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

[Gram-calories per square centimeter]

Week beginning—	Washington	Madison	Lincoln	Chicago	New York	Fresno	Albuquerque	La Jolla	Miami	New Orleans	Riverside	Blue Hill	Newport	Friday Harbor	Cambridge
	cal.	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*	*cal.*
Apr. 1	418	343	433	350	437	531	478	507	525	376	439	449	467	410	436
Apr. 8	314	404	522	270	368	581	713	--------	490	507	540	318	353	457	329
Apr. 15	166	526	487	377	143	593	585	--------	499	362	554	233	271	496	224
Apr. 22	458	459	249	498	498	537	575	487	450	406	305	417	436	387	433
DEPARTURES FROM WEEKLY NORMALS															
Apr. 1	+49	−26	+23	+57	+110	+11	--------	−15	+58	−4	−45	+71	+67	+70	--------
Apr. 8	−80	+2	+77	−70	+38	+7	--------	--------	+16	+93	+52	−23	−49	+127	--------
Apr. 15	−247	+127	+34	+40	−208	−3	--------	--------	+20	−53	+22	−139	−135	+51	--------
Apr. 22	+12	+25	−189	+129	+82	−36	--------	−24	−27	+11	−153	−26	−20	−97	--------
ACCUMULATED DEPARTURES ON APR. 29, 1940															
	−679	+1,512	−3,794	+1,365	+2,842	−2,037	--------	−1,540	+2,674	+1,841	−3,339	+840	−126	+2,821	--------

LATE DATA

The mean daily total solar and sky radiation in gram-calories per square centimeter received on a horizontal surface at Fairbanks for the weeks beginning Feb. 26, March 4, 11, 18, and 25 are respectively 143, 153, 154, 305, and 279, with corresponding departures +3, −8, −45, +96, and −11. Similar means for Miami and for the above dates are, respectively, 478, 418, 375, 498, and 408, with corresponding departures +92, +33, −41, +35, and −48.

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 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, total area of spots and groups, and total spot count]

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
1940	*h. m.*		°	°	°	°				
Apr. 1	13 33	(*)	−59	352	−19	59	12	1	G	U. S. Naval.
		6799	−54	357	−16	54	85	5		
		6794	−8	43	−12	10	218	1		
		6795	−4	47	−11	5	24	7		
		6792	+11	62	+7	17	48	7		
		6792	+19	70	+7	24	194	10		
		6786	+49	100	−5	49	194	1		
		6784	+75	126	+11	77	242	1		
				(51)	(−7)		1,017	33		
Apr. 2	14 26	6800	−58	339	+8	61	6	3	G	Do.
		6799	−39	358	−15	40	66	15		
		(*)	+5	42	−4	5	24	8		
		6794	+7	44	−12	10	230	10		
		6795	+10	47	−11	11	36	4		
		6792	+23	60	+8	27	48	9		
		6792	+32	69	+8	35	145	11		
		6796	+39	76	+20	47	24	5		
		6786	+62	99	−5	62	194	1		
				(37)	(−6)		773	66		
Apr. 3	10 51	6800	−44	342	+8	49	12	5	VG	Mt. Wilson.
		6801	−38	348	−7	38	97	8		
		6799	−28	358	−15	30	73	7		
		6798	−19	7	+24	36	12	3		
		6794	+19	45	−12	20	242	4		
		6795	+21	47	−11	21	48	2		
		6792	+44	70	+8	48	121	7		
		6796	+52	78	+20	59	24	3		
		6786	+74	100	−5	74	194	2		
				(26)	(−6)		823	41		
Apr. 4	11 3	6801	−25	347	−7	25	170	14	G	U. S. Naval.
		6799	−16	356	−15	18	73	11		
		6794	+31	43	−12	31	242	1		
		6794	+31	43	−14	32	24	5		
		6795	+34	46	−10	34	24	6		
		6792	+58	70	+8	61	85	7		
		(*)	+80	92	+12	82	12	4		
				(12)	(−6)		630	48		

See notes at end of table.

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
1940	*h. m.*		°	°	°	°				
Apr. 5	11 44	6804	−85	274	−10	85	48	1	F	U. S. Naval.
		6801	−13	346	−7	13	48	7		
		6801	−9	350	−8	10	170	1		
		6799	−3	356	−15	10	194	18		
		(*)	−3	356	−11	6	12	4		
		6803	+8	7	−6	8	12	4		
		6794	+45	44	−11	45	218	1		
		6795	+48	47	−10	48	6	2		
		6792	+71	70	+8	75	24	3		
				(359)	(−6)		732	41		
Apr. 6	11 8	6803	−75	271	−10	75	194	9	G	Do.
		6801	0	346	−7	1	48	4		
		6799	+1	347	−15	10	24	4		
		6801	+5	351	−8	5	194	1		
		6799	+10	356	−15	13	170	13		
		6803	+22	8	−6	22	24	1		
		6794	+58	44	−12	58	242	1		
				(346)	(−6)		896	33		
Apr. 7	12 30	6803	−68	264	−10	68	73	9	F	Do.
		6803	−53	279	−10	53	145	4		
		6804	−40	292	+19	48	12	2		
		6801	+14	346	−7	14	48	4		
		6801	+20	352	−9	21	194	1		
		6799	+23	355	−16	25	73	6		
		6794	+71	43	−12	71	242	1		
				(332)	(−6)		787	27		
Apr. 8	10 58	6803	−43	277	−9	43	145	10	VG	Mt. Wilson.
		6805	−43	277	+22	51	48	3		
		6805	−40	280	+20	49	73	3		
		6801	+34	354	−9	34	145	3		
		6799	+37	357	−17	39	48	3		
		6802	+49	9	−8	49	24	2		
		6794	+85	45	−12	85	242	1		
				(320)	(−6)		725	25		
Apr. 9	13 40	6808	−86	219	−12	86	12	1	G	U. S. Naval.
		6805	−30	275	+22	42	36	4		
		6803	−29	276	−9	29	97	3		
		6805	−26	279	+20	37	48	9		
		6807	+42	347	+8	45	73	7		
		6801	+48	353	−8	48	97	3		
		6806	+50	355	+7	53	12	3		
		6801	+54	359	−7	54	6	1		
		6802	+63	8	−7	63	6	1		
				(305)	(−6)		387	32		

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
1940	*h. m.*		°	°	°	°				
Apr. 10	11 27	6808	−72	221	−12	72	24	4	F	U. S. Naval.
		6803	−27	266	−11	27	73	6		
		6803	−17	276	−10	18	145	10		
		6805	−13	280	+19	28	73	7		
		6807	+55	348	+9	59	242	7		
		6801	+61	354	−9	61	97	1		
		6806	+64	357	+7	68	97	5		
				(293)	(−6)		751	40		
Apr. 11	11 28	6808	−59	221	−12	59	194	12	G	Do.
		6803	−13	267	−11	14	48	6		
		6803	−3	277	−10	5	97	7		
		6805	−1	279	+18	24	48	4		
		6807	+69	349	+9	72	242	6		
		6801	+75	355	−9	75	97	1		
		6806	+79	359	+6	80	48	1		
				(280)	(−6)		774	37		
Apr. 12	9 25	6808	−46	222	−12	46	388	43	VG	Mt. Wilson.
		6809	−23	245	−3	24	36	5		
		6803	+3	271	−10	5	12	3		
		6803	+9	277	−11	10	97	9		
		6807	+84	352	+8	85	242	3		
				(268)	(−6)		775	63		
Apr. 13	10 50	6810	−88	166	−7	88	97	1	VG	U. S. Naval.
		6808	−33	221	−12	33	242	46		
		6809	−8	246	−3	9	6	3		
		6803	+22	276	−10	22	48	19		
				(254)	(−6)		393	69		
Apr. 14	11 53	6810	−74	166	−7	74	145	3	VG	Do.
		6813	−58	182	+20	66	24	1		
		6808	−19	221	−13	20	339	40		
		6812	−18	222	−24	25	48	2		
		6809	+6	246	−3	6	24	6		
		6811	+22	262	−10	22	6	1		
		6803	+36	276	−9	36	48	10		
				(240)	(−6)		634	63		
Apr. 16	10 37	6814	−76	138	+15	78	97	3	G	Do.
		6814	−69	145	+11	71	291	1		
		6810	−46	168	−6	46	97	3		
		6808	+6	220	−13	10	485	40		
		6812	+9	223	−22	19	48	4		
		(*)	+14	228	+19	27	12	1		
		6803	+64	278	−9	64	12	1		
				(214)	(−5)		1042	53		
Apr. 17	10 54	6817	−80	121	+13	83	24	11	G	Mt. Wilson.
		6816	−75	126	+7	76	73	1		
		6814	−56	145	+12	59	194	9		
		6810	−32	169	−6	32	73	5		
		6808	+19	220	−13	21	291	32		
		6812	+22	223	−22	28	12	3		
		6815	+58	259	−17	59	12	2		
				(201)	(−5)		679	63		
Apr. 18	9 44	6818	−88	100	−4	88	97	1	G	Do.
		6817	−67	121	+13	70	73	5		
		6816	−61	127	+7	63	24	1		
		6814	−50	138	+13	53	97	13		
		6814	−43	145	+12	46	194	9		
		6810	−19	169	−6	19	73	5		
		6808	+33	221	−12	34	291	27		
		6815	+69	257	−17	70	12	1		
				(188)	(−5)		861	62		
Apr. 19	12 16	6818	−74	100	−4	74	48	1	P	Do.
		6817	−53	121	+13	55	48	2		
		6816	−48	126	+7	50	12	3		
		6814	−35	139	+13	39	48	9		
		6814	−29	145	+11	33	170	5		
		6810	−5	169	−6	4	61	4		
		6808	−48	126	−12	49	97	3		
		6819	+52	226	+1	52	61	3		
				(174)	(−5)		545	30		
Apr. 20	9 0	6821	−84	78	+5	85	48	2	VG	Do.
		6818	−60	102	−4	60	170	1		
		6820	−57	105	−20	62	12	3		
		6817	−47	115	+13	50	48	16		
		6817	−40	122	+13	44	73	4		
		6816	−35	127	+7	37	12	6		

See notes at end of table.

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
1940	*h. m.*		°	°	°	°				
Apr. 20		6814	−23	139	+15	30	73	30		Mt. Wilson.
		6814	−17	145	+11	24	218	3		
		6810	+8	170	−6	8	73	9		
		6808	+61	223	−12	61	61	4		
		6819	+66	228	+2	66	97	7		
				(162)	(−5)		885	85		
Apr. 21	12 40	6821	−68	79	+5	69	48	1	VG	Do.
		6818	−47	100	−4	47	170	1		
		6817	−33	114	+13	36	97	25		
		6817	−27	120	+12	32	73	3		
		6816	−22	125	+7	25	48	8		
		6814	−10	137	+15	22	73	25		
		6814	−3	144	+11	16	242	13		
		6822	+8	155	−11	10	18	2		
		6810	+23	170	−5	23	61	6		
		6808	+72	219	−12	72	24	1		
		6819	+80	227	+1	80	48	2		
				(147)	(−5)		902	87		
Apr. 22	13 39	6821	−54	79	+5	55	12	1	VG	U. S. Naval.
		6818	−32	101	−4	32	170	1		
		6817	−18	115	+13	25	121	23		
		6817	−12	121	+12	20	48	1		
		6816	−8	125	+8	10	48	11		
		6814	+9	142	+13	20	48	17		
		6814	+11	144	+11	12	194	1		
		6822	+20	153	−11	21	12	5		
		6810	+37	170	−5	37	48	10		
		6823	+44	177	+9	46	24	7		
				(133)	(−5)		725	77		
Apr. 23	11 27	6821	−40	81	+5	42	12	1	F	Do.
		6818	−20	101	−4	20	182	1		
		6817	−6	115	+13	18	194	14		
		6817	+1	122	+12	17	48	1		
		6817	+6	127	+10	16	97	6		
		6814	+23	144	+12	28	48	11		
		6814	+23	144	+10	27	218	1		
		(*)	+26	147	−11	27	12	1		
		6810	+49	170	−5	49	24	4		
		6823	+58	179	+9	61	48	4		
				(121)	(−5)		883	44		
Apr. 24	17 15	(*)	−41	64	+10	44	48	4	VG	Do.
		6818	−4	101	−4	5	194	1		
		6817	+10	115	+13	21	97	13		
		6817	+16	121	+11	23	12	1		
		(*)	+21	126	−32	34	48	9		
		6814	+40	145	+11	43	12	1		
		6814	+40	145	+10	43	194	1		
		(*)	+42	147	−11	43	73	10		
				(105)	(−5)		678	40		
Apr. 25	13 57	6824	−73	20	+11	75	242	6	F	Do.
		(*)	−12	81	−3	12	12	1		
		6818	+8	101	−12	9	36	7		
		6818	+9	102	−3	9	194	1		
		6817	+25	118	+14	31	12	2		
		6814	+51	144	+10	53	194	1		
		(*)	+53	146	−10	53	61	4		
		(*)	+58	151	−8	58	48	2		
				(93)	(−5)		799	24		
Apr. 26	16 5	(*)	−70	9	−7	70	6	1	VG	Do.
		6824	−58	21	+11	58	194	7		
		(*)	+2	81	+5	10	6	4		
		(*)	+20	99	−2	20	12	6		
		6818	+22	101	−4	22	145	1		
		(*)	+60	139	+13	63	73	6		
		6814	+66	145	+10	68	194	1		
		(*)	+67	146	−10	67	170	5		
		(*)	+73	152	−9	73	97	1		
				(79)	(−5)		897	32		
Apr. 27	10 58	6824	−48	21	+11	49	145	4	VG	Do.
		6824	−43	26	+11	46	12	6		
		6818	+34	103	−4	34	145	1		
		6817	+49	118	+14	52	48	11		
		(*)	+70	139	+11	72	24	6		
		(*)	+70	139	+13	73	24	6		
		6814	+78	147	+10	79	194	1		
		(*)	+81	150	−11	81	194	3		
				(69)	(−4)		786	38		

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
	h m		°	°	°	°				
Apr. 28	10 58	6824	−35	20	+9	38	145	6	P	Mt. Wilson.
		6818	+48	103	−4	48	121	5		
		6817	+63	118	+13	66	73	4		
		6814	+85	140	+14	86	48	2		
				(55)	(−4)		387	17		
Apr. 29	13 3	6824	−22	19	+9	25	121	5	F	Do.
		6818	+62	103	−4	62	121	8		
		6817	+76	117	+14	77	24	2		
				(41)	(−4)		266	15		
Apr. 30	10 50	6824	−9	20	+10	17	121	13	G	Do.
		6825	+2	31	−13	9	24	6		
		6818	+73	102	−3	73	97	4		
				(29)	(−4)		242	23		

¶ Mean daily area for 29 days=713.
* Not numbered.
Plate quality: VG=very good; G=good; F=fair; P=poor.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR APRIL 1940

[Dependent alone on observations at Zurich, Switzerland]

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

April 1940	Relative numbers	April 1940	Relative numbers	April 1940	Relative numbers
1	*Ec* 85	11	*a* 50	21	*a* 94
2	*a* 80	12	53	22	83
3	*Ec* —	13	53	23	*a* 63
4	47	14	*d* 60	24	*Wc* 64
5	*a* 62	15	74	25	*ad* 56
6	*ad* 58	16	*ad* 65	26	50
7	64	17	65	27	62
8	56	18	59	28	38
9	*Wc* 41	19	*Wcd* 71	29	32
10	*Ec* 59	20	*a* 79	30	35

Mean, 29 days=60.6

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.