TABLE 3.—*Total, I_m, and screened, I_y, I_r, solar radiation intensity measurements, obtained during January 1936, and determinations of the atmospheric turbidity factor, β, and water-vapor content, w=depth in millimeters, if precipitated*—Continued

BLUE HILL METEOROLOGICAL OBSERVATORY OF HARVARD UNIVERSITY—Continued

Date and hour angle	Solar altitude	Air mass	I_m	I_y	I_r	$\beta_{I_{m-r}}$	$\beta_{I_{y-r}}$	β_{mean}	$\frac{I_{y-r}}{1.94}$ (Percentage of solar constant)	$\frac{I_{y-r}-I_m}{1.94}$ (Percentage of solar constant)	w	Air-mass type
Jan. 16												
0:28 a. m.	26 23	2.25	1.227	.874	.711	.059	.057	.058	69.1	7.9	5.3	P_r P_c, N_{rr} aloft
1:58 p. m.	24 59	2.37	1.311	.943	.766	.035	.014	.024	78.0	12.6	8.5	
Jan. 17												
3:04 a. m.	13 59	4.08	1.030	.761	.654	.049	.071	.060	63.8	12.3	6.2	P_c, P_r aloft
1:22 a. m.	26 43	2.22	1.293	.930	.752	.046	.029	.038	72.8	8.0	5.4	
1:36 p. m.	23 08	2.54	1.337	.942	.776	.032	.050	.041	71.5	4.5	3.0	
Jan. 20												
2:33 a. m.	18 14	3.18	1.040	.763	.646	.069	.072	.070	71.1	8.0	4.5	P_c
0:19 p. m.	27 22	2.16	1.399	.970	.788	.028	.029	.028	77.7	7.2	5.4	
2:59 p. m.	15 07	3.79	1.263	.909	.737	.016	.013	.014	72.2	9.2	4.8	
Jan. 21												
3:03 a. m.	14 48	3.86	.900	.704	.595	.080	.062	.071	54.4	9.1	4.7	P_c
1:15 a. m.	25 22	2.33	1.230	.886	.738	.060	.050	.055	70.0	8.6	5.7	
0:34 a. m.	27 29	2.16	1.250	.900	.740	.070	.074	.072	77.6	15.2	10.4	
Jan. 22												
0:56 a. m.	26 37	2.23	1.150	.813	.684	.083	.144	.114	59.7	2.3	1.4	N_{rc}
0:17 a. m.	27 50	2.14	1.240	.855	.729	.023	(?)	.023	79.3	17.4	9.1	
Jan. 24												
0:15 a. m.	28 19	2.10	0.984	.718	.610	.148	.152	.150	55.5	6.4	4.2	P_c. N_{rr} aloft
Jan. 25												
2:00 a. m.	22 43	2.58	1.197	.853	.709	.050	.057	.054	69.0	10.2	6.4	P_c, N_{rr} aloft
0:39 a. m.	27 59	2.12	1.330	.918	.765	.048	.081	.064	70.2	3.8	2.2	
0:15 p. m.	28 34	2.08	1.362	.992	.775	.042	(?)	.042	74.8	6.7	4.7	
2:35 p. m.	19 01	3.05	1.260	.900	.776	.050	.084	.067	60.5	3.8	2.2	
Jan. 26												
2:12 a. m.	21 44	2.69	1.218	.860	.725	.057	.065	.061	65.2	4.3	2.5	P_c, N_{rr} aloft
0:12 a.m.	28 50	2.07	1.361	.927	.764	.036	.069	.052	72.8	4.8	3.3	
3:12 p. m.	15 52	3.61	1.283	.853	.718	.001	.050	.026	69.0	4.9	2.6	
Jan. 28												
2:44 a. m.	18 35	3.11	1.059	.755	.656	.077	.125	.101	53.8	1.4	0.8	P_c
0:21 a. m.	29 24	2.02	1.476	.923	.746	(?)	.051	.051	74.0	0.2	0.14	
Jan. 29												
3:05 a. m.	16 09	3.57	1.074	.792	.688	.075	.091	.083	54.4	1.9	1.0	P_c, P_r aloft
1:03 a. m.	27 57	2.13	1.386	.960	.794	.038	.065	.052	72.5	3.2	2.1	
0:34 p. m.	29 10	2.05	1.446	.990	.812	.075	.049	.062	71.0	(?)	5.2	
1:56 p. m.	24 03	2.45	1.403	.997	.797	.020	.010	.015	78.4	8.2	5.3	
Jan. 30												
2:57 a. m.	17 00	3.39	1.118	.822	.695	.062	.095	.078	56.3	0.6	0.33	P_c, P_r aloft
0:18 p. m.	29 48	2.05	1.396	.963	.782	.030	.050	.040	75.3	6.5	4.6	
2:54 p. m.	17 47	3.24	1.173	.799	.673	.024	.072	.048	64.4	6.7	3.8	
Jan. 31												
2:01 a. m.	23 47	2.48	0.787	.575	.497	.165	.200	.182	45.7	6.2	4.0	N_{rc}
0:20 p. m.	24 01	2.45	0.805	.575	.497	.149	.200	.174	47.8	7.5	4.8	

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

Date and time from apparent noon	Air temperature	Wind, Beaufort scale	Visibility (scale 0–10)	Sky blueness	Cloudiness and remarks
January 1936	°F.				
8; 2:31 a. m.	m. 1.4	NW 4	8	7	1 Ci. Light to mod. haze, N, NE.
12; 0:39 a. m.	p. 1.1	NW 2	7	7	Few Cu. Light to mod. water haze.
14; 2:49 a. m.	m. 5.0	NW 5	9	7	Few Ci. Light haze to NE.
16; 0:03 p. m.	p. 1.1	W 7	9	7	No clouds.
16; 1:43 p. m.	p. 2.5	W 7	9	7	Few Ci.
17; 1:09 a. m.	m. 3.6	NW 3	9	7	No clouds. Moderate haze to NE.
20; 1:42 p. m.	m. 7.8	NW 5	10	8	Few Ci. Light haze to NE.
21; 1:14 a. m.	m. 6.8	W 3	8	8	Few Ci. Moderate haze.
22; 0:44 a. m.	m. 0.6	SW 5	7	8	Do.
22; 0:16 p. m.	p. 0.2	SW 5	8	8	Few Ci., few Cu. Moderate haze.
23; 0:53 a. m.	m. 14.2	WSW 6	8	8	No clouds. Moderate haze.
24; 0:58 a. m.	m. 12.3	SW 7	8	7	Few Cu. Light to moderate haze.
25; 2:48 a. m.	m. 12.7	W 5	9	8	No clouds. Light haze.
25; 0:30 a. m.	m. 9.3	W 5	9	8	Do.
26; 0:24 p. m.	m. 8.3	W 3	8	8	1 Ci. Moderate haze to NE.
28; 1:09 a. m.	m. 9.2	NW 7	9	7	2 Ci. Light haze to N.
29; 1:17 a. m.	m. 10.3	WNW 5	9	8	Few Ci. Light haze.
30; 2:55 a. m.	m. 15.9	NW 3	9	7	Few Ci. Moderate haze.
30; 0:30 a. m.	m. 11.9	NNW 2	8	8	Do.
31; 0:26 a. m.	m. 9.8	WNW 3	8	6	No clouds. Moderate to dense haze.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. Navy, (Ret.), 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]

Date	Eastern standard time	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot	Area: Group	Total area for each day	Observatory
1936	h m	°	°	°				
Jan. 1	11 0	−76.0	298.2	+25.0	-------	347	-------	Mt. Wilson.
		−21.0	353.2	−12.0	-------	635	-------	
		−18.0	356.2	+18.0	64	-------	-------	
		+2.0	16.2	−4.0	5	-------	-------	
		+22.0	36.2	−23.0	-------	201	-------	
		+28.0	42.2	−29.0	-------	61	-------	
		+31.0	45.2	+13.0	-------	21	-------	
		+79.0	93.2	+14.0	42	-------	1,376	
Jan. 2	12 40	−68.0	291.9	+27.0	-------	349	-------	Do.
		−8.0	351.9	−12.0	-------	539	-------	
		−2.0	357.9	+18.5	55	-------	-------	
		+36.0	35.9	−22.0	334	-------	-------	
		+49.0	48.9	+16.0	-------	7	-------	
		+56.0	55.9	−23.0	-------	7	1,291	
Jan. 3	11 6	−57.0	290.8	+30.0	-------	617	-------	U. S. Naval.
		−49.0	298.8	+27.5	93	-------	-------	
		+4.0	351.8	−11.5	-------	494	-------	
		+11.0	358.8	+19.5	93	-------	-------	
		+49.5	37.3	−23.0	247	-------	1,544	

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		
1936	h	m	°	°	°				
Jan. 4	11	0	−41.0	293.6	+26.0	-------	1,070	-------	Mt. Wilson.
			+19.0	353.6	−12.0	-------	770	-------	
			+22.0	356.6	+17.0	65	-------	-------	
			+61.0	35.6	−24.0	-------	168	2,073	
Jan. 5	11	10	−30.0	291.5	+28.0	-------	943	-------	Do.
			+32.0	353.5	−12.0	-------	861	-------	
			+36.0	357.5	+18.0	31	-------	-------	
			+74.0	35.5	−22.0	188	-------	2,023	
Jan. 6	11	20	−18.0	290.2	+28.0	-------	939	-------	Do.
			+46.0	354.2	−11.0	-------	641	-------	
			+50.0	358.2	+18.0	-------	14	-------	
			+89.0	37.2	−22.0	191	-------	1,785	
Jan. 7	11	26	−3.0	291.9	+29.0	-------	710	-------	U. S. Naval.
			+59.5	354.4	−11.5	463	-------	1,173	
Jan. 8	12	20	+9.0	290.3	+31.0	-------	813	-------	Mt. Wilson.
			+74.0	355.3	−12.0	574	-------	1,387	
Jan. 10	11	22	−68.0	187.4	−12.0	154	-------	-------	U. S. Naval.
			+36.0	291.4	+29.0	-------	586	740	
Jan. 11	11	10	−80.0	162.4	−22.0	19	-------	-------	Mt. Wilson.
			−78.0	164.4	−29.0	186	-------	-------	
			−52.0	190.4	−14.0	75	-------	-------	
			+45.0	287.4	+31.0	-------	209	489	
Jan. 12	12	0	−67.5	161.2	−17.0	-------	219	-------	Harvard.
			−64.0	164.7	−26.0	-------	398	-------	
			−38.0	190.7	−11.5	128	-------	-------	
			+64.5	293.2	+27.0	-------	367	1,112	
Jan. 13	13	44	−56.0	158.6	−19.0	-------	154	-------	U. S. Naval.
			−52.0	162.6	−27.0	247	-------	-------	
			−25.0	189.6	−12.0	93	-------	-------	
			+71.0	285.6	+31.0	93	-------	587	
Jan. 14	11	0	−75.0	128.0	−23.0	46	-------	-------	Do.
			−68.0	135.0	−30.0	-------	278	-------	
			−43.0	160.0	−19.5	-------	185	-------	
			−40.0	163.0	−28.0	278	-------	-------	
			−12.0	191.0	−13.0	63	-------	850	
Jan. 15	11	38	−54.0	135.4	−29.5	-------	564	-------	Harvard.
			−26.0	163.4	−18.5	147	-------	-------	
			−26.0	163.4	−27.5	316	-------	-------	
			+1.0	190.4	−13.0	102	-------	1,129	
Jan. 16	11	12	−52.0	124.5	−22.0	-------	62	-------	U. S. Naval.
			−54.0	122.5	−29.0	-------	772	-------	
			−15.0	161.5	−29.0	216	-------	-------	
			−14.5	162.0	−19.5	93	-------	-------	
			+13.0	189.5	−14.0	77	-------	1,220	
Jan. 17	14	10	−39.0	122.7	−23.0	-------	247	-------	Do.
			−28.0	133.7	−31.0	-------	926	-------	
			−1.5	160.2	−29.0	231	-------	-------	
			−1.0	160.7	−20.0	116	-------	-------	
			+27.5	189.2	−14.0	62	-------	1,582	
Jan. 18	12	45	−26.0	123.3	−24.0	-------	387	-------	Mt. Wilson.
			−14.0	135.3	−32.0	-------	1,103	-------	
			+12.0	161.3	−20.0	119	-------	-------	
			+12.0	161.3	−29.0	260	-------	-------	
			+40.0	189.3	−13.0	90	-------	1,959	
Jan. 19	13	0	−80.0	56.0	−20.0	-------	124	-------	Do.
			−13.0	123.0	−24.0	-------	363	-------	
			−2.0	134.0	−32.0	-------	1,193	-------	
			+26.0	162.0	−21.0	127	-------	-------	
			+26.0	162.0	−29.0	-------	242	-------	
			+47.0	183.0	−22.0	5	-------	-------	
			+54.0	190.0	−14.0	-------	67	2,121	
Jan. 20	11	2	−68.0	55.9	−18.0	31	-------	-------	U. S. Naval.
			−1.0	122.9	−23.0	-------	216	-------	
			+8.0	131.9	−32.0	-------	1,019	-------	
			+38.0	161.9	−29.0	185	-------	-------	
			+38.5	162.4	−20.5	123	-------	-------	
			+65.0	188.9	−14.0	15	-------	1,589	
Jan. 21	11	11	−76.0	34.7	+16.5	-------	216	-------	Do.
			−53.0	57.7	−18.5	-------	62	-------	
			+12.0	122.7	−24.0	-------	185	-------	
			+21.0	131.7	−32.5	-------	1,889	-------	
			+49.0	159.7	−29.0	185	-------	-------	
			+50.0	160.7	−20.5	62	-------	2,099	
Jan. 22	11	12	−69.0	28.5	+18.0	-------	494	-------	Do.
			−40.0	57.5	−18.0	62	-------	-------	
			+25.0	122.5	−24.0	-------	93	-------	
			+35.0	132.5	−33.0	-------	1,389	-------	
			+61.0	158.5	−29.0	154	-------	-------	
			+62.0	159.5	−20.0	62	-------	2,254	
Jan. 23	11	53	−52.0	32.0	+18.0	-------	1,005	-------	Harvard.
			−24.5	59.5	−18.0	117	-------	-------	
			+3.0	87.0	−24.0	27	-------	-------	
			+40.5	124.5	−27.0	37	-------	-------	

POSITIONS AND AREA OF SUN SPOTS—Continued

Date	Eastern standard time		Heliographic			Area		Total area for each day	Observatory
			Diff. in longitude	Longitude	Latitude	Spot	Group		
1936	h	m	°	°	°				
			+49.0	133.0	−35.0	-------	1,370	-------	
			+77.0	161.0	−32.0	359	-------	-------	
			+80.0	164.0	−23.0	143	-------	3,058	
Jan. 24	11	4	−78.0	353.3	−11.0	123	-------	-------	U. S. Naval.
			−40.0	31.3	+18.0	-------	648	-------	
			−12.0	59.3	−19.0	62	-------	-------	
			+15.0	86.3	−24.0	-------	62	-------	
			+52.0	123.3	−25.0	31	-------	-------	
			+60.0	131.3	−32.0	-------	1,204	2,130	
Jan. 25	12	1	−61.5	356.1	−9.5	219	-------	-------	Harvard.
			−23.5	34.1	+17.5	-------	546	-------	
			−0.5	57.1	−18.5	66	-------	-------	
			+26.5	84.1	−26.5	47	-------	-------	
			+75.0	132.6	−36.0	1,288	-------	2,166	
Jan. 26	15	0	−48.0	354.8	−11.0	-------	190	-------	Mt. Wilson.
			−40.0	2.8	+14.0	-------	9	-------	
			−8.0	34.8	+16.0	-------	460	-------	
			+16.0	58.8	−19.0	-------	36	-------	
			+24.0	66.8	−24.0	-------	6	-------	
			+40.0	82.8	−27.0	-------	6	-------	
			+63.0	105.8	−18.0	6	-------	-------	
			+80.0	122.8	−35.0	-------	122	844	
Jan. 27	11	11	−37.5	354.2	−11.5	-------	123	-------	U. S. Naval.
			+4.0	35.7	+15.0	-------	401	-------	
			+27.5	59.2	−19.5	31	-------	555	
Jan. 28	11	0	−25.0	353.6	−12.0	-------	185	-------	Do.
			+17.0	35.6	+15.0	-------	432	-------	
			+40.0	58.6	−19.0	31	-------	648	
Jan. 29	11	1	−11.0	354.5	−12.0	-------	123	-------	Do.
			+29.0	34.5	+15.0	-------	278	-------	
			+53.0	58.5	−19.0	23	-------	424	
Jan. 30	12	11	−65.0	286.6	+33.0	-------	71	-------	Harvard.
			+4.0	355.6	−11.5	128	-------	-------	
			+47.5	39.1	+13.0	-------	155	354	
Jan. 31	11	1	−62.0	277.1	+31.5	-------	185	-------	U. S. Naval.
			+16.0	355.1	−12.0	-------	123	-------	
			+55.0	34.1	+15.0	-------	216	524	

Mean daily area for 30 days, 1,370.

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR JANUARY 1936

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

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

January 1936	Relative numbers	January 1936	Relative numbers	January 1936	Relative numbers
1	*d* 52	11	*d* 28	21	*d* 99
2	68	12	36	22	-------
3	*b* 55	13	*d* 45	23	104
4	69	14	-------	24	*d* 107
5	63	15	*Ec* 61	25	85
6	50	16	56	26	72
7	*a* 37	17	*a* 58	27	74
8	37	18	79	28	50
9	41	19	*b* 76	29	-------
10	27	20	*a* 87	30	*ad* 37
				31	39

Mean, 28 days=60.4.

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.