TABLE 1.—*Solar radiation intensities during August, 1931*

[Gram-calories per minute per square centimeter of normal surface]

Washington, D. C.

Date	Sun's zenith distance										
	8 a.m.	78.7°	75.7°	70.7°	60.0°	0.0°	60.0°	70.7°	75.7°	78.7°	Noon
	75th mer. time	Air mass									Local mean solar time
		A. M.					P. M.				
	e.	5.0	4.0	3.0	2.0	[1]1.0	2.0	3.0	4.0	5.0	e.
	mm.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*mm.*
Aug. 6	19.23			0.51	0.77						15.11
Aug. 7	17.37		0.51	0.64	0.87						15.11
Aug. 17	15.65			0.67	0.89	1.21					11.81
Aug. 24	10.97				1.11	1.36					10.59
Aug. 31	14.10		0.50	0.68	0.92	1.39					12.24
Means			(0.50)	0.62	0.91	1.32					
Departures			−0.16	−0.13	−0.01	+0.10					

Madison, Wis.

Aug. 3	11.81		0.79								12.68
Aug. 4	15.11					1.25					12.24
Aug. 5	14.60				0.97						14.10
Aug. 6	18.59		0.50	0.55	0.82						15.11
Aug. 10	10.21				1.19						9.83
Aug. 11	8.81	0.80	0.88	1.01	1.21	1.46	1.21				7.29
Aug. 13	10.21			0.96	1.17	1.35					6.50
Aug. 21	8.81		0.90	1.07	1.20	1.40	1.13				7.29
Aug. 28	10.59			1.08	1.17						7.87
Aug. 29	7.04			1.08	1.22	1.42					6.02
Means		(0.80)	0.77	0.96	1.12	1.38	(1.17)				
Departures		+0.05	−0.06	+0.03	+0.03	+0.07	+0.10				

Lincoln, Nebr.

Aug. 3	14.10	0.71	0.84	0.96	1.13	1.34	1.13	0.93	0.79	0.65	15.11
Aug. 4	16.79		0.82	0.93	1.09						14.60
Aug. 10	9.83	0.86	0.99	1.12	1.25	1.41					9.14
Aug. 11	9.83				1.26	1.46					12.68
Aug. 19	13.13						1.09	0.90	0.75	0.65	15.65
Aug. 22	10.21		0.74	0.89	1.07	1.30	1.08	0.89			11.38
Aug. 28	7.04						1.17				6.27
Means		(0.78)	(0.85)	0.98	1.16	1.38	1.12	0.91	(0.77)	(0.65)	
Departures		+0.11	+0.07	+0.08	+0.08	+0.08	+0.05	+0.02	+0.02	−0.04	

[1] Extrapolated.

TABLE 2.—*Total solar radiation (direct+diffuse) received on a horizontal surface*

[Gram-calories per square centimeter]

	Washington	Madison	Lincoln	Chicago	New York	Twin Falls	Pittsburgh	Gainesville	Fresno	La Jolla	Miami	New Orleans
	AVERAGE DAILY TOTALS											
1931	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
July 30	460	461	526	422	386	514	462	----	661	360	633	347
Aug. 6	410	447	468	340	283	528	336	----	614	305	573	431
Aug. 13	423	465	549	372	315	464	397	530	637	296	530	298
Aug. 20	265	455	534	408	309	513	275	424	597	401	570	269
Aug. 27	392	390	495	300	378	498	322	435	468	287	528	367
	DEPARTURES FROM WEEKLY NORMALS											
July 30	+5	−2	+4	+52	+18	−86	−7	----	+29	−32	----	----
Aug. 6	−25	−12	−22	−16	−63	−69	−66	----	−87	−59	----	----
Aug. 13	−5	+23	+60	+10	−9	−32	+48	+43	+41	−89	----	----
Aug. 20	−139	+19	+41	+45	−1	−64	−28	−43	+29	−13	----	----
Aug. 27	−23	−17	+38	−44	+65	−56	+20	+12	−74	−110	----	----
Accumulated departures on Sept. 2, 1931	−44	+3,115	+770	−840	−1,190	−3,212	−2,094	----	−140	−6993	----	----

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	
1931	*h*	*m*	°	°	°			
Aug. 1 (Naval Observatory)	10	56	+ 2.0	78.2	+7.5		46	
			+9.0	85.2	−6.5		62	108
Aug. 2 (Perkins Observatory)	10	37	−50.0	13.1	+3.0		117	
			−3.0	60.1	+20.0		93	
			+9.0	72.1	+23.0		70	
			+17.5	80.6	+4.5	40		
			+19.5	82.1	+20.0		62	382
Aug. 3 (Naval Observatory)	10	39	−38.0	11.9	+4.0		31	
			+22.0	71.9	−9.0		93	
			+27.0	76.9	+8.0		46	
			+39.0	88.9	−7.5	6		
			+55.0	104.9	−18.0	6		182
Aug. 4 (Naval Observatory)	10	37	−26.0	10.7	+5.0	31		
			+2.0	38.7	−18.0	3		
			+37.0	73.7	−10.0		62	
			+45.0	81.7	+7.0	12		
			+50.0	86.7	−7.5	6		114
Aug. 5 (Naval Observatory)	11	18	+50.5	73.6	−9.5		93	93
Aug. 6 (Naval Observatory)	10	41	−62.0	308.2	−7.0		31	
			+3.0	13.2	+10.5	9		
			+62.0	72.2	−9.5		62	102
Aug. 7 (Naval Observatory	10	41	+79.0	76.0	−10.0		62	62
Aug. 8 (Naval Observatory)	10	37	+58.0	41.8	−22.0	6		6
Aug. 9 (Naval Observatory)	10	35		No spots				
Aug. 10 (Naval Observatory)	10	43		No spots				
Aug. 11 (Mount Wilson)	18	20	+44.0	343.9	+3.0	5		5
Aug. 12 (Yerkes Observatory)	15	6		No spots				
Aug. 13 (Naval Observatory)	12	38		No spots				
Aug. 14 (Mount Wilson)	17	0		No spots				
Aug. 15 (Naval Observatory)	12	2	−62.0	188.5	+10.0	9		
			−49.5	201.0	−19.0	6		
			−36.0	214.5	−8.0	6		21
Aug. 16 (Naval Observatory)	10	44	+1.0	239.0	−11.5	9		9
Aug. 17 (Naval Observatory)	10	44	+15.0	239.8	−11.0		93	93
Aug. 18 (Naval Observatory)	10	44	+28.5	240.0	−10.5		93	93
Aug. 19 (Yerkes Observatory)	14	20	+41.6	237.9	−10.6	21		
			+42.9	239.2	−10.2	2		
			+46.3	242.7	−9.6	6		
			+47.4	243.8	−10.1	6		
			+48.6	244.9	−9.6	3		
			+49.2	245.5	−10.8	12		50
Aug. 20 (Yerkes Observatory)	12	55	+53.8	237.7	−10.5	20		
			+54.9	238.8	−11.1		14	
			+55.0	238.9	−10.3	6		
			+63.0	246.9	−9.9	18		58
Aug. 21 (Yerkes Observatory)	10	33	+66.1	238.1	−10.9	7		
			+66.9	238.9	−11.5	21		
			+67.1	239.1	−10.6	5		
			+75.7	247.7	−9.5	34		67
Aug. 22 (Perkins Observatory)	12	25		No spots				
Aug. 23 (Perkins Observatory	10	55		No spots				
Aug. 24 (Naval Observatory)	10	45		No spots				
Aug. 25 (Naval Observatory)	10	40	−24.5	94.6	+3.0	15		15
Aug. 26 (Naval Observatory)	11	40	−80.0	25.3	+3.5	31		
			+38.0	143.3	−3.0	9		40
Aug. 27 (Naval Observatory	11	9	−70.0	22.4	+3.0	46		
			−42.0	50.4	+1.0	3		
			+8.5	100.9	+4.0	15		
			+32.5	124.9	−1.0	6		
			+52.0	144.4	−3.5	3		73
Aug. 28 (Naval Observatory)	12	48	−55.0	23.3	+3.0	77		
			−36.0	42.3	−8.0	31		
			+8.0	86.3	+5.0	19		127
Aug. 29 (Naval Observatory)	11	26	−85.0	340.8	+4.5	15		
			−42.0	23.8	+3.0	62		
			−24.0	41.8	−9.0		19	
			+21.5	87.3	+4.5		15	111
Aug. 30 (Naval Observatory)	10	46	−79.0	334.0	+5.5	9		
			−69.0	344.0	+4.5	15		
			−29.0	24.0	+3.0	62		
			−10.5	42.5	−9.0		15	101
Aug. 31 (Naval Observatory)	10	46	−62.0	337.7	+6.0	6		
			−55.0	344.7	+4.5	6		
			−26.0	13.7	+11.0		93	
			−17.0	22.7	+3.0	31		136
Mean daily area for August								66