

Average precipitation and departures from the normal.

Districts.	Number of stations.	Average.		Departure.	
		Current month.	Percentage of normal.	Current month.	Accumulated since Jan. 1.
		<i>Inches.</i>		<i>Inches.</i>	<i>Inches.</i>
New England.....	11	2.68	76	-0.7	-6.7
Middle Atlantic.....	15	2.63	84	-0.5	-5.5
South Atlantic.....	11	1.97	54	-1.7	-9.0
Florida Peninsula*.....	8	0.77	27	-2.1	-7.4
East Gulf.....	11	3.56	78	-1.0	-7.6
West Gulf.....	10	2.53	89	-0.3	-7.8
Ohio Valley and Tennessee.....	13	3.24	94	-0.2	-1.2
Lo ver Lakes.....	10	2.47	86	-0.4	-1.9
Upper Lakes.....	12	1.50	71	-0.6	-6.5
North Dakota*.....	9	0.35	54	-0.3	-7.2
Upper Mississippi Valley.....	15	0.89	50	-0.9	-9.8
Missouri Valley.....	11	0.75	71	-0.3	-5.0
Northern slope.....	9	0.51	72	-0.2	-3.0
Middle slope.....	6	0.30	38	-0.5	-7.7
Southern slope*.....	8	0.23	22	-0.8	-12.2
Southern Plateau*.....	11	0.42	51	-0.4	-2.9
Middle Plateau*.....	11	0.96	91	-0.1	-3.5
Northern Plateau*.....	10	1.11	61	-0.7	-1.8
North Pacific.....	7	6.08	76	-1.9	-2.9
Middle Pacific.....	7	1.78	41	-2.6	-10.9
South Pacific.....	4	0.34	16	-1.8	-7.6

* Regular Weather Bureau and selected cooperative stations.

Average relative humidity and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	75	+ 1	Upper Mississippi Valley.....	75	- 3
Middle Atlantic.....	74	- 1	Missouri Valley.....	77	+ 2
South Atlantic.....	74	- 4	Northern slope.....	76	+ 8
Florida Peninsula.....	80	- 1	Middle slope.....	62	- 4
East Gulf.....	72	- 5	Southern slope.....	62	- 4
West Gulf.....	70	- 4	Southern Plateau.....	56	+ 10
Ohio Valley and Tennessee.....	77	+ 1	Middle Plateau.....	73	+ 3
Lower Lakes.....	80	+ 2	Northern Plateau.....	80	0
Upper Lakes.....	82	0	North Pacific.....	90	+ 4
North Dakota.....	89	+ 10	Middle Pacific.....	79	- 3
			South Pacific.....	68	- 1

Average cloudiness and departures from the normal.

Districts.	Average.	Departure from the normal.	Districts.	Average.	Departure from the normal.
New England.....	6.4	+ 0.3	Upper Mississippi Valley.....	5.1	- 0.7
Middle Atlantic.....	5.8	+ 0.6	Missouri Valley.....	5.1	- 0.1
South Atlantic.....	4.0	- 0.8	Northern slope.....	5.4	+ 0.2
Florida Peninsula.....	3.4	- 1.3	Middle slope.....	4.0	- 0.1
East Gulf.....	5.4	- 0.1	Southern slope.....	5.0	0.0
West Gulf.....	5.5	+ 0.3	Southern Plateau.....	3.6	+ 0.4
Ohio Valley and Tennessee.....	6.6	+ 0.3	Middle Plateau.....	5.9	+ 1.1
Lower Lakes.....	7.7	0.0	Northern Plateau.....	7.8	+ 1.0
Upper Lakes.....	7.4	+ 0.1	North Pacific.....	8.4	+ 2.1
North Dakota.....	5.9	+ 0.5	Middle Pacific.....	6.0	+ 1.6
			South Pacific.....	4.9	+ 1.1

Maximum wind velocities.

Stations.	Date.	Velocity.	Direction.	Stations.	Date.	Velocity.	Direction.
Block Island, R. I.....	6	52	ne.	Mount Tamalpais, Cal.....	30	57	nw.
Do.....	15	64	nw.	Do.....	31	54	nw.
Do.....	16	60	nw.	New York, N. Y.....	15	61	nw.
Do.....	30	62	nw.	North Head, Wash.....	1	58	se.
Buffalo, N. Y.....	13	50	sw.	Do.....	2	56	se.
Do.....	14	63	sw.	Do.....	5	50	se.
Burlington, Vt.....	23	50	s.	Do.....	7	52	se.
Cape May, N. J.....	15	52	nw.	Do.....	22	54	se.
Cheyenne, Wyo.....	4	60	w.	Do.....	23	50	se.
Cleveland, Ohio.....	15	55	nw.	Do.....	29	60	se.
El Paso, Tex.....	31	53	sw.	Do.....	30	60	nw.
Fort Worth, Tex.....	6	50	nw.	Do.....	31	54	nw.
Mount Weather, Va.....	2	56	nw.	Do.....	22	52	se.
Do.....	13	52	w.	Pensacola, Fla.....	16	54	nw.
Do.....	15	66	nw.	Point Reyes Light, Cal.....	17	65	nw.
Do.....	16	58	nw.	Do.....	24	50	nw.
Do.....	20	58	w.	Do.....	27	55	nw.
Do.....	21	58	nw.	Do.....	30	62	nw.
Do.....	22	52	nw.	Do.....	31	65	nw.
Do.....	24	56	nw.	Southeast Farallon, Cal.....	31	51	n.
Do.....	25	52	nw.	Tatoosh Island, Wash.....	3	63	se.
Do.....	30	68	nw.	Do.....	5	54	se.
Mount Tamalpais, Cal.....	16	54	n.	Do.....	19	52	ne.
Do.....	17	59	ne.				
Do.....	27	60	nw.				

RIVERS AND FLOODS, DECEMBER, 1910.

By Prof. H. C. FRANKENFIELD, in charge of River and Flood Division.

There were no floods during the month, and river stages did not vary greatly from those that prevailed during the month of November. The rains and high temperatures during the closing days of the month caused a general rise in the great interior rivers, to which the melting snows in the northern districts contributed materially.

At the end of the month the Missouri River was frozen almost as far south as Omaha, and floating ice was seen at various times during the month at all places below. The ice gorged at the Wabash bridge at Hannibal, Mo., on December 9, and from that time to the end of the month the Mississippi River was closed to the northward. No ice of consequence was observed below Cairo, Ill.

The warm rains of December 29 and 30 started the ice in the Allegheny River, and it passed down into the Ohio River on December 30 with a crest stage of 17.7 feet at Freeport, Pa., 2.3 feet below the flood stage, and of 16.3 feet at Pittsburgh, Pa., 5.7 feet below the flood stage. The gorge at Wolf Creek in the lower Ohio broke at 11 a. m., December 29. The warm rains had softened the ice considerably, and no damage resulted. A gorge that had formed near the mouth of the great Kanawha broke on December 26 without damage, although for the time conditions were very threatening.

The ice in the west branch of the Susquehanna River broke on December 29 and moved out on a moderate tide, gorging again during the night of December 30 at Nippono Park, about 10 miles below Williamsport, Pa. On the north branch of the Susquehanna River the ice moved out during the night of December 30, and reached Wilkes-Barre, Pa., during the following night on an 8-foot stage of water.

In the main stream the ice remained intact, the dam at McCalls Ferry holding the ice that came from the branches, and forming a gorge that extended back to Columbia, Pa., a distance of about 18 miles.

In the Potomac River the ice impeded navigation more or less for about three weeks, but conditions did not become serious except to sailing craft.

The lower Connecticut River closed on December 11, and navigation was suspended for the season.

Reports from snowfall stations in the West show a very light fall as a rule, but in some of the northern districts east of the Rocky Mountains continuous cold weather held the snow quite solid and compact with very little melting.

On December 1 the river district of Indianapolis, Ind., was established with territory comprising the watershed of the Wabash River above the mouth of and including the White River, and the river district of Cairo, Ill., curtailed accordingly. A new river station was opened at Anderson, Ind., on the West Fork of White River, and daily observations will also be taken at Indianapolis, on the same river. Stations were also opened at Attica, Bluffton, and Logansport, Ind., on the Wabash River. Rainfall observations from the corn and wheat station at Farmland, Ind., will also be available.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.