OCEAN GALES AND STORMS, AUGUST 1933

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	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
North Atlantic Ocean			° ′	° ′				Inches					
S. M. Spalding, Am.S.S.	Baytown	Baltimore	25 00 N	86 05 W	Aug. 1	6p., Aug. 1.	Aug. 2	29.84	WNW	SE	SW	—, 8	NW-SW-SE.
Jamaica Pioneer, Br.S.S.	Jamaica	London	42 48 N	41 48 W	do	3p., 1	Aug. 1	29.76	SSW	SW, 10	W	SW, 10	SW-W.
Duquesne, Am.S.S.	Galveston	Bremen	46 02 N	35 02 W	do	8p., 1	do	29.45	SW	SE, 9	NW	N, 10	SW-SE-N.
Walter Jennings, Am.S.S.	Aruba	New York	14 51 N	69 12 W	Aug. 2	4a., 2	Aug. 2	29.90	E	E, 6	ENE	—, 8	
Blythmoor, Br.S.S.	Durban	St. John	13 26 N	27 14 W	Aug. 13	8a., 14	Aug. 14	29.62	NW	NNE, 7	S	NNE, 7	N-NNE-S.
Ancon, Am.S.S.	Cristobal	New York	17 00 N	75 30 W	Aug. 15	5 p., 15	Aug. 15	29.74	SE	SE, 6	SE	—, 7	SE-W.
Eliane L. D., Fr.S.S.	Gibraltar	Port Churchill.	53 45 N	32 08 W	Aug. 16	Noon, 16	Aug. 17	29.47	SW	W, 7	WNW	W, 8	SSW-W-WNW.
West Selene, Am.S.S.	Savannah	Rio de Janeiro.	14 30 N	48 30 W	do	10 p., 16	do	29.61	NNW	NW, 8	SW	W, 9	NNW-NW-W.
Cavina, Br.S.S.	Avonmouth	Barbados	18 46 N	55 12 W	Aug. 17	6 p., 17	Aug. 18	29.78	ENE	NE, —	W	N, 8	NE-N-NW.
Cuba, Fr.S.S.	Bordeaux	Martinique	22 22 N	52 40 W	do	Noon, 18	do	29.65	ESE	ESE, 10	SSW	SE, 11	ESE-SE-SSE.
Schuylkill, Br.M.S.	Liverpool	Aruba	26 20 N	53 43 W	Aug. 18	4a., 19	Aug. 19	29.92	ESE	ESE, 8	S	ESE, 8	ESE-SE-S.
Dorothy, Am.S.S.	New York	San Juan	32 44 N	71 49 W	Aug. 21	Noon, 21	Aug. 22	29.43	E		S	NW, 9	8 points.
E. M. Clark, Am.S.S.	Baltimore	Las Piedras	32 21 N	74 35 W	Aug. 22	4 p., 22	do	29.28	NE	WNW, 10	SW	WNW, 10	N-NW-W.
J. A. Moffett, Jr., Am.M.S.	Corpus Christi.	Boston	33 40 N	75 10 W	do	11 p., 22	Aug. 23	28.91	NE	N, 10	SW	N, 10	N-WNW
Gulfwing, Am.M.S.	Philadelphia	Las Piedras	36 03 N	73 14 W	do	Mdt., 22	do	29.19	NE	E, 11	S	ESE, 11	ENE-E-ESE
Cities Service Kansas, Am.S.S.	Port Arthur	Boston	33 34 N	76 32 W	do	1 a., 23	do	29.14	N	N, 11	SW	N, 12	N-WNW-SW
S. M. Spalding, Am.S.S.	Baytown	New York	34 40 N	75 15 W	do	2 a., 23	Aug. 24	28.84	NE	NW, 10	SSW	—, 10	NNE-N-NW
Nebraskan, Am.S.S.	Panama Canal.	do	35 09 N	74 46 W	Aug. 21	2 a., 23	Aug. 23	28.61	N	SSE, 11	S	SSE, 12	NE-E-S
R. J. Hanna, Am.S.S.	Houston	Marcus Hook	35 30 N	75 00 W	Aug. 22	3 a., 23	do	28.54	NE	E, 8	S	NE, 11	NE-E-S
Trimountain, Am.S.S.	Cuba	Philadelphia	[1] 36 00 N	73 20 W	do	3 a., 23	Aug. 24	28.57	NE	Var. 12	S	Var. 12	ENE-SSW-S
Shenandoah, Am.S.S.	Port Arthur	New York	35 20 N	74 30 W	do	4 a., 23	do	28.63	NE	SSE, 12	S	SSE, 12	NE-SSE
Bohemian Club, Am.S.S.	do	Philadelphia	35 43 N	75 05 W	Aug. 21	4 a., 23	Aug. 23	28.88	NNE	E, 12	S	E, 12	NE-E-S
San Blas, Pan.S.S.	Philadelphia	Belize	37 00 N	75 00 W	Aug. 22	8 a., 23	do	28.86	NE	ESE, 10	SSW	ESE, 10	E-SE-S
Pulaski, Pol.S.S.	Gdynia	New York	[1] 54 43 N	34 34 W	Aug. 24	4 a., 25	Aug. 26	28.78	SSW	W, 7	NW	NNW, 11	W-NW
Blythmoor, Br.S.S.	Durban	St. John	40 15 N	61 50 W	Aug. 25	5 p., 25	Aug. 25	[2] 29.75	WNW	SW, 8	SW	WSW, 8	WSW-SW
Gonzenheim, Ger.S.S.	Bristol	Botwood	53 03 N	24 57 W	do	7 a., 26		29.22	S	SW, 6		S, 8	S-SW
Wyoming, Fr.S.S.	Havre	Puerto Columbia.	19 40 N	61 10 W	Aug. 30	5 p., 31	Sept. 1	29.77	ENE	SE, 7	SSW	SE, 7	
Mariana, Am.S.S.	Arroyo	New Orleans	21 12 N	75 21 W	Aug. 31	7 a., 31	Aug. 31	29.66	WNW	WSW, 7	S	SW, 8	W-SW.
Astrea, Du.S.S.	New York	Maracaibo	21 37 N	71 14 W	Aug. 30	3 p., 30	Aug. 30	29.27	NNW	SW, 12	S	SW, 12	W-S.
NORTH PACIFIC OCEAN													
Illinois, Am.S.S.	Otaru	San Francisco.	34 06 N	126 37 E	Aug. 3	5 p., 3	Aug. 3	28.79	NE	N, 10	NW	NE, 12	NE-N.
Grays Harbor, Am.S.S.	Tacoma	Yokohama	52 39 N	158 33 W	Aug. 6	11 p., 8	Aug. 10	29.37	S	WNW, 1	WNW	NW, 9	W-NW.
Nitro, U.S.S.	San Diego	Balboa	13 41 N	95 01 W	Aug. 12	4 a., 13	Aug. 13	29.79	WNW	S, 7	S	SW, 8	
Chiloil, Am.S.S.	San Francisco.	do	14 40 N	96 00 W	Aug. 13	8 p., 13	Aug. 14	[2] 29.48	NE	NNW, 7	SW	SW, 10	NW-W-SW.
Pres. Wilson, Am.S.S.	Los Angeles	do	[1] 14 58 N	97 13 W	Aug. 16	7 p., 16	Aug. 16	29.78	SE	SE, 9	SE	SE, 9	None.
Pennsylvanian, Am.S.S.	Balboa	Los Angeles	20 17 N	106 48 W	Aug. 18	6 p., 18	Aug. 19	29.67	SE	SE, 8	E	SE, 8	SE-E.
Golden Dragon, Am.S.S.	Astoria	Yokohama	50 35 N	180 00	Aug. 21	4 p., 21	Aug. 23	28.86	SSE	SSW, 5	NW	WNW, 10	S-SSW-W.
Heian Maru, Jap.M.S.	Yokohama	Vancouver	48 36 N	176 54 E	do	Noon, 22	Aug. 22	29.29	WNW	WNW, 8	WNW	WNW, 8	None.
Pres. Cleveland, Am.S.S.	do	Seattle	50 02 N	164 54 W	Aug. 24	8 p., 24	Aug. 25	29.78	N	N, 9	SSW	N, 9	N-ESE.
Fernbrook, Nor.M.S.	Los Angeles	Yokohama	37 45 N	150 35 E	Aug. 27	11 a., 27	Aug. 27	29.68	SSE	SW, 9	WSW	SW, 9	SSE-S-WSW.

[1] Position approximate.

[2] Uncorrected.

NORTH PACIFIC OCEAN, AUGUST 1933

By W. F. McDONALD

Atmospheric pressure.—The weather of the Pacific Ocean during August 1933 was in the main dominated by settled high pressure conditions. Average barometric readings were below normal over Alaska (notably at Point Barrow) and along the Mexican coast, but a slight excess in average pressure prevailed over most of the Pacific. (See table 1.)

Around the middle of the month the Pacific anticyclone was weak and at times badly disrupted by southward extensions from vigorous low pressure areas in the Aleutian region where the lowest barometer reached 28.86 inches on the 21st. During the last 10 days of the month, however, high pressures were well established and at times spread far northward to cover the Gulf of Alaska and Bering Sea.

TABLE 1.—*Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, August 1933, at selected stations*

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow	29.72	−0.17	30.06	15, 31	29.36	20
Dutch Harbor	29.82	−.04	30.26	31	29.20	22
St. Paul	29.91	+.13	30.32	31	29.08	22
Kodiak	29.82	−.04	30.30	24	29.38	15
Juneau	30.00	−.02	30.39	23	29.71	18
Tatoosh Island	30.02	+.02	30.20	21	29.80	26
San Francisco	29.90	−.02	30.08	3	29.67	13
Mazatlan	29.81	−.10	29.96	1	29.72	13
Honolulu	30.07	+.06	30.15	7	29.96	23
Midway Island	30.11	+.03	30.22	5	29.94	25
Guam	29.83	+.01	29.90	3	29.74	14
Manila	29.79	−.01	29.88	24	29.56	1
Naha	29.75	+.06	29.94	24	28.28	1
Chichishima	29.83	+.07	30.04	3	29.58	6
Nemuro	29.89		30.10	2, 16	29.70	13

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.

Cyclones and gales.—The month was in general very quiet and entirely free from cyclonic action over most of the vast expanse of tropical and middle latitudes in the Pacific. The Aleutian LOW was well developed during brief periods, notably between the 8th and 10th, the 13th to 17th, and 21st to 24th, but extratropical depressions for the most part followed tracks that led northeastward into Alaska rather than eastward along the main ship routes.

Localized gales were reported south of the Aleutians, between August 21 and 24, the strongest of force 10, as reported in detail in the accompanying table of gales.

A gale of force 9 was reported by one ship on the 9th in the western part of the Gulf of Alaska, and another on the 27th, about 400 miles east of Yokohama. No other gale reports have been received from the main trans-Pacific sailing routes.

Typhoons.—The month began with a full-fledged typhoon in progress, moving northward near the island of Naha. This storm was described in some detail in the July REVIEW, as originating near Guam on July 26, and breaking up over the Japan Sea after August 4.

The winds near the center continued of full hurricane intensity as the storm passed Naha on August 1, with the barometer down to 28.28 inches at the observing station on that island, and a 70-mile wind from the south. On August 3, the American steamship *Illinois* encountered the same storm near the south entrance to the Strait of Korea, and experienced a northeast hurricane with winds shifting through north to west, and a minimum barometer reading of 28.79 inches. The typhoon passed on inland over Korea, where much damage resulted.

At the close of the month another deep cyclonic depression, apparently of tropical origin, was passing northward between Naha and Formosa, but no details from ships' reports or other sources are available at this writing to indicate the full intensity or further history of this typhoon. A more complete account will appear later.

Mexican west-coast cyclones.—A small disturbance of considerable intensity appeared off the south coast of the Isthmus of Tehuantepec on August 12, moved slowly northwestward to the vicinity of Cape Corrientes by the 18th and appears to have dissipated in the Gulf of California on the 19th or 20th. Several vessels experienced gales at points along the track of this disturbance.

The American tanker *Chiloil* reported a barometer reading of 29.48 inches (uncorrected) near latitude 15° N., longitude 96° W., at 8 p.m. of the 13th, attended by a whole gale, with winds shifting from northwest to southwest as the disturbance passed.

Early on the morning of the 14th the British steamship *Nebraska*, about 50 miles to westward from the position given by the *Chiloil*, encountered a hurricane wind lasting for 2 hours, with the lowest barometer (uncorrected), 29.60 inches. No other ship reported winds in excess of a strong gale in connection with the further progress of this disturbance.

An interesting note prepared by the Canal Zone meteorologist, Mr. L. T. Chapel (by whose courtesy the report from the *Nebraska* was obtained and forwarded) is appended because of the light it throws upon conditions that doubtless contributed to the origin of this Mexican west-coast disturbance.

Fog.—Fog was most prevalent on the American coast from Puget Sound to Cape San Lucas, and occurred at greatest frequency on about half the days of the month along the California coast. On the northern steamship routes fog was reported on from 2 to 7 days, and most frequently between 155° and 180° east longitude.

NOTE ON THE PROBABLE INTRUSION OF SOUTHERN HEMISPHERE AIR TO THE REGION OF PANAMA

By L. T. CHAPEL

[Hydrographic Office, the Panama Canal]

The report from the British steamship *Nebraska* on August 13–14, 1933, indicates a mature storm near latitude 14°30′ N., longitude 97° W. This storm should have formed within five or six hundred miles to the westward of Panama. Usually when a cyclonic storm forms this close to Panama in the Pacific, there are more or less marked effects on Panama weather, although not in the same degree as in the case of Caribbean storms. The effects noted in Panama seem capable of interpretation only on the theory that these storms in the Pacific originate between the northeast trades and winds from the southeast trades which, after crossing the Equator, have become south to southwest.

In this particular storm the influence on local winds was not sufficient to be positively identified, the only marked effects being noted in sea swells and temperature and humidity of the air.

The naval radio station at Cape Mala reports (at 7 a.m.) the wind in Beaufort scale and the state of the sea. The winds reported were very light and variable during the week preceding the discovery of this storm. The reports on state of the sea at Cape Mala and mean temperature, 8 a.m. and 8 p.m. dew point at Cristobal follow:

	Cape Mala, sea	Cristobal, mean temperature	8 a.m. dew point	8 p.m. dew point
Aug. 7	Heavy swell	82	76	76
Aug. 8	Moderate sea	82	76	76
Aug. 9	Rough sea	77	75	71
Aug. 10	Heavy surf	80	71	74
Aug. 11	Smooth sea	82	74	77
Aug. 12	Moderate sea	81	76	74
Aug. 13	Smooth sea	80	73	75

At this time of the year, the sea at Cape Mala is usually smooth, and Pacific air is always dryer and cooler than Caribbean air. The above data would seem to indicate that the maximum force of the intrusion northward occurred about August 9 and 10—about the right time for the initial development of this storm. Incidentally, mean sea level in Panama Bay rose about a half foot from August 5 to August 9 and then fell to its original level by August 17. This is not unusual in itself but merely accords with the other data.