SOLAR, GEOMAGNETIC, IONOSPHERIC AND OZONE DATA

KODAIKANAL SOLAR, GEOMAGNETIC AND IONOSPHERIC DATA

(JULY—SEPTEMBER 1960)

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 1961 is given in plate facing page 154.

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)
11909	07° N	Jul 7	1940* (area measured from the sun plate on 5 July)
11917	19° N	Jul 17	869* (area measured from the sun plate on 16 July)
11929	08° N	Jul 30	812
11933	21° N	Aug 13	788†
11936	17° N	Aug 17	827†
11973	19° S	Aug 22	769†

* Area increased after central meridian passage

† 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 20	*05	30	..	..	†05	40	20°N	48°W	1	1·80	Observed in spectrohelioscope for 10 minutes through passing clouds. Area and intensity could not be measured.
Aug 8	*05	00	05	00	05	05	22°N	70°E	2	1·28	Observed in spectrohelioscope through passing clouds. Spectroheliograms and filtergrams taken.
Aug 11	02	47	03	04	03	15	21°N	33°E	2	2·08	Observed in spectrohelioscope; spectroheliograms and filtergrams taken.
Aug 14	*05	35	05	40	†05	47	20°N	13°W	3	1·80	Observed in spectrohelioscope. Filtergrams taken.
Aug 15	*05	25	05	25	05	40	19°N	25°W	1	1·68	Observed in spectroheliloscope; spectroheliograms and filtergrams taken.
Sep 2	*02	50	02	50	03	05	14°S	54°W	2	1·76	Observed in spectrohelioscope through passing clouds. Filtergrams taken.

* Time of first observation of flare and not beginning of flare

† Time of last observation of flare and not 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	4 Sep 0230	17°N	90°W	Most of the prominence disappeared by 0520

No sudden disappearance of H-alpha dark marking was observed

TABLE 4

Daily Solar data

Date	JULY 1960			AUGUST 1960			SEPTEMBER 1960		
	(a)	(b)	(c)	(a)	(b)	(c)	(a)	(b)	(c)
1	—	—	—	59	513	2	104	—	2
2	—	—	—	—	—	—	101	528	—
3	—	—	—	16	—	3	102	615	5
4	—	—	—	12	534	6	58	562	4
5	149	419	6	—	—	—	72	677	—
6	—	—	—	12	—	—	89	—	4
7	—	—	—	15	603	3	110	—	—
8	119	706	2	22	434	2	114	794	4
9	—	—	—	28	447	—	143	—	—
10	87	797	—	60	438	7	145	913	1
11	90	719	3	95	431	6	122	744	7
12	45	456	2	155	—	—	109	634	4
13	47	—	—	179	466	6	223	691	7
14	68	538	5	194	397	6	—	—	—
15	104	—	—	197	406	4	135	—	—
16	112	—	2	199	625	4	92	—	—
17	—	—	—	223	472	6	—	—	—
18	—	—	—	262	708	3	—	—	—
19	142	—	—	253	428	9	158	338	4
20	136	—	—	154	669	16	154	—	3
21	133	341	8	—	419	—	—	—	—
22	124	284	2	199	—	5	187	—	—
23	115	400	4	140	558	—	—	—	—
24	67	—	—	104	594	10	185	—	—
25	—	—	—	123	719	8	158	384	3
26	—	—	—	153	594	6	154	—	—
27	—	—	—	—	—	—	128	—	—
28	—	—	—	—	—	—	—	—	—
29	65	—	—	119	—	—	51	550	3
30	51	491	4	94	331	—	17	366	6
31	54	397	3	110	528	2			

— No observations

(a) Relative sunspot number

(b) H-alpha (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 1960	Storm-time GMT of beginning		GMT of ending[1]		Sudden commencement Type[2]	Amplitude[3] D ′	H γ	Z γ	C-figure degree of activity[4]	Maximal activity Greenwich day	Ranges D ′	H γ	Z γ
	h	m	d	h									
Jul 14	04	48	16	19	s.c.	1	40	13	ms	15	9	272	72
Aug 16	14	06	18	09	s.c.	<1	30	12	ms	17	8	285	69
Aug 19	16	14	21	10	s.c.	<1	27	17	m	20	6	217	63
Aug 29	00	19	30	11	s.c.	1	29	22	ms	30	7	320	98
Sep 2	11	57	3	14	s.c.	<1	15	6	m	3	9	219	75
Sep 4	02	28	6	00	s.c.	<1	30	13	s	5	11	438	109

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 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

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

(*g*) Height ranges—0-500, 0-1000, 0-4000 kilometres

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

Ionospheric data (Median values)

Kodaikanal (10·2°N, 77·5°E) July 1960

Time (hrs)	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000) F2
00		8·6	300				5·8	2·75
01		7·5	280				4·6	2·85
02		6·4	300				3·5	2·80
03		6·2	310				5·0	2·80
04		6·1	270				..	2·95
05		4·7	240				..	3·20
06	..	7·1	260	..	130	2·0	G	3·05
07	..	9·6	240	..	110	2·9	8·0	2·95
08	..	10·6	220	..	110	..	10·0	2·70
09	..	10·8	210	..	..	..	11·0	2·35
10	..	10·3	200	..	..	..	12·4	2·30
11	..	9·8	200	..	..	..	12·4	2·25
12	..	9·8	200	..	..	..	12·2	2·30
13	..	9·9	200	..	..	..	12·0	2·30
14	..	10·5	200	..	..	..	12·0	2·25
15	..	10·6	215	..	120	..	11·2	2·30
16	..	10·8	230	..	110	..	9·5	2·35
17	..	11·4	245	..	120	2·8	9·4	2·45
18	..	11·6	280	..			9·0	2·55
19	..	11·2	320				6·4	2·45
20	..	10·4	325				5·0	2·50
21		9·7	340				5·0	2·55
22		9·6	320				4·5	2·60
23		9·6	305				7·0	2·70

Ionospheric data (Median values)

Kodaikanal (10·2°N, 77·5°E) August 1960

Time (hrs)	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000) F2
00		10·0	270				4·2	2·90
01		8·4	260				5·3	2·95
02		7·4	260				3·6	2·95
03		7·0	260				4·0	3·00
04		6·4	240				..	3·20
05		5·2	240				..	3·30
06	..	6·7	260				2·8	3·10
07	..	9·5	240	..	115	2·8	8·4	3·00
08	..	10·8	225	..	115	..	10·8	2·70
09	..	11·0	220	..	120	..	11·0	2·40
10	..	10·8	210	..	115	..	12·2	2·35
11	..	10·6	205	..	..	..	12·2	2·30
12	..	10·6	205	..	..	..	12·5	2·25
13	..	10·6	210	..	120	..	12·4	2·20
14	..	10·7	210	..	120	..	12·0	2·25
15	..	10·8	220	..	120	..	11·0	2·30
16	..	11·1	225	..	115	..	9·6	2·35
17	..	11·4	255	..	120	..	8·0	2·40
18	..	11·2	280	..	..	..	4·4	2·40
19		10·4	340				3·8	2·30
20		10·0	330				..	2·40
21		9·6	320				4·9	2·50
22		10·0	300				3·3	2·60
23		10·2	280				3·8	2·70

Kodaikanal (10·2°N, 77·5°E) September 1960

Time (hrs)	h'F2	foF2	h'F	foF1	h'E	foE	foEs	(M3000) F2
00		11·2	250				4·7	3·05
01		10·0	240				..	3·10
02		8·0	240				..	3·05
03		7·5	240				5·1	3·05
04		6·4	240				..	3·15
05		4·7	235				..	3·20
06		7·2	260				..	3·05
07	..	10·5	245	..	120	2·8	7·0	3·00
08	..	11·7	225	..	110	..	10·3	2·60
09	..	12·4	215	..	115	..	11·0	2·30
10	..	11·4	210	..	..	..	12·6	2·25
11	..	11·0	205	..	..	..	12·5	2·25
12	..	10·7	210	..	..	..	12·4	2·25
13	..	10·9	210	..	..	..	12·0	2·25
14	..	11·4	220	..	120	..	12·0	2·25
15	..	12·0	220	..	120	..	10·8	2·30
16	..	12·4	240	..	120	..	9·2	2·30
17	..	12·6	265	..	120	..	7·9	2·30
18		11·7	310				..	2·20
19		10·6	420				..	2·05
20		U11·7	380				..	U2·50
21		U12·2	300				..	U2·70
22		U11·6	280				3·8	U2·85
23		11·5	270				4·6	2·95

Time : 75·0°E
Sweep: 1·0 Mc. to 25·0 Mc. in 27 seconds

Astrophysical Observatory, Kodaikanal
1 November 1960

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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)

MAGNETIC OBSERVATORY, ALIBAG (BOMBAY)

Three-hourly indices of Geomagnetic Activity

(K9=300γ)

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

Greenwich day	JULY 1960				AUGUST 1960				SEPTEMBER 1960			
	K-indices		Sum	Character of the day*	K-indices		Sum	Character of the day*	K-indices		Sum	Character of the day*
1	3342	3232	22	Sa	1322	3222	17	S	1111	1002	7	Ca
2	2323	2121	16	S	2222	2333	19	S	2222	4444	24	Sa
3	2223	1223	17	S	2221	2312	15	Ca	2243	2232	20	S
4	2332	2212	17	S	2223	2211	15	Ca	4474	4565	39	G
5	3322	2222	18	S	1121	2121	11	Ca	6463	3555	37	G
6	2214	2221	16	S	2222	2223	17	S	5442	2223	24	M
7	1222	1211	12	Ca	3222	2421	18	S	3223	5342	24	M
8	1120	1100	6	Ca	1333	3533	24	Sa	3333	2221	19	S
9	1122	1111	10	Ca	2433	2232	21	Sa	2222	3112	15	S
10	1222	1232	15	Ca	3332	2332	21	Sa	1212	2322	16	S
11	4433	2233	24	Sa	2324	3322	21	Sa	3322	2233	20	S
12	2231	3222	17	S	3344	3322	24	Sa	2432	2322	20	S
13	2322	2321	17	S	2222	2221	15	Ca	2324	2133	20	S
14	1423	3545	27	M	2432	2433	23	Sa	3322	1221	16	Ca
15	3534	5555	35	Ma	3322	1222	16	S	1222	2120	12	Ca
16	6433	3332	27	Ma	2223	5544	27	M	1112	2220	11	Ca
17	3222	2322	18	S	6544	4556	39	G	2212	1234	17	Ca
18	2322	3432	21	S	2333	3222	20	Sa	3433	3221	21	S
19	1336	4342	26	Ma	3234	2555	29	Ma	2232	2211	15	Ca
20	2224	3244	23	M	2443	3333	25	M	2322	1233	18	S
21	2332	2211	16	S	3243	2242	22	Sa	4323	3342	24	Sa
22	2222	1122	14	S	3221	2242	18	S	3221	3333	20	S
23	3322	2122	17	S	2221	1321	14	Ca	2343	1223	20	S
24	2223	2222	17	S	2322	2220	15	Ca	4444	2421	25	Sa
25	2221	1212	13	Ca	2322	2221	16	Ca	1321	1121	12	Ca
26	2221	2223	16	Ca	1222	2122	14	Ca	2342	1232	19	S
27	3222	2211	15	Ca	3322	3453	25	M	3342	2122	19	S
28	2222	2223	17	Ca	3332	3422	22	M	1323	3212	17	S
29	4333	3544	29	M	5644	4533	34	G	0233	4324	21	S
30	3324	4222	22	Sa	4544	3331	27	Ma	3333	4352	26	Sa
31	4333	3322	23	Sa	2332	2223	19	Sa				

* 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 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, Ma are used. Roughly speaking a storm having a range of over 225γ in the variations of the horizontal force during the first 24 hours after its commencement is classed as "Very Great". It is "Great" if the range is between 150γ and 225γ, "Moderate" when it 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 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
C, Ca, S, Sa	0, 1	M, Ma, G, VG	2, 2

Colaba, Bombay
14 November 1960

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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	JULY 1960			AUGUST 1960			SEPTEMBER 1960		
	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	0800	0·257	*Sc* 2, (*Ci*, *Cs*) 3	1720	0·239	*Ci* 2	1643	0·241	(*Sc*, *Cu*) 2, *Ci* 2
2	1700	0·265	Cloudy	1730	0·243	(*Sc*, *Cu*) 1, (*Ci*, *Cc*)2	1638	0·238	(*Cu*, *Sc*) 2, *Cc* 1
3	0700	0·242	,,	0800	0·231	Cloudy	1639	0·241	(*Sc*, *Cu*) 2
4	0800	0·238	*Cu* 2, *Ci* 5	1712	0·223	(*Sc*, *Cu*) 1, (*Ci*, *Cc*, *Cs*) 6	1700	0·237	*Cu* T
5	1700	0·246	*Cu* 2, (*Sc*, *As*) 2	1715	0·238	(*Sc*, *Cu*) 1,(*Ci*, *Cc*)5	1634	0·250	Clear
6	1700	0·241	*Cu* 3	No observation		Cloudy	1630	0·245	,,
7	No observation		Cloudy	,,		,,	1630	0·257	,,
8	,,		,,	1720	0·241	*Cu* 4, *Ac* 2	1630	0·249	,,
9	,,		,,	No observation		Cloudy	1642	0·241	*Ci* 3
10	,,		,,	1723	0·238	*Cu* 1, *As* 3	1627	0·235	(*Sc*, *Cu*) 5
11	1730	0·258	*Cu* 3, *Ac* 2, *As* 2	1718	0·235	*Cu* 2, *Sc* 1, *CiCs* 3	1634	0·230	(*Ac*, *As*) 4, (*CiCc*)2
12	No observation		Cloudy	No observation		Cloudy	1630	0·237	(*Sc*, *Cu*) 3, *Ci* 1
13	1700	0·253	*Sc* 3, *Cu* 2, *CiCs* 1	1700	0·222	Partly cloudy	1630	0·234	Clear
14	No observation		Cloudy	0739	0·227	*Fc* 3, *As* 2, *Cs* 2	1630	0·234	,,
15	1700	0·253	*As* 5, *Ci Cs* 2	No observation		Cloudy	1630	0·231	*Ac* T
16	0700	0·241	*Sc* 2, *Ac* 2, *As* 2	0749	0·234	(*Sc*, *Cu*) 1, *Ac* 2, (*Ci*, *Cc*) 4	1630	0·246	Clear
17	No observation		Cloudy	No observation		Cloudy	1630	0·245	(*Sc*, *Cu*) 1, *Ac* 4, *Ci* 1
18	1700	0·237	(*Ac*, *As*) 4, (*Ci*, *Cs*) 3	1640	0·227	(*Ac*, *Cu*) 6, *Sc* 2	1635	0·229	*Cu* 2, *Ac* 2
19	1700	0·241	(*Sc*, *Cu*) 3, (*Ci*, *Cs*) 1	No observation		Cloudy	1630	0·249	*Cu* 2
20	1700	0·239	(*Ci*, *Cs*) 1	,,		,,	No observation		Cloudy
21	1700	0·241	Hazy	,,		,,	0800	0·223	*Ci*, *Cs* 4
22	1700	0·257	,,	1713	0·242	*Cu* 4, *Sc* 3	1618	0·230	*Cu* 2
23	1723	0·241	*Ci* 2	No observation		Cloudy	1613	0·245	*Cu* 2, (*Sc*, *Cu*) 2
24	1721	0·238	*Ci* 5	1700	0·257	*Cu* 4	1617	0·255	*Cu* 2, (*Sc*, *Cu*) 2,
25	0739	0·245	(*Ci*, *Cs*) 7	1700	0·253	*Cu* 2	1730	0·251	*Cu* 6
26	No observation		Cloudy	0737	0·234	Cloudy	1700	0·265	Clear
27	1725	0·225	*Cu* 5, (*Ci*, *Cs*) 2	No observation		,,	1612	0·249	,,
28	1709	0·226	Cloudy	,,		,,	1636	0·246	,,
29	1700	0·234	,,	,,		,,	1613	0·235	,,
30	1716	0·243	,,	,,		,,	1600	0·238	*Ci* 2
31	1725	0·211	,,	1700	0·235	*Cu* 1, *Ci* 5, 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) = 1·233 and α' (3323) = 0·071

AHMEDABAD

(Lat. 23° 04′N, Long. 72° 38′ E)

Date	JULY 1960			AUGUST 1960			SEPTEMBER 1960		
	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, rain	No observation		Overcast, rain	09	0·253*	Overcast
2	,,		,,	,,		,,	09	0·249	Clear
3	,,		,,	,,		,,	09	0·253*	Overcast
4	,,		,,	,,		,,	09	0·261	,,
5	,,		,,	,,		,,	09	0·261*	,,
6	,,		,,	,,		,,	09	0·253	Clear, hazy
7	,,		,,	,,		,,	09	0·266	,,
8	,,		,,	,,		,,	09	0·255	,,
9	,,		,,	,,		,,	09	0·258	,,
10	,,		,,	,,		,,	No observation		
11	,,		,,	,,		,,	,,		
12	,,		,,	,,		,,	09	0·240*	Clear, hazy
13	,,		,,	,,		,,	09	0·253	(*Ac*, *Cs*) 4
14	,,		,,	,,		,,	09	0·250	(*Ac*, *Cs*) 3
15	,,		,,	,,		,,	09	0·253	Overcast
16	08	0·253	*Ac* 2, *Ci*, hazy	,,		,,	09	0·253	Clear, hazy
17	No observation		Overcast, rain	,,		,,	09	0·254	,,
18	,,		,,	,,		,,	No observation		
19	,,		,,	17	0·258*	Overcast	09	0·257	Clear, hazy
20	09	0·250	Overcast	09	0·259*	,,	09	0·253	,,
21	09	0·262	(*As*, *Ci*, *Cs*) 3	09	0·258*	,,	09	0·255	,,
22	09	0·267	*Cu* 1, *Ac* 2, *Cs* 2	09	0·278*	,,	09	0·251	,,
23	09	0·266	Overcast	09	0·253*	,,	09	0·262	,,
24	09	0·257	,,	09	0·247	,,	09	0·262	Clear
25	09	0·254	,,	No observation			09	0·250	,,
26	No observation		,,	09	0·253*	Overcast	16	0·262	,,
27	,,		,,	No observation			16	0·253	,,
28	,,		,,	09	0·255	(*Ac*, *As*) 3	16	0·257	,,
29	,,		,,	09	0·253*	Overcast	16	0·255	,,
30	,,		,,	09	0·255	,,	No observation		
31	,,		,,	09	0·253*	,,			

NOTE—The cloud amounts are in oktas *Cloudy zenith sky observations

DAILY OZONE DATA—INDIA

(From direct sun observations on 3112/3323 Å and 4536/3323Å)
Assumed α (3112) = 1·23 and α' (3323) = 0·08

KODAIKANAL

(Lat. 10° 14'N, Long. 77° 28' E)

Date	JULY 1960			AUGUST 1960			SEPTEMBER 1960		
	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	09	0·258	*Sc* 1, *Ci* 5	No observation		Overcast, drizzle
2	,,		,,	No observation		Overcast	08	0·253	*Cu* 2, *Ac* 1, *Cs* 2
3	,,		Overcast, rain	,,		,,	08	0·251	*Ac* 2, *Cs* 2
4	,,		Overcast	,,		Overcast, drizzle	08	0·250	*Ac* T, *Cs* 3
5	08	0·259	*Sc* 1, *Cs* 4, *Ci* 2	,,		*Sc* 3, *Ac* 4	No observation		Overcast
6	No observation		Overcast, rain	,,		Overcast, rain	,,		*Sc* 7
7	,,		Overcast	08	0·257	*Ac* 2	,,		Overcast
8	09	0·254	*Ac* 1, *Cs* 5	No observation		*Cu* 3, *Sc* 2, *Cs* 2	,,		*Cu* 1, *Sc* 6
9	No observation		Overcast	,,		*Sc* 7	,,		*Sc* 7
10	08	0·243	*Cu* T, *Cs* 4	08	0·254	*Ci* 1	,,		Overcast
11	No observation		Overcast, drizzle	08	0·255	*Ac* T	08	0·249	*Sc* T, *Ac* 2, *Ci* 1
12	,,		*Sc* 3, *As* 4	No observation		*Cu* 2, *Sc* 5	No observation		Overcast, rain
13	,,		Overcast	08	0·253	*Ac* T, *Ci* 1, hazy	08	0·253	*Ac* 4, *Ci* T
14	10	0·253	*Ac* 1, *Cs* 5	No observation		Overcast	No observation		Overcast, rain
15	No observation		Overcast	10	0·263	*Ci* 4	,,		Overcast, drizzle
16	16	0·258	*Cu* 2, *Sc* 2, *Ci* 2	No observation		*Cs* 4, *Ci* 3 (thick)	08	0·250	*Cs* 3
17	No observation		Overcast, drizzle	10	0·263	*Ci* 6	No observation		Overcast
18	,,		Overcast	08	0·255	*Ci* 3, hazy	,,		,,
19	,,		Overcast, drizzle	09	0·257	*Ci* 4, hazy	,,		*Sc* 7
20	,,		,,	10	0·259	*Ac* 2, *Ci* 2, *Cs* 1	,,		Overcast
21	08	0·255	*Ac* 3, *Cs* 2	No observation		Overcast, drizzle	,,		,,
22	No observation		Overcast	,,		,,	,,		,,
23	,,		,,	,,		Overcast	,,		,,
24	,,		Overcast, drizzle	,,		*Ac* 7	,,		*Cu* 3, *Sc* 4
25	,,		,,	08	0·251	Hazy	,,		Overcast
26	,,		,,	08	0·253	*Ci* 1, hazy	,,		,,
27	,,		Overcast	No observation		Overcast, rain	,,		Overcast, rain
28	,,		Overcast, rain	,,		Overcast, drizzle	,,		,,
29	,,		Overcast	,,		Overcast	07	0·246	*Sc* 1, *Ci* 2
30	09	0·257	*Ci* 1, *Cs* 4	,,		Overcast, drizzle	08	0·251	*Ac* 1, *Ci* 3
31	No observation		*Sc* 3, *Cs* 2, *Ci* 2	,,		Overcast, rain			

NOTE—The cloud amounts are in oktas