb.)				Washington, D. C. (1,015.6 mb.)			
Surface	328	10	26.3	82	358	2,306	16.6	58	361	9	21.5	84	365	31	9.0	86	365	191	8.6	77	366	25	12.9	72
1,000	328	121	25.8	81	358	56	(*)	----	361	153	21.5	80	365	132	(*)	----	365	140	(*)	----	366	154	12.9	66
950	328	578	22.3	83	358	519	(*)	----	361	600	19.3	76	365	559	6.9	75	365	569	7.1	67	366	587	11.4	60
900	328	1,041	19.5	77	358	996	(*)	----	361	1,061	16.7	73	365	998	4.9	71	365	1,012	6.4	65	366	1,035	9.2	61
850	328	1,532	16.7	71	358	1,493	(*)	----	361	1,547	14.0	69	365	1,463	2.6	67	365	1,480	4.3	62	366	1,508	7.0	59
800	328	2,047	14.1	62	358	2,020	(*)	----	360	2,056	11.5	61	365	1,951	.2	63	365	1,972	2.1	58	366	2,005	4.8	57
750	328	2,598	11.6	55	358	2,572	14.8	58	358	2,597	8.9	53	365	2,471	−2.5	59	365	2,497	−.1	54	366	2,534	2.5	53
700	327	3,164	8.6	----	358	3,152	10.3	64	358	3,162	6.0	48	365	3,011	−5.4	55	365	3,041	−2.5	50	365	3,085	−.2	52
650	326	3,780	5.2	----	358	3,767	5.6	70	358	3,767	2.6	45	362	3,593	−8.9	53	364	3,632	−5.7	49	364	3,678	−3.3	50
600	325	4,423	1.5	----	357	4,414	.8	74	357	4,409	−1.1	44	361	4,205	−12.5	53	363	4,249	−9.2	47	364	4,304	−6.8	----
550	324	5,123	−2.5	----	355	5,111	−3.7	71	356	5,097	−5.1	----	360	4,858	−16.6	53	362	4,920	−13.2	48	361	4,980	−10.8	46
500	322	5,870	−7.0	----	354	5,857	−8.1	----	355	5,841	−9.6	----	359	5,575	−21.1	52	361	5,638	−17.7	----	359	5,704	−15.4	----
450	321	6,692	−12.0	----	350	6,678	−13.1	----	355	6,653	−14.9	----	356	6,351	−26.4	53	357	6,425	−23.1	----	358	6,497	−20.6	----
400	318	7,577	−17.9	----	347	7,557	−19.0	----	355	7,528	−21.0	----	354	7,186	−32.3	----	356	7,271	−29.1	----	358	7,353	−26.6	----
350	316	8,560	−25.2	----	333	8,536	−26.5	----	350	8,499	−28.2	----	351	8,116	−38.6	----	350	8,211	−35.8	----	354	8,304	−33.5	----
300	315	9,661	−33.6	----	326	9,630	−35.1	----	344	9,586	−36.5	----	348	9,158	−44.8	----	342	9,268	−43.2	----	352	9,367	−41.4	----
250	313	10,913	−43.5	----	285	10,876	−45.0	----	335	10,822	−46.3	----	340	10,359	−50.8	----	330	10,469	−50.5	----	336	10,582	−49.6	----
200	310	12,376	−54.9	----	----	------	------	----	318	12,269	−56.5	----	322	11,801	−52.9	----	298	11,907	−55.5	----	303	12,007	−56.3	----
175	303	13,216	−61.4	----	----	------	------	----	307	13,107	−61.2	----	296	12,657	−52.3	----	275	12,755	−56.9	----	285	12,857	−58.5	----
150	276	14,157	−68.1	----	----	------	------	----	287	14,054	−65.5	----	275	13,654	−52.4	----	----	------	------	----	241	13,817	−59.9	----
125	154	15,243	−74.1	----	----	------	------	----	231	15,150	−69.7	----	241	14,831	−53.6	----	----	------	------	----	180	14,945	−61.8	----
100	----	------	------	----	----	------	------	----	----	------	------	----	193	16,272	−54.0	----	----	------	------	----	122	16,294	−62.5	----

*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.

[1] Station elevation changed from 574 m. to 660 m., Dec. 18, 1948.

[2] Station elevation changed from 787 m. to 792 m., Apr. 28, 1948.

[3] Station elevation changed from 180 m. to 177 m., July 18, 1948.

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 2A.—*Free-air resultant winds based on pilot balloon observations made near 2200 G. C. T., during year 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. (505 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	353	180	1.8	365	236	2.0	339	280	0.8	---	---	---	358	274	0.7	---	---	---	354	120	3.7	330	254	2.7	327	266	1.0	333	164	1.1	353	256	1.8	358	1	0.7	363	243	2.3
500	---	---	---	---	---	---	339	279	1.1	---	---	---	---	---	---	---	---	---	346	132	4.7	330	252	4.0	327	252	2.3	332	198	2.0	353	252	2.5	---	---	---	---	---	---
1,000	352	188	2.6	---	---	---	332	266	1.9	---	---	---	356	272	2.2	---	---	---	307	151	3.4	299	252	5.3	318	270	3.8	313	236	2.8	347	256	3.5	---	---	---	---	---	---
1,500	334	207	3.2	---	---	---	304	270	3.4	---	---	---	332	274	3.7	---	---	---	282	171	1.8	245	262	5.8	283	275	5.8	296	262	4.2	308	263	4.7	---	---	---	363	242	2.9
2,000	322	229	4.3	365	243	2.8	285	275	4.8	---	---	---	305	273	5.1	---	---	---	253	192	1.3	221	268	6.9	244	283	7.4	279	271	5.5	271	272	6.0	358	349	.7	363	242	3.3
2,500	313	240	5.2	365	254	3.7	259	280	6.0	---	---	---	281	278	6.7	---	---	---	240	226	1.2	---	---	---	214	288	8.9	265	273	6.4	247	276	7.6	349	283	1.2	356	248	4.2
3,000	303	249	6.3	360	263	5.0	242	280	7.0	---	---	---	265	279	8.3	---	---	---	220	245	1.4	---	---	---	---	---	---	250	271	7.3	217	277	9.3	341	270	2.6	353	255	5.3
4,000	280	262	8.4	341	269	7.8	203	281	9.5	---	---	---	238	284	11.0	---	---	---	205	258	2.3	---	---	---	---	---	---	222	272	9.4	165	281	10.8	320	277	6.5	338	261	7.1
5,000	254	267	10.8	315	270	9.9	168	284	10.9	---	---	---	205	282	12.4	---	---	---	185	266	3.7	---	---	---	---	---	---	193	276	11.0	---	---	---	292	278	10.1	318	262	8.9
6,000	219	269	12.2	305	270	12.1	140	284	11.7	---	---	---	167	281	14.1	---	---	---	171	269	5.2	---	---	---	---	---	---	---	---	---	---	---	---	250	276	12.9	287	265	10.4
8,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	178	277	14.5	240	268	12.9
10,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	163	275	14.4

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.)			Joilet, 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	358	212	2.1	365	266	1.7	324	266	0.7	---	---	---	334	82	1.9	343	252	1.5	366	198	1.3	342	148	0.4	---	---	---	360	119	3.1	339	161	0.8	347	259	1.0	330	259	1.4
500	---	---	---	---	---	---	324	252	1.4	---	---	---	334	118	.8	343	252	2.1	---	---	---	342	212	1.0	---	---	---	360	118	3.7	337	194	1.1	347	244	1.7	330	263	3.3
1,000	---	---	---	---	---	---	324	257	2.6	---	---	---	308	232	1.7	264	247	3.1	366	191	2.1	320	231	1.9	---	---	---	355	125	2.2	288	263	.8	330	248	2.7	316	285	4.9
1,500	---	---	---	365	265	1.8	313	269	4.1	---	---	---	293	249	3.6	261	261	5.3	366	200	2.5	294	256	3.2	---	---	---	335	149	1.1	264	302	2.0	298	256	3.7	303	290	6.6
2,000	358	212	2.4	365	256	2.5	289	277	6.0	---	---	---	264	258	4.7	261	269	6.8	363	218	3.3	272	269	4.4	---	---	---	312	208	.8	236	294	3.3	275	272	4.5	277	288	8.3
2,500	358	222	3.3	362	244	3.3	271	280	7.6	---	---	---	248	262	5.5	230	272	8.0	360	232	3.9	251	278	5.6	---	---	---	276	224	1.0	205	289	4.4	251	277	5.8	237	289	9.3
3,000	345	235	3.8	353	244	4.6	249	282	9.3	---	---	---	228	269	6.3	213	279	9.3	356	247	4.6	231	279	6.6	---	---	---	255	241	1.5	184	286	5.1	232	279	7.5	177	290	8.9
4,000	303	254	5.1	317	258	6.4	222	282	12.0	---	---	---	195	271	7.5	143	279	11.2	345	261	6.8	184	286	8.6	---	---	---	228	254	2.7	151	280	7.7	199	281	9.7	---	---	---
5,000	269	268	7.7	283	264	8.4	179	281	13.8	---	---	---	144	270	9.0	---	---	---	328	266	9.3	---	---	---	---	---	---	189	256	3.6	---	---	---	158	288	12.1	---	---	---
6,000	236	268	9.7	250	268	10.5	---	---	---	---	---	---	---	---	---	---	---	---	314	272	10.5	---	---	---	---	---	---	152	257	3.9	---	---	---	---	---	---	---	---	---
8,000	171	270	12.0	181	269	13.9	---	---	---	---	---	---	---	---	---	---	---	---	248	271	14.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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, Mich. (221 m.)			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	351	267	3.8	341	184	2.0	353	205	0.6	366	243	0.9	354	340	0.9	343	242	1.2	346	254	0.9	350	134	1.5	359	273	3.5	306	286	2.5	---	---	---	---	---	---	342	263	1.2
500	351	288	3.0	341	183	2.3	353	206	1.1	366	243	1.4	---	---	---	343	244	1.6	346	250	1.7	350	139	1.9	359	279	2.9	306	282	3.1	---	---	---	---	---	---	342	263	2.7
1,000	327	303	2.4	338	195	3.2	342	232	2.5	366	236	1.9	354	344	1.2	334	253	2.8	324	249	3.1	338	147	2.0	334	277	1.5	282	281	3.8	---	---	---	---	---	---	325	267	4.3
1,500	309	304	2.6	320	217	4.2	325	250	3.8	364	225	2.2	354	306	2.3	312	259	4.2	305	262	4.6	322	169	1.7	314	289	1.3	233	284	4.4	---	---	---	---	---	---	314	274	5.7
2,000	299	307	2.7	301	237	5.3	299	261	5.6	356	231	2.8	332	283	3.4	278	272	5.7	284	270	6.0	301	211	1.9	299	288	2.0	217	283	5.2	---	---	---	---	---	---	294	282	7.7
2,500	296	303	3.3	284	249	6.9	280	270	7.2	351	239	3.5	308	276	5.3	251	279	7.0	259	275	7.4	277	244	2.9	290	280	2.5	196	292	6.3	---	---	---	---	---	---	271	282	9.8
3,000	288	304	3.8	271	261	8.2	272	276	8.3	347	246	4.4	288	279	7.1	236	289	6.6	238	279	8.7	261	257	3.9	285	273	3.7	181	292	7.7	---	---	---	---	---	---	259	282	11.8
4,000	276	292	5.6	238	271	10.7	242	282	10.3	328	257	6.1	252	280	10.0	207	295	10.4	208	283	10.6	234	267	6.4	273	267	5.4	---	---	---	---	---	---	---	---	---	222	282	14.0
5,000	264	288	7.9	200	278	11.6	204	286	11.6	295	263	7.8	224	282	11.7	175	291	12.6	141	290	13.0	197	270	9.0	252	266	6.8	---	---	---	---	---	---	---	---	---	174	282	15.7
6,000	250	286	9.6	163	280	13.5	190	289	12.9	266	266	9.3	183	286	13.4	151	291	14.2	---	---	---	147	272	9.7	238	271	7.8	---	---	---	---	---	---	---	---	---	---	---	---
8,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	173	266	8.7	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3A.—*Free-air resultant winds based on rawin observations made near 0300 G. C. T., during year 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.)			Little 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	366	132	1.0	364	145	2.8	364	67	0.9	365	124	2.4	362	272	1.6	365	151	0.4	366	137	1.0	366	00	0.0	340	239	0.2	359	306	0.3	366	212	0.4	365	110	0.3	361	85	1.5
500	---	---	---	---	---	---	---	---	---	365	133	5.9	356	281	3.9	358	195	2.3	363	168	2.2	---	---	---	337	229	1.5	345	255	1.8	364	230	1.2	365	170	1.5	360	114	3.6
1,000	---	---	---	365	165	4.6	355	277	1.2	365	141	4.9	351	289	5.0	352	233	2.6	360	234	3.0	---	---	---	336	247	3.3	343	261	2.8	363	263	2.8	364	212	2.8	360	115	3.1
1,500	---	---	---	365	193	4.8	352	285	3.5	364	149	3.2	349	288	6.0	352	250	3.6	358	258	4.5	365	188	.1	331	261	4.6	340	266	4.4	358	278	4.0	364	233	4.1	358	118	2.1
2,000	365	257	2.6	364	223	4.5	351	287	4.7	363	171	1.9	342	286	7.0	348	260	4.6	358	268	5.8	365	234	1.8	320	272	5.5	336	269	5.6	357	287	5.1	361	247	5.1	358	146	1.1
2,500	365	262	4.5	360	244	5.1	349	289	6.3	363	208	2.0	338	281	8.0	346	265	5.8	360	273	7.2	365	236	3.0	294	273	6.2	332	272	6.7	355	289	6.2	358	257	6.0	357	199	1.1
3,000	365	265	5.9	357	256	6.0	349	290	7.7	363	235	2.4	336	279	9.3	344	266	6.8	360	276	8.4	365	244	4.3	274	277	6.8	327	272	8.1	351	290	7.5	353	261	7.2	358	230	1.5
4,000	364	267	7.5	353	270	7.5	348	288	9.8	362	253	4.2	314	273	11.8	332	267	8.4	354	280	10.4	364	260	6.1	---	---	---	322	270	9.8	339	288	9.5	347	262	9.9	355	257	2.9
5,000	358	272	9.4	339	273	9.2	342	287	11.1	360	263	5.5	299	272	13.1	319	272	9.9	347	283	14.9	358	268	8.2	---	---	---	290	273	10.9	327	288	10.7	335	263	11.9	353	263	4.5
6,000	349	271	11.4	326	271	10.5	333	287	12.7	357	261	7.1	265	271	14.9	303	273	11.1	337	275	14.1	340	270	10.6	---	---	---	280	250	12.4	310	285	12.0	318	260	12.5	344	264	6.2
8,000	288	269	12.6	273	269	11.7	303	279	15.2	346	260	10.6	197	271	16.5	276	272	13.8	307	272	17.5	288	269	12.6	---	---	---	229	276	13.5	254	280	13.3	278	262	13.9	333	269	9.6
10,000	240	278	11.7	---	---	---	252	269	17.6	321	266	12.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	195	276	15.9	212	267	14.3	314	273	12.5
12,000	---	---	---	---	---	---	---	---	---	272	264	14.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	287	277	14.8

Altitude (meters) m. s. l.	Nantucket, Mass. (13 m.)			Nashville, Tenn. (180 m.)			New Orleans, La. (6 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (302 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	347	270	0.8	362	162	0.4	361	123	0.6	364	281	3.0	357	128	1.9	364	293	1.1	361	226	0.3	366	118	2.5	364	101	3.5	365	277	2.1	363	289	0.7	---	---	---	---	---	---
500	338	274	3.9	360	189	1.4	358	156	1.8	359	288	3.6	344	138	2.6	---	---	---	349	234	.5	366	127	4.3	363	93	7.3	362	335	3.1	362	289	1.5	---	---	---	---	---	---
1,000	333	285	4.3	355	231	2.7	351	164	1.2	357	290	3.3	335	176	3.6	360	293	1.1	347	261	2.1	365	144	4.3	362	94	7.5	362	344	3.3	358	272	3.4	---	---	---	---	---	---
1,500	328	282	5.9	349	254	4.0	350	221	.9	356	289	2.9	332	220	3.7	358	284	2.4	344	278	3.9	364	175	2.8	359	91	6.8	362	352	2.8	352	278	4.8	---	---	---	---	---	---
2,000	328	277	7.3	348	264	5.3	350	247	2.0	355	286	3.0	331	246	4.9	357	289	4.1	344	282	5.4	361	222	2.9	357	90	6.3	362	340	2.7	347	281	6.1	---	---	---	---	---	---
2,500	326	276	8.8	345	267	6.7	348	253	3.3	355	288	3.8	334	258	6.0	354	291	5.5	343	285	6.9	359	243	3.5	356	89	6.0	361	311	3.6	336	282	7.4	---	---	---	---	---	---
3,000	318	274	10.7	337	271	8.1	346	256	4.7	356	287	4.8	337	264	7.0	354	292	7.5	345	287	8.1	359	250	4.4	353	89	5.5	360	297	5.3	331	283	8.5	---	---	---	---	---	---
4,000	304	273	13.4	321	275	10.6	339	261	6.7	351	286	7.1	337	271	9.0	350	289	9.6	340	285	9.8	354	262	6.1	348	84	4.3	356	289	7.6	319	284	11.2	---	---	---	---	---	---
5,000	286	272	15.7	291	276	12.0	330	266	8.9	337	283	9.1	330	273	10.5	344	285	11.2	329	285	11.4	346	268	7.8	343	73	3.3	348	281	9.6	297	287	12.4	---	---	---	---	---	---
6,000	255	273	17.3	256	276	12.8	318	268	10.5	323	281	11.1	310	272	12.4	333	282	12.7	313	282	12.9	329	266	8.8	341	50	2.0	335	275	10.6	278	284	14.0	---	---	---	---	---	---
8,000	---	---	---	---	---	---	297	268	13.7	275	274	14.0	265	274	14.5	316	278	14.8	278	281	15.0	294	269	11.0	333	310	2.6	304	272	13.2	213	281	16.9	---	---	---	---	---	---
10,000	---	---	---	---	---	---	274	273	15.9	202	272	16.3	---	---	---	291	273	18.2	222	278	17.1	260	267	10.2	329	289	7.5	226	273	14.9	---	---	---	---	---	---	---	---	---
12,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	257	267	19.2	---	---	---	---	---	---	326	282	12.2	---	---	---	---	---	---	---	---	---	---	---	---
14,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	277	291	11.0	---	---	---	---	---	---	---	---	---	---	---	---
16,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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 III in the June 1948 issue of the MONTHLY WEATHER REVIEW.

REPORTS RECEIVED TOO LATE TO BE INCLUDED IN TABLES

TABLE 2A

Altitude (meters) m. s. l.	Billings, Mont. (1,095 m.)			Boise, Idaho (868 m.)			Havre, Mont. (767 m.)			Medford, Oreg. (416 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed	Observations	Direction	Speed
Surface	362	279	1.7	355	319	1.7	342	260	2.2	353	301	1.3	332	232	1.8	345	219	2.3
500	---	---	---	---	---	---	---	---	---	353	301	1.3	332	218	3.0	---	---	---
1,000	---	---	---	355	312	1.7	342	257	3.6	351	272	1.1	300	214	3.8	345	220	3.6
1,500	362	269	3.2	355	286	1.9	337	262	5.1	336	234	2.2	258	217	4.0	326	226	4.4
2,000	352	272	4.4	347	272	2.6	324	266	6.3	302	224	3.0	212	214	4.0	305	232	4.7
2,500	334	269	5.8	335	263	3.6	300	268	7.4	266	226	3.0	166	223	3.8	274	235	5.1
3,000	304	271	7.0	319	258	4.6	269	269	8.3	240	246	3.1	146	235	4.3	242	239	6.0
4,000	260	273	9.3	267	255	6.4	191	269	10.7	200	261	4.8	---	---	---	181	262	7.0
5,000	219	275	11.0	233	255	9.0	148	271	12.2	179	258	6.4	---	---	---	---	---	---
6,000	154	273	12.7	191	260	9.5	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3A

Altitude (meters) m. s. l.	Spokane, Wash. (726 m.)			Tatoosh Island, Wash. (33 m.)		
	Observations	Direction	Speed	Observations	Direction	Speed
Surface	360	203	1.5	355	181	1.6
500	---	---	---	343	227	2.8
1,000	358	219	2.8	340	233	3.3
1,500	355	238	3.7	339	236	3.7
2,000	354	247	4.5	341	246	3.9
2,500	347	253	5.1	341	254	4.9
3,000	342	254	6.1	336	260	5.8
4,000	332	262	7.8	322	269	6.7
5,000	313	266	9.5	306	270	7.8
6,000	289	269	10.0	290	266	8.7
8,000	221	266	11.5	225	265	9.1
10,000	160	267	9.8	183	266	9.5