

OCEAN GALES AND STORMS, JULY, 1928

Vessel	Voyage		Position at time of lowest barometer		Gale began	Time of lowest barometer	Gale ended	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Highest force of wind and direction	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Coamo, Am. S. S.	San Juan	New York	33 43 N.	70 57 W.	July 1.	4a, 1	July 1.	Inches 30.00	WSW	SW., 4	SW	—, 8	
Winnebago, Br. S. S.	Shields	do	57 48 N.	15 39 W.	8	5a, 8	9	29.40	SSW	SSW., 7	WSW	SW., 8	SSW.-W.
Mississippi, Br. M. S.	London	Boston	48 10 N.	24 22 W.	9	Noon, 9	10	29.92	SW	SW., 7	WNW	SW., 9	Steady.
Kerhonkson, Am. S. S.	Manchester	New York	51 06 N.	18 49 W.	9	4p, 10	10	29.72	S	S., 8	SSW	S., 8	S.-SSW
American Farmer, Am. S. S.	London	do	47 08 N.	27 08 W.	9	Noon, 10	10	29.82	SW	SW., 8	W	SW., 8	SW.-W.
City of Alton, Am. S. S.	Rotterdam	do	43 06 N.	42 54 W.	21	—, 22	22	29.84	SW	SW., 8	W	SW., 8	SW.-W.
Do	do	do	41 14 N.	56 30 W.	24	—, 25	25	29.74	SSW	WNW., 7	W	SSW., 8	SSW.-W.
McKeesport, Am. S. S.	Havre	do	49 40 N.	15 40 W.	31	4a, 31	31	29.62	NE	NE., 5	NE	NE., 9	NE.-NNW.
NORTH PACIFIC OCEAN													
Hanoi, Fr. S. S.	Gulf of Tonkin	Hong Kong	20 00 N.	110 00 E.	15	Noon, 15	15	29.06		W., 12		W., 12	
Makaweli, Am. S. S.	Hawaii	San Francisco	37 20 N.	124 12 W.	18	Midt, 18	19	29.93	NW	NW., —	NW	NNW., 8	Steady.
Cellina, It. M. S.	San Francisco	Panama	13 95 N.	92 12 W.	20	—, 20	20	29.74	N	N., 12	N	N., 12	Do.
Los Angeles, Am. S. S.	Los Angeles	Balboa	13 31 N.	93 44 W.	22	2a, 22	22	29.90	E	E., 8	E	E., 8	Do.
Induna, Br. S. S.	Vancouver	Boston	20 20 N.	107 00 W.	28	4p, 28	29	29.86	SE	SE., —	SE	SSE., 12	SE.-SSE.
Pres. Harrison, Am. S. S.	Honolulu	Kobe	32 20 N.	141 05 E.	29	Midt, 31	Aug. 1.	28.73	E	S., 2	N	SE., 11	E.-S.-N.
SOUTH PACIFIC OCEAN													
Makura, Br. S. S.	San Francisco	Sydney	36 00 S.	158 00 E.	7	1a., 7	July 7	29.26	SSE	SSW., 11	WSW	SW., 11	SSW.-WSW.
Do	Sydney	San Francisco	28 20 S.	166 49 W.	19	1a., 20	20	29.54	ENE	NE., —	NE	—, 10	ENE.-N.

NORTH PACIFIC OCEAN

By WILLIS E. HURD

The North Pacific high-pressure area off the coast of California continued strongly developed throughout July and with no cyclones entering upon its boundaries.

The Aleutian cyclone, frequently absent at this time of year, was central over Bering Sea, lowest average pressure determined being 29.72 inches, at St. Paul, Pribilof Islands. For the entire Aleutian region, however, pressures were considerably below normal, as will be observed in the following table:

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean, July, 1928

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
Dutch Harbor ¹	Inches 29.78	Inch -0.24	Inches 30.10	9th	Inches 29.36	28th.
St. Paul ¹	29.72	-0.13	30.18	3d ⁷	29.24	29th.
Kodiak ¹	29.83	-0.13	30.28	25th	29.32	18th. ⁷
Midway Island ¹	30.10	+0.02	30.22	7th ⁷	29.90	29th.
Honolulu ⁶	30.03	+0.01	30.14	2d	29.88	20th.
Juneau ⁸	30.02	-0.03	30.33	24th	29.60	3d.
Tatoosh Island ⁸	30.04	-0.03	30.17	12th	29.71	3d.
San Francisco ⁸	29.93	-0.02	30.07	23d	29.77	19th.
San Diego ⁸	29.91	+0.02	30.06	22d	29.81	27th.

¹ P. m. observations only.
² For 29 days.
³ For 27 days.
⁴ For 28 days.
⁵ A. m. and p. m. observations.
⁶ Corrected to 24-hour mean.
⁷ And on other date or dates.

The weather over all the Pacific Ocean, except for a few coastal localities, was remarkable for its utter absence of storms, however mild, a condition rarely met with even during the calmest of the summer months. The only extratropical gale reported occurred about 100 miles west of San Francisco on the afternoon of the 18th, when a northwesterly wind of force 8 was experienced by the American steamer *Makaweli* on the eastern edge of the permanent anticyclone.

The prevailing wind at Honolulu continued from the east, but the maximum wind velocity, at the rate of 29 miles an hour, was from the northeast, on the 26th.

In portions of the Tropics the weather was more or less disturbed. At least two typhoons occurred in the Far East, and in addition many Lows in more or less weak stages of development traversed the waters of this region.

The first typhoon seems to have originated as a shallow depression about the 8th, near 15° N., 134° E. On the 12th it had increased in energy and lay off the east coast of Luzon. On the 13th and 14th it crossed the China Sea, still gathering intensity, and on the 15th burst as a dangerous storm with hurricane winds over the Gulf of Tonkin. The French steamer *Cap Lay* was wrecked at the entrance to the Haifong River and many of her passengers were lost, while numbers of small junks and other craft were lost. Capt. J. L. Cruchot, of the French steamer *Hanoi*, in a report to the Weather Bureau, said his vessel and others rode out the hurricane, which lasted from 11 a. m. to 5 p. m., in an anchorage off the northern end of the island of Hainan. He noted that much damage was done on shore in the general vicinity.

The second typhoon was discovered on the 24th, near 16° N., 142° E. On the 28th, in 24° N., 139° E., it was identified as a deep cyclone moving toward Japan. On the 29th it was central near 25° N., 141° 30' E., and on the 30th, near 32° N., 140° E., advancing slowly upon Honshu. Press reports of August 2 from Tokyo said that the storm raged over the islands for three days, and that it was the worst in 18 years over Honshu, floods and high winds causing some loss to life and property damage amounting to many millions of dollars. At midnight of July 31 the American steamer *President Harrison*, in 32° 20' N., 141° 05' E., had a minimum pressure reading of 28.73 inches, highest wind velocity, force 11, from east-southeast, southeast, and north.

In the American tropics moderate to violent gales occurred on the 20th and 22d off the Guatemalan coast, and on the 28th and 29th off the Mexican coast, near Cape Corrientes, full hurricane forces being reported on the 20th and 28th. No unusual depression of the baro-

meter was noted in any instance, except that at 5 a. m. of the 29th the Japanese steamer *Kuma Maru* recorded a reading of 29.64 inches, wind east-southeast, force 8, in 19° 37' N., 105° 45' W. The storm of the 28th-29th was evidently cyclonic in character. The squall-like hurricane wind of the 20th seems to have been of the nature of a chubasco, and the gale of the 22d as due to a violent thunderstorm.

Frequent dense fog formed along the western half of the northern sailing routes, where, according to reports tabulated between the one hundred and eightieth meridian and the coast of northern Japan, it occurred on from 40 to 50 per cent of the number of days in the month. Several vessels in that area steamed for several days at a time through a practically unbroken layer of fog. The percentage lessened rapidly with approach from central longitudes to the American coast, and in the region of the North Pacific anticyclone fog was infrequent. Along the middle California coast, however, there was a local increase to 25 or 30 per cent.

THE AURORA OF JULY 7-8, 1928, ON THE NORTH ATLANTIC OCEAN

By WILLIS E. HURD

The extraordinarily widespread aurora of the night of July 7-8, 1928, was observed not only in North America and Europe (see pp. 280-281) but over a great area of the North Atlantic Ocean in middle as well as lower latitudes. The northernmost observation of it actually reported was from 42° 40' N., in 68° 53' W. The extreme western and southern observations reported were from the Gulf of Mexico, greatest longitude, 87° 50' W., lowest latitude, 24° 08' N., which is nearly half a degree below that of Key West. Over the main body of the ocean most

reports of the phenomenon came from vessels west of the thirty-fifth meridian, between latitudes 30° and 42° N.

Generally speaking, the observational period lengthened with westward increase in longitude, some vessel observers toward the American coast reporting the display as continuous, with fluctuations in brilliancy, from 8 p. m. of the 7th until dawn of the 8th, but with the most active period in most instances preceding midnight. In some central localities the illumination was noted as covering the sky, but in the Gulf of Mexico it was seen only along the northern horizon, rising to a height of from 20° to 28°.

In central longitudes and in the Mediterranean Sea the aurora was reported as visible only during the early morning hours, or at least as being brightest after midnight.

The lights were almost generally described as consisting of mixed streamers and patches, more whitish than otherwise, but frequently of colors ranging therefrom to various shades of red, purple, and light green.

Press comments touched upon the bad radio reception noticed in the United States that night. At sea varying conditions of good and poor receptivity prevailed. In 39° 20' N., 73° 30' W., the American steamer *Ponce* reported "static almost entirely absent. Reception excellent on commercial and lower wave lengths." Near by the Panaman steamer *Managui* found "little interference due to static." In 42° 40' N., 68° 53' W., the United States Coast Guard destroyer *Wainwright* reported "unusually good reception" in a communication to the Hydrographic Office. In 35° 53' N., 34° 46' W., the American steamer *Montgomery City* found "no change in radio signals." Contrary to this was the statement from the Dutch steamer *Yselhaven*, in 35° N., 48° W., of "very bad reception during the whole night."