

OCEAN GALES AND STORMS, APRIL 1940

Vessel	Voyage		Position at time of lowest barometer		Gale began April	Time of lowest barometer, April	Gale ended April	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													
Campbell, U. S. C. G.	On station		35 36 N.	53 48 W.		10p, 3	4	1,011.0		N, 6	NNW	NW, 8	
Excaltor, Am. S. S.	New York	Genoa	40 00 N.	45 24 W.	3	3a, 4	4	997.6		SSW, 6		N, 8	
Tuscaloosa City, Am. S. S.	Gibraltar	Baltimore	34 48 N.	63 54 W.	5	2p, 5	5	1,010.0	SSW	WSW, 7	S	WSW, 8	
Frode, Dan. S. S.	Bristol	Norfolk	140 24 N.	60 06 W.	6	2a, 6	7	1,006.3	WNW	W, 6	WNW	WNW, 11	None.
Campbell, U. S. C. G.	On station		35 36 N.	53 24 W.	5	1p, 6	6	1,013.5	SSW	SW, 5	SW	SSW, 9	
Washington, Am. S. S.	New York	Gibraltar	40 00 N.	61 45 W.	6	6p, 7	8	1,013.9	WSW	W, 9	NW	NW, 9	
Examiner, Am. S. S.	Gibraltar	New York	36 12 N.	53 18 W.	7	12p, 7	8	1,013.5	W	NW, 8	NW	NW, 9	
Bibb, U. S. C. G.	Norfolk	Station 2	37 12 N.	69 48 W.	9	2p, 9	10	1,003.1	S	SW, 9	SSW	S, 9	
Examiner, Am. S. S.	Gibraltar	New York	37 00 N.	62 24 W.	9	4a, 10	10	1,012.3	S	S, 8	SW	S, 9	
Ostende, Belg. S. S.	Tampico	Galveston	22 48 N.	97 30 W.	11	12m, 11	12	1,014.3	N	ESE, 4	N	NNW, 9	
El Almirante, Am. S. S.	Galveston	Baltimore	28 18 N.	92 18 W.	12	6a, 12	12	1,023.6	N	N, 7	N	N, 8	
Sahale, Am. S. S.	Gibraltar	do	34 27 N.	68 11 W.	13	12m, 13	14	1,006.3	S	WSW, 8	NW	NW, 8	
Bergensfjord, Nor. S. S.	Bergen	New York	41 30 N.	61 48 W.	13	10p, 13	13	989.3	SSE	S, 9	W	S, 9	S-W.
Detfloss, Icel. S. S.	New York	Reykjavik	63 30 N.	26 36 W.	15	5p, 15	15	1,007.5		S, 10		S, 10	
Montoso, Am. S. S.	do	Jabos, P. R.	35 18 N.	74 54 W.	15	8p, 15	16	1,008.5	SW	SW, 8	SW	SW, 8	
Duane, U. S. C. G.	On station 1		39 06 N.	59 06 W.	16	4a, 16	16	1,010.8	W	W, 8	NNW	W, 8	
Mexico, Am. S. S.	Vera Cruz	Havana	20 00 N.	94 30 W.	18	6a, 18	18	1,003.0	N	SSW, 3	N	N, 7	
Costa Rica, Du. S. S.	Antwerp	La Guaira	32 30 N.	35 36 W.	19	6p, 19	19	1,006.6	SW	WSW, 8	NW	WSW, 9	WSW-NW.
Bibb, U. S. C. G.	Station 2	Azores	38 06 N.	41 54 W.	20	5p, 20	21	1,001.7	WNW	WNW, 9	WNW	NW, 10	
Pan Kraft, Am. S. S.	Philadelphia	New Orleans	32 18 N.	79 48 W.	21	7a, 21	21	1,001.4	W	W, 6	W	W, 8	
Mobiloil, Am. S. S.	Providence	Beaumont	30 06 N.	72 30 W.	21	12m, 21	22	989.8	NE	NE, 4	NW	NW, 8	NE-NW.
Bilderdijk, Du. S. S.	Antwerp	New York	49 25 N.	21 51 W.	20	2p, 21	22	972.6	ENE	ENE, 8	NW	WNW, 11	
Delfina, Am. S. S.	Aguadilla	Boston	41 30 N.	69 20 W.	20	4a, 22	22	983.4	SSW	N, 5	NNE	NNE, 9	
Poelau Tello, Du. M. S.	do	do	41 12 N.	69 00 W.	21	8a, 22	22	982.5	SSW	NNW, 6	N	N, 9	
Duane, U. S. C. G.	On station 1		38 42 N.	58 36 W.	23	10p, 22	24	988.8	WSW	SW, 7	W	W, 8	
Leto, Du. S. S.	Rotterdam	Norfolk	49 06 N.	15 18 W.	22	11a, 23	22	989.2	SE	SW, 6	SW	SW, 9	
Uruguay, Am. S. S.	Trinidad	New York	28 18 N.	68 52 W.	28	2p, 27	29	1,010.2	NNW	WNW, 5	NNE	N, 8	
Duane, U. S. C. G.	On station 1		39 18 N.	58 12 W.	28	10p, 28	29	1,006.1	ENE	ENE, 9	ENE	ENE, 9	
Golden Sword, Am. S. S.	Bermuda	Baltimore	33 30 N.	67 24 W.	28	10p, 28	29	1,000.0	WNW	WNW, 8	N	WNW, 8	None.
Andrea F. Luckenbach, Am. S. S.	Colon	New York	30 51 N.	74 28 W.	28	12p, 28	29	1,015.2	N	N, 7	NNE	N, 9	
Washington, Am. S. S.	Gibraltar	do	38 30 N.	65 20 W.	28	—, 28	28	992.6	ESE	NE, 12	NNW	NE, 12	
Darien, Pan. S. S.	St. John, N. B.	Kingston	36 47 N.	68 51 W.	28	—, 28	29	1,008.1	NE	NNE, 9	N	N, 10	None.
NORTH PACIFIC OCEAN													
Admiral Halstead, Am. S. S.	Hondagua	San Francisco	30 12N.	163 48E.	1	11a, 1	3	1,013.0	SW	SW, 8	NW	SW, 8	
Dagmar Salen, Swed. S. S.	Tandoc, P. I.	Los Angeles	36 06N.	162 18 E.	1	5p, 1	4	999.1	W	W, 8	WNW	WNW, 9	
San Ramon Maru, Jap. M. S.	Los Angeles	Osaka	133 49 N.	178 30 E.	1	4a, 2	3	1,003.1	SW		NW	W, 9	
Corilla, Du. S. S.	Shimonoseki	San Francisco	43 00 N.	171 12 W.	1	12m, 3	2	978.6	SSE	SE, 4	SW	SSW, 10	SSE-SW.
West Cusseta, Amer. S. S.	Tacoma	Shanghai	43 25 N.	165 20 E.	2	2a, 2	3	981.7	NNW	NNW, 8	NW	NW, 10	
Gertrude Maersk, Dan. M. S.	San Pedro	Yokohama	30 50 N.	175 50 E.	3	6a, 2	3	1,014.6	WNW	WSW, 7	NW	WNW, 8	WSW-WNW.
Antinous, Am. S. S.	Honolulu	Kobe	33 24 N.	142 06 E.	3	9p, 3	4	1,004.4		SSW, 9		SSW, 9	
City of Alma, Amer. S. S.	Nansimo	Koke	35 42 N.	143 18 E.	3	1a, 4	4	986.8	NW	SW, 10	WNW	SW, 11	SSW-WSW.
Toa Maru, Jap. M. S.	Los Angeles	Nagoya	34 42 N.	167 30 E.	3	1a, 3	8	1,005.1		W, 10		W, 9	
West Cusseta, Am. S. S.	Tacoma	Shanghai	39 38 N.	165 20 E.	5	2p, 5	6	993.6	WSW	WSW, 8	WNW	WSW, 10	Steady.
Arizona, U. S. S.	San Pedro	Lahaina, T. H.	35 10 N.	136 35 W.	5	1a, 6	6	1,010.0	S	S, 8	S	S, 8	
Washington, Am. S. S.	Vladivostok	Portland, Oreg.	48 36 N.	165 18 W.	6	1p, 6	7	979.3	SE	ESE, 10		ESE, 10	
Jefferson Myers, Am. S. S.	Yokohama	Portland, Oreg.	39 30 N.	153 40 E.	6	3a, 7	7	990.0	ESE	SSE, 3	NW	N, 10	
Corneville, Nor. M. S.	Hong Kong	San Pedro	38 20 N.	165 50 W.	6	4p, 7	8	986.3	S	W, 10	NW	WSW, 11	
West Cusseta, Am. S. S.	Tacoma	Shanghai	40 02 N.	161 20 E.	7	12m, 7	7	978.0	SE	SW, 11	NW	NW, 12	
Kyusyu Maru, Jap. M. S.	Los Angeles	Yokohama	34 54 N.	162 30 E.	7	11p, 7	7	1,013.2		W, 8		W, 8	
Mindanao, Phil. S. S.	Manila	Los Angeles	35 24 N.	167 24 E.	7	11a, 7	7	1,006.4		WNW, 8		WNW, 8	
Daini Ogura Maru, Jap. M. S.	Yokohama	San Francisco	37 43 N.	165 06 W.	8	1p, 3	8	987.6	WSW	W, 8	W	W, 8	
Delarof, Am. S. S.	Carayan	San Francisco	30 42 N.	162 42 E.	12	3a, 13	13	1,002.7	WNW	WNW, 11	NNW	WNW, 11	
Black Falcon, Am. S. S.	Balboa, C. Z.	Wilmington, Calif.	14 30 N.	93 30 W.	13	4p, 13	14	1,008.3	NW	NNW, 8	N	NNW, 8	
Washington, Am. S. S.	Vladivostok	Portland, Oreg.	49 12 N.	148 18 W.	16	2a, 16	16	989.8		SSW, 8		SSW, 8	
Nitsei Maru, Jap. S. S.	Kure, Japan	Los Angeles	45 50 N.	154 40 E.	19	2a, 20	20	985.4	ENE	NNE, 9	WNW	NNE, 9	ENE-NNE.
U. S. A. T. Meigs	Manila	San Francisco	44 12 N.	166 30 E.	20	8p, 20	22	963.1	SE	SW, 10	WNW	SW, 10	SW-W.
Jeff Davis, Am. M. S.	Hong Kong	San Pedro	40 00 N.	177 00 W.	23	6a, 22	23	1,006.1	W	W, 7	WNW	W, 8	
U. S. A. T. Meigs	Manila	San Francisco	47 19 N.	169 12 W.	24	12m, 24	24	1,012.5	SW	SW, 10	WSW	SW, 10	SW-WSW.
San Ramon Maru, Jap. S. S.	Osaka	Los Angeles	44 46 N.	175 32 E.	24	12m, 24	24	973.2	NE	NNW, 8	W	NNW, 8	NW-NNW.
San Pedro Maru, Jap. S. S.	Yokohama	Los Angeles	41 48 N.	156 12 E.	28	10a, 29	29	1,003.1		SE, 8		SE, 8	
Yaka, Am. S. S.	Manila	San Francisco	35 54 N.	175 30 W.		12p, 30		1,032.9		ENE, 8		ENE, 8	

¹ Position approximate.
² Barometer uncorrected.

NORTH PACIFIC OCEAN, APRIL 1940

By WILLIS E. HURD

Atmospheric pressure.—An unusual development for April occurred this month in the Aleutian Low. At Dutch Harbor, usually at or near the center of the great Pacific cyclone, the average pressure was 995 millibars (29.38 inches), which is 13.5 millibars (0.40 inch) below the April normal. This average at the station is the lowest of record for April during the 25-year period 1916-40.

East and west of the Aleutians, as shown by the averages at Kodiak and Petropavlovsk, pressures were higher than the April normal. Elsewhere on the ocean near normal pressures prevailed.

High pressure was centered near Midway Island, where the average barometer, 1,019.7 millibars (30.11 inches), showed only an unimportant depression from the normal. The high extended from the entire west coast of the United States southwestward across the Hawaiian Group

and from there westward to the easternmost archipelagos of Japan.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, April 1940, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Millibars	Millibars	Millibars		Millibars	
Point Barrow ¹	985.0	-13.5	1,023	26	983	24
Dutch Harbor	996.8	-12.0	1,018	29	992	1
St. Paul	1,010.7	+3.2	1,019	14	989	10
Kodiak	1,014.2	-0.4	1,031	21	990	16
Juneau	1,017.6	+1.7	1,028	20	1,004	7
Tatoosh Island	1,016.9	-0.7	1,023	29	1,006	1
San Francisco	1,011.8	-0.4	1,015	21	1,006	18
Mazatlan	1,016.6	-1.4	1,021	17	1,010	10
Honolulu	1,019.7	-0.3	1,031	16	1,008	29
Midway Island	1,013.0	+0.8	1,016	16, 19, 28	1,006	17, 18
Guam	1,011.2	+1.4	1,014	7	1,006	27
Manila	1,013.5	+1.6	1,019	14	1,010	25
Hong Kong	1,015.4	+2.2	1,021	9, 14	1,006	2
Naha	1,016.1	+1.2	1,023	11	1,003	4
Titijima	1,010.8	+1.7	1,024	22, 24	988	15
Petropavlovsk						

¹ Data incomplete.

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.

Extratropical cyclones and gales.—A greater than usual amount of cyclonic activity for April occurred over northern waters of the ocean. The result, in addition to the great deepening of the Aleutian Low, was considerable storminess which affected the northern and middle steamer routes, particularly to the westward of the 160th meridian of west longitude. To the eastward of the meridian, ships reported few gales, and those mostly of force 8 only. Among these was a fresh gale on the 26th off the California coast, and another off the northwest coast of Washington on the 30th.

The principal stormy period of the month was that of the 1st to 8th, with three distinct cyclones involved. The earliest appeared east of the Kuril Islands on the 1st, then advanced into the Aleutian region where it remained for several days with slow rate of movement, centered to the southward of the islands. In this storm, vessels reported gales of force 8–9 within the region 30°–36° N., 160°–165° E., on the 1st, and of force 8–10 over more widely scattered localities to northward and eastward on the 2d. During the 3d to 6th gales were scattered through the cyclone area, with the most important, an east-southeasterly wind of force 10, lowest barometer 979.3 millibars (28.92 inches), encountered by the American steamer *Washington* near 49° N., 165° W. The strongest local wind reported in the cyclone occurred on the 7th near 38° N., 166° W., where the Norwegian motorship *Corneville* ran into a westerly gale of force 11, lowest barometer 986.3 millibars (29.13 inches).

The second cyclone of the period lay east of central Japan on April 3 and 4, causing stormy weather on both days, with a maximum wind force of 11 on the early morning of the 4th near 36° N., 143° E., barometer 986.8 millibars (29.14 inches), reported by the American steamer *City of Alma*. The cyclone moved eastward and by the 5th was causing locally heavy weather near 39° N., 165° E., where the American steamer *West Cusseta* encountered a westerly gale of force 10.

The third cyclone of the period entered northwestern waters on the 6th, and by the 7th showed considerable intensity over the waters midway between Japan and the western Aleutians. Pressures below 982 millibars (29 inches) were observed over a considerable area, with north to northwest gales of force 10–12 occurring near

the 40th parallel between approximate longitudes 153° and 162° E. The one gale of the month to attain hurricane intensity was encountered by the *West Cusseta* near 40° N., 161° E., on the 7th. The vessel, steaming westward, had passed through the storm of the 5th, only to enter the succeeding storm two days later. Thereafter storm energy abated generally, and by the 8th and 9th only a few scattered gales of force 8, occurring along the central-latitude steamer routes in midocean, were reported.

The next locally stormy weather occurred on the 13th. The east-bound American steamer *Delarof*, at 3 a. m. of that date reported a west-northwest gale of force 11, with lowest barometer depressed only to 1,002.7 millibars (29.61 inches), near 31° N., 163° E. This is the only gale of record in connection with the cyclone, which was then central northwest of Midway Island.

The period May 20–24 was moderately stormy on northern waters, to the westward of longitude 160° W., with a cyclone strongly developed to the immediate southward of the Aleutian Islands. On the 20th a further cyclone, central well east of the Kuril Islands, was moving rapidly toward midocean. In this storm gales of force 9 and 10 occurred between the Kurils and longitude 170° E., north of the 40th parallel. The strongest gale, of force 10, from the southwest, was reported by the U. S. A. T. *Meigs*, in 44°12' N., 166°30' E., with the lowest barometer reading of the month, 963.1 millibars (28.44 inches). On the 21st this storm joined with the Aleutian cyclone. From the 22d to 24th scattered gales occurred between about latitude 37° N., and the Aleutians, longitudes 175° E., and 170° W., of which the most intense, of force 10 from the southwest, was experienced by the transport *Meigs* on the 24th, near 47° N., 169° W.

Tehuantepecers.—Northerly gales of force 8 occurred in the Gulf of Tehuantepec on the 13th and 14th.

Typhoons.—A report on a depression and a typhoon in the Far East, prepared by the Rev. Bernard F. Doucette, Weather Bureau, Manila, P. I., appears below.

Fog.—In east longitudes only 4 days were noted by ships as having fog. Along the northern routes in west longitudes 11 days had fog, but they were scattered over a wide strip of ocean, between the 5th and 23d, with no more than 3 foggy days in any one 5° square. Some 10° to 15° west of the California coast there was fog on the 9th and 10th. From Queen Charlotte Island northward and across the Gulf of Alaska fog was reported on 4 days. In coastal waters fog was noted on 1 day off Washington; on 8 days off California; and on 6 days off Lower California.

TYPHOONS AND DEPRESSIONS OVER THE FAR EAST, APRIL 1940

BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

Depression, April 10–14, 1940.—A depression, apparently of minor importance, formed over the ocean regions near the western Caroline Islands. It moved westerly, passing close to and south of Yap, and disappeared over the ocean about 250 miles west-northwest of Palau.

Typhoon, April 25–May 1, 1940.—A typhoon, violent over a small area, appeared close to and east of central Mindanao during the early morning hours of April 26. It moved rapidly in a northwesterly direction across northeastern Mindanao to the Mindanao Sea where it inclined to the west. During the evening hours of the same day it passed between Negros Island and the northern coast of Mindanao, apparently weakening. It