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				Spot or group	Spot count	Plate quality	Observatory
				Difference in longitude	Longitude	Latitude	Distance from center of disk				
1940	h	m		°	°	°	°				
Mar. 1	13	20	6763	−60	39	−16	60	48	5	G	U. S. Naval
			6761	−37	62	−15	38	24	2		
			6758	−8	91	−5	8	582	33		
			6757	+7	106	−10	7	12	1		
			6756	+11	110	+10	21	24	3		
			6756	+17	116	+18	31	48	1		
			6756	+26	125	+12	33	48	2		
			6756	+31	130	+10	35	388	1		
			6762	+48	147	−9	48	339	15		
			6755	+64	163	−14	64	48	1		
					(99)	(−7)		1,561	64		
Mar. 2	12	37	6763	−47	40	−17	47	145	4	P	Mt. Wilson
			6764	−28	59	+3	30	12	1		
			6758	+6	93	−5	6	679	29		
			6756	+44	131	+10	47	388	3		
			6762	+62	149	−8	62	291	11		
			6755	+78	165	−14	79	24	2		
					(87)	(−7)		1,539	50		
Mar. 3	11	52	6763	−33	41	−17	34	145	4	P	Do.
			6766	+11	85	+12	22	145	9		
			6758	+19	93	−5	19	679	12		
			6765	+34	108	+19	42	24	3		
			6756	+57	131	+10	60	194	2		
			6762	+70	144	−8		218	4		
					(74)	(−7)	71	1,405	34		
Mar. 4	10	53	6768	−74	347	−11	75	291	4	G	U. S. Naval.
			6769	−71	350	−8	72	6	1		
			6767	−61	0	−7	61	24	1		
			6763	−21	40	−17	23	121	6		
			6766	+24	85	+11	30	315	14		
			6758	+32	93	−5	32	824	35		
			6758	+37	98	−4	38	48	11		
			6756	+70	131	+10	70	388	1		
					(61)	(−7)		2,017	73		
Mar. 5	10	59	6769	−68	340	−8	69	12	5	VG	Mt. Wilson
			6768	−61	347	−12	61	436	35		
			6767	−48	0	−8	48	24	2		
			6763	−7	41	−17	13	145	34		
			6766	+38	86	+11	42	388	40		
			6758	+43	91	−5	43	388	21		
			6758	+49	97	−6	49	582	20		
			6756	+83	131	+10	83	388	2		
					(48)	(−7)		2,363	159		
Mar. 6	12	54	6769	−54	340	−8	54	12	1	VG	U. S. Naval.
			6768	−52	342	−12	52	145	4		
			6768	−47	347	−10	47	170	9		
			6767	−34	0	−8	34	24	1		
			6763	+6	40	−17	13	36	16		
			6766	+52	86	+11	54	412	14		
			6758	+55	89	−5	55	194	6		
			6758	+62	96	−6	62	679	20		
					(34)	(−7)		1,672	71		
Mar. 7	11	26	6770	−57	324	+13	60	12	1	VG	Mt. Wilson.
			6769	−41	340	−9	41	48	9		
			6768	−36	346	−12	35	194	18		
			6767	−22	359	−8	22	48	1		
			6763	+19	40	−18	23	73	4		
			6766	+65	86	+12	67	339	12		
			6758	+68	89	−4	68	194	12		
			6758	+75	96	−5	75	630	6		
					(21)	(−7)		1,538	63		
Mar. 8	11	17	6770	−43	325	+13	47	48	8	G	U. S. Naval.
			6768	−29	339	−11	29	24	8		
			6769	−27	341	−8	27	121	22		
			6768	−21	347	−11	22	194	3		
			6767	−9	359	−8	9	24	1		
			6763	+32	40	−19	34	24	4		
			6758	+82	90	−4	82	242	3		
			6766	+85	93	+12	86	145	1		
					(8)	(−7)		822	50		

POSITIONS AND AREAS OF SUN SPOTS—Con.

Date	Eastern standard time		Mount Wilson group No.	Heliographic				Spot or group	Spot count	Plate quality	Observatory
				Difference in longitude	Longitude	Latitude	Distance from center of disk				
1940	h	m		°	°	°	°				
Mar. 9	12	54	6770	−30	324	+13	35	97	9	VG	U. S. Naval.
			6769	−19	335	−9	19	48	14		
			6768	−15	339	−11	15	48	12		
			6769	−12	342	−8	12	194	16		
			6768	−8	346	−11	9	218	4		
			6767	+6	0	−8	6	24	3		
					(354)	(−7)		629	58		
Mar. 10	12	8	6770	−18	323	+13	26	97	5	P	Do.
			(*)	0	341	−12	5	48	4		
			6769	+2	343	−9	3	145	8		
			6768	+6	347	−11	6	194	1		
			6767	+17	358,	−9	17	48	3		
					(341)	(−7)		532	21		
Mar. 11	14	10	6773	−82	245	−7	82	48	2	F	Do.
			6770	−3	324	+12	8	170	9		
			6772	+2	329	−13	6	48	4		
			6769	+17	344	−9	18	121	5		
			6768	+21	348	−11	21	194	1		
					(327)	(−7)		581	21		
Mar. 12	11	54	6773	−67	248	−7	67	48	3	P	Do.
			6770	+11	326	+12	14	242	12		
			6772	+17	332	−13	18	170	11		
			6769	+29	344	−9	29	121	7		
			6768	+33	348	−11	33	145	7		
					(315)	(−7)		726	40		
Mar. 13	11	25	6776	−81	221	+21	84	97	2	VG	Mt. Wilson.
			6773	−60	242	−8	60	48	9		
			6775	−58	244	−11	58	24	8		
			6774	−20	282	−9	20	12	3		
			6770	+25	327	+12	31	145	35		
			6772	+30	332	−14	31	97	27		
			6769	+44	346	−9	44	97	8		
			6768	+47	349	−11	47	97	10		
					(302)	(−7)		617	102		
Mar. 14	11	17	6776	−69	220	+22	73	194	2	F	Do.
			6777	−64	225	−9	64	24	1		
			6773	−47	242	−8	47	145	3		
			6775	−45	244	−9	45	24	30		
			6770	+42	331	+12	45	97	26		
			6772	+45	334	−13	45	12	5		
			6769	+56	345	−9	56	48	3		
			6768	+60	349	−11	60	48	5		
					(289)	(−7)		592	75		
Mar. 15	11	46	6776	−57	219	+22	63	206	3	G	U. S. Naval.
			6777	−51	225	−9	51	24	3		
			6773	−34	242	−9	34	218	22		
			6775	−26	250	−7	26	12	4		
			6770	+53	329	+12	55	48	9		
			6770	+58	334	+11	61	121	4		
			6769	+70	346	−9	71	48	2		
					(276)	(−7)		677	47		
Mar. 16	12	39	6776	−42	221	+22	49	218	3	F	Do.
			6777	−39	223	−10	39	24	2		
			6773	−20	242	−9	20	145	10		
			6775	−12	250	−7	12	24	4		
			6778	−5	257	−8	6	121	7		
			6770	+70	332	+12	72	291	5		
					(262)	(−7)		823	31		
Mar. 17	11	3	6776	−29	221	+22	41	194	7	VG	Mt. Wilson.
			6777	−18	232	−11	18	6	2		
			6779	−9	241	−14	11	6	5		
			6773	−8	242	−8	8	97	25		
			6775	+2	252	−7	2	6	7		
			6778	+10	260	−10	11	73	15		
			6770	+82	332	+12	83	73	2		
					(250)	(−7)		455	63		
Mar. 18	10	53	6781	−86	151	−9	86	24	1	G	U. S. Naval.
			6780	−78	159	+19	80	485	3		
			6776	−16	221	+23	34	170	1		
			(*)	−2	235	−9	3	24	2		
			6773	+6	243	−9	6	48	4		
			6778	+22	259	−9	22	73	6		
					(237)	(−7)		824	17		

POSITIONS AND AREAS OF SUN SPOTS—Con.

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Spot or group	Spot count	Plate quality	Observatory
1940	*h m*		°	°	°	°				
Mar. 19	11 24	6781	−73	150	−9	74	145	5	G	U. S. Naval.
		(*)	−64	159	+11	66	12	3		
		6780	−64	159	+19	67	461	6		
		(*)	−14	209	+14	18	36	3		
		6776	−3	220	+23	29	242	5		
		(*)	+10	233	−9	11	48	9		
		6778	+36	259	−9	36	24	13		
				(223)	(−7)		968	44		
Mar. 20	11 5	6784	−84	126	+11	85	242	2	G	Do.
		6783	−76	134	+12	78	776	8		
		6781	−59	151	−9	59	145	5		
		6780	−50	160	+19	56	364	11		
		6776	+10	220	+23	31	242	5		
		6782	+25	235	−9	25	170	24		
		6773	+35	245	−7	35	12	1		
				(210)	(−7)		1,951	56		
Mar. 21	11 5	6784	−70	127	+11	73	388	2	VG	Do.
		6783	−62	135	+12	64	776	11		
		6781	−45	152	−10	45	97	6		
		6780	−37	160	+19	46	339	11		
		6776	+23	220	+22	36	194	1		
		6782	+38	235	−10	38	267	19		
		6773	+49	246	−7	49	12	1		
				(197)	(−7)		2,073	51		
Mar. 22	11 23	6786	−87	97	−3	87	48	1	G	Do.
		6784	−58	126	+11	61	388	1		
		6783	−48	136	+12	52	824	10		
		6781	−32	152	−10	32	73	5		
		6780	−23	161	+18	34	243	3		
		6776	+37	221	+22	47	145	1		
		6782	+51	235	−10	51	170	4		
		6773	+64	248	−7	64	12	1		
		6785	+87	271	−6	87	24	1		
				(184)	(−7)		1,926	27		
Mar. 23	12 43	6786	−73	97	−4	73	242	3	F	Mt. Wilson.
		6784	−44	126	+10	48	291	1		
		6783	−33	137	+12	37	824	14		
		6788	−29	141	−9	29	145	3		
		6781	−18	152	−10	18	36	7		
		6780	−9	161	+18	27	97	8		
		6776	+51	221	+22	58	170	1		
		6782	+66	236	−11	66	97	2		
				(170)	(−7)		1,902	39		
Mar. 24	9 51	6791	−76	82	−28	77	12	2	VG	Do.
		6790	−65	93	+12	67	24	1		
		6786	−60	98	−4	60	291	7		
		6789	−48	110	+12	52	73	5		
		6784	−30	128	+10	34	291	2		
		6783	−21	137	+12	28	1,164	22		
		6788	−17	141	−9	17	145	7		
		6781	−9	149	−7	9	24	16		
		6780	+4	162	+17	24	73	10		
		6787	+59	217	+18	64	24	3		
		6776	+64	221	+22	67	97	2		
		6782	+81	239	−12	81	97	3		
				(158)	(−7)		2,315	80		
Mar. 25	11 17	6791	−63	81	−28	64	48	8	G	U. S. Naval.
		6790	−49	95	+11	52	36	3		
		6786	−46	98	−4	46	218	7		
		6789	−32	112	+12	36	61	2		
		6784	−18	126	+10	25	291	1		
		6783	−7	137	+13	21	1,164	25		
		6788	−3	141	−9	4	145	7		
		6781	+6	150	−7	6	48	1		
		6780	+17	161	+17	23	145	10		
		6787	+71	215	+19	75	12	2		
		6776	+78	222	+22	80	145	1		
				(144)	(−7)		2,313	67		
Mar. 26	11 12	6792	−71	60	+9	73	24	1	G	Do.
		6792	−63	68	+9	66	73	3		
		6791	−50	81	−28	53	24	3		
		6790	−37	94	+14	43	24	1		
		6786	−32	99	−4	33	218	2		
		6789	−17	114	+12	25	24	2		
		6784	−11	120	+13	23	73	6		
		6784	−3	128	+10	17	291	1		
		6783	+7	138	+13	21	1,406	30		
		6788	+11	142	−9	11	194	6		
		6781	+19	150	−7	19	6	1		
		6780	+30	161	+17	38	121	8		
		6793	+32	163	−11	32	24	2		
				(131)	(−7)		2,502	66		

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POSITIONS AND AREAS OF SUN SPOTS—Con.

Date	Eastern standard time	Mount Wilson group No.	Heliographic: Difference in longitude	Heliographic: Longitude	Heliographic: Latitude	Heliographic: Distance from center of disk	Spot or group	Spot count	Plate quality	Observatory
1940	*h m*		°	°	°	°				
Mar. 27	11 11	6794	−73	45	−13	74	339	5	G	U. S. Naval.
		6792	−50	68	+8	53	97	10		
		6790	−22	96	+12	28	24	2		
		6786	−19	99	−5	19	218	3		
		6789	−8	110	+11	21	24	4		
		6789	−1	117	+12	18	12	1		
		6784	+2	120	+13	20	24	4		
		6784	+9	127	+10	19	291	1		
		6783	+20	138	+12	27	1,357	30		
		6788	+25	143	−9	25	97	5		
		6780	+45	163	+17	51	48	6		
		6793	+46	164	−11	46	73	7		
				(118)	(−7)		2,604	78		
Mar. 28	11 9	6794	−61	44	−11	61	339	9	G	Do.
		(*)	−58	47	−4	59	12	2		
		6792	−37	68	+8	42	267	21		
		6790	−10	95	+12	22	36	4		
		6786	−6	99	−5	6	218	3		
		6789	+6	111	+11	19	73	7		
		6784	+22	127	+10	27	242	1		
		6783	+33	138	+12	37	1,261	25		
		(*)	+42	147	−9	42	61	7		
		(*)	+45	150	−7	45	12	4		
		6780	+57	162	+17	63	24	4		
		6793	+60	165	−11	60	48	7		
				(105)	(−7)		2,593	94		
Mar. 29	11 0	6794	−48	44	−12	48	315	13	G	Mt. Wilson.
		6796	−48	44	−11	48	48	6		
		6792	−25	67	+7	30	388	30		
		6790	−2	90	+12	19	12	3		
		6786	+7	99	−5	7	242	12		
		6789	+15	107	+12	24	12	3		
		6784	+34	126	−11	39	242	2		
		6783	+46	138	+12	50	1,261	28		
		6788	+56	148	−9	56	48	3		
		6793	+71	163	−11	72	36	2		
				(92)	(−7)		2,604	102		
Mar. 30	12 55	6795	−35	42	−11	35	48	4	F	Do.
		6794	−34	43	−12	34	291	7		
		6792	−12	65	+7	18	291	30		
		6786	+21	98	−5	21	242	2		
		6784	+48	125	+11	53	242	2		
		6783	+59	136	+12	62	1,261	15		
		6788	+70	147	−9	70	36	3		
				(77)	(−7)		2,411	63		

Mean daily area for 30 days=1,518.

*Not numbered.

VG=very good; G=good; F=fair; P=poor.

PROVISIONAL SUNSPOT RELATIVE NUMBERS FOR MARCH 1940

[Dependent alone on observations at Zurich]

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

March 1939	Relative numbers	March 1939	Relative numbers	March 1939	Relative numbers
1	*Ec* 91	11	*a* 48	21	*d* 85
2	*b* 74	12	*Mc* 76	22	*Ec* 92
3	*Mcd* 96	13	74	23	*Ecd* 111
4	116	14	*d* 76	24	115
5	*Ec* 92	15	49	25	*a* 101
6	—	16	*Mc* 70	26	*Ecb* 108
7	77	17	*a* 43	27	*ad* 136
8	*Ec* 72	18	*Mc* 56	28	125
9	*aa* 46	19	*a* 78	29	*a* 98
10	—	20	*d* 79	30	86
				31	*a* 85

Mean, 29 days=84.7

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 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.