

during much of the month. Over the northern mountain regions the snowfall appears to have been near normal.

At the end of April snow had practically disappeared, except in northern New England, where much of the ground was still covered, and in the high mountains of the West.

Due to continued cool weather, ice on the Great Lakes melted slowly and opening of navigation was delayed. At Buffalo the harbor was closed during the entire month, the ice fields being probably the heaviest for April in 50 years.

RELATIVE HUMIDITY

Despite the general coolness over the eastern two-thirds of the country, the relative humidity was mainly below average, due to the general lack of rain, while over the Southwest there was a general excess, despite the prevailing warmth, this due to the unusual rainy condition over that part of the country.

The deficiencies were large, 15 to 25 per cent, in the Missouri Valley, also to a less degree in the Appalachian Mountain region. In the far Southwest the excess was large, ranging from 10 to nearly 30 per cent.

SEVERE LOCAL HAIL AND WIND STORMS, APRIL, 1926

[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
Raywood, Tex.	2	4:15 a. m.	4 mi.		\$2,000	Hail	Character of damage not reported	Official, U. S. Weather Bureau.
At sea off La Jolla, Calif.	4-5			4		Gale	Small motor boat wrecked	Do.
San Diego County, Calif. (southwest part of).	5-6				300,000	Straight winds, rain, and 3 tornadoes.	Severe damage by flooding; many persons injured and buildings wrecked or damaged; trees and fruit badly injured. Greatest damage in vicinity of San Diego.	Do.
Crawford, Tex. (near)	6	5 p. m.	10		4,000-5,000	Tornado	Some damage to buildings; two persons injured	Do.
Laredo, Tex. (near)	6	5:30-6 p. m.			215,000	Hail	Approximately 1,300 acres of onions destroyed by hail which fell to a depth of 6 to 18 inches. Some damage to fruit and windows.	Do.
Brea Field, near Los Angeles, Calif.	7	A. m.			3,000,000-4,000,000	Electrical	Oil tanks fired	Do.
Red Bank, S. C.	7	6:15 p. m.			12,000	Small tornado	Property damaged over a path 6 miles long; two persons injured.	Do.
Center Point, Ark.	7	10 p. m.				Heavy hail	One orchard damaged considerably	Do.
Edna, Calif. (near San Luis Obispo).	7-8			2	15,000,000	Three tornadoes and electrical.	Oil tanks fired by lightning; tornadoes evidently caused by heat from burning oil; other property damage.	Do.
Fresno, Calif.	8					Hail	Slight damage to fruit trees in city	Do.
Odessa, Fla.	8	4 p. m.	10 mi.		5,000	Heavy hail	Considerable injury to crops; roofs and windows slightly damaged.	Do.
Brownwood, Tex.	9	P. m.				Tornadoic wind	A number of buildings damaged	Dallas Morning News (Tex.)
Fort Worth, Tex.	9					Wind	Many plate glass windows broken; signs demolished; telephones out of order.	Do.
Mississippi coast	9-10				40,000	High winds	Small craft beached; several schooners sunk; poles blown down; power company suffers heaviest loss.	Times-Picayune (New Orleans, La.)
Southern Louisiana	10				900	do	Cabins and timber blown down, other buildings damaged; livestock killed. Telephone and electric service interrupted.	Official, U. S. Weather Bureau.
Davidson, Blount, Cocke, Jefferson, and Trousdale Counties, Tenn.	11-12					Hail	Window panes broken; early gardens, tobacco beds and fruit trees injured.	Do.
Brewster County, Tex. (southern part of).	14		4 mi.			do	No crops in this area; damage to grass slight. Path 35 miles long.	Do.
Uvalde, Tex. (near)	20	8:30-11 a. m.	1-8 mi.			Heavy hail	Large stones fell to depth of 12 inches in places; oats flattened, trees, windows and bushes damaged; poultry injured.	Do.
Sabinal, Tex. (near)	20	12-2 p. m.	1,760-2,640		10,000-20,000	Hail	Heavy loss to crops and honey industry	Do.
Boyce, La.	21			1		Tornadoic wind	Considerable property damage; traffic delayed by debris.	Shreveport Times (La.)
Winnfield, La., and vicinity.	21					Wind and rain	Many shade trees and timber blown down; telephone and telegraph lines out of commission.	Do.
San Augustine, Tex. (15 miles southwest of).	21	8 p. m.				Tornado and straight wind.	Timber and buildings in path destroyed; other damage by straight wind over path 6 miles long.	Official, U. S. Weather Bureau.
Mobile, Ala.	22	6:27 a. m.				Squall	Shed unroofed and a few poles and fences blown down.	Do.
Cairo District, Ill.	22				100	Hail	Truck, hotbeds, and windows damaged	Do.
St. Joseph, La. (near)	23	3:30 p. m.	2,640		3,000	Wind	One residence, a barn, and two small buildings blown down; telephone lines damaged; path 12 miles long.	Do.
Southeastern Johnson and southwestern Atoka Counties, Okla.	23	4:27 - 5:30 p. m.		4	110,000	Tornado	Considerable property damage, crop loss small; nine persons injured.	Do.
Hiwassee, Ark.	23	5 p. m.	440		3,500	Small tornado	Character of damage not reported	Do.
Sallisaw (near), Okla., to Branch, Ark.	23	5 p. m.		1	10,000	Straight winds and tornado.	Considerable damage over path 52 miles long, most of which occurred in the vicinity of Fort Smith.	Do.
Weatherford, Tex.	23	5 p. m.	30			Tornado and hail	Three farm houses completely destroyed; other damage by hail.	Do.
Keytesville, Mo.	23	P. m.			3,000	High wind	A few barns, poultry houses, and poles blown down.	Do.
Hannibal, Mo.	23	5-6 p. m.			12,000	Thunderstorm and wind.	Considerable property damage reported; one person injured; probably same storm that was felt at Keytesville.	Do.
Thorp Springs (near), Tex., to Granbury (near), Tex.	23	6-6:30 p. m.	150			Tornado	Buildings, timber and crops in path destroyed	Do.
Eastern Oklahoma	23	P. m.			50,000	Destructive hail	Crop damage not heavy but trees suffered severely; some property damage reported.	Do.
Grady, Camden, Bearden, Lonoke, Bentonville and Etna, Ark.	23	P. m.			50,000	Electrical and straight wind.	Minor wind damage; commissary at Bearden destroyed by lightning.	Do.

¹ "Mi." signifies miles, instead of yards.

Severe local hail and wind storms, April, 1926—Continued

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Nebraska.....	23-24					Strong winds.....	Windows, glass store fronts, signs and awnings damaged.	Lincoln Star (Nebr.).
Fairburn, Ga.....	24	6:30 a. m.			1,000	Wind.....	Several chimneys blown down and roofs damaged.	Official, U. S. Weather Bureau.
Southeastern counties, Wis.....	24	11 a. m.-midnight.	60 mi.		14,000	High winds.....	Plate-glass windows broken, signs, awnings, chimneys and poles blown down; car-ferries and street traffic impeded.	Do.
Green Bay, Wis., and vicinity.....	24					Wind.....	Damage to power transmission and communication lines; traffic interrupted.	Green Bay Gazette (Wis.).
Houghton, Mich.....	24				3,500	do.....	Many windows broken and electric circuits damaged by falling trees; roofs of two warehouses partly blown off.	Official, U. S. Weather Bureau.
Indiana.....	24				7,400	High winds.....	Damage, particularly to roofs, windows and poles, throughout State; river navigation delayed.	Do.
Kern County, Calif.....	29				750,000	Electrical.....	Oil tanks ignited	Do.
Tehachapi, Calif.....	29	3-3 : 20 p. m.	500		40,000-50,000	Hail.....	Small pears mutilated; orchards injured.....	Do.

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STORMS AND WEATHER WARNINGS

WASHINGTON FORECAST DISTRICT

There were no severe storms east of the Mississippi River during April. No storm warnings were required for the south Atlantic or east Gulf coast, and they were issued for a part of the coast from Cape Hatteras northward for only five disturbances. Small-craft warnings were issued, however, on nine dates, mostly for the Atlantic coast, the west Florida coast receiving warnings on the 3d and 7th.

The first storm warnings of the month were ordered displayed from Delaware Breakwater to Eastport, Me., at 4:30 p. m. of the 3d in connection with a disturbance that moved northeastward from Missouri to the St. Lawrence Valley. Nearly all stations on the coast north of Cape Hatteras reported verifying velocities, the highest being 52 miles per hour from the northwest at New York City.

On the 13th northeast storm warnings were displayed from Cape Hatteras to Atlantic City, in connection with a disturbance that moved slowly eastward over the Gulf and South Atlantic States; and on the 15th northwest warnings were ordered from the Virginia Capes to Boston, because of a sharp pressure rise following the passage of a trough of low pressure that passed eastward over the Atlantic States on that date. These warnings were only partially verified.

A secondary disturbance developed over Virginia during the afternoon of the 24th, when the main storm center was over Michigan, and southeast storm warnings were issued at 10 p. m. for the north Atlantic coast from Sandy Hook, N. J., to Eastport, Me. The highest velocity reported was 48 miles per hour from the northwest at New York City.

A disturbance that moved southeastward from Manitoba with slowly increasing intensity was central over northern Indiana the evening of the 27th, and southeast storm warnings were displayed from Delaware Breakwater to Boston at 10 p. m. The only verifying velocity reported was 44 miles per hour from the south at New York City.

Frost warnings were issued on 14 dates. Few stations north of the Ohio River and Virginia required frost warnings until after the middle of the month, and they were not required in the greater part of New England and New York at the end of the month. The warnings affecting the largest areas were those of the 18th, 19th, 25th, and 28th.—C. L. Mitchell.

CHICAGO FORECAST DISTRICT

Storm warnings on the Great Lakes.—General navigation on the Great Lakes did not open during the month, owing to the lateness of the season and consequent adverse ice conditions. Thus, the storm-warning season proper did not begin until May 1. Warnings for the benefit of Lake shipping were confined to advisory information and forecasts for vessels on Lake Michigan. These were issued on seven dates, namely, the 4th, 13th, 15th, 21st, 23d, 24th, and 30th. The storm of the 24th-25th was rather severe. On the evening of the 23d a trough of low pressure overlay the Upper and Middle Mississippi Valley, with the lowest barometer 29.64 inches at Duluth, Minn. At the same time a large area of high pressure covered most of the northwestern quarter of the country, with crest of 30.40 inches over northern Wyoming. During the night of the 23d-24th there occurred a rather remarkable development of the low pressure area. By the morning observation of the 24th it had assumed a somewhat circular shape and had deepened until the central pressure had fallen to 29.22 inches, at Milwaukee, Wis., while the high area had increased its crest pressure to 30.56 inches, without change in position. As a result winds of gale force occurred over almost the entire forecast district on the 24th.

Frost warnings.—Because of the lateness of the season frost warnings were not required as often as in the average April. At the beginning of the month vegetation had reached the susceptible-to-frost-damage stage only in a few areas in the extreme southern part of the district, while the advance of the season thereafter was very slow until the last decade. As the month closed warnings were being issued as needed for all portions of the district, except North Dakota, northern Minnesota, and Michigan. The most general warnings were those of the 14th, 18th, 25th, and 27th.

Cold-wave warnings.—These were issued on the morning of the 14th for northeastern Indiana and southeastern Lower Michigan. The fall in temperature occurred as forecast, but the cold wave was of moderate character. Cold waves also occurred on the 5th in eastern South Dakota and southern Minnesota, and on the 14th in eastern and central North Dakota, western and northern Minnesota, and northern Upper Michigan.

Fire-weather forecasts.—Forecasts of this character were begun on the 28th for northeastern Minnesota upon request of the State Forester, St. Paul, Minn.—C. A. Donnel.