Notes on sky conditions at Blue Hill

Date and time from apparent noon	Wind	Visibility	Sky blueness	Clouds, etc., and remarks
April 1934				
2, 2:57 p	SW&W		3	Few Ci.; moderate haze.
3, 1:01 p	NNW 4-5		3	Few Ci.; mod. hz. & smk.
3, 2:42 p	NNW 5	8	4	Smoke in valley.
5, 2:20 a	N 3-4	8-9	3	City smk. in NW & SW.
5, 0:47 p	NE&N 2	8	4	0 clds.; mod. hz. in SW & W.
5, 3:13 p	NE&N 1-2		4	Smk. & hz. in SW & W.
5, 3:29 p	ENE 1		3	Mod. hz.
8, 2:05 a	N&NW 5-6			Mod. hz.; 2 Cu Stcu. & Frcu. interfered.
8, 0:54 p	NW 5		4	3 Cu., Frcu. (not near sun).
8, 2:50 p	NW 3	10	4	Few Ci., Cu., Frcu.; very clear.
9, 1:42 a	WNW 6		4	0 clds.; mod. hz.; harbor invisible.
9, 0:47 p	W 7	7	4	Few Ci., Cu. (possibly Ci. over sun).
9, 2:56 p	W 7		4	Few Ci., Cu.; thin Ci. over sun.
10, 1:31 a	ESE 3		4	Few Ci.; mod. hz.
10, 0:53 p	ENE 4	8	4	Few Cist.; in W & N visibility 7.
10, 3:52 p	NE 5	8	4	Few Cist.; (hz. & smk.; reduced vis. in W.)
11, 2:03 a	NE 4		4	Ci. coming on rapidly; hz. over Boston.
15, 2:26 a	NW&N 1-2		3	Cu. & Frcu. forming rapidly.
18, 2:19 a	NW&W 2		3	Lt. hz.; excellent sky.
18, 0:58 p	E 1			No clds.
18, 3:49 p	W 3		3	Few Cist.; some smk. in W & SW.
19, 2:16 a	SSE 4		3	Few Acu.
21, 2:27 a	NW&N 2		3	Few Frcu. & Cu. near sun.
22, 3:53 p	NW 6	8	3	Few Frcu. & Cu. in E.
24, 0:46 p	SSW 9		6	Few Cu., Frcu.
24, 3:58 p	S 9		4	Few Ci., Acu., Cu.; poor conditions.
25, 2:10 a	W 4-5	8	4	0 clouds.
25, 0:42 p	NW&W 4		4	Few Ci., Cist. (clouds stopped obs'ns.).
26, 1:55 a	SW 3-4	8	4	Cist. in N; conditions good.
29, 3:01 a	NW 2	9	4	0 clouds.
29, 0:23 p	SW&W 2		4	0 clouds; conditions good.
29, 3:22 p	SE&S 2		6	Do.
30, 3:00 a	SW&S 4-5		4	0 clouds; conditions excellent.
30, 1:05 p	SW&S 5-6	8	4	Ci. low in S & SW; lt. hz.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U.S. Navy, Superiptendent 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]

Date	Eastern standard time		Heliographic			Area		Total area for each day	Observatory
			Diff. in longitude	Longitude	Latitude	Spot	Group		
1934	h.	m.	°	°	°				
Apr. 1	11	58	No spots						U.S. Naval.
Apr. 2	11	7	No spots						U.S. Naval.
Apr. 3	11	20	+30.0	187.1	+29.0		46	46	U.S. Naval.
Apr. 4			No spots						Harvard.
Apr. 5	11	34	No spots						U.S. Naval.
Apr. 6	11	14	No spots						U.S. Naval.
Apr. 7	14	1	No spots						U.S. Naval.
Apr. 8	11	10	No spots						U.S. Naval.
Apr. 9			No spots						Harvard.
Apr. 10	11	12	No spots						U.S. Naval.
Apr. 11	9	45	No spots						Mount Wilson.

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time		Heliographic			Area		Total area for each day	Observatory
			Diff. in longitude	Longitude	Latitude	Spot	Group		
1934	h.	m.	°	°	°				
Apr. 12	9	30	No spots						Mount Wilson.
Apr. 13	9	50	No spots						Mount Wilson.
Apr. 14	11	31	No spots						U.S. Naval.
Apr. 15	11	5	−80.0	278.9	−28.5		185	185	U.S. Naval.
Apr. 16	14	3	−67.0	277.0	−28.5		309	309	U.S. Naval.
Apr. 17	12	40	−53.0	278.7	−29.8		1320	1320	Harvard.
Apr. 18	11	6	−42.0	277.3	−29.0		710	710	U.S. Naval.
Apr. 19	12	40	−26.8	278.5	−30.0		950	950	Harvard.
Apr. 20	10	13	−16.0	277.3	−29.0		617	617	U.S. Naval.
Apr. 21	11	2	−10.5	269.2	−29.5		93		U.S. Naval.
			−0.5	279.2	−28.0	432		525	U.S. Naval.
Apr. 22	11	0	+1.5	268.0	−29.5		93		U.S. Naval.
			+12.5	279.0	−29.0	432		525	U.S. Naval.
Apr. 23	11	1	+12.5	265.8	−29.5		31		U.S. Naval.
			+25.5	278.8	−29.0	432		463	U.S. Naval.
Apr. 24	11	5	+39.0	279.0	−29.0	340		340	U.S. Naval.
Apr. 25	11	8	+51.0	277.8	−29.0	340		340	U.S. Naval.
Apr. 26	13	11	+64.5	276.9	−29.0	309		309	U.S. Naval.
Apr. 27	9	50	+26.0	227.0	+27.0		12		Mount Wilson
			+76.0	277.0	−29.0	590		602	Mount Wilson.
Apr. 28	11	1	No spots						U.S. Naval.
Apr. 29	12	58	No spots						U.S. Naval.
Apr. 30	10	44	No spots						U.S. Naval.
Mean daily area for 30 days								241	

NOTE.—Harvard Observatory reported that there were no spots on Feb. 19, 1934.

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR APRIL 1933

(Dependent alone on observations at Zurich and its station at Arosa)

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

April 1934	Relative numbers	April 1934	Relative numbers	April 1934	Relative numbers
1	0	11	0	21	22
2	11	12	0	22	*b* 18
3	12	13	0	23	16
4	9	14	*d* 7	24	19
5	8	15	21	25	11
6	0	16	33	26	10
7	0	17	32	27	16
8	0	18	29	28	14
9		19	22	29	7
10	0	20	21	30	0

Mean: 29 days=11.7.

b=Passage of a large group or spot through the central meridian.
d=Entrance of a large or average-sized center of activity on the east limb.

AEROLOGICAL OBSERVATIONS

[Aerological Division, D. M. Little, in Charge]

By L. T. SAMUELS

Free-air temperatures during April averaged above normal in practically all cases except at Pembina and Washington, where appreciable negative departures prevailed (table 1). Relative humidity departures for the month were small except at Norfolk, where large positive values obtained in the higher levels.

Resultant free-air wind directions for the month were close to normal in practically all cases. Resultant free-air velocities were mostly above normal except in the west where they were generally less than normal.

TABLE 1.—*Free-air temperatures and relative humidities obtained by airplanes during April 1934*

TEMPERATURES (°C.)

Altitude (meters) m.s.l.	Boston, Mass.[1] (6 meters)		Cleveland, Ohio[2] (246 meters)		Dallas, Tex.[3] (146 meters)		Norfolk, Va.[4] (3 meters)		Omaha, Nebr.[5] (300 meters)		Pembina, N.-Dak.[6] (243 meters)		San Diego, Calif.[4] (5 meters)		Washington, D. C.[4] (2 meters)	
	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
Surface	7.1	(7)	4.3	(7)	15.4	(7)	13.1	+1.1	7.0	(7)	0.3	(7)	17.2	+0.4	8.9	−2.0
500	5.3	(7)	5.5	(7)	16.5	(7)	12.8	+1.2	7.9	(7)	1.1	(7)	14.4	+0.6	8.4	−0.4
1,000	3.5	+1.7	4.7	−0.7	15.4	+2.1	11.1	+1.6	7.6	+2.0	−0.5	−2.4	15.8	+3.0	6.3	−0.4
1,500	2.0	+2.6	3.0	−0.1	13.2	+1.4			5.4	+1.8	−2.8	−2.3				
2,000	−0.3	+2.2	0.4	−0.4	11.3	+1.7	5.8	+1.1	2.6	+1.3	−5.4	−2.3	12.3	+3.2	1.2	−2.1
2,500	−2.7	+1.8	−1.8	−0.1	8.6	+1.7			−0.2	+1.1	−7.5	−1.5				
3,000	−5.2	+1.6	−3.9	+0.3	4.9	+1.0	−0.5	0.0	−3.1	+1.0	−9.7	−0.7	5.8	+2.6	−1.3	−2.0
4,000	−10.1		−9.1	+0.3	−2.9	−0.5			−8.5	+1.7	−14.3	+0.6	−0.6	+2.4		
5,000	−16.2		−14.9		−10.8	−2.6			−15.5	+0.6	−20.6	+0.6				

RELATIVE HUMIDITY (PERCENT)

Altitude (meters) m.s.l.	Boston, Mass. Mean	Departure from normal	Cleveland, Ohio Mean	Departure from normal	Dallas, Tex. Mean	Departure from normal	Norfolk, Va. Mean	Departure from normal	Omaha, Nebr. Mean	Departure from normal	Pembina, N.-Dak. Mean	Departure from normal	San Diego, Calif. Mean	Departure from normal	Washington, D. C. Mean	Departure from normal
Surface	72	(7)	78	(7)	84	(7)	72	+7	62	(7)	86	(7)	68	+1	71	+8
500	68	(7)	72	(7)	72	(7)	63	+7	61	(7)	73	(7)	72	−1	65	+6
1,000	63	−4	65	+3	62	+1	62	+10	56	−6	69	+8	50	−10	65	+8
1,500	60	−8	58	−2	57	+9			53	−6	65	+7				
2,000	60	−7	56	−2	50	+7	64	+16	50	−7	63	+7	32	−6	63	+7
2,500	61	−7	55	+1	44	+3			49	−8	58	+3				
3,000	61	−7	53	+2	45	+6	66	+21	49	−7	54	−1	28	+1	56	+6
4,000	54		51	+3	46	+4			48	−7	47	−9	24	+2		
5,000	51		47	0	45	+7			48	−4	48	−6				

Times of observations: Weather Bureau, 5 a.m.; Navy, 7 a.m.; and Massachusetts Institute of Technology, 8 a.m., eastern standard time.

[1] Airplane observations made by Massachusetts Institute of Technology; departures based on normals obtained from 264 kite observations made at Blue Hill Meteorological Observatory (1896–1903).

[2] Temperature departures based on normals determined by extrapolating latitudinally those of Royal Center, Ind., and Due West, S.C. Humidity departures based on normals of Royal Center, Ind.

[3] Temperature departures based on normals determined by interpolating latitudinally those of Groesbeck, Tex., and Broken Arrow, Okla. Humidity departures based on normals of Groesbeck, Tex.

[4] Naval air stations.

[5] Temperature and humidity departures based on normals of Drexel, Nebr.

[6] Temperature departures based on normals determined by extrapolating latitudinally those of Ellendale, N.Dak., and Drexel, Nebr. Humidity departures based on normals of Ellendale, N.Dak.

[7] Surface and 500-meter level departures omitted because of difference in time of day between airplane observations and those of kites upon which the normals are based.

TABLE 2.—*Free-air resultant winds (meters per second) based on pilot-balloon observations made near 7 a.m. (eastern standard time) during April 1934*

[Wind from N=360°, E=90°, etc.]

Altitude (meters) m.s.l.	Albuquerque, N. Mex. (1,554 meters)		Atlanta, Ga. (309 meters)		Bismarck, N.Dak. (518 meters)		Brownsville, Tex. (7 meters)		Burlington, Vt. (132 meters)		Cheyenne, Wyo. (1,873 meters)		Chicago, Ill. (192 meters)		Cleveland, Ohio (245 meters)		Dallas, Tex. (154 meters)		Havre, Mont. (762 meters)		Jacksonville, Fla. (14 meters)		Key West, Fla. (11 meters)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°	
Surface	24	1.0	270	1.2	315	2.1	121	1.2	191	1.7	292	3.6	243	1.5	205	1.8	155	2.1	256	0.4	274	1.0	86	1.5
500			265	5.0			151	7.0	216	3.7			252	5.9	236	5.5	192	4.3			253	3.4	109	3.4
1,000			276	7.9	316	7.1	167	6.5	238	4.8			267	7.6	257	8.5	230	4.8	254	2.4	252	3.7	132	3.0
1,500			273	8.4	320	11.4	175	5.8	252	6.7			277	7.8	264	9.0	270	4.3	285	5.2	264	5.8	153	2.0
2,000	221	.7	278	9.6	316	14.2	186	4.6	259	6.8	288	4.8	279	8.8	264	10.5	291	5.5	303	6.4	271	6.2	191	2.8
2,500	271	3.5	276	8.6	314	14.2	204	3.7	279	8.1	303	5.1	291	8.9	267	12.3	298	6.4	300	8.0	266	7.4	214	2.9
3,000	281	4.5	281	9.2	322	15.6	229	2.0	264	8.2	310	5.7	293	11.9	268	11.5	309	7.4	297	9.1	268	7.8	246	3.4
4,000	294	5.8	282	9.0			291	2.8	300	8.5	310	9.2			284	12.5	321	5.8	317	8.2	273	7.8	265	6.2
5,000	294	6.0	268	10.0			287	3.8			325	8.5							326	5.3	278	9.0	267	6.7

Altitude (meters) m.s.l.	Los Angeles, Calif. (217 meters)		Medford, Oreg. (410 meters)		Memphis, Tenn. (83 meters)		New Orleans, La. (19 meters)		Oakland, Calif. (8 meters)		Oklahoma City, Okla. (402 meters)		Omaha, Nebr. (306 meters)		Phoenix, Ariz. (338 meters)		Salt Lake City, Utah (1,294 meters)		Sault Ste. Marie, Mich. (198 meters)		Seattle, Wash. (14 meters)		Washington, D.C. (10 meters)	
	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity	Direction	Velocity
	°		°		°		°		°		°		°		°		°		°		°		°	
Surface	134	0.8	253	0.4	260	0.5	67	1.5	85	0.7	132	1.2	228	0.4	85	1.8	143	2.9	56	0.5	164	0.8	268	0.3
500	88	.7	286	.7	253	4.1	193	1.2	301	2.8	179	1.5	253	2.7	64	.7			190	.9	224	.6	270	3.3
1,000	9	2.0	287	1.3	258	5.8	291	1.5	313	3.6	227	2.4	277	4.9	286	1.7			258	4.4	170	.8	285	4.9
1,500	347	2.4	132	.6	260	8.2	254	2.4	329	5.0	291	3.2	286	6.5	278	1.7	160	3.5	257	7.0	218	1.1	281	7.9
2,000	319	2.4	187	1.3	272	8.6	261	4.2	334	6.2	300	5.6	288	8.5	257	1.9	197	2.0	271	7.4	228	2.4	273	9.0
2,500	330	2.5	210	1.9	291	8.4	283	7.8	314	6.6	303	7.8	301	9.7	223	1.7	237	.8	268	8.8	234	3.1	276	9.7
3,000	344	3.8	209	2.6	299	7.3	282	10.0	309	5.7	300	8.4	291	10.9	202	2.1	315	1.0	273	9.4	226	3.2	281	10.4
4,000	327	4.9	205	3.0	283	4.9	311	9.8	308	7.6	308	6.6			222	2.1	304	4.0			235	4.9	276	6.7
5,000	289	8.6					305	5.1							282	4.6	314	4.2			211	5.9		