U. S. DEPARTMENT OF COMMERCE
SINCLAIR WEEKS, Secretary
WEATHER BUREAU
F. W. REICHELDERFER, Chief

CLIMATOLOGICAL DATA

NATIONAL SUMMARY

JANUARY 1954
Volume 5 No. 1

ASHEVILLE: 1954

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NOTE.--This publication contains all of the climatic data formerly printed in the **MONTHLY WEATHER REVIEW.**

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CLIMATOLOGICAL DATA

NATIONAL SUMMARY

Volume 5 No. 1 JANUARY 1954

GENERAL SUMMARY OF WEATHER CONDITIONS

Nationwide temperature and precipitation averages were about normal, as were also the percentage of sunshine and average speed of the wind in most sections of the Country. Snowfall, unusually heavy in the Northwest, and the Atlantic coastal States from North Carolina to New Jersey, was also above normal in the Central Interior except in an area extending from Illinois and Wisconsin to the Rocky Mountains where amounts were less than half of normal. Severe storms and storm losses for January were less than usual.

The low-temperature record for the United States was broken on the morning of the 20th at Rogers Pass, Mont., with a reading of -69.7°F. The previous record, -66°F., was recorded at Riverside Ranger Station in Yellowstone National Park, February 9, 1933. This is the 11th official reading of -60° or lower in the United States and the fourth such reading in the month of January. Monthly averages, below normal in northern areas east of the Divide were above normal elsewhere. In the Northeast temperatures averaged below normal for the first month since September 1952 and for the first January since 1948. The greatest average departures from normal occurred in the northern Rocky Mountain region, where they ranged from 9° above normal at Boise, Idaho, to 13° below at Havre, Mont. Daily average temperatures at these two stations differed by 62° on the 23d.

In the central and lower Great Plains and upper Mississippi Valley precipitation was not sufficient to materially improve the drought situation that developed during the latter part of 1953. Monthly totals were well above normal near the Canadian Border west of the Great Lakes, along the Pacific Coast, in parts of the far Southwest, and in an area extending from Arkansas eastward to the Atlantic Coast and northeastward through Indiana. Heavy rains the latter part of the month broke the drought that had developed in the Los Angeles area of southern California, and replenished soil moisture and greatly improved water supplies in Kentucky and southern portions of Illinois and Indiana; but they also produced damaging floods in the San Gabriel Mountain district of California and in the southern end of the Appalachian Mountains and surrounding districts.

PRECIPITATION.--In large areas of the upper Mississippi Valley and central and lower Great Plains precipitation was less than 25 percent of normal and in nearly all of this region it was less than 50 percent. Monthly totals generally were less than 0.50 inch in the upper Mississippi Valley, and less than 0.25 inch in the central and lower Great Plains where scattered stations reported no precipitation at all. For Nebraska the average precipitation, 0.09 inch, was the least for January since 1900 and the second lowest on record, and for Iowa 0.26 inch for the month was the third lowest on record. Water supplies continued low in southern Iowa, northwestern Missouri, northeastern Oklahoma, and parts of Kansas. Rainfall was less than 25 percent of normal in much of Florida and adjacent areas of Georgia and Alabama and less than 50 percent in most of the remainder of the Gulf Region, but thanks to the generous rains of December soil moisture remained ample.

In an area extending from Virginia and North Carolina through Tennessee and Arkansas and including parts of several adjoining States and the lower Ohio Valley, precipitation was unusually heavy for January. Raleigh, N. C., had a monthly total of 8.4 inches (a new January record). The highest monthly totals for several of the States in this area were: Coweeta, N. C., 17.12 inches: Haw Nob, Tenn., 16.06: Flat Top, Ga., 16.01: Shoemaker Springs, Ala., 13.31; and Caesars Head, S. C., 12.29 inches. Heaviest rains fell during the periods 14-16th and 20th-22d, with totals for each period ranging from about 1 to 6 inches. These heavy rains resulted in widespread minor to locally severe flooding that caused losses estimated at $315,000 in Alabama, $360,000 in North Carolina, $100,000 in South Carolina, and $116,000 in Georgia.

In Kentucky percipitation that occurred almost daily after the 10th averaged over 5 inches for the State, and individual point values ranged from 2.12 up to 6.05 inches. The statewide average was above normal for the first time since May 1953, and by the end of the month soil moisture had been replenished and water hauling had ceased. In southern Illinois heavy snow on the 9th and 10th and substantial rains on the 14-15th and again on the 20th produced monthly totals ranging from 2 to 6 inches, which were sufficient to relieve the soil moisture shortage continuing from the fall drought of 1953. In Indiana the continued rainfall deficiency during the first 2 or 3 weeks resulted in some of the lowest January river stages in many years and in continued failure of many wells, but after heavy rains on the 20th and 26th wells began furnishing near normal water supplies again.

Precipitation was above normal from northern Minnesota to the Pacific Coast and unusually heavy in the northern Rockies. For Montana the statewide average of 1.42 inches was the third highest on record for January, and monthly station totals ranged up to 11.91 inches at East Glacier, Mont., and 13.41 inches at Burke, Idaho.

In Washington, western Oregon, most of California, southern Nevada and western portions of Utah and Arizona, precipitation was well above normal. Some of the highest monthly totals were: Upper Mattole, Calif., 31.58 inches: Cougar, Wash., 30.69; Illahe, Oreg., 27.11; Alta, Utah, 6.71: Camp Wood, Ariz., 5.14; and Glenbrook, Nev. 3.53 inches. In southern portions of California and Nevada, and western Arizona, ranges were benefited and water supplies improved. In the Los Angeles district of southern California drought conditions were broken by heavy rains that began on the 17th and continued through the 20th, producing totals ranging from 2 to 4 inches in coastal areas and up to 10 inches in the mountains. But they also caused flash floods in the watershed districts of the San Gabriel Mountains where losses were estimated at more than a quarter of a million dollars.

SNOWFALL.--At the beginning of the month the

snow cover east of the Rocky Mountains was limited to extreme northern areas where depths up to 20 inches were reported in northern Minnesota and northern New England. In the far West the mountain snow pack was generally below normal.

Most of the heavy snowfall in the Northwest occurred from the 14th to the 25th. In northern Idaho 24 inches of snow fell at Porthill during the 14th and 15th, and 3- to 4-foot falls were general during the 10-day period beginning the 14th. In western Washington State total snowfall ranged from 15 to 30 inches at lower elevations to over 200 inches in the Cascades, and from 8 to nearly 50 inches in the eastern portion of the State. More than a foot of snow covered most of the eastern wheat belt of this State during the latter half of the month. At Mount Baker Lodge, Wash., heavy snow during the week ending the 25th increased the depth there from 185 to 283 inches. Snowfall in Montana averaged 22 inches, the greatest for any month since 1895. In Oregon the greatest monthly fall, 216 inches, occurred at Crater Lake. In California snowfall was near normal in the Cascades but diminished to less than 40 percent of normal in the southern Sierra Nevadas.

East of the Rocky Mountains snowfall was rather frequent during the second and third decades. On the 10th and 11th snow fell as far south as the northern portions of the Southern States, with heavy falls of 6 to 10 inches occurring along the north Atlantic Coast where depths on the morning of the 11th were 9 inches at Philadelphia, Pa., 6 inches at Providence, R. I., and 11 inches at Boston, Mass. More than a foot fell at some points in the Great Lakes Region during this storm, and the depth at Houghton, Mich., was increased from 14 to 26 inches. Frequent mostly light snow in the North-Central Interior during the remainder of the month increased the accumulation at Houghton, Mich., to 35 inches. Another heavy snowstorm occurred along the Atlantic Coast from North Carolina to New Jersey on the 22d when falls of 10 to 12 inches were reported in eastern Maryland.

Despite the frequent and sometimes heavy snows east of the Rocky Mountains drifting was less than usual and travel was not seriously interrupted. The extent of snowcover at the end of the month was only slightly greater than at the beginning with most of the increase occurring in the northern Great Plains and southern New England and New York.

TEMPERATURE.--January temperatures were unusually low in northern areas from about the 14th to 27th. At Havre, Mont., the temperature remained below zero from the 15th through the 26th and on the 20th it averaged -36° (maximum -28°, minimum -43°) or 52° below normal. On the morning of the 20th, when the National low-temperature record was broken at Rogers Pass and minima were below -50° also at several other stations in Montana, Pembina, N. Dak., recorded -48° and Ralph and Harding, S. Dak., -40°; and on the 21st, Red Lake Falls, Minn., reported -50° and Gordon, Wis., -46°. For the month, average temperatures were below zero at several north-central stations including Munich, N. Dak., -8.2°, Bandette, Minn., -7.3° and Raymond Border Station, Mont., -6.7°.

The low temperatures in northern areas on the 20th extended to the west Coast and subzero minima to the Cascades (Yakima, Wash., -19°), and on the 21st subzero minima extended south to northern Texas (Littlefield -4°). Lowest temperatures in the Great Lakes region occurred on the 17th when Ironwood, Mich., recorded -31°; and at many stations in the Northeast on the 18th when Burlington, Vt., recorded -22°.

Although freezes occurred in most southern areas at least once during the month, they were not responsible for any significant damage. In the far Southwest lowest temperatures occurred generally on the 1st or 14th (Phoenix, Ariz., 29° on the 1st). In the Southeast, cold snaps on the 6-8th and 12-13th brought frost to the Everglades of Florida.

West of a line extending from Chicago, Ill., to El Paso, Tex., highest temperatures occurred either during the first week or the last 3 days, while east of this line they generally were recorded at most stations from the 19th to 27th. The highest temperature of the month was 92° at El Cajon and Yale Ranch, Calif., on the 5th.

DESTRUCTIVE STORMS.--Most of the month's storm losses occurred in the Pacific Northwest where general windstorms, accompanied by snow or rain, on the 2-3d, 21-22d, and 25-27th caused over $500,000 damage, most of it in western Washington and Oregon.

On the 20th tornadoes occurred in Oktibbeha and Lowndes Counties, Miss., resulting in 2 injuries and $13,500 damage.

CONDENSED CLIMATOLOGICAL SUMMARY

Table 1 — JANUARY 1954

Section	Temperature: Average	Departure from normal	Monthly extremes: Station	Highest	Date	Station	Lowest	Date	Precipitation: Average	Departure from normal	Monthly extremes: Station	Greatest	Station	Least
	°F.	°F.		°F.			°F.		In.	In.		In.		In.
Alabama	47.7	+0.8	4 Stations	79	°21	Russellville 2	11	12	4.09	-0.93	Shoemaker Springs	13.31	Tuskegee	0.53
Arizona	43.4	+2.9	5 Stations	85	°7	Maverick	-15	23	1.24	+.25	Camp Wood	5.14	Yuma Valley	.01
Arkansas	41.5	+.3	Camden 1	81	21	2 Stations	-5	°11	6.08	+1.64	Marianna	10.05	Gravette	1.47
California	44.9	+1.1	El Cajon Yale Ranch	92	5	Mount Hebron RS	-11	25	5.60	+1.62	Upper Mattole	31.58	Calexico	.19
Colorado	29.4	+6.1	Eversoll Ranch	76	7	Fraser	-25	11	.49	-.44	Wolf Creek Pass 4W	6.18	3 Stations	T
Connecticut	24.8	-2.3	Cream Hill	58	21	2 Stations	-21	°14	2.25	-1.59	Kent	3.34	Bridgeport WB AP	1.26
Delaware	34.8	-.8	Lewes	69	27	Newark College Farm	-2	18	2.58	-1.00	Lewes	3.58	Middletown 2S	1.51
Florida	61.5	+2.2	2 Stations	88	°20	Blountstown 2SE	25	6	.99	-1.70	Longboat Key	4.04	Port Mayaca S.L. CHL	.00
Georgia	49.9	+1.6	Savannah USDA Pl Gdn	83	21	Blairsville Exp. Sta.	6	13	2.66	-1.40	Flat Top	16.01	Folkston 9SW	.58
Idaho	28.6	+5.1	Nampa 2NW	62	29	Dixie	-30	20	2.81	+.80	Burke 2NNE	13.41	2 Stations	.05
Illinois	29.6	+1.9	2 Stations	67	°8	Stockton	-15	17	1.66	-.67	Glendale Exp. Farm	6.05	Avon	.33
Indiana	30.9	+2.2	Bedford	64	20	Whiting	-10	17	2.80	-.20	Evansville	5.81	Whiting	1.06
Iowa	19.0	-.7	Shenandoah	64	29	Esterville	-26	21	.26	-.75	Keokuk	1.00	Mount Ayr 2N	.00
Kansas	29.9	-.4	Elkhart	74	7	Syracuse	-14	22	.12	-.54	Deerfield 10NNW	.84	Several Stations	T
Kentucky	36.7	+.6	2 Stations	70	°20	Farmers	-14	13	5.32	+.73	Albany	9.74	Greenup Dam 30	2.12
Louisiana	53.2	+1.5	North Livingston	85	20	3 Stations	19	°11	4.07	-1.37	Starks Fire Tower	6.76	Camp Polk	1.68
Maine	14.6	-2.6	Bar Harbor	52	21	Fort Kent	-35	°11	3.06	-.31	Machias	5.14	Fort Kent	1.55
Maryland	34.0	+.4	9 Stations	73	°27	Oakland	-14	18	2.54	-.82	Emittsburg	6.61	Baltimore Sledds Pt.	.26
Massachusetts	24.0	-2.6	Sandwich	58	3	Birch Hill Dam	-25	14	3.02	-.69	Salem Air Sta.	6.11	Westfield	1.87
Michigan	19.9	-.2	2 Stations	53	°20	Ironwood	-31	17	1.64	-.16	Houghton CAA AP	4.20	Watersmeet F. H.	.72
Minnesota	3.8	-5.0	Winona	43	24	Red Lake Falls	-50	21	.79	+.04	Grand Marais	2.47	2 Stations	.04
Mississippi	48.5	+.9	Columbia	82	21	5 Stations	17	°12	5.29	+.05	Pleasant Hill	12.26	Brooklyn 2SE	.89
Missouri	31.9	+1.1	Appleton City	73	8	2 Stations	-12	21	1.73	-.58	New Madrid	6.06	Gallatin	T
Montana	12.2	-6.3	Boyes	69	6	Rogers Pass	-68	20	1.42	+.69	East Glacier	11.91	Argenta	T
Nebraska	23.7	+.5	Bridgeport	69	7	Gordon 1E	-21	°20	.09	-.46	2 Stations	.43	7 Stations	.00
Nevada	33.9	+3.2	North Las Vegas DOX	79	31	Montello	-21	26	.94	-.12	Glenbrook	3.53	Sand Pass	.05
New Hampshire	16.9	-2.4	Fabyan	56	21	Fabyan	-31	18	2.75	-.28	Dublin	6.23	Lakeport 2	1.89
New Jersey	29.7	-1.4	Millville CAA AP	66	27	Long Valley	-15	18	2.07	-1.56	Pleasantville 1N	3.69	Rahway	1.18
New Mexico	37.3	+3.6	Jal	79	25	Gavilan	-24	1	.34	-.28	Bateman Ranch	2.38	3 Stations	.00
New York	19.7	-2.9	New York Laurel Hill	58	26	2 Stations	-31	18	2.74	-.12	2 Stations	6.10	Wolcott	1.17
North Carolina	42.6	+.2	4 Stations	78	21	do	-3	13	6.20	+2.51	Coweeta No. 8	17.12	Whiteville	2.43
North Dakota	-.9	-7.8	Bottinger	55	6	Pembina 2N	-48	21	.71	+.23	Rugby	1.67	Elgin	.08
Ohio	31.0	+1.7	Ironton	66	19	2 Stations	-8	°13	2.53	-.44	Painesville 2N	3.67	Thornville	1.11
Oklahoma	39.0	+1.0	3 Stations	79	°7	Tahlequah	-6	11	1.00	-.55	Clayton	8.48	Alva	T
Oregon	34.2	+2.5	Lacomb 1WNW	68	6	Austin 3S	-22	20	6.54	+2.66	Illahe 1N	27.11	Rome	.06
Pennsylvania	27.4	-1.2	4 Stations	68	°27	Hawley 1S Dam	-22	18	2.10	-1.10	Kregar 4SE	4.72	Selinsgrove CAA AP	.98
Rhode Island	27.2	-2.5	Greenville	55	21	Kingston	-18	18	2.87	-1.14	Block Island WB AP	3.17	Austin	2.38
South Carolina	47.6	+1.3	Yemassee 4W	83	22	Caesars Head	5	13	3.44	+.01	Caesars Head	12.29	Beaufort 7SW	.70
South Dakota	13.4	-3.7	Rapid City	66	6	2 Stations	-40	°20	.19	-.36	Belle Fourche 25NNE	.65	11 Stations	T
Tennessee	40.3	+.8	Memphis WB AP	73	20	Greenville Exp. Sta.	0	13	9.85	+4.72	Haw Knob	16.06	Kenton	5.52
Texas	49.2	+2.2	3 Stations	90	20	Littlefield	-4	21	1.02	-.58	Naples 5NE	5.78	7 Stations	.00
Utah	30.3	+5.5	Zion NP	71	31	Snowville	-18	26	1.24	+.07	Alta	6.71	Hanksville CAA AP	T
Vermont	13.9	-4.0	Readsboro 1SSE	57	21	Enosburg Falls	-34	18	2.79	.00	Peru	4.98	2 Stations	1.91
Virginia	37.2	+.5	Culpeper	75	27	Berryville	-11	23	4.04	+.73	Rose Hill	9.13	do	1.49
Washington	29.7	-1.1	3 Stations	62	6	Cheasaw	-29	20	7.08	+2.71	Cougar 5E	30.69	do	.73
West Virginia	33.8	+.7	Moorefield	73	26	Hamlin	-12	13	3.30	-.37	Kumbrabow St. For.	6.40	Martinsburg CAA AP	.95
Wisconsin	14.4	+.1	4 Stations	45	°2	Gordon 2ESE	-46	21	.71	-.53	Brule Ranger Sta.	E1.97	Neillsville	.11
Wyoming	24.2	+5.6	Torrington Exp. Farm	69	31	Rockypoint 1E	-37	20	.74	-.10	Snake River	6.24	2 Stations	.00
Puerto Rico	73.1	+.4	Dos Bocas	93	1	Utuado	50	20	2.61	-.58	Rio Blanco (1800 Ft. Elev.)	13.54	Coamo Dam (5)	.00

° Other dates also.
E Water equivalent of snowfall wholly or partly estimated, using a ratio of 1 inch of water equivalent to every 10 inches of new snowfall.

Note: Dates in Table 1 apply to the period 24 hours prior to time of observation. In some cases the actual occurrence is on the calendar date preceding that shown. (See individual Climatological Data for times of observations).

CLIMATOLOGICAL DATA

Table 2

JANUARY 1954

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	Precipitation: No. of days: 0.1 inch or more	Precipitation: No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
ALABAMA																																
Birmingham	610	997.0	1022.6	58	35	46.2	+1.0	73	20	23	13	0	16	37	73	6.35	+1.37	3.19	10	3	T	T	6.5	S	31	SW	15	5	6	20	7.0	45
Mobile	10	1015.2	1023.3	64	43	53.5	+.8	73	27	29	13	0	5	46	79	1.18	-3.67	.39	9	0	.0	0	11.2	N	--	---	--	8	9	14	6.6	--
Montgomery CO	201	------	------	61	41	50.9	+.6	76	21	27	13	0	4	--	--	.83	-3.78	.40	7	--	T	T	----	---	--	---	--	--	--	--	---	--
Montgomery	198	1015.2	1022.9	62	38	49.9	+.7	78	21	26	12	0	8	41	75	.72	-3.88	.39	5	0	T	T	8.5	NW	30	S	15	5	9	17	6.7	50
ARIZONA																																
Flagstaff	6993	------	------	44	13	28.5	+3.2	56	4	-5	14	0	30	--	--	1.97	+.28	.97	6	0	28.3	15	----	---	--	---	--	10	6	15	6.2	--
Phoenix	1114	977.7	1017.3	66	38	52.3	+2.6	81	31	29	1	0	4	35	58	.88	+.28	.67	4	0	.0	0	3.9	E	*20	SSE	12	13	5	13	5.1	84
Prescott	5014	847.3	1018.9	52	25	38.5	+3.2	66	31	15	1	0	28	19	54	1.45	+.35	.65	5	0	7.7	2	5.6	SW	26	SE	11	11	8	14	5.5	65
Tucson	2558	927.2	1016.5	68	39	53.5	+3.8	79	5	31	4	0	3	23	38	.78	+.15	.48	3	0	.0	0	5.8	SE	31	SE	31	15	9	15	5.6	81
Winslow	4880	852.7	1020.0	50	22	35.8	+3.1	63	31	-5	1	0	29	23	61	.28	-.09	.25	2	0	2.9	2	5.4	SE	*42	SW	25	9	6	16	5.9	--
Yuma	199	1011.5	1016.6	71	42	56.6	+1.3	85	31	32	1	0	1	29	41	.05	-.28	.03	2	0	.0	0	8.8	N	26	N	9	13	11	7	4.2	86
ARKANSAS																																
Fort Smith	458	1004.4	1021.7	51	28	39.2	-.8	71	7	5	11	0	22	30	75	4.87	+1.98	2.19	9	3	6.3	4	9.1	NE	28	SW	8	8	8	15	6.3	39
Little Rock	257	1008.5	1022.0	52	32	41.8	.0	72	20	17	11	0	16	33	72	7.76	+2.64	2.32	11	3	4.0	3	9.2	S	31	SW	20	7	5	19	7.1	34
Texarkana	361	1008.1	1021.8	57	37	46.3	+.9	80	20	19	22	0	9	39	75	4.31	-.31	1.28	11	5	.6	T	----	---	--	---	--	8	3	20	7.2	--
CALIFORNIA																																
Bakersfield	489	1001.7	1020.0	60	37	48.5	+1.6	71	6	31	10	0	2	38	70	1.86	+.84	1.09	5	0	.0	0	3.2	ENE	*25	WNW	24	8	8	15	6.3	--
Bishop	4108	873.7	1016.6	55	21	38.0	+.1	67	7	11	2	0	30	--	--	1.68	+.56	1.64	3	0	T	0	----	---	--	---	--	8	10	13	5.7	--
Blue Canyon	5280	837.5	1017.3	41	29	34.9	-1.3	63	31	20	25	0	25	--	--	11.18	+2.01	4.17	13	0	60.0	29	----	---	--	---	--	6	2	23	7.8	--
Burbank	699	991.5	1017.8	64	42	52.9	+.3	87	31	33	16	0	0	39	66	4.47	+2.12	2.34	9	1	.0	0	3.2	S	*19	SSE	19	12	5	14	5.8	--
Eureka CO	43	1014.9	1017.3	53	42	47.0	-.2	65	29	30	25	0	1	--	--	11.78	+5.58	2.06	21	0	.0	0	8.1	---	31	SE	27	1	7	23	8.6	25
Fresno	331	1006.8	1019.0	58	36	46.7	+2.0	72	6	27	14	0	9	39	77	1.80	+.23	1.16	5	0	.0	0	5.2	SE	20	E	17	5	10	16	6.8	61
Los Angeles CO	312	------	------	64	47	55.6	+.6	86	31	41	1	0	0	42	76	4.60	+2.22	1.52	9	1	.3	T	6.2	---	31	E	12	10	7	14	5.5	68
Los Angeles	99	1013.9	1017.7	62	45	53.5	+.3	86	31	40	3	0	0	45	65	4.78	+2.77	1.56	9	1	T	T	5.5	W	†43	SE	19	10	6	15	5.9	--
Mt. Shasta	3543	891.8	1017.6	40	28	33.7	+.9	54	5	6	25	0	25	--	--	12.42	+7.88	3.36	18	0	74.0	34	----	---	--	---	--	3	1	27	8.7	--
Oakland	3	1019.0	1019.3	55	42	48.5	+1.3	62	30	32	25	0	1	42	79	2.85	-.45	1.42	12	0	T	T	5.6	SSE	*32	SSE	17	3	11	17	7.2	--
Red Bluff	341	1005.4	1018.2	53	38	45.6	+.5	67	30	28	25	0	6	38	75	3.55	-.18	1.03	14	0	.0	0	11.7	SSE	50	SE	17	7	4	20	7.5	43
Sacramento	17	1018.0	1018.8	55	38	46.4	+2.1	61	11	26	25	0	4	40	79	2.67	+.01	1.70	10	0	.0	0	9.4	SE	60	SE	17	7	6	18	7.0	38
Sandberg CO	4517	862.9	1018.1	47	34	40.2	+.4	62	6	25	13	0	12	25	62	4.90	+2.60	2.37	7	1	18.0	12	17.2	ENE	--	---	--	8	11	12	5.8	--
San Diego	19	1014.6	1017.7	63	47	55.0	+.1	73	5	42	1	0	0	45	73	2.76	+1.07	.82	8	1	.0	0	5.8	NE	31	S	19	13	5	13	5.3	66
San Francisco CO	52	------	------	56	47	51.5	+1.4	62	13	41	24	0	0	--	--	3.11	-.92	1.20	14	0	.0	0	7.1	---	32	S	17	6	6	19	7.2	47
San Francisco	1	1018.3	1019.0	56	43	49.5	+1.6	62	29	31	25	0	1	44	81	3.07	-.40	1.63	14	0	.0	0	8.1	WNW	48	S	17	3	11	17	7.5	--
Santa Maria	231	1010.2	1018.9	60	39	49.6	-.8	82	31	29	1	0	3	41	76	3.34	+.63	1.25	9	0	.0	0	7.9	E	*30	NNE	31	9	8	14	6.1	--
COLORADO																																
Alamosa	7534	771.1	1023.7	38	5	21.6	+4.7	50	29	-10	1	0	31	--	--	.28	+.05	.20	5	0	5.2	3	----	---	--	---	--	9	17	5	4.9	--
Colorado Springs	6175	808.3	1018.0	49	22	35.4	+6.6	65	31	-1	21	0	29	12	44	.22	.00	.14	4	0	2.6	2	10.5	SE	*46	NW	2	11	7	13	5.5	--
Denver	5292	835.1	1015.8	50	22	36.3	+7.6	70	31	1	20	0	26	15	49	.23	-.27	.19	4	0	2.7	2	10.2	S	28	W	18	9	8	14	6.1	67
Grand Junction	4849	861.5	1021.6	43	22	32.7	+8.7	58	30	10	1	0	30	21	65	.35	-.25	.29	4	0	3.0	2	5.5	ESE	35	NW	25	4	11	16	7.2	51
Pueblo	4799	855.4	1017.8	53	21	36.6	+7.2	69	6	-1	13	0	28	19	56	.28	-.10	.26	3	0	3.8	3	8.4	W	37	W	23	8	9	14	5.7	74
CONNECTICUT																																
Bridgeport	7	1019.0	------	36	20	27.6	-1.6	50	21	-1	18	0	28	--	--	1.26	-2.17	.35	13	1	11.1	6	----	---	--	---	--	7	9	15	6.8	--
Hartford	15	1013.9	1020.0	33	16	24.5	-2.5	51	26	-11	18	0	30	15	69	2.06	-1.68	.51	16	1	17.1	8	8.0	NNW	31	SW	30	6	4	21	7.5	34
New Haven	6	1014.9	1019.3	34	19	26.4	-2.7	50	21	-1	14	0	27	--	--	2.51	-1.38	.64	15	0	18.1	10	8.0	---	26	N	11	5	9	17	7.1	45
DELAWARE																																
Wilmington	73	1017.3	1020.3	40	23	31.3	-2.0	64	27	2	18	0	27	22	70	1.71	-1.85	.60	11	1	11.5	8	9.4	WNW	--	---	--	7	6	18	6.9	--
DIST. OF COLUMBIA																																
Washington CO	72	------	------	44	28	36.1	-.4	72	27	12	23	0	23	--	--	3.01	-.40	1.18	11	0	12.8	7	----	---	35	W	28	--	--	--	---	--
Wash. Nat'l AP	14	1016.6	1020.8	44	28	35.9	-.3	72	27	13	23	0	25	25	68	2.30	-.94	.84	11	0	11.3	6	10.8	SSW	47	W	28	6	9	16	6.6	48
FLORIDA																																
Apalachicola CO	13	1021.0	1022.4	62	48	54.8	-.4	71	3	34	12	0	0	--	--	.85	-2.76	.48	6	0	.0	0	7.5	---	26	S	5	7	15	9	5.7	46
Daytona Beach	31	1021.0	1022.5	71	50	60.8	+1.3	82	21	34	12	0	0	52	80	.37	-1.73	.25	7	0	.0	0	10.5	NNW	*28	SW	22	6	13	12	6.2	--
Fort Myers	15	1021.0	1021.7	77	53	64.8	+.2	86	21	38	12	0	0	55	79	.30	-1.22	.26	3	0	.0	0	7.4	E	*20	WNW	6	11	11	9	4.9	--
Jacksonville CO	18	------	------	68	49	58.1	+.8	80	21	33	13	0	0	--	--	.77	-2.05	.40	8	--	.0	0	----	---	--	---	--	--	--	--	---	--
Jacksonville	24	1022.4	1023.1	68	45	56.7	+.8	80	21	32	13	0	1	47	76	.85	-1.83	.67	7	0	.0	0	8.4	NW	39	W	11	7	10	14	6.4	46
Key West CO	9	1019.3	1020.0	78	66	71.8	+1.0	83	21	56	12	0	0	64	81	.33	-1.21	.33	1	0	.0	0	8.0	N	19	NE	14	22	8	1	3.3	76
Lakeland CO	214	------	------	73	53	62.7	+.7	83	21	39	12	0	0	--	--	.68	-1.48	.55	3	1	.0	0	6.6	---	--	---	--	9	11	11	5.4	65
Miami CO	8	------	------	75	63	68.8	+.3	83	16	44	12	0	0	--	--	.60	-1.55	.41	6	1	.0	0	12.4	---	30	SE	19	9	21	1	4.5	78
Miami	8	1019.6	1020.8	77	61	69.1	+.8	85	16	44	12	0	0	59	73	.49	-1.57	.31	4	1	.0	0	10.1	SE	*24	S	10	9	19	3	4.9	--
Miami Beach	9	------	------	76	66	70.8	+.8	84	16	46	12	0	0	--	--	.75	-1.29	.69	6	--	.0	0	----	---	--	---	--	11	5	15	---	--
Orlando	106	1018.0	1022.4	73	51	61.9	.0	83	22	37	12	0	0	54	80	.45	-1.60	.31	3	1	.0	0	9.3	N	*40	W	11	6	14	11	5.7	--
Pensacola CO	13	1020.3	------	63	45	54.1	+.1	78	27	32	13	0	2	--	--	1.89	-2.66	.89	7	2	.0	0	7.5	---	31	NW	10	5	11	15	6.6	52
Pensacola CAA AP	118	------	------	--	--	-----	-----	--	--	--	--	--	--	46	--	----	-----	----	--	--	----	--	9.6	NNW	--	---	--	--	--	--	---	--
Tallahassee	64	1020.0	1022.5	67	43	54.9	+1.3	79	27	32	13	0	4	45	75	.79	-3.06	-.38	6	1	.0	0	5.3	NNW	--	---	--	7	13	11	5.9	--
Tampa	19	1021.0	1022.3	73	52	62.4	+.9	81	21	39	13	0	0	53	77	.99	-1.00	.53	6	0	.0	0	9.3	N	*32	WNW	11	9	12	10	5.4	73
West Palm Beach	15	1020.0	1020.8	77	60	68.2	+1.2	84	16	43	12	0	0	59	75	1.59	-.89	.81	9	1	.0	0	11.1	E	*35	WSW	11	6	15	10	5.8	--
GEORGIA																																
Albany	190	1015.6	1022.7	65	41	53.1	+1.7	79	20	28	13	0	6	42	71	.89	-3.37	.45	6	0	.0	0	4.7	NW	--	---	--	8	9	14	6.4	--
Atlanta CO	1054	------	------	54	36	44.9	+.3	68	27	19	13	0	11	--	--	4.58	+.05	1.94	6	0	T	0	----	---	--	---	--	--	--	--	---	--
Atlanta	977	980.0	1023.0	55	35	45.2	+.6	69	27	21	13	0	14	36	76	3.73	-.94	1.90	7	2	T	0	11.4	NW	35	S	16	9	9	13	6.2	45
Athens	798	993.6	------	55	35	45.1	+.4	72	27	22	13	0	12	--	--	3.11	-1.90	2.02	9	2	T	0	----	---	--	---	--	9	8	14	6.0	--
Augusta	143	1015.6	1022.2	61	36	48.3	-.4	74	21	24	2	0	15	39	74	1.89	-1.57	.72	9	0	.0	0	6.5	WNW	*28	W	11	7	7	17	6.8	--
Columbus	385	1008.1	1022.7	61	37	49.2	+1.8	75	21	24	1	0	13	--	--	.87	-3.71	.35	6	0	.0	0	----	---	--	---	--	8	9	14	6.1	--
Macon	356	------	1022.0	63	38	50.4	+.9	79	21	27	13	0	10	38	68	.69	-3.32	.29	5	0	.0	0	9.7	WNW	37	SW	16	8	9	14	6.2	58
Rome	637	999.0	1023.0	55	31	42.8	+.1	70	27	18	13	0	20	--	--	9.45	+3.90	4.15	11	3	.5	5	----	---	--	---	--	7	9	15	6.6	--
Savannah	48	1020.0	1022.5	65	41	53.1	+1.0	81	21	27	13	0	7	44	76	1.10	-1.35	.55	7	0	.0	0	8.6	WSW	32	W	11	9	9	13	6.0	54
Valdosta	200	1014.2	1022.6	67	43	54.9	+1.3	80	19	29	13	0	5	46	--	1.24	-2.38	.93	7	0	.0	0	8.2	NW	--	---	--	7	12	12	5.8	--
IDAHO																																
Boise	2842	919.4	1017.2	44	29	36.5	+9.2	56	28	13	20	0	22	28	71	1.09	-.24	.36	14	0	2.2	1	11.7	SE	45	SW	17	3	5	23	8.4	31
Lewiston	1413	962.1	1014.9	40	26	32.6	+1.8	52	7	-10	20	0	20	--	--	.94	-.11	.23	16	0	6.5	3	----	---	--	---	--	1	7	23	8.6	--
Pocatello	4444	861.2	1018.3	39	22	30.4	+8.4	51	5	-4	25	0	28	23	72	.83	-.38	.38	11	0	5.3	5	13.5	SW	45	S	17	0	4	27	8.9	17
ILLINOIS																																
Cairo CO	314	1008.8	------	45	29	36.8	-.6	67	20	11	12	0	20	--	--	4.87	+.39	1.54	11	3	4.0	4	9.9	---	30	SW	8	6	9	16	6.8	44
Chicago	610	997.3	1021.2	35	20	27.7	+2.8	53	20	-7	17	0	29	18	69	1.10	-.74	.69	7	0	1.9	1	12.3	NW	31	NW	9	4	3	24	7.9	38
Moline	589	998.6	1022.1	33	14	23.3	+.1	47	1	-8	17	0	31	16	73	.34	-1.16	.23	3	1	1.4	1	10.0	NW	34	NW	11	8	8	15	6.5	45
Peoria	654	998.3	1021.7	36	19	27.4	+2.4	53	20	-4	17	0	31	20	74	.89	-1.08	.57	4	2	.1	T	11.9	---	32	NW	6	4	10	17	7.3	41
Springfield	587	998.3	1022.3	39	21	29.7	+2.3	57	20	1	12	0	30	22	74	.85	-1.18	.43	4	2	T	T	14.8	NW	30	N	21	4	6	19	7.2	38
INDIANA																																
Evansville	383	1006.4	1022.8	43	26	34.2	-.5	61	20	3	12	0	23	28	75	4.96	+1.03	2.07	10	2	5.0	3	12.0	NW	34	SW	2	8	3	20	6.9	39
Fort Wayne	801	988.2	1020.3	36	21	28.4	+2.1	54	2	3	13	0	30	23	80	2.54	.00	1.14	11	0	5.8	3	14.2	WNW	40	W	27	4	6	21	7.7	29
Indianapolis	793	990.9	1021.5	39	22	30.8	+2.0	60	20	1	12	0	27	23	74	3.40	+.25	1.44	13	3	5.7	3	12.6	NW	40	SW	20	6	5	20	7.5	41
South Bend	768	991.5	1020.5	34	19	26.6	+2.0	52	20	-2	17	0	29	21	81	1.63	-.37	.74	15	0	14.5	6	12.6	SSW	*30	NNW	20	2	7	22	8.3	--

See footnotes at end of table.

CLIMATOLOGICAL DATA

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Average minimum	Average	Departure from normal	Highest	Date	Lowest	Date	No. of days: Max. 90° F. or above	Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Departure from normal	Greatest in 24 hours	No. of days: .01 inch or more	With thunderstorms	Snow, Sleet, Hail: Total	Max. depth on ground	Wind: Average hourly speed	Prevailing direction	Fastest mile: Speed	Direction	Date	No. of days (sunrise to sunset): Clear	Partly cloudy	Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
INDIANA (Cont.)																																
Terre Haute	578	1000.0	1021.8	40	23	31.1	+1.8	60	20	2	12	0	28	24	76	2.90	-0.10	1.52	7	3	1.8	2	10.1	S	34	NW	26	7	4	20	7.4	34
IOWA																																
Burlington	694	995.3	1022.2	34	15	24.6	+.6	50	°1	-7	17	0	31	16	72	.66	-1.08	.41	5	1	1.0	1	11.7	NW	32	NW	°11	10	7	14	6.5	62
Des Moines	948	989.2	1022.7	31	8	19.6	-2.5	55	29	-14	21	0	31	10	67	.07	-1.16	.03	4	0	.4	T	14.1	NNW	42	N	20	6	9	16	6.7	52
Dubuque	1065	980.7	1022.1	28	9	18.7	-.7	40	1	-15	17	0	31	14	78	.68	-.69	.37	6	0	3.8	4	----	---	--	---	--	5	9	17	7.1	--
Sioux City	1094	979.0	1022.7	28	4	16.0	-3.1	55	1	-17	21	0	31	5	65	.24	-.50	.14	4	0	2.9	2	11.0	NNW	32	NW	9	5	9	17	6.9	57
KANSAS																																
Concordia CO	1375	969.2	------	38	15	26.4	-1.7	65	29	-8	21	0	31	--	58	.08	-.51	.07	2	0	1.0	1	8.0	---	31	N	20	11	9	11	5.5	63
Dodge City	2594	930.2	1020.5	44	19	31.3	+1.0	65	31	-1	21	0	30	18	66	.20	-.29	.12	3	0	2.3	1	13.4	S	49	NE	20	10	8	13	5.8	64
Goodland	3645	887.6	1018.6	41	17	29.1	+3.3	65	6	-3	21	0	31	19	73	.20	-.11	.12	4	0	2.4	2	10.7	WSW	*35	NNW	2	10	8	13	5.8	--
Topeka	879	984.8	1022.4	39	16	27.6	-1.1	62	8	-5	21	0	31	15	61	.06	-1.01	.03	3	0	.4	T	9.5	NNW	40	N	20	7	10	14	6.3	50
Wichita	1322	971.6	1021.1	42	19	30.7	-1.3	65	7	-1	21	0	30	19	68	.09	-.96	.07	3	0	.8	1	13.7	S	47	N	20	7	9	15	6.2	68
KENTUCKY																																
Lexington	979	985.1	1021.9	44	27	35.3	+2.8	58	°19	-3	12	0	24	28	77	4.16	-.34	1.33	10	1	4.8	4	15.1	SSE	--	---	--	6	6	19	7.4	--
Louisville CO	457	------	------	44	28	36.0	+.4	61	8	6	12	0	22	--	--	4.15	+.08	1.80	10	2	4.4	3	----	---	--	---	--	--	--	--	---	--
Louisville	474	1004.7	1021.4	45	27	36.0	+1.1	60	20	2	°13	0	23	28	74	4.21	+.11	1.55	10	2	5.3	3	9.9	S	34	SW	9	7	5	19	7.2	41
LOUISIANA																																
Baton Rouge	64	1018.6	1021.7	66	43	54.3	+1.9	80	20	30	1	0	4	47	78	4.69	-.80	1.72	7	2	.0	0	9.8	SE	--	---	--	6	6	19	6.9	--
Lake Charles	12	1020.3	1021.8	65	46	55.2	+2.6	75	19	30	°11	0	2	49	81	2.26	-2.56	.99	7	2	.0	0	8.5	SE	--	---	--	5	5	21	7.6	--
New Orleans CO	9	1020.0	------	66	48	56.8	+.9	81	20	34	11	0	0	--	--	3.76	-1.02	1.77	9	2	.0	0	6.6	---	22	NW	11	6	6	19	7.1	49
New Orleans	3	1020.0	1022.2	65	46	55.4	+.5	80	20	32	1	0	1	48	78	3.96	-.72	1.48	7	3	.0	0	9.8	S	*29	NW	11	7	9	15	6.6	--
Shreveport	252	1012.2	1021.9	59	39	49.3	+1.5	81	20	19	22	0	7	41	76	3.82	-.90	1.12	9	2	T	T	10.2	S	--	---	--	6	5	20	7.3	36
MAINE																																
Caribou	624	993.9	1018.5	16	-4	6.5	-2.2	38	6	-26	23	0	31	2	79	1.59	-.65	.53	13	0	23.8	16	11.7	NW	*40	NW	17	8	8	15	6.6	--
Portland	61	1014.2	1018.1	27	8	17.9	-2.8	48	21	-19	18	0	31	13	78	2.63	-1.80	.93	11	0	27.4	11	9.8	N	35	NW	8	7	4	20	7.2	48
MARYLAND																																
Baltimore CO	14	------	------	44	29	36.7	+.1	73	27	16	23	0	23	--	--	1.84	-1.82	.70	8	--	----	--	----	---	--	---	--	--	--	--	---	--
Baltimore	146	1016.3	1021.0	42	24	33.0	-1.2	70	27	6	18	0	26	23	69	2.02	-1.64	.62	10	1	13.7	6	10.1	WNW	60	W	28	6	9	16	6.5	52
Frederick	294	------	------	39	22	30.6	-2.1	69	27	5	18	0	28	--	--	1.10	-1.76	.35	8	--	11.8	8	----	---	--	---	--	--	--	--	---	--
MASSACHUSETTS																																
Blue Hill Obs.	636	993.5	------	31	15	22.8	-3.1	51	26	-4	18	0	31	--	72	4.06	-.02	.93	16	1	28.1	13	15.8	WNW	44	NW	17	7	8	16	6.9	33
Boston	15	1012.5	1016.9	34	19	26.0	-3.1	53	°26	3	18	0	28	16	67	3.26	-.24	.87	18	1	19.2	11	13.5	NW	43	NW	17	4	7	20	7.2	44
Nantucket	43	1016.9	1017.5	39	25	31.8	-.3	50	°6	9	14	0	27	26	79	5.10	+1.23	1.45	19	1	11.0	6	14.3	WNW	38	NW	17	5	7	19	7.6	36
Pittsfield	1153	973.9	1018.3	28	10	19.0	-2.2	49	°26	-17	18	0	31	--	--	2.93	-.17	.72	16	0	23.4	10	----	---	--	---	--	5	5	21	7.5	--
MICHIGAN																																
Alpena CO	587	997.0	------	26	12	19.2	-2.0	37	2	-1	17	0	31	--	--	1.37	-.29	.37	7	0	17.4	9	10.9	---	38	NW	30	5	7	19	7.5	35
Detroit	619	992.9	1020.4	33	20	26.1	-.1	51	20	6	17	0	29	20	77	1.68	-.40	.66	12	0	6.0	3	11.9	N	37	NW	30	4	5	22	8.0	32
Escanaba CO	594	997.0	------	24	9	16.7	-.8	35	2	-16	17	0	31	--	--	1.22	-.31	.42	17	0	20.9	19	10.8	---	38	N	°2	6	6	19	7.1	41
Grand Rapids	681	993.9	1020.3	31	16	23.5	.0	48	26	-4	28	0	30	20	82	1.69	-.21	.61	11	0	23.7	7	10.8	ESE	29	NE	26	2	6	23	8.6	21
Lansing	859	987.5	1020.8	30	16	23.2	-.6	48	26	-2	28	0	31	18	78	1.61	-.26	.96	10	0	12.1	7	13.2	SSE	47	W	30	3	9	19	8.0	30
Marquette CO	677	992.2	------	23	11	17.3	-1.4	36	24	-11	17	0	31	--	--	1.69	-.48	.32	20	0	19.4	16	9.3	---	29	S	23	4	4	23	8.3	27
Muskegon	627	996.3	1020.3	31	16	23.6	-1.3	44	2	-1	28	0	30	18	75	2.05	+.10	.58	16	0	33.9	10	----	---	--	---	--	3	2	26	8.6	--
Sault Ste. Marie	721	997.3	1021.1	19	3	11.2	-2.6	34	24	-16	°10	0	31	7	82	1.34	-.82	.26	17	0	17.9	21	10.2	E	36	NW	°1	4	4	23	7.9	31
Ypsilanti	722	990.9	1020.2	33	18	25.4	+.1	52	2	3	13	0	30	20	77	1.74	-.06	.73	10	0	5.9	3	10.9	SW	*30	WNW	30	3	8	23	8.2	--
MINNESOTA																																
Duluth	1409	977.3	1021.3	14	-6	3.9	-4.4	32	4	-33	17	0	31	-2	73	1.45	+.22	.36	17	0	23.0	22	13.0	NNW	42	NE	2	6	7	18	7.3	43
Intern'l Falls	1179	975.6	1023.2	7	-16	-4.6	-7.6	28	°3	-41	21	0	31	-12	64	1.39	+.50	.39	20	0	23.1	26	9.2	---	--	---	--	8	7	16	8.8	--
Minneapolis	830	987.1	1022.9	20	1	10.3	-4.3	36	°1	-25	17	0	31	3	72	.25	-.55	.09	8	0	3.6	2	11.4	SSE	37	W	9	5	10	16	6.9	40
Rochester	1017	982.4	1022.0	23	1	11.9	-2.4	38	°1	-25	17	0	31	5	70	.49	-.44	.28	5	0	5.1	3	12.1	NW	--	---	--	5	7	19	7.3	--
St. Cloud	1034	981.7	1022.4	15	-8	3.5	-7.0	36	4	-33	17	0	31	-3	71	.49	-.26	.10	8	0	7.8	11	7.4	NW	--	---	--	9	4	18	6.8	--
MISSISSIPPI																																
Jackson	315	1009.8	1022.1	60	39	49.6	+1.3	77	20	26	°13	0	9	40	75	4.87	-.22	1.70	8	2	T	T	9.6	S	42	SW	20	9	2	20	7.1	40
Meridian	294	1008.8	------	61	37	48.6	+1.1	76	20	25	°12	0	13	--	--	4.11	-.98	1.40	9	3	.0	0	----	---	--	---	--	8	6	17	6.4	--
Vicksburg CO	234	1012.5	------	60	41	50.8	+1.6	77	20	26	°13	0	7	--	--	4.65	-.79	1.41	11	2	T	0	9.6	---	34	N	10	4	6	21	7.6	33
MISSOURI																																
Columbia	778	991.9	1021.5	40	21	30.3	+.5	63	8	1	°12	0	28	20	67	1.01	-.79	.52	5	2	1.5	2	10.5	S	33	NW	15	10	5	16	6.4	56
Kansas City	741	985.8	1022.2	39	19	29.3	-.7	62	8	-3	21	0	29	17	64	.05	-1.38	.03	3	1	1.1	1	9.4	NW	38	S	18	8	8	15	6.2	46
St. Joseph	809	985.4	1022.1	37	14	25.4	-1.7	59	29	-7	21	0	31	13	61	.07	-1.08	.03	5	1	.4	T	11.5	---	43	N	20	8	11	12	6.1	58
St. Louis CO	465	1000.7	------	43	25	33.9	+.6	65	8	5	12	0	24	--	--	1.51	-.81	.85	5	2	.5	T	12.2	---	35	S	23	9	7	15	6.4	50
St. Louis	552	1000.7	1021.8	42	23	32.7	+.5	64	8	3	12	0	26	23	70	1.23	-.69	.63	5	2	.5	T	10.2	S	--	---	--	10	4	17	6.6	--
Springfield	1265	971.9	1021.1	44	23	33.8	+1.1	68	7	5	12	0	27	24	72	1.64	-.67	.75	12	3	2.8	2	13.8	SSE	40	W	°4	8	4	19	6.8	43
MONTANA																																
Billings	3568	889.3	1018.7	29	6	17.5	-5.4	60	7	-27	20	0	28	6	63	1.24	+.71	.60	10	0	20.2	12	11.2	SW	48	NW	3	4	8	19	7.7	50
Glasgow CO	2090	942.8	1022.7	11	-9	1.0	-9.7	47	6	-49	20	0	31	-7	66	1.20	+.80	.37	12	0	20.1	13	----	---	--	---	--	3	5	23	8.1	--
Great Falls	3664	885.9	1019.6	20	1	10.2	-12.5	55	6	-33	20	0	29	1	70	1.23	+.68	.47	11	0	15.5	11	13.7	SW	59	SW	°1	6	4	21	7.7	39
Havre CO	2488	926.9	1022.0	13	-6	3.3	-12.9	53	5	-43	20	0	28	--	--	.82	+.36	.24	10	0	14.0	11	7.3	---	38	SW	3	6	5	20	7.5	33
Helena	3893	870.3	1019.1	27	5	16.2	-1.4	54	22	-36	20	0	31	6	66	1.26	+.75	.44	10	0	24.2	13	7.8	W	48	SW	1	5	6	20	7.7	42
Kalispell	2965	------	------	29	14	21.1	+.8	47	6	-22	20	0	30	--	--	2.74	+1.42	.58	17	0	32.8	16	----	---	--	---	--	1	5	25	8.9	--
Miles City	2629	949.9	1021.6	21	-2	9.8	-6.3	53	6	-36	20	0	30	5	--	.47	.00	.31	6	0	7.4	7	10.2	NE	--	---	--	5	8	18	7.3	--
Missoula	3200	898.7	1017.0	31	16	23.4	+4.0	45	7	-12	20	0	31	18	79	2.21	+1.40	.71	20	0	24.2	14	6.2	E	35	E	15	1	5	25	8.8	22
NEBRASKA																																
Grand Island	1841	952.3	1021.8	33	10	21.3	-1.7	56	31	-12	21	0	31	11	68	.27	-.31	.18	3	0	2.8	2	11.7	N	--	---	--	7	7	17	6.7	--
Lincoln CO	1184	------	------	34	10	22.0	-3.0	58	31	-12	21	0	31	--	--	.15	-.67	.07	4	0	1.8	1	9.3	---	39	NW	2	--	--	--	---	59
Lincoln	1180	------	------	34	8	20.6	-3.4	59	31	-12	21	0	31	7	--	.12	-.59	.03	4	0	1.8	1	11.3	N	--	---	--	6	11	14	6.4	--
Norfolk	1544	964.1	1022.8	29	5	16.9	-2.4	55	°1	-17	21	0	31	7	65	.15	-.64	.09	2	0	2.1	1	----	---	--	---	--	7	7	17	6.9	--
North Platte	2779	916.7	1020.0	37	12	24.5	+.5	63	31	-6	20	0	31	14	70	.10	-.29	.04	3	0	1.8	1	10.2	SSE	42	N	20	7	8	16	6.3	55
Omaha	978	980.7	1022.9	32	7	19.6	-3.4	55	°1	-14	21	0	31	10	68	.24	-.61	.14	4	0	2.8	2	13.2	NNW	47	N	20	5	14	12	6.2	62
Scottsbluff	3950	853.0	1017.9	44	14	29.1	+5.6	65	6	-8	20	0	31	13	55	.02	-.31	.02	1	0	.5	T	10.4	WNW	--	---	--	6	6	19	7.1	--
Valentine CO	2581	924.1	------	36	10	22.6	+1.5	63	6	-17	20	0	31	--	--	.05	-.51	.04	2	0	.9	1	6.7	---	29	NW	2	5	11	15	6.7	63
NEVADA																																
Elko	5075	843.9	1019.3	38	13	25.6	+3.7	48	16	-13	26	0	30	18	75	.65	-.42	.45	4	0	6.7	5	5.3	SW	*36	WNW	3	3	5	23	8.3	--
Ely	6257	807.3	1020.7	41	13	27.2	+4.2	57	5	-5	25	0	31	16	64	.94	.00	.67	4	0	10.9	6	12.9	---	37	S	17	5	7	19	7.3	56
Las Vegas	2162	950.9	1017.2	58	33	45.3	+1.1	73	31	21	°1	0	13	25	49	.91	+.47	.88	2	0	.0	0	5.3	W	*33	NNW	25	7	7	17	6.5	50
Reno	4397	860.8	1017.3	49	22	35.3	+4.1	64	6	8	9	0	25	21	59	.86	-.18	.34	4	0	3.7	3	10.0	S	66	SW	17	6	7	18	6.7	57
Winnemucca	4299	866.9	1017.6	46	22	33.8	+6.0	58	°16	3	°9	0	27	23	65	.33	-.83	.20	4	0	1.9	2	9.5	---	38	W	°15	2	6	23	8.2	49
NEW HAMPSHIRE																																
Concord	339	1007.5	1018.6	29	9	18.6	-1.5	51	21	-16	14	0	31	11	73	2.35	-.56	.73	14	0	20.2	10	7.4	NW	34	W	17	8	5	18	6.9	37
Mt. Washington	6262	795.3	1015.9	16	3	6.2	+.8	36	20	-32	18	0	31	--	74	6.89	+1.79	1.10	24	1	26.9	14	38.8	W	†139	NW	8	7	4	20	7.2	35

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
NEW JERSEY																																
Atlantic City CO	8	1017.6	1019.6	42	28	34.9	-0.9	58	21	11	18	0	20	--	--	3.04	-0.74	1.03	13	1	11.8	8	16.6	---	44	NW	26	9	7	15	6.6	50
Newark	11	1018.6	1019.8	37	22	29.7	-1.8	56	26	5	18	0	27	20	70	1.36	-2.24	.57	12	2	10.6	8	11.2	NNE	*38	WNW	12	8	6	17	6.8	--
Trenton CO	56	1012.9	1020.0	39	23	30.9	-1.7	60	27	7	18	0	24	--	--	1.68	-1.48	.79	11	1	9.9	8	9.2	---	*40	NW	28	6	8	17	7.1	48
NEW MEXICO																																
Albuquerque	5310	850.3	1019.1	50	27	38.4	+4.7	62	29	15	1	0	24	21	53	.20	-.08	.11	4	1	2.9	2	6.6	N	40	E	12	9	11	11	5.4	67
Clayton	4969	844.2	1017.3	52	22	37.1	+4.2	73	7	1	21	0	29	--	--	.30	+.03	.12	5	0	3.0	2	----	---	--	---	--	15	4	12	5.0	--
Roswell	3612	894.7	1018.5	60	25	42.3	+2.7	77	29	10	11	0	25	19	46	.21	-.21	.14	2	0	2.4	2	7.9	---	57	NW	15	15	6	10	4.9	--
NEW YORK																																
Albany	277	1015.2	1019.9	28	9	18.5	-4.0	48	26	-18	14	0	29	12	74	2.71	+.44	.84	14	1	28.8	12	10.1	N	40	W	1	5	5	21	7.5	36
Binghamton	1601	957.3	1018.8	28	11	19.8	-1.9	48	26	-5	18	0	30	14	80	2.50	+.12	.91	15	1	18.1	6	14.1	WNW	40	W	30	1	5	25	8.3	33
Buffalo	693	991.2	1020.1	31	16	23.4	-2.0	52	26	1	17	0	28	17	76	2.94	+.16	.81	17	0	16.2	3	13.6	WSW	43	SW	24	1	8	22	8.3	33
New York CO	10	1007.5	------	39	24	31.4	-1.5	57	27	9	18	0	26	--	--	1.77	-1.69	.84	11	1	13.3	10	13.5	---	51	NW	1	8	8	15	6.7	48
New York	19	1018.0	1019.9	39	24	31.5	-1.5	57	26	9	18	0	25	20	65	1.91	-1.28	.64	13	1	13.1	9	12.5	NW	50	NW	12	5	9	17	6.9	--
Rochester	543	1000.0	1020.1	31	15	22.6	-2.1	51	20	-1	29	0	28	18	82	1.53	-.83	.49	18	0	19.8	5	11.3	NW	38	W	1	2	8	21	8.3	32
Schenectady	217	------	------	29	12	20.7	-.8	46	26	-15	14	0	29	--	--	2.73	+.31	.91	14	1	25.2	11	----	---	--	---	--	7	11	13	6.4	--
Syracuse	424	997.6	1020.8	29	11	20.4	-5.1	54	26	-7	14	0	28	13	72	2.43	-.36	.48	20	0	22.3	8	8.8	NW	45	NW	1	4	6	21	7.8	44
NORTH CAROLINA																																
Asheville CO	2203	------	------	51	30	40.4	+1.0	67	26	8	13	0	21	--	--	6.31	+3.33	2.42	11	2	3.6	3	9.0	---	32	NW	12	10	9	12	5.8	50
Asheville	2093	945.8	1022.1	--	--	----	----	--	--	--	--	--	--	31	77	----	-----	----	--	--	----	--	5.0	NNW	--	----	--	--	--	--	----	--
Charlotte	753	993.2	1021.9	54	33	43.2	+.9	72	27	15	13	0	19	32	71	6.26	+2.60	2.28	8	2	3.5	2	6.5	S	26	NW	12	11	4	16	6.4	53
Greensboro	891	989.8	1022.6	50	28	39.0	.0	67	27	12	13	0	24	29	73	6.19	+2.82	2.16	10	2	8.0	6	8.8	SW	30	NW	12	9	8	14	6.1	47
Hatteras	4	1020.7	1021.2	55	40	47.4	-.6	66	20	25	13	0	4	41	79	5.67	+1.57	2.83	9	2	.0	0	13.1	NNW	50	NW	23	10	7	14	5.6	47
Raleigh CO	400	------	------	53	32	42.7	.0	71	27	14	13	0	19	--	--	8.43	+5.18	3.34	9	2	6.0	5	6.6	---	26	W	27	10	9	12	6.0	52
Raleigh	438	1005.8	1022.0	52	31	41.6	+.2	70	27	13	13	0	21	31	72	7.52	+3.99	2.79	10	0	6.5	5	7.4	SW	--	---	--	10	9	12	5.9	--
Wilmington	30	1020.7	1022.1	59	38	48.5	+.7	78	21	20	13	0	8	--	--	3.34	+.22	1.23	9	3	T	0	9.0	---	31	N	23	10	8	13	5.6	60
Winston-Salem	967	985.4	1021.7	50	30	40.1	+.8	69	27	12	13	0	21	28	67	6.81	+3.12	2.67	9	1	9.1	8	8.8	SW	*30	NE	10	9	8	14	6.0	--
NORTH DAKOTA																																
Bismarck	1650	958.3	1023.5	13	-12	.6	-9.1	46	6	-37	21	0	31	-5	73	.52	+.16	.12	9	0	7.9	5	10.3	NW	38	N	29	6	7	18	7.2	47
Devils Lake CO	1471	931.6	------	5	-15	-5.1	-9.9	35	31	-36	21	0	31	--	--	1.31	+.91	.28	11	0	19.4	18	8.1	---	27	NW	5	7	7	17	6.9	50
Fargo	895	986.5	1023.8	9	-12	-1.4	-8.5	36	31	-30	21	0	31	-10	69	.47	-.13	.12	9	0	7.0	12	15.3	NNW	47	NW	9	5	8	18	7.0	43
Williston CO	1877	950.2	1022.8	9	-11	-.6	-10.6	42	3	-39	21	0	31	-6	72	1.27	+.78	.52	11	0	17.0	12	6.2	---	22	W	4	4	6	21	7.9	50
OHIO																																
Akron	1210	981.4	1020.9	36	20	27.7	+.3	55	20	3	13	0	27	22	80	2.87	+.13	1.19	20	1	7.3	2	11.4	NW	--	---	--	2	5	24	8.4	--
Cincinnati Obs.	761	------	------	43	27	35.2	+2.1	61	20	6	12	0	22	--	--	2.34	-1.10	1.00	14	2	3.2	2	8.1	---	26	SW	27	--	--	--	---	36
Cincinnati	869	988.5	1021.4	42	26	34.2	+2.4	60	20	5	13	0	23	26	74	2.54	-.86	1.14	11	1	3.0	2	11.7	SSW	*30	SSW	20	6	6	19	7.6	--
Cleveland CO	663	------	------	37	23	29.8	+.3	58	20	6	13	0	26	--	--	2.34	-.11	.96	17	--	----	--	----	---	--	---	--	--	--	--	---	--
Cleveland	787	991.9	1020.4	36	21	28.5	.0	57	20	2	11	0	28	23	77	3.12	+.74	1.22	22	0	13.2	6	13.0	WNW	38	SW	27	0	7	24	8.7	24
Columbus CO	724	------	------	41	28	34.3	+3.2	58	20	7	13	0	22	--	--	2.32	-.49	.98	8	--	4.3	2	----	---	--	---	--	--	--	--	---	--
Columbus	815	990.2	1021.3	40	24	31.8	+2.1	57	20	5	13	0	28	25	77	2.92	-.02	1.44	9	1	4.5	2	10.4	SSW	31	W	27	5	4	22	8.1	38
Dayton	1002	983.7	1021.2	39	24	31.4	+1.7	56	20	4	13	0	25	25	78	2.53	-.43	1.05	9	0	4.9	2	11.8	SSW	43	W	27	4	8	19	7.7	42
Portsmouth CO	715	------	------	46	28	36.8	+3.7	62	20	3	13	0	24	--	--	2.90	-.56	1.34	14	1	8.8	4	7.7	---	43	S	20	--	--	--	---	--
Sandusky	603	997.0	------	36	23	29.5	+.7	56	20	4	13	0	27	--	--	2.55	+.26	1.13	13	0	4.5	2	9.4	---	38	NW	27	5	3	23	7.9	30
Toledo	622	996.6	1020.7	35	19	27.0	+.6	55	20	1	13	0	29	22	78	2.21	-.04	.95	12	0	4.9	3	13.7	WSW	34	SW	2	2	3	26	8.5	26
Youngstown	1178	976.3	1020.5	36	18	26.7	-.8	57	20	0	18	0	29	20	77	2.83	-.49	1.13	20	1	9.5	3	11.5	WNW	*35	WSW	27	3	7	21	8.2	--
OKLAHOMA																																
Oklahoma City	1280	976.0	1020.9	50	26	38.0	+.9	70	8	3	21	0	23	26	65	.43	-1.07	.22	5	1	5.0	3	17.0	S	59	N	20	11	8	12	5.6	56
Tulsa	672	995.6	1021.0	48	26	37.0	-.4	70	7	5	22	0	20	25	65	.93	-1.05	.53	6	1	6.0	4	12.8	S	35	S	23	10	4	17	6.5	44
OREGON																																
Astoria	12	1012.2	1013.1	46	35	40.3	+.2	56	31	24	20	0	8	37	88	18.94	+9.83	3.55	25	3	6.4	2	8.4	E	--	---	--	2	2	27	9.0	--
Burns CO	4140	870.0	1015.4	39	23	31.1	+7.2	50	28	3	25	0	28	24	75	1.05	-.42	.24	12	0	10.2	3	----	---	--	---	--	3	6	22	8.2	--
Eugene	361	1001.0	1014.7	47	35	40.6	+2.4	62	5	20	20	0	13	36	84	12.43	+7.02	2.66	23	0	10.5	3	11.2	S	*40	S	2	1	5	25	8.6	--
Meacham	4050	------	------	35	22	28.7	+3.8	48	30	-4	20	0	27	--	--	1.95	-2.35	.33	20	0	19.7	19	----	---	--	---	--	2	2	27	9.0	--
Medford	1312	968.2	1016.7	46	32	39.1	+1.9	58	6	22	25	0	16	35	89	6.18	+3.67	1.07	23	0	4.0	1	2.9	S	*27	SE	6	1	2	28	9.1	--
Pendleton	1489	960.4	1015.1	42	27	34.5	+3.9	59	5	-8	20	0	19	25	71	1.30	-.18	.31	15	0	6.7	5	9.1	S	--	---	--	3	3	25	8.7	--
Portland	22	1008.8	1014.5	44	34	39.0	+1.6	58	5	19	20	0	12	34	85	8.95	+4.36	1.81	21	0	10.6	6	11.2	ESE	47	SW	2	0	5	26	9.0	21
Roseburg	505	996.6	1015.6	49	34	41.5	----	65	5	22	25	0	13	--	--	9.77	+5.17	1.60	23	0	13.3	2	5.3	---	26	S	2	1	6	24	8.7	26
Salem	195	1006.8	1014.1	46	34	40.2	+1.8	59	5	18	20	0	13	36	85	9.99	+4.27	2.14	22	0	7.6	5	10.4	S	--	---	--	1	6	24	8.6	--
Sexton Summit CO	3836	------	------	37	29	33.1	-2.7	52	31	18	25	0	25	--	--	10.46	+6.44	1.89	23	0	67.8	42	----	---	--	---	--	2	8	23	8.5	--
PENNSYLVANIA																																
Allentown	381	1005.1	1020.4	35	18	26.1	-2.4	52	27	-10	18	0	29	18	73	2.06	-1.15	.69	12	1	13.2	7	10.6	W	--	---	--	5	9	17	7.2	--
Harrisburg	335	1006.8	1021.0	37	22	29.5	-1.6	66	27	4	18	0	29	17	63	1.47	-1.15	.64	13	0	12.0	7	8.1	WNW	40	NW	28	5	8	18	7.1	37
Park Place CO	1932	------	------	30	13	21.6	-2.2	49	26	-1	17	0	30	--	--	1.46	-1.48	.48	14	0	13.3	10	----	---	--	---	--	6	2	23	7.8	--
Philadelphia CO	36	------	------	41	26	33.4	-1.5	62	27	13	18	0	24	--	--	2.04	-1.35	.84	11	1	12.5	10	8.8	---	25	NW	12	5	8	18	7.2	45
Philadelphia	13	1015.9	1020.2	40	23	31.7	-1.5	63	27	5	18	0	25	20	62	1.93	-1.44	.97	13	1	13.3	9	10.2	WNW	*35	NW	28	6	5	20	7.3	--
Pittsburgh CO	749	------	------	41	25	33.0	.0	63	20	11	18	0	24	--	--	1.95	-.88	.49	15	--	6.4	--	----	---	--	---	--	--	--	--	---	23
Pittsburgh	1151	989.5	1020.4	38	21	29.6	+.6	60	20	5	18	0	27	22	71	2.34	-.43	.54	17	0	6.7	3	11.9	WSW	*38	SW	20	3	6	22	8.1	37
Reading CO	266	1008.1	1020.7	38	23	30.6	-1.6	65	27	3	18	0	26	--	--	1.61	-1.54	.69	11	0	12.3	8	11.0	---	47	NW	28	5	9	17	7.1	40
Scranton CO	746	990.2	1020.7	34	18	25.8	-2.4	59	27	-6	18	0	28	--	--	1.57	-.69	.39	11	1	11.1	8	6.1	---	33	NW	28	4	7	20	7.6	30
Williamsport	527	1000.7	1020.4	34	18	25.9	-2.6	57	27	-5	18	0	30	16	68	2.30	-.29	.70	16	1	10.9	5	8.3	E	*52	WNW	27	3	7	21	8.0	--
RHODE ISLAND																																
Block Island	110	1013.5	1018.0	38	24	31.0	-.9	53	3	6	18	0	25	--	--	3.17	-.50	.69	16	1	9.6	6	----	---	--	---	--	4	9	18	7.5	--
Providence	55	1012.2	1018.5	35	17	25.9	-2.8	54	21	-8	18	0	29	17	68	2.84	-.91	.78	17	1	17.0	11	11.9	NNE	*32	SSW	30	6	5	20	7.0	41
SOUTH CAROLINA																																
Charleston CO	9	1020.0	------	62	44	52.9	+1.5	78	21	25	13	0	1	--	--	1.31	-1.17	.59	8	1	.0	0	9.1	---	32	SW	11	7	9	15	6.1	57
Charleston	41	1020.3	1021.9	64	39	51.5	+1.2	80	21	24	13	0	9	42	76	.89	-1.59	.39	8	1	.0	0	9.1	SSW	--	---	--	7	8	16	6.4	--
Columbia CO	332	1008.8	------	59	39	48.8	+.9	73	21	23	13	0	5	--	--	1.76	-1.08	.85	6	0	.0	0	----	---	--	---	--	11	6	14	6.3	--
Columbia	217	1013.5	1022.0	60	35	47.3	+.3	76	21	22	13	0	16	37	74	1.91	-1.23	.65	7	0	T	0	6.0	SSW	--	---	--	9	7	15	6.2	63
Florence	146	1016.3	1021.7	60	36	48.4	+2.1	76	21	20	13	0	11	--	--	2.39	-.46	.88	5	1	T	0	----	---	--	---	--	9	8	14	6.2	--
Greenville	1018	984.1	1021.6	54	34	44.2	+.9	73	27	16	13	0	13	32	69	7.35	+2.89	3.08	10	2	T	0	8.2	SW	61	NE	22	9	14	8	5.9	58
Spartanburg	801	------	------	54	34	43.8	+.4	74	27	17	13	0	14	--	--	6.82	+2.31	2.96	9	1	T	T	----	---	--	---	--	12	4	15	5.7	--
SOUTH DAKOTA																																
Huron	1282	972.6	1022.8	19	-3	7.8	-5.7	36	1	-30	21	0	31	3	81	.16	-.41	.08	6	0	2.3	3	11.4	SSE	38	SW	3	6	6	19	7.4	48
Rapid City	3165	900.4	1019.4	34	6	20.1	-1.0	64	6	-17	20	0	31	8	62	.18	-.30	.11	4	0	1.9	2	10.0	NNW	51	NW	15	4	11	16	7.1	50
Sioux Falls	1420	967.8	1022.6	21	-1	10.2	-4.0	44	1	-26	21	0	31	0	64	.16	-.56	.08	4	0	1.9	3	12.2	NNW	*39	N	15	6	6	19	7.1	--
TENNESSEE																																
Bristol	1519	966.1	------	49	27	37.9	-.7	64	27	5	13	0	25	--	--	6.60	+3.10	2.18	11	0	2.6	1	----	---	--	---	--	8	4	19	6.9	--
Chattanooga	670	994.6	1021.3	53	32	42.0	+.4	64	27	14	13	0	17	33	74	10.47	+5.24	3.34	13	3	.1	T	6.1	SSW	28	NW	16	8	8	15	6.6	45
Knoxville	950	986.5	1022.6	50	30	39.8	-.7	64	27	11	13	0	20	32	75	11.74	+7.20	3.79	11	3	2.1	2	7.2	NE	30	N	20	8	6	17	6.8	49
Memphis CO	271	------	------	50	35	42.3	+.4	71	20	17	12	0	11	--	--	9.16	+3.78	3.37	10	--	4.4	3	----	---	--	---	--	--	--	--	---	--
Memphis	263	1007.1	1022.1	51	35	42.8	+1.2	73	20	19	13	0	15	35	75	10.79	+5.24	3.87	10	3	3.8	3	9.1	S	37	SW	20	7	6	18	6.9	38
Nashville	577	1002.0	1022.5	50	31	40.1	+.2	63	19	11	13	0	18	33	78	7.65	+2.72	2.10	10	2	.2	T	9.2	SSE	26	NW	3	8	3	20	7.2	51

See footnotes at end of table.

CLIMATOLOGICAL DATA

Table 2—Continued

State and station	Elevation (ground)	Pressure: Station	Pressure: Sea level	Temperature: Average maximum	Temperature: Average minimum	Temperature: Average	Temperature: Departure from normal	Temperature: Highest	Temperature: Date	Temperature: Lowest	Temperature: Date	No. of days: Max. 90° F. or above	No. of days: Min. 32° F. or below	Average dew point	Average relative humidity	Precipitation: Total	Precipitation: Departure from normal	Precipitation: Greatest in 24 hours	No. of days: .01 inch or more	No. of days: With thunderstorms	Snow, Sleet, Hail: Total	Snow, Sleet, Hail: Max. depth on ground	Wind: Average hourly speed	Wind: Prevailing direction	Wind: Fastest mile: Speed	Wind: Fastest mile: Direction	Wind: Fastest mile: Date	No. of days (sunrise to sunset): Clear	No. of days (sunrise to sunset): Partly cloudy	No. of days (sunrise to sunset): Cloudy	Sky cover, tenths (sunrise to sunset)	Possible sunshine
	Ft.	Mb.	Mb.	°F.	°F.	°F.	°F.	°F.		°F.				°F.	%	In.	In.	In.			In.	In.	M. p. h.		M. p. h.			0–3	4–7	8–10	0–10	%
TENNESSEE (Cont.)																																
Oak Ridge	905	987.5	------	49	30	39.2	+0.4	61	26	11	13	0	22	--	--	13.27	+8.20	4.25	13	1	T	T	4.8	---	20	SW	27	8	7	16	6.6	--
TEXAS																																
Abilene	1759	957.0	1019.7	58	34	46.1	+2.8	76	25	14	21	0	14	33	65	.93	+.05	.65	4	2	1.5	2	12.9	S	38	S	7	12	5	14	5.6	52
Amarillo	3590	889.9	1018.1	55	25	39.8	+4.5	76	7	4	21	0	25	18	50	.25	-.39	.15	4	0	3.1	2	12.3	SW	41	NE	20	15	3	13	5.2	77
Austin	615	999.0	1021.3	62	42	52.0	+2.1	82	20	23	22	0	7	44	76	1.01	-1.62	.55	11	2	T	T	10.1	S	35	NE	20	6	7	18	6.8	44
Brownsville	16	1016.6	1019.3	75	55	65.2	+4.7	82	27	35	22	0	0	57	80	.27	-1.28	.13	6	0	.0	0	12.9	SE	35	SE	19	8	8	15	6.3	51
Corpus Christi	40	1019.3	1020.5	70	51	60.3	+4.4	82	20	29	*11	0	2	55	84	.35	-1.04	.23	5	0	T	T	12.9	SSE	37	SE	19	7	3	21	7.1	43
Dallas	487	1002.4	1021.6	57	36	46.1	+.4	74	20	13	22	0	12	39	78	3.03	+.56	1.18	11	3	1.4	1	8.9	S	36	SW	8	7	7	17	6.7	41
Del Rio	1091	985.1	1019.8	65	43	53.8	+1.9	79	26	24	22	0	3	41	69	.10	-.73	.02	8	0	.0	0	6.1	SE	35	NW	21	8	7	16	6.5	47
El Paso	3920	888.3	1018.1	61	33	47.0	+3.6	72	29	19	*1	0	16	23	41	.10	-.32	.09	2	0	T	T	10.0	NNE	52	NW	20	11	11	9	5.0	84
Fort Worth	544	1000.3	1021.7	56	35	45.6	+.3	74	8	13	22	0	12	36	74	2.08	-.34	.86	10	3	1.3	1	11.7	S	*30	NNW	20	9	5	17	6.7	--
Galveston CO	7	------	------	63	51	56.9	+2.4	71	*2	29	22	0	3	--	--	1.39	-2.70	.71	7	--	.0	0	13.0	---	35	NW	10	--	--	--	---	35
Galveston	5	1019.0	1021.5	63	50	56.4	+2.1	72	15	28	22	0	3	52	87	1.27	-3.07	.60	6	2	.0	0	12.2	SSE	--	---	--	6	6	19	7.2	--
Houston CO	41	1016.3	------	66	49	57.1	+3.3	78	20	24	22	0	5	--	--	2.55	-1.43	.97	11	1	.0	0	10.6	---	31	NW	10	8	3	20	7.5	33
Houston	50	1018.6	1021.6	66	47	56.4	+3.1	76	*20	25	22	0	5	49	80	1.65	-2.51	.46	11	2	.0	0	12.3	SE	--	---	--	7	3	21	7.4	--
Laredo	500	1004.1	1019.2	72	49	60.4	+2.8	90	20	34	*11	1	0	49	70	.27	-.75	.17	5	0	.0	0	11.8	SSE	*25	NE	31	9	2	20	6.4	--
Lubbock	3243	904.8	1018.6	58	25	41.6	+2.8	75	25	9	22	0	26	23	55	.06	-.61	.06	1	0	1.0	1	12.8	SW	*32	E	20	14	7	10	4.8	--
Midland	2854	918.4	1018.7	61	33	47.1	----	76	8	18	21	0	14	28	56	.26	-----	.20	3	0	T	T	6.4	SSW	*28	NNE	20	16	5	10	4.4	--
Port Arthur	16	1016.3	1021.7	65	46	55.3	+2.4	74	*19	26	22	0	3	50	87	2.94	-2.18	1.65	7	3	T	T	12.5	SE	35	NW	10	8	5	20	7.4	32
San Angelo	1903	951.6	1019.9	61	36	48.5	+1.0	79	26	18	11	0	12	35	63	.51	-.48	.28	4	1	2.5	T	-----	---	--	---	--	13	6	12	5.3	--
San Antonio	792	994.9	1020.4	65	44	54.9	+4.3	80	20	27	11	0	6	44	72	.51	-1.30	.24	10	1	T	T	7.7	NE	37	NE	21	7	8	16	6.4	49
Victoria	110	1015.2	1020.6	69	47	57.9	+2.7	80	*4	26	22	0	4	49	75	.84	-1.88	.71	9	1	.0	0	9.9	---	†42	NNW	10	7	6	18	6.9	--
Waco	500	1002.4	1021.1	59	38	48.5	+1.2	79	20	19	22	0	9	41	77	.79	-1.59	.27	5	2	T	T	10.8	S	--	---	--	8	3	20	6.9	--
Wichita Falls	1027	982.7	1020.6	55	32	43.2	+2.6	77	8	12	21	0	16	29	62	.69	-.62	.29	7	0	2.0	1	10.2	S	*30	NNW	20	13	7	11	5.2	--
UTAH																																
Milford	5028	846.6	1020.0	43	19	30.9	+7.1	56	7	5	10	0	29	--	--	1.53	+.96	.87	4	0	9.2	5	-----	---	--	---	--	5	6	20	7.2	--
Salt Lake City	4222	867.3	1018.6	43	25	34.0	+7.5	52	17	7	26	0	26	24	70	.90	-.30	.66	5	0	10.6	6	10.3	S	38	SE	23	3	6	22	8.0	41
VERMONT																																
Burlington	331	1004.4	1020.1	23	3	12.8	-5.1	47	21	-22	18	0	30	7	77	2.12	+.23	.70	17	0	33.0	13	11.5	S	32	S	*20	6	4	21	7.3	46
VIRGINIA																																
Lynchburg	947	986.5	1021.3	47	27	37.2	-.5	70	27	9	13	0	26	27	69	3.84	+.41	1.60	9	0	4.6	4	9.8	SSW	32	NW	28	8	8	15	6.3	51
Norfolk	26	1020.0	1021.3	51	33	41.7	+.2	71	27	20	*14	0	17	32	72	6.40	+3.23	2.26	8	0	1.6	1	10.3	S	38	NE	22	10	12	9	6.0	59
Richmond	162	1015.2	1021.6	48	28	38.0	-.3	72	27	10	13	0	23	28	70	3.70	+.16	1.69	9	0	7.5	5	8.4	S	26	NW	*28	7	11	13	6.5	47
Roanoke	1174	978.0	1021.5	48	27	37.4	-.5	69	27	12	13	0	25	25	65	4.77	+1.38	2.01	9	0	8.4	4	9.6	WNW	--	---	--	7	8	16	6.4	--
WASHINGTON																																
Olympia	190	1004.7	1012.7	42	30	35.6	-1.4	61	31	7	20	0	19	33	87	11.96	+5.27	2.14	26	0	22.9	9	7.2	SSW	*39	S	2	1	3	27	8.8	--
Seattle CO	14	------	------	43	35	39.1	-1.6	56	31	22	20	0	9	--	--	8.64	+4.15	2.19	24	0	16.9	9	12.6	---	45	S	25	2	5	24	8.6	21
Seattle	14	1011.5	1012.7	--	--	----	----	--	--	--	--	--	--	33	82	-----	-----	-----	--	--	-----	--	8.7	SSE	--	---	--	--	--	--	---	--
Seattle-Tacoma	379	998.3	1013.0	41	31	36.1	-1.1	55	31	16	20	0	16	33	87	8.36	+3.63	1.83	26	0	20.0	10	12.0	SSW	--	---	--	2	2	27	8.9	--
Spokane	2357	943.8	1014.5	32	21	26.9	+2.0	49	6	-9	20	0	28	22	80	4.90	+3.18	1.48	20	0	46.5	17	9.6	NE	42	S	14	1	5	25	8.7	18
Tatoosh CO	101	1007.1	1010.4	43	35	39.3	-2.7	51	5	23	15	0	10	35	83	12.44	+2.25	2.53	24	1	12.0	7	20.8	E	70	S	3	3	2	26	8.4	17
Walla Walla CO	949	978.7	1015.6	41	29	34.8	+2.8	62	6	-6	20	0	16	--	--	2.21	+.53	.59	17	0	7.5	5	6.6	---	27	SW	*1	2	6	23	8.4	18
Walla Walla	1200	------	------	--	--	----	----	--	--	--	--	--	--	27	--	-----	-----	-----	--	--	-----	--	8.9	S	--	---	--	--	--	--	---	--
Yakima	1061	974.9	1015.0	38	19	28.2	+1.3	56	5	-19	20	0	26	21	75	1.98	+1.02	.69	11	0	21.8	16	7.1	W	--	---	--	1	8	22	8.5	--
WEST VIRGINIA																																
Charleston	950	985.8	1021.4	47	29	38.0	+1.6	66	20	6	13	0	21	28	71	3.63	-.36	1.13	15	0	15.6	8	9.3	S	*27	W	27	2	8	21	7.9	--
Elkins	1970	949.5	1021.5	43	21	31.5	-.7	67	26	-6	18	0	27	25	--	3.57	+.35	.82	17	1	22.2	8	6.1	WNW	41	W	27	4	5	22	7.8	32
Huntington	565	------	------	47	29	38.2	+.2	66	19	3	13	0	23	--	--	2.71	-.90	.82	14	--	10.9	7	-----	---	--	---	--	--	--	--	---	--
Parkersburg CO	615	------	------	44	27	35.1	+.7	61	*27	4	13	0	25	--	--	2.31	-.86	.48	15	1	10.2	4	6.9	---	26	NW	30	4	7	20	7.8	29
Parkersburg	837	------	1021.0	--	--	----	----	--	--	--	--	--	--	26	--	-----	-----	-----	--	--	-----	--	7.9	SW	--	---	--	--	--	--	---	--
Petersburg	1013	------	------	44	21	32.1	-1.7	69	26	0	23	0	28	--	--	1.33	-.65	.78	7	0	10.3	8	-----	---	--	---	--	5	7	19	6.9	--
WISCONSIN																																
Green Bay	689	997.0	1021.0	25	6	15.8	-.3	37	2	-19	17	0	31	9	71	.43	-.86	.12	15	0	5.0	2	8.8	N	33	N	9	7	5	19	7.1	37
La Crosse	652	995.6	1021.7	26	5	15.5	-.2	40	5	-20	17	0	31	7	70	.56	-.66	.35	7	0	7.7	6	9.6	NW	*26	NNW	20	3	7	21	7.7	--
Madison	857	983.7	1021.0	30	10	19.8	+.7	43	*1	-14	17	0	31	12	70	.76	-.55	.53	7	0	8.0	6	10.7	NW	35	W	9	6	4	21	7.2	46
Milwaukee	675	994.6	1020.7	31	15	23.0	+1.1	43	2	-13	17	0	30	15	72	.92	-.66	.43	10	0	6.7	5	12.7	WNW	32	SE	8	3	7	21	7.8	45
WYOMING																																
Casper	5322	833.4	1015.1	38	16	27.1	+4.8	52	6	-11	20	0	26	16	61	.45	-.24	.34	5	0	9.5	5	19.0	SSW	--	---	--	3	7	21	8.0	--
Cheyenne	6139	808.0	1015.6	44	21	32.3	+6.8	63	31	-8	20	0	26	14	50	.21	-.35	.08	5	0	2.9	1	14.7	WSW	66	W	18	6	12	13	6.5	64
Lander	5563	831.7	1016.3	39	15	27.1	+10.3	52	22	-5	20	0	31	15	62	.46	-.04	.41	2	0	6.7	6	8.2	---	59	SW	3	3	9	19	7.2	64
Rock Springs	6741	791.4	1019.5	37	17	26.7	+8.7	48	5	-3	20	0	31	16	--	.22	-.24	.21	2	0	3.8	3	13.0	WSW	*40	W	*1	5	5	21	7.6	--
Sheridan	3942	881.8	1019.0	33	5	18.8	-1.3	55	28	-24	20	0	31	10	70	.53	-.22	.21	9	0	10.9	4	7.9	NNW	52	SW	3	3	7	21	7.6	49
PACIFIC AREA																																
Canton Island	9	1007.1	1007.6	90	77	83.8	+.8	92	*5	74	19	21	0	74	76	.43	-.85	.22	7	0	.0	0	-----	---	--	---	--	5	15	11	5.9	--
Hilo	28	1012.5	1014.4	79	63	70.6	+.2	87	31	57	29	0	0	62	78	5.73	-8.40	2.06	14	0	.0	0	5.6	SW	*31	SE	18	7	12	12	5.9	56
Honolulu	7	1014.6	1015.2	79	65	71.8	-.4	85	23	59	28	0	0	61	72	1.49	-3.16	.63	7	1	.0	0	9.6	ENE	38	NE	4	13	9	9	5.3	68
Koror CO	94	1005.4	1009.1	87	75	81.2	+1.0	89	*5	73	*5	0	0	--	--	4.94	-7.09	2.16	22	0	.0	0	4.9	---	22	NE	20	1	10	20	8.0	--
Lihue	115	1009.5	1014.6	77	62	69.5	-.6	80	31	54	*13	0	0	61	78	2.92	-3.31	.83	10	4	.0	0	9.5	NE	33	NE	5	11	9	11	5.4	47
Moen(Truk Group)	3	1009.0	1009.2	85	76	80.6	-.3	86	*1	72	7	0	0	--	--	4.13	-3.46	1.85	18	0	.0	0	-----	---	--	---	--	0	10	21	8.5	--
Wake Island	11	1012.5	1013.2	82	73	77.5	.0	85	7	67	29	0	0	68	72	2.32	+1.08	.68	15	0	.0	0	12.5	E	--	---	--	13	15	3	4.2	--
Yap CO	51	1007.8	1009.6	85	76	80.9	+.1	87	13	74	*3	0	0	--	--	2.97	-3.86	1.38	18	0	.0	0	-----	---	--	---	--	0	12	19	7.6	--
WEST INDIES																																
San Juan CO	47	------	------	80	70	75.0	+.1	83	11	66	30	0	0	--	--	3.45	-1.24	1.14	21	0	.0	0	-----	---	--	---	--	--	--	--	---	--
San Juan, P. R.	9	1015.2	1017.4	82	70	75.5	+.7	84	11	63	30	0	0	67	77	3.96	-1.62	1.22	23	1	.0	0	10.5	E	28	E	22	7	21	3	5.0	70

Data from airport unless otherwise specified. CO indicates data from city office.
* Data entered in column "Fastest Mile" is the fastest mile observed. This station is not equipped with automatic recording wind instrument.
Other dates also.
† Peak gust.

HEATING DEGREE DAYS

Table 3

(Base 65°F.)

JANUARY 1954

State and station	Current season: This month	Current season: Period July through this month	Normals: July through this month
ALABAMA			
Birmingham	576	1724	1753
Mobile	359	1058	1039
Montgomery (CO)	437	1272	1263
Montgomery	465	1393	1381
ARIZONA			
Flagstaff	1124	3991	4198
Phoenix (CO)	326	864	980
Phoenix	388	1034	1119
Prescott	814	2467	2641
Tucson	352	1033	1123
Winslow	897	2845	2904
Yuma	258	616	682
ARKANSAS			
Ft. Smith	794	2131	2048
Little Rock	712	1914	1898
Texarkana	556	1635	1513
CALIFORNIA			
Bakersfield	504	1385	1380
Bishop	833	2476	2515
Blue Canyon	924	2833	2899
Burbank	381	808	976
Eureka (CO)	551	2399	2585
Fresno	560	1566	1640
Los Angeles (CO)	292	595	779
Los Angeles	349	823	1075
Mt. Shasta (CO)	966	3016	3324
Oakland	507	1542	1790
Red Bluff	594	1486	1559
Sacramento (CO)	529	1409	1594
Sacramento	571	1565	1714
Sandberg (CO)	762	2279	2184
San Diego	302	629	813
San Francisco (CO)	412	1559	1709
San Francisco	474	1665	1890
San Jose	459	1215	1348
Santa Maria	469	1505	1566
COLORADO			
Alamosa	1339	4971	5112
Colorado Springs	908	3194	3513
Denver	884	2942	3489
Grand Junction	994	3145	3564
Pueblo	872	2848	3383
CONNECTICUT			
Bridgeport	1151	2813	3169
Hartford	1251	3147	3458
New Haven	1191	3039	3276
DELAWARE			
Wilmington	1040	2707	2824
DIST. OF COLUMBIA			
Washington (CO)	889	2250	2488
Washington	893	2303	2523
FLORIDA			
Apalachicola (CO)	312	778	827
Daytona Beach	159	413	533
Fort Myers	72	201	250
Jacksonville (CO)	235	667	719
Jacksonville	266	736	804
Key West (CO)	8	29	46
Miami (CO)	29	95	110
Int. Airport, Hialeah	24	88	118
Miami Beach	15	51	80
Orlando	130	356	410
Pensacola (CO)	328	903	912
Tallahassee	310	917	991
Tampa	113	296	424
West Palm Beach	31	113	154
GEORGIA			
Albany	362	1106	1154
Athens	616	1738	1738
Atlanta (CO)	609	1710	1745
Atlanta	611	1724	1757
Augusta	511	1544	1356
Columbus	490	1465	1514
Macon	453	1358	1321
Rome	682	2023	1956
Savannah	370	1124	1099
Valdosta	315	937	987
IDAHO			
Boise	876	2964	3509
Lewiston	997	2865	3307
Pocatello	1069	3435	4060
ILLINOIS			
Cairo (CO)	865	2265	2321
Chicago (CO)	1122	2922	
Chicago	1149	3053	3595
Chicago University	1124	2985	
Moline	1284	3384	3730
Peoria	1159	3151	3563
Springfield (CO)	1050	2739	3114
Springfield	1085	2956	3359
INDIANA			
Evansville	945	2645	2654
Ft. Wayne	1126	2177	3582
Indianapolis (CO)	1016	2758	2985
Indianapolis	1052	2964	3263
INDIANA (Cont'd.)			
South Bend	1184	3311	3694
Terre Haute	1044	2946	3188
IOWA			
Burlington	1246	3234	3605
Des Moines	1405	3477	3802
Dubuque	1430	3831	4215
Keokuk (CO)	1167		
Sioux City	1515	3772	4156
KANSAS			
Concordia (CO)	1190	2943	3192
Dodge City	1036	2808	3027
Goodland	1105	3366	3676
Topeka (CO)	1139	2757	2979
Topeka	1150	2864	3152
Wichita	1056	2643	2786
KENTUCKY			
Lexington	913	2574	2892
Louisville (CO)	890	2315	2556
Louisville	894	2530	2666
Pikeville (CO)	801	2283	
LOUISIANA			
Baton Rouge	338	1047	1039
Lake Charles	308	950	1009
New Orleans (CO)	264	764	770
New Orleans	287	838	
Int.Airport,Moisant	307	912	848
Shreveport	479	1349	1398
MAINE			
Caribou	1813	5166	5663
Greenville (CO)	1702	4762	
Portland	1454	3918	4220
MARYLAND			
Baltimore (CO)	875	2173	2417
Baltimore	986	2631	2683
Frederick	1058	2966	2842
MASSACHUSETTS			
Boston	1201	2801	3128
Milton	1308	3291	
Nantucket	1021	2696	3098
Pittsfield	1420	4015	4291
MICHIGAN			
Alpena (CO)	1414	3936	4320
Detroit	1200	3145	3536
Escanaba (CO)	1490	4147	4686
Grand Rapids (CO)	1232	3227	3597
Grand Rapids	1279	3468	3927
Lansing	1291	3538	3906
Marquette (CO)	1472	4150	4602
Muskegon	1275	3441	3836
Sault Ste. Marie	1665	4692	5162
Ypsilanti	1220	3262	
MINNESOTA			
Duluth (CO)	1835	5169	5386
Duluth	1893	5232	5600
International Falls	2157	5840	6145
Minneapolis	1693	4207	4577
Rochester	1641	4350	4716
St. Cloud	1904	4910	5173
MISSISSIPPI			
Jackson	479	1451	1417
Meridian	506	1555	1517
Vicksburg (CO)	444	1337	1282
MISSOURI			
Columbia	1070	2713	3064
Kansas City	1101	2677	2960
St. Joseph	1219	3020	3223
St. Louis (CO)	957	2380	2686
St. Louis	992	2538	2822
Springfield	963	2566	2842
MONTANA			
Billings	1469	3537	4072
Glasgow (CO)	1987	4513	5141
Great Falls	1696	3819	4270
Havre (CO)	1915	4345	4811
Helena	1510	4035	4818
Kalispell	1355	4255	4720
Miles City	1710	4034	4584
Missoula	1285	3936	4684
NEBRASKA			
Grand Island	1351	3510	3761
Lincoln (CO)	1325	3247	3490
Lincoln	1369	3301	3623
Norfolk	1484	3787	4161
North Platte	1248	3661	3852
Omaha	1399	3281	3675
Scottsbluff	1106	3396	3925
Valentine (CO)	1309	3570	4091
NEVADA			
Elko	1217	4057	4241
Ely	1166	4031	4232
Las Vegas	602	1641	1622
Reno	916	3182	3474
Tonopah	983	3042	3323
Winnemucca	960	3414	3765
NEW HAMPSHIRE			
Concord	1432	3861	4299
Mt. Washington	1823	7373	
NEW JERSEY			
Atlantic City (CO)	924	2257	2502
Newark	1088	2648	2951
Trenton (CO)	1052	2617	2856
NEW MEXICO			
Albuquerque	818	2546	2727
Clayton	859	2797	2986
Roswell	696	2241	2202
NEW YORK			
Albany	1436	3665	3901
Binghamton	1393	3794	4193
Buffalo	1282	3327	3695
New York (CO)	1036	2447	2766
La Guardia Field	1031	2367	2724
Rochester	1310	3439	3765
Schenectady	1368	3415	
Syracuse	1374	3457	3594
NORTH CAROLINA			
Asheville (CO)	752	2362	2427
Asheville	803	2684	
Charlotte	667	1852	1978
Greensboro	797	2219	2319
Hatteras (CO)	537	1250	1315
Raleigh (CO)	685	1804	1857
Raleigh	719	1961	2036
Wilmington	508	1390	1402
Winston-Salem	767	2055	2255
NORTH DAKOTA			
Bismarck	1996	4768	5254
Devils Lake (CO)	2175	5344	5769
Fargo	2060	5127	5399
Grand Forks	2138	5398	
Pembina	2275	5400	
Williston (CO)	2034	4741	5271
OHIO			
Akron	1150	3292	3464
Cincinnati (CO)	885	2418	2653
Cincinnati	948	2747	3028
Cleveland (CO)	1088	2777	3112
Cleveland	1124	3012	3313
Columbus	1024	2949	3233
Dayton	1035	2917	3222
Sandusky (CO)	1094	2883	3238
Toledo	1173	3199	3573
Youngstown	1180	3334	3437
OKLAHOMA			
Oklahoma City (CO)	843	2192	2210
Oklahoma City	830	2203	2282
Tulsa	864	2151	2238
OREGON			
Astoria	758	2565	
Burns (CO)	1043	3539	4103
Eugene	747	2438	2770
Meacham	1119	3853	4348
Medford	793	2537	2711
Pendleton	939	2705	3161
Portland (CO)	758	2119	2418
Portland	797	2422	2673
Roseburg	722	2275	
Salem	761	2485	2640
Sexton Summit (CO)	983	3293	3278
PENNSYLVANIA			
Allentown	1197	3161	3337
Harrisburg	1094	2853	3022
Park Place (CO)	1340	3708	4012
Philadelphia (CO)	971	2312	2557
Philadelphia	1026	2566	2777
Pittsburgh (CO)	985	2627	2882
Pittsburgh	1091	3067	3384
Reading (CO)	1057	2658	2888
Scranton (CO)	1212	3189	3413
Williamsport	1206	3269	3382
RHODE ISLAND			
Block Island	1048	2598	2989
Providence	1206	3067	3346
SOUTH CAROLINA			
Charleston (CO)	373	1022	1103
Charleston	420	1247	1250
Columbia (CO)	497	1373	1446
Columbia	543	1559	1544
Florence	513	1443	1603
Greenville	642	1778	1873
Spartanburg	651	1817	1881
SOUTH DAKOTA			
Huron	1773	4442	4626
Pierre	1624	4013	
Rapid City	1387	3553	4219
Sioux Falls	1700	4352	4637
TENNESSEE			
Bristol	833	2467	2506
Chattanooga	706	2085	2105
Knoxville	774	2189	2214
Memphis	684	1944	1973
Nashville	765	2190	2150
TEXAS			
Abilene	581	1648	1721
Amarillo	775	2352	2651
Austin	402	1168	1130
Brownsville	92	351	437
Corpus Christi	180	565	695
Dallas	576	1538	1477
Del Rio	344	1082	1004
El Paso	551	1750	1756
Ft. Worth	592	1596	1512
Galveston (CO)	243	704	758
Galveston	259	742	780
Houston (CO)	253	802	843
Houston	271	874	903
Laredo	183	627	576
Lubbock	717	2163	2256
Midland	550	1610	
Port Arthur	302	968	993
San Angelo	504	1532	1410
San Antonio	324	1026	1062
Victoria	243	767	760
Waco	501	1380	1311
Wichita Falls	669	1770	1937
UTAH			
Milford	1051	3542	3828
Salt Lake City (CO)	864	2696	3219
Salt Lake City	951	2966	3473
VERMONT			
Burlington	1612	4055	4385
VIRGINIA			
Lynchburg	857	2344	2471
Norfolk	713	1814	1986
Richmond	829	2188	2360
Roanoke	851	2053	2472
WASHINGTON			
Olympia	906	2997	3122
Seattle (CO)	796	2307	2529
Seattle	890	2824	3025
Spokane	1175	3499	3993
Tatoosh Island (CO)	788	2938	3193
Walla Walla (CO)	930	2457	2989
Yakima	1134	3293	3657
WEST VIRGINIA			
Charleston	830	2483	2607
Elkins	1029	3367	3312
Huntington (CO)	825	2410	2434
Parkersburg (CO)	919	2631	2773
Petersburg (CO)	1011	2776	2948
WISCONSIN			
Green Bay	1521	4122	4641
La Crosse	1526	3882	4459
Madison (CO)	1408	3693	4164
Madison	1397	3744	4269
Milwaukee (CO)	1254	3336	3825
Milwaukee	1296	3518	3999
WYOMING			
Casper	1168	3750	4345
Cheyenne	1007	3578	4137
Lander	1168	3834	4833
Rock Springs	1179	4064	4810
Sheridan	1425	3829	4505

Data from airport unless otherwise specified. CO indicates data from city office.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

Table 4 JANUARY 1954

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons: Killed	Number of persons: Injured	Estimated damage: Property (exclusive of crops)	Estimated damage: Crops	Character of storm	Remarks
Mason (near), Bayfield County, Wis.	1	5:30 p.m.			2				Snow	Small airplane lost its way and crashed in snowstorm while enroute from Waukegan, Ill. to Ironwood, Mich.
Washington, coast to Cascades	2	Early morning until nearly midnight			1		$50,000		Wind	Greatest damage in Puget Sound area. Power and communication service disrupted and trees blown down in several localities. 1 person electrocuted by falling power line in Olympia. Ferry schedules disrupted in Puget Sound. Estimated $20,000 damage to oil tanks under construction near Bellingham.
Washington, Puget Sound area and south to Oregon border	2-10						75,000		Rain	Landslides in several localities, as a result of continuous heavy precipitation. Several homes damaged in Seattle. Slides covered railroad between Tacoma and Nisqually and highway near Eatonville.
Oregon, northwestern portion	2-3	Afternoon and evening of 2d—early morning of 3d	*120	150			60,000	Negligible	Wind and rain	High winds smashed power lines over fairly large areas, disrupting both telephone and power services for as much as several hours in hundreds of homes and industrial establishments. Accompanied by heavy rains that produced major flooding in a number of coastal streams. These floods were further augmented by high tides driven back up streams by high winds. Quite a number of trees, both domestic and marketable forest trees, blown down. Probably 80 percent of damage caused by winds, remainder by heavy rains.
Pennsylvania, central and southern portions	3	Midnight to mid-morning			3	20			Ice (glaze)	Rain on highways with temperature just below freezing resulted in a few serious and scores of minor skidding accidents.
South Parkersburg, W. Va.	3	5:35 a.m.				2	2,500	$0	Electrical	Lightning struck an improperly grounded television antenna and started fire in upstairs of residential property.
Louisiana, coastal area	3-4						2,500		Fog	Dense fog covered coastal area from east Texas to Florida. 2 boats collided in Intercoastal Waterway near Lake Charles, another ran aground near Morgan City.
Gulfport, Harrison County, Miss.	4	A.m.					Slight		do	A boat ran aground off Gulfport. Dense fog all along coast from east Texas to Florida; visibility near zero in many places.
Louisville, Ky.	4	P.m.					500		Electrical and hail	Lightning demolished chimney and knocked 2 holes in roof of apartment building. Some hail fell during storm, but no hail damage.
Pennsylvania, south-central portion	5	Evening				7			Snow	Thin snow cover produced slick highways, resulting in skidding accidents.
Island of Oahu, Hawaii	5						Several hundred		Wind	Roofs and power lines damaged. Automobile tops blown off crossing Nuuanu Pali.
Lanai City, Island of Lanai, Hawaii	5						1,000		do	Chief damage to roofs and power lines.
Pennsylvania, south-central portion	6	Day			5	4			Snow	Slick highways resulted in series of traffic accidents.
West Palm Beach, Fla.	9				0	0	0	0	Tornadoes	Funnel clouds observed: First about 5 miles south-southeast of airport, lasted 4 minutes. Second about 3 miles northeast of airport, lasted 3 minutes.
New England, and southern and central coastal areas, except Massachusetts	9-11				17				Northeast storm with heavy snow	3-day accumulation of snow ranged up to 16 inches over eastern Massachusetts. All forms of transportation halted or seriously delayed, and many schools closed on 11th. Most deaths due to overexertion in shoveling snow; 3 deaths resulted from swamping of dory at sea. Cost of snow removal from streets and highways in and around Boston approximately a quarter million dollars.

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons: Killed	Number of persons: Injured	Estimated damage: Property (exclusive of crops)	Estimated damage: Crops	Character of storm	Remarks
Pennsylvania, south-central and southeastern portions	10-11	Day and evening			4	16			Snow	4 to 9-inch snowfall hampered highway travel and resulted in numerous accidents.
New Jersey, entire State	10-11					5			do	Snowfall of 7 to 12 inches, except 2 to 3 inches in southern coastal area, caused traffic tieups in urban localities, and entirely blocked roads in rural sections. Property damage and injuries confined to traffic mishaps.
New York State, extreme southeastern portion including Long Island	10-12				Several				do	Heaviest snowfall in 5 years fell in area, with depths ranging up to more than 12 inches. Traffic disrupted, but no serious damage. Several persons died from overexertion due to walking in or shoveling snow.
Baltimore, Md.	12				2				do	Deaths attributed to weather.
Pennsylvania, southeastern portion	13	Day				1			Snow and winds	High winds drifted snow across highways, blocking many, which resulted in shutdown of many schools. Highway accidents in heavy snow squalls damaged 4 cars and injured 1 person near Palmyra.
Sitka, Alaska	14	1 a.m.-2 p.m.					$25,000		Wind	Unusually high easterly winds at Sitka morning of 14th with northeast wind of 55 m.p.h. and gusts to 70 at 3:02 a.m. Large part of small boat harbor docking facilities lost as gale winds loosened pilings and allowed main float, with about 20 boats moored to it, to be blown a half mile across channel to Mt. Edgecumbe side. Small cabin cruiser badly crushed and other larger craft damaged. Float handled major portion of larger crafts making up Sitka's fishing fleet.
Harrisburg, Pa.	14	Day				4			Snow	Snow and ice covered walks and roadways, resulting in at least 4 injuries from falls, and skidding accident between truck and car and roadside signs.
Wyoming, statewide	14 and 15						Small		Snow and wind	Near-blizzard conditions locally east of Continental Divide.
Nevada, western portion	14 to 18						100,000		Wind, snow in mountains	Extreme gustiness on 14th and 15th reaching peak speeds of 92 m.p.h. at 7:30 a.m. on 14th and 96 m.p.h. at 7:19 p.m. on 15th. Numerous signs, windows, etc., broken. Several houses and numerous barns and outbuildings suffered major damage or were totally destroyed. Damage given is for Reno area.
Idaho, northern and central portions	14-23								Snow, wind, and cold	A slow-moving cold front entered extreme northern portion of State on 14th, bringing 24 inches of snow to Porthill and 14 inches to Bonners Ferry in 48 hours. During 10-day period front advanced and retreated in irregular fashion across several northern counties. Widespread heavy snows on 17th and 18th, with 48-hour falls of 14 inches at Priest River and Sandpoint, and 16½ inches at Porthill and Wallace. Cold air pushed southward to southern boundary of State on 19th and 20th, but very little precipitation. On 21st and 22d cold front retreated northward rather rapidly and some of heaviest snows of month fell from Adams and Valley Counties northward. High winds on several days; roads and railways blocked by drifts and in some localities power and telephone lines broken. Minor traffic accidents numerous and both N.P. and U.P. Railroads had derailments in vicinity of Wallace, where snowslides added to difficulties. During period snow depths increased as much as 3 to 4 feet at many stations. Temperatures fell below zero for at least 2 or 3 days at many stations in affected area, reaching -27° at Porthill.
Stonewall Community, (near College Park), Ga.	16	6 a.m.					1,500		Wind	High wind tore porch from home; 2 small garages and a barn destroyed.
Mountain Park Community, (5 miles northwest of Roswell), Ga.	16	6 a.m.					2,500		do	Large pine tree blown across home.

See footnotes at end of table.

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons: Killed	Number of persons: Injured	Estimated damage: Property (exclusive of crops)	Estimated damage: Crops	Character of storm	Remarks
Atlanta, Ga.	16	6-6:30 a.m.					$2,000		Rain, wind, and electrical	Wind blew down central power and telephone lines in Grove Park, knocking out services. Lightning struck theater, hurling bricks over 200-foot area. Heavy rains flooded many streets, accumulating depths in some low-lying areas of 3 feet or more. Flooding of main cable in Highland-Virginia section resulted in disruption of about 2,000 telephones. Numerous other minor damages over much of city.
Conyers, Ga.	16	6:30 a.m.					3,000		Wind	Tenant house destroyed and 2 house roofs damaged in town; 1 hangar destroyed and doors ripped off of another hangar at airport. Numerous trees uprooted, and lines blown down.
Sierra Madre, Los Angeles County, Calif.	19								Rain	Flood water from heavy rains forced many people to evacuate homes; 14 homes damaged.
Pasadena to Los Angeles-San Bernardino County line (foothill communities), Los Angeles County, Calif.	19						1,000,000		do	Damage includes $250,000 for cleaning city and county roads; $100,000 for structural damage to about 25 homes - the worst being in Palmer Canyon above Claremont; remaining damage in deposits of mud, silt, rocks, etc., in county-owned reservoirs which will have to be cleaned.
Oktibbeha and Lowndes Counties, Miss.	20	5:30 a.m.	25	15	0	2	10,000	$1,000	Tornado	Developed from a line of squalls in southeastern Oktibbeha County near small community of Oktoc; a witness there reported that clouds appeared as 2 ribbons in the sky, 1 appeared to touch ground, then clouds began to twist and larger cloud drew in smaller one. Then it moved northeastward at about 10 to 15 m.p.h. in a zig-zag course, into northwestern Lowndes County. It appeared to have been of the "skip and hit" type. Destroyed 2 homes and a barn, and damaged some others; damaged some power lines, and a little timber. Passed aloft between Artesia and Mayhew.
Akron-Canton-Massillon area, Ohio	20	9:20-9:27 a.m.					5,000		Electrical	Lightning struck dwelling in Canton during thunderstorm.
Lowndes County, Miss.	20	5:30-6 p.m.	100	4	0	0	2,000	500	Tornado	About 5 to 7 miles south of Columbus on west side of Tombigbee River in a thinly populated farming area. Destroyed and damaged some outbuildings. Moved northeastward.
Lowndes County, Miss.	20	P.m.					10,000		Electrical	Lightning destroyed 1 home and all the furnishings near New Hope community.
Pennsylvania, central and eastern portions	20-21					10			Fog	Widespread, long-lasting heavy fog hampered busses, trains, cars, and pedestrians. In Harrisburg area alone, traffic accidents caused injury to at least 10 persons. Visibility frequently less than 100 feet.
Oregon, northwestern portion	21-22	Early morning of 21st, through early morning of 22d	*150	200			250,000	5,000	Snow, glaze (ice), and wind	High winds and comparatively heavy snows which in some small local areas was freezing rain took an extremely heavy toll of power and communication lines and other facilities. Damage to these utilities alone exceeded $225,000. Also damaged were a number of farm buildings, some livestock, stored crops, and coastal property and shipping.[1] Damage 75 percent result of snow and ice, remainder due to wind.
Hana, Is. of Maui, Hawaii	21								Wind	Trees blown down, roads blocked, and phone service disrupted.
North Carolina	22-23				2	2	10,000		Rain, sleet, and snow	1 man died in Wake County and another in Wayne County due to exposure. Property damage mostly to power and telephone lines, and in traffic accidents; the latter also accounting for the injuries. All North Carolina rivers flooded following this storm, resulting in 1 additional death (from drowning) and considerable damage. (See summary of flood conditions that follows this table).
Duarte, Los Angeles County, Calif.	24								Rain	Water and mud flowed through 2 homes, causing major damage to floors, windows, and household furnishings and caved in a wall in each. 18 to 20 homes suffered minor damage, primarily to garages, floors,

See footnotes at end of table.

STORM DATA AND UNUSUAL WEATHER PHENOMENA

Place	Date	Time	Width of path, yards	Length of path, miles	Number of persons		Estimated damage		Character of storm	Remarks
					Killed	Injured	Property (exclusive of crops)	Crops		
Duarte, Los Angeles County, Calif. (cont'd.)	24									and doors. These homes have cesspools which will have to be replaced. 150 homes received debris on lawns and gardens, consisting of rocks, mud, etc.
Washington, western portion	25-26		*120	180	1		$150,000		Snow and wind	Heavy snowfall and high winds over Olympic Peninsula. Power and communication lines disrupted in southwestern Washington. Several localities in Grays Harbor, Pacific, and Thurston Counties without power and telephone service for 2 or 3 days. Most schools closed. 1 person killed when building roof collapsed near Longview.
St. Louis and St. Louis County, Mo.	26	3-6 p.m.					2,000		Wind and electrical	Damage mainly confined to roofs, sidings, signs, and windows.
Oregon, most of State	26-27	Considerable portion of both days	State-wide	300-400			20,000	Negligible	Snow, rain, and wind	Heavy snows in Columbia Gorge and eastern Oregon tied up traffic and induced a number of slides. Along coast and in northwestern portion heavy rains and high winds added to difficulties. At Coos Bay the New Zealand ship S.S. Waikawa was blown loose from its mooring and swept across bay. No serious damage caused, but several hours required by 5 tug boats to free ship and get it back into channel. Damages estimated to be equally divided between rain, wind, and snow.
Plandome, Nassau County, N. Y.	27	8:15 p.m.					10,000		Electrical	Club destroyed.
New Jersey, entire State	27	P.m.					10,000		do	Thunderstorms reported at nearly every station and substation in State. Lightning struck house in Ocean County, near Lakewood, and completely burned out its electrical wiring system. Barn struck near Long Valley and destroyed by fire. Trees and poles damaged in isolated sections.
Ketchikan, (25 mile radius of), Alaska	30	Midnight-12 noon					151,000		Wind, snow, and rain	At Annette a fastest mile of 56 m.p.h. from south-southeast, with an average 24-hour wind speed of 32 m.p.h. on 30th. At Guard Island wind speed reached 72 m.p.h. with gusts to 92 at 10:20 a.m.; at that time Coast Guard observers reported 5-foot waves on a swell of 7 feet from south. Many breaks in Ketchikan Power lines, one break caused by a roof falling over lines. Main feeder burned out, with loss of $1,000. Several roofs in Ketchikan blown off or damaged, but no estimates of damage available. The Manson-Osberg dredge sank at Clover Pass, with a loss estimated at $150,000.
Juneau, Alaska	Jan. 30-Feb. 1						2,000		Snow and rain	Snow that began on 28th turned to mixed rain and snow late on 29th and 30th. Driving particularly hazardous morning of 30th, with over 30 cars off road between Airport and City of Juneau. About 50 cars off road in all from January 30 to February 1. No injuries, but damage to several cars estimated at $2,000.

* Miles instead of yards.

GENERAL SUMMARY OF RIVER AND FLOOD CONDITIONS

JANUARY 1954

The most significant flooding during the month occurred in streams along the California coast. The Russian River reached its highest stage at Guerneville since February 1940, and at Healdsburg since January 1943. Two major floods were reported on the Eel River at Fernbridge, Calif. Considerable damage was reported from flash floods in northern Alabama; the Flint River reached the highest stage in its history in the upper portion. The Tar and Neuse Rivers in eastern North Carolina reached their highest stages since 1945.

ATLANTIC SLOPE.--Heavy precipitation from the 14th to the 16th, and again from the 19th to the 24th, caused general flooding along all of the main streams in eastern North Carolina. The precipitation during the first storm averaged almost 2 inches in the Roanoke Basin, 2.5 inches in the Neuse and Cape Fear Basins, and almost 3 inches in the Tar Basin. During the second storm the precipitation averaged 3 inches in the Roanoke Basin, 3 3/4 inches in the Neuse and Cape Fear Basins, and 4 1/3 inches in the Tar Basin. The precipitation changed from rain to snow and sleet on the 23d and averaged 3 to 4 inches over the greater portion of the Roanoke and Dan Basins, 5 inches along the upper Neuse Basin, 4 to 8 inches over the upper Cape Fear Basin, and 3 to 5 inches over the upper Tar Basin. In general, the snow was limited to the middle and upper sections of the basins while the area nearest the ocean was free of snow. Very little snow melted on the 23d and 24th, but warming on the 25th and 26th disposed of most of the snow, adding to the runoff.

No flooding occurred along the Dan and Roanoke Rivers during the first storm. The second rainy period brought light general flooding along the entire Roanoke system.

The second period of rainy weather produced a second crest along upstream points on the Tar and Neuse Rivers while at downstream points only one crest resulted from the two periods of heavy rainfall. The Neuse and Tar Rivers reached their highest stages since 1945 at several points.

Along the Cape Fear River, the second period of precipitation produced another crest at all reporting points.

One fatality was reported along the Tar River and there was considerable economic loss due to flooding of tobacco plantbeds and residential property, loss or damage to boats, suspension of business, etc. Several thousand acres were inundated along the lower Neuse River, causing considerable damage to residential property, public property, tobacco plantbeds, and loss of livestock.

The heavy rains on the 16th and 17th and again on the 22d and 23d, produced two successive floods in the Pee Dee River and the Santee River systems in South Carolina. A minor flash flood occurred on the Yadkin River at Wilkesboro, N. C., on the 22d from the heavy rains and snow. No preventable damage was reported. In the Saluda Watershed the only flooding reported was at Pelzer, as nearly all runoff was contained in Lake Greenwood and Lake Murray. On the Broad River, minor flooding occurred at Gaffney and at Blairs on the 23d and 24th. The lowlands below Columbia had considerable flooding in the first flood on the 18th and even higher crests in the second flood from the 23d to the 25th. No loss was reported on the Catawba-Wateree Rivers.

The flooding on the Altamaha River at Charlotte, Ga., receded to within its banks on the 4th.

EAST GULF OF MEXICO DRAINAGE.--Heavy rainfall of 4 to 5 inches on the 15th and 16th in the Chattahoochee Basin above Norcross, Ga., resulted in above flood stage at Norcross on the 17th and 18th and caused rather widespread flooding of lowlands near Atlanta and to the north. Heavy rain again on the 21st and 22d caused another brief flood condition to the north of Atlanta. The Apalachicola River continued near or above flood stage throughout the month at Blountstown, Fla., this being a normal winter-time condition.

Additional rain the last 3 days of December caused the Choctawhatchee River to rise above flood stage at Caryville, Fla., during the first few days of January 1954.

Heavy rains over northwest Florida and northern Alabama from the 14th to the 16th, and again from the 20th to the 22d, caused moderate floods on the Coosa River in Alabama, and the Etowah and Oostanaula Rivers in Georgia, and flash floods in northern Alabama. The first period of heavy rains averaged 4.5 inches above Canton and 3.8 inches above Cartersville on the Etowah River, resulting in a crest stage of 21.7 feet at Canton, 4.7 feet above flood stage, on the 17th. Rainfall averaged 5.3 inches above Resaca, on the Oostanaula, resulting in a rather severe flood crest stage of 30.2 feet at Resaca, 8.2 feet above flood stage, on the 18th. Rainfall averaged 4.4 inches above Rome, on the Oostanaula, resulting in a crest stage of 24.5 feet at Rome, 0.5 foot below flood stage, on the 17th. Rainfall averaged 3.8 inches above Gadsden, on the Coosa River, causing a primary crest of 23.8 feet at Gadsden, on the 18th.

Flash floods occurred in the Birmingham, Ala., area following the heavy rains of the 15th which flooded numerous houses and several business houses to about knee deep. Local flooding was also reported in the Trussville, Gadsden, Albertville, Boaz, Sand Mountain, and other areas.

The second period of heavy rainfall (20th to the 22d) averaged 3.25 inches above Canton on the Etowah, giving Canton a crest of 15.7 feet, 1.3 feet below flood stage on the 23d. Rainfall averaged 3.8 inches above Resaca, resulting in a secondary crest stage of 27.6 feet, 5.6 feet above flood stage on the 25th. Rainfall averaged 2.8 inches above Rome, giving a crest stage of 26.1 feet, 1.1 feet above flood stage on the 22d and 23d. Rainfall averaged 3.0 inches above Gadsden, giving a secondary crest stage of 24.3 feet, 4.3 feet above flood stage on the 25th.

Flash floods caused considerable damage in Limestone and Madison Counties in Alabama from the heavy rains on the 20th, 21st, and 22d. More than 126 families were evacuated from the Big Cove and other areas during the night of January 21-22, as the water rose to a depth of one foot in their homes. The water reached its highest stage in its history in the upper branches of Flint River around New Market, Moore's Hill, Ryland, and Three Forks of Flint. Water was reported 6 feet deep in some homes. Overflow of Mountain Fork Creek swept away one residence at New Market and flooded two others. Homes were flooded in Meridianville. Roads were under water in every section of Madison County. Practically every wooden bridge in the northwest section of Madison County was washed away. In Limestone County and Athens area, all roads were blocked between Athens and Huntsville. Many bridges were

washed out, bridges were covered by water on Highway 52 and the Nick Davis Road. Water drove a number of families from their homes, disrupted bus and private travel, and did untold damage to roads and bridges in the area. These flash floods were estimated to have caused damage of $100,000. Flooding along main streams caused damage of around a quarter million dollars.

The flooding on the Warrior and Tombigbee Rivers in Alabama was due to the heavy rainfall on the 15th-16th and 21st-22d. No severe damage resulted from the overflows.

Minor flooding occurred on the Pearl River at Jackson, Miss., between the 26th and 28th. No damage was reported.

OHIO BASIN.--Two periods of heavy rain during the month, the first occurring on the 15th and 16th and the second from the 20th through the 22d, produced flood stages on several tributaries of the Tennessee River. Rainfall over the area during the first storm period averaged near 4 inches above Chattanooga and about 3.5 inches below Chattanooga, with some locally high amounts up to 5.5 inches. There was no serious flooding during the first storm as the ground was very dry and flows in the main river were near or slightly below the normal minimum for this time of the year. The second rain produced an average of about 4.5 inches above Chattanooga. Ground conditions were favorable for high runoff this time, since this storm occurred within a few days after the first heavy rain which conditioned the soil for maximum runoff. The overflow on the Elk River at Fayetteville reached serious proportions. The crest stage of 666.8 feet was only 2.6 feet below the great flood of January 5, 1949. Flooding on the main river was limited to agricultural lowlands not subject to significant damage at this time of the year. Damages to secondary roads and farm property, such as fences, farm bridges, and roads, were heavy along many of the small creeks and tributaries. Considerable damage also occurred to the water cress crop on the lowlands of the Flint River. Commercial and residential damages also were considerably higher than other floods of recent years; practically all of these occurred in small settlements located on or near some of the creeks and small tributaries in the central portion of the basin.

ARKANSAS BASIN.--Minor flooding occurred along the low bottom lands of the Poteau River around Panama, Okla., on the 20th from heavy thundershowers (2.5 inches). Flood damage was mostly to spinach crops and other vegetables and to land preparation.

RED BASIN.--The flooding on the Sulphur River was due to the heavy rain from the 14th to the 16th. The runoff was heavy as the ground was conditioned for maximum runoff from the rains on the 10th and 11th.

LOWER MISSISSIPPI BASIN.--The Mississippi River receded below the zero of the gage at Memphis, Tenn., on September 12, 1953, and with the exception of one day (December 18, when the stage was +0.1 foot), it remained below zero through January 15, 1954. This was a total of 125 of 126 consecutive days. It was -3.0 feet or lower from October 6 to 8, and from October 14 to December 5, a total of 56 days, 53 of which were consecutive. The previous low was -2.7 feet in November 1895. The lowest stage of record -3.55 feet, was reached on November 21, 1953.

WEST GULF OF MEXICO.--Minor flooding occurred along the Sabine at Mineola and Gladewater, Tex., between the 17th and 28th from the heavy rains (1.5 inches) near the middle of the month. Precipitation for the month averaged only about half of normal and was scattered throughout the month. Damages were chiefly temporary loss of pasture land and the expenses of moving cattle.

CALIFORNIA AND OREGON COAST DRAINAGE.--The heavy rainfall on the 17th to 19th and from the 23d to 25th caused flooding at the mouths of a series of foothill creeks in southern California at the base of the San Gabriel Mountains between Bailey Canyon on the west and San Antonio Canyon on the east. The creeks are tributaries to the Rio Hondo, San Gabriel River, and the Santa Ana River. Total rainfall for the first storm ranged from about 3.5 inches in the foothills to about 7 inches at or near the mountain peaks. The total for the second storm ranged from 3 inches in the foothills to about 6 inches at or near the peaks. Severe damage occurred in several foothill communities between Pasadena and the Los Angeles-San Bernardino line, principally as a result of debris flow.

Overflows occurred along the east-side weirs (dams) on the Sacramento River on the 18th to the end of the month from the moderate to heavy rainfall which began on the 16th.

The flooding on the Russian River in California was due to heavy rainfall from the 15th to the 17th which ranged from 13.06 inches at Cazadero to 3.34 inches at Petaluma or an average of 7.2 inches for the basin. The peak stage of 22.8 at Healdsburg on the 17th was the highest stage observed at that point since January 21, 1943, when a stage of 25.45 feet occurred. At Guerneville, the peak stage of 38.15 feet on the 17th was the highest stage since February 28, 1940, when a peak of 46.87 feet was reported. Lowlands and some highways from Ukiah to Guerneville were flooded. Roads, culverts, bridges, summer cottages, some automobiles, and some other property sustained flood damage.

Two major floods resulted on the Eel River at Fernbridge, Calif., from the heavy rains on the 16th-17th and the 27th-28th. A total of 8.54 inches was reported at Dos Rios and amounts elsewhere over the headwaters were comparable. The crest during the first rise was 23.0 feet, 5.5 feet above flood stage and during the second rise the crest was 20.9 feet, 3.4 feet above flood stage. Most of the damage was to farm lands.

Heavy rainfall occurred over southwestern Oregon and northern California from the 15th-17th and from the 26th-28th. The rainfall ranged from 1 to 3 inches over the Umpqua and Rogue Rivers during the first storm, but no flooding occurred. During the second storm period the precipitation averaged about 3.3 inches over the same basins including the coastal areas. This precipitation, together with the melting of low-level snow, brought higher stages with some flooding along the Rogue River and the smaller tributaries of the larger streams. Much local flooding occurred along irrigation ditches and drainage ditches. No damage was reported.

COLUMBIA BASIN.--Precipitation was above normal in the Columbia Basin for the third consecutive month, and ranked near the highest of record at many stations in northwestern Oregon and southwestern Washington. Measurable amounts were

recorded at many stations in western Oregon on 22 or more days. Albany, Ore., one of the key river stations in the middle Willamette Basin, recorded a measurable amount of precipitation on 28 days. The heaviest and most concentrated precipitation occurred from the 25th to the 27th. This precipitation was partly snow, particularly in the northern portion of the Willamette Valley and almost entirely snow in the mountain areas.

Very little flooding resulted from this precipitation, as a large proportion of it that did occur as rain fell on a snow cover which absorbed most of the precipitation. There was considerable of what might be termed "nuisance flooding" due to overflow and flooding of ditches, bottom lands, and creeks, in the middle and lower Willamette. Much damage occurred in small communities along creeks even though the overflow lasted only a few hours as the water level rose very rapidly.

PUGET SOUND DRAINAGE.--The flooding on the Chehalis, Skookumchuck, and Snohomish Rivers in Washington between the 5th and 8th was due to heavy precipitation over western Washington during the first six days of the month. The flooding occurred mostly on the 6th with only the Chehalis River reporting overflow for a longer period and the only stream that appreciably exceeded flood stage. Damage from this flood was negligible.

FLOOD STAGE DATA

(All dates in January unless otherwise specified)

Table 5 — JANUARY 1954

River and station	Flood stage	Above flood stages —dates From—	Above flood stages —dates To—	Crest* Stage	Crest* Date
ATLANTIC SLOPE DRAINAGE	Ft.			Ft.	
Dan: Danville, Va.	11	22	23	#11.6	23
Roanoke:					
Altavista, Va.	18	22	23	19.0	23
Randolph, Va.	21	22	24	#22.9	23
Williamston, N. C.	10	24	Feb. 1	10.7	30
Tar:					
Rocky Mount, N. C.	9	17 21	19 28	#9.4 11.5	18 24
Tarboro, N. C.	19	19	Feb. 2	#27.4	28
Greenville, N. C.	14	21	Feb. 2	#18.7	29
Neuse:					
Neuse, N. C.	14	15 21	19 29	#16.7 #19.0	17 23
Smithfield, N. C.	13	15	31	#19.0 22.8	19 24
Goldsboro, N. C.	14	19	Feb. 5	24.8	28
Kinston, N. C.	14	23	Feb. 7	20.3	Feb. 1
Cape Fear:					
Moncure, N. C.	20	15 22	16 23	20.0 23.3	16 23
Fayetteville, N. C.	35	17 22	19 27	#36.2 #47.0	18 24
Lock No. 2, Elizabethtown, N. C.	20	16 21	21 30	28.2 32.6	19 26
Yadkin: Wilkesboro, N. C.	14	--	--	15.6	22
Pee Dee:					
Cheraw, S. C.	30	17 23	18 26	34.0 39.9	17 24
Peedee, S. C.	19	19	Feb. 4	20.3 25.8	24 29
Saluda: Pelzer, S. C.	6	16 22	18 25	10.0 14.0	17 24
Broad:					
Goffney, S. C.	10	23	23	13.3	23
Blairs, S. C.	14	16 22	19 26	20.0 24.0	17 24
Congaree: Columbia, S. C.	19	25	25	19.4	25
Wateree: Camden, S. C.	23	24	25	29.4	25
Santee: Rimini, S. C.	12	21	**	18.0	*29
Altamaha: Charlotte, Ga.	15	Dec. 24	4	15.5	Dec. 28
GULF OF MEXICO DRAINAGE					
Chattahoochee: Norcross, Ga.	16	17 24	18 24	19.4 17.5	18 24
Apalachicola: Blountstown, Fla.	15	1 23	11 31	18.9 17.1	2-3 29
Choctawhatchee: Caryville, Fla.	12	2	4	12.5	3
Oostanaula:					
Resaca, Ga.	22	17 23	21 27	30.2 27.6	18 25
Rome, Ga.	25	22	23	26.1	22-23
Etowah: Canton, Ga.	17	16	17	21.7	17
Coosa: Gadsden, Ala.	20	17	30	23.8 24.3	18 25
Black Warrior: Tuscaloosa, Ala.	47	16 23	19 24	57.5 50.5	17 23
Tombigbee:					
Lock 4, Demopolis, Ala.	39	20	**	47.8	27
Lock 3, Whitefield, Ala.	33	18	**	49.0	28
Lock 2, Pennington, Ala.	46	22	**	50.4	29
Lock 1, Sullipa, Ala.	31	23	**	34.3	31
Pearl: Jackson, Miss.	18	26	28	18.3	27
MISSISSIPPI SYSTEM					
Ohio Basin					
French Broad:					
Rosman, N. C.	8	22	22	8.5	22
Asheville, N. C.	9	22	23	9.1	23
Marshall, N. C.	10	22	22	10.5	22
Hot Springs, N. C.	13	22	22	14.3	22
First Creek:					
Knoxville, Tenn. Fifth Avenue	5	15 20	16 22	6.8 7.0	16 21
MISSISSIPPI SYSTEM (Cont'd.)					
Ohio Basin (Cont'd.)					
First Creek: (Cont'd.)					
Mineral Springs	6	15 20	16 22	6.6 6.0	16 22
Emory: Oakdale, Tenn.	23	21	21	24.2	21
South Chickamauga Creek:					
Chickamauga, Tenn.	10	16 21	18 25	16.2 15.9	17 23
Elk: above Fayetteville, Tenn.	18	21	25	24.9	22
at Fayetteville, Tenn.	659	21	25	666.8	22
Duck:					
Shelbyville, Tenn.	21	21	23	21.1 23.8	21 22
Columbia, Tenn.	32	21	25	36.4	22
Centerville, Tenn.	22	21	26	24.9	23
Tennessee:					
Whitesburg, Ala.	560	16 21	20 29	565.5 571.0	18 24
Florence, Ala.	419	17	28	424.4	23
Savannah, Tenn.	380	22	29	385.6	27
Gilbertsville, Ky.	320	21	Feb. 1	326.8	26
Red Basin					
Sulphur: Naples, Tex.	22	18	27	26.2	22
WEST GULF OF MEXICO DRAINAGE					
Sabine:					
Mineola, Tex.	14	17	24	17.2	21
Gladewater, Tex.	26	26	28	27.0	27
PACIFIC SLOPE DRAINAGE					
Sacramento Basin					
Sacramento:					
Moulton Weir, Calif.	76.7	25	**	77.2	30
Colusa Weir, Calif.	61.8	18	**	65.0	30
Tisdale Weir, Calif.	45.5	18	**	48.3	30
Fremont Weir, Calif.	33.8	27	**	34.7	31
Coastal Drainage					
Russian:					
Healdsburg, Calif.	19	16	17	22.8	17
Guerneville, Calif.	29	17	18	38.2	17
Eel: Fernbridge, Calif.	17.5	16 27	18 29	23.0 20.9	17 28
Rogue:					
Raygold, Ore.	10.5	27	28	14.6	28
Grants Pass, Ore.	17	27	28	19.0	28
Columbia Basin					
Santiam: Jefferson, Ore.	13	22 28	23 30	13.6 17.4	22 28
South Yamhill: Whiteson, Ore.	38	22	23	40.9	23
Tualatin: Dilley 1 SSW, Ore.	12	5 22	7 23	12.5 12.7	6 23
Willamette:					
Harrisburg, Ore.	12	28	29	12.7	28
Albany, Ore.	20	29	30	20.6	29
Oregon City, Ore.	12	30	Feb. 2	13.4	30
Miscellaneous Basins					
Chehalis:					
Centralia 1 W, Wash.	63	5	8	68.6	6
Grand Mound, Wash.	14.5	6	6	16.7	6
Snohomish: Snohomish, Wash.	23	6	6	23.7	6
Skookumchuck:					
Centralia, Wash. (Harrison St. gage)	68	6	6	68.7	6

* Provisional
** Continued at end of month
\# Highest stage reported but not necessarily the crest
* Affected by backwater from Lake Marion

RADIOSONDE DATA

Average monthly values

Table 20 — JANUARY 1954

Standard pressure surface (mb.)	ALBUQUERQUE, N. MEX. (839 MB.)				ATLANTA, GA. (986 MB.)				BISMARCK, N. DAK. (959 MB.)				BOISE, IDAHO (915 MB.)				BROWNSVILLE, TEX. (1019 MB.)				BUFFALO, N. Y. (993 MB.)				BURKWOOD, LA. (1022 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	1,619	3.9	44	31	309	6.4	76	31	505	-17.0	75	30	868	1.9	75	31	7	16.7	86	31	221	- 4.9	77	31	3	14.0	90
1000---	31	165			31	195			31	184			30	146			31	168	17.5	82	31	161	-11.2		31	185	15.0	77
950----	31	592			31	625	7.7	62	31	578	-16.9	65	30	568			31	609	15.6	76	31	569	- 6.1	73	31	623	13.5	64
900----	31	1,044			31	1,063	6.8	52	31	981	-13.6	64	30	1,004	3.2	62	31	1,064	14.6	58	31	986	- 7.5	69	31	1,073	11.6	58
850----	31	1,513			31	1,533	6.7	40	31	1,418	-10.5	56	30	1,466	.5	59	31	1,546	13.3	49	31	1,430	- 8.2	65	31	1,550	10.5	41
800----	31	2,009	4.3	37	31	2,029	5.0	38	31	1,886	- 9.3	50	30	1,949	- 2.9	63	31	2,055	12.0	42	31	1,900	- 8.7	58	31	2,053	8.8	38
750----	31	2,539	1.9	35	31	2,563	2.7	35	31	2,391	-10.2	51	30	2,463	- 6.0	64	31	2,600	9.9	35	31	2,405	- 9.7	55	31	2,595	6.4	35
700----	31	3,085	- 1.4	34	31	3,110	.1	32	31	2,914	-11.9	51	30	2,995	- 8.9	63	30	3,164	6.6	33	31	2,928	-12.4	47	31	3,148	3.5	
650----	31	3,674	- 4.7	37	31	3,708	- 3.2		31	3,490	-14.5	51	30	3,573	-12.1	61	29	3,772	2.6		31	3,499	-14.8	46	31	3,749	.6	
600----	31	4,296	- 8.6	38	31	4,329	- 6.9	32	31	4,080	-18.1	50	30	4,174	-15.6	57	29	4,410	- 1.5		31	4,094	-18.0	48	30	4,385	- 3.1	
550----	31	4,966	-12.9	37	31	5,005	-11.3	32	31	4,730	-22.2	49	30	4,830	-19.9	55	28	5,100	- 5.7		31	4,745	-21.3	45	30	5,066	- 7.4	
500----	31	5,685	-17.7		31	5,727	-16.7		31	5,419	-26.8	47	30	5,526	-24.5	52	28	5,838	-10.5		31	5,436	-25.8	41	30	5,804	-12.4	
450----	31	6,471	-23.5	35	31	6,519	-22.5	36	31	6,179	-32.3	44	30	6,293	-29.6	51	28	6,649	-16.3		31	6,198	-31.4	44	30	6,612	-18.3	
400----	31	7,316	-29.9	39	31	7,363	-28.7	39	31	6,992	-38.1		30	7,115	-35.4	48	28	7,516	-22.9		31	7,013	-37.1		30	7,469	-24.8	
350----	31	8,252	-37.0		31	8,305	-35.5		31	7,898	-44.6		30	8,030	-42.6		27	8,479	-30.2		31	7,922	-43.4		30	8,425	-32.2	
300----	31	9,300	-44.9		30	9,361	-43.2		30	8,916	-51.4		30	9,053	-50.3		26	9,554	-38.8		31	8,943	-49.6		30	9,494	-40.3	
250----	31	10,495	-52.8		30	10,565	-51.2		30	10,082	-57.0		30	10,225	-56.5		24	10,779	-48.3		30	10,127	-54.8		30	10,710	-49.9	
200----	31	11,913	-58.4		29	11,994	-58.0		29	11,491	-57.0		30	11,634	-57.3		24	12,214	-57.8		28	11,545	-56.1		30	12,139	-58.0	
175----	31	12,748	-59.7		29	12,831	-59.2		28	12,336	-55.8		30	12,480	-55.7		23	13,050	-61.3		25	12,394	-55.2		30	12,974	-61.2	
150----	31	13,711	-59.8		29	13,793	-60.9		26	13,325	-54.7		30	13,463	-55.1		20	13,995	-64.8		25	13,376	-55.9		30	13,922	-64.4	
125----	29	14,839	-62.6		28	14,914	-64.1		24	14,489	-56.0		29	14,614	-56.1		15	15,091	-69.4		22	14,537	-57.7		30	15,024	-68.5	
100----	27	16,201	-66.2		25	16,261	-67.1		23	15,902	-57.2		29	16,027	-58.1		9	16,400	-72.0		18	15,927	-58.6		28	16,345	-72.9	
80-----	25	17,557	-66.1		21	17,606	-68.2		20	17,307	-58.0		24	17,439	-57.8		7	17,698	-73.2		18	17,323	-59.1		25	17,651	-72.9	
60-----	24	19,310	-64.6		18	19,344	-66.0		15	19,113	-58.4		19	19,252	-57.4		5	29,404	-69.7		15	19,109	-59.8		15	19,363	-68.0	
50-----	19	20,437	-62.8		17	20,459	-64.5		12	20,219	-58.7		16	20,420	-56.6						8	20,265	-59.3		6	20,492	-65.9	
40-----	13	21,802	-61.4		14	21,824	-62.2						8	21,802	-57.9						5	21,663	-59.4					
30-----	9	23,587	-59.3		5	23,634	-59.5																					

Standard pressure surface (mb.)	CAMAGUEY, CUBA (1005 MB.)				CARIBOU, ME. (994 MB.)				CHARLESTON, S. C. (1021 MB.)				COLUMBIA, MO. (992 MB.)				DODGE CITY, KANS. (926 MB.)				EL PASO, TEX. (884 MB.)				ELY, NEV. (807 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	122	19.8	93	31	191	-14.0	80	31	13	9.0	84	31	238	- 0.5	66	31	792	- 2.0	64	31	1,195	9.4	38	31	1,908	- 3.2	61
1000---	31	163	20.5	89	31	140	-17.7		31	182	12.1	69	31	168			31	174			31	149			31	166		
950----	31	610	19.7	79	31	535	-13.8	70	31	615	10.4	62	31	584	- .5	59	31	588			31	588			31	593		
900----	31	1,073	17.6	71	31	941	-13.7	64	31	1,060	8.7	59	31	1,012	- .2	55	31	1,023	- .1	53	31	1,043			31	1,031		
850----	31	1,560	14.8	63	31	1,376	-13.2	57	31	1,531	6.8	51	31	1,470	.6	52	31	1,484	3.7	44	31	1,518	10.9	28	31	1,494		
800----	31	2,071	12.3	53	31	1,837	-13.6	57	31	2,027	5.5	38	31	1,956	.1	43	31	1,977	4.1	36	31	2,020	8.1	28	31	1,980	- .9	57
750----	31	2,612	9.8	41	31	2,335	-14.6	54	31	2,560	3.3	35	31	2,479	- 1.9	38	31	2,502	1.8	32	31	2,559	5.6	26	31	2,500	- 1.9	55
700----	31	3,181	7.2	33	31	2,847	-16.3	52	31	3,109	.7	30	31	3,018	- 4.4	35	31	3,052	- 1.5	31	31	3,110	2.2		31	3,042	- 4.5	49
650----	30	3,796	4.3		31	3,412	-18.6	51	31	3,705	- 2.9	30	31	3,603	- 7.9	35	31	3,643	- 5.4	33	31	3,708	- 1.9		31	3,626	- 8.1	49
600----	28	4,435	.3		31	3,995	-21.4	50	31	4,329	- 6.6		30	4,219	-10.8	33	31	4,261	- 9.5	34	31	4,335	- 6.1		31	4,239	-12.0	48
550----	28	5,130	- 4.0		31	4,639	-25.2	48	31	5,007	-10.9		30	4,887	-15.4	35	31	4,929	-13.8	35	31	5,012	-10.8		31	4,900	-15.9	47
500----	28	5,873	- 9.0		31	5,317	-29.7	45	31	5,728	-16.0		30	5,595	-20.6	34	31	5,644	-18.9	30	31	5,736	-15.9		30	5,614	-20.4	47
450----	28	6,690	-14.8		31	6,071	-34.4		31	6,521	-22.0		30	6,376	-26.2		30	6,423	-25.1	38	31	6,525	-21.6	35	30	6,393	-25.9	44
400----	28	7,562	-21.6		31	6,875	-40.1	43	31	7,369	-28.2		30	7,207	-32.9		29	7,257	-31.9	39	31	7,379	-27.9	39	30	7,228	-32.2	44
350----	26	8,531	-28.7		30	7,772	-45.9		31	8,313	-35.1		30	8,132	-40.1		29	8,185	-38.9		31	8,323	-34.8	38	30	8,156	-38.4	
300----	26	9,616	-36.7		28	8,783	-51.2		31	9,369	-42.8		30	9,165	-47.8		28	9,228	-46.8		31	9,378	-42.8		29	9,192	-47.3	
250----	26	10,854	-45.5		28	9,957	-54.4		31	10,575	-50.7		30	10,346	-55.3		28	10,412	-54.8		31	10,583	-51.2		28	10,378	-55.2	
200----	26	12,311	-54.8		28	11,383	-54.7		31	12,004	-57.4		30	11,750	-59.5		26	11,818	-59.8		27	12,016	-58.0		28	11,764	-59.0	
175----	26	13,156	-59.4		28	12,238	-54.1		30	12,845	-58.8		30	12,587	-58.4		24	12,649	-59.1		27	12,852	-59.9		28	12,622	-58.6	
150----	26	14,110	-64.2		27	13,222	-53.9		30	13,805	-61.8		30	13,554	-59.2		23	13,609	-59.0		27	13,809	-62.1		26	13,587	-58.2	
125----	25	15,211	-69.3		25	14,390	-54.8		27	14,926	-65.4		30	14,690	-61.5		23	14,745	-61.6		26	14,920	-65.2		25	14,732	-59.2	
100----	20	16,514	-74.3		23	15,802	-56.4		26	16,274	-68.7		30	16,066	-63.3		22	16,123	-63.7		19	16,266	-68.5		24	16,121	-60.5	
80-----	16	17,816	-76.5		22	17,208	-57.8		23	17,604	-68.5		28	17,434	-64.5		20	17,483	-64.2		14	17,596	-69.1		22	17,499	-61.0	
60-----	13	19,480	-71.5		17	19,018	-58.9		18	19,332	-65.5		21	19,204	-63.0		18	19,241	-63.0		9	19,331	-66.8		15	19,301	-59.1	
50-----	13	20,569	-66.7		14	20,174	-60.0		17	20,448	-63.6		16	20,328	-61.9		14	20,356	-62.1		5	20,445	-65.1		12	20,456	-58.6	
40-----	11	21,936	-60.0		7	21,574	-60.9		11	21,823	-60.5		12	21,720	-61.6		9	21,749	-61.3						11	21,862	-57.8	
30-----	6	23,733	-55.3										6	23,542	-61.9										6	23,693	-56.9	

Standard pressure surface (mb.)	GLASGOW, MONT. (941 MB.)				GRAND JUNCTION, COLO. (853 MB.)				GREAT FALLS, MONT. (884 MB.)				GREEN BAY, WIS. (994 MB.)				GREENSBORO, N. C. (990 MB.)				HATTERAS, N. C. (1021 MB.)				HILO, T. H. (1013 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	648	-16.6	67	31	1,474	- 0.5	68	31	1,128	-12.4		31	210	- 8.7	73	30	273	3.3	75	31	3	8.2	83	31	9	22.8	77
1000---	31	186			31	181			31	172			31	159	-15.0		30	188			31	173	9.3	73	31	117	21.8	78
950----	31	577	-24.4		31	607			31	575			31	561	- 8.2	70	30	610	5.2	61	31	599	7.3	62	31	565	18.3	81
900----	31	984	-14.2	63	31	1,045			31	992			31	977	- 9.1	66	30	1,048	4.5	55	31	1,041	5.4	59	31	1,023	15.3	81
850----	31	1,420	-11.3	59	31	1,505	.7	55	31	1,426	-10.3	55	31	1,419	- 9.0	56	30	1,513	3.1	45	31	1,506	3.4	50	31	1,506	12.5	78
800----	31	1,886	-10.1	56	31	1,994	.8	49	31	1,896	- 7.7	60	31	1,888	- 9.2	54	30	2,002	1.6	41	31	1,996	1.9	40	31	2,013	10.5	63
750----	31	2,388	-10.6	56	31	2,516	- 1.5	48	31	2,401	- 9.0	60	31	2,393	-10.7	52	30	2,527	.1	35	31	2,522	- .2	37	31	2,556	8.8	45
700----	31	2,912	-12.3	53	31	3,056	- 4.7	46	31	2,929	-11.4	57	31	2,914	-12.9	53	30	3,071	- 2.6	35	31	3,064	- 2.5	38	31	3,117	5.7	40
650----	31	3,482	-15.5	50	31	3,639	- 8.1	46	31	3,497	-15.3	56	31	3,485	-15.4	53	30	3,660	- 5.4	34	31	3,655	- 5.7	37	31	3,720	2.6	34
600----	31	4,074	-19.5	49	31	4,252	-12.0	45	31	4,093	-19.0	52	31	4,078	-18.4	49	30	4,279	- 9.2	34	31	4,272	- 9.3	34	31	4,363	- 1.1	
550----	31	4,717	-23.8	48	31	4,915	-16.3	46	31	4,733	-23.6	51	31	4,722	-22.3	50	30	4,952	-13.6		31	4,944	-13.4	31	30	5,052	- 5.2	
500----	31	5,404	-28.8	50	31	5,623	-20.8	48	31	5,424	-28.5	53	31	5,416	-27.1	51	30	5,665	-18.1	37	30	5,657	-18.4		30	5,794	- 9.7	
450----	31	6,154	-34.0	50	31	6,401	-26.2	45	31	6,171	-33.9	54	31	6,169	-32.1	49	30	6,450	-23.7	38	30	6,445	-23.6		30	6,606	-15.1	
400----	31	6,965	-39.5		31	7,234	-32.7	45	31	6,988	-39.5		31	6,989	-37.8		30	7,293	-29.9	39	30	7,286	-29.6		30	7,481	-21.3	
350----	29	7,866	-45.6		30	8,155	-39.6		30	7,884	-46.4		31	7,895	-44.1		29	8,226	-36.8	41	30	8,225	-36.6		30	8,451	-28.4	
300----	28	8,874	-51.7		30	9,189	-47.8		30	8,891	-52.9		31	8,913	-50.4		29	9,275	-44.4		30	9,275	-44.3		30	9,538	-35.9	
250----	25	10,019	-55.7		30	10,369	-55.4		29	10,048	-57.1		31	10,087	-55.3		29	10,475	-51.9		29	10,470	-52.1		30	10,780	-44.6	
200----	24	11,439	-55.8		30	11,774	-59.1		28	11,464	-55.7		31	11,502	-56.6		29	11,900	-57.6		29	11,896	-57.2		30	12,239	-54.9	
175----	24	12,289	-55.2		29	12,604	-57.5		27	12,327	-55.3		31	12,351	-55.4		29	12,742	-57.5		29	12,740	-57.4		29	13,084	-60.3	
150----	22	13,278	-54.7		29	13,577	-57.7		27	13,308	-55.6		30	13,338	-55.5		29	13,714	-58.3		29	13,711	-59.2		25	14,032	-66.0	
125----	22	14,442	-55.3		29	14,722	-60.1		26	14,468	-57.0		24	14,505	-56.6		28	14,851	-61.0		26	14,843	-62.9		24	15,121	-72.0	
100----	21	15,854	-55.5		28	16,109	-62.4		25	15,884	-56.8		23	15,917	-58.3		25	16,222	-63.3		25	16,214	-65.3		15	16,422	-77.0	
80-----	19	17,270	-55.3		25	17,493	-63.6		23	17,291	-57.1		19	17,331	-58.6		24	17,585	-64.5		24	17,567	-65.9		7	17,704	-77.8	
60-----	13	19,110	-54.3		17	19,268	-61.6		21	19,112	-56.5		16	19,140	-59.8		18	19,349	-62.2		19	19,329	-63.6					
50-----	10	20,283	-54.9		9	20,423	-61.3		19	20,276	-57.0		10	20,280	-61.2		18	20,476	-61.8		17	20,444	-62.5					
40-----	5	21,759	-55.0						11	21,733	-57.4		7	21,662	-61.5		13	21,873	-60.6		13	21,829	-61.1					
30-----									6	23,587	-55.8						9	23,647	-59.2		5	23,641	-59.3					

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

JANUARY 1954

Standard pressure surfaces (mb.)	INTERNAT. FALLS, MINN. (976 MB.)				LAKE CHARLES, LA. (1021 MB.)				LANDER, WYO. (825 MB.)				LAS VEGAS, NEV. (940 MB.)				LITTLE ROCK, ARK. (1012 MB.)				MAZATLAN, MEXICO (1011 MB.)				MEDFORD, ORE. (968 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	360	-19.1	66	31	5	12.3	82	31	1,696	- 2.2	62	31	660	6.9	47	31	79	5.3	71	31	14	21.3	81	31	401	4.3	89
1,000	30	175			31	182	12.9	73	31	132			31	142			31	175	6.1	65	31	111	20.9	76	31	133		
950	30	561	-18.3	68	31	615	11.8	67	31	555			31	571			31	601	5.6	62	31	572	23.8	38	31	555	4.8	77
900	30	963	-16.6	70	31	1,065	10.9	59	31	995			31	1,018	9.1	39	31	1,038	6.4	59	31	1,029	21.5	33	31	993	3.0	73
850	30	1,393	-15.0	67	31	1,541	9.7	51	31	1,453			31	1,489	6.4	40	31	1,507	6.1	55	31	1,521	18.6	30	31	1,454	.4	73
800	30	1,852	-14.3	63	31	2,042	7.8	51	31	1,938	- .5	50	31	1,984	3.8	39	31	2,002	4.9	51	31	2,037	15.0	32	31	1,938	- 2.3	72
750	30	2,344	-15.4	59	31	2,580	5.7	41	31	2,455	- 3.1	48	31	2,512	1.3	35	31	2,533	2.6	43	31	2,589	11.2	39	31	2,454	- 4.7	69
700	30	2,861	-16.9	57	31	3,135	3.3	32	31	2,993	- 6.6	48	31	3,058	- 1.3	34	31	3,081	- .3	41	31	3,151	7.0	43	31	2,989	- 7.5	65
650	30	3,420	-19.5	53	31	3,735	- .1		31	3,575	- 9.9	47	31	3,652	- 4.8	31	31	3,674	- 3.7	40	30	3,761	2.6	45	31	3,569	-10.8	62
600	28	4,003	-23.0	50	30	4,368	- 3.8		31	4,182	-13.3	43	31	4,271	- 8.4		31	4,298	- 7.8	40	29	4,399	- 1.5		31	4,174	-14.5	54
550	28	4,636	-26.9	50	30	5,048	- 8.5		31	4,841	-17.7	41	31	4,944	-13.2	32	31	4,972	-12.3	39	28	5,089	- 5.8		31	4,832	-18.4	51
500	28	5,316	-31.4	50	30	5,780	-13.7		31	5,544	-22.7	39	31	5,658	-18.7	34	31	5,690	-17.5	38	28	5,826	-10.6		31	5,533	-23.1	49
450	28	6,058	-38.2		29	6,577	-19.4		31	6,314	-28.6	39	31	6,440	-24.7	36	31	6,476	-23.1		28	6,635	-15.9		31	6,301	-28.0	47
400	26	6,862	-41.6		29	7,436	-25.8		31	7,140	-34.9	40	31	7,281	-31.3	34	31	7,322	-29.2		28	7,506	-22.2		31	7,130	-34.3	50
350	27	7,758	-47.5		29	8,388	-33.1		31	8,057	-42.0		31	8,211	-38.7		31	8,261	-36.5		28	8,473	-29.5		31	8,051	-41.0	
300	26	8,763	-52.6		29	9,452	-41.3		31	9,082	-49.7		31	9,249	-46.5		31	9,311	-44.7		28	9,555	-37.6		31	9,081	-48.4	
250	26	9,929	-55.5		28	10,666	-49.9		31	10,255	-56.1		30	10,446	-54.2		30	10,519	-52.3		25	10,788	-47.3		31	10,262	-54.7	
200	26	11,351	-54.7		27	12,100	-57.6		31	11,663	-58.4		30	11,852	-59.8		30	11,941	-57.8		16	12,223	-57.3		28	11,678	-57.7	
175	26	12,207	-53.9		27	12,935	-60.9		30	12,507	-57.8		30	12,686	-59.0		30	12,779	-58.8		13	13,050	-60.3		27	12,520	-56.4	
150	26	13,194	-54.2		26	13,887	-63.2		30	13,481	-56.9		28	13,647	-58.7		29	13,741	-59.9		8	13,990	-64.7		26	13,497	-55.9	
125	24	14,363	-55.1		24	14,995	-66.6		28	14,632	-57.7		28	14,784	-61.3		27	14,868	-63.0		6	15,085	-68.6		22	14,654	-57.6	
100	22	15,784	-55.9		21	16,337	-70.2		27	16,041	-58.2		27	16,162	-64.2		24	16,225	-66.8						17	16,064	-57.8	
80	21	17,188	-56.2		19	17,654	-71.9		27	17,441	-58.8		24	17,526	-64.5		21	17,576	-66.8						10	17,458	-58.0	
60	11	19,062	-56.9		16	19,352	-68.3		21	19,244	-57.3		22	19,295	-62.9		16	19,308	-64.4						8	19,238	-57.4	
50	5	20,290	-55.1		16	20,451	-65.5		19	20,402	-57.2		18	20,413	-61.9		13	20,438	-63.7						7	20,375	-58.4	
40					11	21,817	-62.4		14	21,815	-56.6		12	21,787	-60.8		7	21,813	-61.7						5	21,774	-57.6	
30					7	23,601	-60.2		8	23,614	-56.4		5	23,571	-58.8													

Standard pressure surfaces (mb.)	MIAMI, FLA. (1021 MB.)				MIDLAND, TEX. (918 MB.)				NANTUCKET, MASS. (1016 MB.)				NASHVILLE, TENN. (1001 MB.)				NORTH PLATTE, NEBR. (918 MB.)				OAKLAND, CALIF. (1018 MB.)				OKLAHOMA CITY, OKLA. (974 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	4	19.6	78	31	871	7.4	54	31	14	0.1	79	31	177	4.7	79	31	849	- 5.7	72	31	6	9.8	80	31	391	2.7	69
1,000	31	182	19.6	73	31	156			31	139	.3	74	31	180	1.6	71	31	165			31	155	9.9	73	31	171		
950	31	621	17.0	73	31	587			31	551	- 1.7	75	31	601	4.3	64	31	578			31	581	7.5	69	31	592	4.1	60
900	31	1,082	14.0	72	31	1,037	9.8	45	31	978	- 3.3	73	31	1,039	3.8	58	31	1,002	- 3.5	60	31	1,023	5.4	63	31	1,029	5.3	55
850	31	1,562	11.7	59	31	1,512	11.0	32	31	1,430	- 3.5	62	31	1,503	3.8	50	31	1,456	- .7	46	31	1,488	3.5	54	31	1,497	6.5	42
800	31	2,068	10.6	35	31	2,015	8.7	29	31	1,908	- 4.9	58	31	1,995	2.4	45	31	1,941	.6	40	31	1,979	2.0	43	31	1,994	5.9	32
750	31	2,608	8.4		31	2,553	6.2	24	31	2,417	- 7.0	53	31	2,521	.5	41	31	2,461	- 1.5	37	31	2,503	- .8	41	31	2,527	3.1	31
700	31	3,171	6.0		31	3,109	3.0	25	31	2,949	- 9.3	47	31	3,065	- 2.2	41	31	3,003	- 4.7	40	31	3,045	- 3.8	41	31	3,075	.1	31
650	31	3,776	2.8		31	3,707	- .8	25	31	3,524	-12.1	44	31	3,655	- 5.1	39	31	3,586	- 8.1	40	31	3,633	- 6.8	42	31	3,669	- 3.5	32
600	31	4,417	- 1.1		31	4,339	- 5.1		31	4,127	-15.4	40	30	4,272	- 9.0	40	31	4,199	-12.4	43	31	4,247	-10.5	41	31	4,292	- 7.7	33
550	31	5,103	- 5.6		31	5,015	- 9.8		31	4,780	-19.3	40	30	4,945	-13.5	43	30	4,860	-16.8	43	31	4,913	-15.0	41	31	4,966	-12.1	33
500	31	5,846	-10.7		31	5,745	-15.1		31	5,481	-23.9	40	30	5,658	-18.4	39	30	5,568	-21.7	42	31	5,625	-19.9	40	31	5,684	-17.5	34
450	31	6,655	-16.6		31	6,538	-20.9		31	6,247	-29.0	41	30	6,444	-24.1	39	30	6,342	-27.1	41	31	6,405	-25.4	39	31	6,470	-23.5	
400	31	7,522	-23.0		30	7,394	-27.4		31	7,074	-34.9		29	7,285	-30.4	40	30	7,173	-33.3	37	31	7,242	-31.9	39	31	7,313	-30.0	35
350	31	8,485	-30.4		30	8,340	-34.3		31	7,992	-41.5		29	8,221	-37.2		30	8,095	-40.9		30	8,171	-39.1		31	8,248	-37.3	
300	30	9,559	-38.9		29	9,399	-42.3		31	9,023	-47.5		29	9,238	-44.7		30	9,124	-48.9		30	9,209	-47.0		30	9,294	-44.4	
250	30	10,782	-48.0		28	10,600	-50.2		31	10,209	-53.5		29	10,466	-52.5		30	10,298	-56.8		30	10,395	-54.7		30	10,491	-52.2	
200	30	12,220	-57.2		28	12,032	-57.5		31	11,635	-55.5		29	11,889	-57.5		29	11,697	-60.1		30	11,801	-59.3		30	11,911	-58.1	
175	30	13,056	-61.0		28	12,870	-59.7		31	12,485	-55.5		28	12,736	-58.1		29	12,533	-58.5		28	12,639	-58.6		30	12,748	-59.4	
150	29	14,000	-65.4		28	13,827	-61.7		31	13,467	-55.6		27	13,702	-59.3		27	13,500	-58.5		28	13,610	-58.0		30	13,711	-59.9	
125	29	15,097	-69.4		28	14,950	-64.1		29	14,623	-57.7		25	14,840	-61.8		24	14,645	-59.4		28	14,753	-60.0		29	14,839	-63.0	
100	27	16,415	-73.8		27	16,303	-67.3		27	16,020	-59.4		22	16,207	-64.8		23	16,033	-61.5		24	16,128	-61.7		27	16,198	-65.6	
80	20	17,709	-74.2		26	17,644	-68.2		23	17,415	-59.5		19	17,563	-64.5		19	17,411	-61.7		24	17,505	-62.3		19	17,561	-66.6	
60	15	19,401	-68.5		15	19,382	-66.3		18	19,200	-60.0		17	19,331	-63.9		16	19,191	-61.1		23	19,282	-61.3		11	19,309	-63.4	
50	13	20,496	-64.4		8	20,500	-64.0		17	20,336	-60.0		12	20,448	-62.6		9	20,342	-60.5		21	20,420	-59.9		6	20,426	-62.5	
40	10	21,869	-60.2						15	21,739	-59.6		5	21,842	-60.9						12	21,811	-58.7					
30									7	23,557	-60.0										5	23,685	-57.1					

Standard pressure surfaces (mb.)	OMAHA, NEBR. (985 MB.)				PHOENIX, ARIZ. (977 MB.)				PITTSBURGH, PA. (975 MB.)				PORTLAND, ME. (1016 MB.)				RAPID CITY, S. DAK. (903 MB.)				ST. CLOUD, MINN. (981 MB.)				SAN ANTONIO, TEX. (992 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	300	- 6.9	66	31	338	11.4	57	31	382	- 1.1	71	31	20	- 7.9	77	31	966	- 7.5	63	31	316	-15.2	71	31	243	12.1	71
1,000	31	181			31	147			31	171			31	140	- 7.0	68	31	161			31	168			31	173		
950	31	586	- 6.7	60	31	583	14.8	35	31	586	- 1.3	68	31	543	- 7.5	66	31	567			31	562	-13.7	69	31	605	12.7	66
900	31	1,006	- 4.8	56	31	1,035	12.5	30	31	1,010	- 2.7	66	31	960	- 7.8	64	31	994	- 8.4	60	31	969	-11.0	66	31	1,058	11.6	66
850	31	1,458	- 1.6	46	31	1,512	9.6	28	31	1,462	- 3.8	63	31	1,405	- 7.8	61	31	1,444	- 3.9	51	31	1,410	- 8.6	56	31	1,535	10.4	55
800	31	1,941	- 1.0	38	31	2,011	6.7	30	31	1,939	- 5.5	59	31	1,875	- 8.4	56	31	1,923	- 4.1	51	31	1,880	- 8.5	50	31	2,039	9.4	37
750	31	2,459	- 2.8	33	31	2,545	3.6	30	31	2,452	- 6.8	56	31	2,381	- 9.5	54	31	2,434	- 4.2	50	31	2,385	- 9.9	46	31	2,578	7.2	31
700	31	2,999	- 5.4	32	31	3,095	.5	30	31	2,981	- 9.0	49	31	2,905	-12.0	49	31	2,973	- 7.0	48	31	2,910	-12.1	46	31	3,136	3.9	30
650	31	3,581	- 9.0	34	31	3,694	- 3.1		31	3,562	-11.7	44	31	3,476	-14.7	47	31	3,550	-10.5	50	31	3,481	-15.2	42	31	3,736	.2	
600	31	4,192	-12.7	37	31	4,314	- 7.3		31	4,160	-14.5	44	31	4,071	-18.0	48	31	4,158	-14.6	49	31	4,074	-18.7	41	30	4,370	- 3.6	
550	31	4,852	-16.8	40	31	4,990	-12.2	31	31	4,821	-18.4	42	31	4,719	-21.8	44	31	4,813	-18.8	46	31	4,722	-22.7	40	30	5,054	- 8.2	
500	31	5,560	-21.5	38	31	5,708	-17.1		31	5,519	-22.9	42	31	5,412	-26.3	40	31	5,514	-23.8	45	31	5,410	-27.0	39	30	5,786	-13.1	
450	31	6,335	-27.1	38	31	6,499	-22.9		31	6,293	-28.3	41	31	6,169	-31.7	41	31	6,277	-29.1	43	31	6,168	-32.0		30	6,586	-19.0	
400	31	7,166	-33.6	40	31	7,342	-28.9		31	7,117	-34.1	44	31	6,989	-37.2		31	7,105	-35.5	46	31	6,984	-37.7		30	7,446	-25.6	
350	31	8,088	-41.0		30	8,278	-36.2		31	8,037	-40.7		30	7,897	-43.2		30	8,011	-42.7		31	7,891	-44.4		30	8,399	-32.7	42
300	31	9,117	-48.9		30	9,328	-44.1		31	9,069	-47.4		30	8,922	-48.0		30	9,034	-50.3		31	8,908	-51.3		30	9,467	-40.7	
250	30	10,291	-56.5		30	10,528	-52.2		29	10,253	-53.5		29	10,108	-52.9		30	10,204	-56.9		31	10,076	-56.5		30	10,685	-49.0	
200	29	11,695	-58.9		30	11,951	-57.3		27	11,674	-56.7		28	11,545	-54.7		30	11,607	-58.1		31	11,489	-56.1		30	12,120	-57.8	
175	29	12,535	-57.7		30	12,793	-57.9		25	12,518	-55.4		26	12,393	-54.1		30	12,452	-56.3		30	12,344	-54.9		30	12,955	-60.8	
150	29	13,509	-57.3		30	13,762	-59.3		21	13,507	-56.1		26	13,380	-54.3		27	13,434	-55.3		30	13,328	-55.3		28	13,917	-63.4	
125	27	14,657	-58.7		30	14,895	-62.5		19	14,654	-57.5		23	14,542	-54.5		27	14,594	-56.0		29	14,491	-56.4		28	15,026	-67.1	
100	26	16,053	-60.4		28	16,261	-65.4		18	16,045	-60.1		22	15,963	-55.9		26	16,005	-57.3		27	15,914	-57.6		23	16,262	-70.6	
80	20	17,451	-60.8		25	17,613	-65.6		15	17,452	-60.1		17	17,369	-55.8		24	17,417	-58.7		25	17,326	-57.9		16	17,669	-71.4	
60	15	19,247	-60.2		20	19,359	-64.0		13	19,252	-61.0		13	19,187	-57.6		23	19,234	-58.4		12	19,134	-59.2		14	19,383	-68.6	
50	13	20,393	-60.6		19	20,482	-62.4		11	20,386	-60.9		9	20,351	-56.9		19	20,389	-57.6		5	20,304	-58.5		11	20,478	-66.4	
40	6	21,810	-61.2		16	21,873	-60.3		10	21,769	-60.5		8	21,748	-55.5		9	21,794	-58.4						8	21,836	-63.5	
30	5	23,600	-61.3		8	23,705	-58.1						5	23,575	-54.5										5	23,624	-59.1	

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

RADIOSONDE DATA

Average monthly values

Table 20—Continued

JANUARY 1954

Standard pressure surface (mb.)	SAN JUAN, P. R. (1016 MB.)				SANTA MARIA, CALIF. (1010 MB.)				S. STE. MARIE, MICH. (992 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
SURFACE	31	19	23.3	79	31	71	9.2	85	31	221	-10.8	82
1,000	31	157	23.4	75	31	154	10.3	79	31	161	-14.7	
950	31	602	20.2	78	31	582	9.6	65	31	559	-11.5	69
900	31	1,068	16.9	79	31	1,028	8.0	53	31	970	-11.9	72
850	31	1,554	13.6	77	31	1,497	6.2	43	31	1,405	-13.0	71
800	31	2,063	11.5	58	31	1,992	3.9	36	31	1,867	-13.3	64
750	31	2,602	9.8	41	31	2,518	1.6	32	31	2,358	-14.1	55
700	31	3,172	7.5	32	31	3,067	- 1.1		31	2,879	-16.0	52
650	31	3,782	4.2		31	3,658	- 4.4	33	31	3,439	-18.6	51
600	31	4,425	.5		31	4,280	- 8.4		31	4,027	-21.8	53
550	31	5,118	- 3.8		31	4,951	-12.9	32	31	4,662	-25.3	56
500	31	5,862	- 9.0		31	5,669	-18.2	35	31	5,348	-29.7	58
450	31	6,679	-14.6		31	6,455	-24.0	36	31	6,096	-34.9	58
400	31	7,550	-21.2		31	7,296	-30.6	35	30	6,902	-40.6	
350	30	8,519	-27.5		30	8,229	-38.0		30	7,799	-46.4	
300	30	9,611	-34.8		30	9,273	-45.6		29	8,814	-51.7	
250	30	10,857	-43.9		30	10,463	-54.3		28	9,985	-55.4	
200	29	12,320	-54.3		30	11,874	-59.0		26	11,388	-54.8	
175	29	13,164	-60.0		30	12,712	-58.3		20	12,257	-53.2	
150	29	14,111	-65.6		30	13,678	-59.4		16	13,252	-53.5	
125	29	15,202	-71.2		30	14,814	-61.6		13	14,421	-55.2	
100	29	16,502	-76.5		28	16,181	-64.5		10	15,821	-56.7	
80	27	17,775	-78.7		28	17,544	-64.0		6	17,215	-57.2	
60	25	19,434	-72.3		25	19,314	-62.2					
50	25	20,519	-67.6		23	20,447	-61.3					
40	21	21,886	-61.6		18	21,823	-59.8					
30	21	23,681	-58.5		8	23,615	-58.6					
20	10	26,238	-56.0									

Standard pressure surface (mb.)	SPOKANE, WASH. (928 MB.)				SWAN ISLAND, W. I. (1016 MB.)				TACUBAYA, MEXICO (775 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
SURFACE	31	722	- 2.6	81	28	10	25.3	79	15	2,306	14.7	
1,000	31	123			28	146	24.8	76	15	80		
950	31	536			28	595	21.3	80	15	540		
900	31	964	- 2.6	74	28	1,062	17.9	77	15	1,019		
850	31	1,416	- 4.0	69	28	1,549	15.2	66	15	1,506		
800	31	1,893	- 6.1	67	28	2,060	12.5	55	15	2,039		
750	31	2,400	- 8.8	65	28	2,605	10.4	37	15	2,587	13.4	
700	31	2,927	-12.1	66	28	3,172	8.0		15	3,154	9.0	
650	31	3,497	-15.6	62	28	3,786	4.9		15	3,767	4.2	
600	31	4,089	-19.3	58	28	4,428	1.1		15	4,408	- .7	
550	31	4,734	-23.4	54	28	5,126	- 2.9		15	5,106	- 3.0	
500	31	5,421	-27.9	52	28	5,871	- 7.5		13	5,850	- 6.9	
450	31	6,176	-33.2	50	28	6,690	-13.1		12	6,673	-12.6	
400	31	6,988	-38.8	53	28	7,570	-19.3		12	7,555	-19.2	
350	31	7,891	-45.0		28	8,547	-26.9		12	8,533	-27.3	
300	31	8,905	-51.4		28	9,639	-35.3		10	9,627	-35.7	
250	31	10,076	-55.6		28	10,884	-44.5		8	10,873	-45.6	
200	29	11,495	-53.9		27	12,342	-54.7					
175	27	12,348	-51.7		27	13,186	-59.8					
150	27	13,346	-51.8		25	14,137	-65.2					
125	26	14,518	-53.1		23	15,236	-69.8					
100	24	15,940	-54.2		21	16,541	-75.9					
80	22	17,377	-53.9		19	17,818	-78.3					
60	17	19,214	-53.5		18	19,484	-71.0					
50	13	20,388	-53.0		18	20,576	-65.5					
40	7	21,846	-54.9		16	21,957	-59.5					
30					15	23,769	-56.8					
20					7	26,363	-52.3					

Standard pressure surface (mb.)	TAMPA, FLA. (1022 MB.)				TATOOSH ISLAND, WASH. (1006 MB.)				VERACRUZ, MEXICO (1016 MB.)				WASHINGTON, D. C. (1010 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
SURFACE	31	9	15.0	82	31	31	3.9	82	31	13	22.5	81	31	88	1.1	64
1,000	31	191	16.5	72	31	78	4.1	77	31	147	21.5	81	31	171	1.8	61
950	31	628	14.7	65	31	497	1.3	77	31	588	19.2	75	31	590	.3	63
900	31	1,083	13.0	52	31	927	- 1.3	74	31	1,055	16.9	78	31	1,017	- .5	63
850	31	1,561	10.8	45	31	1,380	- 4.1	76	31	1,541	14.7	63	31	1,473	- 1.4	60
800	31	2,065	9.7		31	1,856	- 6.9	73	31	2,052	11.9	63	31	1,956	- 2.1	54
750	31	2,605	7.6		31	2,364	- 9.4	63	31	2,593	9.3	55	31	2,473	- 4.1	48
700	31	3,163	5.0		31	2,887	-12.6	59	30	3,159	6.7	42	31	3,008	- 7.0	46
650	31	3,770	2.0		31	3,456	-16.2	56	29	3,768	3.3	37	31	3,590	- 9.7	44
600	31	4,405	- 2.0		31	4,047	-20.1	56	26	4,408	.6		31	4,198	-12.7	41
550	31	5,096	- 6.8		31	4,688	-24.1	53	26	5,102	- 3.0		30	4,864	-16.9	43
500	31	5,827	-11.8		31	5,376	-28.6	51	25	5,851	- 7.7		30	5,564	-21.6	43
450	31	6,635	-17.5		30	6,124	-33.3	48	23	6,673	-13.3		30	6,341	-26.9	41
400	31	7,496	-24.0	32	30	6,935	-38.3		21	7,550	-19.8		30	7,172	-32.7	
350	31	8,455	-31.5		30	7,843	-43.7		19	8,527	-27.2		29	8,107	-39.3	
300	31	9,527	-39.3		30	8,864	-49.5		15	9,612	-36.0		29	9,146	-46.4	
250	30	10,748	-48.5		29	10,053	-52.7		12	10,851	-45.8		29	10,336	-53.7	
200	30	12,186	-56.9		28	11,489	-53.7		11	12,302	-57.0		29	11,753	-57.3	
175	30	13,025	-59.7		28	12,348	-52.6		8	13,127	-62.7		28	12,607	-56.9	
150	29	13,979	-63.3		27	13,332	-52.4		6	14,666	-68.0		26	13,576	-57.3	
125	28	15,086	-68.1		27	14,509	-52.8		5	15,162	-71.4		25	14,718	-60.0	
100	28	16,411	-71.9		26	15,938	-53.9						22	16,095	-61.9	
80	24	17,723	-72.6		23	17,364	-53.9						20	17,465	-62.4	
60	23	19,414	-70.3		17	19,213	-53.5						17	19,236	-61.8	
50	19	20,497	-67.2		15	20,365	-53.5						16	20,366	-60.9	
40	17	21,846	-63.3		10	21,793	-54.9						14	21,765	-60.4	
30	13	23,643	-57.7										9	23,550	-60.1	
20	6	26,255	-53.8													

Note: All observations scheduled at 0300, G.C.T. except at Mazatlan, Merida and Veracruz, where they are taken near 0200, G.C.T., "Number of observations" refers to those of dynamic height only. Temperature and humidity data may be missing for one or more pressure surfaces of some observations. The temperature values are based on 15 or more observations at the surface or 5 observations at a standard pressure level. Relative humidity data are not published for standard pressure surfaces having less than 16 actual observations.

Relative humidity data beginning with October 1, 1948, were computed and expressed in these tables on the basis of 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. All relative humidity observations are obtained by electric hygrometer and have been adjusted to compensate for the value occurring below the operating range of the humidity element.

These average values for standard pressure surfaces were obtained by radiosondes; dynamic height (geopotential) in units of .98 dynamic meter, temperature in degrees centigrade and relative humidity in percent.

PILOT BALLOON DATA

Average monthly resultant winds

Table 21 — JANUARY 1954

Altitude (meters) m.s.l.	Abilene, Tex. (534 m.)			Albuquerque, N. Mex. (1,627 m.)			Billings, Mont. (1,095 m.)			Bismarck, N. Dak. (505 m.)			Boise, Idaho (868 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	29	231	1.7	31	90	0.2	27	259	2.4	31	291	1.6	30	145	2.0
500	--	---	---	--	---	---	--	---	---	--	---	---	--	---	---
1,000	27	234	3.8	--	---	---	--	---	---	29	289	4.7	30	164	2.6
1,500	25	251	6.3	--	---	---	27	241	6.6	27	283	6.6	30	220	4.0
2,000	23	256	8.9	31	226	1.9	26	360	10.3	25	360	9.0	30	251	6.7
2,500	23	270	9.6	29	276	5.4	25	271	11.2	23	285	12.2	21	270	7.3
3,000	22	258	10.7	28	281	8.7	24	273	12.1	21	290	15.3	18	270	8.9
4,000	20	263	13.6	28	278	12.7	17	275	14.3	15	297	22.9	15	271	9.3
5,000	18	272	13.6	28	272	15.6	13	283	15.2	13	296	27.2	14	280	13.3
6,000	17	273	15.5	28	267	18.0	11	270	18.2				10	291	12.8
8,000	13	270	22.0	19	278	16.7									
10,000				14	276	20.3									
12,000															
14,000															

Altitude (meters) m.s.l.	Brownsville, Tex. (7 m.)			Buffalo, N. Y. (220 m.)			Burlington, Vt. (100 m.)			Charleston, S. C. (16 m.)			Cincinnati, Ohio (273 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	131	4.0	25	270	1.1	26	270	0.3	29	265	2.0	26	251	2.2
500	29	151	5.5	25	270	2.2	26	270	1.9	28	246	3.8	26	250	3.3
1,000	21	171	3.5	19	255	5.1	21	269	5.1	27	256	5.1	19	259	6.6
1,500	18	213	2.8	13	279	8.3	16	282	7.7	23	270	7.7	18	271	9.7
2,000	18	225	5.3	10	279	10.4	15	286	11.6	18	282	11.5	15	287	10.7
2,500	18	229	6.7				15	270	14.1	15	289	12.1	14	297	13.0
3,000	17	247	5.1				14	284	16.7	15	288	14.8	14	300	15.4
4,000	11	257	5.7				13	274	22.8	13	270	16.1			
5,000	11	253	8.2				11	280	25.9						
6,000	10	268	10.5												
8,000															
10,000															
12,000															
14,000															

Altitude (meters) m.s.l.	El Paso, Tex. (1,198 m.)			Ely, Nev. (1,910 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	270	1.9	29	180	2.8
500	--	---	---	--	---	---
1,000	--	---	---	--	---	---
1,500	31	241	2.5	--	---	---
2,000	31	249	4.5	29	270	.1
2,500	29	257	6.8	29	270	2.1
3,000	29	264	7.5	29	247	6.1
4,000	28	261	11.7	27	266	9.7
5,000	28	259	13.8	21	276	12.7
6,000	24	270	15.7	18	270	16.7
8,000	20	268	18.8			
10,000	17	272	23.4			
12,000	13	275	31.7			
14,000	11	273	29.9			

Altitude (meters) m.s.l.	Grand Junction, Colo. (1,475 m.)			Green Bay, Wis. (210 m.)			Greensboro, N. C. (271 m.)			Havre, Mont. (767 m.)			Jacksonville, Fla. (16 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	298	1.4	30	275	1.7	24	272	3.1	29	301	1.0	29	318	0.6
500	--	---	---	30	270	2.8	24	263	4.1	--	---	---	28	246	2.5
1,000	--	---	---	25	279	4.5	22	269	7.5	29	265	3.6	28	251	5.6
1,500	31	299	1.4	19	279	7.1	21	279	10.0	25	265	9.3	26	261	7.6
2,000	31	270	1.2	16	276	11.0	19	291	13.2	22	270	11.9	23	267	9.2
2,500	31	210	4.4	15	277	13.9	19	285	16.1	17	276	12.8	20	275	10.4
3,000	28	228	7.6	12	282	16.0	17	282	18.5	14	283	12.4	20	281	11.4
4,000	24	264	12.4	11	287	19.9	15	280	19.8				19	278	16.1
5,000	22	269	15.6				15	280	22.5				16	282	18.9
6,000	17	360	16.8				12	283	25.1				12	278	21.0
8,000	14	270	21.8												

Altitude (meters) m.s.l.	Little Rock, Ark. (88 m.)			Medford, Ore. (416 m.)			Miami, Fla. (12 m.)			Mobile, Ala. (66 m.)			Nashville, Tenn. (182 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	22	185	0.9	26	234	0.4	31	91	2.4	27	69	0.9	25	238	1.0
500	22	270	1.0	26	210	.3	31	94	2.1	27	236	.6	25	230	2.3
1,000	18	296	4.7	25	187	3.2	30	90	.4	25	301	2.8	19	180	4.8
1,500	18	288	8.6	22	213	5.2	27	256	2.0	19	300	5.1	17	281	9.2
2,000	17	283	10.7	17	226	6.9	24	259	4.2	18	300	5.7	16	288	11.5
2,500	17	270	11.8	11	270	6.5	21	265	6.8	17	300	8.0	16	270	13.3
3,000	16	279	13.9	10	243	9.5	20	273	8.6	15	297	9.6	15	290	16.3
4,000	11	283	13.7				18	273	9.2	13	288	12.5	11	286	19.7
5,000							15	272	15.6	12	281	15.5	10	289	22.1
6,000							12	265	17.7				10	291	24.9
8,000															

Altitude (meters) m.s.l.	Oakland, Calif. (8 m.)			Omaha, Nebr. (306 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	30	193	1.6	31	270	1.0
500	29	230	1.8	31	270	1.8
1,000	23	287	1.5	27	266	3.4
1,500	21	301	2.1	26	282	6.8
2,000	19	270	2.1	22	281	10.1
2,500	17	308	3.6	20	289	12.9
3,000	17	303	4.3	20	291	14.4
4,000	17	286	7.0	18	291	17.6
5,000	15	279	9.9	13	284	18.4
6,000	12	270	14.1	11	270	19.9
8,000						

Altitude (meters) m.s.l.	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.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	105	0.4	31	9	2.0	29	321	1.3	26	270	1.1	27	177	1.0
500	31	105	.8	--	---	---	29	270	1.5	26	270	2.5	27	174	.6
1,000	31	107	1.3	31	8	1.9	27	263	3.5	23	272	5.1	25	197	2.5
1,500	30	165	1.5	31	278	4.3	22	290	7.8	21	278	6.5	21	241	4.3
2,000	29	270	1.7	27	270	8.8	20	287	9.4	21	280	8.9	20	266	7.2
2,500	28	251	4.1	25	282	12.3	18	287	12.8	19	270	10.2	18	267	9.3
3,000	28	247	5.7	24	284	14.6	18	285	15.9	17	296	12.8	18	267	11.2
4,000	25	261	8.0	18	288	17.0	16	290	21.7	15	293	15.7	17	262	13.0
5,000	25	268	10.0	15	291	21.0	14	285	26.6	13	293	20.8	15	267	15.6
6,000	25	270	12.7	11	288	23.6	10	360	29.1	13	293	24.9	15	261	18.4
8,000	14	270	13.1												
10,000	11	276	16.6												
12,000															
14,000															
16,000															

Altitude (meters) m.s.l.	San Diego, Calif. (13 m.)			* Sault Ste. Marie, Mich. (221 m.)			Seattle, Wash. (116 m.)			Spokane, Wash. (725 m.)			† Washington, D. C. (88 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	28	285	2.4	30	270	0.1	21	270	0.5	25	270	1.1	31	281	2.1
500	27	319	2.6	30	270	1.4	21	209	4.3	--	---	---	30	271	4.2
1,000	24	356	.9	30	270	4.4	16	216	6.0	25	214	5.2	30	273	7.6
1,500	23	318	1.3	30	281	7.4	10	250	5.6	19	234	7.7	30	270	10.7
2,000	22	360	3.4	30	285	9.6				15	245	8.3	31	282	13.3
2,500	22	293	5.2	30	360	11.4				13	360	11.4	31	270	15.1
3,000	22	277	5.4	30	282	13.8				13	255	11.2	31	282	17.0
4,000	19	273	7.6	30	283	18.5							31	279	20.5
5,000	19	272	8.5	30	284	21.8							31	276	24.7
6,000	15	270	11.4	29	270	26.3							31	275	28.8
8,000	11	281	12.5	26	280	33.9							30	360	35.8
10,000	11	280	13.7	24	279	40.7							29	275	42.3
12,000				19	283	33.8							29	274	44.7
14,000				15	285	28.8							28	274	39.3
16,000				10	288	26.1							25	271	31.8

* Rawin Data

† Rawin Data (cont'd)

18,000 m., 16 obs., 270 dir., 20.4 speed
20,000 m., 10 obs., 262 dir., 15.0 speed

These free air resultant winds are based on pilot balloon observations made near 2100 G.C.T.: directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°); speeds in meters per second.

RAWIN DATA

Average monthly resultant winds

Table 22 — JANUARY 1954

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,636 m.)			Bismarck, N. Dak. (505 m.)			Brownsville, Tex. (7 m.)			Burrwood, La. (3 m.)			Caribou, Me. (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.)			Int. Falls, Minn. (358 m.)			Little Rock, Ark. (80 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	99	1.5	31	4	1.1	31	117	2.9	31	69	1.8	31	306	2.8	31	248	0.7	31	274	0.7	31	86	0.5	30	280	1.5	31	269	2.3	30	317	1.1	31	231	0.2
500	--	---	----	--	---	----	31	156	6.9	31	141	1.4	30	311	3.5	30	248	4.0	31	246	3.2	--	---	----	30	258	4.6	27	285	6.5	29	272	1.1	31	242	3.5
1,000	--	---	----	30	270	4.3	30	173	5.8	30	228	2.1	30	309	4.2	30	251	6.5	31	261	7.0	--	---	----	30	260	7.9	26	281	8.7	28	267	2.7	31	243	5.8
1,500	--	---	----	30	296	8.2	30	196	4.4	29	254	2.6	30	294	6.4	30	263	8.0	31	265	9.8	31	90	.4	30	263	10.0	26	280	10.0	26	281	4.9	30	250	9.7
2,000	31	278	2.4	31	295	10.4	29	215	4.5	28	254	4.0	30	277	7.8	30	266	9.7	31	275	11.5	31	204	1.2	29	270	12.3	27	273	11.1	26	287	7.4	29	259	10.8
2,500	31	360	6.0	31	270	12.6	28	233	5.0	28	180	5.5	29	272	9.0	30	270	12.1	31	281	12.8	31	270	1.8	28	275	13.8	27	272	13.8	26	360	10.1	26	274	10.9
3,000	31	277	8.9	30	289	16.2	28	247	5.5	27	258	7.7	27	262	10.1	30	274	14.1	31	281	14.8	31	237	7.5	27	277	16.6	27	275	17.0	25	285	12.9	23	276	11.4
4,000	31	276	12.2	28	287	20.2	27	258	7.2	27	257	11.4	26	262	13.3	28	276	16.2	30	276	17.5	31	264	12.5	22	272	17.2	24	273	18.9	24	288	15.4	22	271	15.5
5,000	30	274	15.4	24	281	23.9	23	257	9.2	27	260	14.1	23	265	16.0	23	278	18.2	30	278	20.2	30	271	15.3	18	270	21.4	21	271	20.9	21	291	19.1	19	270	16.4
6,000	29	270	18.8	18	287	24.9	22	270	11.3	27	270	16.0	17	257	10.4	21	282	19.7	30	275	24.3	30	266	20.7	13	275	24.2	15	272	19.7	18	284	22.1	15	265	17.8
8,000	17	270	16.1				19	256	17.5	24	267	22.9	12	260	10.5	14	270	22.5	30	274	30.0	22	281	20.3							11	290	19.8			
10,000	13	282	19.3				14	268	23.5	19	272	25.7	10	253	12.7				30	272	35.5	12	276	23.4												
12,000										14	271	27.5							28	273	41.4															
14,000										12	264	28.9							29	271	39.2															
16,000																			29	271	28.6															
18,000																			24	274	20.4															
20,000																			13	277	14.7															

Altitude (meters) m.s.l.	Medford, Ore. (401 m.)			Miami, Fla. (12 m.)			Midland, Tex. (871 m.)			Nantucket, Mass. (14 m.)			Nashville, Tenn. (180 m.)			Oakland, Calif. (8 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.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	182	0.8	31	60	1.8	31	113	1.3	29	325	3.2	31	227	0.8	31	172	1.2	31	128	1.4	31	339	1.2	31	317	0.9	31	55	1.6	31	98	2.8	31	291	0.4
500	31	178	1.4	31	90	3.7	--	---	----	28	17	4.9	30	270	2.8	31	270	1.0	30	158	1.7	--	---	----	31	309	1.5	31	117	3.9	31	85	7.3	29	348	1.7
1,000	31	270	.8	31	113	2.4	31	156	2.0	28	276	5.6	28	251	6.8	30	238	2.0	29	233	4.7	30	270	.2	31	264	3.6	30	179	4.0	31	79	8.3	29	55	.2
1,500	30	202	6.5	31	186	.8	31	229	4.5	27	269	8.9	26	270	7.9	30	250	3.1	29	255	6.8	30	270	5.5	29	288	6.2	30	210	5.2	31	77	8.2	29	263	1.3
2,000	30	222	9.5	31	224	1.9	31	247	7.1	28	266	11.8	27	280	9.7	30	264	4.9	29	262	8.7	30	279	9.2	29	287	8.8	30	236	6.2	31	74	8.3	29	281	3.4
2,500	29	237	11.1	31	270	2.5	31	270	9.0	25	262	12.9	27	275	13.0	29	270	6.2	30	262	11.1	31	279	12.3	27	360	10.8	31	247	7.1	31	90	7.3	29	270	5.4
3,000	28	248	12.5	31	256	4.3	31	262	9.9	24	264	15.9	27	278	15.9	29	269	7.9	29	263	13.0	30	282	14.3	27	284	13.4	31	260	8.6	31	66	6.5	29	272	6.7
4,000	25	260	12.6	31	275	6.8	31	265	12.1	21	269	18.1	23	273	17.0	28	273	11.5	30	270	14.8	26	282	16.4	27	283	17.9	29	261	10.9	31	54	4.3	30	263	9.0
5,000	21	267	11.8	31	269	9.6	31	263	15.2	16	264	18.2	19	272	20.9	28	276	14.3	29	272	15.6	24	281	19.9	27	280	21.1	29	259	15.0	31	17	3.3	29	267	11.2
6,000	17	270	12.4	30	360	12.8	31	263	18.2	13	257	21.9	14	272	21.8	25	275	15.1	26	270	15.6	22	278	23.8	27	282	25.6	29	262	18.7	30	352	3.0	29	272	12.0
8,000	11	278	14.0	30	279	18.6	26	272	20.3							19	263	18.3	24	270	18.2	11	270	26.3	17	274	28.6	20	266	19.2	30	291	7.5	25	294	12.2
10,000	10	292	20.3	28	283	23.5	20	262	26.4							14	275	17.7	15	270	23.4				10	261	31.7	17	263	28.2	30	280	17.2	22	279	16.8
12,000				22	281	27.2	18	268	33.2										13	267	35.9							11	284	26.3	30	272	22.3	19	276	18.4
14,000				15	274	31.5	10	265	30.6																						28	276	18.6	18	276	19.5
16,000																															27	287	9.0	16	274	15.8
18,000																															24	297	6.8	15	300	6.3
20,000																															23	304	3.4	13	358	3.9
22,000																															21	28	.7			
24,000																															16	87	2.9			
26,000																															10	51	2.4			

Altitude (meters) m.s.l.	Sault Ste. Marie, Mich (221 m.)			Spokane, Wash. (726 m.)			Tatoosh Is., Wash. (33 m.)			Washington, D. C. (88 m.)		
	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed	No. of observations	Direction	Speed
Surface	31	89	1.7	31	178	2.5	27	135	2.3	31	285	1.5
500	31	138	1.3	--	---	----	26	205	2.7	31	276	6.3
1,000	31	263	3.5	31	270	2.9	26	270	3.2	31	270	8.6
1,500	31	277	7.4	30	228	9.5	26	247	4.7	31	284	10.4
2,000	31	287	9.8	28	235	9.7	25	252	5.9	31	286	11.9
2,500	31	270	11.1	26	252	9.0	25	257	9.1	31	282	13.3
3,000	31	277	13.0	24	260	9.9	25	250	10.8	31	275	13.8
4,000	31	276	16.8	20	273	13.1	24	249	13.3	31	275	20.3
5,000	31	275	21.6	15	280	13.8	22	248	16.2	30	277	23.5
6,000	31	276	25.8	11	360	12.8	18	270	18.8	30	270	28.3
8,000	30	270	33.9				12	268	21.2	29	270	36.8
10,000	28	276	37.0							28	276	46.0
12,000	20	281	32.8							28	276	47.3
14,000	14	282	30.9							24	273	42.5
16,000										21	271	31.0
18,000										18	273	18.4
20,000										15	260	15.3
22,000										11	259	11.5

These free-air resultant winds are based on rawin observations made near 0300 G.C.T.: directions in degrees from north (N = 360°, E = 90°, S = 180°, W = 270°): speeds in meters per second.

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 22 in the January 1950 issue of the CLIMATOLOGICAL DATA, National Summary.

SOLAR RADIATION DATA

Table 30 Solar radiation intensities, tabulated in langleys per minute on a surface normal to the direction of the sun. JANUARY 1954

Date	Sun's zenith distance								
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
ALBUQUERQUE, N. MEX.									
	Air mass								
	4.08	3.26	2.44	1.63	*0.815	1.63	2.44	3.26	4.08
Jan.									
1------	1.11	1.21	1.31	1.41	----	1.45	1.28	1.19	1.05
2------	1.05	1.16	1.28	1.43	----	1.25	1.18	1.05	.95
3------	1.02	1.13	1.26	1.42	----	1.45	----	----	----
4------	.97	1.10	1.24	----	----	1.39	----	----	----
5------	1.05	1.14	1.25	1.42	----	1.44	1.28	1.17	1.06
6------	1.11	1.15	1.26	----	----	----	----	----	----
7------	----	----	----	----	----	----	----	1.08	.97
10-----	1.05	1.16	1.30	1.46	----	1.43	1.30	1.18	1.08
11-----	1.03	1.15	1.30	1.39	----	----	----	----	----
13-----	----	----	----	----	----	----	.99	.84	----
14-----	----	----	----	----	----	1.31	1.07	.96	.88
15-----	----	----	----	----	----	----	1.23	1.12	1.01
16-----	----	----	1.27	1.42	----	1.43	1.28	1.15	1.06
21-----	----	----	----	----	----	----	1.25	1.14	1.06
22-----	----	1.15	1.28	1.42	----	----	----	----	----
23-----	1.06	1.16	1.26	1.41	----	----	----	----	----
26-----	1.02	1.12	1.22	----	----	----	----	----	----
27-----	----	----	1.22	1.39	----	----	1.22	1.08	.88
29-----	1.03	1.14	1.24	----	----	----	----	----	----
31-----	.99	1.07	1.19	1.34	----	1.34	1.18	1.05	.93
Averages	1.04	1.14	1.26	1.41	----	1.39	1.21	1.08	.99
Departures	+.02	+.03	+.02	+.03	----	-.02	-.04	-.06	-.05
LINCOLN, NEBR.									
	Air mass								
	4.77	3.81	2.86	1.91	*0.95	1.91	2.86	3.81	4.77
Jan.									
2------	0.83	0.92	1.09	----	----	----	1.09	1.01	0.92
5------	.77	.90	1.05	----	----	----	----	----	----
6------	.83	.94	1.09	----	----	----	1.11	1.01	.88
11-----	----	----	1.11	----	----	----	1.13	1.02	.92
23-----	.72	.85	1.00	----	----	----	----	----	----
Averages	.79	.90	1.07	----	----	----	1.11	1.01	.91
Departures	-.11	-.14	-.13	----	----	----	-.07	-.04	-.02
MADISON, WIS.									
	Air mass								
	4.81	3.84	2.88	1.92	*0.96	1.92	2.88	3.84	4.81
	NO DATA DURING JANUARY 1954								

Date	Sun's zenith distance								
	A. M.				0.0°	P. M.			
	78.7°	75.7°	70.7°	60.0°		60.0°	70.7°	75.7°	78.7°
BLUE HILL, MASS.									
	Air mass								
	4.86	3.89	2.92	1.94	*0.97	1.94	2.92	3.89	4.86
Jan.									
8-----	0.97	1.09	1.23	----	----	----	1.26	1.12	1.01
13----	----	----	----	----	----	----	1.23	1.14	1.05
14----	1.03	1.12	1.23	----	----	----	----	----	----
15----	----	----	.95	----	----	----	1.00	.82	----
17----	----	----	----	----	----	----	1.23	1.12	1.00
29----	1.05	1.12	1.25	----	----	----	1.23	1.10	.99
31----	.86	.95	1.07	----	----	----	----	----	----
Averages	.98	1.07	1.15	----	----	----	1.19	1.06	1.01
Departures	+.04	+.03	-.01	----	----	----	+.01	+.02	+.07
TABLE MOUNTAIN, CALIF.									
	Air mass								
	3.76	3.01	2.26	1.51	*0.75	1.51	2.26	3.01	3.76
Jan.									
4-----	----	----	----	1.42	----	----	----	----	----
5-----	----	----	----	1.45	----	----	----	----	----
9-----	----	----	----	1.52	----	----	----	----	----
14----	----	----	----	1.44	----	----	----	----	----
31----	----	----	----	1.47	----	----	----	----	----
Averages	----	----	----	1.46	----	----	----	----	----
Departures	----	----	----	-.08	----	----	----	----	----
BOSTON, MASS.									
	Air mass								
	4.96	3.96	2.97	1.98	*0.99	1.98	2.97	3.96	4.96
	NO DATA DURING JANUARY 1954								

* Extrapolated

Langley is the unit used to denote one gram calorie per square centimeter. An explanation of Tables 30 and 31 and references to descriptions of instruments, stations, and methods of observation, and to summaries of data, are given in the Monthly Weather Review, vol. 72, No. 1, January 1944, p. 43. A list of pyrheliometric stations is given on page 45 of that issue. An explanation of the formula used in computing the air mass values for each station listed in Table 30 appears in volume 75, No. 3, March 1947, p. 47.

SOLAR RADIATION DATA

JANUARY 1954

Table 31a Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing north at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date----------	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys--------	53	84	71	67	54	20	43	56	46	19	50	36	72	83	73	54	77	42	78	86	48	39	34	58
Date----------	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys--------	39	69	67	48	44	11	79	51	86	40	90	75	52	46	49	63								

Table 31b Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing east at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date----------	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys--------	39	130	116	66	68	18	159	85	183	21	53	30	73	215	229	115	169	34	179	180	55	36	50	100
Date----------	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys--------	48	76	63	75	71	10	79	60	260	44	234	238	53	50	45	132								

Table 31c Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing south at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date----------	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys--------	39	311	254	267	93	22	328	188	544	16	59	29	110	590	520	267	500	37	543	391	50	31	112	238
Date----------	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys--------	43	102	83	156	243	10	93	104	---	---	---	477	100	48	45	167								

Table 31d Daily totals and average daily totals by weeks of solar and sky radiation, plus the radiation reflected from the ground, as received on a vertical surface facing west at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date----------	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys--------	45	149	69	153	53	22	67	80	179	17	41	27	75	211	147	100	178	42	224	144	45	34	35	100
Date----------	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys--------	40	81	94	58	90	8	75	64	237	30	227	128	95	48	49	117								

Table 31e Daily totals and average daily totals by weeks of diffuse (sky) radiation as received on a horizontal surface at Blue Hill, Mass. during the month

								Avg								Avg								Avg
Date----------	1	2	3	4	5	6	7		8	9	10	11	12	13	14		15	16	17	18	19	20	21	
Langleys--------	49	80	79	66	90	28	55	64	44	19	55	34	98	47	58	51	53	39	51	88	70	38	67	58
Date----------	22	23	24	25	26	27	28		29	30	31	1	2	3	4									
Langleys--------	77	105	---	100	76	12	105	80	58	47	81	71	84	68	79	70								

Note: Langley is the unit used to denote one gram calorie per square centimeter.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys. JANUARY 1954

1954	Aklavik, Mackenzie	Albuquerque, N. Mex.	Apalachicola, Fla.	Astoria, Oreg.	Atlanta, Ga.	Barrow, Alaska	Bethel, Alaska	Bismark, N. Dak.	Blue Hill, Mass.	Boise, Idaho	Boston, Mass.	Brownsville, Tex.	Canton Island, Pacific Area	Caribou, Me.	Charleston, S. C.	Columbia, Mo.	Columbus, Ohio	Davis, Calif.	Dodge City, Kans.	E. Lansing, Mich.	E. Wareham, Mass.	Edmonton, Alberta	El Paso, Tex.	Ely, Nev.	Fairbanks, Alaska	Fort Worth, Tex.	Fresno, Calif.	Grand Junction, Colo.	Greensboro, N. C.	Griffin, Ga.	Hatteras, N. C.	Indianapolis, Ind.	Inyokern, Calif.	Ithaca, N. Y.
Jan. 1	---	348	390	93	336	---	38	50	50	124	---	330	637	170	340	286	261	211	277	143	70	67	382	242	3	385	290	278	298	311	309	216	385	23
Jan. 2	---	330	182	27	306	---	56	166	149	98	---	263	545	151	285	275	252	153	273	130	184	60	375	259	7	393	264	268	288	257	304	203	337	149
Jan. 3	---	319	281	57	332	---	37	127	127	160	---	80	671	42	248	298	39	143	263	55	153	74	378	211	11	392	274	229	292	---	291	69	253	1
Jan. 4	---	333	193	16	295	---	34	106	142	24	---	269	655	55	306	134	58	204	273	31	129	44	376	246	11	309	277	205	300	338	308	183	331	14
Jan. 5	1	342	217	24	290	---	38	176	98	98	---	375	(536)	94	260	217	58	237	220	33	110	28	363	263	8	388	277	261	208	322	235	94	336	59
Jan. 6	1	307	380	23	309	---	34	164	27	74	---	396	582	34	268	245	149	60	278	69	79	50	368	127	8	389	247	225	230	257	234	91	312	65
Jan. 7	1	243	389	38	336	---	---	116	144	108	---	399	594	68	322	265	139	163	228	27	190	51	330	260	4	385	(164)	219	284	284	314	223	322	146
Averages	---	317	290	40	315	---	39	129	105	98	---	302	(603)	88	290	246	137	167	259	70	131	53	368	230	8	377	(256)	241	272	295	285	154	325	65
Departures	---	---	---	---	---	---	---	---	-21	---	---	---	---	---	---	---	---	+6	---	-9	+14	---	---	---	+1	---	+95	---	---	---	---	---	---	-33
Jan. 8	0	336	381	73	---	---	41	101	218	170	---	368	588	162	312	160	204	252	183	61	230	85	207	298	4	357	277	278	272	267	317	174	333	104
Jan. 9	1	148	272	101	268	---	39	185	19	188	---	174	585	125	289	293	67	226	124	9	49	113	308	317	7	53	312	284	184	250	272	135	368	1
Jan. 10	2	360	190	113	106	---	25	106	57	122	---	232	615	181	---	197	69	181	248	169	81	94	379	183	9	83	(318)	288	142	167	117	152	354	56
Jan. 11	1	362	207	191	162	---	41	142	34	125	---	423	(642)	166	64	281	236	---	296	75	55	112	353	118	7	---	229	218	38	195	61	184	188	99
Jan. 12	4	109	359	186	339	---	25	50	103	143	---	62	654	49	319	332	152	258	135	173	118	43	244	228	16	110	(232)	75	322	311	324	262	206	99
Jan. 13	2	343	141	56	---	---	39	105	231	72	---	130	676	177	257	120	186	258	306	152	267	57	370	287	20	(52)	(294)	165	284	257	327	106	362	194
Jan. 14	4	265	(137)	115	82	---	23	167	216	26	---	324	600	195	162	49	53	210	---	37	252	95	118	202	17	93	(326)	280	55	61	213	18	354	85
Averages	2	274	(241)	117	191	---	33	122	125	121	---	245	(623)	151	234	205	138	231	215	96	150	86	283	233	11	(125)	(284)	227	185	216	233	147	309	91
Departures	---	---	---	---	---	---	---	---	-26	---	---	---	---	---	---	---	---	+50	---	+2	+6	---	---	---	+1	---	+115	---	---	---	---	---	---	-23
Jan. 15	1	368	---	81	96	---	30	171	215	40	---	293	570	138	280	41	59	72	308	130	168	140	401	267	---	144	(299)	265	78	164	81	13	213	191
Jan. 16	(2)	368	---	72	316	---	44	126	39	14	---	421	654	65	233	251	49	42	---	31	66	118	410	254	---	69	(334)	164	215	303	88	24	359	48
Jan. 17	1	263	---	136	361	---	27	142	231	71	---	406	617	123	341	321	223	263	(218)	198	237	46	372	262	(17)	93	(145)	149	312	357	(326)	220	315	191
Jan. 18	4	321	---	137	360	---	47	224	199	59	---	203	---	199	288	36	219	214	243	51	228	124	401	161	4	86	(60)	262	187	312	360	127	193	185
Jan. 19	3	167	---	220	---	---	(51)	153	70	114	---	217	652	190	162	83	53	147	117	36	110	141	206	124	14	96	(84)	52	107	221	270	27	159	77
Jan. 20	5	165	---	75	---	---	51	235	38	238	---	368	631	40	201	22	74	275	133	18	66	74	340	211	25	(261)	342	106	91	97	142	83	341	41
Jan. 21	5	369	---	29	113	---	57	189	82	69	---	64	624	90	249	74	108	155	161	180	106	111	410	233	34	141	314	173	95	54	213	130	365	89
Averages	(3)	289	---	107	249	---	(44)	177	125	87	---	282	625	121	251	118	112	167	(197)	92	140	108	363	216	(19)	(127)	(225)	167	155	215	(212)	89	278	118
Departures	---	---	---	---	---	---	---	---	-31	---	---	---	---	---	---	---	---	-31	---	-16	-5	---	---	---	+5	---	+27	---	---	---	---	---	---	+3
Jan. 22	8	389	---	47	68	---	76	161	77	51	84	411	661	208	119	333	206	33	293	149	81	91	389	285	15	449	(258)	322	28	54	36	255	333	150
Jan. 23	8	385	---	92	---	---	61	157	105	125	95	383	654	234	330	334	239	41	325	184	98	148	423	309	11	---	186	192	350	120	89	210	375	258
Jan. 24	4	322	---	162	65	---	71	173	99	123	68	150	---	216	198	51	86	26	232	7	162	101	386	126	18	404	(51)	228	161	92	234	27	315	252
Jan. 25	8	198	---	23	---	(2)	56	138	126	239	110	176	638	93	123	52	71	300	215	15	178	124	388	216	36	130	352	110	289	276	208	35	409	16
Jan. 26	14	398	---	86	149	2	64	176	149	61	139	---	633	32	(278)	(29)	55	192	305	6	144	112	424	318	32	113	332	263	323	203	309	14	333	45
Jan. 27	10	392	---	57	241	1	91	239	12	34	6	---	593	92	314	376	43	73	328	98	53	126	369	292	40	(299)	(309)	330	218	202	283	35	386	21
Jan. 28	13	364	---	---	403	1	72	227	105	178	111	319	639	111	(391)	181	334	111	243	208	152	96	416	206	39	303	(145)	320	359	400	398	123	228	124
Averages	9	350	---	78	185	(2)	70	182	96	116	87	288	636	141	(250)	(194)	147	111	277	95	124	114	399	250	27	(283)	(233)	252	247	192	222	100	340	124
Departures	---	---	---	---	---	---	---	---	-67	---	-33	---	---	---	---	---	---	-101	---	-14	-11	---	---	---	+2	---	+21	---	---	---	---	---	---	-3
Jan. 29	10	378	---	67	206	6	80	231	282	89	262	372	670	253	245	(308)	182	105	234	63	283	124	387	189	34	130	312	219	113	270	275	286	274	273
Jan. 30	10	284	---	112	---	(4)	81	208	47	259	42	412	533	91	232	377	328	290	339	198	102	112	385	353	20	78	273	331	225	140	344	302	418	177
Jan. 31	13	403	---	213	---	6	105	184	257	183	264	223	640	220	280	370	286	142	352	250	265	157	173	---	38	415	262	356	309	368	341	182	422	191
Feb. 1	15	410	---	218	426	7	99	148	257	102	224	295	665	282	392	191	132	155	342	136	277	114	231	---	43	(403)	136	383	363	411	404	202	430	96
Feb. 2	12	426	---	190	329	11	132	153	90	243	66	265	693	110	349	355	255	61	366	215	141	64	386	---	24	(482)	119	355	329	368	290	170	439	166
Feb. 3	24	428	---	229	---	12	40	216	70	247	41	354	593	86	270	356	314	126	361	225	125	97	446	377	40	(471)	(107)	370	97	236	297	286	453	145
Feb. 4	19	424	---	120	427	15	55	189	79	257	86	424	610	75	378	383	150	43	368	178	107	---	442	391	41	476	237	372	115	431	328	86	450	108
Averages	15	393	---	164	347	(9)	84	190	155	197	141	335	629	160	307	(334)	235	132	337	181	186	112	350	328	34	(351)	(207)	338	221	318	325	216	412	165
Departures	---	---	---	---	---	---	---	---	-51	---	-27	---	---	---	---	---	---	-67	---	+31	-4	---	---	---	-8	---	-6	---	---	---	---	---	---	-14

Accumulated Departures January 1 to February 4, 1954

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Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

SOLAR RADIATION DATA

Table 33.-Daily totals and average daily totals by weeks of solar radiation (direct and diffuse) received on a horizontal surface, tabulated in langleys.-Continued JANUARY 1954

1954	Lake Charles, La.	Las Vegas, Nev.	Lincoln, Nebr.	Little Rock, Ark.	Los Angeles, Calif. (WBAS)	Los Angeles, Calif. (WBCO)	Madison, Wis.	Medford, Ore.	Miami, Fla.	Midland, Tex.	Nashville, Tenn.	Newport, R. I.	New York, N. Y.	Oak Ridge, Tenn.	Oklahoma City, Okla.	Ottawa, Ontario	Phoenix, Ariz.	Prosser 4 NE, Wash.	Rapid City, S. Dak.	Riverside, Calif.	San Antonio, Tex.	Santa Maria, Calif.	S. Ste.Marie, Mich.	Sayville, N. Y.	Seabrook, N. J.	Seattle, Wash.	Schenectady, N. Y.	State College, Pa.	Swan Is., W. I.	Tampa, Fla.	Upton, N. Y.	Wake Island, Pacific Area	Washington, D. C. (Silver Hill Obs.)	Winnipeg, Manitoba
Jan. 1------	---	294	188	327	289	260	141	107	314	352	283	76	131	271	320	(78)	355	122	168	294	449	269	122	100	224	88	87	28	(419)	403	104	229	243	73
Jan. 2------	247	303	217	191	303	(260)	111	76	328	353	246	193	170	259	310	82	343	100	195	310	425	305	19	212	236	51	129	175	---	295	213	227	237	139
Jan. 3------	344	248	198	326	270	(263)	117	(100)	257	358	286	141	76	279	316	89	311	143	113	263	449	304	184	91	91	53	30	7	---	371	123	211	61	50
Jan. 4------	48	305	204	213	306	284	139	68	274	352	248	187	219	231	303	90	344	62	148	306	381	318	84	206	217	29	70	45	---	246	213	204	228	127
Jan. 5------	365	309	219	320	333	291	137	105	350	349	198	---	114	183	228	102	334	71	187	327	459	322	41	95	112	20	49	20	391	238	121	214	124	107
Jan. 6------	350	232	226	316	291	256	84	152	336	356	89	64	28	148	306	78	229	95	203	292	453	201	176	29	60	39	85	161	455	443	51	231	161	83
Jan. 7------	349	301	184	300	287	263	198	87	410	305	290	233	238	264	312	205	183	57	129	309	446	329	121	228	165	24	161	141	(381)	443	221	203	229	72
Averages------	284	285	205	285	297	(268)	132	(99)	324	346	234	149	139	234	299	(103)	300	93	163	300	437	293	107	137	158	43	87	82	(411)	349	149	217	183	93
Departures----	---	---	+34	---	---	---	+5	---	---	---	+113	+22	+24	---	---	---	---	---	---	+50	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jan. 8------	289	232	197	273	258	188	141	84	280	310	206	250	242	166	286	(220)	297	185	133	156	350	330	92	242	232	69	198	195	476	412	236	229	243	38
Jan. 9------	155	331	155	71	327	297	191	81	235	293	39	24	66	97	92	(47)	326	80	212	366	120	349	131	39	142	36	18	61	457	333	49	136	131	147
Jan. 10------	111	315	226	59	338	298	230	112	222	348	35	84	61	4	162	(217)	363	72	217	354	461	334	---	43	33	148	90	41	426	316	68	108	20	94
Jan. 11------	384	118	234	347	193	150	199	64	157	375	284	41	33	199	334	(208)	253	129	151	304	464	220	167	22	49	153	85	127	471	176	(32)	196	67	181
Jan. 12------	196	209	182	223	68	69	230	216	411	152	298	123	183	307	135	(177)	235	177	79	80	215	97	(186)	179	211	129	130	190	261	430	(190)	185	257	140
Jan. 13------	148	320	110	141	353	305	106	103	324	89	195	259	262	164	---	(230)	211	136	164	327	131	346	144	279	246	8	214	235	445	350	---	187	196	82
Jan. 14------	146	318	83	64	---	293	106	48	375	113	34	218	86	4	162	(130)	354	154	154	278	110	350	102	147	134	38	179	54	467	405	---	238	102	167
Averages------	204	263	170	168	256	229	172	101	286	240	156	143	133	134	195	(176)	305	133	159	266	264	289	(137)	136	150	83	131	128	429	346	(115)	183	145	121
Departures----	---	---	-7	---	---	---	+35	---	---	---	+19	-9	---	---	---	---	---	---	---	+19	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jan. 15------	91	158	112	56	286	256	(46)	22	375	376	31	232	174	---	161	(205)	364	157	180	240	352	217	148	193	151	69	136	80	320	410	---	173	106	---
Jan. 16------	161	347	132	111	315	272	179	30	362	377	34	56	60	164	334	(161)	375	132	102	343	462	(218)	113	60	45	46	46	78	488	296	65	225	231	---
Jan. 17------	116	316	233	82	205	186	238	155	381	201	299	250	230	79	321	252	275	163	118	256	146	87	204	257	264	85	228	222	478	402	247	240	274	---
Jan. 18------	252	275	182	110	84	(88)	101	46	307	386	273	257	187	274	144	(129)	298	137	181	138	244	75	64	239	275	104	171	223	446	260	235	239	297	---
Jan. 19------	218	150	113	62	86	58	(35)	168	321	206	180	101	84	144	176	(157)	145	231	131	90	166	62	80	133	205	183	66	47	477	324	149	246	---	---
Jan. 20------	119	209	182	65	369	248	37	243	410	316	23	50	33	21	201	(27)	130	256	249	251	420	332	56	89	171	125	37	75	479	259	96	229	63	---
Jan. 21------	61	309	220	43	298	283	261	60	290	336	---	111	116	32	258	(257)	378	96	235	341	348	243	187	103	101	26	162	118	454	315	124	232	75	---
Averages------	145	252	168	76	235	(199)	(128)	104	349	314	140	151	131	102	228	(170)	281	167	171	237	305	(177)	122	153	173	91	121	120	449	324	153	226	174	---
Departures----	---	---	-31	---	---	---	-24	---	---	---	-11	-6	---	---	---	---	---	---	---	-36	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jan. 22------	217	349	234	291	364	324	241	75	368	367	54	63	48	29	278	(249)	388	141	202	331	468	348	202	36	44	35	124	111	500	284	51	218	36	---
Jan. 23------	113	339	261	72	149	161	170	126	387	471	71	202	248	64	346	(273)	370	207	216	289	490	81	194	189	206	98	222	263	498	345	174	216	164	---
Jan. 24------	191	162	194	83	69	42	39	168	438	343	98	109	51	228	366	246	383	234	161	65	288	(26)	29	49	118	100	182	238	506	316	70	188	146	---
Jan. 25------	228	339	88	83	309	108	40	257	358	411	90	167	93	122	290	(94)	60	139	152	165	157	377	110	75	92	32	52	46	---	334	108	239	253	---
Jan. 26------	153	325	103	46	288	262	56	111	275	425	91	182	211	105	171	26	345	205	257	287	178	288	143	234	235	121	66	149	271	378	237	263	291	---
Jan. 27------	135	349	286	284	409	367	268	18	301	366	237	28	45	322	353	89	398	88	259	321	106	322	155	30	154	45	45	145	522	370	43	201	273	161
Jan. 28------	385	267	183	225	313	254	119	87	368	304	232	143	281	293	134	(307)	375	150	243	263	169	257	248	192	253	98	147	286	479	427	198	256	336	139
Averages------	203	305	193	155	272	217	133	120	356	384	125	128	140	166	277	(184)	331	166	213	246	265	(243)	154	115	158	75	120	176	463	351	126	226	214	---
Departures----	---	---	-25	---	---	---	-44	---	---	---	-36	-27	---	---	---	---	---	---	---	-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Jan. 29------	199	276	187	234	205	189	210	196	446	297	300	313	245	183	121	(370)	292	151	61	202	238	194	74	307	284	115	236	171	(445)	411	301	236	271	(209)
Jan. 30------	149	378	147	315	233	(318)	(293)	267	425	75	192	81	75	183	327	233	342	217	193	402	331	400	232	63	150	56	82	197	493	409	88	263	192	(221)
Jan. 31------	343	378	268	368	408	(378)	241	175	421	387	374	281	261	355	370	365	399	216	227	397	407	406	277	271	243	150	227	164	521	229	256	243	277	(124)
Feb. 1------	387	386	204	342	415	(359)	281	260	349	283	363	296	234	331	302	(258)	404	117	259	409	362	409	58	271	272	164	198	128	502	406	268	233	262	(218)
Feb. 2------	(370)	403	275	388	400	369	237	266	403	373	367	154	220	326	384	69	404	127	267	406	212	440	167	208	215	103	189	170	518	307	212	240	301	---
Feb. 3------	425	408	242	374	438	387	231	270	439	440	83	78	39	51	367	(182)	442	76	219	431	532	422	247	27	94	203	26	166	527	464	60	219	135	---
Feb. 4------	---	413	296	376	426	377	93	273	460	444	353	129	156	75	380	(131)	428	104	281	433	515	430	136	237	220	110	100	157	519	405	236	248	237	---
Averages------	(312)	378	231	342	361	(340)	227	244	421	329	290	190	176	215	322	(230)	387	144	216	383	371	386	170	198	211	129	151	165	(504)	376	203	240	239	(193)
Departures----	---	---	+13	---	---	---	+37	---	---	---	+105	-15	---	---	---	---	---	---	---	+13	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Accumulated Departures January 1 to February 4, 1954

	---	---	-112	---	---	---	+63	---	---	---	+1330	-245	---	---	---	---	---	---	---	+217	---	---	---	---	---	---	---	---	---	---	---	---	---	---

Note.--Langley is the unit used to denote one gram calorie per square centimeter.
Values in parentheses are interpolated.

ILLUMINATION DATA

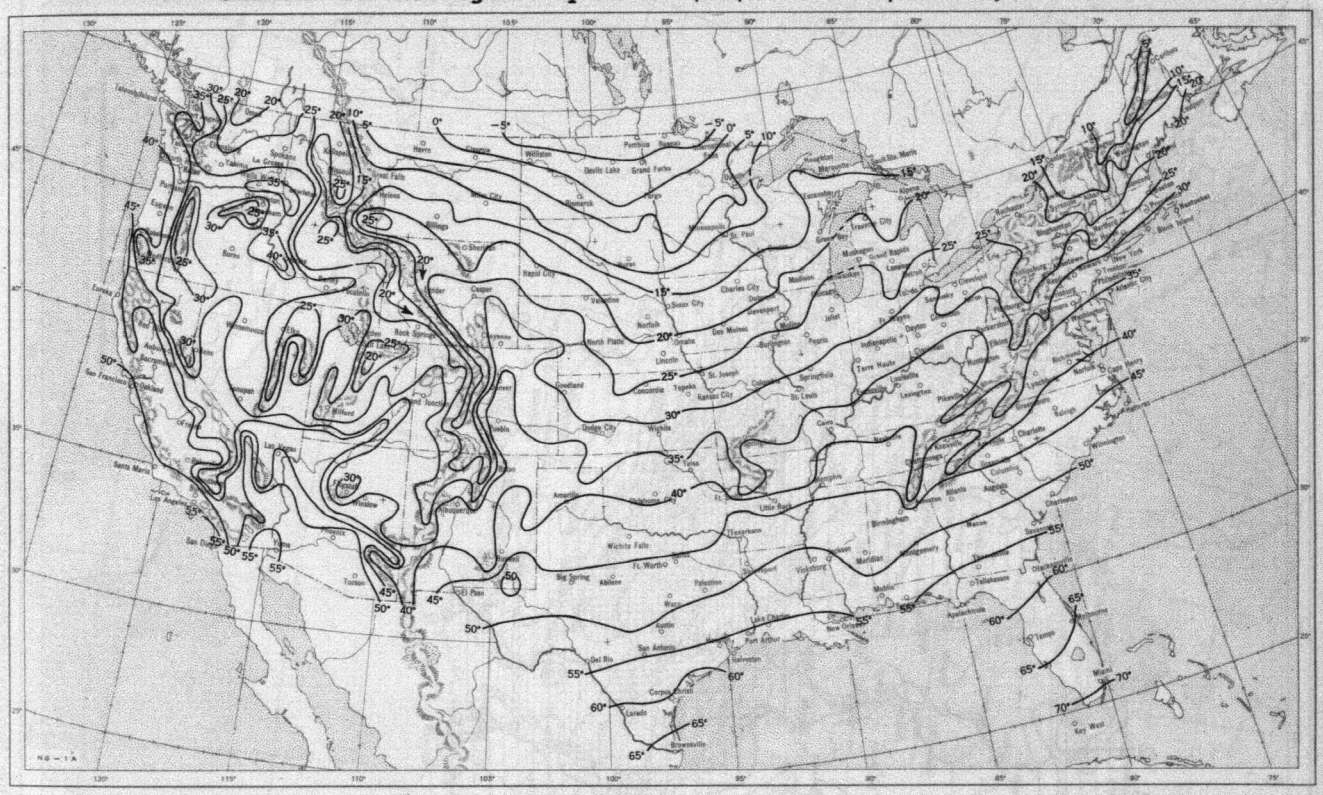
Table 34.-Daily illumination on a horizontal surface, tabulated in hundreds of foot-candle hours. JANUARY 1954

Station	Day of month																														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	Average
Baltimore, Md.	249	243	74	---	120	190	210	266	164	39	30	206	192	102	99	194	286	---	246	72	76	52	183	154	196	279	244	312	274	198	268	180
Washington, D.C. (WBCO)	---	---	76	---	110	179	226	244	140	28	79	239	190	86	82	203	218	254	214	58	76	45	173	148	220	281	281	313	---	---	---	167

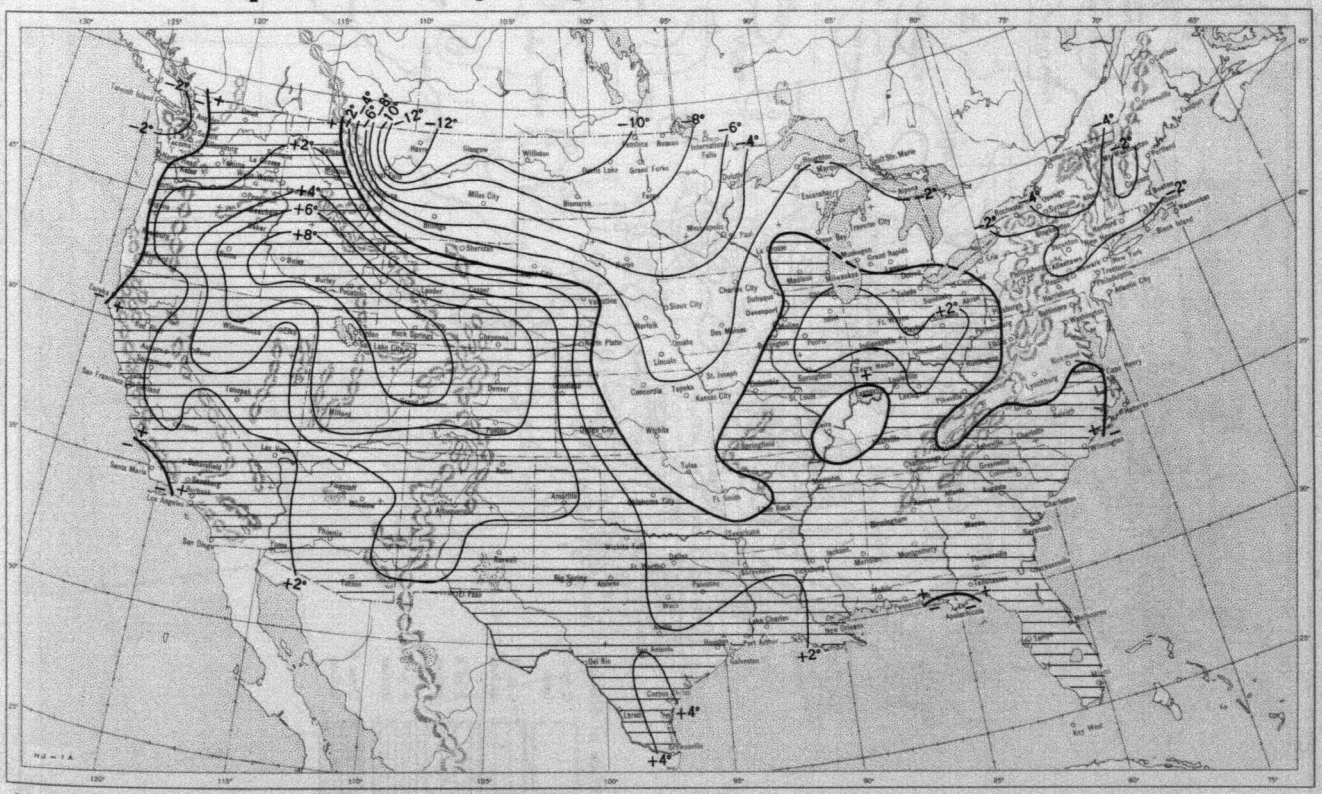
The foot-candle hour is the average illumination for one hour, in foot candles. Foot-candle hours for a day are obtained by summing the foot-candle hours for the individual hours of that day. The illumination values are compiled from continuous records of the illumination output of a Foster Illuminometer. For a description of this instrument see "A Recording Daylight Illuminometer", by Norman B. Foster, in Illuminating Engineering, Vol. XLVI No. 2, pages 59 to 62.

NWRC, Asheville, N.C. --- 4/15/54 --- 2000

Chart I. A. Average Temperature (°F.) at Surface, January 1954.

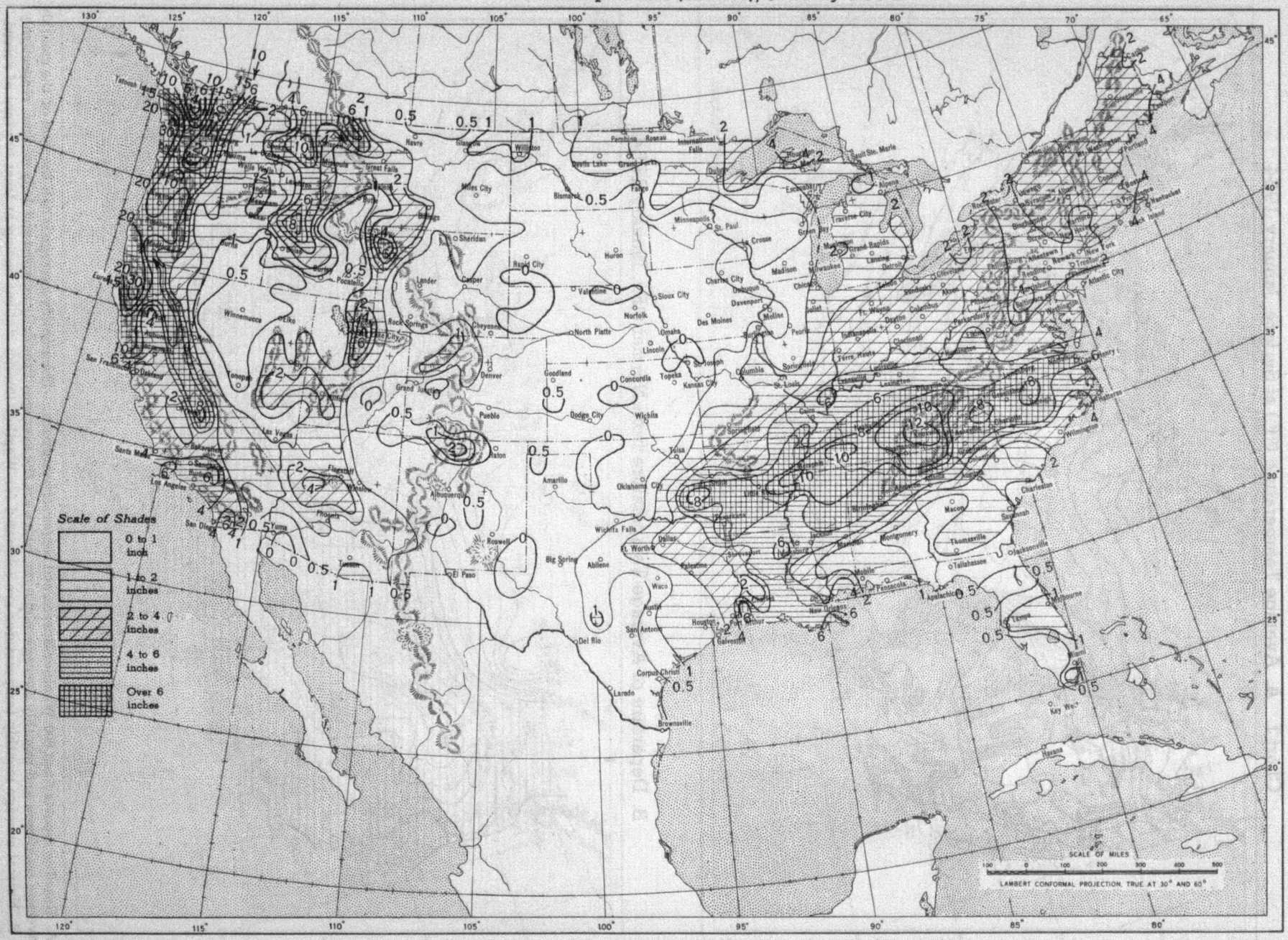


B. Departure of Average Temperature from Normal (°F.), January 1954.



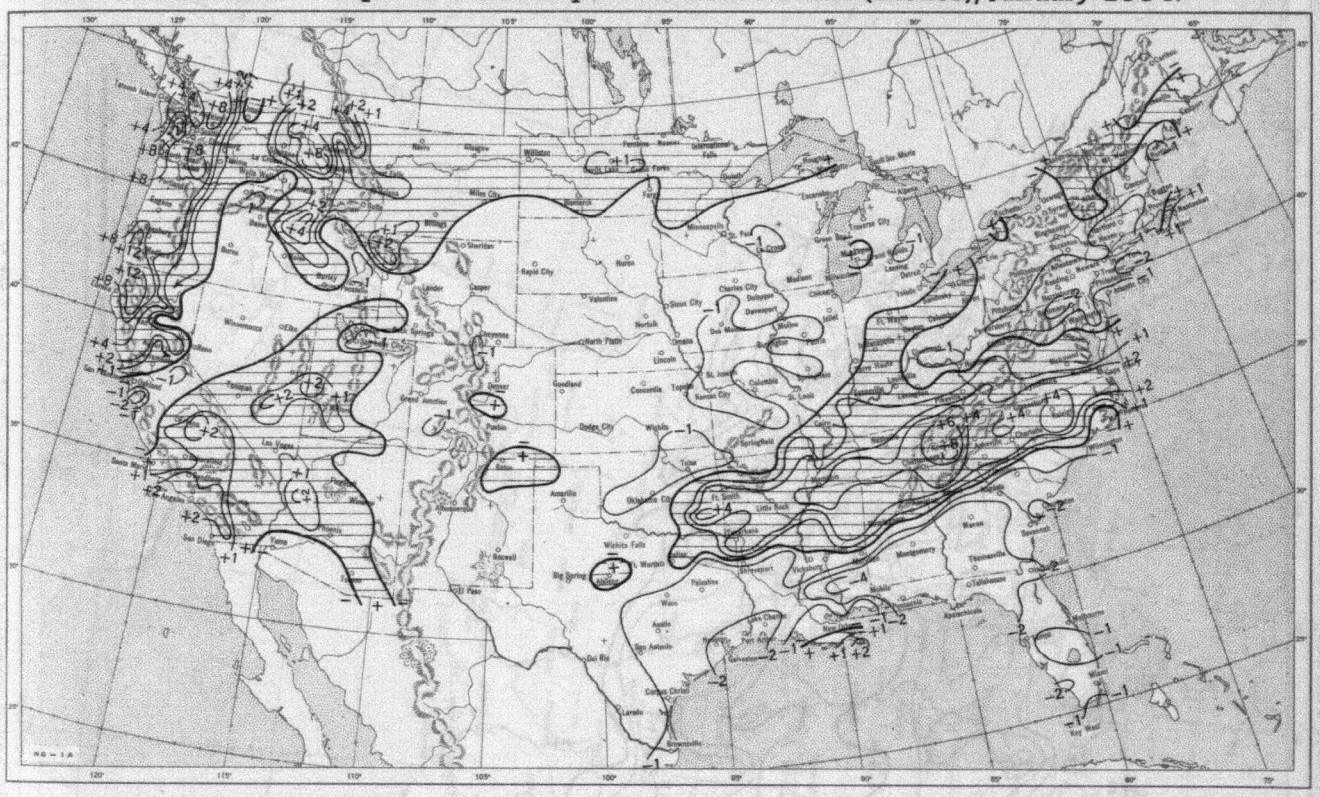
A. Based on reports from 800 Weather Bureau and cooperative stations. The monthly average is half the sum of the monthly average maximum and monthly average minimum, which are the average of the daily maxima and daily minima, respectively.
B. Normal average monthly temperatures are computed for Weather Bureau stations having at least 10 years of record.

Chart II. Total Precipitation (Inches), January 1954.

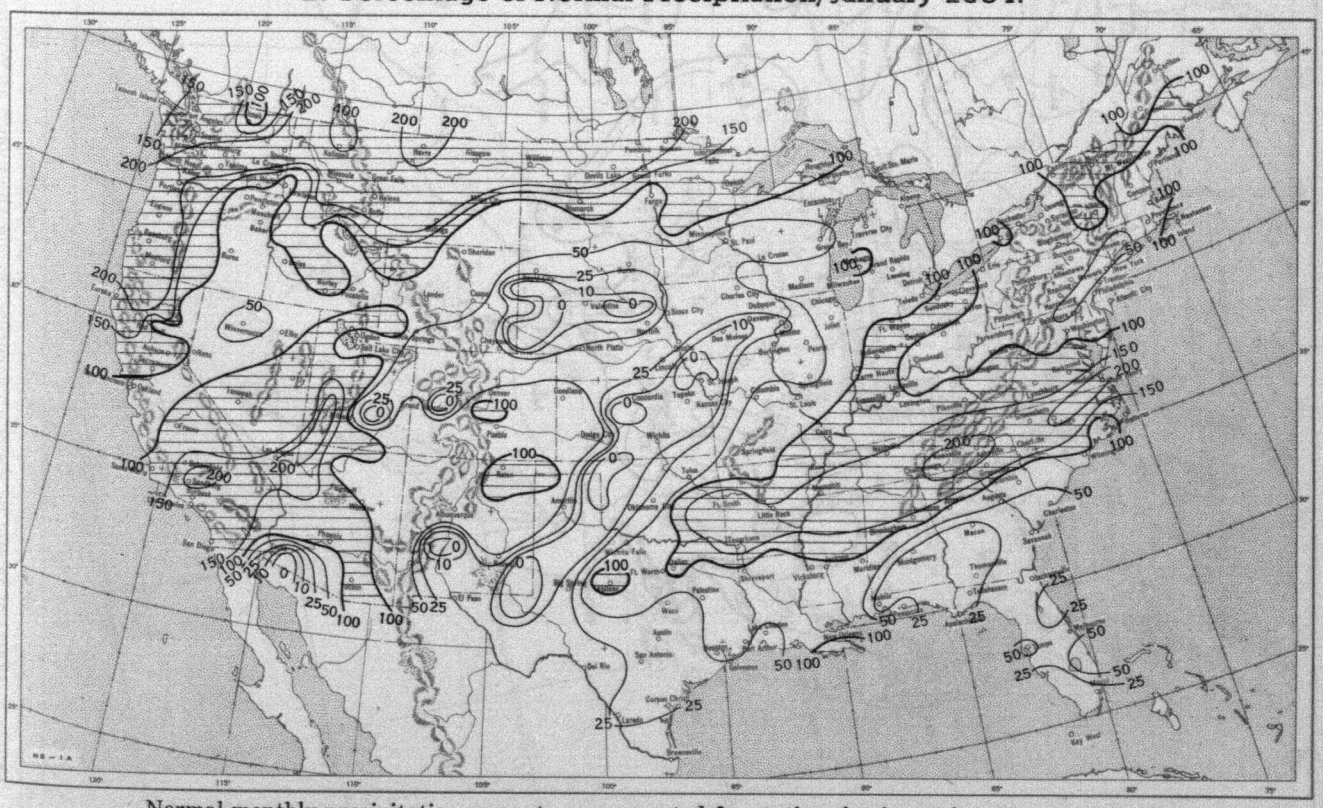


Based on daily precipitation records at 800 Weather Bureau and cooperative stations.

Chart III. A. Departure of Precipitation from Normal (Inches), January 1954.

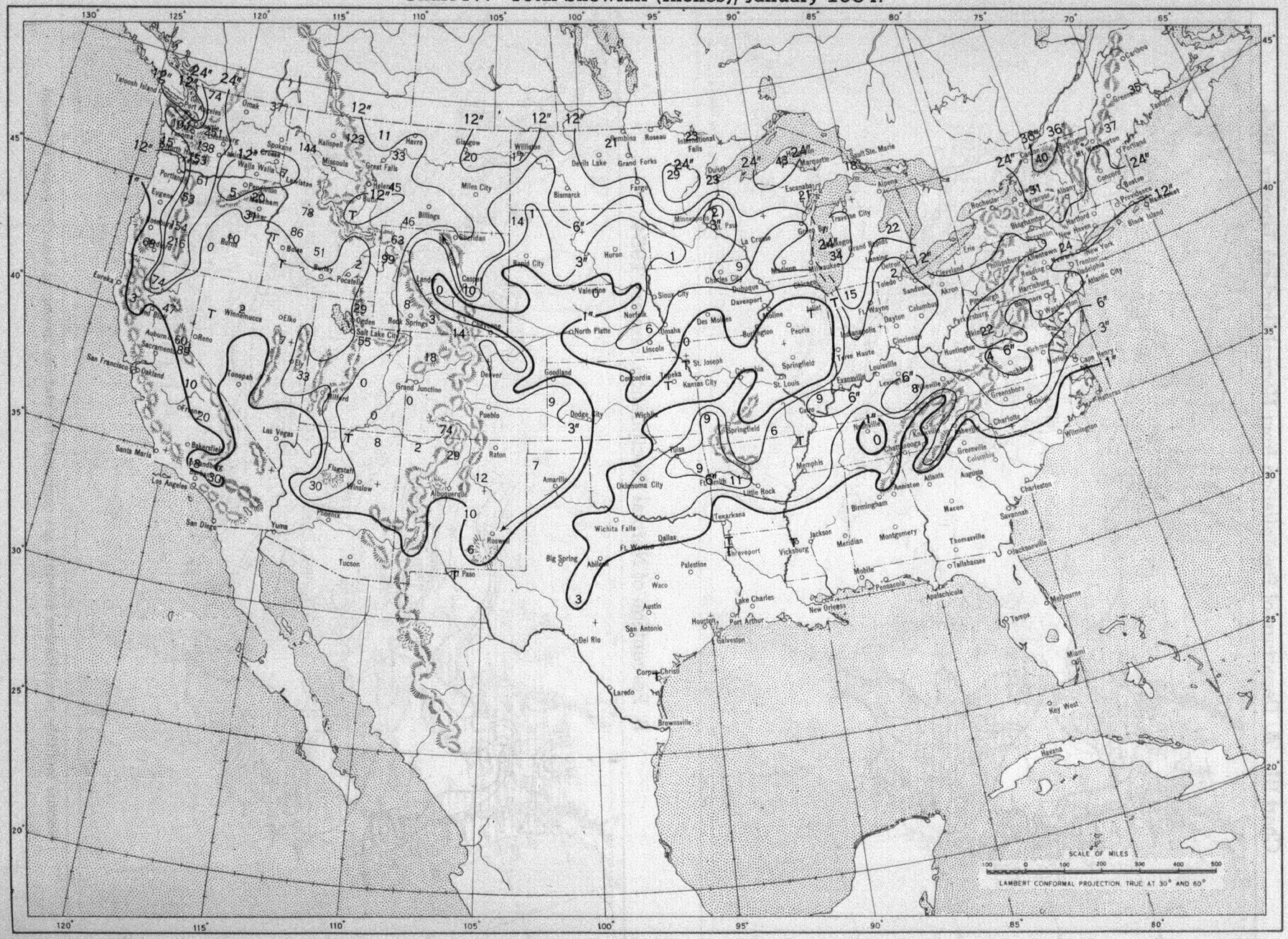


B. Percentage of Normal Precipitation, January 1954.



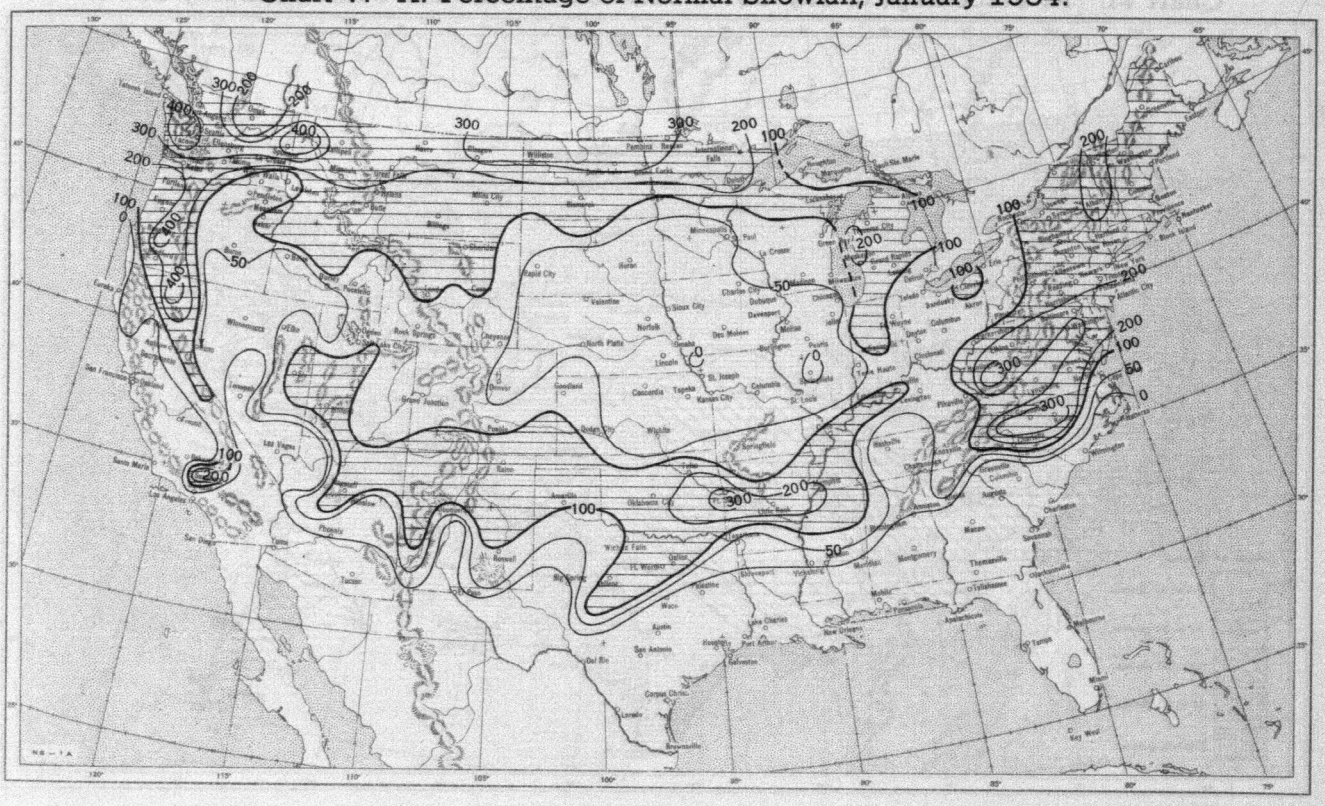
Normal monthly precipitation amounts are computed for stations having at least 10 years of record.

Chart IV. Total Snowfall (Inches), January 1954.



This is the total of unmelted snowfall recorded during the month at Weather Bureau and cooperative stations. This chart and Chart V are published only for the months of November through April although of course there is some snow at higher elevations, particularly in the far West, earlier and later in the year.

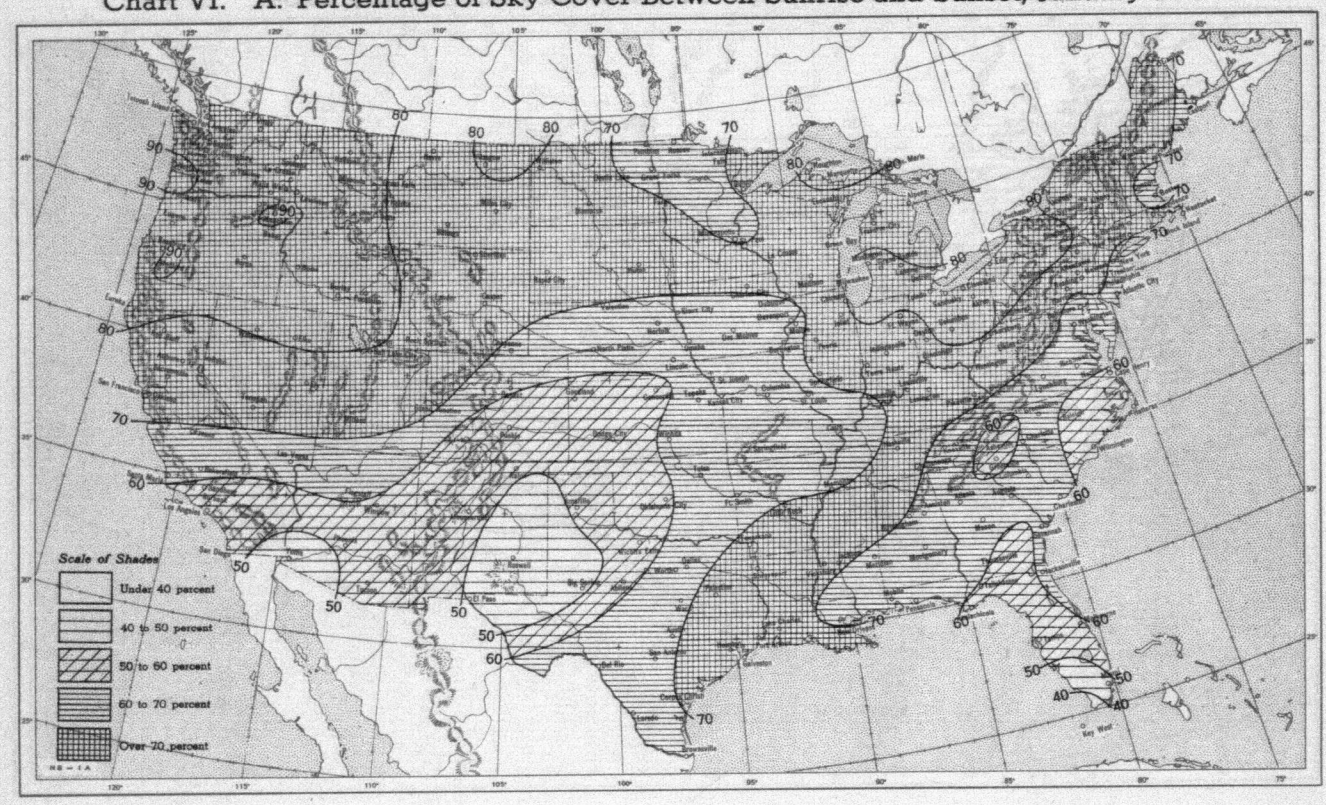
Chart V. A. Percentage of Normal Snowfall, January 1954.



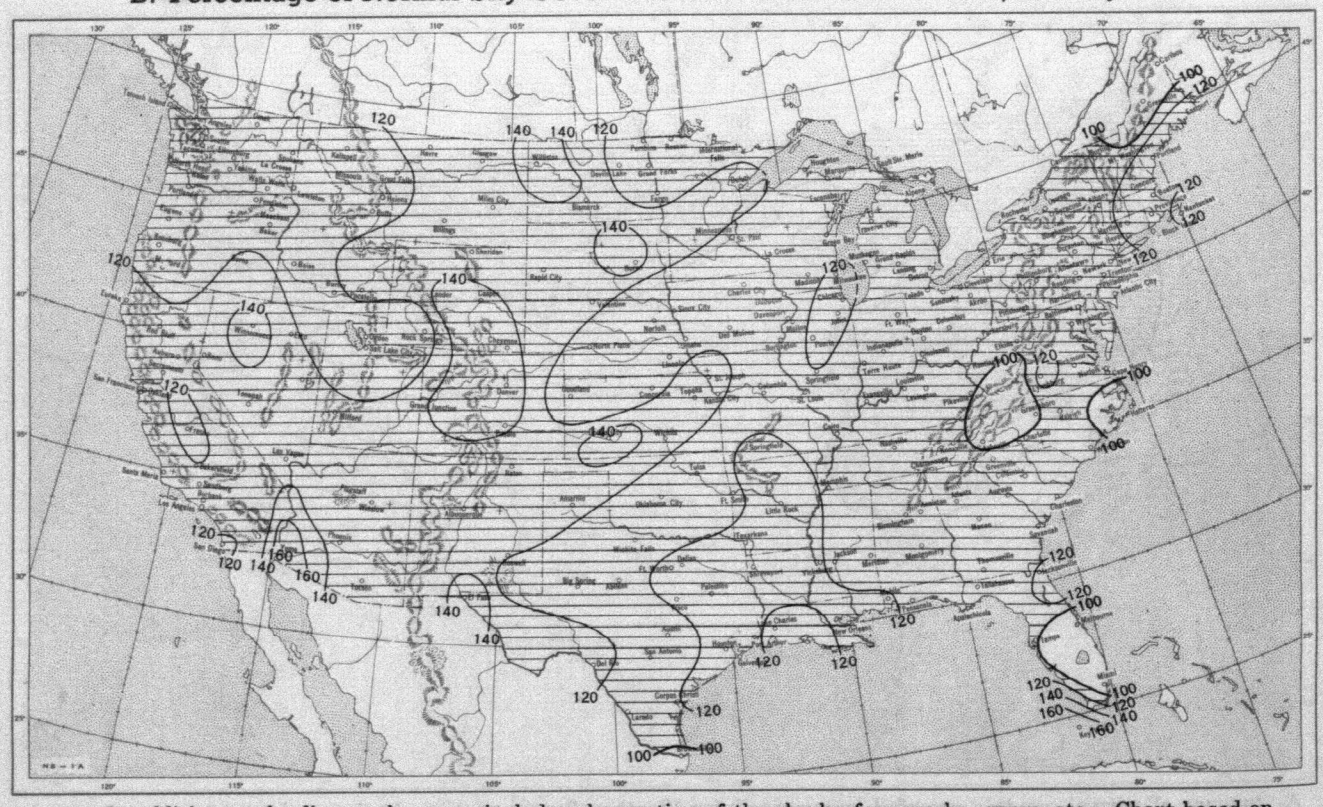
B. Depth of Snow on Ground (Inches), 7:30 a. m. E. S. T., January 26, 1954.

A. Amount of normal monthly snowfall is computed for Weather Bureau stations having at least 10 years of record.
B. Shows depth currently on ground at 7:30 a. m. E. S. T., of the Tuesday nearest the end of the month. It is based on reports from Weather Bureau and cooperative stations. Dashed line shows greatest southern extent of snowcover during month.

Chart VI. A. Percentage of Sky Cover Between Sunrise and Sunset, January 1954.

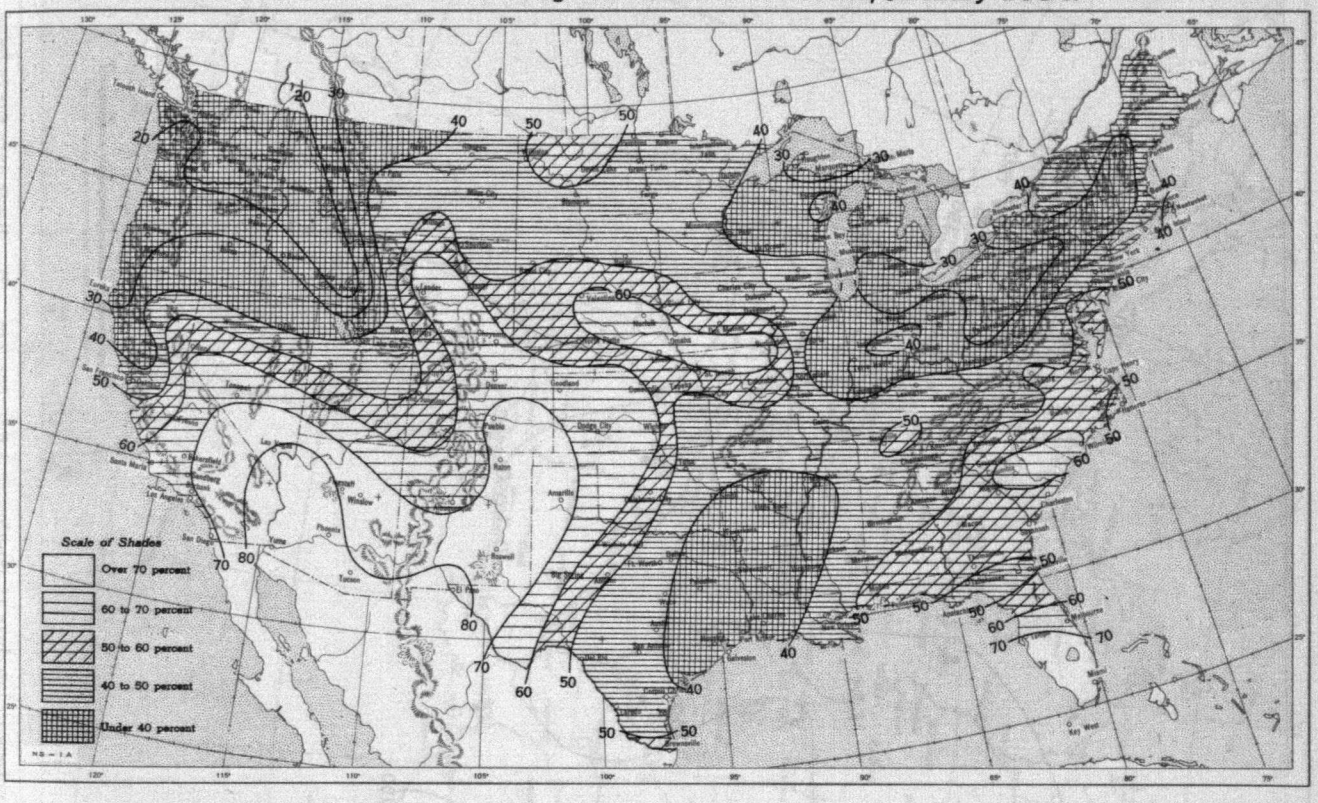


B. Percentage of Normal Sky Cover Between Sunrise and Sunset, January 1954.

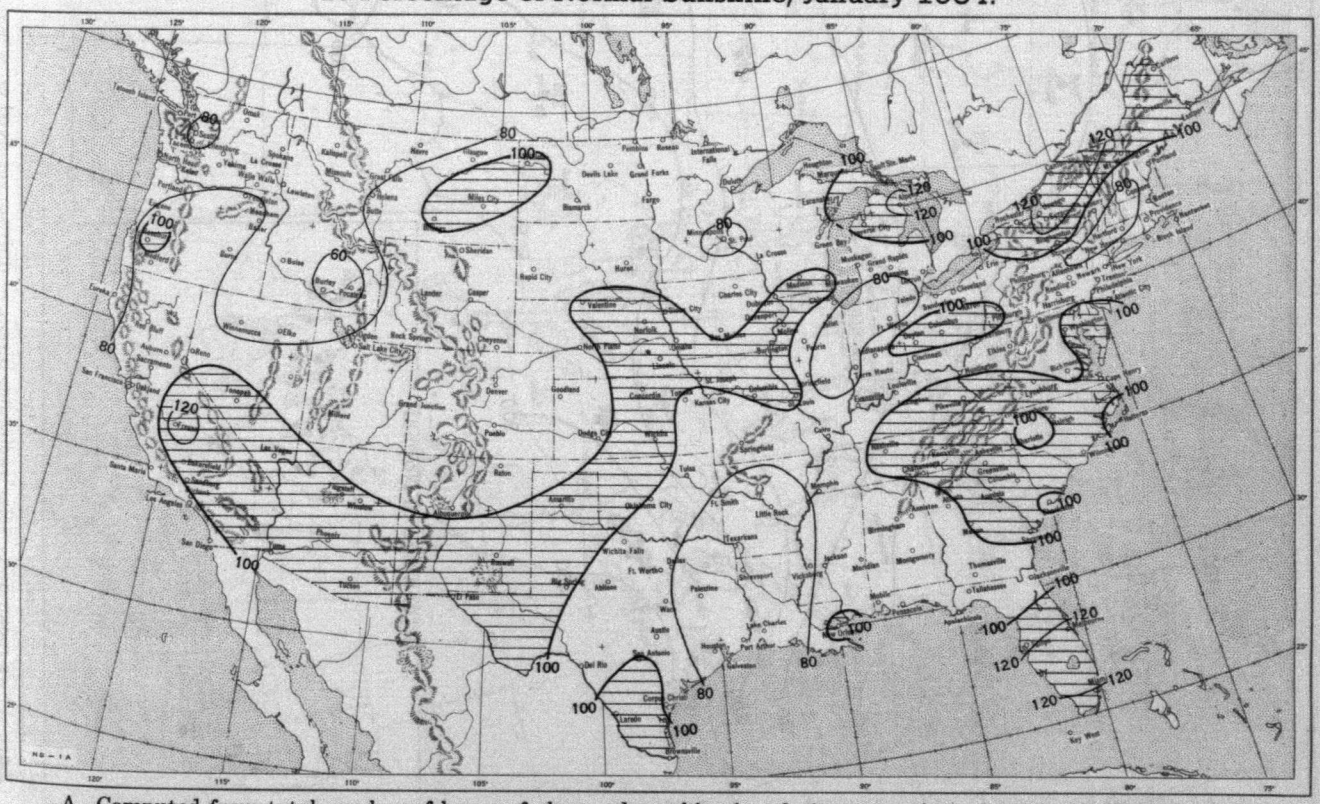


A. In addition to cloudiness, sky cover includes obscuration of the sky by fog, smoke, snow, etc. Chart based on visual observations made hourly at Weather Bureau stations and averaged over the month. B. Computations of normal amount of sky cover are made for stations having at least 10 years of record.

Chart VII. A. Percentage of Possible Sunshine, January 1954.



B. Percentage of Normal Sunshine, January 1954.



A. Computed from total number of hours of observed sunshine in relation to total number of possible hours of sunshine during month. B. Normals are computed for stations having at least 10 years of record.

Chart VIII. Average Daily Values of Solar Radiation, Direct + Diffuse, January 1954. Inset: Percentage of Normal Average Daily Solar Radiation, January 1954.

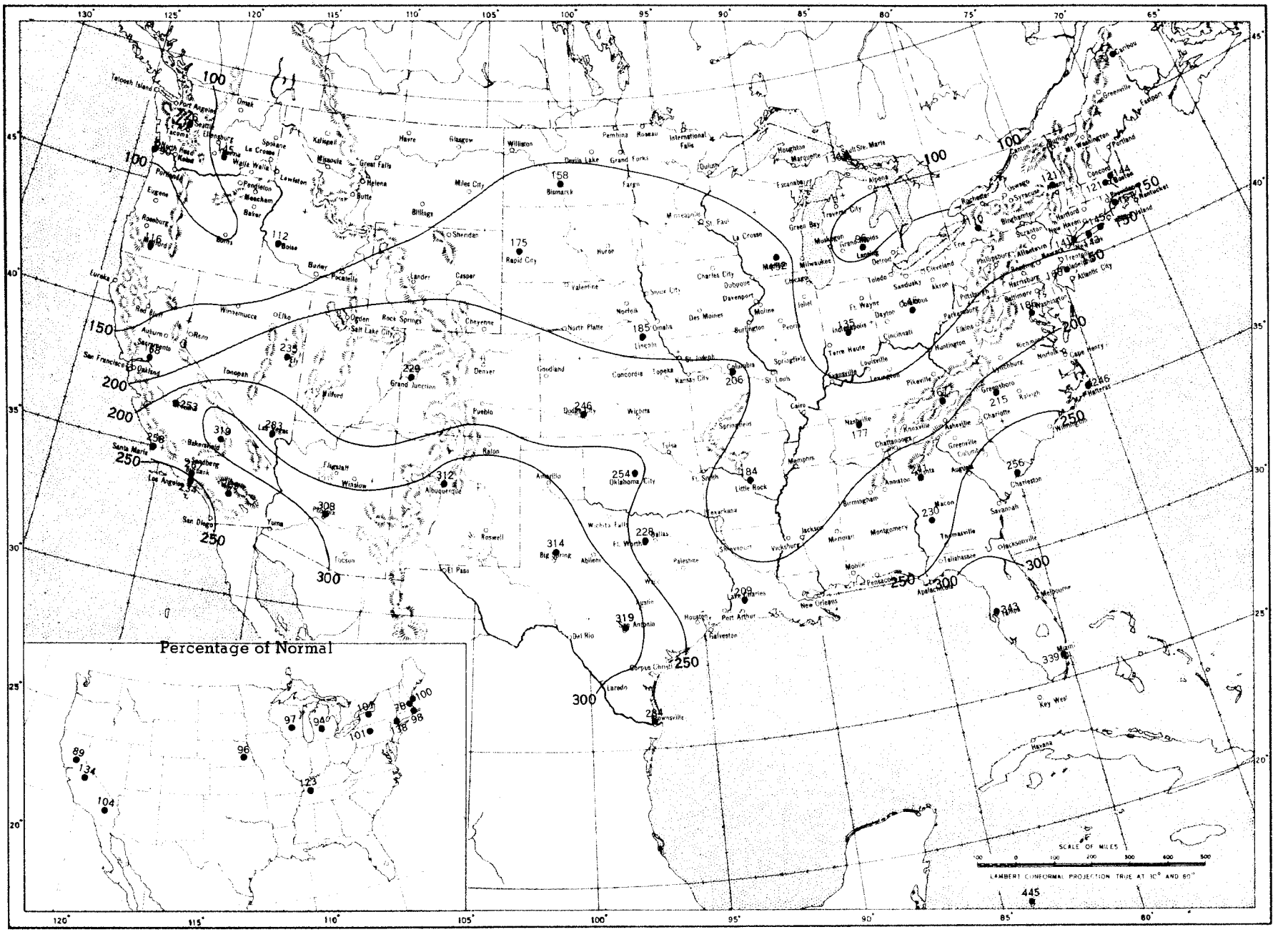
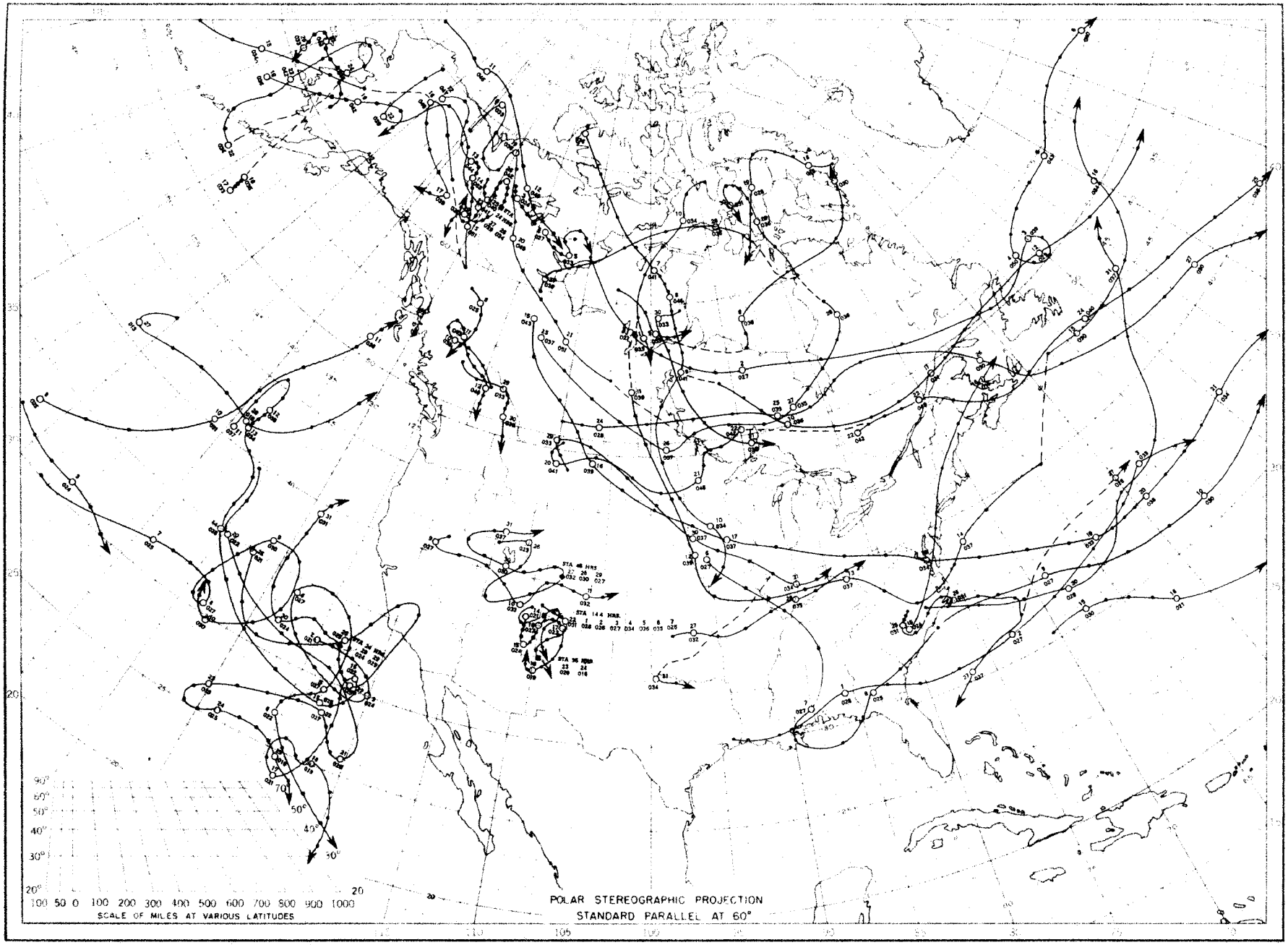


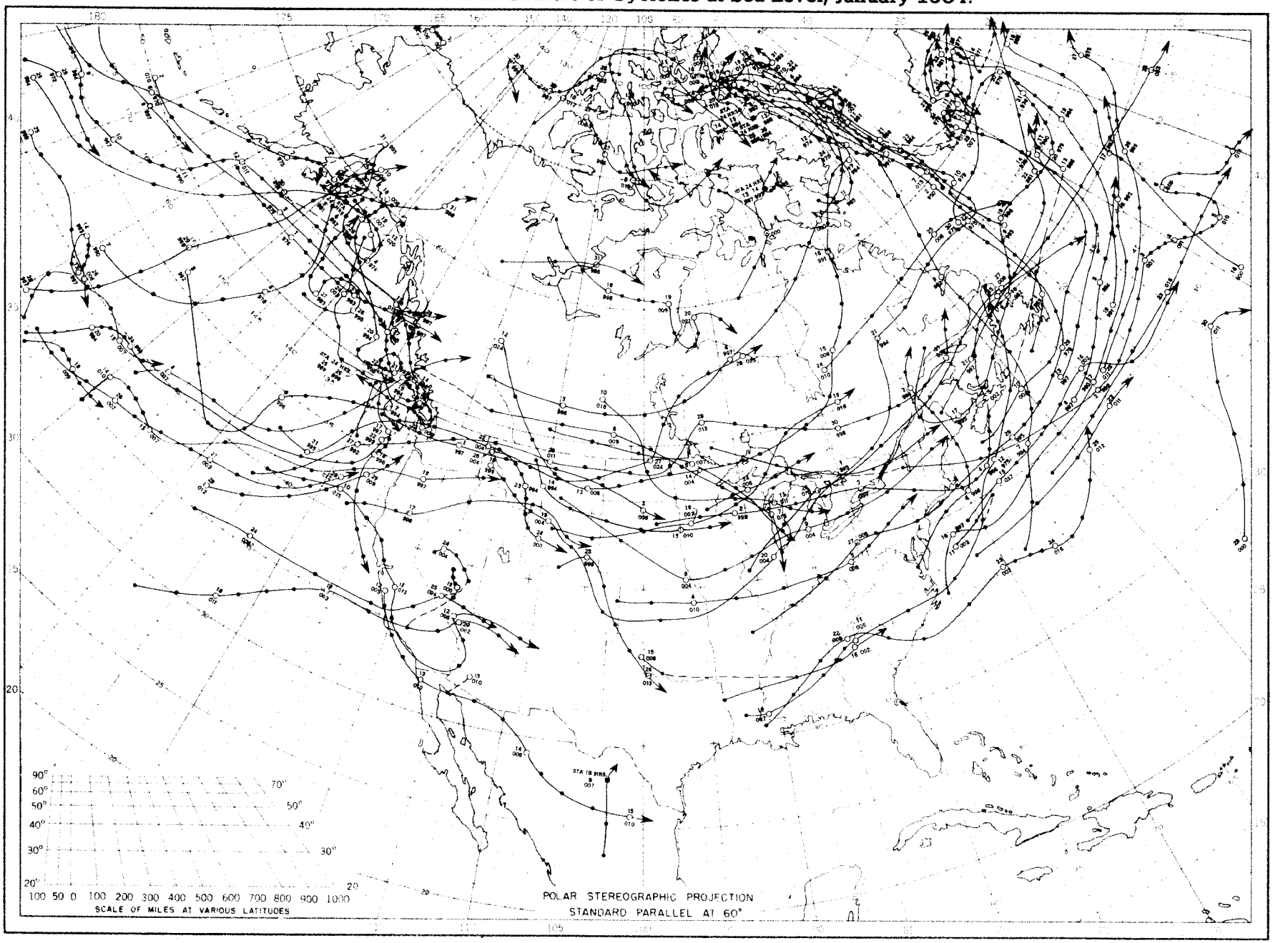
Chart shows mean daily solar radiation, direct + diffuse, received on a horizontal surface in langleys (1 langley = 1 gm. cal. cm. $^{-2}$). Basic data for isolines are shown on chart. Further estimates are obtained from supplementary data for which limits of accuracy are wider than for those data shown. Normals are computed for stations having at least 9 years of record.

Chart IX. Tracks of Centers of Anticyclones at Sea Level, January 1954.



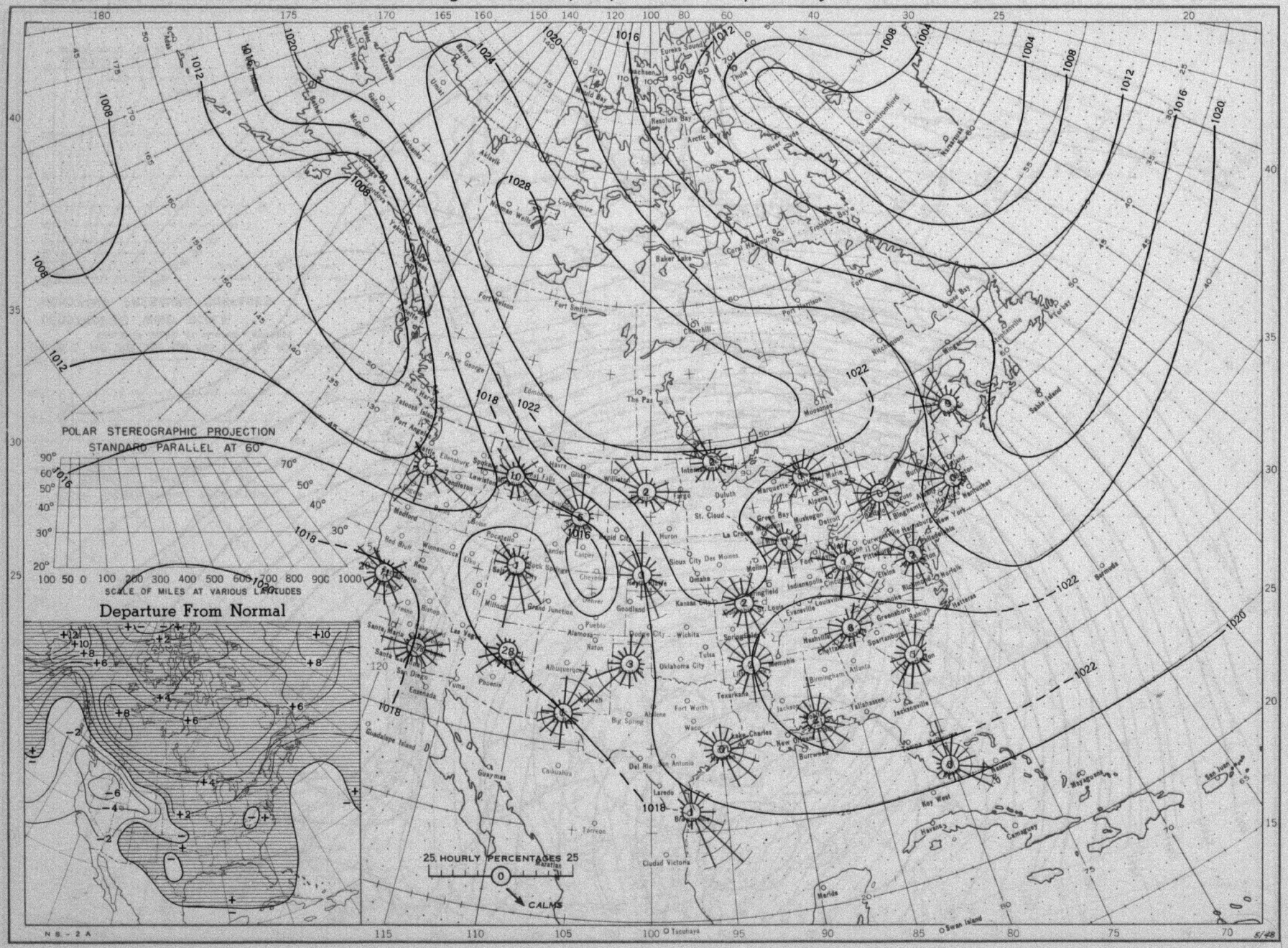
Circle indicates position of center at 7:30 a. m. E. S. T. Figure above circle indicates date, figure below, pressure to nearest millibar. Dots indicate intervening 6-hourly positions. Squares indicate position of stationary center for period shown. Dashed line in track indicates reformation at new position. Only those centers which could be identified for 24 hours or more are included.

Chart X. Tracks of Centers of Cyclones at Sea Level, January 1954.



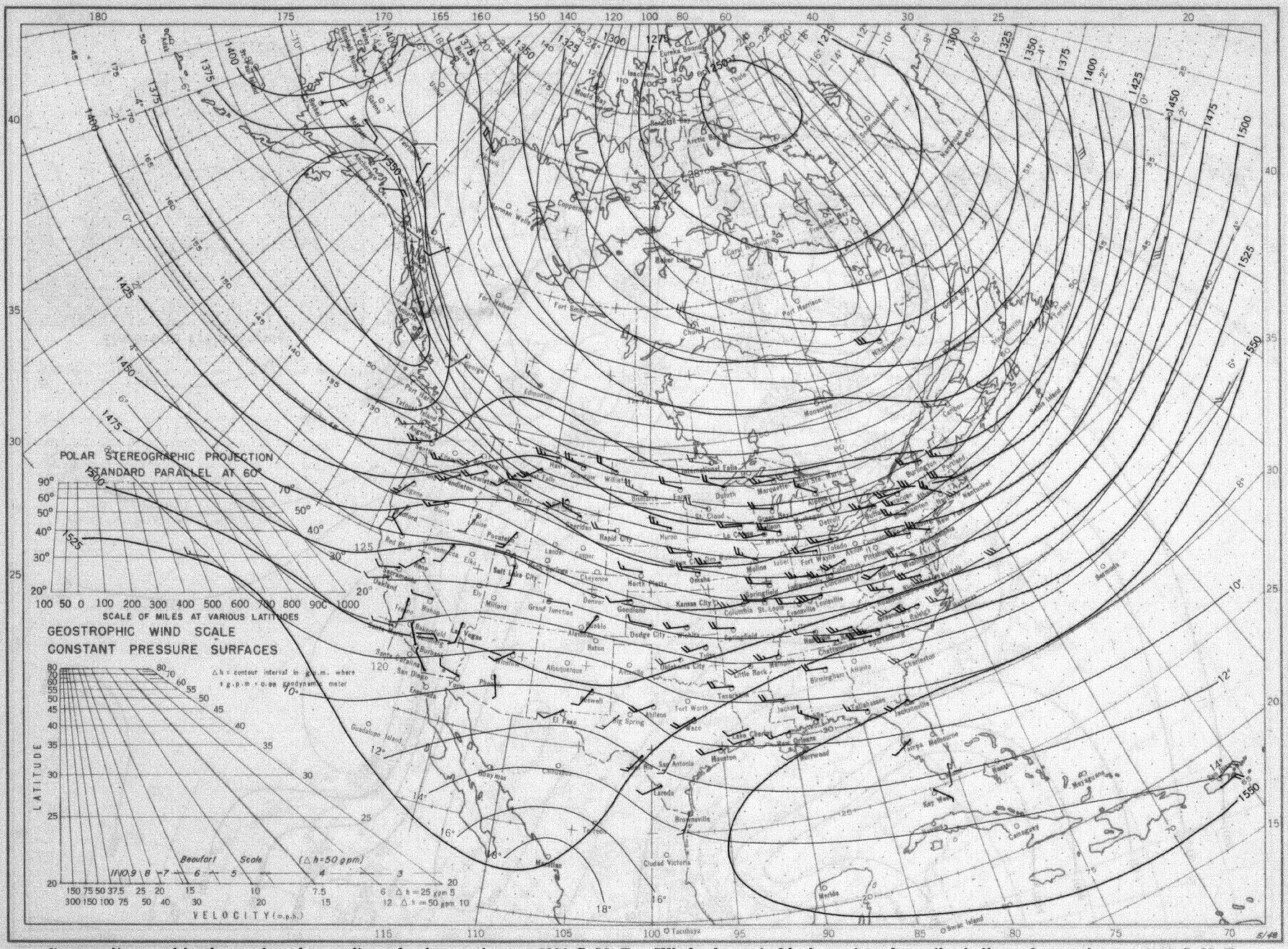
Circle indicates position of center at 7:30 a. m. E. S. T. See Chart IX for explanation of symbols.

Chart XI. Average Sea Level Pressure (mb.) and Surface Windroses, January 1954. Inset: Departure of Average Pressure (mb.) from Normal, January 1954.



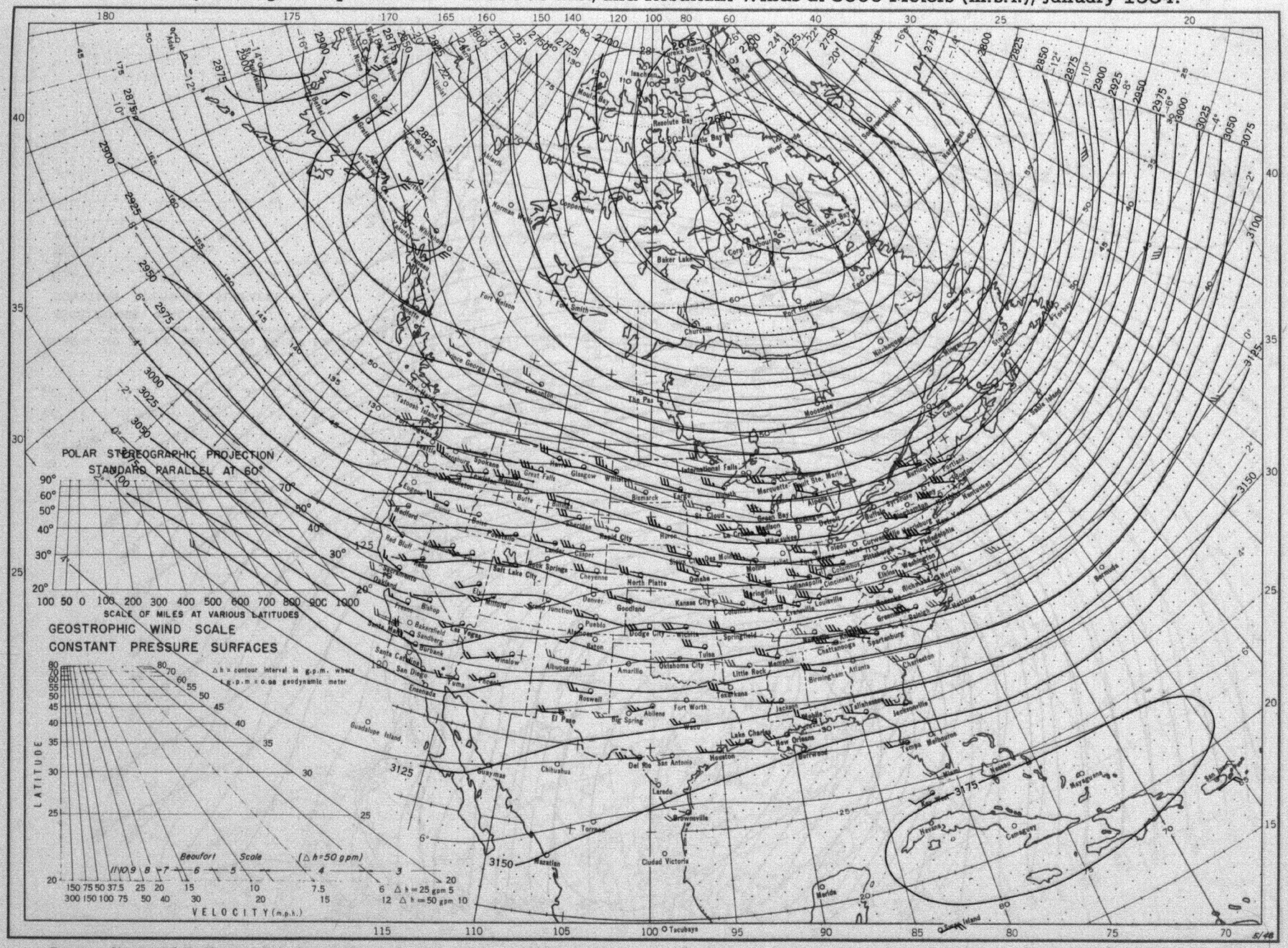
Average sea level pressures are obtained from the averages of the 7:30 a.m. and 7:30 p.m. E.S.T. readings. Windroses show percentage of time wind blew from 16 compass points or was calm during the month. Pressure normals are computed for stations having at least 10 years of record and for 10° intersections in a diamond grid based on readings from the Historical Weather Maps (1899-1939) for the 20 years of most complete data coverage prior to 1940.

Chart XII. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 850-mb. Pressure Surface, Average Temperature in °C. at 850 mb., and Resultant Winds at 1500 Meters (m.s.l.), January 1954.



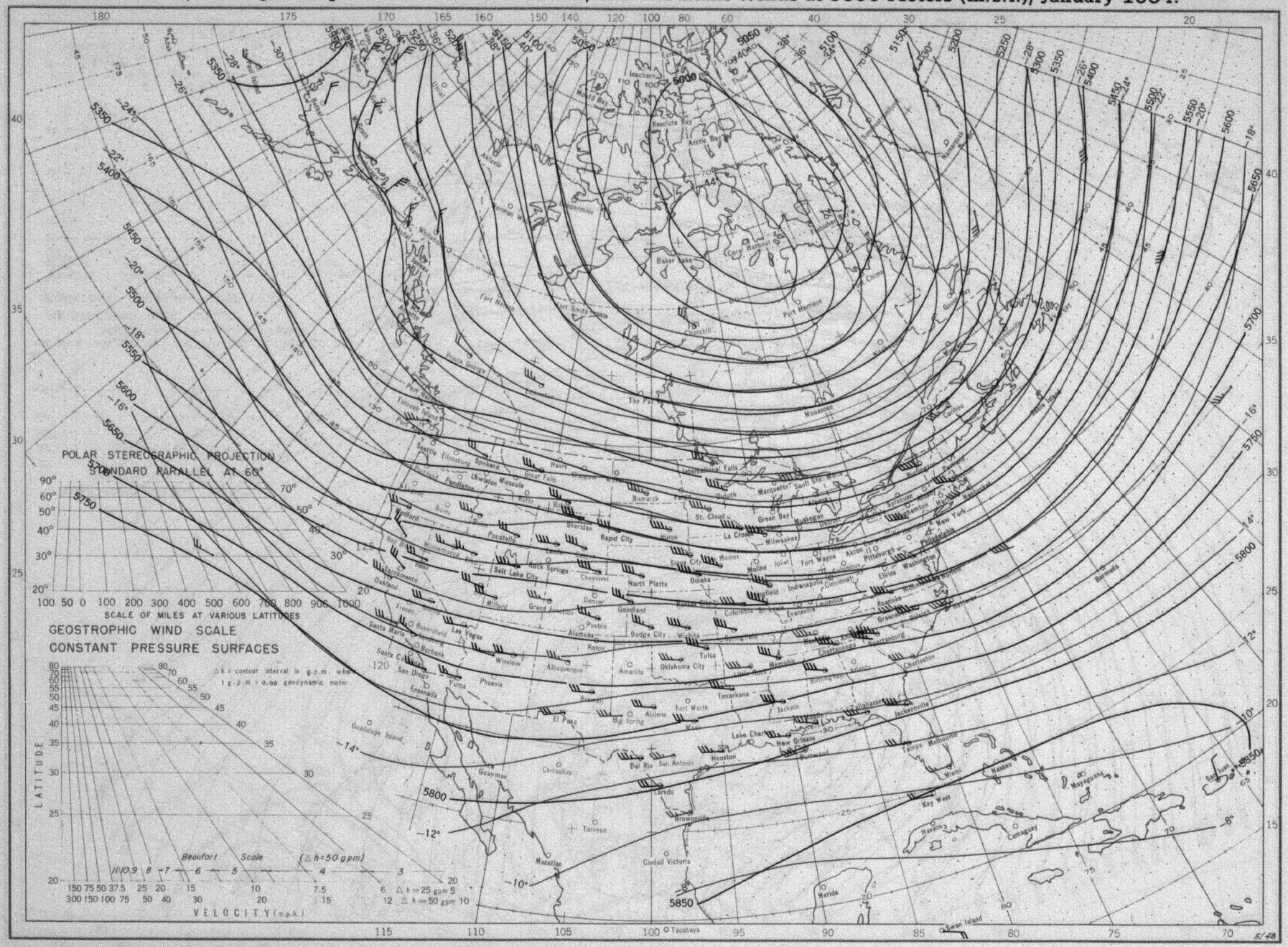
Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T. Wind barbs indicate wind speed on the Beaufort scale.

Chart XIII. Average Dynamic Height in Geopotential Meters (1 g.p.m.. = 0.98 dynamic meters) of the 700-mb. Pressure Surface, Average Temperature in °C. at 700 mb., and Resultant Winds at 3000 Meters (m.s.l.), January 1954.



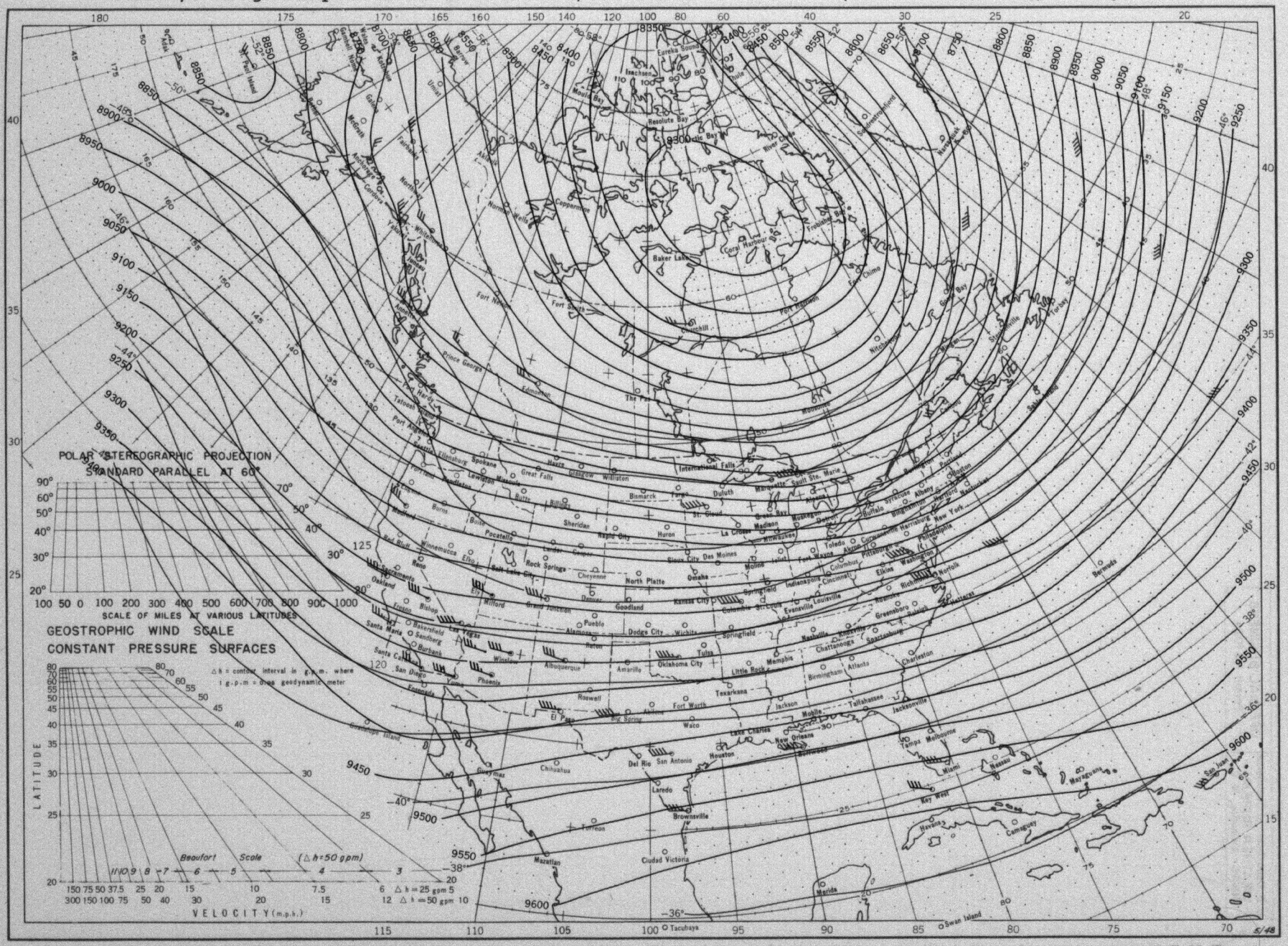
Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins taken at 0300 G. M. T. Wind barbs indicate wind speed on the Beaufort scale.

Chart XIV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 500-mb. Pressure Surface, Average Temperature in °C. at 500 mb., and Resultant Winds at 5000 Meters (m.s.l.), January 1954.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T. Wind barbs indicate wind speed on the Beaufort scale.

Chart XV. Average Dynamic Height in Geopotential Meters (1 g.p.m. = 0.98 dynamic meters) of the 300-mb. Pressure Surface, Average Temperature in °C. at 300 mb., and Resultant Winds at 10,000 Meters (m.s.l.), January 1954.



Contour lines and isotherms based on radiosonde observations at 0300 G. M. T. Winds shown in black are based on pilot balloon observations at 2100 G. M. T.; those shown in red are based on rawins at 0300 G. M. T. Wind barbs indicate wind speed on the Beaufort scale.

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