

TABLE 2.—Free-air resultant winds (m. p. s.) during February, 1928

Altitude m. s. l.	Broken Arrow, Okla. (233 meters)				Due West, S. C. (217 meters)				Ellendale, N. Dak. (444 meters)				Grossbeck, Tex. (141 meters)				Royal Center, Ind. (225 meters)				Washington, D. C. (34 meters)			
	Mean		10-year mean		Mean		7-year mean		Mean		11-year mean		Mean		10-year mean		Mean		10-year mean		Mean		8-year mean	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
Surface	S. 77 W.	1.2	N. 53 W.	0.5	N. 53 E.	0.4	S. 82 W.	1.5	N. 53 W.	4.3	N. 47 W.	3.4	N. 18 W.	0.6	S. 74 W.	2.4	S. 81 W.	2.0	N. 36 W.	1.0	N. 48 W.	1.5		
250	S. 76 W.	1.2	N. 63 W.	0.4	N. 65 E.	0.4	S. 83 W.	1.7	N. 45 W.	6.1	N. 56 W.	4.7	N. 26 W.	0.4	S. 69 W.	2.7	S. 80 W.	2.2	N. 55 W.	3.1	N. 64 W.	3.4		
500	S. 71 W.	2.0	S. 58 W.	0.9	N. 88 W.	0.4	S. 83 W.	3.3	N. 53 W.	4.8	N. 52 W.	3.6	N. 37 W.	1.0	S. 60 W.	1.7	S. 65 W.	6.3	S. 68 W.	4.0	N. 70 W.	5.3	N. 68 W.	5.2
750	S. 71 W.	2.6	S. 57 W.	2.0	N. 83 W.	0.8	S. 80 W.	4.6	N. 45 W.	6.1	N. 56 W.	4.7	N. 69 W.	1.9	S. 56 W.	2.5	S. 71 W.	8.6	S. 71 W.	5.7	N. 79 W.	6.9	N. 67 W.	6.6
1,000	S. 89 W.	3.8	S. 68 W.	2.9	N. 75 W.	2.4	S. 85 W.	5.9	N. 47 W.	7.1	N. 55 W.	5.5	N. 67 W.	2.6	S. 66 W.	3.0	S. 84 W.	9.2	S. 80 W.	7.0	N. 77 W.	8.2	N. 71 W.	8.0
1,250	N. 87 W.	6.0	S. 86 W.	4.0	N. 86 W.	4.3	S. 86 W.	7.5	N. 49 W.	8.0	N. 57 W.	6.5	N. 72 W.	3.3	S. 74 W.	4.7	S. 83 W.	10.5	S. 86 W.	7.9				
1,500	N. 83 W.	6.7		4.8	N. 85 W.	7.2	S. 89 W.	9.6	N. 52 W.	8.5	N. 59 W.	7.5	N. 84 W.	4.5	S. 78 W.	6.1	N. 89 W.	11.5	N. 89 W.	9.2	N. 72 W.	12.2	N. 69 W.	10.3
2,000	N. 84 W.	7.1	N. 84 W.	6.7	S. 79 W.	12.2	S. 68 W.	13.7	N. 52 W.	11.0	N. 62 W.	9.5	N. 84 W.	6.8	S. 86 W.	7.6	N. 82 W.	13.5	N. 84 W.	11.4	N. 77 W.	15.0	N. 70 W.	12.0
2,500	N. 77 W.	8.2	N. 83 W.	7.7	N. 85 W.	16.2		14.7	N. 47 W.	12.9	N. 62 W.	11.5	S. 87 W.	9.7	S. 86 W.	8.9	N. 79 W.	14.4	N. 84 W.	13.0	N. 75 W.	16.1	N. 73 W.	14.2
3,000	N. 68 W.	9.7	N. 82 W.	9.7	S. 82 W.	14.7	S. 87 W.	16.1	N. 49 W.	13.3	N. 65 W.	12.7	S. 80 W.	12.6	S. 85 W.	10.8	S. 85 W.	16.0	N. 88 W.	13.8	N. 72 W.	15.8	N. 75 W.	15.2
3,500	N. 80 W.	11.4	N. 71 W.	11.0	N. 68 W.	27.1	N. 87 W.	17.3	N. 50 W.	14.6	N. 68 W.	13.0	S. 83 W.	13.6	S. 89 W.	11.6	N. 85 W.	21.6	N. 87 W.	15.8	N. 68 W.	18.7	N. 74 W.	17.0
4,000	N. 87 W.	6.6	N. 73 W.	11.0					N. 45 W.	15.0	N. 68 W.	14.0	N. 65 W.	6.5	N. 88 W.	11.6	N. 68 W.	21.0	S. 87 W.	15.2	N. 64 W.	16.3	N. 77 W.	18.1
4,500	N. 79 W.	8.7	N. 73 W.	11.4																	N. 56 W.	10.6	N. 76 W.	21.2
5,000	N. 55 W.	12.3	N. 81 W.	12.0																	N. 54 W.	8.9	N. 89 W.	16.0

WEATHER IN THE UNITED STATES

THE WEATHER ELEMENTS

By P. C. DAY

GENERAL CONDITIONS

February, 1928, was notably free from the more severe weather that frequently prevails during the closing month of winter. Moderately mild temperatures, general absence of severe storms, and little snow cover over large areas afforded unusual opportunity for outdoor occupations.

PRESSURE AND WINDS

Moderate anticyclonic conditions prevailed during much of the month over the Plateau and far Western States, as was the case in January, and no cyclones of importance entered the United States from the Pacific coast during the entire month, a condition rather unusual for February.

Among the more important cyclones of the month over the eastern two-thirds of the country may be mentioned the following:

About the 6th a low-pressure area had moved into the southern Plains region, with center over Oklahoma, attended by light rains over portions of the southern Mountain and Plains States and to some extent in the States to the eastward. By the morning of the 7th the center of low pressure had advanced to Iowa and precipitation had occurred over most of the Mississippi Valley and eastward into the Lake region, Ohio Valley, and Southeastern States. During the following 48 hours the storm area advanced to the Atlantic coast attended by widespread precipitation, mostly rain, but with some snow from the Great Lakes eastward.

Generally clear weather prevailed thereafter until the 13th, when a low-pressure area in the Southwest developed into a general rainstorm central over southwestern Missouri. This storm moved to the southern end of Lake Michigan by the morning of the 14th and precipitation, mostly rain, had extended over much of the country from the Great Plains eastward to the Appalachian Mountains and South Atlantic coast. A secondary storm had developed in the meantime over the Gulf of Mexico and moved to the South Carolina coast.

By the following morning the two storms had advanced to New England, attended by widespread precipitation from the Great Lakes and Ohio Valley to the middle and North Atlantic coast.

More or less scattered precipitation occurred on the 16th and 17th from the Rocky Mountains eastward and by the morning of the 18th general cyclonic conditions existed from the Ohio Valley eastward, rather heavy rains occurring over the east Gulf and South Atlantic coasts and general but usually light snows over the Ohio Valley, Lake region, and Northeastern States.

Probably the most important cyclone of the month entered the northwestern section about the 21st, and by the morning of the 22d it was central over Colorado, attended by light snows in the Northern States as far east as the upper Lakes, and by some heavy rains in eastern Texas and portions of near-by areas.

As this storm moved over the Great Plains it separated into two distinct tracks, one moving northeast to the upper Lakes and the other southeast to the lower Mississippi Valley, the precipitation area extending to the Atlantic and Gulf coasts with heavy rains falling over the Southeastern States, and moderate snows in portions of the upper Mississippi Valley, upper Lake region, and New England.

The last half of the third decade was without precipitation over nearly all parts of the country, the last few days, except the 29th, being particularly free from clouds.

The distribution of the average pressure for the month, its departure from the normal, and the change from the preceding month are shown on Charts II, III, and VI.

In the absence of important barometric depressions there were few strong winds and damage to property from these was relatively small. The details concerning wind and other storms during the month are shown in the usual table at the end of this section.

TEMPERATURE

The month was moderately mild throughout, but the first half was distinctly so over much of the country. The first week was warmer than normal save over the extreme Northeastern States, and was decidedly warm over all sections from the Mississippi River westward, the positive departures ranging up to nearly 20°.

The second week was likewise warmer than normal over nearly all districts, the only important sections with negative departures being the Southwest and local small areas along the South Atlantic coast and in the middle plateau. Over the central valleys the week was unusually warm for winter, particularly in the Missouri and upper Mississippi Valleys which had been unduly warm the preceding week also.

The third week continued warm for the season in the upper Missouri Valley, but over most other portions this week was cooler than those preceding, the greatest negative departures, -3° to -9° , occurring in the southern districts.

The closing week, like that preceding, was cool over most portions, small temperature excesses occurring locally in North Dakota and Minnesota, over southern Florida, along the Pacific coast and over portions of the southern plateau. This week was distinctly cool over the upper Missouri and northern Rocky Mountains, where the three preceding weeks had been unusually warm, and it continued distinctly cool over the Central and Southern States east of the Rockies save in southern Florida.

The warmest periods were mainly about the middle of the first decade over the districts from the Great Plains eastward, save in Florida where the highest temperature occurred on the 25th. Over the more western portions a few of the Central States had the warmest days on the 1st to 4th, while in the far Northwest they were about the 9th and 10th or 20th and in the far Southwest about the 27th to 29th.

The lowest temperatures occurred mainly during the last half, about the 14th to 17th over the Southwest; the 18th to 20th over the Southeastern States; and from the 22d to 26th over most other sections.

The highest temperature reported during the month was 94° in Florida on the 25th, but in portions of the Lake region and other northern districts the maximum readings did not reach 60° . The lowest temperature reported was 51° below zero in Wisconsin, at the time of maximum temperature in Florida. This severe cold was confined mainly to a small area in the Lake Superior region, and at points in northern Wisconsin and the adjacent portions of Michigan and Minnesota the temperatures were the lowest ever recorded in February.

The month as a whole was warmer than normal, as was the case during the preceding month, in practically all central and northern districts, and like that month also it was colder than normal in most southern districts except Florida. Over the Missouri and upper Mississippi Valleys and thence northward into Canada the average

temperatures ranged from 6° to 15° or more above normal, the excesses increasing to the northward.

PRECIPITATION

As in January there was a widespread deficiency in precipitation as compared with the normal, though the area of deficient fall was less and the departures from the normal were less pronounced, except on the Pacific coast where they were about the same in both months.

Near the South Atlantic and Gulf coasts there were general to moderate excesses, and a considerable area from the southern Rocky Mountains northeast to the upper Mississippi Valley and near-by areas had moderate excesses and there were local excesses in the Middle Atlantic States and southern New England.

SNOWFALL

Snow fell over most areas where it is liable to occur in February, but as in January the amounts were mainly less than the normal for the month. This was particularly the case in the central valleys, over much of New England, and generally in the far western mountains.

The individual snows were mainly light, though rather heavy falls occurred in the Lake region and thence eastward on the 10th and 11th. The distribution of the snowfall is graphically shown on Chart VII.

The total stored snow in the important mountain sections of the West was in many cases less than usually prevails at the end of winter, and the outlook for water for irrigation and power purposes was somewhat discouraging.

RELATIVE HUMIDITY AND SUNSHINE

The percentages of relative humidity were mainly less than normal, with locally large deficiencies in southern California, the upper Missouri Valley, and portions of the middle Gulf States.

Small excesses existed near the Atlantic coast and over most northern districts from the Dakotas eastward, also locally in the southern Plains, the Ohio Valley, and the far Northwest.

Much cloudiness prevailed over the coast districts of Texas and to a less extent over other portions of the Gulf and South Atlantic States, also in the Lake region and far Northwest. Over the Great Plains and mountain regions of the West there was very generally abundant sunshine.

SEVERE LOCAL STORMS, FEBRUARY, 1928

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Iowa (northwest)	4-8					Glaze	Fruit and shade trees injured or destroyed; telephone, telegraph, and electric wires damaged.	Official, U. S. Weather Bureau.
Neal, Kans. (near)	6	1 p. m.				Probably small tornado.	Damage confined to outbuildings and crops.	Do.
Orange, Tex.	7	5 a. m.	2,640		\$53,000	Wind and hail	Damage chiefly to oil derricks by wind; roofs and windows damaged by hail.	Do.
Pipestone, Minn.	7-8					Sleet	Extensive damage to trees and overhead wires	Do.