

Ocean gales and storms, October, 1926—Continued

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
	To—	From—	Latitude	Longitude									
NORTH PACIFIC OCEAN													
Yankee Arrow, Am. S. S.	Shanghai	Los Angeles	33 01 N.	135 38 E.	Oct. 1.	6 p., 3	Oct. 3.	29.85	N.	N., 8.	N.	N., 8.	N.-ENE.
Shidzuoka Maru, Jap. S. S.	Yokohama	Victoria	48 48 N.	145 20 W.	2.	8 p., 2	4.	29.43	ESE	ENE., 5.	S.	SSE., 8.	ENE.-SSE.
Shabonee, Br. S. S.	San Pedro	China	33 18 N.	150 52 E.	2.	9 p., 2	2.	29.55	S.	SW., 10	W.	SW., 10	S.-SW.-W.
Gyokoh Maru, Jap. S. S.	Bellingham	Kobe	41 20 N.	148 06 E.	2.	2 p., 2	2.	29.18	SSE	SW., 8.	WNW.	SE., 9.	8 pts.
Pres. Lincoln, Am. S. S.	San Francisco	Manila	34 50 N.	152 30 E.	2.	11 p., 2	3.	28.45	S.	SW., 12	NW.	SW., 12	S.-NNW.
West Prospect, Am. S. S.	do	Yokohama	35 24 N.	152 20 E.	2.	10 p., 2	3.	29.36	S.	S., 6	NW.	N., 10	
William Penn, Am. S. S.	Honolulu	Balboa	14 05 N.	104 21 W.	2.	6 p., 2	3.	29.55	S.	S., 8	S.	S., 8	Steady
West O'Rowa, Am. S. S.	Otaru	San Pedro	46 00 N.	153 00 E.	2.	Noon, 3	4.	29.10	SE	NE., 3	N.	NNW., 8	SSE.-NE.-NW.
Meton Hixon, Am. S. S.	Portland	Nagoya	50 00 N.	134 00 W.	5.	1 p., 5	7.	29.33	WSW	SSW., 7	NW.	WNW., 8	SSE.-NW.
Meton, Am. S. S.	Portland	Portland	18 03 N.	131 31 E.	6.	9 p., 6	7.	28.93	NW	WSW., 12	SE	WSW., 12	W.-SW.
West Holbrook, Am. S. S.	Yokohama	do	50 42 N.	149 22 W.	6.	Noon, 8	8.	30.10	W	NW., 7	NNW.	NW., 9	W.-NW.
Frank G. Drum, Am. S. S.	San Pedro	Honolulu	33 15 N.	121 07 W.	7.	8 a., 7	8.	29.83	W	NW., 6	N.	—, 8	W.-N.
China Arrow, Am. S. S.	Taku Bar	San Francisco	48 54 N.	168 30 E.	7.	7 a., 8	8.	—	S.	S., 9	S.	S., 10	Steady
Africa Maru, Jap. S. S.	Yokohama	Victoria	46 56 N.	160 30 E.	7.	Noon, 7	8.	29.50	SSE	SSE., 8	WNW	SSE., 10	S.-SSE.
Levant Arrow, Am. S. S.	Hongkong	San Francisco	38 42 N.	133 10 W.	8.	4 p., 8	8.	29.42	WNW	W., 9	W.	W., 10	WNW.-W.
City of Vancouver, Br. S. S.	Osaka	Victoria	48 36 N.	133 38 W.	8.	8 a., 9	9.	29.01	NE	ENE., 9.	NE	ENE., 9.	NE.-ENE.
El Oso, Br. S. S.	Yokohama	Tsingtau	31 22 N.	129 20 E.	8.	4 p., 8	9.	29.85	NNW	NNE., 8.	NE	NE., 9	Steady
Pres. Monroe, Am. S. S.	San Francisco	Kobe	30 45 N.	152 30 E.	11.	7 a., 12	12.	29.13	SW	NE., 12	N.	NE., 12	SW.-NE.
Korea Maru, Jap. S. S.	do	Yokohama	33 10 N.	152 45 E.	11.	1 p., 12	12.	29.75	SW	NE., 9	E	NE., 9	
Makiki, Am. S. S.	Bellingham	Honolulu	42 32 N.	136 16 W.	13.	3 p., 13	13.	29.04	SSE	S., 9	S.	S., 9	SSE.-S.
Harold Dollar, Br. S. S.	Taku Bar	San Francisco	44 39 N.	151 00 E.	13.	Noon, 14	15.	29.10	W	W.	WNW	NW., 12	W.-WNW.
Las Vegas, Am. S. S.	Columbia Riv.	Japan	51 08 N.	143 05 W.	14.	Noon, 14	15.	29.68	SE	NNE., 4.	NE	NNE., 8.	4 pts.
West Hixon, Am. S. S.	Portland	Nagoya	50 00 N.	177 20 E.	16.	9 a., 16	17.	29.03	SW	SW., 9	SSW	SW., 9	
Iwasawa Maru, Jap. S. S.	Yokohama	San Francisco	46 47 N.	151 25 W.	20.	4 p., 20	21.	28.87	SE	SE., 8	S.	SE., 8	SE.-S.
Biyo Maru, Jap. S. S.	Muroran	Vancouver	46 58 N.	170 25 W.	20.	Noon, 21	21.	28.86	SE	NW., 8	NNW	NW., 8	W.-NW.-N.
West Calera, Am. S. S.	Hongkong	San Francisco	42 42 N.	167 30 W.	20.	4 p., 21	23.	29.00	NE	WNW., 7	NW.	NW., 9	
Meton, Am. S. S.	Cebu	Portland	44 52 N.	167 45 W.	21.	1 p., 21	23.	28.88	NE	ENE., 5	WNW	NW., 9	N.-NW
Harold Dollar, Br. S. S.	Taku Bar	San Francisco	48 47 N.	156 15 W.	22.	1 p., 23	23.	28.85	N	NW., 9	NW	NW., 9	NNW.-NW.
Makena, Am. S. S.	Port Angeles	Honolulu	36 50 N.	142 40 W.	21.	4 p., 22	24.	29.41	SE	SW., 8	W.	SW., 10	
Las Vegas, Am. S. S.	Columbia Riv.	Japan	51 10 N.	177 15 W.	23.	2 p., 23	24.	29.50	WNW	W., 4.	WNW	WNW., 10	Steady.
Do	do	do	46 00 N.	154 30 E.	27.	9 p., 27	28.	29.12	NW	NW., 9	NNW	NW., 10	Steady
Pres. Harrison, Am. S. S.	San Francisco	Kobe	31 17 N.	153 39 E.	28.	1 a., 27	27.	29.82	SSW	SSW., 6	SW	SSW., 9	SSW.-SW.
Santa Cecilia, Am. S. S.	do	Providence	14 57 N.	96 04 W.	28.	Noon, 27	27.	29.79	NE	NE., 9	NNE	NE., 10	Steady.
Lirline, Am. S. S.	Seattle	Honolulu	38 05 N.	141 55 W.	27.	7 p., 27	28.	28.58	SE	SE., 8	S.	SE., 8	Steady.
Wheatland Montana, Am. S. S.	Orient	Seattle	45 55 N.	160 15 E.	27.	—, 29	30.	29.00	NW	NW., 9	NW	NW., 10	Steady.
Gyokoh Maru, Jap. S. S.	Osaka	Coos Bay	49 30 N.	152 40 W.	29.	1 a., 29	30.	29.15	S	SE., 8	S	SE., 8	Steady.
SOUTH ATLANTIC OCEAN													
California, Dan. S. S.	Rotterdam	Buenos Aires	25 14 S.	43 00 W.	15.	8 a., 15	17.	29.72	NE	NE., 7	SW	SW., 9	NE.-SW.

551.506 (265.2)
NORTH PACIFIC OCEAN

By WILLIS E. HURD

The Aleutian low deepened rapidly in October, and was this month central along the eastern Aleutian chain and the northwestern part of the Gulf of Alaska, the lowest average pressure being 29.44 inches, at Kodiak. Over the area from Juneau to Dutch Harbor pressures were below normal by 0.13 to 0.21 inch. Under the influence of the cyclone abnormally heavy rains for the month occurred over a great region along the coast from Alaska to central California and thence southwestward to the Hawaiian Islands. At Honolulu 1.61 inches of rain fell from the 23d to the 25th, inclusive, and was directly traceable to the "widespread Aleutian Low" on those dates, according to the official there. At Juneau, in addition to great rainfall, there were nearly 4 inches of snow. Along the northern steamer routes rain squalls were frequent and hail fell on several days.

The North Pacific high was fairly stable during the first decade of October, but thereafter was much weaker and more variable in position, at times being displaced almost completely by the northern low. Throughout its whole average area, from the California coast to Midway Island, pressures were slightly below normal.

The following table indicates the barometric conditions:

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level at indicated hours, North Pacific Ocean, October, 1926

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Dutch Harbor ¹	29.48	-0.21	30.42	8th	28.66	18th.
St. Paul ^{1,2}	29.61	-0.05	30.40	7th	28.80	21st.
Kodiak ^{1,2}	29.44	-0.15	30.14	8th	28.50	23d.
Midway Island ¹	30.01	-0.04	30.16	24th	29.88	28th.
Honolulu ²	29.96	-0.04	30.06	16th	29.80	10th.
Juneau ²	29.74	-0.13	30.42	23th	29.12	15th.
Tatoosh Island ^{1,2}	29.97	-0.06	30.37	23th	29.35	9th.
San Francisco ^{2,3}	29.97	-0.03	30.20	24th	29.73	8th.
San Diego ^{1,2}	29.91	-0.02	30.05	15th	29.58	7th.

¹ P. m. observations only.
² 30 days.

³ A. m. and p. m. observations.
⁴ Corrected to 24-hour mean.

Over most of the ocean there was a slight decrease in fog, but a general and considerable increase in the number and force of gales. Fog, however, showed a decided increase along the American coast from Vancouver to the upper part of the Peninsula of California, and particularly between North Head and San Diego, where available reports indicate its occurrence on more than 50 per cent of the days.

Gales were frequent along the northern routes, in some part of which they occurred daily, and over the middle part of the route between Honolulu and Puget Sound.

In the latter area they were noted on 9 or 10 days, blowing from southwest, south, southeast, and northeast, of forces varying from 8 to 10. No forces higher than 10 were reported east of the 160th meridian of east longitude, but west of it full hurricane velocities were encountered by steamers on several days, the result of typhoons active in the waters of the Far East during the early half of the month. Our only knowledge of these storms at this writing is gathered from the few reports at hand of vessels traversing this region, since the summary of typhoons from the Philippine Weather Bureau has not been received. These reports indicate 3 and probably 4 violent storms.

On October 2 and 3 the American steamer *President Lincoln*, while some 600 miles east of Yokohama, ran into a typhoon and encountered hurricane winds from the southwest. The vessel must have crossed the storm near its center, since the observed pressure went as low as 28.45 inches. On the 6th and 7th an equally severe storm was experienced about 300 miles east-northeast of Luzon by the American steamer *Meton*, eastward bound from the Philippines. The lowest pressure observed was 28.93 inches, near 18° N., 131½° E. On the 11th and 12th the Dollar Line steamship *President Monroe*, toward Kobe, ran into a typhoon near 31° N., 152½° E. The hurricane winds were from the northeast, lowest pressure

29.13 inches. On the 13th the British steamer *Harold Dollar*, bound for San Francisco, fell in with rough weather while among the Kuril Islands. The westerly gales increased to hurricane force on the 14th and 15th, and the lowest pressure, 29.10 inches, occurred on the 14th, while the vessel was in 44° 39' N., 151° E.

One tropical cyclone, probably of no great strength, occurred in the waters off the coast of Mexico, first appearing south of Acapulco on the 2d. By the 3d it had developed sufficient energy to cause winds of gale force, as shown by the report of the American steamer *William Penn*, which encountered a south wind of force 8, pressure 29.55, in 14° 05' N., 104° 21' W. It is not known if gales attended the subsequent movements of the cyclone, but according to the Mexican weather reports it lay off the coast, apparently between Acapulco and the western part of the Gulf of Tehuantepec until the 11th, when it disappeared.

Moderate northers blew in the Gulf of Tehuantepec on the 26th and 27th.

At Honolulu the prevailing wind was from the northeast, but there were a greater number of winds than usual from other directions. Velocities exceeding 24 miles occurred on 5 days, the maximum being 31 from the east on the 17th. The total precipitation was 1.93 inches, which is 0.38 inch more than the normal.

551.506 (73)

DETAILS OF THE WEATHER IN THE UNITED STATES

GENERAL CONDITIONS

The month as a whole did not depart widely from a normal October. The heavy rains of the previous month in middle Mississippi Valley States continued throughout the first week of October over a broad band stretching from the Texas Panhandle, Oklahoma, and Arkansas northeastward to the Great Lakes.

The month was warm with the exception of northeastern States where atmospheric pressure was higher than the normal and considerably above that for the previous months. The usual details follow.—A. J. H.

CYCLONES AND ANTICYCLONES

By W. P. DAY

The tracks of 20 low-pressure areas were plotted during October, an increase of 3 over the preceding month; and storm movement across the United States was comparatively rapid. However, over the northeastern Pacific Ocean there were several major depressions, which were unusually slow in movement. Two tropical disturbances developed during the month, one of which, passing over west-central Cuba and Bermuda, developed great intensity and apparently retained its identity far out into the Atlantic.

The HIGHS were mostly of the Pacific type. Although high-pressure prevailed over the Mackenzie Valley from the 8th until the 16th and again toward the end of the month, the HIGHS from this region were weak, since they were usually coincident with rising pressure moving in from the Pacific, with which they coalesced.

FREE-AIR SUMMARY

By L. T. SAMUELS

Free-air temperatures were in general below their normal values at the northern stations and above at the southern stations. (See Table 1.) The departures at the latter decreased with increase in altitude while those at the northern stations increased in general with altitude.

Relative humidity and vapor pressure departures were mostly positive, those for the former being small while those for the latter were moderate.

It will be seen in Table 2 that the resultant winds at Due West were practically diametrically opposite to their normals, a marked southerly component occurring instead of the usual one from the north. At this station the greatest excess in the mean monthly temperatures was found.

A kite flight of more than ordinary interest was obtained at Broken Arrow on the 4th just as a wind shift line passed over the station. The following tabulation shows the temperatures and upper and lower wind directions recorded during the ascent and descent of this flight. It will be seen that the surface wind shifted from southerly to northerly during the ascent while the wind aloft remained southerly. Further, this lower northerly current became successively deeper during the flight. The surface temperature dropped immediately with the arrival of the northerly current but the dissipation of the cloud layer which accompanied the shift soon caused the temperature to rise again in its ordinary diurnal march. The steadily increasing effect of this surface warming is well brought out in the table by the relatively higher temperatures from the ground to 1,000 m. during the descent of the flight than during the ascent. It will be noted, however, that the temperatures at 2,000 m. and 2,500 m. were lower during the descent than during the ascent notwithstanding the continuance of the southerly winds at these levels. This cooling within the southerly current was evidently the result of its forced ascent by the under-running northerly current. This explanation is further strengthened by the fact that at 3,000 m. an appreciable warming instead of cooling occurred, apparently because the air at this higher level had not yet been forced upward. While the air in its forced ascent cooled to some extent by reason of its expansion yet the absolute humidity was too low to cause condensation.