SOLAR NOTES

Edited by Nick James

White light MDF, 2000 March

Observer	MDF				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
L. Smith	2.3	3.6	5.9	11	81.1	11	-	-
E. Strach	3.3	5.1	8.4	23	194.1	13	26.1	23
P. Meadows	4.6	5.2	9.8	12	162.2	12	32.8	12
G. Johnstone	4.0	3.8	7.8	9	-	-	-	-
K. Medway	2.4	4.2	6.6	24	-	-	-	-
T. Tanti	3.5	6.1	9.5	17	152.5	11	27.3	16
D. Storey	4.3	4.6	8.9	8	-	-	-	-
R. Dryden	3.2	4.8	7.9	13	140.8	13	-	-
M. Hendrie	4.4	6.9	11.3	13	171.4	13	-	-
J. Shanklin	4.4	2.9	7.3	18	102.0	18	-	-
W. Heyes	3.8	4.2	8.0	9	-	-	23.2	9
A. Ibrahem	-	-	3.6	14	47.0	14	-	-
G. North	3.0	4.3	7.3	10	119.2	10	-	-
MEANS	3.5	4.7	7.8	181	128.5	115	27.3	60

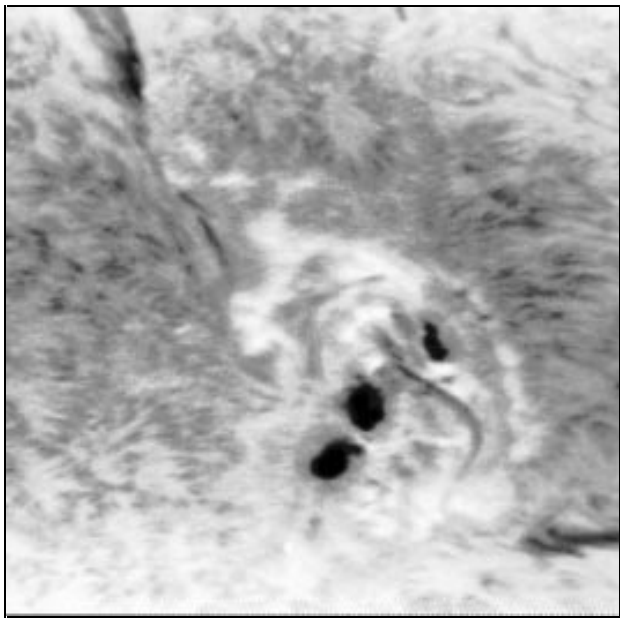
MDF = Mean Daily Frequency of active areas, R = sunspot number, Q = mean quality estimate (JBAA 98,6,pp282-286)

White light activity, 2000 March

Activity in March was similar to that observed in February. Strach commented that his AA MDF is the highest that he has recorded so far in cycle 23. The last time he recorded a figure of above eight was in 1991 August after the peak of cycle 22.

Medway noted that March was characterized by the appearance of several large groups. On the 1st the two large groups which had been present at the end of February were still on the disk and they were easily visible to the naked eye using his Orion Telescopes Solar filter. According to Meadows the W of these groups was at S16/329 and was of type Dkc. He comments that it had reduced slightly in size on the 1st to 830 millionths. It still comprised one main irregular penumbral spot with several umbra within it. This group was also seen on the 3rd and 4th as it neared the W limb. On the 3rd, the main penumbral spot appeared to split into two spots and by the 4th it comprised several penumbral spots. The other modest spot, at S13/277 of type Ekc, had grown to just over 1000 millionths by the 1st and the majority of the growth had been in the dominant leading penumbral spot. The spot was irregular and its latitude and longitude extents were similar. A number of smaller penumbral spots were seen following and to the S of the main spot. The appearance of the main spot changed again by the 3rd (when the group had just passed the CM). The area of the group has reduced to 780 millionths on the 4th when the northern part of the main spot began to separate from the rest of the spot. This separation had occurred by the 5th when the longitudinal extent of the group had reduced such that the group was now of type Dkc. The group had disappeared around the limb by the time of Meadows' next observation on the 12th.

Another large spot appeared around the E limb on the 8th at S15. By the 12th Meadows comments that most activity was in the S hemisphere with nine groups compared to just two in the N. He reports that the large group was of type Dki at S15/123 and it had an area of 970 millionths. It comprised one main irregular elongated spot with a longitude extent of 8° which included several penumbra and a light bridge towards the northern part of the spot. By the 15th the main spot had split into an irregular leading penumbral spot and two following penumbral spots and the total area had reduced to 790 millionths. The decay of this group continued as it neared the W limb and Meadows last saw it on the 19th. Every day during the transit of this spot Medway reported that it was easily visible to the naked eye.



2000 March 12, 1520UT. Group near S17/125. 150mm Cooke stopped to 100mm, f/47. Daystar 0.7Å filter. Exposure 1/60s on TP2415. Mike Hendrie.

Another group crossed the CM on March 18th at N12. Medway reports that it contained four separate spots which collectively were visible to the naked eye. On this day Meadows reported that this group was a collection of numerous small penumbral spots in the form of a Dac

group. He measured the position as N13/70 and comments that this group had been seen on the 15th as a two penumbral spot group of type Dai. The size of the some of the penumbral spots had increased by the 19th and the group became type Ekc. On the 21st, the leading penumbral spot had become the largest of the group. Although the number of spots within the group had reduced, its total area had increased to 820 millionths. By the 22nd this group, now nearing the western limb, comprised two irregular penumbral spots and a small number of surrounding spots.

On March 19th Medway noted a small spot group at N33/W11. He comments that sunspot activity remained at high levels throughout the last week of March. Strach agrees that from the 22nd onwards, the disk was well populated with spots; ten groups being present right to the end of the month with 13 groups on the 24th. Meadows comments that the groups were spread out in longitude across the disk and there were almost equal in number between the N and S hemispheres. He notes that the appearance of the Sun on these two dates was typical of solar maximum activity.

On the 24th Strach reported that the group which passed over the W limb on the 8th (at S16/275) reappeared after surviving its passage over the averted hemisphere. It reappeared in much diminished form but revived on approaching the CM on the 28th and remained a bipolar group up to the end of the month.

Strach notes that there were still high latitude spots on the disk. These were seen between the 3rd and 7th, at S36/296 and between the 22nd and 24th in the north at N32 to N35/64. He did not see any near equatorial spots.

Hα activity, 2000 March

Strach comments that prominences tended to occur frequently around the N point of the solar disk in the first 12 days of the month and around the S point towards the end of the month.

An extensive arc prominence was seen on the 11th on the E limb between the very high latitudes of N75 and N83. This remained in evidence throughout the following three days. A short-lived high eruption occurred on the 12th at 1412 at N57 on the E limb and a high spike was seen on the 14th at N69 on the W limb.

On the 18th Strach followed a remarkable prominence sequence. It started as an extensive low arch at 0940 with its S denser limb being at S22 and its fainter N limb being at S5 (see figure). Surprisingly, the fainter N limb righted itself at 1009 UT eventually losing all connection with the limb and reaching a height of 270 arcsec (195,000km). The configuration changed constantly and at 1015 it started to diminish in height and it becoming temporarily detached from the solar limb at 1156 after which time it started growing again. At 1246 it reached a height of 165 arcsec. By 1402 it had developed multiple loops. When last seen at 1543 it had practically disappeared.

March 22nd was another day of high prominence activity. Medway reports a tall spike on the NW limb and no less than 15 small, spike-like prominences were counted along the SE limb.

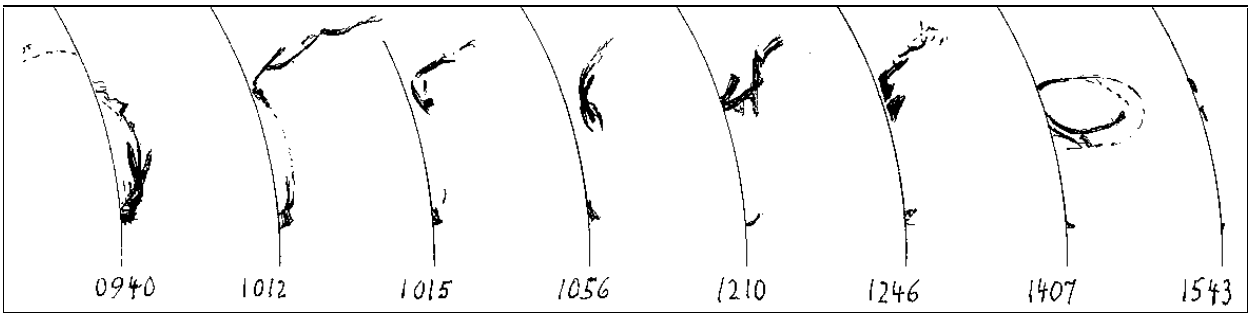
Medway also reports that there were always a great number of filaments on the chromospheric disk. A very dark filament was seen on the 5th at N30/CM to N45/W10. Strach also reported this but noted that there was no trace of it on the 6th.

Flares, 2000 March (Sf flares not reported)

Date	Time	Lat	CMD	Type	Obs.
5	1348	S13	E40	SB	KJM
5	1423-31	S13	E40	SB	KJM
5	1504-11	S13	E40	SB	KJM
7	1420-35	S15	W58	SN	KJM
11	1115-1139	S14	E39	1N	EHS
11	1538	S18	E40	SB	KJM
11	1555	S19	E40	SB	KJM
11	1604-06	S17	E40	SB	KJM
11	1418	S14	E40	SN	KJM
11	1427	N20	W33	SN	KJM
11	1520	S25	W65	SN	KJM
18	1623	N11	E2	SN	KJM
26	1645	S15	E2	SN	KJM

Prominence MDF, 2000 March

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
M. Hendrie	6.6	7.2	13.8	5	3.2	3.2	6.4	3.4	4.0	7.4
E. Strach	5.9	5.9	11.9	18	2.9	3.3	6.2	3.1	2.7	5.8
K. Medway	5.3	4.1	9.4	12	2.5	2.4	4.9	2.8	1.7	4.5



Changing prominence. 2000 March 18. EHS