TABLE 2.—*Average daily totals of solar radiation (direct+diffuse) received on a horizontal surface*

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Fairbanks	Twin Falls	La Jolla	Miami	New Orleans	Riverside	Blue Hill	San Juan	Friday Harbor	Ithaca	Newport
	Gram-calories per square centimeter																
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Jan. 29	191	120	225	93	156	176	55	103	258	267	257	187	170	491	98	103	219
Feb. 5	213	95	193	96	177	230	94	138	257	290	296	246	233	507	117	124	252
Feb. 12	210	134	208	120	176	247	139	181	293	323	280	281	238	576	135	106	268
Feb. 19	150	182	320	96	140	352	90	225	438	314	308	410	179	548	197	178	207
	Departures of daily totals from normals																
Jan. 29	−12	−65	+1	−25	+2	−22	+10	−88	−72	−67	+41	−58	−54	+18	+2	−62	-------
Feb. 5	+2	−108	−67	−39	+13	−36	+34	−71	−11	−51	+68	−26	−10	−12	+2	−54	-------
Feb. 12	−11	−88	−61	−21	+6	−41	+57	−92	+7	−21	+33	−9	+10	+18	+3	−46	-------
Feb. 19	−103	−69	+21	−81	−54	+13	−23	−26	+24	−49	+26	+71	−90	−19	+54	−34	-------
	Accumulated departures since Jan. 1																
	−1,624	−3,255	−1,155	−1,358	−196	−1,267	+777	−3,115	+56	−1,253	+553	+70	−798	+950	+455	−1,561	-------

Summary of meteorological conditions during solar observations, Blue Hill, February 1938

Date	Time from local noon	Temperature (° C.)	Vapor pressure (mm)	Wind (Beaufort)	Visibility (0-10)	Sky blue	Cloudiness and remarks
Feb. 1	2:03 a. m.	−8.4	1.8	NW 4	9	8	2 Cu, Light haze. Cloud amt. varying 2-4.
1	0:13 a. m.	−8.2	1.6	NW 4	9	9	3 Cu, Light haze. Edge of Cu nearing sun at end of observation.
8	3:32 a. m.	−8.4	1.4	NNW 4	9	9	Zero clouds. Light haze; light smoke haze N.
8	2:14 a. m.	−5.9	1.5	NNW 4	10	14	Trace Ci, light smoke haze to N.
8[1]	1:56 a. m.	−5.9	1.5	NW 2	10	14	1 Ci, moderate smoke haze to N.
8	0:07 p. m.	−2.5	1.4	NW 1	10	12	4 Ci, light smoke haze to N and NE.
8	2:27 p. m.	−.8	1.1	NW 1	10	8	5 Ci, Cs. Moderate smoke haze to N.
8[1]	2:44 p. m.	0	1.9	NW 1	10	5	Do.
10	3:43 a. m.	.8	2.3	NW 9	10	10	1 Cu, Sc.
10	0:47 a. m.	1.1	2.2	NW 8	10	12	1 Cu.
10	0:04 p. m.	1.1	1.3	N 8	10	11	Trade Cu.
10	2:16 p. m.	1.7	1.5	NNW 6	10	13	Trace Sc.
10	4:02 p. m.	.6	1.1	NW 5	10	12	Trace Cs.
11	3:05 a. m.	−12.2	1.0	NW 4	9	10	8 Ci, few thin Ci passed over sun during screening.
11	0:11 p. m.	−7.1	1.4	NNW 2	9	11	2 Ci, Dense haze to N, light haze to E.
12	3:42 a. m.	−4.9	1.0	Calm	7	10	Trace Ac.
12[1]	9:45 a. m.	−3.7	1.4	S 2	8	14	Do.
12	1:54 a. m.	−3.1	1.4	SSW 2	8	14	Trace Ac, Dense smoke haze N, light to S and W.
15	2:31 a. m.	−9.4	1.7	NNW 5	9−	7	Trace Cu, Sc. Light haze N Sc. and E.
15	0:06 p. m.	−6.7	1.2	NNW 5	10	12	Trace Ci, Cu, light haze N and E.
15	2:11 p. m.	−4.8	1.5	NW 5	10−	11	4 Ci, Cu, Frcu.
16	3:43 a. m.	−13.2	1.0	WNW 5	8	14	Zero clouds. Light haze E, S, W. Dense smoke haze to N.
16	1:58 a. m.	−11.9	1.2	NW 5	9	13	Zero clouds.
16	0:04 p. m.	−8.3	.8	NNW 5	10−	13	Do.
16	2:17 p. m.	−5.6	1.3	NNW 5	10−	10	Do.
16	4:05 p. m.	−5.6	1.3	NW 5	10−	10	Do.
17	3:44 a. m.	−9.3	1.5	NNW 3	9	11	Trace Ci, Ac. Light haze. Dense smoke haze N.
17	1:55 a. m.	−5.0	2.1	S 3	8+	11	2 Ci, Ac. Moderate haze. Dense smoke haze N.
21	3:47 a. m.	−7.9	1.4	N 5	7+	10	Trace Sc. Moderate haze. Dense smoke haze N.
21	1:46 a. m.	−6.1	1.6	N 4	7+	10	Trace Cu. Moderate haze. Dense smoke haze N.
21	0:08 p. m.	−4.8	1.8	NE 4	8+	10	Trace Cu. Light haze N. Moderate haze W.
21[1]	0:33 p. m.	−4.4	1.8	NE 4	8	10	Trace Cu. Light to moderate haze.
21[1]	1:43 p. m.	−3.9	1.5	NE 4	9	11	Trace Cu. Light haze to N
21	2:12 p. m.	−3.1	1.8	NE 4	9	11	Trace Cu. Light haze.
22	3:48 a. m.	−4.4	2.4	SSW 3	8+	10	Trace Ci. Light haze to N. Light ground fog below summit.
26	0:11 a. m.	−3.9	2.1	NW 2	8	8	Trace Ac, Cu. Light haze N, E, and W.
26	2:20 p. m.	−1.1	1.9	WNW 3	9−	10	Trace Cu. Smoke over Boston and harbor.
26	4:07 p. m.	−.3	1.5	W 3	9−	10	1 Ci, Cu.

[1] Indicates Smithsonian observation.

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		Mt. Wilson group No.	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot or group	Area: Total for each day	Spot count	Observatory
1938	h	m		°	°	°				
Feb. 1	11	23	5760	−51.0	346.4	−11.0	121	-------	5	U. S. Naval.
			5758	−21.0	16.4	−6.5	54	-------	3	
			5756	−11.0	26.4	+12.5	485	-------	15	
			(1)	+26.0	63.4	+9.0	121	-------	7	
			5736	+82.0	119.4	+19.0	145	926	2	
Feb. 2	10	58	5764	−76.0	308.5	−16.0	24	-------	1	Do.
			5760	−39.5	345.0	−10.5	242	-------	4	
			5758	−8.5	16.0	−6.0	24	-------	2	
			5756	+2.0	26.5	+13.0	582	-------	16	
			(1)	+39.0	63.5	+9.0	97	969	5	
Feb. 3	16	2	5766	−80.0	288.6	−20.0	145	-------	2	Do.
			5764	−60.0	308.6	−17.0	48	-------	1	
			5760	−21.5	347.1	−10.5	291	-------	8	
			5756	+17.0	25.6	+13.0	630	-------	8	
			(1)	+60.0	68.6	+7.0	36	1,150	1	
Feb. 4	11	3	5766	−70.0	288.1	−21.0	158	-------	5	Do.
			5765	−60.0	298.1	−19.5	12	-------	1	
			5764	−49.0	309.1	−16.0	48	-------	2	
			5760	−10.5	347.6	−10.5	388	-------	18	
			5756	+28.0	26.1	+13.0	679	-------	22	
			(1)	+70.0	68	+7.0	24	1,309	1	
Feb. 5	12	5	5767	−63.0	281.4	−25.0	97	-------	6	Do.
			5766	−56.0	288.4	−20.5	97	-------	1	
			5765	−46.0	298.4	−19.5	12	-------	2	
			5764	−35.0	309.4	−17.0	48	-------	1	
			5760	+2.0	346.4	−10.5	291	-------	8	
			5756	+41.0	25.4	+13.0	436	981	15	
Feb. 6	11	16	5767	−48.0	283.7	−25.0	339	-------	29	Mt. Wilson.
			5766	−42.5	289.2	−20.0	121	-------	3	
			5765	−32.0	299.7	−18.5	12	-------	4	
			5764	−22.0	309.7	−17.0	48	-------	2	
			5763	−21.5	310.2	+22.5	48	-------	5	
			5760	+15.0	346.7	−11.0	339	-------	27	
			5768	+38.0	9.7	−18.0	48	-------	6	
			5756	+55.0	26.7	+13.5	436	1,391	24	
Feb. 7	11	4	5770	−79.0	239.6	+16.5	194	-------	2	Do.
			5767	−34.5	284.1	−25.0	824	-------	45	
			5766	−29.5	289.1	−20.5	121	-------	2	
			5765	−20.0	298.6	−19.0	48	-------	13	
			5764	−9.0	309.6	−17.0	48	-------	1	
			5763	−7.5	311.1	+21.5	24	-------	9	
			5760	+28.0	346.6	−11.0	485	-------	48	
			5768	+51.0	9.6	−18.0	36	-------	5	
			5756	+69.0	27.6	+13.5	291	-------	9	
			5769	+80.0	38.6	−15.0	12	2,083	1	
Feb. 8	11	1	5771	−76.0	229.5	+17.0	339	-------	8	U. S. Naval.
			5770	−62.5	243.0	+18.0	170	-------	2	
			5767	−21.0	284.5	−25.0	921	-------	28	
			5766	−16.5	289.0	−20.0	145	-------	3	
			5765	−7.0	298.5	−21.0	48	-------	7	
			5764	+3.0	308.5	−10.0	48	-------	2	
			5763	+6.0	311.5	+21.0	48	-------	3	
			5760	+43.0	348.5	−11.5	436	2,155	15	

[1] Not numbered.

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mt. Wilson group No.	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot or group	Area: Total for each day	Spot count	Observatory
1938	h m		°	°	°				
Feb. 9	11 3	5771	−64.0	228.3	+17.0	582	-------	11	U. S. Naval.
		5770	−50.0	242.3	+17.0	170	-------	2	
		5767	−6.0	286.3	−25.0	970	-------	30	
		5766	−3.0	289.3	−20.5	145	-------	1	
		5764	+17.5	309.8	−17.0	48	-------	2	
		5760	+57.0	349.3	−10.0	242	2,157	9	
Feb. 10	10 55	5773	−76.0	203.2	−10.0	145	-------	9	Do.
		5772	−57.0	222.2	−4.0	97	-------	18	
		5771	−51.0	228.2	+17.0	679	-------	45	
		5770	−36.5	242.7	+17.0	194	-------	2	
		5767	+7.0	286.2	−24.5	1,212	-------	55	
		5766	+10.0	289.2	−20.5	97	-------	4	
		5764	+30.5	309.7	−17.0	36	-------	3	
		5760	+71.0	350.2	−10.0	291	2,751	6	
Feb. 13	11 16	5777	−61.0	178.5	−14.0	436	-------	20	Mt. Wilson.
		5776	−53.0	186.5	+10.0	36	-------	4	
		5783	−53.0	186.5	+7.5	16	-------	2	
		5774	−50.0	189.5	−9.0	533	-------	38	
		5775	−49.0	190.5	−29.0	97	-------	11	
		5782	−46.0	193.5	−21.0	73	-------	3	
		5773	−37.0	202.5	−11.0	339	-------	22	
		5781	−25.0	214.5	−7.0	73	-------	11	
		5772	−14.0	225.5	−5.0	24	-------	7	
		5771	−12.0	227.5	+15.0	970	-------	96	
		5770	+3.0	242.5	+15.0	97	-------	2	
		5767	+46.0	285.5	−27.0	1,406	-------	72	
		5765	+60.0	299.5	−19.5	121	-------	2	
		5778	+74.0	313.5	+18.0	48	-------	1	
		5779	+76.0	315.5	−20.0	24	4,293	3	
Feb. 14	11 38	5777	−47.0	179.1	−14.0	388	-------	20	U. S. Naval.
		5783	−39.5	186.6	+7.5	97	-------	8	
		5774	−35.0	191.1	−9.0	436	-------	20	
		5775	−33.0	193.1	−29.5	97	-------	10	
		5782	−32.0	194.1	−21.0	73	-------	5	
		5773	−23.0	203.1	−10.5	291	-------	15	
		5781	−10.0	216.1	−7.0	73	-------	5	
		5772	−2.0	224.1	−5.0	73	-------	4	
		(1)	−1.0	225.1	+5.0	12	-------	2	
		5771	+3.0	229.1	+16.0	630	-------	25	
		5770	+18.0	244.1	+15.0	73	-------	6	
		5767	+60.0	286.1	−26.0	1,261	-------	30	
		5779	+88.0	314.1	−20.0	12	3,516	3	
Feb. 15	12 14	5777	−33.0	179.6	−13.0	339	-------	16	Do.
		5783	−23.0	189.6	+7.5	218	-------	10	
		5774	−22.0	190.6	−9.0	339	-------	14	
		5782	−19.0	193.6	−20.5	73	-------	3	
		5775	−19.0	193.6	−29.5	48	-------	1	
		5773	−9.0	203.6	−10.0	267	-------	10	
		5781	+2.0	214.6	−7.0	97	-------	5	
		5772	+12.0	224.6	−5.0	97	-------	6	
		5771	+15.0	227.6	+16.0	485	-------	21	
		5770	+31.0	243.6	+13.0	61	-------	2	
		5767	+75.0	287.6	−27.0	1,018	3,042	16	
Feb. 16	11 22	5785	−58.0	141.9	−8.0	73	-------	5	Do.
		5777	−19.5	180.4	−12.5	388	-------	22	
		5783	−10.5	189.4	+7.0	436	-------	32	
		5774	−9.0	190.9	−9.0	339	-------	20	
		5782	−8.5	191.4	−20.0	48	-------	1	
		5775	−7.5	192.4	−30.0	61	-------	3	
		5784	−2.5	197.4	+12.5	24	-------	3	
		5773	+5.0	204.9	−10.0	242	-------	12	
		5781	+13.5	213.4	−7.0	97	-------	6	
		5772	+26.0	225.9	−5.0	97	-------	13	
		5771	+29.0	228.9	+17.0	485	-------	30	
		5770	+44.0	243.9	+14.0	61	2,351	4	
Feb. 17	11 38	5786	−86.0	100.6	−17.5	145	-------	1	Mt. Wilson.
		5785	−45.0	141.6	−9.0	194	-------	12	
		5777	−6.0	180.6	−12.5	436	-------	24	
		5783	+4.0	190.6	+7.0	339	-------	30	
		5774	+5.0	191.6	−9.0	388	-------	26	
		5782	+6.0	192.6	−21.0	24	-------	1	
		5775	+7.0	193.6	−30.0	36	-------	6	
		5773	+19.0	205.6	−10.5	291	-------	21	
		5781	+30.0	216.6	−7.0	48	-------	3	
		5772	+40.0	226.6	−5.0	48	-------	9	
		5771	+43.0	229.6	+17.0	679	-------	42	
		5770	+58.0	244.6	+14.0	24	2,652	1	
Feb. 18	11 2	5786	−73.0	100.8	−17.5	194	-------	3	U. S. Naval.
		5785	−33.0	140.8	−9.0	121	-------	10	
		5777	+8.0	181.8	−12.5	436	-------	20	
		5783	+17.0	190.8	+7.0	242	-------	19	
		5775	+18.0	191.8	−30.0	24	-------	2	
		5774	+19.0	192.8	−9.5	291	-------	11	
		5773	+35.0	208.8	−10.5	145	-------	5	
		5771	+55.0	228.8	+16.0	582	-------	22	
		5772	+55.0	228.8	−6.0	36	2,071	1	
Feb. 19	13 49	5786	−59.0	100.1	−17.0	267	-------	5	Mt. Wilson.
		5785	−17.0	142.1	−9.0	145	-------	15	
		5777	+21.5	180.6	−13.0	388	-------	21	
		5783	+31.0	190.1	+8.0	170	-------	20	
		5774	+33.0	192.1	−9.5	291	-------	13	
		5773	+50.0	209.1	−10.5	97	-------	8	
		5787	+69.0	228.1	+29.0	61	-------	5	
		5771	+70.0	229.1	+16.0	485	-------	22	
		5772	+70.0	229.1	−7.0	24	1,928	1	

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mt. Wilson group No.	Heliographic: Diff. in longitude	Heliographic: Longitude	Heliographic: Latitude	Area: Spot or group	Area: Total for each day	Spot count	Observatory
1938	h m		°	°	°				
Feb. 20	11 32	5786	−46.0	101.2	−17.0	194	-------	3	Mt. Wilson.
		5785	−8.0	139.2	−9.0	109	-------	7	
		5777	+35.0	182.2	−13.0	170	-------	4	
		5783	+45.0	192.2	+9.0	121	-------	9	
		5774	+47.0	194.2	−10.0	97	-------	3	
		5773	+63.0	210.2	−10.5	48	739	9	
Feb. 21	11 2	5791	−71.0	63.3	+7.0	194	-------	5	Do.
		5786	−33.0	101.3	−17.0	388	-------	30	
		5790	−27.0	107.3	−15.0	24	-------	4	
		5789	−9.0	125.3	−25.0	12	-------	3	
		5785	+8.0	142.3	−8.0	36	-------	16	
		5788	+40.5	174.8	−28.0	16	-------	4	
		5777	+49.0	183.3	−13.0	170	-------	14	
		5783	+60.0	194.3	+8.0	97	-------	12	
		5774	+61.0	195.3	−10.0	121	-------	2	
		5773	+73.0	207.3	−10.5	97	1,155	15	
Feb. 22	10 41	5791	−57.5	63.8	+5.5	97	-------	3	Do.
		5786	−20.0	101.3	−17.0	388	-------	15	
		5790	−13.0	108.3	−15.0	36	-------	4	
		5792	+13.0	134.3	−27.0	48	-------	3	
		5789	+22.0	143.3	−25.0	24	-------	1	
		5788	+57.0	178.3	−27.0	145	-------	9	
		5777	+61.0	182.3	−13.0	121	-------	5	
		5783	+74.0	195.3	+8.0	97	-------	5	
		5774	+75.0	196.3	−9.0	121	-------	2	
		5773	+80.0	201.3	−11.0	48	1,125	2	
Feb. 23	10 50	5794	−78.0	30.1	+13.0	97	-------	1	Do.
		5791	−43.0	65.1	+5.0	97	-------	4	
		5786	−7.0	101.1	−17.0	339	-------	11	
		5790	−2.0	106.1	−15.0	97	-------	9	
		5792	+33.0	141.1	−27.0	97	-------	10	
		5793	+59.0	167.1	+7.0	48	-------	3	
		5788	+70.0	178.1	−27.5	145	-------	10	
		5777	+75.0	183.1	−13.0	48	968	2	
Feb. 24	12 8	5794	−62.5	31.7	+13.0	73	-------	4	U. S. Naval.
		5791	−28.0	66.2	+6.0	61	-------	12	
		5786	+7.5	101.7	−17.0	242	-------	12	
		5790	+13.0	107.2	−15.0	73	-------	13	
		5792	+47.0	141.2	−27.0	242	-------	11	
		5793	+73.0	167.2	+7.5	218	-------	6	
		5788	+84.0	178.2	−28.0	145	1,054	4	
Feb. 25	11 16	5794	−50.0	31.5	+12.5	73	-------	3	Do.
		5791	−15.5	66.0	+6.0	73	-------	11	
		5795	−13.0	68.5	+23.5	109	-------	8	
		5786	+19.0	100.5	−18.0	170	-------	4	
		5790	+27.0	108.5	−15.0	24	-------	5	
		5796	+29.0	110.5	−8.0	61	-------	7	
		5792	+60.0	141.5	−26.0	339	849	71	
Feb. 26	12 30	5794	−35.0	32.6	+12.5	61	-------	1	Mt. Wilson.
		5791	+1.0	68.6	+6.0	48	-------	3	
		5795	+2.0	69.6	+23.0	121	-------	12	
		5786	+33.0	100.6	−18.5	170	-------	8	
		5790	+41.0	108.6	−15.0	24	-------	2	
		5796	+42.5	110.1	−8.0	121	-------	13	
		5792	+74.0	141.6	−26.5	291	836	6	
Feb. 28	11 5	5797	+12.0	54.1	−12.5	242	-------	9	U. S. Naval.
		5795	+27.0	69.1	+23.0	61	-------	3	
		5786	+59.0	101.1	−17.5	97	-------	3	
		5796	+69.0	111.1	−6.5	97	497	5	

[1] Not numbered.

Mean daily area for 25 days=1,718.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR FEBRUARY 1938

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

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

February 1938	Relative numbers	February 1938	Relative numbers	February 1938	Relative numbers
1	*Mc* 62	11	*Ecd* 137	21	*Mc* 109
2	*b* 73	12	*d*	22	91
3	*d* 68	13	-------	23	*Wac* 90
4	94	14	*Ebc* 200	24	*Mc* 92
5	*Eac* 85	15	171	25	*Ec* 83
6	128	16	*Eac*	26	*a* 81
7	*d* 124	17	*aad* 171	27	*Mac*
8	110	18	*a* 174	28	85
9	*b* 101	18	145		
10	*b*	20	98		

Mean: 23 days=111.8.

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 group developing into a middle sized or large center of activity; E: on the eastern part of the sun's disc; 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.