SOLAR, GEOMAGNETIC, IONOSPHERIC AND OZONE DATA

KODAIKANAL SOLAR, GEOMAGNETIC AND IONOSPHERIC DATA

(APRIL—JUNE 1962)

Tables 1 to 5 summarise the data on solar and geomagnetic phenomena. The hourly median values of critical frequency and virtual height for the ionospheric layers are given in Table 6.

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)
12288	09°N	May 1	552
12299	08°S	May 28	382*
12311	01°S	Jun 30	503*

*Area was more before central meridian passage

TABLE 2

Solar Flares

Date	Time in GMT						Co-ordinates		Importance	H-alpha line width	Remarks
	Beg.		Max.		End.		Mean latitude	Mean longitude			
	h	*m*	*h*	*m*		*m*				Å	
Apr 15	05	33	05	33	05	48	05°N	50°E	1	1·76	Observed in spectroheliioscope
Apr 21	02	03	02	03	02	26	07°N	26°W	1+	3·80	Observed in spectroheliioscope and filtergram
May 1	*01	50			02	08	20°N	73°E	1	2·08	Do.
May 1	04	20	04	45	†07	50	20°N	71°E	2	2·16	Do.
May 3	02	09	02	12	02	20	10°N	25°W	1+	2·08	End could not be observed due to thick passing clouds. Observed in spectroheliioscope and filtergram
May 3	06	44	06	53	07	18	10°N	25°W	2	2·00	Do.
Jun 21	*06	27			06	51	15°N	24°E	1	1·48	Do.

*Beginning of observations and not the beginnng of flare

† End of observations and not the end of flare

TABLE 3

Sudden disappearance of prominences and H-alpha dark markings

No sudden disappearances of H-alpha dark markings and prominences were observed.

TABLE 4

Daily Solar Data

Date	APRIL 1962			MAY 1962			JUNE 1962		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
1	36	1219	2	37	469	6	30	—	—
2	43	1156	2	43	250	2	24	—	—
3	25	—	1	58	438	2	00	—	—
4	27	—	1	50	—	1	12	—	—
5	—	—	—	34	531	2	12	—	5
6	12	—	3	44	625	2	30	—	—
7	27	—	5	35	813	3	37	1500	7
8	14	250	4	12	—	2	27	1188	5
9	17	—	4	35	844	1	25	2250	5
10	14	844	3	38	—	3	33	—	2
11	00	1344	2	42	969	2	38	2094	2
12	29	2031	1	36	1094	2	47	3563	3
13	47	1313	—	35	—	1	38	2438	1
14	64	1563	3	14	—	—	48	—	2
15	88	2750	3	—	—	—	60	2344	3
16	83	3031	2	—	—	—	58	1906	2
17	66	—	3	—	—	—	80	1438	2
18	66	2938	4	23	—	—	71	—	—
19	66	3000	5	34	—	—	74	1188	7
20	52	2594	4	35	2813	4	61	1625	3
21	50	3094	3	28	—	1	53	1406	3
22	70	2719	4	43	—	—	40	1250	1
23	58	2219	2	48	3000	1	27	—	—
24	61	—	2	50	1563	1	30	1344	5
25	39	1594	2	36	—	3	29	—	4
26	11	—	1	40	—	—	27	1125	3
27	19	—	2	46	—	3	35	625	4
28	20	1281	3	52	281	4	28	469	3
29	30	688	3	73	656	2	32	—	—
30	15	781	6	61	688	3	39	—	3
31				40	250	2			

— No observations due to cloudy sky

(a) Relative sunspot number

(b) H-alpha dark markings (Areas in millionths of the sun's visible hemisphere)

(c) Calcium prominence (Areas in square minutes of arc)

TABLE 5

Principal magnetic storms

Greenwich date 1962	Storm-time: GMT of beginning		GMT of ending[1]		Sudden commencement: Type[2]	Amplitude[3]			C-figure degree of activity[4]	Maximal activity Greenwich day	Ranges		
						D	*H*	*Z*			*D*	*H*	*Z*
	h	*m*	*d*	*h*		′	γ	γ			′	γ	γ
Apr 6	03	25	8	21	...	—	—	—	m	7	4	221	66
Apr 20	23	53	22	23	s.c.	<1	20	12	m	21	4	228	54
May 5	18	50	6	23	...	—	—	—	ms	6	6	306	58
Jun 9	03	38	10	15	...	—	—	—	m	9	5	138	40

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

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 less than 250 γ)
   ms—for moderately severe (when range is between 251 γ and 400 γ)
   s—for severe (when range is above 400 γ)

TABLE 6

Ionospheric data (Median values)

Kodaikanal (10·2°N, 77·5°E)

Beginning from January 1952, systematic ionospheric observations are being made at Kodaikanal with the Automatic Multi-frequency Ionosphere Recorder (Type C-3) made by the National Bureau of Standards, U.S.A. The general electrical characteristics of the instruments are given below—

(*a*) Supply voltage—90 to 260 volts AC single phase

(*b*) Supply frequency—50 to 60 cps

(*c*) Power Load—approximately 30 amperes at 115 volts

(*d*) Pulse recurrence frequency—from 10 to 90 pps

(*e*) Frequency sweep time—7½, 15 or 30 seconds and 30, 60 or 120 seconds

(*f*) Frequency sweep range—1 to 25 megacycles

(*g*) Frequency sweep interval—5, 15, 30 or 60 minutes

(*h*) Height ranges—0–500, 0–1000, 0–4000 kilometres

(*i*) Peak-pulse power—approximately 10 kilowatts

TABLE 6 (*contd*)

APRIL 1962

Time	foF2	foF1	foE	foEs	fbEs	f-min	h'F2	h'F	h'E	h'Es	(M3000) F2
0000	8·4			..	..	2·0		280		..	3·00
0100	7·4			..	..	1·9		270		..	3·10
0200	6·4			..	..	1·9		250		..	3·30
0300	5·9			..	..	1·6		245		120	3·35
0400	4·8			..	..	1·6		230		..	3·40
0500	3·5			..	..	1·6		225		..	3·45
0600	5·6	..	..	..	..	2·0	..	250	..	..	3·30
0700	8·2	..	2·6	7·6	2·7	2·0	..	230	120	100	3·20
0800	9·3	..	..	10·0	3·2	2·4	..	215	120	100	2·80
0900	9·0	4·8	..	11·8	3·5	2·6	300	200	..	100	2·50
1000	8·4	5·0	..	12·0	3·7	2·8	320	200	..	100	2·55
1100	8·6	4·9	..	12·4	3·8	2·8	330	200	..	100	2·55
1200	9·0	4·9	..	12·0	3·8	2·9	320	200	..	100	2·60
1300	9·7	4·8	..	12·0	3·8	2·8	310	200	..	100	2·60
1400	10·2	4·8	..	9·8	3·7	2·8	310	200	110	100	2·70
1500	10·7	4·8	3·2	8·7	3·4	2·6	305	210	115	100	2·70
1600	11·4	..	..	6·7	3·0	2·4	..	220	115	100	2·80
1700	11·7	..	..	5·6	2·8	2·6	..	240	..	105	2·80
1800	11·6	..		..	..	2·3	..	260		..	2·80
1900	10·6			..	..	2·0		320		..	2·60
2000	10·2			..	..	2·3		310		..	2·70
2100	9·8			..	..	2·4		300		..	2·85
2200	9·4			..	..	2·0		280		..	2·90
2300	9·0			..	..	2·2		290		..	2·85

MAY 1962

Time	foF2	foF1	foE	foEs	fbEs	f-min	hF'2	h'F	h'E	h'Es	(M3000) F2
0000	5·0			3·7	2·3	1·8		305		120	2·95
0100	4·0			3·4	1·7	1·7		300		120	2·95
0200	3·3			..	..	1·6		300		..	2·90
0300	3·2			3·9	..	1·6		270		120	3·20
0400	2·9			..	..	1·6		250		..	3·40
0500	1·9			..	..	1·1		260		..	3·45
0600	5·6	..	2·1	2·5	2·0	1·7	..	240	120	120	3·30
0700	7·8	..	2·7	8·2	2·8	1·7	..	220	115	100	3·15
0800	8·8	4·6	..	10·7	3·2	2·0	300	210	..	100	2·80
0900	8·6	4·7	..	11·4	3·5	2·4	320	200	..	100	2·50
1000	7·8	4·9	..	12·4	3·7	2·6	350	200	..	100	2·50
1100	7·7	4·9	..	12·2	3·8	2·6	360	200	..	100	2·50
1200	8·1	4·9	..	12·4	3·8	2·8	370	195	..	100	2·50
1300	8·4	4·8	..	12·0	3·8	2·7	360	195	..	100	2·50
1400	9·0	4·7	..	11·7	3·6	2·6	340	195	..	100	2·60
1500	9·4	4·8	..	9·8	3·4	2·5	315	200	115	100	2·70
1600	9·8	4·5	..	8·6	3·2	2·4	300	220	115	100	2·80
1700	10·5	..	..	5·7	3·0	2·2	..	240	120	100	2·90
1800	10·6	..		8·7	3·0	2·0	..	260		100	2·95
1900	10·0			6·4	2·5	1·9		260		105	3·00
2000	8·7			4·3	2·5	1·9		260		120	3·10
2100	7·6			..	..	1·9		260		..	3·10
2200	6·2			..	..	1·8		260		..	3·05
2300	5·6			..	..	2·0		285		..	3·00

TABLE 6 (*contd*)

JUNE 1962

Time	foF2	foF1	foE	foEs	fbEs	f-min	h'F2	h'F	h'E	h'Es	(M3000) F2
0000	4·2			4·5	1·8	1·4		285		115	3·05
0100	3·4			4·8	1·9	1·4		300		115	3·05
0200	2·6			4·2	1·6	1·2		300		115	3·00
0300	2·3			3·5	1·6	1·1		310		115	3·10
0400	2·0			..	A	1·2		275		110	3·30
0500	1·9			..	..	1·3		270		..	3·30
0600	5·4	..	1·9	2·4	1·9	1·3	..	240	120	110	3·30
0700	7·4	..	2·6	8·1	2·7	1·5	275	220	110	100	3·10
0800	8·3	..	..	9·6	3·0	1·7	300	200	105	100	2·80
0900	8·4	4·6	..	11·0	3·4	2·0	340	200	..	100	2·50
1000	7·9	4·7	..	11·6	3·6	2·3	380	195	..	100	2·45
1100	7·3	4·7	..	12·0	3·8	2·5	395	190	..	100	2·50
1200	7·7	4·8	..	11·8	3·8	2·5	395	180	..	100	2·50
1300	8·0	4·6	..	11·8	3·7	2·5	400	185	..	100	2·45
1400	8·4	4·6	..	10·8	3·6	2·4	365	190	110	100	2·50
1500	8·7	..	3·2	9·2	3·4	2·1	340	205	110	100	2·60
1600	9·0	..	2·9	5·6	3·0	2·2	300	220	115	100	2·75
1700	9·2	..	2·4	2·8	2·4	1·9	300	230	120	100	2·90
1800	10·0	..		6·0	2·4	1·8	..	260		105	3·00
1900	9·4			5·5	2·2	1·6		240		100	3·10
2000	7·6			4·2	2·0	1·6		240		100	3·20
2100	6·0			..	..	1·6		245		100	3·20
2200	4·9			3·9	..	1·5		265		120	3·05
2300	4·7			4·6	1·7	1·4		280		115	2·95

Time : 75·0°E

Sweep : 1 to 25 Mc. in 27 seconds

Astrophysical Observatory, Kodaikanal
27 July 1962

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Director, Astrophysical Observatory

The symbols and terminology used in accordance with the recommendations of the Special Committee on World-wide Ionospheric Soundings to the U.R.S.I/A.G.I. in its first report (Brussels, September 1956) and second report (Lindau-Tokyo, May 1957)

PRINCIPAL MAGNETIC STORMS

(Alibag, Trivandrum and Annamalainagar)

To aid workers in Geomagnetism it has been decided to publish quarterly, tables on Principal Magnetic Storms recorded at the Alibag, Trivandrum and Annamalainagar Magnetic Observatories. The Alibag Observatory (established in 1904) is the successor to the Colaba Magnetic Observatory which started functioning in 1841. The observatories at Trivandrum and Annamalainagar, which were started temporarily in October 1957 during the International Geophysical Year, are being continued on account of their unique position, the former just south of the geomagnetic and magnetic equators and the latter just north of them.

Principal Magnetic Storms (January—June 1962)

Greenwich date 1962	Storm-time: GMT of beginning			GMT of ending[1]		Sudden commencement: Type[2]	Amplitude[3] D	H	Z	C-figure degree of activity[4]	Maximal activity on K-scale 0 to 9: Gr. Day	Gr. 3-hr period	K-index	Ranges D	H	Z
	h	*m*	*d*	*h*			′	γ	γ					′	γ	γ
									ALIBAG							
Jan 10	02	12	11	02		s.c.	—0·7	+22	—9	s	10	4	8	6	282	32
Jan 19	01	14	19	20		s.c.	—0·4	+14	—5	m	19	5,6	5	3	124	15
Feb 4	09	29	05	04		s.c.	—	+15	—2	ms	4	5	7	3	226	26
						Sudden impulse at 03h 15 m GMT on Feb 5, H = —34γ, Z = +15γ, D = +0′·7										
Feb 14	17	—	16	22		..	—	—	—	ms	16	4	6	5	237	39
Feb 26	08	30	27	22		..	—	—	—	ms	25	5	6	4	156	22
						Sudden impulse at 12h 34m GMT on Feb 26, H Lost, Z = —5γ, D = —0′·3										
Apr 20	23	56	22	23		s.c.	—0·5	+30	—5	m	21	6	5	6	150	93
May 4	22	—	06	23		..	—	—	—	ms	6	4	6	6	199	48
May 30	22	—	01 Jun	19		..	—	—	—	m	31	4,5	5	5	177	54
									TRIVANDRUM							
Jan 10	02	12	11	02		s.c.	+0·5	+29	+33	s				5	315	213
Jan 19	01	14	19	20		s.c.	+0·3	+14	+17	m				2	159	76
Feb 4	Record lost					—	—	—	—	—				—	—	—
						Sudden impulse at 03h 15m GMT on Feb 5, H = —116γ, Z = —124γ, D = +1′·0										
Feb 14	17	—	16	22		..	—	—	—	ms				3	251	146
Feb 26	08	30	27	22		..	—	—	—	ms				3	190	187
						Sudden impulse at 12h 34m GMT on Feb 26, H = +26γ, Z = +33γ, D = Negligible										
Apr 20	23	56	22	23		s.c.	+0·1	+26	+37	m				2	225	94
May 4	22	—	06	23		..	—	—	—	ms				3	284	100
May 30	22	—	01 Jun	19		..	—	—	—	m				4	220	86
									ANNAMALAINAGAR							
Jan 10	02	12	11	02		s.c.	—1·3	+33	+17	s				6	303	109
Jan 19	01	14	19	20		s.c.	—0·7	+20	+11	m				3	145	46
Feb 4	09	29	05	04		s.c.	—0·7	+23	+9	ms				5	227	64
						Sudden impulse at 03h 15m GMT on Feb 5, H = —101γ, Z = —27γ, D = —2′·6										
Feb 14	17	—	16	22		..	—	—	—	ms				4	260	93
Feb 26	08	30	27	22		..	—	—	—	ms				3	183	45
						Sudden impulse at 12h 34m GMT Feb 26, H = +30γ, Z = +16γ, D = —0′·7										
Apr 20	33	56	22	23		s.c.	—0·9	+33	+18	m				3	197	59
May 30	22	—	01 Jun	19		..	—	—	—	m				4	210	53

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

1. Approximate time of ending of the storm construed as the time of cessation of reasonably marked disturbanse movements in the traces; more specifically when the K-index measure diminished to 2 or less for a reasonable period

2. s.c. = sudden commencement s.c.* = small sudden impulse followed by main impulse (the amplitude in this case is that of the main impulse only,neglecting the initial brief pulse)
.. = gradual commencement

3. Signs of amplitudes of D and Z to be taken algebraically:
(D—reckoned positive if towards East)
(Z—reckoned positive if vertically downwards)

4. Storm described by three degrees of activity:
m—for moderate (when K-index as great as 5)
ms—for moderately severe (when K=6 or 7)
s—for severe (when K = 8 or 9)

MAGNETIC OBSERVATORY, ALIBAG (BOMBAY)

Three-hourly indices of Geomagnetic Activity

(K 9 = 300 γ)

(Scale values of variometers in γ/mm: D = 11·3; H = 4·4; Z = 3·0)

Green-wich Day	APRIL 1962				MAY 1962				JUNE 1962			
	K-indices		Sum	Character of the day*	K-indices		Sum	Character of the day*	K-indices		Sum	Character of the day*
1	2233	2121	16	Ca	2222	1122	14	Ca	3323	2122	18	S
2	1112	1134	14	S	2233	1323	19	S	1212	1122	12	Ca
3	3232	2322	19	Ca	1322	3121	15	Ca	2112	2222	14	Ca
4	1233	1212	15	Ca	0223	2111	12	Ca	2323	2323	20	S
5	1211	1112	10	Ca	0111	1223	11	Ca	1222	1243	17	S
6	2444	2245	27	M	2335	6444	31	G	2222	2222	16	Ca
7	3434	4443	29	Sa	2122	2112	13	Ca	3452	3120	20	M
8	3223	3643	26	Ma	2321	2213	16	S	0232	2212	14	Ca
9	2222	2222	16	Ca	2102	1111	9	Ca	2232	2332	19	S
10	2235	4343	26	M	2222	2211	14	Ca	2334	3221	20	S
11	2224	4422	22	Sa	0332	3433	21	S	1212	2112	12	Ca
12	2101	1222	11	Ca	1222	0122	12	Ca	3132	2121	15	Ca
13	1110	1111	7	C	3222	3223	19	S	1221	1110	9	Ca
14	1111	1111	8	C	3323	2222	19	S	0332	2222	16	S
15	0121	4433	18	Sa	2232	3331	19	S	2322	3331	19	S
16	3321	1222	16	S	2433	2122	19	Sa	2222	1111	12	Ca
17	3211	2211	13	Ca	2222	1211	13	Ca	1111	1111	8	Ca
18	1223	3232	18	Ca	1202	1111	9	Ca	2111	1011	8	Ca
19	2221	1112	12	Ca	2333	2222	19	S	1212	2111	11	Ca
20	2222	1324	18	S	1212	2210	11	Ca	2221	1112	12	Ca
21	2233	2544	25	M	1121	1011	8	Ca	2222	2331	17	S
22	4323	3333	24	Sa	2112	1110	9	Ca	2222	2121	14	Ca
23	3222	2211	15	Ca	0121	1110	7	Ca	1333	2341	20	Sa
24	1111	2231	12	Ca	0111	0000	3	C	1222	2121	13	Ca
25	0224	3331	18	S	0001	0101	3	C	1221	2211	12	Ca
26	2343	3222	21	S	1111	2112	10	Ca	1122	2223	15	Ca
27	2222	1231	15	Ca	1432	3334	23	S	3333	4232	23	Sa
28	2221	2322	16	Ca	2122	3222	16	S	2333	3223	21	S
29	2211	3122	14	Ca	2232	1111	13	Ca	2123	3221	16	S
30	1111	1332	13	Ca	0122	1012	9	Ca	1333	2322	19	Sa
31					2335	5333	27	Ma				

*At Bombay, since 1883, a day is classified as (*i*) a quiet day or (*ii*) Small, (*iii*) Moderate, (*iv*) Great or (*v*) Very Great disturbance, the letters distinguishing the respective classes being C, S, M, G and V.G. For respresenting intermediate conditions of activity of the smaller period movements, sub-classifications Ca, Sa, and Ma are used. Roughly speaking, a storm having a range of over 225γ 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 150γ and 225γ, "Moderate", if the range is between 65γ and 150γ. "Small" if the range is less than 65γ. 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 in which the particular storm should belong.

The corresponding International Character figures can be determined from the following—

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

Colaba, Bombay
18 August 1962

P. R. PISHAROTY
Director, Colaba and Alibag Observatories

DAILY OZONE DATA—INDIA

(From direct sun observations on 3112/3323 Å and 4536/3323 Å)

Assumed α (3112) = 1·233 and α'(3323) = 0·071

NEW DELHI

(Lat. 28°35′N, Long. 77°12′E)

Date	APRIL 1962			MAY 1962			JUNE 1962		
	Hours (IST)	Ozone amount (cm-atmos)	State of sky	Hours (IST)	Ozone amount (cm-atmos)	State of sky	Hours (IST)	Ozone amount (cm-atmos)	State of sky
1	1645	0·283	*Ci* 2, hazy	1659	0·263	Hazy	No observation		
2	1642	0·283	Clear	1656	0·265	,,	1713	0·262	*As* 8, Dusty
3	1636	0·274	,,	0738	0·261	Very hazy	1646	0·254	*As* 3
4	1645	0·269	*Ac* 1, *Ci* 1, hazy	1646	0·273	*Ci* 2	1700	0·253	Very hazy
5	1633	0·265	*Cu* 1, very hazy	0741	0·275	Clear	1711	0·253	Clear
6	1639	0·275	Hazy	1651	0·279	*Cu* 2, *Ci* 2	1659	0·259	Hazy
7	1637	0·258	(*Sc*, *Cu*) 3, hazy	1651	0·282	(*Ci*, *Cs*) 3	1703	0·253	Clear
8	1651	0·251	*Cu* 3, hazy	1649	0·290	*Cu* 1, *Ci* 7	Zenith observation		
9	1631	0·274	Hazy	1651	0·289	(*Cu*, *Sc*) 4, *Ci* 4 hazy	,,		
10	1637	0·278	*Cu* 4	0742	0·275	*Sc* 6, *Ci* 1	1714	0·249	(*Cu*, *Sc*) 7, hazy
11	0750	0·309	*Cu* 1, *Ac* 1	1651	0·286	Clear	0715	0·247	Very hazy
12	1646	0·281	*Cu* 3, hazy	1643	0·259	*Ci* 3	No observation		
13	1637	0·274	*Sc* 1, *Cu* 2	0735	0·251	Sl. haze	,,		
14	1645	0·261	*Sc* 5, *Ci* 1	1651	0·254	Hazy	Zenith observation		
15	0747	0·255	Hazy	1655	0·265	Clear	1702	0·259	*Cs* 7, *Cc* 1
16	1653	0·279	*Cu* 3, *Ci* 2	1705	0·246	,,	1717	0·259	Very hazy
17	1648	0·290	Sl. haze	1651	0·269	,,	0724	0·246	,,
18	0744	0·273	,,	Zenith observation			0722	0·247	*As* 8, dust haze
19	1655	0·259	*Ci* 8	1657	0·249	Hazy	1709	0·246	*Cu* 2, *Sc* 1
20	1700	0·266	*Ci* 4, *Cs* 1	1649	0·243	Clear	1711	0·247	*Cu* 2, *Ac* 1, hazy
21	1651	0·274	Clear	1652	0·249	,,	1710	0·249	*Cu* 2, very hazy
22	1658	0·283	,,	1656	0·259	,,	1709	0·253	(*Cb*, *Cu*) 4, (*Cu*, *Ac*, *Ci*) 2
23	1659	0·254	Hazy	1645	0·246	*Cu* 1, hazy	1653	0·255	*Cu* 2, *Cs* 2
24	1652	0·241	,,	1647	0·243	*Cu* 2, *Fc* T, hazy	1709	0·255	*Cu* 3, *Ci* 4
25	1647	0·242	Clear	1651	0·250	Hazy	0727	0·233	Hazy
26	1647	0·249	*Ci* 4, hazy	1653	0·246	*Cu* 2, very hazy	1711	0·247	*Ci* 1, very hazy
27	0738	0·246	(*Ci*, *Cs*) 8	1713	0·239	(*Cu*, *Cs*) 2	1721	0·247	Dust haze
28	0738	0·254	(*Cu*, *Ac*) 3, *Ci* 2, hazy	1713	0·242	Dusty	0726	0·245	,,
29	1646	0·254	Hazy	0720	0·237	Clear	Zenith observation		
30	1655	0·261	Clear	0719	0·231	Hazy	0724	0·249	*Ac* 1, hazy
31				0717	0·249	Dust storm			

NOTE—The cloud amounts are in oktas

DAILY OZONE DATA—INDIA

(Direct sun or zenith sky observation—AD)

α (3055) = 1·882 α' (3254) = 0·120

α (3176) = 0·391 α' (3398) = 0·017

AHMEDABAD

(Lat. 23°04′N, Long. 72°38′E)

Date	APRIL 1962				MAY 1962				JUNE 1962			
	Hours (IST)	μ	Ozone amount (10^{-3} cm)	State of sky	Hours (IST)	μ	Ozone amount (10^{-3} cm)	State of sky	Hours (IST)	μ	Ozone amount (10^{-3} cm)	State of sky
1	09	1·72	275	Hazy	13	1·01	259	Clear	17	2·40	267	*Cu* 4, *As* 1
2	18	3·17	279	Clear	17	2·47	269	Sl. haze	17	2·17	268	*Cu* 2
3	18	3·08	270	,,	17	2·47	270	*Ci* 1, *Cs* 2	10	1·36	278	*Cu* 3
4	17	2·48	278	,,	09	1·36	281	Clear	17	1·72	275	Clear
5	17	2·91	286	Sl. haze	17	2·15	273	Sl. haze	17	1·76	272	,,
6	17	2·73	279	Hazy	09	1·49	282	,,	17	1·65	275	,,
7	18	3·10	274	Clear	17	2·36	275	,,	17	2·14	270	,,
8	17	2·67	278	Hazy	17	2·10	278	,,	17	2·10	272	*Ac* 2, *Cs* 1
9	17	2·78	267	*Cu* 1	17	2·09	280	,,	09	1·50	262	*Cu* 2
10	17	2·94	275	*Cu* T, sl. haze	17	2·39	276	Clear	09	1·39	268	Nearly overcast
11	17	2·80	275	*Cu* T, sl. haze	18	2·74	276	,,	09	1·48	273	,,
12	13	1·03	268	*Sc* 1, sl. haze	18	2·76	273	,,	17	2·24	271	*Cu* 1, *As* 1
13	10	1·33	279	Clear	17	2·31	260	Sl. haze	09	1·42	276	*Ci* 3
14	13	1·04	270	,,	17	2·40	265	Clear, sl. haze	17	2·34	276	Nearly overcast
15	10	1·38	277	,,	17	2·12	269	*Sc* 1	17	2·18	277	Thick haze
16	17	2·42	281	Sl. haze	18	2·89	276	*Cu* 1, *Ac* 1, sl. haze	17	2·28	269	,,
17	17	2·26	280	,,	17	2·33	275	*Ci* 2, sl. haze	09	1·39	273	Nearly overcast
18	18	3·22	264	Clear	17	2·37	258	*Ac* 1, *Fc* 1, sl. haze	17	2·02	273	*Cu* 3
19	13	1·02	258	,,	17	2·61	265	Hazy	17	1·99	273	*Cu* 2, hazy
20	09	1·59	261	,,	No observation				17	2·34	270	*Ac* 2
21	17	2·21	253	,,		,,			17	2·05	256	*Ac* 2
22	No observation					,,			17	2·21	262	*Cb* 2, *Ac* 2
23	10	1·37	265	*Cs* 2, sl. haze	17	2·16	263	*Cu* 1, *Ac* 1, sl. haze	16	1·58	265	*Ac* 2
24	13	1·02	258	Clear	17	2·08	263	*Ac* T, sl. haze	10	1·30	253	*Ac* 3
25	13	1·02	255	,,	18	2·66	264	*Ac* 1, sl. haze	17	1·85	262	*As* 2, *Ci* 1
26	13	1·02	247	,,	17	2·07	261	*Cu* 1, sl. haze	17	1·95	258	*Cu* 5
27	18	2·96	262	*Cs* 1	10	1·17	258	Sl. haze	18	2·80	264	*Cu* 2, thick haze
28	10	1·39	262	Clear	17	2·09	262	*Cu* T	17	2·07	263	*Cu* T
29	11	1·11	255	,,	17	2·21	261	*Cu* 1	18	2·41	263	*Cu* 2
30	18	2·89	257	Ac T, hazy	17	2·12	264	*Cu* 3, sl. haze	17	2·12	259	*Cu* 3, hazy
31					17	2·39	263	*Cu* 4, hazy				

NOTE—The cloud amounts are in oktas

DAILY OZONE DATA—INDIA

(From direct sun observations on 3112/3323 Å and 4536/3323 Å)

Assumed α (3112) = 1·231 and α' (3323) = 0·08

KODAIKANAL

(Lat. 10°14′N, Long. 77° 28′E)

Date	APRIL 1962			MAY 1962			JUNE 1962		
	Hours (IST)	Ozone amount (cm-atmos)	State of sky	Hours (IST)	Ozone amount (cm-atmos)	State of sky	Hours (IST)	Ozone amount (cm-atmos)	State of sky
1	08	0·258	*Cs* 7	08	0·262	*Ci* 4	08	0·267	*Ci* 6
2	08	0·259	Clear	08	0·269	*Ci* 1	No observation		Overcast, rain
3	No observation		Overcast, drizzle	08	0·263	*Ci* 2	,,		,, ,,
4	08	0·254	*Cs* 7	08	0·265	*Cs* 3	10	0·286	*Ci* 8
5	No observation		Overcast, rain	08	0·266	*Ci* 3	08	0·273	*Cs* 6
6	09	0·259	*Ac* 4, *Ci* 2	08	0·266	*Ci* 1	No observation		Overcast
7	10	0·267	*Sc* 2	10	0·277	*Cu* 2, *Ci* 3	08	0·270	*Ci* 2
8	09	0·267	*Sc* 2, *Ac* 3, *Cs* 1	No observation		Overcast	08	0·271	*Ci* 4
9	08	0·254	*Sc* 2, *Ci* 2	08	0·263	*Cu* 1, *Ci* 3	08	0·269	*Ci* 3
10	09	0·266	*Sc* 4, *Ci* 1	08	0·269	*Sc* 1, *Cs* 5	07	0·262	*Sc* 1, *Ci* 4
11	08	0·243	*Sc* 1, *Ci* 3	No observation		Overcast, rain	08	0·275	*Ci* 3
12	No observation		Overcast, rain	09	0·270	*Cu* 1, *Ci* 4	08	0·267	*Cs* 3
13	08	0·253	*Sc* 2, *Cs* 4	No observation		Overcast	08	0·266	*Cs* 6
14	08	0·265	*Cu* 2, *Cs* 2	10	0·278	*Ci* 7	11	0·279	*Sc* 1, *Cs* 6
15	08	0·254	*Ci* 1	No observation		Overcast	08	0·270	*Sc* 1, *Cs* 3
16	08	0·258	*Ci* T	,,		Overcast, rain	07	0·258	*Ci* 5
17	08	0·263	Clear	,,		,, ,,	08	0·270	*Cs* 6
18	08	0·266	*Cu* 1, *Ci* 1	,,		,, ,,	08	0·273	*Cs* 6
19	08	0·265	*Ac* 2	,,		,, ,,	08	0·273	*Ac* 1, *Ci* 3
20	08	0·271	Clear	07	0·242	*Ci* 1	08	0·267	*Ci* 3, *Cs* 3
21	08	0·271	*Ci* T	16	0·258	*Cu* 5	08	0·269	*Ci* 2
22	08	0·271	Hazy	No observation		Overcast	08	0·263	*Cs* 6
23	08	0·270	,,	09	0·269	*Cu* 5	09	0·266	*Cs* 8
24	08	0·270	*Cs* 6	08	0·261	*Ci* 3	No observation		Overcast
25	No observation		Overcast	No observation		Overcast, rain	08	0·259	*Ci* 6
26	08	0·271	*Ci* 3	,,		Overcast	08	0·261	*Ci* 2
27	08	0·273	*Ci* 5	09	0·270	*Cu* 4	08	0·263	*Ac* 3, *Ci* 2
28	08	0·265	*Ac* 4, *Cs* 1	08	0·270	*Cu* 2	08	0·263	*Ci* T
29	09	0·271	*Ac* 2, *Cs* 2	07	0·251	*Ci* 1	No observation		Overcast
30	08	0·265	*Ci* T, hazy	09	0·267	*Ci* 1	08	0·259	*Ci* 3, *Cs* 3
31				08	0·262	*Ci* 1			

NOTE—The cloud amounts are in oktas