

30° or more below zero occurring at exposed points in the Rocky Mountain region, the upper Lakes, and Wyoming. northern New England, the lowest, -37°, occurring in

The second week was warmer than normal over all parts save the more northeastern States, and along the northern border from North Dakota eastward to the upper Lakes. This period was decidedly warm, plus 8° to 12°, from the middle Mississippi Valley northward to the Canadian boundary. The week ending March 20 averaged moderately cool over most central and eastern districts and continued mild in the far West, portions of Montana and North Dakota having averages from 5° to nearly 10° warmer than normal.

The week ending the 27th was distinctly warm on the whole, all parts save Florida having averages above normal, the excesses ranging up to 10° or 15° over much of the interior and Northwest. The highest temperatures of the month were recorded during this period over nearly all parts save along the South Atlantic and Gulf coasts where the warmest days were mainly the 28th to 30th. At some points in Montana the highest temperatures ever reported in March occurred on the 21st.

PRECIPITATION

March, like the two preceding months, was distinctly dry, in fact the greater part of the area from the Rocky Mountains eastward had deficient moisture compared with the normal for the month, the chief exceptions being portions of central Alabama, southern Georgia, and northern Florida, where there were locally some important excesses.

Over the far Western States the precipitation was mainly above normal and was usually favorably distributed.

The general absence of rainy days associated with moderate temperatures and lack of important snow cover over most eastern and central districts afforded unusually favorable conditions for the rapid progress of most outdoor occupations.

SNOWFALL

There was a rather wide distribution of snowfall, though the amounts were mainly small save in a few localities, mostly over the Northeastern States, where rather heavy falls occurred on the 9th and 10th and again on the 17th and 18th, some sections, particularly from western Maryland northward, having amounts in excess of any that occurred during the preceding winter. Rather heavy falls occurred also in portions of the upper Lake region, particularly in the upper peninsula and northern portions of the lower peninsula of Michigan where highways were badly blocked, a few localities being entirely isolated for more than a week near the end of the month.

Over many of the interior portions the snowfall was the least of record for March, but over much of Kansas and portions of adjacent States there were heavy falls, ranging up to 10 inches or more, on the 15th and 16th, which, melting slowly, soaked the ground thoroughly and were of great benefit to grains and grasses.

Over the western mountains there were mainly about normal falls, the amounts being generally above normal in most northern and far western mountains. The additional snowfall during March together with the plentiful rainfall over the States from California northward added materially to the outlook for a normal water supply during the coming summer.

RELATIVE HUMIDITY

The percentages of relative humidity, like the total amounts of precipitation, were mainly below normal over the eastern two-thirds of the country, and above normal, as was the case with precipitation, over the more western districts; though in no cases were the departures from normal of importance save the negative values were unusually large in the upper Missouri and Mississippi Valleys, portions of the Plains States, and lower Lake region.

SEVERE LOCAL STORMS, MARCH, 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 ¹	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Lone Star, Tex. (near).....	3	10 p. m.	-----	1	-----	Tornado.....	Several farm buildings demolished.....	Official, U. S. Weather Bureau.
New York State.....	4	-----	-----	-----	-----	High winds.....	Roads, buildings, and wire systems damaged throughout the State.	Do.
Tom Green County to Caldwell County, Tex.	9	-----	-----	-----	-----	Heavy hail.....	Fruit trees, gardens and auto tops damaged; several persons injured. Heaviest damage near Hunter.	Do.
Plant City, Fla.	12	8 a. m.	-----	-----	-----	Hail.....	Much injury to small plants and berry crops....	Do.
Georgia.....	12	-----	-----	-----	-----	Wind, hail, and thunderstorms.	Wires and trees considerably damaged; 1 building unroofed.	Do.
Evansville, Ind., and vicinity.	13	-----	-----	-----	-----	Thunderstorm and hail.	Houses and barns unroofed; signs blown over; windows shattered.	Do.
Meridian, Miss.....	15	p. m.	-----	-----	-----	Wind and hail....	Numerous windows and auto tops pierced; sheds and small houses demolished; garden truck ruined.	Do.
Watley, Ala.....	15	11:55 p. m.	-----	-----	-----	Small tornado.....	Considerable property damage; 1 person injured....	Do.
Corley, Ala.....	15	-----	-----	-----	\$10,000	do.....	Two houses completely destroyed; other property damaged; 2 persons injured.	Do.
Louisiana (northwest).....	15	-----	-----	-----	-----	Thunderstorms and winds.	Damage chiefly to oil-well equipment and telephone and telegraph lines; timber injured; a number of buildings blown down; livestock killed.	Do.
Vicksburg, Miss.....	15	-----	-----	-----	-----	do.....	Power and communication lines considerably damaged; 1 person injured.	Do.
Sorrento, Fla.....	17	12:10 a. m.	-----	1	10,000	Tornadoic wind.....	One building demolished; 13 persons injured....	Do.
Hays and Caldwell Counties, Tex.	23	P. m.	2,640	-----	275,000	Hail and wind.....	Heavy crop damage; much destruction in oil fields; path 25 miles long.	Do.
Charles City, Iowa.....	24	-----	-----	-----	-----	Tornadoic wind.....	Windows broken; small buildings damaged.....	Do.

¹ "Mi." signifies miles instead of yards.

Severe local storms, March, 1928—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Denver, Colo.	25	P. m.			\$10,000	Wind	Plate-glass windows, trees, walls and signs damaged; minor damage to homes, wires and automobiles.	Official, U. S. Weather Bureau.
Julesburg, Colo.	25	4:30 p. m.			5,000	do.	Property of all kinds damaged.	Do.
Bonifay, Fla. (north of)	25	8 p. m.	5 mi.			Hail	Considerable damage to gardens, early cotton and watermelons.	Do.
Cherokee County, Ga.	26	10:30 p. m.		5	15,000	Small tornado	Two residences, a few barns and numerous trees blown down; several persons injured.	Do.
Grand Haven, Mich.	26					Rain, wind, and sleet.	Many poles blown down; communication interrupted.	Do.
Ohio	26					Thunder storms	Severe and destructive; character of damage not reported.	Do.
Seattle, Wash., and vicinity.	26			1		Wind	Considerable property damage.	Do.
Spring Hill and McMinnville, Tenn.	26					High winds	Several buildings unroofed; warehouse wrecked.	Do.
Spartanburg, Union, and Cherokee Counties, S. C.	26-27				3,000	Severe wind-squalls.	Character of damage not reported.	Do.
Sunbeam, Colo.	27	1-1:20 a. m.				Winds	Corrals, weather shelter, windmill, and small building damaged.	Do.
Birmingham, Ala. (15 miles north of)	29	6:30 p. m.		4	35,000	Tornado	25 to 50 houses destroyed, also a dozen camp cabins and many outbuildings and other property; 16 persons injured.	Do.
Nashville, Tenn.	29		880		2,500	Hail and electrical.	Windows broken and greenhouses damaged; lightning disabled 1,000 telephones.	Do.
Indians and Ohio (northern halves).	29-30				1,500,000	Glaze	Widespread damage to wire systems, trees and other property.	Do.
Rock Hill, S. C.	30	7:30 a. m.	200		6,000	Wind and thunderstorms.	Many buildings unroofed; others damaged; trees unroofed.	Official, U. S. Weather Bureau; observer (Charlotte, N. C.)
Norfolk, Va., and vicinity.	30				25,000	Wind	Large dairy barn collapsed, injuring 2 persons; other minor damage.	Official, U. S. Weather Bureau.

RIVERS AND FLOODS

By H. C. FRANKENFIELD

The only serious flood of the month occurred in the Sacramento River and its tributaries except the upper San Joaquin River. A description of this flood will be found on page 100.

As will be seen from the table following, there were no floods of much consequence apart from those in California, and a moderately high one in the Black Warrior and lower Tombigbee rivers of Alabama. Warnings were issued as required, and the only losses reported were in the Tombigbee and Black Warrior Valleys. These amounted to \$21,600, offset by a saving through the warnings of \$27,100.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC DRAINAGE					
Unadilla: New Berlin, N. Y.	8			9.2	Mar. 27.
Chenango: Sherburne, N. Y.	8	26	27	8.5	Do.
Lynches: Effingham, S. C.	14	1	1	14.3	Mar. 1.
Santee:					
Rimini, S. C.	12	(¹)	5	15.2	Feb. 27.
		14	21	13.0	Mar. 16-17.
Ferguson, S. C.	12	(¹)	8	13.6	Feb. 28-29.
		15	27	12.7	Mar. 23-25.
Altamaha:					
Charlotte, Ga.	15	(¹)	1	16.0	Feb. 27.
		12	23	17.4	Mar. 19.
Everett City, Ga.	10		23	10.0	Mar. 22-25.
Ocmulgee: Abbeville, Ga.	11		14	11.0	Mar. 14-15.
EAST GULF DRAINAGE					
Tombigbee: Lock No. 4, Demopolis, Ala.	39	13	26	49.6	Mar. 22.
Black Warrior: Lock No. 10, Tuscaloosa, Ala.	46	17	18	50.0	Mar. 17.
West Pearl: Pearl River, La.	13	15	18	14.3	Mar. 16.
		22	25	13.4	Mar. 23-24.

¹ Continued from last month.

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI DRAINAGE					
Allegheny: Lock No. 5, Freeport, Pa.	24	31	(¹)	24.3	Mar. 31.
Tuscarawas: Gnadenhutten, Ohio.	9	15	15	10.3	Mar. 15.
		31	(²)	11.4	Mar. 31.
Scioto: Larue, Ohio.	11	30	30	11.3	Mar. 30.
Tippecanoe: Norway, Ind.	6	2	2	6.0	Mar. 2.
		5	6	6.1	Mar. 5-6.
		11	12	6.3	Mar. 12.
		14	14	6.1	Mar. 14.
White, West Fork: Anderson, Ind.	12	31	31	12.0	Mar. 31.
Elk: Fayetteville, Tenn.	14	9	9	16.2	Mar. 9.
Wisconsin:					
Knowlton, Wis.	12	24	27	16.7	Mar. 24.
Wisconsin Rapids, Wis.	12	26	26	12.0	Mar. 26.
Big Sioux: Akron, Iowa.	12			13.4	Mar. 13.
Illinois:					
Peru, Ill.	14	(¹)	6	20.0	Dec. 18-19.
		16	24	14.3	Mar. 17-19.
Havana, Ill.	14	(¹)	3	18.1	Dec. 19.
Beardstown, Ill.	14	(¹)	6	19.3	Dec. 16-18.
Black: Corning, Ark.	11	(¹)	2	11.7	Feb. 27-28.
		18	25	11.5	Mar. 20.
Tallabatchie: Swan Lake, Miss.	25	16	(¹)	29.4	Mar. 25-26.
WEST GULF DRAINAGE					
Trinity: Trinidad, Tex.	28	(¹)	1	33.8	Feb. 27.
PACIFIC DRAINAGE					
Sacramento:					
Red Bluff, Calif.	23	27	27	26.9	Mar. 27.
Hamilton City, Calif.	22	28	28	22.0	Mar. 28.
Knights Landing, Calif.	18	26	31	19.2	Mar. 28-30.
Sacramento, Calif.	29	26	26	29.5	Mar. 26.
Tuolumne: LaGrange, Calif.	8	26	26	8.0	Mar. 26.
Mokelumne: Bensons Ferry, Calif.	12	27	29	13.8	Mar. 28.
Willamette:					
Eugene, Oreg.	12	12	12	12.5	Mar. 12.
Harrisburg, Oreg.	7	11	14	13.1	Mar. 12.
		27	(¹)	9.3	Mar. 31.
Willamette, Coast Fork: Saginaw, Oreg.	9	11	11	9.1	Mar. 11.
Santiam: Jefferson, Oreg.	10	11	12	13.5	Mar. 12.
		31	31	10.4	Mar. 31.

¹ Continued from last month.

² Continued at end of month.

³ Estimated.