TABLE 3.—*Solar-radiation measurements, and determinations of atmospheric turbidity factor, β. Washington, D. C., June, 1932*

[Values in italics have been interpolated]

Date and solar hour angle	Solar altitude, h	Air mass, m	I_m gr. cal.	I_y gr. cal.	I_r gr. cal.	β	Blueness of sky	Atmospheric dust particles per c c	Notes (skylight polarization, P) clouds
June 1									
5:42 a	17-00	3.40	0.711	*0.579*	0.491	0.140		772	
5:36 a	18-09	3.20	0.761	0.591	*0.499*	0.120			
5:01 a	24-51	2.39	0.875	0.681	*0.555*	0.140			
4:55 a	25-57	2.28	0.910	*0.689*	0.566	0.130	4		P.=49.9.
0:40 a	71-09	1.05	1.142	*0.778*	0.617	0.165			Fr. Cu. coming up.
0:31 a	71-58	1.05	1.158	0.804	*0.618*	0.160			
June 2									
3:08 p	46-48	1.36	1.049	*0.768*	0.610	0.165		615	
3:16 p	45-16	1.40	1.027	0.765	*0.616*	0.185			
3:57 p	37-20	1.64	0.970	*0.719*	0.579	0.160			
4:01 p	36-22	1.68	0.956	0.712	*0.574*	0.165			
4:21 p	32-30	1.85	0.887	0.670	*0.557*	0.185			
4:24 p	32-04	1.88	0.881	*0.664*	0.550	0.185			
June 4									
4:34 a	30-06	1.99	0.814	*0.643*	0.535	0.200		777	
4:30 a	31-00	1.94	0.839	0.647	*0.538*	0.195			
3:36 a	41-30	1.51	0.982	0.866	*0.604*	0.190			
3:32 a	42-16	1.49	0.994	*0.831*	0.614	0.180			Clouds.
June 7									
5:46 a	16-55	3.47	0.690	*0.547*	0.464	0.125		397	
5:42 a	17-24	3.31	0.701	0.575	*0.470*	0.125			
5:22 a	21-08	2.75	0.790	*0.601*	0.492	0.130			
5:18 a	21-56	2.65	0.780	0.614	*0.498*	0.130			
June 8									
5:55 a	15-00	3.81	0.890	*0.739*	0.594	0.080		441	
5:36 a	18-37	3.12	1.000	*0.758*	0.629	0.065			
5:30 a	19-45	2.97	1.015	0.772	*0.642*	0.070			
5:01 a	25-17	2.32	1.140	*0.842*	0.677	0.065			
4:56 a	26-14	2.26	1.146	0.851	*0.687*	0.065			
4:36 a	30-05	1.98	1.214	0.863	*0.699*	0.065	4		P=63.6.
4:29 a	31-28	1.91	1.231	*0.874*	0.704	0.065			
3:48 a	39-24	1.58	1.330	0.901	*0.724*	0.060			
3:22 a	42-31	1.48	1.340	*0.912*	0.748	0.065			
1:09 a	68-15	1.07	1.430	*0.925*	0.790	0.090			
1:02 a	69-10	1.07	1.450	0.980	*0.795*	0.090			Few Fr. Cu.
0:12 p	73-57	1.04	1.460	0.979	*0.758*	0.055			
0:18 p	73-30	1.04	1.460	*0.973*	0.745	0.050			
2:54 p	49-10	1.30	1.360	*0.956*	0.751	0.070			
2:59 p	48-50	1.32	1.350	0.946	*0.747*	0.070			
3:51 p	38-56	1.58	1.300	*0.901*	0.698	0.060			
4:04 p	36-00	1.70	1.260	0.893	*0.688*	0.060			
4:28 p	31-37	1.90	1.280	0.863	*0.678*	0.030			
4:31 p	31-00	1.94	1.270	*0.858*	0.669	0.030			
June 9									
4:08 a	35-32	1.71	1.093	.804	*.648*	.120		821	
4:02 a	36-43	1.66	1.084	*.809*	.652	.115			
3:20 a	44-52	1.41	1.163	*.846*	.678	.115			
3:15 a	45-47	1.40	1.169	.850	*.681*	.110			Clouds.
June 10									
5:52 a	15-43	3.64	.857	*.686*	.559	.080		888	
5:40 a	17-57	3.23	.938	.708	.570	.065			
5:04 a	24-47	2.37	1.089	.807	*.657*	.075			
4:52 a	27-05	2.19	1.132	*.818*	.668	.075	4		P=58.4.
4:00 a	37-10	1.65	1.229	.881	*.701*	.085			
3:58 a	38-10	1.61	1.236	*.884*	.704	.085			
3:38 a	41-29	1.51	1.268	*.907*	.724	.085			
3:33 a	42-39	1.48	1.273	.912	*.729*	.090			Cirri.
June 23									
2:28 p	55-07	1.22	1.293	*.910*	.704	.110		546	
2:36 p	53-37	1.26	1.330	.903	*.698*	.095			
3:39 p	41-28	1.51	1.266	.858	*.678*	.125			
3:49 p	39-54	1.56	1.250	*.841*	.661	.120			
4:08 p	35-47	1.71	1.173	*.827*	.643	.080			
4:12 p	35-01	1.75	1.195	.824	*.640*	.065			
4:32 p	31-08	1.94	1.086	.767	*.613*	.085			
4:37 p	30-10	1.99	1.051	*.762*	.607	.090	5		P=61 4.
4:40 p	29-36	2.07	1.038	*.754*	.598	.120			
June 24									
3:12 a	46-40	1.38	1.372	.952	*.758*	.070	7	336	P=68.3.
3:02 a	48-36	1.33	1.368	*.954*	.762	.080			Thin cirri.
1:14 a	67-58	1.08	1.482	*.981*	.764	.045			
1:09 a	68-40	1.07	1.471	.985	*.767*	.055			
0:29 a	73-22	1.05	1.455	.950	*.762*	.060			
0:22 a	73-50	1.05	1.466	*.950*	.764	.065			
1:00 p	70-00	1.07	1.446	.949	*.762*	.070			
1:08 p	68-54	1.08	1.425	*.946*	.757	.075			
2:17 p	57-07	1.19	1.407	.909	*.710*	.040			
2:25 p	55-39	1.21	1.384	*.880*	.700	.045			
3:44 p	40-27	1.54	1.298	.861	*.685*	.050			
3:50 p	39-17	1.60	1.290	*.853*	.678	.045			
4:22 p	33-04	1.83	1.226	*.849*	.669	.060			
4:26 p	32-18	1.87	1.234	.842	*.656*	.040			
4:44 p	28-48	2.07	1.154	.831	*.650*	.060			
4:49 p	27-51	2.14	1.129	*.820*	.645	.065			

TABLE 4.—*Approximate characteristics of vestibules of pyrheliometers*

Instrument	A	B	D	$\tan\frac{\theta}{2}=\frac{B}{2D}$
	Inches	*Inches*	*Inches*	° ′
Smithsonian S. D. No. 1-bis	1.024	1.457	13.58	6 04
Marvin electrical	1.475	1.775	11.56	8 44

In the above table A=diameter of inner diaphragm, B=diameter of outer diaphragm, D=distance between the two diaphragms, and θ=the angle of aperture. For more detailed information concerning vestibules and angular openings of various types of instruments, see the MONTHLY WEATHER REVIEW, 55: pp. 49-55.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, Superintendent United States Naval Observatory. Data furnished by Naval Observatory, in cooperation with Harvard, Yerkes, Perkins, and Mount Wilson Observatories. The differences of longitude are measured from central meridian, positive west. The north latitudes are plus. Areas are corrected for foreshortening and are expressed in millionths of sun's visible hemisphere. The total area, including spots and groups is given for each day in the last column]

Date	Eastern standard civil time		Heliographic			Area		Total area for each day
			Diff. long.	Longitude	Latitude	Spot	Group	
1932	h	m	°	°	°			
June 1 (Naval Observatory)	10	48	+85.0	97.7	+4.0	247		247
June 2 (Naval Observatory)	10	33	No spots					
June 3 (Naval Observatory)	10	39	−70.0	276.3	−7.0		185	185
June 4 (Naval Observatory)	10	36	−56.0	277.1	−7.0		185	185
June 5 (Naval Observatory)	11	28	−42.0	277.4	−7.0		185	185
June 6 (Naval Observatory)	10	20	−70.0	236.8	+13.0	62		
			−30.0	276.8	−7.0		185	247
June 7 (Naval Observatory)	12	3	−55.0	237.6	+13.0		46	
			−51.0	241.6	+6.0	15		
			−14.0	278.6	−8.0		185	246
June 8 (Naval Observatory)	10	57	−41.0	239.0	+13.0		46	
			−39.0	241.0	+6.0	12		
			−2.0	278.0	−8.0		247	305
June 9 (Naval Observatory)	10	23	−29.0	238.1	+12.0	9		
			−25.0	242.1	+6.0	6		
			+11.0	278.1	−8.0		247	262
June 10 (Naval Observatory)	10	59	−15.0	238.5	+12.0	6		
			+27.0	280.5	−7.0		185	191
June 11 (Naval Observatory)	10	40	−2.0	238.5	+12.0	6		
			+40.0	280.5	−7.0		185	191
June 12 (Yerkes Observatory)	13	22	+54.0	279.8	−6.3	279		279
June 13 (Perkins Observatory)	13	0	+66.5	279.2	−5.0	138		138
June 14 (Naval Observatory)	13	17	+80.0	279.3	−7.0		185	185
June 15 (Naval Observatory)	14	31	No spots					
June 16 (Naval Observatory)	14	13	−86.0	86.3	+4.0		185	
			−73.0	99.3	0.0		247	432
June 17 (Naval Observatory)	11	1	−70.0	90.8	+3.0		185	
			−61.0	99.8	0.0	216		401
June 18 (Yerkes Observatory)	11	2	−60.9	86.7	+5.0		50	
			−55.4	92.2	+3.4	204		
			−47.5	100.1	+0.2	359		613
June 19 (Mount Wilson)	9	20	−43.5	91.8	+4.0		281	
			−35.0	100.3	0.0	164		445
June 20 (Mount Wilson)	9	0	−30.0	92.2	+4.0		289	
			−22.0	100.2	0.0	158		447
June 21 (Naval Observatory)	14	13	−15.0	91.1	+3.0		309	
			−6.0	100.1	−1.0	139		448
June 22 (Naval Observatory)	14	7	−1.0	91.9	+3.0		247	
			+8.0	100.9	−1.0	93		340
June 23 (Naval Observatory)	13	26	+11.0	91.1	+2.0		340	
			+21.0	101.1	−1.0	108		448
June 24 (Naval Observatory)	10	30	−80.0	348.5	+10.0		123	
			+22.0	90.5	+2.0		340	
			+33.0	101.5	−1.0	25		488
June 25 (Naval Observatory)	10	23	−68.0	347.3	+10.0		154	
			+34.0	89.3	+3.0		216	
			+47.0	102.3	−1.0	15		385
June 26 (Naval Observatory)	14	39	−52.0	347.7	+10.0		154	
			+52.0	91.7	+3.0		185	
			+61.0	100.7	−1.0	3		342
June 27 (Naval Observatory)	11	3	−41.0	347.5	+10.0		154	
			+66.0	94.5	+4.0		185	339
June 28 (Naval Observatory)	11	59	−26.0	348.7	+10.0		154	
			+80.0	94.7	+4.0	123		277
June 29 (Naval Observatory)	12	5	−80.0	281.4	−9.0	123		
			−13.0	348.4	+11.0		247	370
June 30 (Naval Observatory)	10	55	−68.0	280.8	−9.0	93		
			0.0	348.8	+11.0		247	340
Mean daily area for June								299

PROVISIONAL SUN-SPOT RELATIVE NUMBERS FOR JUNE, 1932

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

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

June, 1932	Relative numbers	June, 1932	Relative numbers	June, 1932	Relative numbers
1	8	11	32	21	33
2	0	12	11	22	a 27
3	a c 10	13	8	23	a 31
4	12	14	8	24	
5	12	15	d 8	25	d 40
6	23	16	d 16	26	30
7	33	17	16	27	26
8	39	18	21	28	31
9	a 31	19	28	29	22
10	31	20	26	30	d 24

Mean: 29 days=22.0.

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 zone.
d=Entrance of a large or average-sized center of activity on the east limb.