

TABLE 2.—Free-air resultant winds based on pilot balloon observations made near 5 p. m. (75th meridian time) during November 1941. Directions given in degrees from North (N=360°, E=90°, S=180°, W=270°)—Velocities in meters per second—Continued

Altitude (meters) m. s. l.	New York, N. Y. (15 m.)			Oakland, Calif. (8 m.)			Oklahoma City, Okla. (402 m.)			Omaha, Nebr. (306 m.)			Phoenix, Ariz. (338 m.)			Rapid City, S. Dak. (982 m.)			St. Louis, Mo. (181 m.)			San Antonio, Tex. (180 m.)			San Diego, Calif. (15 m.)			Sault St. Marie, Mich. (230 m.)			Seattle, Wash. (12 m.)			Spokane, Wash. (603 m.)			Washington, D. C. (24 m.)				
	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity	Observations	Direction	Velocity								
	Surface.....	28	271	4.0	27	253	1.7	29	227	2.5	27	231	2.6	30	159	0.4	30	339	3.9	27	242	2.9	30	82	1.3	30	295	2.8	22	300	1.7	24	206	1.3	27	196	1.2	30	252	2.3	
500.....	28	268	7.2	27	291	0.9	29	231	2.9	27	232	3.4	30	118	0.4	30	314	5.9	27	247	4.9	30	107	1.1	30	290	2.4	22	276	2.5	24	190	3.4	27	207	3.2	30	254	3.9		
1,000.....	28	271	9.0	20	76	0.2	29	232	4.2	27	265	6.9	30	80	0.8	30	337	4.0	25	253	6.6	29	151	0.6	29	70	0.2	19	272	4.9	24	194	6.1	27	207	3.2	29	263	4.8		
1,500.....	25	279	10.4	20	163	1.0	27	267	6.3	25	277	8.4	30	117	1.0	30	314	5.9	22	257	8.4	29	255	2.0	29	69	1.2	13	272	7.9	24	206	7.6	24	225	5.7	29	273	7.4		
2,000.....	18	271	10.9	19	266	0.9	24	278	7.6	19	262	10.7	30	128	0.9	29	301	9.0	19	260	10.5	27	266	4.4	28	14	1.4	---	---	---	19	206	7.5	23	241	6.4	29	279	10.0		
2,500.....	15	270	12.4	18	341	1.5	24	278	7.8	19	269	10.7	30	199	0.2	27	304	10.6	18	268	10.4	26	270	6.1	28	335	1.9	---	---	---	19	221	7.7	21	254	7.6	23	281	11.6		
3,000.....	12	264	11.3	17	353	2.5	23	267	8.4	19	271	11.2	30	271	0.9	26	304	12.3	18	269	12.0	25	275	8.2	27	325	3.1	---	---	---	16	234	7.1	18	269	9.7	22	279	12.8		
4,000.....	---	---	---	17	327	4.3	20	270	10.1	19	273	12.9	28	284	3.3	23	306	13.6	17	272	13.6	22	279	9.8	21	300	6.3	---	---	---	13	258	9.4	14	284	9.3	20	268	14.6		
5,000.....	---	---	---	15	338	6.0	19	268	12.5	17	278	14.4	26	294	6.7	21	304	15.0	18	280	15.6	19	265	11.4	17	299	8.1	---	---	---	11	275	12.7	14	290	11.4	16	270	18.3		
6,000.....	---	---	---	15	328	8.1	16	284	13.4	15	282	15.2	24	282	10.1	19	308	16.3	13	284	16.0	18	268	12.3	14	299	8.2	---	---	---	---	---	---	---	---	---	---	---	---	---	
8,000.....	---	---	---	---	---	---	12	312	13.6	10	282	19.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
10,000.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
12,000.....	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

TABLE 3.—Maximum free-air wind velocities, (m. p. s.), for different sections of the United States based on pilot-balloon observations during November 1941

Section	Surface to 2,500 meters (m. s. l.)					Between 2,500 and 5,000 meters (m. s. l.)					Above 5,000 meters (m. s. l.)				
	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station	Maximum velocity	Direction	Altitude (m.) m. s. l.	Date	Station
Northeast ¹	48.0	WNW	2,500	27	Boston, Mass.	61.0	WNW	2,980	27	Boston, Mass.	63.5	W	6,190	27	Portland, Maine.
East-Central ²	36.1	WSW	2,500	1	Knoxville, Tenn.	49.0	SW	4,820	24	Richmond, Va.	85.0	SSW	7,650	8	Greensboro, N. C.
South-Central ³	35.8	WNW	2,500	9	Tallahassee, Fla.	43.0	SW	4,150	8	Jacksonville, Fla.	68.0	WNW	11,900	16	Miami, Fla.
North-Central ⁴	35.2	WNW	2,500	26	Duluth, Minn.	48.4	WNW	5,000	15	Minneapolis, Minn.	65.0	WNW	8,150	25	Huron, S. Dak.
Central ⁵	38.1	SW	1,100	18	Des Moines, Iowa	49.6	W	4,770	20	Springfield, Ill.	62.4	W	12,890	12	Minneapolis, Minn.
South-Central ⁶	31.5	SSW	1,920	18	Tulsa, Okla.	43.2	SW	4,810	19	Oklahoma City, Okla.	76.8	WSW	16,560	14	Wichita, Kan.
Northwest ⁷	43.5	W	2,300	24	Havre, Mont.	55.0	W	4,950	8	Waco, Tex.	70.8	WSW	8,860	23	Abilene, Tex.
West-Central ⁸	36.6	W	2,500	24	Cheyenne, Wyo.	44.4	WSW	3,300	24	Great Falls, Mont.	71.0	N	10,545	19	Medford, Oreg.
Southwest ⁹	31.8	SW	1,370	17	Las Vegas, Nev.	46.6	WNW	4,300	17	Reno, Nev.	73.0	WNW	15,860	20	Rock Springs, Wyo.
															El Paso, Tex.

¹ Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, and northern Ohio.
² Delaware, Maryland, Virginia, West Virginia, southern Ohio, Kentucky, eastern Tennessee, and North Carolina.
³ South Carolina, Georgia, Florida, and Alabama.
⁴ Michigan, Wisconsin, Minnesota, North Dakota, and South Dakota.
⁵ Indiana, Illinois, Iowa, Nebraska, Kansas, and Missouri.

⁶ Mississippi, Arkansas, Louisiana, Oklahoma, Texas (except El Paso), and western Tennessee.
⁷ Montana, Idaho, Washington, and Oregon.
⁸ Wyoming, Colorado, Utah, northern Nevada, and northern California.
⁹ Southern California, southern Nevada, Arizona, New Mexico, and extreme west Texas.

WEATHER ON THE NORTH ATLANTIC OCEAN

By H. C. HUNTER

Atmospheric pressure.—During November 1941 the pressure over those areas of the North Atlantic which are well covered by available reports was in the main lower than normal. This was notably the case near the Azores, where the average pressure at Horta was 5.2 millibars (0.15 inch) less than the normal November mean, owing to almost continuously subnormal pressure during the first half of the month. There were less notable deficiencies near the coast of Portugal and the east coast of the United States. On the other hand, near southeastern Nova Scotia the average pressure exceeded the monthly normal.

The extremes of pressure in the vessel reports that have been received were 1,035.2 and 985.1 millibars (30.57 and 29.09 inches). The high mark was recorded at a very early hour of the 29th near 42° N., 65° W. The low mark was noted not far to southwestward of the westernmost Azores shortly before sunrise of the 2d. A pressure substantially the same as the low mark mentioned was noted at Horta on the 7th, as table 1 indicates.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure (sea level) at selected stations for the North Atlantic Ocean and its shores, November 1941

Station	Average pressure	Departure from normal	Highest	Date	Lowest	Date
Lisbon, Portugal ¹	1,015.9	-1.4	1,035	23-25	995	11
Horta, Azores.....	1,015.1	-5.2	1,030	27	985	7
Belle Isle, Newfoundland.....	1,008.1	0	1,023	2	986	22
Halifax, Nova Scotia.....	1,016.6	+2.4	1,032	29	999	21
Nantucket.....	1,016.9	-7	1,035	28	997	7
Hatteras.....	1,019.0	-6	1,032	28	1,001	6
Turks Island.....	1,015.0	-6	1,019	29	1,011	16, 21
Key West.....	1,016.3	-3	1,023	10	1,010	6
New Orleans.....	1,019.6	+3	1,031	24	1,008	5

¹ For 27 days.

NOTE.—All data based on available observations, 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.—No storms worthy of special comment affected the lower latitudes this month, and in the middle latitudes, as far as reports that have come to hand indicate, the month was comparatively undisturbed for November, save for a few days near southwestern Europe. In the portion of the ocean west of longitude

30° W. the especially quiet periods were 8th to 12th, 18th to 20th, and 27th to 29th.

A small number of vessels noted strong gales (force 9) about the middle of the month, and one ship near mid-ocean encountered a whole gale (force 10) on the 17th.

In the eastern North Atlantic a storm seems to have formed about the 1st, and during the forenoon of the 2d was indicated as having attained considerable strength, while central a short distance to west-southwestward of the western Azores. The course was apparently to south-eastward during the next 3 days, then from 5th to 7th it returned northward and on the 7th was central over the island of Fayal. Afterward the movement was eastward, with apparently less intensity, and on the 11th the center was close to northern Portugal.

Much information about this storm has been received from Lt. Col. J. Agostinho, Director of the Meteorological Service of the Azores, who reports that gusts of 100 kilometers (62 miles) per hour or more were noted locally on the islands.

Waterspout on Gulf of Mexico.—On November 5 a waterspout was observed over the Gulf of Mexico. The following is a ship's account of it:

In latitude 27°00' N., longitude 88°45' W., passed a large waterspout about 1 mile off, in vicinity of a rain squall. The spout resembled a big lawn sprinkler at base; then to a large column in the sky to the clouds. Air temperature 80° F.; wind variable, force 4 to 5, then to west, 3; barometer dropped 0.08 inch during squall (from 29.90 to 29.82, corrected readings).

Fog.—As is usual in the case of a fall month, comparatively little fog has been reported. Indeed, there are but 6 of the 5°-squares which include North Atlantic waters that are known to have had any fog, and only one of these has furnished reports for more than a single day. This leading square is the one from 40° to 45° N., 70° to 75° W., and even there only 3 days, well scattered in time, brought fog.

The first report since late April of fog over the Gulf of Mexico states that it was noted on the 16th, over the northwestern portion.

OCEAN GALES AND STORMS, NOVEMBER 1941

Vessel	Position at time of lowest barometer		Gale began November	Time of lowest barometer, November	Gale ended November	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
	Latitude	Longitude									
NORTH ATLANTIC OCEAN											
A vessel	38 30N.	48 18W.	2	2p, 1	2	1,004.4	NNW	NNE, 4	NW	NNW, 8	NNE-NNW.
Do.	44 30N.	63 00W.	2	11p, 2	3	1,001.7	SW	WSW, 8	WSW	SSE, 8	SSE-WSW.
Do.	33 59N.	74 28W.	6	12m, 6	7	1,006.8	SW	SSW, 8	SW	SSW, 8	None.
Do.	32 39N.	73 58W.	6	3a, 7	7	1,004.7	SW	WSW, 9	W	WSW, 9	SW-W.
Do.	38 00N.	72 00W.	7	4a, 7	8	1,001.4	SW	S, 6	WSW	WSW, 8	SW-WSW.
Do.	36 00N.	68 12W.	7	11p, 7	7	1,007.8	SSW	SW, 7	SW	SSW, 8	SW-WSW.
Do.	38 06N.	59 30W.	12	1p, 12	13	1,007.5	NW	WNW, 7	WNW	NW, 8	WNW-NNW.
Do.	27 48N.	87 26W.	13	12p, 13	14	1,016.3	ENE	ENE, 7	ENE	E, 9	N-E.
Do.	33 36N.	74 12W.	16	4a, 16	17	1,003.1	NNW	WNW, 8	NNE	N, 9	NNW-WNW-N.
Do.	32 54N.	64 00W.	16	8a, 16	16	1,008.5	SE	SSW, 7	SSW	SE, 8	SE-SSW.
Do.	39 36N.	66 18W.	17	4p, 16	17	1,000.0	WNW	NW, 8	WNW	NNW, 8	W-NW.
Do.	37 48N.	60 12W.	16	8p, 16	16	1,000.7	S	S, 9	SSW	S, 9	SSE-SSW.
Do.	38 06N.	56 12W.	16	2a, 17	17	1,001.4	S	S, 8	S	S, 8	S-NW.
Do.	38 24N.	48 24W.	17	2p, 17	17	1,008.5	S	SSW, 10	W	SSW, 10	S-W.
Do.	43 20N.	39 29W.	17	12p, 17	18	1,002.7	S	SW, 8	W	SW, 8	S-W.
Do.	40 50N.	16 55W.	21	5p, 21	22	1,005.8	SW	SW, 6	W	SW, 8	None.
Do.	34 18N.	75 30W.	24	1p, 24	24	1,019.6	N	N, 8	N	N, 8	None.
Do.	31 24N.	67 42W.	25	4p, 25	26	1,014.9	NE	ENE, 7	NW	ENE, 8	None.
Do.	38 54N.	59 54W.	30	4p, 30	30	1,010.8	SW	W, 7	WSW	SW, 8	WSW-WNW.
NORTH PACIFIC OCEAN											
A vessel	53 30N.	161 30W.	1	6a, 2	3	974.9	E	ENE, 10	E	ENE, 10	E-ENE.
Do.	15 30N.	108 48W.	2	12m, 2	3	1,000.7	NNE	SE, 9	S	SE, 9	NNE-SSE.
Do.	56 30N.	167 18W.	2	2p, 2	2	982.1	S	E, 9	E	E, 9	E.
Do.	46 54N.	128 24W.	2	10p, 2	4	988.3	S	SSE, 9	SW	SSE, 9	SSE-SW.
Do.	49 00N.	126 45W.	2	12p, 2	3	983.6	SE	SE, 5	SE	SE, 8	None.
Do.	45 12N.	124 48W.	2	4a, 3	3	1,002.4	SE	SSW, 7	SSW	S, 9	None.
Do.	53 00N.	134 54W.	3	2a, 3	3	986.8	SW	ESE, 6	SW	SW, 8	ESE-S.
Do.	07 37N.	89 07W.	3	6p, 3	3	1,004.4	NNE	E, 9	SSE	E, 9	ENE-SSE.
Do.	16 60N.	113 30W.	4	4a, 4	4	1,002.7	NNE	ENE, 7	NE	NE, 11	NE-E.
Do.	56 58N.	139 11W.	4	3p, 4	4	977.7	NE	NE, 11	NE	NE, 11	None.
Do.	39 12N.	141 00W.	6	9p, 6	6	1,010.8	SSE	SSE, 7	SW	SE, 8	SE-S.
Do.	58 51N.	141 50W.	6	10p, 6	7	1,002.0	S	SW, 9	SW	SW, 10	SW-WSW.
Do.	33 54N.	147 30W.	8	2p, 8	9	1,007.1	SW	SW, 9	W	WSW, 11	SW-WSW.
Do.	35 03N.	145 33W.	8	4p, 8	9	1,007.1	N	N, 6	NNW	NNW, 9	N-W.
Do.	15 45N.	98 43W.	9	4a, 9	9	1,011.5	SW	SW, 8	WSW	SW, 8	SW-WSW.
Do.	38 36N.	140 42W.	9	9a, 9	9	1,000.0	NNE	NNW, 8	NNW	NNW, 9	None.
Do.	46 39N.	148 32W.	8	4p, 9	10	1,003.4	SE	SE, 7	SSE	SE, 8	None.
Do.	55 20N.	131 38W.	9	8a, 10	10	992.2	NW	NW, 8	NW	NW, 8	None.
Do.	50 36N.	141 30W.	9	4p, 10	10	1,003.7	NE	NE, 8	NE	NE, 8	None.
Do.	12 36N.	149 36W.	10	4p, 10	11	1,003.7	SE	SE, 8	SE	ESE, 10	SE-SW.
Do.	49 15N.	131 12W.	12	11p, 12	13	989.2	SE	WNW, 4	NNE	N, 8	WNW-N.
Do.	14 12N.	98 42W.	13	3a, 13	13	1,010.8	NNW	NE, 8	NE	NE, 8	NE-N.
Do.	53 36N.	144 30W.	13	3a, 13	13	982.4	NE	NE, 8	SW	S, 10	SSE-S.
Do.	43 06N.	124 48W.	13	10a, 13	13	1,002.7	SE	W, 5	NW	NW, 8	W-NW.
Do.	54 06N.	152 06W.	13	8a, 14	15	992.9	W	W, 5	SW	WSW, 11	SW-WSW-SW.
Do.	54 00N.	162 06W.	16	1a, 16	17	979.7	SW	WSW, 9	SW	WSW, 11	SW-WSW-SW.
Do.	56 36N.	147 36W.	25	8a, 24	25	994.2	W	W, 3	WNW	WNW, 9	NW-W.
Do.	14 47N.	95 16W.	24	4p, 24	24	1,008.8	N	NNE, 7	NE	NNE, 10	None.
Do.	15 24N.	98 42W.	25	6a, 26	26	1,010.6	NNE	N, 9	NW	NW, 10	None.
Do.	55 42N.	134 54W.	25	4a, 25	25	998.6	W	WNW, 5	NNW	W, 8	WNW-W.
Do.	14 24N.	98 18W.	26	6p, 26	27	1,005.4	NNW	NW, 2	NE	N, 9	NW-NNW.
Do.	26 42N.	143 00W.	27	2a, 28	28	1,006.4	SW	W, 8	WNW	WNW, 8	W-WNW.
Do.	36 16N.	127 57W.	28	4p, 28	28	995.6	SSE	SSE, 8	SSE	SSE, 8	None.
Do.	43 12N.	126 06W.	27	1a, 28	28	997.0	SE	SSE, 10	SSE	SSE, 10	None.
Do.	59 24N.	149 54W.	28	2a, 29	28	988.8	NNW	NNE, 8	NNW	NNW, 8	NNW-NNE.
Do.	43 30N.	127 00W.	28	4a, 29	29	992.2	SSE	SSE, 9	SSW	SSE, 9	None.
Do.	23 12N.	149 52W.	30	4a, 30	30	1,009.5	WSW	WSW, 7	W	NW, 8	WSW-NNW.
Do.	32 10N.	149 30W.	30	2p, 30	31	1,003.4	N	NNW, 8	NNW	NNW, 9	NNW-NNE.

1 Position approximate.

2 Barometer uncorrected.

3 December.