

Table of flood stages during July 1938—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
<i>Missouri Basin</i>					
Big Blue: Blue Rapids, Kans.	Feet 20	17	17	Feet 21.0	17
Missouri:					
Blair, Nebr.	18	10	11	18.1	10-11
Nebraska City, Nebr.	15	3	18	17.9	12
St. Joseph, Mo.	17	17	17	17.0	17
<i>Ohio Basin</i>					
Little Miami: Kings Mills, Ohio.	17	14	14	20.9	14
West Fork of White:					
Elliston, Ind.	18	2	8	26.1	6
Edwardsport, Ind.	12	(1)	10	18.9	8
East Fork of White: Seymour, Ind.	14	5	6	15.0	6
White:					
Petersburg, Ind.	16	9	11	17.4	10
Hazleton, Ind.	16	9	12	18.0	11
Wabash:					
Wabash, Ind.	12	1	2	13.7	2
La Fayette, Ind.	11	(1)	5	17.0	3
Covington, Ind.	16	(1)	7	22.2	3
Terre Haute, Ind.	14	(1)	9	20.9	4
Vincennes, Ind.	14	5	12	18.7	9
Mt. Carmel, Ill.	19	9	12	19.9	11
New Harmony, Ind.	15	11	13	15.7	13
Big Pigeon: Newport, Tenn.	6	24	24	7.0	24
French Broad: Oldtown (near Newport), Tenn.	6	23	24	9.2	24

Table of flood stages during July 1938—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
<i>Ohio Basin—Continued</i>					
Tennessee:					
Widows Bar Lock, Ala.: Upper gage.	Feet 17	26	26	Feet 17.1	26
Florence, Ala.	18	28	29	18.4	29
WEST GULF OF MEXICO DRAINAGE					
Colorado:					
Marble Falls, Tex.	21	22	28	36.4	25
Austin, Tex.	21	23	27	33.0	25
Nueces: Cotulla, Tex.	16	30	Aug. 1	17.0	31
Rio Grande:					
Del Rio, Tex.	15	23	26	20.2	24
Eagle Pass, Tex.	16	23	27	24.2	24
Rio Grande City, Tex.	21	26	29	24.9	28
Hidalgo, Tex.	21	28	31	22.2	30
Mercedes, Tex.	21	28	Aug. 1	21.9	31
Brownsville, Tex.	18	Aug. 1	Aug. 2	18.1	Aug. 2
PACIFIC SLOPE DRAINAGE					
<i>Columbia Basin</i>					
Columbia: Vancouver, Wash.	15	(1)	8	(4)	-----

¹ Continued from June.
⁴ Crest occurred in June.

WEATHER ON THE ATLANTIC AND PACIFIC OCEANS

[The Marine Division, I. R. TANNERHILL in charge]

NORTH ATLANTIC OCEAN, JULY 1938

By H. C. HUNTER

Atmospheric pressure.—Most of the North Atlantic area had pressure greater than normal, though the departures were small. A slight deficiency appeared in the far southwestern part, and a more marked one extended from the vicinity of the British Isles northwestward to Greenland; in this latter area the station at Reykjavik, Iceland, reported a mean pressure 0.15 inch less than normal. During most of the first half of July the Azores HIGH was displaced somewhat to eastward of its average position, but during the second half, to westward, toward Bermuda.

The extremes of pressure in trustworthy available vessel reports were 30.66 and 29.29 inches. The higher reading was noted more than 200 miles to north-northwestward of Horta during the forenoon of the 4th by the British steamship *Tucurinca*. The Dutch liner *Statendam* recorded the lower reading when 100 miles south of the southernmost point of Ireland, about noon of the 7th.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, July 1938

Station	Average pressure	Departure	Highest	Date	Lowest	Date
	Inches	Inch				
Julianehaab, Greenland	29.77	-0.03	30.12	3	29.40	26
Reykjavik, Ice. and	29.69	- .15	30.06	7	29.21	23
Lerwick, Shetland Islands	29.79	- .01	30.15	16	29.47	30
Valencia, Ireland	29.94	- .04	30.24	16, 18	28.59	30
Lisbon, Portugal	30.12	+ .10	30.33	3	29.92	14
Madeira	30.12	+ .07	30.39	7	29.97	20
Horta, Azores	30.33	+ .06	30.64	3	29.94	30
Belle Isle, Newfoundland	29.96	+ .07	30.32	2	29.58	16
Halifax, Nova Scotia	30.02	+ .07	30.26	23-25	29.72	4
Nantucket	30.00	+ .02	30.21	22	29.75	2
Hatteras	30.06	+ .05	30.21	22	29.81	3
Bermuda	30.21	+ .03	30.34	29	29.94	4
Turks Island	30.04	- .03	30.19	9	29.92	5
Key West	30.02	- .01	30.14	9	29.89	5
New Orleans	29.99	- .01	30.17	10	29.81	5

NOTE.—All data based on a. m. observations only, with departures compiled from best available normals related to time of observation, except Hatteras, Key West, Nantucket, and New Orleans, which are 24-hour corrected means.

Cyclones and gales.—Three storm areas of moderate importance affected the northeastern part of the North Atlantic during the first half of July. Otherwise the month had no features of special importance.

On the 3d a Low was centered nearly over the south coast of Iceland, whence it traveled at first southeastward, so that by the morning of the 5th it was over Great Britain as a well-developed storm. Thereafter it moved northeastward and reached southern Norway late on the 6th. Several vessels encountered fresh to strong gales, mostly within the southwest quadrant of this low. The American liner *Washington*, New York to Cobh, met strong winds on the 4th, the day before arrival at Cobh, and press reports state a few passengers suffered minor injuries.

In the southwestward extension of the low just mentioned there was a marked new development by the 6th, and a well-formed storm appeared some distance to the southwestward of Ireland. This storm advanced toward the east-northeast, so that the center was near Lands End early on the 7th, with considerable intensity. Thereafter its course was almost northward and the morning of the 9th found it centered over the northern part of the North Sea, with slightly less energy. Several vessels met fresh gales connected with this storm, and the American steamship *Nemaha* encountered a whole gale on the 6th, near 42° N., 18° W.

The third storm center of moment was located to south-eastward of Cape Farewell on the morning of the 12th. It moved to the eastward, approximately on the 60th parallel, and gained in strength for a time. Late on the 13th it turned more toward the north over waters east of Iceland, and on the 15th was centered near Jan Mayen Island, where there are very few reporting vessels. However, on the 13th the American liner *Scarpenn*, near 56° N., 26° W., reported force 10 (whole gale), the second and final instance of such force this month over Atlantic waters.

During the last 2 days of the month squally weather was encountered in the Caribbean Sea, not far to south-

ward of the Yucatan Channel; however, no definite cyclonic development was indicated.

Fog.—July was foggier than normal over most northern portions of the North Atlantic. As a rule there was more fog than during the preceding month, and this was notably the case to northward of the 45th parallel between the 20th and 40th meridians. A decrease in fogginess from June to July is indicated for the area just to eastward of Chesapeake and Delaware Bays and also for the section

a short distance to northwestward of the westernmost Azores.

The square of most frequent fog was in the Cape Cod-Maine-Nova Scotia region, where 23 days gave reports of fog. Next was a square at the southern tip of the Grand Banks, 40° to 45° N., 45° to 50° W., with 22 days. In that part of the Atlantic to eastward of the 40th meridian the foggiest square (45° to 50° N. and 25° to 30° W.) had 11 days. It was noteworthy that between the 40th meridian and Europe fog was seldom met after the 18th.

OCEAN GALES AND STORMS, JULY 1938

Vessel	Voyage		Position at time of lowest barometer		Gale began July—	Time of lowest barometer July—	Gale ended July—	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Caledonia, Br. S. S.	Glasgow	New York	55 13 N.	19 03 W.	3	Mdt, 3	4	29.60	W	W, 7	NW	NW, 8	W-WNW.
Black Hawk, Am. S. S.	Rotterdam	do	49 49 N.	12 16 W.	4	3p, 4	5	29.86	WNW	WNW, 6	WNW	WNW, 9	W-WNW.
Bilderdijk, Du. S. S.	do	do	49 41 N.	9 56 W.	4	8p, 4	5	29.77	W	W, 7	WNW	WNW, 8	W-WNW.
Hermes, Du. S. S.	Amsterdam	San Juan	43 43 N.	20 04 W.	5	2a, 6	6	29.77	WSW	WNW	NNW	NW, 8	WNW-NW.
Nemaha, Am. S. S.	Rotterdam	New Orleans	42 20 N.	18 00 W.	6	6a, 6	6	29.90	NW	NW, 10	NW	NW, 10	None.
City of Omaha, Am. S. S.	London	Tampico	45 06 N.	15 30 W.	6	11a, 6	6	29.65	NNW	WSW, 4	NNW	NNW, 8	SW-W.
Camito, Br. S. S.	Avonmouth	Jamaica	46 18 N.	16 18 W.	6	11a, 6	6	29.64	N	W, 4	N	N, 8	SSW-NW.
Marguerite Finaly, Fr. M. S.	Hamburg	Aruba	48 30 N.	9 42 W.	7	2a, 7	8	29.52	N	N, 8	WNW	NNW, 8	N-NW.
Statendam, Du. S. S.	Rotterdam	New York	50 05 N.	8 58 W.	7	Noon, 7	8	29.29	S	NNW, 9	NW	NNW, 9	S-NW.
American Shipper, Am. S. S.	Belfast	Boston	54 55 N.	17 00 W.	10	8p, 10	11	29.72	W	W, 8	W	W, 8	NNW.
Scanpenn, Am. S. S.	Copenhagen	Wilmington	56 02 N.	26 30 W.	12	6a, 13	14	29.39	WSW	W, 9	NW	WNW, 10	WSW-WNW.
Svanhild, Dan. S. S.	Aalborg	New York	58 30 N.	15 30 W.	13	11p, 13	14	29.17	S	SW, 7	WNW	WNW, 8	S-WNW.
Castilla, Hond. S. S.	Philadelphia	Barrios	20 08 N.	86 00 W.	31	6a, 31	31	29.94	E	E, 4	E	SE, 6	SE-E.
Cefalu, Hond. S. S.	Havana	Cristobal	20 12 N.	84 06 W.	30	7a, 31	31	29.97	E	ESE, 5	E	SE, 6	SE-E.
NORTH PACIFIC OCEAN													
Hikawa Maru, Jap. M. S.	Vancouver, B. C.	Yokohama	43 50 N.	152 10 E.	1	10a, 1	1	29.21	SW	SW, 8	W	WSW, 8	SE-SW-WNW.
President Jefferson, Am. S. S.	Seattle	do	47 15 N.	163 45 E.	1	4a, 2	2	29.61	SE	SSE, 9	SSE	SSE, 9	SE-S.
Hoegh Hood, Nor. M. S.	Esteroy Bay	Kobe	35 00 N.	158 12 E.	8		8		S		S	S, 8	None.
Northland, U. S. C. G.			65 42 N.	169 00 W.	9	1p, 10	10	29.67	N	N, 5	N	N, 8	None.
Columbian, Am. S. S.	Los Angeles	Balboa	13 06 N.	93 18 W.	18	5p, 17	18	29.83	NE	SW, 1	NE	NE, 10	None.
Kaijo Maru, Jap. M. S.	do	Yokohama	37 42 N.	144 30 E.	25	5a, 25	25	29.72	ESE	SE, 8	SE	SE, 8	ESE-SE.
San Marcos, Am. S. S.	San Diego	Balboa	13 03 N.	93 17 W.	28	2a, 28	28	29.90	E	E, 2	E	E, 9	None.

¹ Barometer uncorrected.

NORTH PACIFIC OCEAN, JULY 1938

By WILLIS E. HURD

Atmospheric pressure.—Stable anticyclonic pressure conditions existed over middle latitudes on the eastern two-thirds of the North Pacific Ocean during the greater part of July 1938. Even in higher latitudes, extending well into the Bering Sea, the average barometer was unusually high, as may be observed in the accompanying table, and the Aleutian Low, for the first time since August 1937, had become practically nonexistent.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, July 1938, at selected stations

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow	29.80	-0.12	30.04	28	29.56	10
Dutch Harbor	29.99	+0.05	30.34	30, 31	29.56	7
St. Paul	29.97	+0.13	30.26	22	29.44	9
Kodiak	30.00	+0.06	30.34	22	29.42	11
Juneau	30.07	+0.02	30.45	23	29.72	9
Tatoosh Island	30.09	+0.04	30.29	18	29.79	25
San Francisco	29.97	+0.02	30.14	4	29.81	23
Mazatlan	29.90	+0.04	29.98	1	29.78	7
Honolulu	30.02	.00	30.11	19	29.94	31
Midway Island	30.14	+0.03	30.27	11	30.00	1
Guam	29.81	-0.03	29.94	3	29.71	14, 15
Manila	29.78	+0.04	29.89	7	29.71	4, 27
Hong Kong	29.70	+0.05	29.82	7	29.52	4
Naha	29.79	+0.07	30.00	6	29.53	30
Titijima	29.85	.00	30.09	4	29.56	13
Petropavlosk	29.88		30.18	11	29.53	21

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

While low pressure conditions prevailed over western Mexico and the adjoining west coast, and in the Far East, average pressures in these regions, except at Guam, were normal to slightly above.

Extratropical cyclones and gales.—While several low pressure areas crossed northern waters of the North Pacific during July 1938, none was very active, and no gales were reported for the entire region east of the 170th meridian of east longitude, except in the Tropics and in Bering Strait.

In middle and higher east longitudes gales were few in number and occurred within the region 35° to 48° N., 144° to 165° E. These gales, of force 8 to 9, were experienced on the 1st, 2d, 8th, and 25th. That of the 1st, of force 8, barometer 29.21, to the immediate southward of the Kuril Islands, was in connection with the deepest cyclone of record during the month.

Tropical cyclones and gales.—On the 18th and 28th of July strong to whole gales were reported south of the Gulf of Tehuantepec, both near 13° N., 93° W. The former, of force 10 from the northeast, lowest barometer 29.83, was encountered by the American steamer *Columbian*; the latter, of force 9 from the east, barometer 29.90, was experienced during the early morning by the American steamer *San Marcos*. The gale of the 18th appeared to be due only to locally squally conditions; that of the 28th, to a probable cyclonic disturbance, central, according to the Mexican Meteorological Service, to the southward.

Several tropical lows appeared in the Far East, but we have no present information that they were severe.