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

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Cambridge	Fairbanks	La Jolla	Miami	Riverside	Blue Hill	San Juan	Friday Harbor	Newport
	Gram-calories per square centimeter														
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Sept. 3	543	454	527	422	311	592	405	212	384	378	349	403	579	472	456
Sept. 10	467	441	511	449	392	503	435	160	405	415	381	456	623	373	476
Sept. 17	446	428	457	457	377	483	410	218	444	431	360	452	587	393	438
Sept. 24	325	289	418	280	215	375	235	133	346	382	340	262	627	321	240
	Departures of daily totals from normals														
Sept. 3	+156	+79	+69	+75	−18	+16	.....	+15	−83	−47	−131	+13	+8	+46	+11
Sept. 10	+98	+100	+78	+138	+73	−34	.....	−45	−76	−41	−71	+83	+48	−4	+64
Sept. 17	+81	+80	+29	+126	+76	−10	.....	+54	+40	−36	−54	+91	+29	+68	+79
Sept. 24	−22	−7	+38	+5	−65	−77	.....	+3	−10	+27	−60	−72	+91	+10	−89
	Accumulated departures since Jan. 1.														
	+16,415	+10,500	+6,643	+16,660	+6,144	+252	.....	+784	+3,143	−4,214	−5,157	+2,961	+8,391	+6,188	+2,597

LATE REPORTS

Station		Week beginning— July 30	Aug. 6	Aug. 13	Aug. 20	Aug. 27	Accumulated departures since Jan. 1
Twin Falls	Average daily total	534	597	569	469	[1] 489	+994
	Departure from normal	−16	+43	+66	−57	+3	
La Jolla	Average daily total	509	480	468	452	571	+4,046
	Departure from normal	−35	−36	−3	−61	+92	
Friday Harbor	Average daily total	674	601	621	516	370	+5,348
	Departure from normal	+105	+57	+81	+17	−57	

Station		Week beginning— July 2	July 9	July 16	July 23	Accumulated departures since Jan. 1
Twin Falls	Average daily total	574	591	688	580	+721
	Departure from normal	−21	−9	+73	+11	

[1] 6-day mean.

POSITIONS AND AREAS OF SUN SPOTS

[Communicated by Capt. J. F. Hellweg, U. S. Navy (Ret.) Superintendent, U. S. Naval Observatory. Data from measurements at the U. S. Naval Observatory from plates obtained at the observatories indicated. Difference in longitude is measured from the central meridian, positive toward the west. Latitude is positive toward the north. Areas are corrected for foreshortening and expressed in millionths of Sun's visible hemisphere. For each day, below longitude, latitude, area of spot or groups, and spot count, are given respectively the assumed longitude of the center of the disk, assumed latitude of the center of the disk, tota larea of spots and groups, and total spot count]

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Longitude	Latitude	Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 1	11 23	6592	−88	251	−18	87	242	2	VG	U. S. Naval.
		6591	−66	273	+4	65	121	2		
		(*)	−58	281	−11	62	12	3		
		6587	−26	313	−9	25	73	6		
		(*)	−23	316	−4	25	24	4		
		6586	−2	337	−8	16	194	8		
		6586	+5	344	−8	17	291	39		
		6585	+9	348	−15	24	1,939	63		
		6588	+20	359	+27	27	48	5		
		6590	+58	37	−5	60	12	2		
				(339)	(+7)		2,956	134		
Sept. 2	11 27	6592	−72	254	−18	76	339	2	G	Do.
		6591	−52	274	+4	52	97	1		
		6594	−40	286	+30	45	36	4		
		6587	−13	313	−9	20	36	2		
		(*)	+7	333	−18	24	24	4		
		6586	+11	337	−8	18	194	10		
		6586	+17	343	−8	23	291	30		
		6585	+22	348	−15	30	1,939	65		
		6588	+31	357	+28	36	97	11		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Longitude	Latitude	Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 2		6588	+35	1	+24	38	24	2		
		6593	+36	2	+6	36	61	7		
		(*)	+55	21	−15	60	6	2		
				(326)	(+7)		3,144	140		
Sept. 3	12 14	6592	−58	254	−18	62	388	2	G	U. S. Naval.
		6591	−38	274	+4	38	73	3		
		6587	−1	311	−9	16	36	2		
		6586	+27	339	−8	32	145	7		
		6586	+32	344	−8	36	194	21		
		6585	+35	347	−15	41	1,891	50		
		6586	+36	348	−7	39	48	2		
		6588	+41	353	+29	45	97	10		
		6588	+46	358	+27	50	97	10		
		6588	+50	2	+25	52	12	3		
		6593	+50	2	+6	50	6	2		
				(312)	(+7)		2,987	112		
Sept. 4	11 4	6598	−80	220	−15	81	533	12	VG	Do.
		6598	−78	222	−12	80	436	7		
		6598	−70	230	−16	72	194	3		
		6597	−60	240	+19	61	145	13		
		6592	−45	255	−18	51	388	6		
		6596	−40	260	+12	41	12	3		
		6591	−25	275	+4	25	73	3		
		6587	+11	311	−9	19	36	6		
		6595	+25	325	+14	26	48	7		
		6586	+43	343	−8	45	339	31		
		6586	+49	349	−7	50	48	2		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 4	11 4	6585	+49	349	−15	52	1,891	55		
		6588	+57	357	+27	10	145	18		
				(300)	(+7)		4,288	166		
Sept. 5	11 2	6599	−73	214	+18	72	12	1	VG	U. S. Naval.
		6598	−70	217	−17	74	1,224	21		
		6598	−65	222	−12	68	436	14		
		6598	−65	222	−15	69	291	13		
		6598	−56	231	−16	60	291	8		
		6597	−47	240	+19	48	291	39		
		6592	−31	256	−18	40	315	6		
		6591	−11	276	+3	12	73	6		
		6587	+25	312	−10	30	36	9		
		6595	+43	330	+13	40	24	7		
		6586	+55	342	−8	58	436	32		
		6586	+61	348	−6	63	48	1		
		6585	+62	349	−15	64	2,182	45		
		6588	+68	355	+28	69	36	6		
				(287)	(+7)		5,695	208		
Sept. 6	11 18	6601	−80	193	−8	81	12	2	F	Do.
		6600	−78	195	−19	80	242	1		
		6599	−60	213	+18	60	24	2		
		6598	−57	216	−17	61	970	20		
		6598	−48	225	−14	52	1,164	20		
		6598	−42	231	−17	47	412	4		
		6597	−33	240	+19	33	218	13		
		6592	−18	255	−18	31	291	2		
		6591	+2	275	+4	3	61	1		
		6586	+68	341	−7	69	145	1		
		6586	+73	346	−8	74	485	7		
		6585	+78	351	−15	80	2,182	18		
				(273)	(+7)		6,206	91		
Sept. 7	10 57	6603	−75	185	−19	79	6	1	F	Do.
		6601	−69	191	−7	70	61	2		
		6600	−64	196	−19	69	242	1		
		6598	−44	216	−17	50	921	38		
		6598	−37	223	−14	43	970	47		
		6598	−30	230	−17	38	412	10		
		6597	−20	240	+19	23	364	38		
		6592	−5	255	−18	24	291	6		
		6591	+15	275	+4	15	48	3		
		6602	+38	298	−15	43	36	7		
		6586	+83	343	−8	85	145	5		
		6585	+87	347	−14	88	970	7		
				(260)	(+7)		4,466	165		
Sept. 8	10 55	6603	−61	186	−19	65	145	8	VG	Do.
		6601	−54	193	−7	55	36	2		
		6600	−49	198	−19	54	218	3		
		6598	−31	216	−18	39	776	43		
		6598	−23	224	−12	29	679	38		
		6598	−21	226	−16	31	582	38		
		6598	−17	230	−17	28	412	4		
		6597	−10	237	+21	17	24	4		
		6597	−6	241	+19	13	291	16		
		6592	+9	256	−18	26	291	3		
		(*)	+17	264	+11	17	6	1		
		(*)	+20	267	+5	20	6	1		
		6591	+29	276	+4	29	36	2		
		6602	+54	301	−16	57	48	2		
				(247)	(+7)		3,550	165		
Sept. 9	10 56	6607	−74	160	−6	75	170	1	F	Do.
		6606	−61	173	−6	63	24	1		
		6603	−49	185	−18	54	267	4		
		6601	−41	193	−7	43	24	1		
		6600	−36	198	−19	43	194	3		
		6605	−29	205	+17	31	97	10		
		6598	−17	217	−17	27	630	21		
		6598	−10	224	−12	20	582	24		
		6598	−8	226	−11	19	679	35		
		6598	−3	231	−18	25	412	5		
		6597	+5	239	+21	14	97	9		
		6597	+8	242	+19	15	194	11		
		6592	+21	255	−18	32	218	3		
		6604	+22	256	−17	30	24	4		
		6602	+69	303	−16	70	36	1		
				(234)	(+7)		3,648	133		
Sept. 10	12 6	6608	−65	155	−20	70	24	4	F	Do.
		6607	−60	160	−7	63	145	1		
		6606	−48	172	−7	51	24	3		
		6603	−35	185	−19	43	218	9		
		6600	−22	198	−19	33	194	2		
		6598	+3	223	−12	18	582	30		
		6598	+5	225	−17	23	388	17		
		6598	+5	225	−16	22	679	35		
		6598	+11	231	−17	26	412	5		
		6597	+20	240	+20	24	194	17		
		6592	+36	256	−18	42	194	3		
		6604	+38	258	−17	43	24	3		
		6591	+56	276	+4	55	6	1		
				(220)	(+7)		3,084	130		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 11	10 59	6609	−88	119	+12	88	291	4	VG	U. S. Naval.
		(*)	−59	148	−11	62	6	1		
		6608	−56	151	−21	61	97	10		
		6607	−48	159	−7	50	194	2		
		6606	−35	172	−7	37	85	16		
		6603	−25	182	−19	35	73	1		
		6603	−19	188	−18	31	194	8		
		(*)	−16	191	−8	21	36	3		
		6600	−10	197	−19	27	194	10		
		6598	+7	214	−17	24	97	15		
		6598	+10	217	−15	25	2,182	70		
		6598	+22	229	−17	31	485	6		
		6597	+33	240	+21	35	73	4		
		6597	+34	241	+18	36	36	3		
		6592	+49	256	−19	55	218	3		
		6604	+53	260	−16	57	24	1		
				(207)	(+7)		4,285	157		
Sept. 12	12 0	6609	−73	121	+13	73	218	10	G	Do.
		6608	−43	151	−21	50	145	19		
		6607	−34	160	−7	37	170	3		
		6606	−21	173	−6	26	73	8		
		6603	−8	186	−19	25	194	14		
		6600	+6	200	−19	26	170	3		
		6598	+20	214	−18	31	121	11		
		6598	+30	224	−15	37	2,085	60		
		6598	+37	231	−18	45	485	6		
		6597	+47	241	+21	48	36	1		
		6592	+62	256	−18	66	242	2		
				(194)	(+7)		3,939	137		
Sept. 14	12 12	6609	−45	122	+12	46	97	9	F	Do.
		6608	−14	153	−20	30	291	30		
		6607	−8	159	−7	16	194	2		
		6606	+9	176	−7	17	73	7		
		6603	+22	189	−18	32	97	10		
		6600	+31	198	−18	39	194	1		
		6598	+47	214	−18	53	121	10		
		6598	+56	223	−15	60	1,939	55		
		6598	+61	228	−18	66	630	4		
		6597	+71	238	+21	71	36	1		
				(167)	(+7)		3,672	129		
Sept. 15	11 3	6612	−85	70	−21	88	97	1	F	Do.
		6611	−49	106	−16	34	12	1		
		6610	−32	123	+16	33	48	3		
		6609	−31	124	+13	31	36	2		
		(*)	−24	131	+7	24	12	4		
		6608	−2	153	−19	16	194	19		
		6607	+5	160	−6	13	194	1		
		6603	+35	190	−19	43	36	3		
		6600	+45	200	−19	51	170	3		
		6598	+60	215	−18	64	291	11		
		6598	+69	224	−15	70	1,939	37		
		6598	+75	230	−18	79	630	4		
				(155)	(+7)		3,659	89		
Sept. 16	10 53	6612	−75	67	−21	76	242	6	F	Do.
		6612	−69	73	−21	71	194	10		
		6611	−38	104	−16	45	48	4		
		(*)	−28	114	+15	30	24	9		
		6610	−19	123	+15	21	36	5		
		6609	−18	124	+13	20	48	3		
		6608	+10	152	−20	27	194	26		
		6607	+19	161	−7	23	194	1		
		6603	+50	192	−19	56	12	2		
		6600	+59	201	−19	62	194	1		
		6598	+73	215	−18	76	291	5		
		6598	+85	227	−15	87	679	12		
				(142)	(+7)		2,156	84		
Sept. 17	11 37	6614	−87	41	−7	86	291	4	VG	Do.
		6612	−65	63	−22	68	339	17		
		6612	−56	72	−21	61	679	27		
		6611	−25	103	−17	34	36	2		
		6613	−13	115	+18	17	36	5		
		6613	−11	117	+17	16	48	5		
		6609	−5	123	+13	9	48	8		
		6608	+25	153	−20	36	145	16		
		6607	+33	161	−7	36	194	1		
		(*)	+52	180	−8	54	36	2		
		6603	+63	191	−19	66	12	2		
		6600	+72	200	−19	75	194	1		
				(128)	(+7)		2,058	90		
Sept. 18	11 12	6614	−73	42	−7	73	485	7	VG	Do.
		6615	−69	46	+12	68	12	1		
		6612	−45	70	−22	52	873	59		
		6611	−11	104	−17	26	12	5		
		6613	0	115	+18	12	73	9		
		6613	+2	117	+18	13	48	7		
		6609	+7	122	+13	10	48	5		
		6608	+39	154	−21	47	36	6		
		6607	+46	161	−7	47	194	2		
				(115)	(+7)		1,781	101		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 19	13 36	6617	−75	25	+6	74	48	2	G	U. S. Naval.
		6614	−59	41	−7	60	485	17		
		6615	−52	48	+12	51	24	1		
		6612	−31	69	−21	42	776	39		
		6613	+15	115	+18	20	48	5		
		6613	+18	118	+16	21	73	2		
		6609	+21	121	+13	22	12	5		
		6608	+53	153	−21	57	12	3		
		6607	+60	160	−7	62	194	1		
				(100)	(+7)		1,672	75		
Sept. 20	10 59	6617	−60	29	+7	59	73	7	G	Mount Wilson.
		6614	−49	40	−7	51	48	26		
		6615	−40	49	+13	40	36	3		
		6612	−21	68	−20	34	291	30		
		6612	−13	76	−21	30	388	16		
		(*)	−12	77	+18	16	24	1		
		6613	+31	120	+17	33	48	3		
		6609	+36	125	+13	36	12	1		
		6607	+72	161	−7	74	194	4		
				(89)	(+7)		1,114	91		
Sept. 21	10 50	6618	−88	348	−13	85	970	4	G	U. S. Naval.
		6617	−50	26	+7	50	73	7		
		6617	−45	31	+7	44	97	2		
		6614	−37	39	−7	39	73	9		
		6614	−31	45	−7	34	291	16		
		6615	−26	50	+12	26	24	1		
		6612	−9	67	−22	29	242	27		
		6612	0	76	−21	27	339	12		
		(*)	0	76	+13	6	12	2		
		6613	+43	119	+17	42	97	5		
		6609	+46	122	+13	45	12	1		
		6607	+88	164	−7	86	194	3		
				(76)	(+7)		2,424	89		
Sept. 22	11 5	6618	−74	348	−13	75	1,357	20	G	Do.
		6619	−70	352	−8	71	73	7		
		6617	−38	24	+8	38	97	10		
		6617	−32	30	+7	32	48	10		
		6614	−22	40	−7	25	24	2		
		6614	−19	43	−7	24	436	42		
		6615	−12	50	+12	12	12	3		
		6612	+3	65	−22	29	97	14		
		6612	+12	74	−21	29	242	11		
		6613	+57	119	+17	57	73	1		
				(62)	(+7)		2,459	120		
Sept 23	10 50	6619	−60	349	−7	62	388	53	VG	Do.
		6618	−58	351	−13	60	1,939	30		
		6619	−49	0	−7	57	36	5		
		6617	−23	26	+7	22	97	15		
		6617	−20	29	+7	21	48	10		
		6614	−4	45	−7	13	485	35		
		6612	+17	66	−21	33	73	9		
		6612	+25	74	−21	36	218	15		
		6613	+70	119	+15	69	48	4		
				(49)	(+7)		3,332	176		
Sept. 24	11 44	6621	−86	309	+14	82	582	3	G	Do.
		6619	−45	350	−7	47	485	45		
		6618	−45	350	−13	49	1,600	18		
		(*)	−39	356	−18	46	61	1		
		6619	−36	359	−7	37	36	5		
		6617	−10	25	+7	10	36	6		
		6617	−5	30	+6	4	24	3		
		6614	+10	45	−7	16	485	25		
		6612	+31	66	−21	42	48	4		
		6612	+40	75	−21	48	218	13		
				(35)	(+7)		3,575	123		
Sept. 25	10 59	6621	−72	311	+14	71	630	4	VG	Do.
		(*)	−60	323	−13	63	6	1		
		6618	−31	352	−13	37	1,454	30		
		6619	−31	352	−7	34	485	45		
		(*)	−26	357	−18	35	61	8		
		6619	−23	0	−7	26	36	5		
		6617	+6	29	+8	6	48	4		
		6617	+8	31	+6	7	12	1		
		6614	+24	47	−8	27	436	19		
		6612	+53	76	−21	57	242	4		
				(23)	(+7)		3,410	121		
Sept. 26	10 57	6622	−77	293	+16	75	242	4	VG	Do.
		6621	−59	311	+14	57	727	16		
		6618	−18	352	−13	26	1,454	28		
		6619	−17	353	−7	22	436	42		
		(*)	−13	357	−17	25	48	2		
		(*)	+15	25	+22	20	24	1		
		6617	+21	31	+7	21	12	1		
		(*)	+30	40	−5	33	85	7		
		6614	+38	48	−7	41	242	10		
		6612	+68	78	−21	72	145	3		
				(10)	(+7)		3,415	114		

POSITIONS AND AREAS OF SUN SPOTS—Continued

Date	Eastern standard time	Mount Wilson group No. NNNN	Heliographic: Difference in longitude	Heliographic: Longitude NNN	Heliographic: Latitude	Heliographic: Distance from center of disk	Area of spot or group	Spot count NNN	Plate quality	Observatory
1939	*h m*		°	°	°					
Sept. 27	12 30	6623	−86	269	+19	83	194	2	F	Mount Wilson.
		6622	−62	293	+14	60	291	12		
		6621	−45	310	+14	43	533	8		
		6620	−27	328	+19	31	194	14		
		6618	−4	351	−13	20	1,406	30		
		6619	−3	352	−8	15	388	35		
		6617	+33	28	+8	32	48	4		
		6614	+41	36	−7	46	73	10		
		6614	+51	46	−7	55	121	6		
		6612	+83	78	−20	85	145	1		
				(355)	(+7)		3,393	122		
Sept. 28	13 12	6625	−80	262	−16	82	242	2	G	U. S. Naval.
		6623	−73	269	+19	71	388	6		
		6622	−49	293	+16	49	388	20		
		6621	−31	311	+15	32	509	20		
		6620	−13	329	+18	16	339	17		
		6624	−9	333	+12	10	12	4		
		6619	+9	351	−7	16	339	48		
		6618	+9	351	−13	21	1,357	30		
		6618	+17	359	−17	30	48	3		
		6617	+48	30	+7	48	61	12		
		6614	+66	48	−5	67	145	12		
				(342)	(+7)		3,828	174		
Sept. 29	13 37	6625	−72	256	−15	74	145	6	VG	Do.
		6625	−63	265	−13	64	194	10		
		6627	−62	266	+12	61	36	2		
		6623	−57	271	+20	59	533	20		
		6622	−33	295	+15	33	242	50		
		6621	−17	311	+15	17	412	14		
		6620	0	328	+17	10	97	13		
		6626	+1	329	−9	15	24	5		
		6624	+5	333	+13	9	824	1		
		6619	+21	349	−7	25	170	60		
		6618	+22	350	−14	30	1,067	65		
		*	+63	31	+6	62	36	4		
		6614	+77	45	−6	77	121	7		
				(328)	(+7)		3,901	257		
Sept. 30	12 7	*	−81	235	−13	82	145	3	VG	Do.
		6623	−62	254	+22	62	61	9		
		6625	−60	256	−15	63	73	6		
		6627	−51	265	+12	51	97	10		
		6625	−50	266	−13	54	218	6		
		6623	−46	270	+21	46	679	30		
		6622	−28	288	+16	27	145	15		
		6622	−20	296	+16	23	388	30		
		6621	−4	312	+14	8	485	6		
		6628	−3	313	−18	25	48	5		
		6620	+12	328	+18	17	109	15		
		6626	+15	331	−8	21	97	19		
		6624	+16	332	+13	16	121	28		
		6619	+32	348	−7	35	194	53		
		6618	+35	351	−15	40	970	50		
				(316)	(+7)		3,830	285		

Mean daily area for 29 days = 3,377.

*=not numbered. F=fair; G=good; VG=very good.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR SEPTEMBER 1939

[Dependent alone on observations at Zurich]

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

September 1939	Relative numbers	September 1939	Relative numbers	September 1939	Relative numbers
1	*ab* 103	11	*Ec* 136	21	*ad* 89
2	*s* 116	12	*a* ---	22	88
3	124	13	127	23	*a* 88
4	*Ecd* 119	14	92	24	*d* 107
5	---	15	*a* ---	25	106
6	*d* 136	16	*d* ---	26	*d* 98
7	114	17	---	27	*Ecbd* 105
8	*Eac* 145	18	*d* 67	28	*d* 131
9	*abd* 159	19	88	29	*a* 131
10	*b* 168	20	70	30	*Mc* 137

Mean, 25 days 113.8.

a=Passage of an average-sized group through the central meridian.
b=Passage of a large group 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 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.