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METEOROLOGICAL AND CLIMATOLOGICAL DATA FOR JULY 1945

AEROLOGICAL OBSERVATIONS

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*

STATIONS AND ELEVATIONS IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Albany, N. Y. (94 m.)				Albuquerque, N. Mex. (1,620 m.)				Apalachicola, Fla. (5 m.)				Atlanta, Ga. (300 m.)				Big Spring, Tex. (774 m.)				Bismarck, N. Dak. (505 m.)				Boise, Idaho (868 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	26	1,005	19.8	86	31	839	25.6	39	31	1,016	26.0	86	31	982	23.9	83	31	927	26.4	62	30	955	20.7	70	31	914	27.2	31
500	26	959	19.1	78					31	960	23.3	80	31	960	23.8	77												
1,000	26	905	17.1	73					31	907	20.7	72	31	907	21.8	71	31	904	25.5	59	30	902	20.5	54	31	900	27.7	22
1,500	26	853	14.0	73					31	856	18.0	67	31	856	18.7	70	31	854	22.2	58	30	851	17.1	56	31	850	24.3	21
2,000	26	803	10.5	72	31	803	23.7	36	31	807	15.0	63	31	807	15.5	68	31	805	18.5	60	30	802	13.6	59	31	802	20.2	22
2,500	26	757	7.9	66	31	759	20.1	37	31	761	12.2	63	31	761	12.3	64	31	760	14.9	57	30	756	10.2	55	31	757	15.9	26
3,000	26	712	5.4	61	31	715	16.2	40	31	716	9.3	63	31	716	9.2	61	31	715	11.7	50	30	711	7.0	55	31	713	11.6	29
4,000	26	629	−0.1	49	31	635	8.1	52	31	634	3.8	64	29	635	3.4	61	31	634	5.2	42	30	629	0.6	53	31	632	4.0	31
5,000	26	554	−5.5	52	30	562	0.1	63	31	560	−1.7	63	28	560	−2.0	54	30	560	−0.3	36	29	554	−5.7	48	30	558	−3.4	36
6,000	26	487	−11.2	47	30	495	−6.9	71	30	493	−7.4	56	28	494	−7.8	51	27	494	−6.2	38	29	487	−12.3	40	30	490	−10.7	34
7,000	24	428	−17.6	51	29	435	−12.6	57	30	434	−13.2	57	28	434	−13.8	53	25	434	−12.5		28	427	−19.0	38	29	430	−17.7	
8,000	24	374	−24.2		29	381	−18.9	46	29	380	−19.6	57	28	380	−20.2		23	380	−19.0		26	373	−26.7		29	376	−24.9	
9,000	24	325	−31.3		29	332	−26.0		28	331	−26.8		27	330	−27.1		22	332	−26.2		26	323	−34.3		29	326	−32.7	
10,000	24	282	−38.6		29	289	−33.5		27	288	−34.5		27	287	−34.5		21	288	−33.9		23	279	−42.3		28	283	−39.8	
11,000	24	243	−46.2		28	250	−41.1		27	248	−42.7		27	248	−42.5		21	249	−41.6		22	240	−49.2		26	244	−46.2	
12,000	24	208	−52.7		28	215	−48.1		27	214	−50.8		27	214	−50.3		21	214	−49.5		21	207	−53.8		26	209	−51.9	
13,000	24	178	−57.6		28	184	−55.2		25	183	−58.9		27	183	−57.4		21	184	−57.1		20	177	−55.9		24	179	−55.4	
14,000	19	152	−59.6		27	157	−61.5		23	156	−65.6		25	156	−63.1		20	156	−64.0		19	151	−57.9		21	153	−58.2	
15,000	15	130	−60.9		19	134	−67.6		15	132	−70.0		22	132	−67.6		16	132	−69.4		14	128	−58.5		17	131	−60.9	
16,000	14	110	−61.7		11	113	−71.3		10	112	−70.6		14	112	−69.6		8	112	−73.1		11	109	−58.0		10	112	−62.9	
17,000	9	94	−60.2						5	93	−67.7		6	95	−67.3						8	93	−57.5		6	95	−61.8	
18,000	5	79	−57.3																									

Altitude (meters) m. s. l.	Brownsville, Tex. (6 m.)				Buffalo, N. Y. (221 m.)				Caribou, Maine (193 m.)				Charleston, S. C. (14 m.)				Clovis, N. Mex. (1,306 m.)				Denver, Colo. (1,616 m.)				Dodge City, Kans. (787 m.)			
Surface	31	1012	27.4	81	31	990	19.1	80	31	992	16.8	80	31	1016	24.4	91	31	870	23.7	53	30	841	21.4	53	31	925	23.8	62
500	31	957	24.3	76	31	958	19.4	69	31	957	17.5	68	31	962	23.6	84												
1,000	31	904	21.9	64	31	904	16.7	67	31	903	15.2	64	31	908	21.2	76									31	903	24.4	55
1,500	31	853	19.5	57	31	852	13.4	67	31	850	11.6	68	31	857	18.4	74	31	851	23.2	51					31	853	22.1	52
2,000	31	804	16.7	51	31	803	10.2	67	31	801	8.0	72	31	808	15.6	72	31	803	20.2	51	30	804	20.8	43	31	804	18.7	54
2,500	31	758	13.7	49	31	756	7.1	62	31	754	5.0	68	31	762	12.9	68	31	758	16.6	54	30	759	17.5	43	31	759	15.4	55
3,000	31	714	10.5	46	31	711	4.4	59	31	709	2.6	54	31	717	9.9	66	31	714	12.7	58	30	715	13.6	45	31	715	12.1	54
4,000	31	633	4.5	42	31	628	−0.9	58	31	626	−2.7	50	30	636	4.0	70	31	634	6.0	47	30	634	6.0	49	31	634	5.4	46
5,000	31	559	−1.4	41	29	553	−6.6	46	30	551	−8.9	43	29	561	−1.5	66	30	560	−0.9	45	29	560	−1.7	55	28	560	−1.2	40
6,000	31	492	−7.3	42	27	486	−12.4		29	483	−14.7	44	29	494	−7.0	61	30	494	−6.8	43	28	493	−8.9	58	28	493	−7.6	40
7,000	31	433	−13.3	42	24	436	−19.4		28	423	−21.7		27	434	−12.7	58	39	434	−12.6	41	28	434	−14.9	51	27	434	−13.7	
8,000	31	379	−19.9		24	372	−26.0		28	368	−29.1		26	381	−19.3	59	29	380	−19.2		28	379	−22.0		27	379	−20.7	
9,000	31	330	−27.0		16	321	−34.6		27	319	−36.4		26	332	−26.8		29	331	−26.6		28	330	−29.2		25	330	−27.9	
10,000	31	287	−34.4		15	278	−41.4		27	276	−43.5		25	288	−34.6		29	288	−34.1		26	286	−37.1		23	287	−35.5	
11,000	31	248	−42.1		13	240	−46.9		27	238	−49.9		25	249	−43.2		28	249	−42.0		26	247	−44.2		23	248	−43.1	
12,000	31	213	−49.8		9	205	−52.4		26	203	−55.0		25	214	−52.0		28	214	−49.8		26	213	−51.3		21	213	−49.6	
13,000	30	182	−57.4		8	176	−56.8		23	174	−55.9		24	183	−60.1		27	183	−56.8		26	182	−57.4		20	182	−56.4	
14,000	26	156	−64.4		7	151	−59.5		23	148	−56.6		19	156	−65.9		22	156	−63.5		25	155	−62.7		16	156	−62.6	
15,000	20	132	−70.0		5	129	−57.5		19	126	−56.4		8	132	−70.4		12	133	−67.8		17	131	−66.6		14	132	−67.1	
16,000	16	112	−73.5						12	109	−57.3						6	112	−70.9		8	111	−68.6		6	112	−69.0	
17,000	7	94	−72.7						8	93	−55.4																	

Altitude (meters) m. s. l.	El Paso, Tex. (1,195 m.)				Ely, Nev. (1.908 m.)				Glasgow, Mont. (648 m.)				Grand Junction, Colo. (1,414 m.)				Great Falls, Mont. (1,128 m.)				Greensboro, N. C. (273 m.)				Hatteras, N. C. (3 m.)			
Surface	29	881	28.8	37	31	811	21.7	38	31	938	23.6	44	31	858	26.2	34	31	887	23.2	35	31	986	22.5	86	24	1,018	25.1	89
500																					31	960	22.4	79	24	962	22.9	81
1,000									31	901	23.4	38									31	907	20.3	76	24	909	20.6	70
1,500	29	851	26.9	37					31	850	19.7	42	31	850	26.6	31	31	850	21.4	34	31	856	17.0	76	24	857	17.8	70
2,000	29	804	22.8	41	31	803	22.8	34	31	802	15.6	47	31	802	23.9	28	31	802	17.5	36	31	806	13.9	72	24	808	14.8	66
2,500	29	758	18.6	45	31	758	19.9	31	31	756	11.5	53	31	757	20.0	30	31	756	13.4	39	31	760	10.6	70	24	762	11.8	64
3,000	29	715	14.4	49	31	715	15.8	33	30	711	7.3	58	31	714	15.7	34	31	712	9.1	45	31	715	7.6	67	24	717	8.9	59
4,000	29	635	6.6	54	31	634	7.2	41	30	629	0.2	60	31	634	7.0	45	31	630	0.9	54	31	633	1.9	59	22	635	3.0	58
5,000	29	561	−0.2	53	31	560	−1.3	55	30	555	− 6.5	51	31	560	−1.4	57	31	556	−6.3	49	31	559	−3.7	53	21	561	−2.9	58
6,000	29	494	−6.4	51	31	494	−9.1	68	30	487	−12.4	46	30	493	−8.6	64	30	488	−13.1	45	31	492	−9.5	57	21	494	−8.5	54
7,000	28	435	−11.9	40	31	434	−15.8	61	30	427	−19.6	46	30	433	−14.9	54	30	428	−20.1	43	31	431	−15.7	58	21	434	−14.3	
8,000	26	381	−18.4		31	379	−22.3		30	372	−27.0		28	379	−21.5		30	373	−27.3		31	377	−22.3		21	380	−20.9	
9,000	25	332	−25.5		29	330	−29.6		30	323	−34.6		28	330	−28.8		30	323	−34.7		31	328	−29.2		21	330	−28.0	
10,000	22	289	−33.0		28	286	−37.1		30	280	−42.3		28	286	−36.1		30	280	−42.2		31	285	−36.8		21	287	−35.7	
11,000	21	250	−40.6		28	247	−44.0		29	240	−49.2		26	247	−43.9		30	240	−49.2		31	246	−44.7		19	247	−44.4	
12,000	21	216	−48.5		26	213	−50.1		27	206	−53.2		26	212	−50.2		30	206	−54.6		31	211	−52.3		19	212	−52.6	
13,000	21	184	−56.4		25	182	−55.5		25	176	−54.7		24	182	−56.3		28	176	−57.0		30	180	−58.7		18	181	−60.3	
14,000	20	157	−63.5		23	155	−60.7		24	151	−56.1		23	155	−62.0		25	151	−57.6		29	154	−63.5		16	154	−65.4	
15,000	16	134	−69.2		16	132	−65.0		17	130	−57.4		14	132	−65.5		21	128	−58.8		25	130	−66.8		9	130	−68.2	
16,000	7	113	−73.1		6	112	−67.3		15	111	−59.3		8	112	−68.0		16	110	−59.9		15	110	−67.4		5	111	−69.7	
17,000									11	95	−59.5						8	94	−59.1		6	93	−67.6					
18,000									6	81	−57.7																	

See footnotes at end of tables.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*—Continued

Altitude (meters) m. s. l.	Havana, Cuba [1] (51 m.)				Huntington, W. Va. (172 m.)				International Falls, Minn. (343 m.)				Jackson, Miss. (97 m.)				Joliet, Ill. (178 m.)				Lake Charles, La. (5 m.)				Little Rock, Ark. (79 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	----	----	----	----	28	997	20.1	89	30	973	16.5	80	30	1,004	24.6	86	30	995	19.7	77	31	1,014	25.7	90	31	1,006	25.3	78
500	----	----	----	----	28	960	22.5	70	30	956	17.2	73	30	959	24.0	77	30	958	20.7	63	31	959	23.9	80	31	959	24.3	66
1,000	----	----	----	----	28	906	19.3	69	30	901	14.8	68	30	906	21.4	75	30	904	17.4	62	31	906	20.9	75	31	906	20.8	66
1,500	----	----	----	----	28	854	15.8	70	30	849	11.5	68	30	854	18.3	74	30	852	13.9	62	31	855	18.3	69	31	855	17.8	60
2,000	----	----	----	----	28	805	12.7	64	30	799	8.2	67	30	806	15.4	71	30	803	11.0	60	31	806	15.6	64	31	806	15.0	57
2,500	----	----	----	----	28	759	9.8	61	30	753	5.3	62	30	760	12.7	64	30	756	8.5	52	31	760	13.1	60	31	760	12.4	50
3,000	----	----	----	----	28	714	7.1	56	30	708	2.7	57	30	716	10.0	61	30	712	6.3	42	31	716	10.4	58	31	715	9.3	48
4,000	----	----	----	----	28	632	2.4	47	30	625	−2.5	47	29	634	4.2	58	30	629	0.4	37	30	634	5.0	52	31	634	3.7	41
5,000	----	----	----	----	28	557	−3.3	50	30	550	−8.6	45	29	560	−1.5	58	29	555	−5.5	36	29	560	−0.5	48	31	560	−2.0	39
6,000	----	----	----	----	28	491	−9.6	47	30	483	−15.0	42	29	493	−7.0	56	29	488	−11.5	----	29	494	−6.4	51	31	492	−7.7	37
7,000	----	----	----	----	28	431	−15.7	44	30	423	−21.9	----	29	434	−13.0	54	29	428	−18.2	----	29	434	−12.3	51	31	433	−13.9	43
8,000	----	----	----	----	27	377	−22.4	----	30	368	−29.1	----	29	379	−19.6	50	29	373	−25.3	----	29	380	−19.0	50	31	378	−20.8	47
9,000	----	----	----	----	27	328	−29.9	----	30	319	−36.4	----	28	331	−26.7	----	28	324	−32.8	----	29	331	−25.9	----	31	330	−28.0	----
10,000	----	----	----	----	27	284	−37.0	----	30	276	−43.3	----	28	288	−34.3	----	28	281	−40.0	----	29	288	−33.4	----	31	287	−35.2	----
11,000	----	----	----	----	26	246	−45.8	----	29	238	−48.3	----	28	248	−42.3	----	27	242	−46.4	----	29	249	−41.3	----	31	248	−43.0	----
12,000	----	----	----	----	25	211	−53.3	----	28	204	−50.8	----	28	214	−50.4	----	27	208	−51.9	----	29	215	−49.4	----	31	213	−50.6	----
13,000	----	----	----	----	25	180	−58.7	----	28	175	−52.0	----	27	183	−58.3	----	26	178	−56.0	----	28	184	−57.4	----	31	182	−57.9	----
14,000	----	----	----	----	24	154	−62.9	----	25	150	−54.4	----	24	156	−64.4	----	23	151	−59.2	----	25	157	−63.9	----	28	155	−63.9	----
15,000	----	----	----	----	20	130	−65.3	----	23	128	−55.8	----	21	132	−69.3	----	18	129	−61.2	----	18	133	−68.8	----	18	132	−67.9	----
16,000	----	----	----	----	13	111	−65.2	----	21	110	−56.6	----	13	112	−71.0	----	11	110	−61.9	----	8	113	−71.4	----	12	112	−70.5	----
17,000	----	----	----	----	6	94	−63.9	----	15	93	−54.9	----	6	94	−68.8	----	6	94	−60.5	----	----	----	----	----	5	94	−69.7	----
18,000	----	----	----	----	----	----	----	----	14	80	−54.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
19,000	----	----	----	----	----	----	----	----	10	68	−54.0	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----
20,000	----	----	----	----	----	----	----	----	5	58	−52.6	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

Altitude (meters) m. s. l.	Louisville, Ky. (165 m.)				Mazatlan, Mexico (80 m.)				Medford, Oreg. (409 m.)				Merida, Mexico (27 m.)				Miami, Fla. (4 m.)				Nashville, Tenn. (180 m.)				North Platte, Nebr. (849 m.)			
Surface	31	996	22.6	76	25	1,003	28.0	78	30	966	28.9	29	31	1,011	27.3	74	31	1,018	25.5	85	31	995	24.8	69	30	918	21.6	74
500	31	959	22.9	63	25	957	24.6	74	30	957	28.2	30	31	959	24.6	71	31	962	23.4	83	31	959	24.1	63	----	----	----	----
1,000	31	906	19.5	63	25	904	22.9	67	30	904	24.4	33	31	906	22.0	69	31	908	20.5	78	31	906	20.9	64	30	903	23.0	63
1,500	31	854	15.7	63	25	853	20.3	67	30	853	20.6	38	31	855	19.0	70	31	857	17.9	74	31	855	17.6	62	30	852	21.2	56
2,000	31	805	12.8	55	25	805	17.5	62	30	804	17.0	44	31	806	15.8	67	31	808	15.3	71	31	806	14.9	55	30	804	18.2	54
2,500	31	758	10.4	46	25	759	14.7	57	30	759	13.8	45	31	760	12.8	60	31	762	12.6	66	31	760	12.0	53	30	758	14.7	55
3,000	31	714	8.0	38	25	714	11.8	56	30	714	10.6	44	31	716	9.6	57	31	718	9.9	60	31	715	9.1	50	30	714	11.2	55
4,000	31	632	2.4	38	24	634	5.3	58	30	633	4.1	40	29	634	3.8	53	31	636	4.1	60	31	633	3.5	43	30	633	3.9	53
5,000	31	557	−3.6	39	22	560	−1.2	61	28	559	−2.2	33	29	560	−1.7	53	31	562	−1.5	64	31	559	−2.4	34	30	559	−2.6	43
6,000	30	490	−9.5	39	20	493	−6.9	61	28	492	−9.4	33	27	493	−7.6	55	31	494	−7.3	66	31	492	−8.0	----	30	492	−8.8	43
7,000	30	431	−15.7	----	18	434	−12.5	60	28	432	−16.9	32	26	433	−13.9	67	31	435	−13.0	60	30	433	−14.0	----	30	432	−15.2	43
8,000	30	376	−22.6	----	15	380	−19.2	----	28	377	−25.0	----	26	379	−20.2	66	31	381	−19.7	57	30	379	−20.9	----	30	378	−22.2	----
9,000	29	327	−29.9	----	15	331	−26.5	----	27	328	−32.5	----	25	330	−27.4	----	30	332	−27.0	----	29	330	−28.0	----	29	329	−29.5	----
10,000	28	284	−37.2	----	14	288	−34.0	----	27	284	−40.1	----	25	287	−35.0	----	30	288	−34.7	----	29	287	−35.5	----	29	285	−37.1	----
11,000	28	245	−44.7	----	14	249	−41.9	----	27	245	−47.0	----	25	248	−43.0	----	29	249	−43.1	----	29	248	−43.4	----	29	246	−44.7	----
12,000	27	211	−51.8	----	13	214	−49.8	----	26	210	−52.0	----	21	213	−51.1	----	29	214	−51.7	----	29	213	−51.2	----	28	212	−51.2	----
13,000	26	180	−57.3	----	10	184	−57.5	----	23	180	−56.2	----	15	182	−58.7	----	29	183	−59.9	----	29	182	−58.1	----	26	181	−56.6	----
14,000	25	154	−61.4	----	6	156	−65.0	----	19	154	−58.8	----	6	155	−66.0	----	25	156	−66.7	----	26	155	−64.0	----	22	155	−61.5	----
15,000	17	131	−64.9	----	----	----	----	----	13	131	−60.7	----	----	----	----	----	15	132	−70.6	----	15	132	−68.0	----	15	132	−65.6	----
16,000	11	112	−66.8	----	----	----	----	----	6	112	−61.2	----	----	----	----	----	6	112	−72.6	----	10	111	−70.9	----	10	112	−66.6	----
17,000	7	95	−65.8	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	95	−65.6	----
18,000	5	80	−63.7	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	80	−62.9	----

Altitude (meters) m. s. l.	Oakland, Calif. (2 m.)				Ogden, Utah (1,355 m.)				Oklahoma City, Okla. (391 m.)				Omaha, Nebr. (308 m.)				Phoenix, Ariz. (339 m.)				Pittsburgh, Pa. (382 m.)				Portland, Maine (20 m.)			
Surface	31	1,013	17.5	76	30	865	24.5	40	30	970	24.9	77	31	979	23.9	69	31	969	33.2	35	31	972	21.7	74	31	1,014	17.2	91
500	31	956	19.1	57	----	----	----	----	30	958	25.3	72	31	958	23.6	63	31	952	34.0	29	31	960	21.5	72	31	959	19.5	74
1,000	31	902	24.4	26	----	----	----	----	30	905	22.8	67	31	904	20.7	61	31	901	31.1	29	31	905	18.8	70	31	905	17.2	64
1,500	31	852	22.5	22	30	851	25.3	31	30	854	19.6	64	31	853	17.7	61	31	852	27.1	31	31	853	15.2	72	31	853	13.9	68
2,000	31	804	19.6	21	30	803	22.2	30	30	805	16.7	57	31	804	14.9	56	31	804	23.0	34	31	804	11.7	69	31	804	10.7	67
2,500	31	758	16.3	19	30	758	18.0	32	30	760	13.3	54	31	758	11.7	54	31	759	18.8	38	31	757	8.8	62	31	757	8.0	60
3,000	31	714	12.7	20	30	714	13.6	35	30	715	11.0	46	31	714	8.7	50	31	715	14.7	41	31	712	6.2	55	31	712	5.3	59
4,000	31	633	5.7	22	30	633	5.3	38	29	634	4.9	39	31	632	2.8	45	30	635	6.9	45	31	630	0.5	50	30	629	0.1	51
5,000	31	559	−1.6	----	30	559	−2.6	45	29	560	−1.2	37	30	558	−3.5	40	30	561	−0.6	50	31	556	−4.4	37	30	554	−5.8	49
6,000	31	492	−8.7	----	30	492	−10.0	49	28	493	−7.0	33	30	491	−9.3	37	30	494	−7.1	47	31	489	−10.4	37	29	487	−11.8	50
7,000	31	432	−16.1	----	30	432	−16.8	44	28	434	−13.3	----	30	431	−15.8	46	29	435	−13.1	45	31	428	−16.8	43	29	427	−18.4	54
8,000	31	378	−23.6	----	29	378	−23.7	----	28	379	−20.4	----	29	377	−22.4	----	29	381	−19.7	----	31	374	−23.6	----	29	373	−25.6	----
9,000	31	329	−30.7	----	27	328	−30.9	----	27	330	−28.1	----	29	328	−29.7	----	28	332	−26.8	----	29	326	−30.2	----	29	324	−33.0	----
10,000	31	285	−37.6	----	27	285	−38.4	----	25	287	−35.3	----	29	285	−37.0	----	26	288	−34.2	----	29	283	−37.3	----	29	281	−40.7	----
11,000	30	246	−44.1	----	27	246	−45.5	----	24	248	−42.8	----	29	246	−44.2	----	24	249	−41.3	----	29	244	−44.9	----	28	242	−48.4	----
12,000	29	212	−49.3	----	27	211	−51.8	----	24	214	−50.4	----	29	211	−51.1	----	23	214	−48.9	----	29	210	−51.5	----	28	207	−55.1	----
13,000	28	181	−54.5	----	25	180	−57.5	----	25	182	−57.7	----	27	181	−56.1	----	22	184	−56.1	----	27	179	−56.4	----	27	176	−59.0	----
14,000	24	155	−59.4	----	24	154	−61.9	----	21	156	−63.6	----	27	154	−59.6	----	19	157	−62.7	----	27	153	−59.1	----	22	150	−60.0	----
15,000	23	132	−63.5	----	16	130	−65.8	----	20	132	−68.6	----	24	131	−62.1	----	16	133	−67.4	----	22	131	−61.5	----	16	128	−60.2	----
16,000	18	112	−65.4	----	6	110	−65.9	----	11	112	−71.7	----	16	111	−64.0	----	8	112	−71.6	----	16	111	−62.9	----	12	110	−61.2	----
17,000	11	95	−64.9	----	----	----	----	----	6	95	−68.2	----	10	95	−64.4	----	----	----	----	----	5	95	−62.6	----	7	93	−60.4	----
18,000	8	80	−63.4	----	----	----	----	----	----	----	----	----	6	80	−60.7	----	----	----	----	----	----	----	----	----	----	----	----	----
19,000	7	68	−61.4	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

See footnotes at end of tables.

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent, obtained by radiosondes during July 1945*—Continued

Altitude (meters) m. s. l.	Rapid City, S. Dak. (981 m.)				St. Louis, Mo. (171 m.)				St. Paul, Minn. (225 m.)				San Antonio, Tex. (240 m.)				San Juan, P. R. (15 m.)				Santa Maria, Calif. (71 m.)				Sault Ste. Marie, Mich. (221 m.)			
	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity	Number of observations	Pressure	Temperature	Relative humidity
Surface	31	904	20.4	67	31	996	23.2	71	31	988	20.6	70	31	986	28.5	65	31	1,015	26.2	85	31	1,005	15.3	86	26	989	13.6	86
500					31	959	22.8	62	31	958	19.8	64	31	957	27.0	65	31	961	22.8	83	31	956	16.2	81	26	958	15.5	71
1,000	31	902	20.5	65	31	905	19.3	63	31	903	17.0	64	31	905	23.6	68	31	907	19.4	80	31	902	24.4	31	26	902	13.5	68
1,500	31	852	20.3	51	31	854	15.6	64	31	851	13.7	64	31	854	20.2	69	31	856	16.7	75	31	852	23.5	28	26	850	10.2	70
2,000	31	803	17.0	52	31	805	13.0	50	31	802	10.9	61	31	805	16.8	67	31	806	14.2	65	31	804	20.5	30	26	800	6.8	71
2,500	31	758	13.4	54	31	758	10.9	43	31	755	8.3	51	31	760	14.0	56	31	760	12.1	53	31	759	16.8	31	26	753	3.9	63
3,000	31	713	9.7	53	31	714	8.3	42	31	710	5.4	47	31	716	11.3	48	31	715	9.5	47	31	715	12.9	34	26	708	1.6	58
4,000	31	632	2.5	47	30	632	2.7	43	31	628	−0.6	44	31	634	5.5	47	31	634	3.6	37	31	634	5.4	34	26	625	−3.6	46
5,000	30	557	−4.5	39	29	558	−3.6	47	31	553	−6.5	39	31	560	−0.1	41	31	559	−2.1	35	31	560	−1.4	----	26	550	−9.3	----
6,000	30	490	−10.9	41	28	491	−9.3	41	31	486	−13.2	36	31	494	−5.9	38	31	492	−8.2	36	31	493	−8.2	----	26	482	−15.6	----
7,000	30	430	−17.6	----	26	430	−15.9	----	31	426	−19.8	----	31	434	−11.7	35	31	433	−14.5	36	31	433	−15.2	----	26	422	−22.8	----
8,000	30	375	−24.8	----	24	376	−23.0	----	31	372	−26.8	----	31	381	−18.3	40	30	379	−21.8	----	31	378	−22.3	----	23	367	−29.8	----
9,000	30	326	−32.0	----	23	327	−30.4	----	31	323	−33.9	----	31	332	−25.4	----	30	329	−29.4	----	31	329	−29.8	----	22	318	−37.5	----
10,000	29	283	−39.3	----	20	284	−38.2	----	31	279	−40.7	----	31	289	−33.0	----	30	286	−37.4	----	31	286	−36.6	----	22	274	−44.4	----
11,000	29	243	−46.5	----	20	244	−45.9	----	30	240	−47.2	----	31	250	−41.1	----	29	247	−45.6	----	31	246	−42.9	----	21	236	−49.2	----
12,000	29	209	−52.4	----	20	210	−52.4	----	28	206	−51.8	----	30	215	−49.0	----	29	212	−53.9	----	31	212	−49.0	----	21	202	−51.6	----
13,000	28	179	−57.0	----	18	179	−56.8	----	27	176	−54.7	----	30	184	−56.6	----	28	180	−61.4	----	31	181	−55.2	----	21	173	−53.2	----
14,000	26	153	−60.1	----	14	153	−60.5	----	27	151	−56.9	----	30	157	−63.6	----	25	153	−67.0	----	30	155	−61.2	----	20	148	−54.1	----
15,000	19	130	−62.3	----	11	130	−64.5	----	22	129	−59.3	----	24	133	−70.0	----	16	130	−70.1	----	29	132	−66.1	----	17	127	−55.5	----
16,000	12	110	−63.9	----	8	111	−65.5	----	15	110	−59.9	----	13	113	−73.0	----	10	109	−73.2	----	24	112	−69.7	----	17	108	−56.4	----
17,000	9	94	−62.6	----	----	----	----	----	8	93	−58.2	----	----	----	----	----	----	----	----	----	18	94	−68.8	----	10	92	−54.7	----
18,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	13	80	−66.1	----	9	79	−54.7	----
19,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	10	68	−63.8	----	5	67	−52.9	----
20,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	8	57	−61.2	----	----	----	----	----
21,000	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	5	49	−59.5	----	----	----	----	----

	Spokane, Wash. (598 m.)				Swan Island, W. I. (10 m.)				Tacubaya, Mexico[1] (2,306 m.)				Tampa, Florida (3 m.)				Tatoosh Island, Wash. (31 m.)				Toledo, Ohio (191 m.)				Washington, D. C. (25 m.)			
Surface	30	943	26.5	28	31	1,013	26.6	85	----	----	----	----	31	1,018	25.2	88	31	1,016	12.2	92	31	993	19.5	78	31	1,014	23.1	84
500					31	959	23.6	83	----	----	----	----	31	962	23.3	81	31	961	13.0	73	31	958	20.3	65	31	960	21.3	76
1,000	30	901	24.4	26	31	905	20.7	77	----	----	----	----	31	908	20.5	77	31	905	13.2	53	31	904	17.4	64	31	906	18.8	71
1,500	30	851	20.1	30	31	854	17.8	70	----	----	----	----	31	857	17.5	75	31	853	11.5	46	31	852	14.1	65	31	854	15.7	70
2,000	30	802	15.6	35	31	805	15.1	64	----	----	----	----	31	808	14.5	72	31	802	9.2	43	31	803	10.9	62	31	805	12.6	70
2,500	30	756	10.9	41	31	759	12.7	55	----	----	----	----	30	762	11.8	68	31	756	6.3	39	31	756	8.1	55	31	759	9.7	62
3,000	30	712	6.7	42	31	714	9.7	49	----	----	----	----	30	717	9.1	65	31	710	3.6	37	31	711	5.8	46	31	714	6.8	60
4,000	30	629	−0.2	37	31	633	3.8	43	----	----	----	----	30	635	3.5	65	30	628	−1.6	36	31	629	0.5	42	31	632	1.4	50
5,000	30	554	−6.4	37	31	559	−2.3	41	----	----	----	----	28	561	−2.1	65	30	553	−7.9	37	31	554	−5.3	39	31	557	−4.1	44
6,000	30	487	−13.1	36	31	492	−8.3	40	----	----	----	----	27	494	−7.7	64	30	485	−14.2	38	31	488	−11.1	42	30	490	−9.9	48
7,000	30	426	−20.1	37	31	432	−14.5	45	----	----	----	----	27	434	−13.4	65	30	425	−21.6	----	31	428	−18.0	47	30	430	−16.3	47
8,000	30	372	−27.3	----	31	378	−21.1	----	----	----	----	----	25	380	−20.0	66	30	370	−29.0	----	31	373	−25.0	----	28	376	−23.3	----
9,000	30	323	−35.0	----	31	329	−28.7	----	----	----	----	----	22	331	−27.0	----	30	321	−36.6	----	30	324	−32.1	----	27	327	−30.6	----
10,000	30	280	−42.4	----	31	286	−36.7	----	----	----	----	----	20	288	−34.6	----	26	278	−43.2	----	30	281	−39.3	----	26	284	−37.9	----
11,000	30	240	−49.3	----	31	246	−45.4	----	----	----	----	----	18	248	−42.7	----	24	239	−49.7	----	29	242	−46.0	----	26	244	−45.8	----
12,000	29	206	−53.4	----	31	212	−54.2	----	----	----	----	----	18	214	−50.9	----	22	205	−54.0	----	29	208	−51.7	----	26	210	−53.0	----
13,000	29	176	−55.7	----	29	180	−62.6	----	----	----	----	----	17	183	−58.7	----	21	175	−55.7	----	28	178	−54.8	----	26	179	−58.6	----
14,000	28	150	−56.0	----	24	153	−69.2	----	----	----	----	----	12	155	−65.3	----	20	150	−55.0	----	26	152	−57.3	----	20	153	−62.2	----
15,000	25	128	−57.2	----	12	129	−73.9	----	----	----	----	----	8	132	−69.6	----	19	128	−55.1	----	24	130	−59.8	----	16	130	−64.6	----
16,000	18	110	−57.3	----	----	----	----	----	----	----	----	----	----	----	----	----	15	110	−55.4	----	16	111	−61.2	----	7	110	−63.0	----
17,000	13	93	−57.5	----	----	----	----	----	----	----	----	----	----	----	----	----	12	93	−55.9	----	12	94	−60.9	----	6	93	−63.0	----
18,000	9	80	−57.2	----	----	----	----	----	----	----	----	----	----	----	----	----	9	80	−55.6	----	8	80	−58.9	----	----	----	----	----
19,000	6	68	−56.2	----	----	----	----	----	----	----	----	----	----	----	----	----	7	68	−54.8	----	5	68	−56.6	----	----	----	----	----

[1] Data not yet received.

NOTE.—All observations scheduled between 10 p. m. and midnight, E. S. T. (0300 and 0500, G. C. T.), except at Mazatlan and Merida, where they are taken near 9 p. m. E. S. T. (0200 G. C. T.).

"Number of observations" refers to pressure only. (In a few cases temperature or humidity data may be missing for one or more levels of some observations.) Relative humidity data are not published for levels 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 surface or 5 standard level observations.

Raob data for Havana, Cuba, will appear in a later issue.

TABLE 2.—*Free-air resultant winds based on pilot balloon observations made near 5 p. m., E. S. T. (2200 G. C. T.) during July 1945. Directions given in degrees from north (N=360°, E=90°, S=180°, W=270°). Velocities in meters per second*

Altitude (meters) m. s. l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,630 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. (132 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (152 m.)			Denver, Colo. (1,627 m.)			El Paso, Tex. (1,196 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	114	2.4	31	229	1.8	31	226	1.2	31	156	0.5	31	258	1.6	31	317	3.7	31	128	6.0	29	242	2.3	30	225	2.4	28	161	2.1	31	276	0.7	31	35	2.3	31	125	2.1
500	---	---	---	---	---	---	31	253	1.2	---	---	---	---	---	---	---	---	---	31	135	7.1	29	255	3.3	30	213	5.1	28	169	5.5	31	277	1.8	---	---	---	---	---	---
1,000	31	123	3.2	---	---	---	31	244	1.2	---	---	---	31	300	1.6	31	325	3.5	31	139	5.8	28	246	4.2	29	220	6.0	26	191	4.2	30	281	2.4	---	---	---	---	---	---
1,500	31	126	2.8	---	---	---	30	256	1.3	31	183	1.0	30	269	2.7	31	316	3.0	30	157	3.7	26	248	5.3	28	234	6.2	24	203	3.7	30	300	3.1	---	---	---	31	119	2.0
2,000	29	139	2.1	31	215	2.6	26	288	1.2	31	228	1.5	29	278	3.8	31	282	2.6	28	154	2.3	23	252	6.6	23	250	6.6	22	212	2.7	28	294	4.3	31	41	3.2	31	113	2.2
2,500	25	152	2.4	31	197	2.7	21	299	2.3	31	258	2.4	25	267	6.9	31	273	4.4	24	129	1.6	18	264	7.2	21	257	8.0	21	210	3.2	21	298	4.4	30	53	2.5	30	99	2.2
3,000	22	159	1.5	31	189	1.8	19	296	2.4	30	275	4.1	25	273	8.6	31	261	6.0	23	98	0.7	16	272	8.0	15	247	9.2	18	208	2.3	18	285	5.9	29	50	1.6	28	82	2.5
4,000	18	242	0.5	31	113	0.8	14	268	4.5	28	278	9.1	21	281	11.4	29	252	9.0	22	115	0.7	12	285	10.0	---	---	---	15	223	3.0	---	---	---	28	311	2.9	23	69	2.7
5,000	---	---	---	31	360	1.4	---	---	---	27	274	12.8	19	283	12.8	27	248	11.0	22	135	1.2	---	---	---	---	---	---	13	221	3.3	---	---	---	25	288	6.3	12	82	2.6
6,000	---	---	---	31	336	1.8	---	---	---	26	270	15.4	16	277	15.4	25	248	12.0	21	127	1.4	---	---	---	---	---	---	13	220	3.8	---	---	---	17	279	8.9	---	---	---
8,000	---	---	---	28	248	4.0	---	---	---	20	269	18.2	13	283	18.2	17	245	18.0	15	83	3.5	---	---	---	---	---	---	---	---	---	---	---	---	11	272	11.7	---	---	---
10,000	---	---	---	20	241	7.6	---	---	---	14	267	23.5	---	---	---	---	---	---	13	90	5.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000	---	---	---	15	254	10.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
14,000	---	---	---	12	258	8.0	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Altitude (meters) m. s. l.	Ely, Nev. (1,910 m.)			Grand Junction, Colo. (1,413 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)			Joliet, Ill. (178 m.)			Las Vegas, Nev. (573 m.)			Little Rock, Ark. (88 m.)			Medford, Oreg. (410 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (194 m.)			New York, N. Y. (15 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	243	1.7	31	327	1.9	30	189	1.6	31	293	2.6	30	137	2.8	31	274	2.1	31	160	1.9	30	116	0.2	31	299	2.7	31	146	3.6	26	201	2.0	31	314	1.6	27	185	1.8
500	---	---	---	---	---	---	30	202	2.0	---	---	---	30	177	3.9	31	281	2.9	---	---	---	30	38	0.7	31	303	2.9	31	138	5.2	26	209	3.6	31	323	2.1	27	204	3.1
1,000	---	---	---	---	---	---	30	226	2.5	31	284	2.9	30	200	4.0	31	276	3.0	31	174	3.0	28	14	1.3	31	311	2.9	30	134	4.3	22	214	2.5	30	307	1.8	22	244	4.4
1,500	---	---	---	31	321	2.3	30	244	2.9	31	274	3.2	29	222	3.9	30	271	3.4	31	179	2.8	25	10	1.4	31	305	2.1	29	142	2.7	16	233	1.2	29	303	2.1	22	257	5.3
2,000	31	240	2.0	31	315	2.9	25	262	4.5	29	261	3.6	28	223	3.6	29	285	5.1	31	202	3.2	20	359	1.7	31	258	1.6	27	148	2.0	13	278	1.3	26	292	2.6	19	263	6.8
2,500	31	242	2.7	31	299	3.4	21	269	5.5	27	260	6.0	25	223	3.4	21	290	6.8	31	212	4.0	17	61	1.4	31	230	3.0	28	155	2.0	10	280	1.9	26	294	3.5	17	267	7.9
3,000	31	229	3.0	31	285	3.2	16	277	5.7	26	262	7.3	23	229	2.7	16	292	8.6	31	229	4.0	17	56	2.2	30	218	4.1	27	154	2.2	---	---	---	24	306	4.5	11	270	7.2
4,000	30	239	3.5	30	273	3.6	12	271	6.2	21	271	10.8	13	220	2.0	---	---	---	31	241	3.6	15	34	3.4	28	234	6.7	23	157	3.0	---	---	---	19	293	5.7	---	---	---
5,000	29	230	4.6	27	266	4.9	---	---	---	14	270	12.2	11	191	1.9	---	---	---	29	240	3.5	10	340	3.7	27	233	9.6	21	129	2.5	---	---	---	14	294	6.7	---	---	---
6,000	21	237	5.8	19	251	5.5	---	---	---	12	282	12.8	---	---	---	---	---	---	28	219	3.8	---	---	---	27	240	11.2	17	125	2.3	---	---	---	13	299	8.7	---	---	---
8,000	15	236	7.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22	225	5.8	---	---	---	24	241	13.2	12	87	2.4	---	---	---	11	299	11.6	---	---	---
10,000	11	237	9.8	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	21	220	9.3	---	---	---	15	235	15.7	---	---	---	---	---	---	---	---	---	---	---	---
11,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	16	219	12.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11	218	8.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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. Louis, Mo. (181 m.)			St. Paul, Minn. (225 m.)			San Antonio, Tex. (240 m.)			San Diego, Calif. (15 m.)			Saulte St. Marie, Mich. (225 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)		
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity
Surface	31	289	5.7	31	166	3.1	31	176	1.9	31	275	1.5	31	28	1.5	31	253	0.7	30	258	1.3	30	102	2.8	28	275	4.1	31	270	3.0	31	285	2.3	31	229	2.3	28	179	2.5
500	31	283	4.3	31	166	3.4	31	180	2.7	31	269	2.7	---	---	---	31	291	2.1	30	257	1.7	30	113	3.3	28	282	3.3	31	272	3.9	31	302	1.8	---	---	---	28	194	2.4
1,000	31	269	2.7	31	171	3.4	31	203	3.8	31	264	3.6	31	26	1.5	31	288	2.1	30	259	3.0	30	108	3.5	27	276	1.5	30	273	4.6	31	295	1.2	31	228	3.2	27	221	2.2
1,500	30	255	1.7	31	166	2.7	28	212	4.2	31	256	3.5	31	42	1.0	31	285	2.3	27	264	4.8	29	108	2.7	26	311	1.5	28	256	4.3	28	318	0.9	31	234	3.7	26	248	2.4
2,000	30	226	2.3	29	169	2.1	26	244	5.0	31	250	3.7	31	311	1.0	30	301	3.2	24	269	6.2	28	121	2.2	26	291	0.7	26	263	4.2	26	272	1.3	31	237	4.7	24	265	3.8
2,500	30	213	3.3	26	163	1.1	26	265	6.4	31	244	2.6	29	280	2.6	28	304	4.0	19	282	7.3	26	123	1.4	25	207	0.9	23	275	5.4	24	285	2.2	30	232	5.1	19	274	5.5
3,000	30	216	3.9	21	122	1.2	25	276	7.6	31	253	2.0	29	285	5.0	25	304	5.8	17	283	6.8	23	160	1.3	25	189	1.5	22	285	5.7	21	275	3.2	30	237	6.4	18	287	6.9
4,000	28	222	6.0	19	359	1.3	25	295	10.9	31	166	0.6	22	268	7.6	23	298	9.1	14	292	10.3	19	220	1.1	25	176	3.1	20	283	6.2	19	266	5.2	27	242	9.5	11	288	8.7
5,000	28	220	6.1	12	346	1.7	19	294	13.2	29	151	1.2	17	280	10.3	18	300	10.1	12	313	10.8	13	257	2.2	22	186	4.0	18	290	7.0	18	257	8.0	23	250	12.3	10	276	11.0
6,000	26	223	5.7	11	308	2.4	18	291	13.8	27	167	3.5	15	278	12.8	15	302	11.8	---	---	---	12	270	2.2	20	184	3.7	16	293	10.0	18	262	9.8	22	252	14.4	---	---	---
8,000	25	228	7.1	---	---	---	12	294	14.6	24	162	3.2	10	280	14.4	11	292	11.6	---	---	---	---	---	---	18	198	4.9	13	292	10.2	17	263	12.5	19	253	17.9	---	---	---
10,000	24	238	11.3	---	---	---	---	---	---	20	183	5.2	---	---	---	---	---	---	---	---	---	---	---	---	14	210	9.6	---	---	---	15	258	15.0	13	264	21.5	---	---	---
12,000	17	232	16.2	---	---	---	---	---	---	15	213	7.1	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11	253	16.2	---	---	---	---	---	---
14,000	10	238	19.6	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3.—*Maximum free-air wind velocities (m. p. s.) for different sections of the United States based on pilot balloon observations during July 1945*

Section	Surface to 2,500 meters (m. s. l.)					Above 2,500 to 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast [1]	35.6	WSW.	2,436	11	Hartford, Conn.	45.6	WSW.	4,245	11	Boston, Mass.	85.0	SW.	11,020	11	Boston, Mass.
East-Central [2]	28.6	WSW.	2,042	9	Cincinnati, Ohio	27.0	WNW.	5,000	11	Richmond, Va.	41.0	WNW.	13,269	11	Nashville, Tenn.
Southeast [3]	20.7	WSW.	1,053	29	Spartanburg, S. C.	29.0	E.	3,168	20	Birmingham, Ala.	30.1	W.	10,102	7	Spartanburg, S. C.
North-Central [4]	32.8	SW.	2,042	26	Bismarck, N. D.	34.7	SW.	4,092	18	Williston, N. Dak.	52.0	SW.	8,742	2	Alpena, Mich.
Central [5]	30.8	S.	1,790	30	Dodge City, Kans.	31.1	WNW.	4,711	5	Omaha, Nebr.	92.8	W.	19,908 20,193	26	Goodland, Kans.
South-Central [6]	29.0	NW.	1,979	8	Meridian Miss.	23.4	WNW.	3,943	9	Little Rock, Ark.	44.0	W.	12,981	6	Tulsa, Okla.
Northwest [7]	43.2	W.	1,774	4	Pocatello, Idaho	42.0	SW.	5,000	25	Spokane, Wash.	86.8	WNW.	10,738	26	Spokane, Wash.
West-Central [8]	25.6	SW.	2,079	22	Modena, Utah	45.6	SW.	3,184	17	Salt Lake City, Utah	50.0	SSW.	12,587	23	Cheyenne, Wyo.
Southwest [9]	33.1	E.	1,846	1	Albuquerque, N. Mex.	23.3	NW.	2,510	5	Sandburg, Calif.	64.2	SW.	13,053	9	Las Vegas, Nev.

[1] Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio
[2] Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
[3] South Carolina, Georgia, Florida, and Alabama.
[4] Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
[5] Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.
[6] Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
[7] Montana, Idaho, Washington, and Oregon.
[8] Wyoming, Colorado, Utah, northern Nevada, and northern California.
[9] Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

LATE REPORT FOR SWAN ISLAND, WEST INDIES

TABLE 1.—*Mean free-air barometric pressure in millibars, temperature in degrees centigrade, and relative humidities in percent obtained by radiosondes during June 1945*

STATION AND ELEVATION IN METERS ABOVE SEA LEVEL

Altitude (meters) m. s. l.	Swan Island, West Indies (10 m.)				Altitude (meters) m. s. l.	Swan Island, West Indies (10 m.)			
	Number of observations	Pressure	Temperature	Relative humidity		Number of observations	Pressure	Temperature	Relative humidity
Surface	30	1,012	26.7	84	7,000	30	433	−13.0	------
500	30	958	23.5	83	8,000	30	379	−19.1	------
1,000	30	904	20.6	77	9,000	29	330	−26.5	------
1,500	30	853	18.1	69	10,000	28	287	−34.2	------
2,000	30	804	15.9	58	11,000	26	248	−42.2	------
2,500	30	758	13.6	50	12,000	26	213	−50.3	------
3,000	30	714	10.7	47	13,000	25	183	−58.3	------
4,000	30	633	4.8	45	14,000	21	155	−65.6	------
5,000	30	559	−1.2	45	15,000	18	132	−72.1	------
6,000	30	492	−7.4	45	16,000	7	111	−76.2	------

RIVER STAGES AND FLOODS

By C. R. JORDAN

Precipitation during July was very irregular. Rainfall was generally above normal over the eastern half of the country, except in the Lakes region and a strip extending southwestward through northern Illinois, southern Iowa, and northern Missouri. It was also heavy in northeastern Nevada, southern Idaho, northern Utah, and north-central Arizona. Elsewhere over the western part of the United States precipitation was mostly light, with no measurable rainfall in parts of California and Oregon. The month ended with a torrential rainstorm in the vicinity of Washington, D. C., where 6 inches of rain fell in 50 minutes.

By far the most important flooding of the month was the local overflow of smaller streams that resulted from heavy concentrations of rainfall in the region from Virginia to Maine and did considerable damage. Some overflow was reported in the West-Central States, with near record stages recorded for a few of the smaller streams.

Atlantic Slope drainage.—Rainfall during July was frequent and above normal over the entire Atlantic coastal area. Local concentrations produced destructive and record-breaking stages at scattered locations throughout the area.

A severe downpour in Rutland County, Vt., on July 20 and a series of cloudbursts over western Berkshire County, Mass., on July 22 resulted in the loss of two lives and caused considerable damage to highways, bridges, crops, and livestock. The United States Geological Survey reports that Rathbun Brook near Hancock, Mass., with a drainage area of slightly less than 1 square mile, indicated a discharge of more than 3,200 c. f. s. per square mile. This is believed to be the highest rate of flow of record in New England on a per-square-mile basis. The maximum discharge of record was measured on the Poultney River below Fair Haven, Vt.

Albany, N. Y., experienced the wettest July since 1871. Much of the precipitation occurred in thunderstorms of cloudburst proportion, and numerous flash floods were reported during the month. The following report of floods occurring on July 22 was received from the Official in Charge, Weather Bureau Office, Albany, N. Y.:

Flash floods occurred in the Lake Section of Rensselaer County in the small streams of Rensselaer and Columbia Counties during the afternoon and evening of July 22, 1945, as a result of intense thundershowers which occurred from the city of Albany eastward during the period from about noon to between 4 and 5 p. m. The greatest official measurement of rain was 5.06 inches at the Mount Lebanon station which is located just south of West Lebanon, but unofficial reports support the belief that much heavier falls occurred elsewhere. There appear to have been at least two areas of intense rainfall: the Burden Lake-Glass Lake-Taborton section and a strip from about Brainard Station on Highway 20 east-northeastward over Stephentown and Hancock toward Lanesboro, Mass. Dry creek beds became raging torrents; lake levels were raised 2 or 3 feet; headwater creeks rose to record heights, washing out bridges, highways, and railroads, and wrecking farmlands. It has been estimated that damage from this storm will approach, if not exceed, $3,500,000, not counting the permanent damage to farmlands nor the current crop damage accurately. Three lives were lost in the floods, two at Hancock, Mass., and one, a child, at Garfield, N. Y.

An intense storm occurred between 7 and 11 p. m. on July 9 in the Easton, Pa.-Phillipsburg, N. J., area. Official measurements record 8.54 inches of rain at Phillipsburg and 6.20 inches at Easton. The storm was accompanied by intense lightning, and large damage from hail and wind was reported in suburban areas. The Monocacy, Bushkill, Catassaqua, and Hokendauqua Creeks overflowed their banks and caused considerable damage by inundation and soil erosion. Rivers in the area did not overflow.

Exceptionally heavy rains in northeastern New Jersey during the period July 15 to 23, and particularly from two storms when the rainfall intensity was the greatest, namely, July 18 and July 22–23, produced new flood records in Pasack Brook, Ramapo River, Saddle River, and Weasel Brook. The Passaic River at Paterson, N. J., reached a stage just exceeding that of the flood of March 1936, but considerably below that of the historic flood of October 1903. However, damage from flooding and washing was far greater than in March 1936.

Flood stages on the larger rivers were exceeded only slightly at a few scattered stations.

Upper Mississippi and Missouri Basins.—Excessive rain occurring in the Root and Whitewater River Valleys on July 20 and 21 caused minor flash floods in those drainage areas, with bankful or flood stages at Houston and Beaver, Minn., on July 21.

The Solomon River overflowed twice at Beloit, Kans., with a crest on July 5 that was only slightly above bankful and a second crest of 27.83 feet, 9.8 feet above bankful, on July 19. There was no resulting overflow of this river at Minneapolis, but Niles reached a crest of 28.25 feet, 4.25 feet above flood stage on July 21. Overflow of the Smoky Hill River occurred below the mouth of the Solo-