

551.515 (73)

## STORMS AND WEATHER WARNINGS

## WASHINGTON FORECAST DISTRICT

Small-craft warnings were ordered for the Atlantic coast from New York City northward on the 25th. On the 29th indications were disseminated through radio bulletins for strong east winds and possibly moderate gales, at times, off the North Atlantic coast in connection with a disturbance that had originated off the South Atlantic coast and had moved to a position off Cape Hatteras by that morning. This disturbance advanced east-northeastward through a region from which vessel reports are not yet available. Therefore nothing can be said definitely as to its subsequent development nor of the winds attending it. No other warnings were issued during the month.

July was characterized by a preponderance of Alberta HIGHS, which are usually active and seldom stagnate. The one that appeared over the Northwest on the evening of June 29 advanced to the northern Plains States and western Ontario by the morning of the 1st. It moved very slowly eastward to the Lake region, where it decreased in intensity and remained nearly stationary over that region until the 7th. Its influence was felt in the United States from June 28 to July 7, a period of about 10 days.—*R. H. Weightman.*

## CHICAGO FORECAST DISTRICT

*Storm warnings.*—On the Great Lakes, July, 1924, was a period of freedom from severe storms. Although a few winds of verifying velocity occurred at various times, these in virtually all cases were of short duration and mainly in connection with thunderstorms. The only storm warning issued was that on the morning of the 9th, when a disturbance of increasing energy was centered just north of Lake Superior. Southwest warnings were displayed on Lake Huron and northwest warnings on eastern Lake Superior, while small-craft warnings were advised for Lakes Erie and Michigan, and although the only verifying velocity occurred at Buffalo, N. Y., nevertheless fresh to moderately strong winds occurred almost generally on the Lakes. On the 16th, 22d, and 24th small-craft warnings were advised for portions of the Lakes in expectation of thundersquall conditions.

*Frost warnings.*—On the morning of the 1st, when a large, cool, high-pressure area covered the northern Plains region and the Upper Mississippi Valley, light frost was forecast for the Wisconsin cranberry marshes. On the following morning light frost occurred at Shell Lake, and temperatures low enough for frost at the other two reporting stations. Again on the 13th and 17th advices were issued to the effect that light frost might occur in the marshes. The lowest temperature reported on the 14th was 37°, and on the 18th, 29°, but in neither case was frost observed.

Long-range forecasts for the benefit of the Forest Service in western Montana, and of the fruit interests in Door County, Wis., and in southwestern Michigan, were continued. A new feature was the inauguration of flying forecasts for the transcontinental air mail service.—*C. A. Donnel.*

## NEW ORLEANS FORECAST DISTRICT

No storm occurred on the West Gulf coast during July, and no storm warnings were issued. There was no severe weather in any part of the district.

There were considerable areas where very little rain occurred during the month. Precipitation which did occur was, as a rule, forecast.—*I. M. Cline.*

## DENVER FORECAST DISTRICT

During the first seven days of the month, low pressures prevailed in most of the Rocky Mountain region, with high, or relatively high, pressures to the eastward, attended by occasional showers and thunderstorms over nearly the whole district. Heavy rains in southeastern New Mexico on the 9th and 10th preceded the rapid southward movement of a High along the eastern Rocky Mountain slope. At Roswell the 24-hour rainfall, reported on the morning of the 10th, was 2.12 inches, and at Fort Stanton, 2 inches.

During the last two decades of the month, a succession of LOWS moved southeastward from western Canada. The individual LOWS were followed, usually, by HIGHS of weak or only moderate intensity. Appreciable amounts of precipitation were infrequent, especially in the northern and extreme western portions of the district.

Except in southern New Mexico and, apparently in portions of eastern Arizona, the rainfall was generally below normal, with a decided deficiency in Colorado, western Arizona and Utah.

No special warnings were issued during the month.—*J. M. Sherier.*

## SAN FRANCISCO FORECAST DISTRICT

The month was marked by a continuation of dry weather generally, but with considerable cloudiness and fog along the coast. The only rains of consequence during the month occurred in Washington and Oregon during the period beginning on the 13th and ending on the 20th. Local rains also occurred in Idaho during the last two days of this period and also on widely separated days. It is to be observed that the period of unsettled weather and local rains in Washington and Oregon coincided with a period of abnormally low barometric pressure over the Aleutian Islands and Alaska, and that the period ended when the barometer rose over the Gulf of Alaska.

As this depression was the outstanding feature of the weather charts of the month, it is important for purposes of record that the general pressure distribution in connection therewith be described. The weather charts and daily pressure graphs showed a well-defined depression over the Aleutian Islands from the 11th to 21st, inclusive. The pressure graphs, considered alone, indicate that there were two disturbances in this region, whereas the weather charts indicate but one. This disturbance moved irregularly, first advancing eastward beyond Dutch Harbor after the 18th, then recurving counter clockwise, completing a movement of 360°, then passing northeastward and finally disappearing north of the Yukon Valley.

The important pressure phenomenon subsequently noticed in connection with this turning movement was the general and rapid increase in pressure over the Gulf of Alaska as the disturbance moved into the Yukon Valley, terminating the period of unsettled, showery weather in Washington and Oregon.

The fire-weather hazard continued high throughout the month in California and during the first half of the month and on the 23d to the 27th over the greater part of Washington and Oregon and in Idaho. Daily advices were issued concerning the prevailing and expected fire-

weather hazard. The situation with respect to forest fires in California was critical at all times, and the number of fires was greatly beyond that of an average year. Many of the forest reserves were closed to campers in order to decrease the number of fires caused by neglect and carelessness.

It was not necessary during July to issue warnings of any kind other than for fire weather.—*E. H. Bowie.*

627.41 (73) RIVERS AND FLOODS

By ROBIN E. SPENCER, Principal Observer

Floods in the Atlantic drainage area during July, 1924, were confined to the first half of the month and to the rivers of the Carolinas, rainfall in those States having been heavy during, and in some cases following, the first week. Warnings, which were in the main timely and well verified, resulted in a saving of movable property valued at upwards of \$20,000. Losses were estimated at about \$80,000, including \$20,000 in crops.

In the Mississippi Valley floods of some importance occurred in the Illinois, Grand, and Osage Rivers. Considerable losses in crops occurred along the Illinois, at and below Peru, where the river continued above flood stage from late June until July 20; while the result of overflow along the Grand and Osage was less costly in direct damage than in the effect of finally preventing for the present season the planting of a considerable extent of bottom lands which had hitherto remained unplanted on account of wet weather.

Reports received too late for inclusion in the June number of this REVIEW place unavoidable losses in prospective crops for the Des Moines and Mississippi flood which occurred between June 28 and July 1 from Keokuk, Iowa, to Louisiana, Mo., and at Cape Girardeau, Mo., on July 4, at \$100,000, the total saving through warnings being about \$11,000.

The record of run-off of the Colorado River for the month of July, 1924, clearly indicates the deficiency in the water supply of the present season over the Far West. The total discharge at Yuma, Ariz., for July was 1,134,900 acre-feet, as compared with 2,633,000 acre-feet in July, 1923, and a normal discharge of 2,292,880 acre-feet. There is no prospect of increased flow for some months unless a series of good rains occurs over the upper drainage area.

River, and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
<b>ATLANTIC DRAINAGE</b>					
Black:	<i>Feet</i>			<i>Feet</i>	
Kingstree, S. C.-----	12	3	13	14.6	6
Santee:					
Rimini, S. C.-----	12	2	21	16.8	13
Ferguson, S. C.-----	12	3	26	13.8	13-15
Wateree:					
Camden, S. C.-----	24	9	10	24.5	9
Broad:					
Blairs, S. C.-----	15	7	9	16.9	7
Saluda:					
Chappells, S. C.-----	14	8	10	16.8	9
<b>GREAT LAKES DRAINAGE</b>					
St. Joseph:					
Montpelier, Ohio-----	10	( <sup>1</sup> )	1	11.4	June 30
<b>MISSISSIPPI DRAINAGE</b>					
Mississippi:					
Quincy, Ill.-----	14	( <sup>1</sup> )	1	15.2	June 30
Hannibal, Mo.-----	13	( <sup>1</sup> )	2	15.2	June 30
Louisiana, Mo.-----	12	( <sup>1</sup> )	3	14.0	1
Alton, Ill.-----	21	( <sup>1</sup> )	5	22.8	3
Cape Girardeau, Mo.-----	30	( <sup>1</sup> )	4	30.1	4
Illinois:					
Morris, Ill.-----	13	( <sup>1</sup> )	2	14.5	June 29
Peru, Ill.-----	14	( <sup>1</sup> )	18	18.4	June 30- July 1
Henry, Ill.-----	7	( <sup>1</sup> )	29	12.7	2-3
Peoria, Ill.-----	16	( <sup>1</sup> )	19	19.7	3-4
Havana, Ill.-----	14	( <sup>1</sup> )	20	18.0	3
Beardstown, Ill.-----	12	( <sup>1</sup> )	23	14.1	24
Pearl, Ill.-----	12	( <sup>1</sup> )	( <sup>2</sup> ) 18	19.1	4-5
Missouri:					
Hermann, Mo.-----	21	( <sup>1</sup> )	1	21.5	June 30
St. Charles, Mo.-----	25	June 29	4	27.1	June 30- July 1
Grand:					
Gallatin, Mo.-----	20	18	19	26.2	18
Chillicothe, Mo.-----	18	( <sup>1</sup> ) 18	2	28.1	June 29
Brunswick, Mo.-----	10	( <sup>1</sup> ) 5	20	19.6	19
		20	23	14.3	June 30- July 1
				10.7	21
Osage:					
Osceola, Mo.-----	20	14	16	21.8	14
Warsaw, Mo.-----	22	15	17	25.1	16
<b>WEST GULF DRAINAGE</b>					
Colorado:					
Parker, Ariz.-----	7	( <sup>1</sup> )	10	9.4	June 22

<sup>1</sup> Continued from last month.

<sup>2</sup> Continued at end of month.

MEAN LAKE LEVELS DURING JULY, 1924

By UNITED STATES LAKE SURVEY

[Detroit, Mich., August 7, 1924]

The following data are reported in the "Notice to Mariners" of the above date:

River, and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
<b>ATLANTIC DRAINAGE</b>					
Roanoke:	<i>Feet</i>			<i>Feet</i>	
Weldon, N. C.-----	30	11	11	33.5	11
Tar:					
Tarboro, N. C.-----	18	5	7	19.5	6
Greenville, N. C.-----	14	6	10	15.8	7-8
Fishing Creek:					
Enfield, N. C.-----	15	2	4	16.8	2
Neuse:					
Neuse, N. C.-----	15	2	3	16.6	3
Smithfield, N. C.-----	14	1	5	17.4	3
Cape Fear:					
Elizabethtown, N. C.-----	22	3	5	24.8	3
Waccamaw:					
Conway, S. C.-----	7	7	27	9.0	15-17
Peedee:					
Mars Bluff, S. C.-----	17	11	15	18.4	13

Data	Lakes <sup>1</sup>			
	Superior	Michigan and Huron	Erie	Ontario
Mean level during July, 1924.....	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>	<i>Feet</i>
Above mean sea level at New York.....	601.39	579.52	572.45	246.21
Above or below—				
Mean stage of June, 1924.....	+0.11	+0.14	+0.09	-0.06
Mean stage of July, 1923.....	-0.48	-0.36	+0.46	+0.41
Average stage for July last 10 years.....	-1.17	-1.39	-0.37	-0.45
Highest recorded July stage.....	-2.43	-4.00	-1.96	-2.51
Lowest recorded July stage.....	-0.09	-0.36	+0.99	+1.62
Average relation of the July level to—				
June level.....		+0.1	( <sup>2</sup> )	( <sup>2</sup> )
August level.....		+0.1	+0.2	+0.3

<sup>1</sup> Lake St. Clair's level: In July, 1924, 574.94 feet.

<sup>2</sup> Practically no difference.