SOLAR, GEOMAGNETIC, IONOSPHERIC AND OZONE DATA

KODAIKANAL SOLAR, GEOMAGNETIC AND IONOSPHERIC DATA

(JULY-SEPTEMBER 1961)

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. A diagram showing the times of rising and setting of the sun and planets at Kodaikanal for 1962 is given in plate facing page 128.

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)
12168	08°S	Jul 14	1224
12198	12°N	Sep 4	1091*

*Area was more before central meridian passage

TABLE 2

Solar Flares

Date	Time in GMT						Co-ordinates		Importance	H-alpha line width Å	Remarks
	Beg.		Max.		End.		Mean latitude	Mean longitude			
	h	*m*	*h*	*m*	*h*	*m*					
Jul 12	09	09	09	26	09	26	09°S	29°E	1	..	Observed in filtergram
Jul 14	02	55	03	07	03	09	07°S	03°W	1	1·44	Observed in spectrohelioscope and filtergram
Jul 18	*08	13			08	31	07°S	55°W	1+	..	Observed in filtergram
Jul 18	*10	43			†10	53	07°S	55°W	2 (probably)	..	Observed in monochromatic heliograph through passing clouds
Jul 19	02	10	02	25	02	30	06°S	70°W	1	1·6	Observed in spectrohelioscope and filtergram
Aug 4	04	35	04	45	04	50	22°N	72°W	1	1·32	Do.
Aug 6	06	51	..	..	..	..	12°S	80°W	1		Observed in filtergram

*Time of commencement of observation and not the beginning of flare

†Time of end of observation and not the end of flare.

TABLE 2—(Contd)

Date	Time in GMT						Co-ordinates		Importance	H-alpha line width	Remarks
	Beg.		Max.		End.		Mean latitude	Mean longitude			
	h	*m*	*h*	*m*	*h*	*m*				Å	
Aug 10	02	57	..	..	03	36	08°S	60°E	1	1·40	Observed in spectrohelioscope and filtergram
Aug 13	03	40	..	..	03	48	08°N	42°E	1	..	Do
Aug 18	*04	00	..	..	†04	30	08°N	28°W	1	..	Observed in filtergram
Sep 1	03	23	03	23	03	30	12°N	45°E	1	..	Do.
Sep 2	03	23	03	30	03	41	12°N	28°E	1	2·48	Observed in spectrohelioscope and filtergram
Sep 2	*06	13	..	..	†06	20	08°N	30°E	1	1·60	Observed in spectrohelioscope through passing clouds
Sep 4	07	30	07	34	07	45	11°N	04°W	1	2·08	Do
Sep 7	06	18	06	18	06	22	11°N	40°W	1	1·44	Observed in spectrohelioscope and filtergram
Sep 9	05	07	05	09	05	14	12°N	67°W	1	2·24	Observed in spectrohelioscope through passing clouds
Sep 17	04	52	04	54	04	57	11°S	37°W	1	2·0	Observed in spectrohelioscope
Sep 23	*06	31	06	31	†06	41	07°N	09°E	1	..	Observed in filtergram
Sep 25	*03	01	03	02	†03	09	05°N	53°E	1	2·92	Observed in spectrohelioscope and filtergram (through passing clouds)

* Time of commencement of observation and not the beginning of flare.

† Time of end of observation and not the end of flare

TABLE 3

Sudden disappearance of prominences and H-alpha dark markings

Phenomenon	Date and time (GMT) of phenomenon when last seen		Co-ordinates of phenomenon		Remarks
			Mean latitude	Mean longitude	
Prominence	6 Aug	0553	16°S	90°W	The object disappeared by 0623

TABLE 4

Daily Solar Data

Date	JULY 1961			AUGUST 1961			SEPTEMBER 1961		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
1	—	—	—	—	—	—	48	938	6
2	41	—	—	15	2344	3	42	—	4
3	—	—	—	13	2281	4	43	—	5
4	—	—	—	25	2000	2	43	625	6
5	27	—	—	11	—	—	32	781	—
6	38	—	—	No spots	3657	5	30	1000	—
7	50	—	—	,,	—	—	55	1407	3
8	38	1469	3	12	4656	4	35	4407	3
9	49	1406	3	15	—	—	28	4969	2
10	50	937	—	55	1719	3	—	—	—
11	65	—	—	60	—	7	—	—	—
12	73	—	—	65	—	—	49	5157	2
13	71	—	—	93	—	8	58	3876	1
14	79	2281	2	—	—	—	92	3031	5
15	85	2344	3	104	—	—	83	—	5
16	—	—	—	—	—	—	74	2000	2
17	58	4062	—	—	—	—	65	2219	2
18	67	—	—	76	—	1	44	1656	5
19	77	4062	—	30	—	—	35	2093	5
20	81	—	—	41	—	—	48	3313	8
21	—	—	—	27	562	3	—	—	—
22	—	—	—	—	—	—	22	—	—
23	—	—	—	35	—	—	25	—	9
24	—	—	—	24	812	4	50	—	—
25	42	2938	—	34	1250	8	56	—	—
26	42	2938	—	30	—	7	—	—	—
27	32	1969	2	—	—	—	67	—	—
28	—	—	—	42	1125	10	78	3563	8
29	40	2782	6	35	844	3	68	3844	7
30	24	1126	5	52	—	1	52	5032	6
31	48	1375	2	32	218	5			

— 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 1961	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
July 13	11	12	16	09	s.c.	2	58	35	ms	14	9	368	121
Jul 17	18	25	19	05	s.c.	<1	24	14	m	18	5	204	63
Jul 26	19	50	28	23	s.c.	1	47	25	s	27	8	442	150
Aug 29	17	06	31	10	s.c.	<1	13	6	m	30	4	172	35
Sep 24	01	37	25	16	...	—	—	—	ms	24	6	271	75
Sep 30	21	10	1 Oct	20	s.c.	<1 3	17 108	11 58	s	1 Oct	10	452	127

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

TABLE 6

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—0-1500, 0-1000, 0-4000 kilometres

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

Ionospheric data (Median values)

Kodaikanal (10·2°N, 77·5° E) July 1961

Time (hrs)	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000) F2
00		4·8	300				4·0	2·85
01		4·2	305				4·0	2·90
02		3·4	310				6·0	2·85
03		3·0	305				4·2	2·95
04		2·2	280				4·9	3·25
05		2·2	260				3·1	3·30
06		5·7	250		120	1·9	G	3·15
07		8·0	225		110	2·6	7·6	3·10
08		9·0	215		105	3·1	9·2	2·90
09	320	9·4	200				10·0	2·60
10	330	9·0	200				12·0	2·45
11	360	8·8	195				12·0	2·40
12	380	8·6	195	4·9			12·4	2·45
13	370	8·9	200				12·2	2·50
14	360	9·2	200				11·6	2·45
15	350	9·7	205		110	3·4	10·7	2·55
16		10·2	215		110		9·5	2·65
17		10·6	230		110	2·5	7·6	2·80
18		11·0	255				4·6	2·90
19		10·3	260				4·7	2·90
20		8·7	280				4·5	2·95
21		7·4	275				4·2	2·85
22		6·6	295				4·4	2·85
23		6·1	300				4·2	2·90

Ionospheric data (Median values)

Kodaikanal (10·2°N, 77·5°E) August 1961

Time (hrs)	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000) F2
00		6·2	270				4·9	3·00
01		5·4	285				3·8	3·00
02		4·3	280				3·8	3·00
03		4·1	250				3·8	3·20
04		3·4	235				4·8	3·30
05		2·7	230					3·40
06		5·4	250		120	1·8	G	3·20
07		8·1	220		105		8·0	3·00
08		9·1	205				9·7	2·70
09		9·1	200				11·0	2·50
10		8·9	190				12·4	2·50
11	355	8·6	190				12·3	2·45
12	370	8·8	190				12·6	2·40
13	365	9·0	200				12·2	2·50
14	350	9·5	200				12·2	2·45
15		10·2	200				11·1	2·50
16		10·2	215		110	3·0	9·8	2·60
17		10·8	235		110	2·6	7·7	2·75
18		10·9	260				5·9	2·80
19		10·1	280				6·3	2·75
20		9·5	280				4·6	2·90
21		8·9	260				4·2	3·00
22		8·5	260				3·7	2·95
23		7·8	280				3·4	2·90

Kodaikanal (10·2°N, 77·5°E) September 1961

00		8·5	260					3·15
01		7·6	235					3·35
02		5·4	220					3·40
03		3·9	235					3·40
04		2·8	240					3·45
05		2·1	240					3·50
06		5·6	245		120	1·8	G	3·30
07		8·2	220		105	2·7	6·8	3·20
08		9·5	200				9·0	2·80
09		9·2	200				10·0	2·50
10		8·4	195				12·0	2·50
11		8·8	190				11·7	2·45
12		8·8	190				11·8	2·50
13		9·3	200				11·2	2·50
14		9·6	200				11·4	2·50
15		10·4	205				9·2	2·60
16		11·0	220		110		8·4	2·70
17		11·2	240		115		6·8	2·80
18		10·8	275				4·4	2·70
19		10·2	305				5·0	2·60
20		9·8	260					2·80
21		10·1	240				4·3	3·00
22		9·3	250				4·0	3·10
23		9·2	260				3·8	3·00

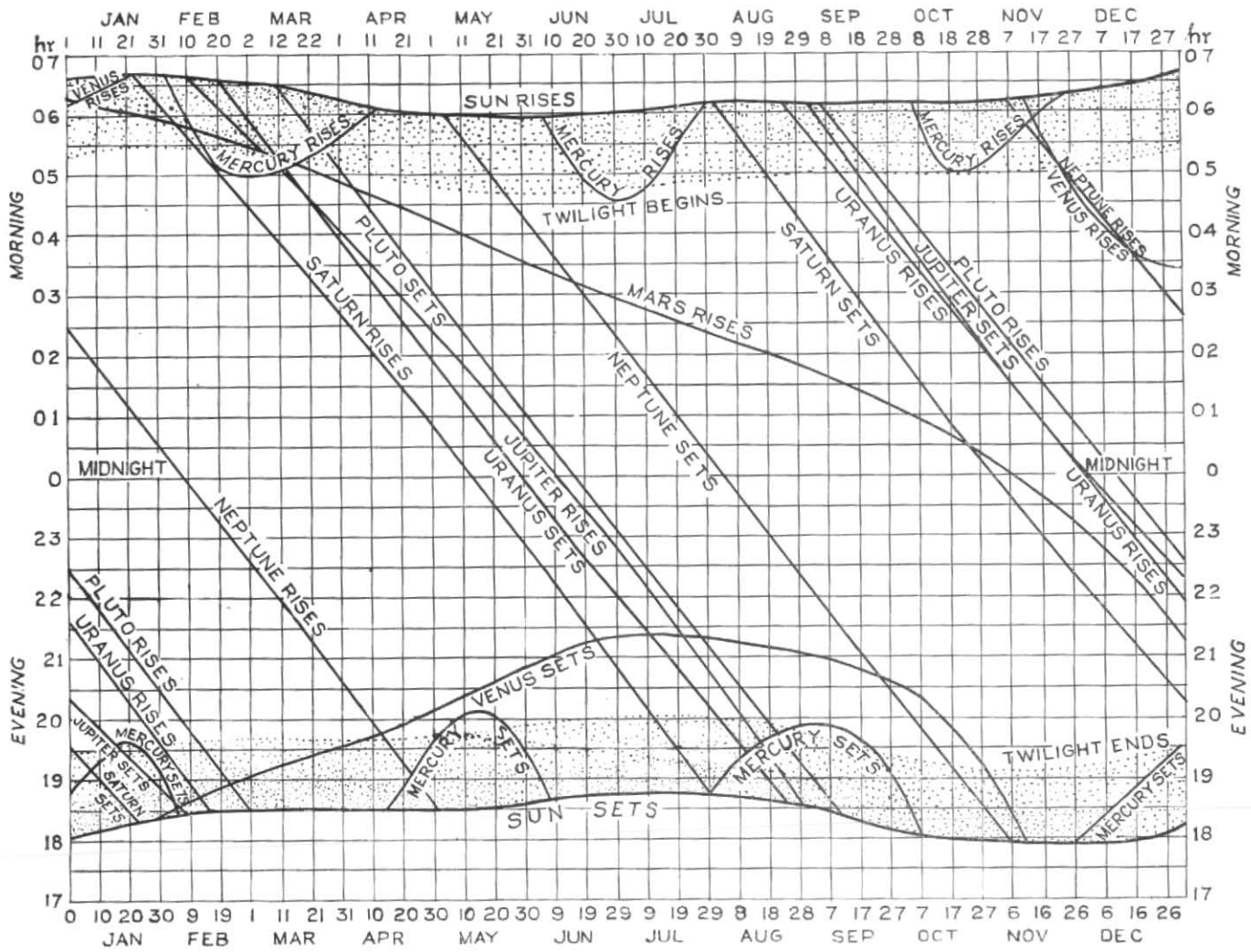
Time: 75·0°E

Sweep: 1·0 Mc. to 25·0 Mc. in 27 seconds

Astrophysical Observatory, Kodaikanal
27 October 1961

M. K. VAINU BAPPU
Director, Astrophysical Observatory

The symbols and terminology used are 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, 2 September 1956).



Times (IST) of rising and setting of the sun and planets at Kodaikanal (10°14′N, 77°28′E) for 1962

(Plate to face page 128 of Vol. 13, No. 1)

MAGNETIC OBSERVATORY, ALIBAG (BOMBAY)
Three-hourly indices of Geomagnetic Activity

(K9=300γ)

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

Greenwich day	JULY 1961 K-indices		Sum	Character of the day*	AUGUST 1961 K-indices		Sum	Character of the day*	SEPTEMBER 1961 K-indices		Sum	Character of the day*
1	2223	3212	17	S	2131	2122	14	Ca	2534	2244	26	Sa
2	1233	2433	21	S	2543	3432	26	M	2333	2222	19	S
3	2334	3222	21	S	1433	3333	23	Sa	2323	2221	17	Ca
4	3233	3325	24	Sa	3223	2222	18	S	0221	1212	11	Ca
5	5333	4422	26	M	1333	2222	18	S	3221	2231	16	Ca
6	2322	2321	17	S	2222	2222	16	Ca	1221	2111	11	Ca
7	3332	3221	19	S	1121	1121	10	Ca	1221	2222	14	Ca
8	1222	2121	13	Ca	1234	3442	23	Sa	1322	2222	16	Ca
9	2232	3211	16	Ca	1221	1110	9	Ca	2232	1211	14	Ca
10	2332	3212	18	S	1332	2322	18	S	3112	2222	15	Ca
11	1222	3121	14	Ca	4343	4344	29	Sa	1222	2423	18	S
12	1232	1111	12	Ca	2220	1222	13	Ca	2443	2122	20	S
13	1116	7765	34	G	2212	1010	9	Ca	2221	1434	19	S
14	3366	5543	35	Ma	1122	3431	17	S	3433	5243	27	Sa
15	2322	4123	19	S	2232	2221	16	S	2321	3101	13	Ca
16	4333	2222	21	S	2221	1111	11	Ca	1222	2232	16	Ca
17	2355	3253	28	M	1332	2132	16	Ca	3232	2110	14	Ca
18	3445	5443	32	Ma	2332	2312	18	S	2112	3321	15	Ca
19	3321	0001	10	Ca	2332	2211	16	S	0211	2111	9	Ca
20	2333	3334	24	Sa	1223	2331	17	S	1220	1332	14	S
21	3543	4243	28	Sa	2211	2221	13	Ca	2222	1111	12	Ca
22	3332	2201	16	S	1121	1111	9	Ca	3213	3332	20	S
23	1233	4532	23	M	2222	2122	15	Ca	3211	2122	14	Ca
24	1223	3222	17	S	1222	2333	18	S	3345	6644	35	G
25	2232	3222	18	S	2333	2333	22	S	3343	3322	23	Sa
26	3212	1254	20	Sa	3333	2234	23	Sa	3223	3422	21	Sa
27	7776	5444	44	G	3232	1122	16	Ca	2344	3422	24	Sa
28	3233	3333	23	S	2221	2121	13	Ca	2222	1132	15	Ca
29	2222	3222	17	Ca	1232	2453	22	M	3122	2322	17	S
30	3332	2232	20	S	4345	5434	32	Ma	2222	2148	23	G
31	2211	2222	14	Ca	4333	3442	26	S				

*At Bombay, since 1883, a day is classed (1) a quiet day or day of (2) Small, (3) Moderate, (4) Great or (5) Very Great disturbance, the letters 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 of over 225γ in the variations of the horizontal force during the first twentyfour 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 thn 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 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
Ca } Ca }	0	M } Ma }	2
S } Sa }	1	G } VG }	2

Colaba, Bombay
11 December 1961

P. R. PISHAROTY
Director, Colaba and Alibag Observatories

DAILY OZONE DATA—INDIA

(From direct sun observations on 3112/3322 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	JULY 1961			AUGUST 1961			SEPTEMBER 1961		
	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	1703	0·241	(*Ci*, *Cs*)5	1708	0·250	*Cu* 3, *Cs* 1	1636	0·243	*Cu* 2, *Sc* 3, *Ci* 1
2	0718	0·229	*Ci* 1	No observation			No observation		Power failure
3	1724	0·243	*Cu* 4	1708	0·237	*Cu* 3, *Ac* 5	,,		Rain
4	1708	0·233	*Fc* 1, *Cu* 2, *Sc* 2	0740	0·247	*As* 6	1642	0·241	(*Sc*, *Cu*) 5
5	1704	0·222	*Cu* 6	1707	0·242	*Ci* T, *Cu* 1	1638	0·218	(*Cu*, *Cc*) 3, (*Ci*, *Cc*) 3
6	1710	0·239	Cloudy	No observation			1643	0·242	(*Cu*, *Ci*) 4
7	0714	0·229	*Ci* 1	,,			No observation		Drizzle
8	1706	0·251	*Ac*	,,			1645	0·235	Sun clear
9	No observation		Overcast	,,			1641	0·235	(*Sc*, *Cu*)2, *Ci* 4
10	,,		Overcast, rain	,,			1634	0·223	*Cu* 2
11	,,		,,	,,			1638	0·225	(*Cu*, *Sc*) 5
12	,,		Rain	,,			0805	0·231	*Fc* T, *Ac* 1
13	1704	0·237	(*Cu*, *Cs*) 2	1710	0·245	*Cu* 1, *As* 7	1638	0·237	*Cu* 3
14	1716	0·242	(*Sc*, *Cu*) 1, *Ac* 3, (*Ci*, *Cc*)2	No observation			1636	0·233	*Sc* 1, *Cu* 1, *Ci* 2
15	1703	0·235	*As*	,,			0807	0·230	*Cu* 4
16	No observation			,,			0814	0·235	*As* 3, *Cc* 4
17	1712	0·227	(*Sc*, *Cu*) 2, *Ci* 5	,,			1632	0·249	*Cu* 2, *Cs* 1
18	1710	0·234	(*Cu*, *Sc*, *Fc*)3	1710	0·243	*Cu* 3	1628	0·239	(*Sc*, *Cu*) 2, *Cs* T
19	1713	0·233	(*Cu*, *Sc*)2, (*Ci*, *Cc*, *Cs*) 1	1708	0·242	*Cu* 1	1634	0·229	*Cu* 1, *Ci* T
20	1717	0·235	(*Cu*, *Sc*) 2, (*Ci*, *Cc*) 1	1714	0·225	*Ac* 6, *Ci* 1	1635	0·239	(*Sc*, *Fc*) T
21	1713	0·242	(*Cu*, *Sc*) 3	0739	0·249	*Cu* 1, *Cc* 1	1636	0·245	(*Cu*, *Sc*) T
22	No observation			No observation			1635	0·246	*Cu* 1
23	1713	0·245	*Ac* 6, *Cu* 2	1710	0·237	*Ci* 3	1620	0·238	*Cu* 1, *Cs* 5
24	1714	0·233	*Ci* 4	No observation			1627	0·243	*Cu* 4, *Sc* 1, *Ci* 2
25	1723	0·203	*Cc* 4	1705	0·226	*Cu* 2, *Ci* 2	1611	0·238	(*Sc*, *Cu*) 4
26	1720	0·233	*Cu* 3	1648	0·238	(*Cu*, *Sc*) 2, *Ci* 1	1611	0·251	*Sc* T, *Ci* 3
27	0736	0·230	*Ci* T	No observation			1630	0·245	(*Sc*, *Cu*) 2, hazy
28	0735	0·235	*Ac* T, (*Ci*, *Cs*) 2	1713	0·243	*Cu* 2, *Cs* 4	1621	0·243	,,
29	No observation			1707	0·237	*Cu* 2, *Ac* 2, *Ci* 4	1623	0·202	(*Cu*, *Ci*) 2
30	,,			No observation			1556	0·249	*Cu* 2
31	,,			1702	0·247	(*Cu*, *Sc*) 1, *Ac* 3, *Ci* 1			

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	JULY 1961				AUGUST 1961				SEPTEMBER 1961			
	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	No observation				17	2·13	257	Overcast	17	2·55	260	(*Sc*, *Ac*) 3
2	,,				18	2·91	262*	,,	10	1·43	255*	Overcast
3	,,				17	1·99	263	(*Cu*, *Sc*) 4	10	1·43	255*	,,
4	15	1·25	247	*Cu* T	18	2·99	256*	Overcast	17	2·07	253*	,,
5	No observation				18	2·96	253*	,,	17	2·35	253*	,,
6	,,				No observation				17	1·96	255	,,
7	,,				18	3·14	259	Overcast	17	2·41	254	,,
8	,,				18	2·82	250*	,,	17	1·94	248*	,,
9	,,				18	2·61	253*	,,	17	2·24	251	,,
10	,,				18	2·15	253	,,	No observation			
11	,,				18	3·41	253*	,,	17	3·16	250	*Cu* 4
12	,,				18	3·59	249	,,	17	2·39	255*	Overcast
13	17	2·20	253*	Overcast	No observation				17	2·52	252	,,
14	18	2·43	250*	,,	18	3·44	253*	Overcast	17	2·15	255*	,,
15	18	2·57	253*	,,	10	1·16	267	Observation through cloud	16	1·75	266	,,
16	12	1·05	248*	,,	17	2·06	260	*Fc* 2, *Ac* 4	17	2·45	255*	,,
17	18	2·52	270*	,,	11	1·13	249	Overcast	No observation			
18	No observation				09	1·70	261	,,	17	2·67	241	*Cu* 3
19	18	2·59	264	Clear	18	2·83	253	,,	17	2·59	251	*Cu* 2
20	18	3·39	272*	Overcast	No observation				17	2·76	243	*Sc* 1, *Cu*
21	18	2·90	266	,,	17	2·63	264	Overcast	No observation			
22	18	2·62	254	*Ci* 3, *Cu* 3	18	2·94	272	Haze, *Cu* T	,,			
23	10	1·22	250*	Overcast	17	2·50	268	*Cu* 2, haze	,,			
24	18	2·86	261	,,	17	2·33	255*	Overcast	,,			
25	18	2·60	270	*Ci* 2, *Cu* 2, (*Ac*, *As*) 2	16	1·63	250	,,	,,			
26	18	2·66	260*	Overcast	17	2·50	251	,,	,,			
27	No observation			Rain	No observation				17	2·34	248	Overcast
28	17	1·82	264	*Sc* 4, *Cu* 2	17	2·13	262	Overcast	17	2·50	247*	,,
29	18	2·62	262*	Overcast	17	2·48	262	*Cu* T	17	2·58	265	*Cu*
30	10	1·25	245*	,	17	2·30	266	(*Sc*, *Ac*) 4	17	3·10	261	*Cu* 2
31	18	2·89	254	,,	17	2·06	265	*Ac* 3				

NOTE—The cloud amounts are in oktas *Zenith sky observation

DAILY OZONE DATA—INDIA

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

Assumed α (3112) = 1·23 and α' (3323) = 0·08

KODAIKANAL

(Lat. 10°14′N, Long. 77°28′E)

Date	JULY 1961			AUGUST 1961			SEPTEMBER 1961		
	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	No observation		Overcast, drizzle	No observation		Overcast, rain	09	0·281	*Cs* 4
2	,,		,,	07	0·259	*Ci* 2	08	0·271	*Cs* 7
3	,,		Overcast, rain	08	0·266	*Ci* 3	08	0·267	*Cs* 1, hazy
4	,,		Overcast, drizzle	08	0·269	*Cs* 2	08	0·267	*Cs* 2, hazy
5	,,		,,	08	0·267	*Cs* 6	08	0·274	*Cs* 5
6	,,		Overcast	09	0·274	Hazy	09	0·275	*Cs* 6
7	,,		*Sc* 7	No observation		Overcast	08	0·269	*Cs* 2, *Ci* 4
8	08	0·269	*Cs* 5	09	0·277	*Cs* 1, hazy	08	0·270	*Sc* 2, *Ci* 1
9	10	0·282	*Cs* 8	09	0·274	*Cs* 5	08	0·269	*Cs* 1, hazy
10	No observation		Overcast	08	0·267	*Cs* 1	No observation		Overcast, rain
11	,,		,,	09	0·270	*Ac* 2, *Ci* 4	,,		Overcast, drizzle
12	,,		,,	No observation		Overcast	10	0·281	*Ac* 2, *Cs* 2
13	,,		Overcast, drizzle	08	0·267	*Cu* 2, *Ci* 3	08	0·271	*Ci* 4
14	08	0·269	*Cs* 6	No observation		Overcast	08	0·269	*Cu* 1, hazy
15	08	0·270	*Cs* 4	,,		Overcast, drizzle	09	0·269	*Cs* 6
16	No observation		Overcast, rain	,,		,,	16	0·267	*Sc* 4, *Ac* 2
17	,,		Overcast, drizzle	,,		,,	09	0·271	*Cs* 4
18	,,		Overcast	,,		Overcast	08	0·263	*Ac* 4, *Cs* 2
19	08	0·265	*Cu* 2, *Sc* 2, *Ac* 1, *Ci* 1	,,		,,	10	0·281	*Cs* 7
20	No observation		Overcast	,,		,,	09	0·273	*Ac* 4
21	,,		Overcast, drizzle	,,		Overcast, drizzle	No observation		Overcast, drizzle
22	,,		,,	,,		,,	,,		Overcast
23	,,		,,	,,		,,	08	0·266	*Sc* 2, *Ac* 2, *Cs* 1
24	,,		Overcast	,,		Overcast, rain	09	0·262	*Cu* 1, *Ac* 3, *Cs* 3
25	10	0·271	*Cs* 7	09	0·275	*Cs* 4	No observation		Overcast
26	No observation		Overcast	No observation		Overcast, rain	,,		Overcast, drizzle
27	11	0·281	*Cs* 7	,,		,,	10	0·275	*Cu* 2, *Sc* 3
28	No observation		Overcast, drizzle	09	0·277	*Cs* 7	08	0·263	*Cu* 2, *Ci* 1
29	10	0·278	*Cs* 7	08	0·270	*Cs* 2	08	0·269	*Cs* 2, hazy
30	08	0·270	*Cs* 2	09	0·278	*Cs* 7	10	0·277	*Cu* 3, *Ac* 2
31	10	0·281	*Cs* 3	08	0·270	*Cs* 7			

NOTE—The cloud amounts are in oktas