

Atmospheric conditions during solar-radiation measurements, Blue Hill Observatory of Harvard University

Date and time from apparent noon	Air temperature	Wind, Beaufort scale	Visibility (scale 0-10)	Sky-blue-ness	Cloudiness and remarks
<i>November 1935</i>					
	° C.				
3; 2:17 a. m.	10.0	NNE 4	9	4	T St Cu.
3; 0:22 a. m.	10.6	NNE 5	9	4	T St Cu.
3; 3:11 p. m.	8.6	NNE 3	9	6	T St Cu light water haze.
4; 0:07 p. m.	14.3	S 3	8	7	1 Ci, few ACu.
8; 0:36 a. m.	8.9	NW 3	7	9	1 ACu, 1 STCu, 1 FrCu.
8; 0:44 p. m.	10.0	NNW 3	8	9	3 Cu.
9; 2:23 a. m.	4.1	NW 2	7	7	1 Ci (in N) heavy haze.
9; 0:06 p. m.	7.5	ExS 3	8	8	T Ci, Cu (in N and E).
9; 0:38 p. m.	7.6	ESE 3	8	8	1 Ci, Cu.
19; 1:07 a. m.	3.8	N 2	9	8	Mod. haze to N and NE.
19; 2:07 p. m.	6.1	N 1	9	8	3 Ci mod. haze to N.
21; 2:24 a. m.	5.4	NW 3	7	7	Few Acu. Heavy haze to N.
25; 1:39 a. m.	4.4	NNW 5	8	8	1 Ci. Mod. haze N and E.
26; 1:12 a. m.	3.3	WNW 4	7	8	3 ACu. Mod. haze & water haze.
27; 1:08 a. m.	5.3	NW 1	7	7	2 Ci, few ACu, few Cu, mod. heavy haze.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. Navy, Superintendent, U. S. Naval Observatory. Data furnished by the U. S. Naval Observatory in cooperation with Harvard and Mount Wilson Observatories. The difference in longitude is measured from the central meridian, positive west. The north latitude is positive. Areas are corrected for foreshortening and are expressed in millionths of the sun's visible hemisphere. The total area for each day includes spots and groups]

NOTE.—Owing to the fact that this report had not been received at the time of going to press, the November data will be published in the next (December) issue of the REVIEW.—*Editor.*

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. LITTLE, in charge]

By L. T. SAMUELS

At those few stations with a sufficient period of record for the determination of approximate normals, upper-air temperatures during November averaged above normal except at Omaha and San Diego and in the lower levels at Seattle, where the departures were negative. However, only seven observations were made at the latter station during the month and therefore the means are not reliable. (See table 1.) Upper-air relative humidity departures were positive except at Pensacola and Seattle where they were negative.

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR NOVEMBER 1935

[Dependent alone on observations at Zurich and its station at Arosa]

[Data furnished through the courtesy of Prof. W. Brunner, Eidgen, Sternwarte, Zurich, Switzerland]

November 1935	Relative numbers	November 1935	Relative numbers	November 1935	Relative numbers
1	<i>Ec</i> 22	11	<i>Ecd</i> 68	21	71
2	17	12	58	22	<i>b</i> 52
3	<i>Ecd</i> 42	13	<i>abd</i> 97	23	65
4	<i>aa</i> 46	14	<i>Ec</i> 98	24	45
5	46	15	117	25	44
6	41	16	110	26	<i>Mcd</i> 56
7	<i>d</i> 59	17	<i>Eac</i> ---	27	<i>a</i> 58
8	59	18	<i>a</i> 94	28	58
9	<i>b</i> 67	19	91	29	64
10	61	20	70	30	56

Mean 29 days=63.4

a = Passage of an average-sized group through the central meridian.
b = Passage of a large group or spot through the central meridian.
c = New formation of a center of activity; E, on the eastern part of the sun's disk; W, on the western part; M, in the central circle zone.
d = Entrance of a large or average-sized center of activity on the east limb.

The directions of the upper-air wind resultants for November were in nearly all cases close to normal. (See table 2.) A few marked exceptions occurred; e. g., the upper levels at Seattle and Murfreesboro had a pronounced northerly component as compared to normal. Resultant velocities were below normal except over the more southern sections of the country where they were above normal. In nearly all cases the resultant velocity departures were of only moderate magnitude.

TABLE 1.—Mean free-air temperatures and relative humidities obtained by airplanes during November 1935

TEMPERATURE (° C.)

Stations	Altitude (meters) m. s. l.																Number of observations		
	Surface		500		1,000		1,500		2,000		2,500		3,000		4,000			5,000	
	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal	Mean	Departure from normal		Mean	Departure from normal
Barksdale Field (Shreveport), La. ¹ (52 ms)	10.5		11.9		11.7		10.5		8.3		6.4		4.3		-0.4		-6.1		27
Billing, Mont. ² (1088 m)	-1.7						1.1		-1.1		-3.7		-6.3		-12.1		-18.3		29
Boston, Mass. ¹ (6 m)	7.1	+3.2	6.2	+3.7	4.8	+4.0	2.4	+2.6	1.2	+2.7	0.0	+3.2	-1.1	+4.2	-6.7	+3.5	-13.2	+3.4	3
Cheyenne, Wyo. ² (1873 m)	-2.4								-0.2		-0.2		-2.7		-8.8		-15.3		29
El Paso, Tex. ² (1194 m)	6.6						10.3		10.2		7.4		4.6		-0.8		-7.0		30
Fargo, N. Dak. ² (274 m)	-9.2		-6.7		-5.8		-4.8		-5.4		-7.0		-9.2		-14.6		-20.9		29
Kelly Field (San Antonio), Tex. ¹ (206 m)	10.2		13.2		13.2		12.0		10.2		8.3		5.9		-0.4		-7.0		21
Lakehurst, N. J. ¹ (39 m)	8.6		7.5		6.2		5.3		4.1		2.4		0.6		-3.7		-7.8		27
Maxwell Field (Montgomery), Ala. ¹ (52 m)	11.5		12.7		11.5		9.9		8.1		6.0		3.7		-2.6		-9.7		26
Mitchel Field (Hempstead, L. I.), N. Y. ¹ (29 m)	7.3		6.4		5.3		3.3		1.9		0.0		-1.9		-7.5		-14.1		25
Murfreesboro, Tenn. ² (174 m)	7.7		7.9		6.7		6.7		5.4		2.5		0.8		-5.0		-11.4		28
Norfolk, Va. ² (10 m)	12.1	+2.9	10.9	+1.6	9.1	+1.8	6.9	+1.6	4.7	+1.5	3.1	+1.5	1.5	+1.6	-3.8	+1.6	-10.2	+1.8	19
Oklahoma City, Okla. ² (391 m)	5.4		6.4		7.3		7.8		6.0		4.0		1.4		-4.5		-10.7		30
Omaha, Nebr. ² (300 m)	0.3	-1.3	0.6	-2.1	0.9	-3.2	0.8	-2.9	0.0	-2.5	-1.5	-2.0	-3.5	-1.6	-8.8	-1.0	-14.7	-0.5	27
Pensacola, Fla. ² (24 m)	12.3	-0.7	13.7	+0.3	13.0	+0.8	11.1	+0.5	9.4	+0.4	7.7	+0.8	5.2	+0.6	-0.2	+0.7	-6.4	+0.7	29
San Diego, Calif. ² (40 m)	9.2	-5.8	12.7	-3.2	12.2	-3.3	11.0	-2.4	9.1	-1.9	6.8	-1.7	4.2	-1.8	-2.3	-2.0	-9.2	-2.0	29
Scott Field (Belleville), Ill. ¹ (135 m)	1.2		2.5		1.4		1.8		0.2		-1.7		-3.9		-8.7		-14.6		16
Seattle, Wash. ² (25 m)	3.6	-4.0	2.8	-3.2	2.2	-1.7	0.2	-1.2	-1.5	-0.5	-3.4	-0.1	-4.8	+0.8	-9.5	+1.3	-15.8	+1.4	7
Selfridge Field (Mount Clemens), Mich. ¹ (177 m)	5.2		6.2		4.9		4.5		4.4		2.3		0.0		-5.0		-10.9		18
Spokane, Wash. ² (596 m)	-0.9				+0.1		-0.4		-1.1		-2.9		-5.2		-10.0		-16.5		27
Washington, D. C. ² (13 m)	8.6	+2.7	7.9	+2.1	6.6	+2.1	5.0	+2.1	3.2	+2.0	1.3	+1.5	-0.4	+1.6	-4.6	+2.4	-9.9	+2.9	26
Wright Field (Dayton), Ohio ¹ (244 m)	2.0		4.1		3.5		2.4		1.2		-1.0		-3.2		-8.2		-13.1		17

RELATIVE HUMIDITY (PERCENT)

Barksdale Field (Shreveport), La.	81		69		57		53		51		46		41		37		31		
Billings, Mont.	68						59		60		64		67		66		61		
Boston, Mass.	81	+7	64	-7	54	-16	55	-10	68	+6	60	+3	45	-9	38	-13	42	-10	
Cheyenne, Wyo.	66								63		58		58		59		59		
El Paso, Tex.	54						42		37		35		34		30		25		
Fargo, N. Dak.	84		84		77		68		67		58		58		55		55		
Kelly Field (San Antonio), Tex.	87		73		69		58		53		53		45		43		20		
Lakehurst, N. J.	79		79		78		71		61		57		47		41		39		
Maxwell Field (Montgomery), Ala.	78		63		63		56		53		46		39		31		32		
Mitchel Field (Hempstead, L. I.), N. Y.	86		82		78		78		67		60		54		44		38		
Murfreesboro, Tenn.	85		77		72		62		51		50		41		39		39		
Norfolk, Va.	74	-1	69	+3	62	0	65	+6	65	+9	55	+7	50	+10	49	+14	44	+13	
Oklahoma City, Okla.	85		78		67		58		53		49		47		41		37		
Omaha, Nebr.	86	+6	82	+8	75	+11	68	+12	64	+14	57	+10	52	+6	48	+3	47	+3	
Pensacola, Fla.	84	+3	72	0	60	-5	55	-5	44	-9	36	-12	32	-11	25	-11	23	-9	
San Diego, Calif.	86	+17	68	+12	52	+9	40	+4	31	0	26	-2	25	-1	27	+2	29	+4	
Scott Field (Belleville), Ill.	83		71		66		60		57		53		51		53		51		
Seattle, Wash.	87	+5	78	0	67	-7	64	-6	56	-7	50	-6	43	-7	37	-6	39	-4	
Selfridge Field (Mount Clemens), Mich.	85		78		77		73		58		54		54		48		41		
Spokane, Wash.	85				78		73		67		65		64		62		58		
Washington, D. C.	80	+6	71	+6	67	+7	62	+5	59	+5	60	+11	54	+11	52	+12	45	+11	
Wright Field (Dayton), Ohio	84		74		66		59		51		56		56		54		49		

Late reports for September 1935

TEMPERATURE (° C.)

Pearl Harbor, Territory of Hawaii ² (6 m)	23.0	-3.3	21.6	-0.9	18.2	-0.3	15.3	-0.2	13.2	+0.4	11.9	+0.7	10.1	+0.8	4.7	+0.9	1.0	+2.2	28
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RELATIVE HUMIDITY (PERCENT)

Pearl Harbor, Territory of Hawaii.	86	+14	82	+6	82	+2	78	+2	72	+2	55	+1	42	+1	34	+1	21	-6	
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Late report for October 1935

TEMPERATURE (° C.)

Pearl Harbor, Territory of Hawaii ² (6 m)	22.2	-3.9	21.0	-0.6	18.6	+0.1	15.5	0.0	13.0	0.0	11.2	-0.1	9.0	-0.5	3.2	-0.5			31
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RELATIVE HUMIDITY (PERCENT)

Pearl Harbor, Territory of Hawaii.	89	+17	82	+7	83	+4	79	+5	74	+7	66	+11	58	+15	47	+14			
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Observations taken about 4 a. m., 75th meridian time, except along the Pacific coast and Hawaii where they are taken at dawn.

¹ Army. ² Weather Bureau. ³ Navy.

NOTE.—The departures are based on "normals" covering the following total number of observations made during the same month in previous years, including the current month: Boston, 82; Norfolk, 114; Omaha, 144; Pensacola, 147; San Diego, 157; Seattle, 34; Washington, 174; Pearl Harbor (September 1935), 124; (October 1935), 131.

TABLE 2.—Free-air resultant winds (meters per second) based on pilot-balloon observations made near 6 a. m. (E. S. T.) during November 1935

[Wind from N=360°, E=90°, etc.]

Altitude (m) m. s. l.	Albuquerque, N. Mex. (1,554 m)	Atlanta, Ga. (309 m)	Billings, Mont. (1,088 m)	Boston, Mass. (15 m)	Cheyenne, Wyo. (1,873 m)	Chicago, Ill. (192 m)	Cincinnati, Ohio (153 m)	Detroit, Mich. (204 m)	Fargo, N. Dak. (274 m)	Houston, Tex. (21 m)	Key West, Fla. (11 m)	Medford, Oreg. (410 m)	Murfrees- boro, Tenn. (180 m)
	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction
Surface	332	329	254	360	273	262	291	254	278	47	44	230	224
500	1.7	1.6	3.9	2.7	3.7	1.2	0.4	2.3	0.7	1.7	1.8	0.5	0.7
1,000		3.6		4.6		4.0	3.0	4.4	2.9	3.3	3.4	0.2	2.1
1,500		3.1		2.8		4.5	7.9	5.1	5.1	2.6	2.5	1.7	2.0
2,000	286	3.8	268	4.5	277	2.5	6.5	5.3	6.8	3.7	5.8	1.68	3.2
2,500	3.2	6.4	11.8	5.5	6.4	8.2	6.4	5.3	8.8	6.1	3.9	1.2	2.1
3,000	284	6.9	289	10.8	282	10.4	9.8	8.3	11.1	7.3	3.3	1.4	1.6
4,000	276	7.2	291	11.9	292	11.0	8.4			7.0	3.05	2.8	2.8
5,000	274	11.3	290	11.1	280	10.4				9.4	3.14	4.4	4.4
	273	15.4			284	9.1							8.1

Altitude (m) m. s. l.	Newark, N. J. (14 m)	Oakland, Calif. (8 m)	Oklahoma City, Okla. (402 m)	Omaha, Nebr. (306 m)	Pearl Har- bor, Territ- ory of Hawaii ¹ (68 m)	Pensacola, Fla. ¹ (24 m)	St. Louis, Mo. (170 m)	Salt Lake City, Utah (1,294 m)	San Diego, Calif. (15 m)	Sault Ste. Marie, Mich. (198 m)	Seattle, Wash. (14 m)	Spokane, Wash. (603 m)	Washing- ton, D. C. (10 m)
	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction	Direction
Surface	81	215	307	28	214	148	103	337	154	165	0.3	322	
500	1.6	1.4	0.3	3.1	1.8	1.7	0.8	1.2	2.0	0.3	0.3	2.3	
1,000	2.3	4.4	2.8	2.7	5.5	0.1	0.1	2.0	2.0	2.0	2.0	3.7	
1,500	4.6	7.5	5.8	1.5	7.5	0.6	0.6	2.4	2.8	3.7	3.7	6.2	
2,000	4.6	8.2	2.3	3.2	7.4	0.7	0.7	4.7	4.1	4.1	4.1	6.4	
2,500	7.5	11.7	5.3	4.5	8.0	1.7	1.7	2.5	2.5	2.5	2.5	7.5	
3,000	8.8	16.2	9.9	5.9	8.2	2.6	2.6	3.7	3.7	3.7	3.7		
4,000	10.6	14.2	9.8	5.8	10.3	3.7	3.7	6.2	6.2	6.2	6.2		
5,000		3.1		7.1		10.2		8.5	8.5	8.5	8.5		

¹ Navy stations.

RIVERS AND FLOODS

By MONTROSE W. HAYES, in charge River and Flood Division

The floods in November 1935 were local and not serious. The rivers in which they occurred are indicated in the following table of flood stages. There was no reported, except in the Susquehanna Basin at and above Binghamton, N. Y., and even there it was not great.

Table of flood stages in November 1935

[All dates in November]

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ATLANTIC SLOPE DRAINAGE					
Chenango: Binghamton, N. Y.	16	13	14	17.3	14
Susquehanna:					
Oneonta, N. Y.	12	13	14	15.5	14
Bainbridge, N. Y.	12	13	14	17.6	14
Saluda: Pelzer, S. C.	6	14	15	8.9	14
Santee: Rimini, S. C.	12	16	16	12.0	16
Savannah: Ellenton, S. C.	14	15	19	17.5	17
MISSISSIPPI SYSTEM					
Ohio Basin					
French Broad: Asheville, N. C.	6	13	14	6.4	13
Arkansas Basin					
Neosho: Oswego, Kans.	17	5	6	18.9	6
		29	30	18.0	29
Red Basin					
Sulphur: Ringo Crossing, Tex.	20	7	8	22.0	7
		27	28	21.2	27