

KODAIKANAL SOLAR AND GEOMAGNETIC DATA, OCTOBER-DECEMBER 1951

Curves showing (a) Kodaikanal daily relative sunspot numbers, (b) daily areas of calcium prominences and (c) daily areas of H-alpha dark markings are given on page 146. Tables 1 to 4 below summarise the data on solar and geomagnetic phenomena.

TABLE 1
Prominent sunspot groups

Kodaikanal Serial No. of spotgroup	Mean latitude	Date of central meridian passage		Total area (millionths of the sun's visible hemisphere) at central meridian passage
9768	12°S	October	14	650
9812	7°N	December	21	900
9319	2°·5 N	December	31	400

TABLE 2
Solar Flares

Date	Time in GMT			Co-ordinates		Maximum estimated intensity	Maximum width of H-alpha line observed A
	Beg. h m	Max. h m	End. h m	Mean latitude	Mean longitude		
November 30	03 00	—	03 30	7°N	80°W	1	1·2
December 27	03 30	—	04 00	3°·5 N	55°E	1	1·7

TABLE 3

Sudden disappearance of prominences and H-alpha dark markings

Nature of phenomenon	Date and time of phenomenon when last seen	Co-ordinates of phenomenon		Remarks
		Mean latitude	Mean longitude	
Prominence	October 8 0240 UT	22°·5 N	E limb	Disappeared at 0400 UT on the same day
Prominence	October 24 0340 UT	31°N	E limb	Eruptive prominence; disappeared on the same day

TABLE 4

Principal magnetic storms

Greenwich date 1951	Storm-time				Sudden commencement				C-figure, degree of activity ⁴	Maximal activity Greenwich day	Ranges		
	GMT of begin.		GMT of ending ¹		Type ²	Amplitude ³					D	H	Z
	h	m	d	h		D	H	Z					
						'	γ	γ			'	γ	γ
October 7	09	10	8	19	...	...	...	...	m	7	3	180	49
October 17	01	10	19	13	...	...	...	...	m	17	4	180	82
October 28	11	52	28	21	s.c.	-1	+56	+23	s	28	4	408	99
November 13	03	48	14	23	...	...	...	...	m	13	3	202	33
December 27	21	34	28	20	s.c.	-1	+32	+20	ms	28	8	276	69

The following symbols and conventions have been used according to recognised practice—

1. Approximate time of ending of storm construed as the time of cessation of reasonably marked disturbance movements in the traces
2. s.c.—Sudden commencement ... = Gradual commencement
3. Signs of amplitudes of D and Z taken algebraically ;
(D—reckoned negative being westerly)
(Z—reckoned positive being vertically downwards)
4. Storm described by three degrees of activity ;
m—for moderate (when range is between 150γ & 250γ) ;
ms—for moderately severe (when range is between 251γ & 400γ) ;
s—for severe (when range is above 400γ)

Kodaikanal
30 January 1952

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Three-hourly Indices of Geomagnetic Activity

(Scale values of variometers in γ/mm :
D=11.3 ; H=4.4 ; Z=2.4)

(K9=300 γ)

Greenwich Day	OCTOBER 1951				NOVEMBER 1951				DECEMBER 1951			
	K-indices	Sum	Character of the day*		K-indices	Sum	Character of the day*		K-indices	Sum	Character of the day*	
1	4222	1332	19	S	1112	1113	11	Ca	2112	3232	16	S
2	2342	2222	19	S	3122	3312	17	S	2211	1231	13	Ca
3	2212	3121	14	Ca	2234	4434	26	Sa	1111	2224	14	S
4	1111	1122	10	Ca	3223	4432	23	Sa	4434	4554	33	M
5	1111	1222	11	Ca	3333	2233	22	S	3312	2312	17	S
6	1111	0001	5	Ca	2121	2242	16	S	1221	2122	13	Ca
7	0224	4444	24	Ma	3223	2223	19	S	1123	4452	22	Sa
8	3355	5444	33	Ma	3121	1122	13	Ca	4335	4552	31	M
9	3334	4424	27	Sa	2243	4221	20	S	2334	4642	28	M
10	2334	3544	28	Sa	2211	1111	10	Ca	2333	3423	23	Sa
11	2332	2421	19	S	1111	2222	12	Ca	2343	4422	24	Sa
12	1224	3332	20	S	2243	2412	20	Sa	2222	2121	14	S
13	2236	3333	25	M	2345	5554	33	Ma	2221	1112	12	Ca
14	3232	1441	20	S	4432	4543	29	M	2221	1134	16	S
15	2222	2132	16	S	2223	4532	23	M	2234	3342	23	S
16	2324	3444	26	Sa	2112	3321	15	S	2322	2322	18	S
17	3444	5554	34	Ma	2222	2343	20	Sa	2223	3544	25	Sa
18	3344	4533	29	M	2222	1122	14	Ca	2222	3234	20	S
19	3323	4234	24	Sa	1221	2233	16	Ca	2224	5434	26	Sa
20	4222	3241	20	S	2212	3444	22	S	2223	2222	17	Ca
21	2323	2332	20	Sa	2322	2132	17	Ca	1211	2222	13	Ca
22	2322	4533	24	M	2222	2223	17	S	2314	3633	27	M
23	2111	3322	15	S	3122	4432	21	S	3224	2321	19	S
24	1232	1112	13	Ca	2231	5422	21	Sa	1211	1121	10	Ca
25	2111	1111	9	Ca	2222	3434	22	S	1111	1212	10	Ca
26	2124	2234	20	S	2111	4341	17	Sa	0121	1121	9	Ca
27	2212	3101	12	Ca	1111	1212	10	Ca	1323	4135	22	Sa
28	1425	7772	35	VG	1222	4433	21	Sa	3765	5441	35	G
29	2222	2111	13	Ca	2223	4432	22	Sa	1211	2221	12	Ca
30	2323	1111	14	Ca	3222	3232	19	S	1123	2224	17	S
31	1211	1111	9	Ca					5334	3433	28	Ma

*At Bombay, since 1883, a day is classed as (1) a quiet day, or a day of (2) small, (3) moderate, (4) great or (5) very great disturbance, the letters for distinguishing the respective classes being C, S, M, G and VG. For representing intermediate conditions of activity of the smaller period movements, sub-classifications Ca, Sa and Ma are used. Roughly speaking a storm having a range over 225 γ in the variations of the horizontal force during the first twenty-four hours after its commencement is classed as "Very Great". It is "Great" if the range is between 150 γ and 225 γ "Moderate" if the range is between 65 γ and 150 γ and "Small" if the range is less than 65 γ . The range is however not the only criterion used in assigning the character of a storm. The oscillations in the magnetograms are duly taken into account in determining the class to which a particular storm should belong.

The corresponding international character figures can be determined from the following—

Bombay Character	International Character	Bombay Character	International Character
G } Ca }	0	M } Ma }	2
S } Sa }	1	G } VG }	

Colaba, Bombay
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