

### White light MDF, 2000 May

Observer	MDF				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
R. Dryden	3.8	3.3	7.2	13	121.2	13	-	-
G. Johnstone	3.6	3.1	6.7	17	-	-	-	-
J. Shanklin	3.5	3.5	7.0	23	108.0	23	-	-
T. Tanti	3.6	3.5	7.1	25	119.3	24	19.5	25
L. Smith	3.1	3.1	6.2	23	99.6	23	-	-
W. Heyes	2.1	3.2	5.3	9	-	-	14.3	9
G. North	2.7	2.6	5.3	10	83.7	10	-	-
K. Medway	3.0	3.0	6.0	27	-	-	-	-
E. Strach	4.1	4.0	8.1	28	112.8	26	20.5	28
P. Meadows	4.4	4.1	8.6	18	136.9	18	25.2	18
MEANS	3.5	3.4	6.9	193	112.8	137	20.6	80

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

### White light activity, 2000 May

The two moderately sized groups seen at the end of April were nearing the W limb on the 1st. Meadows reported that the N group, at N18/261, was of type Ekc with an area of 740 millionths while the S group, at S13/263 was of type Dkc with an area of 660 millionths. Of the seven groups seen on this date, only two were in the E hemisphere.

Daily observations by Meadows between the 4th and 8th showed considerably reduced activity in terms of the number of groups and more particularly the size of the groups seen.

According to Meadows the western of three groups seen in the NE quadrant on the 8th had increased in size from 90 to 220 millionths by the following day. This group, at N17/82 and of type Dkc, grew further by the 11th (330 millionths) and 13th (470 millionths) when it was seen as an irregularly shaped leading spot with several smaller penumbral spots following and to the S of the main spot. Another of the NE groups seen on the 8th, at N14/63, had also increased in size by the 11th when it was also of type Dkc and comprised a slightly asymmetric leading spot and several following penumbral spots. By the 14th, the total area of this group was 400 millionths and the leading spot had increased in size to become asymmetric in the E-W direction. Both of these groups decayed as they progressed towards the W limb.

The largest group of the month was first seen near the E limb on the 11th as three highly foreshortened penumbral spots. By the 13th Meadows reported that the group, at S20/345 and type Eko, comprised two equally sized irregular spots. On the 14th, these two spots appeared to merge and they included many umbra, the largest being in the leading part of the group. Meadows estimated the area of the group on this date to be 1310 millionths. When he saw it on the 15th and 16th, the group consisted of several penumbral irregular

spots and he classified it as of type Ekc. Meadows' next observation, on the 20th, showed a more compact and symmetrical group with a reduced total area of 1050 millionths. The group continued to decay as it neared the W limb such that it had an area of only 310 millionths when seen on the 22nd. During its passage across the disk this group had another smaller group following and slightly to the N at S12/333. This group was at its largest on the 20th with an area of 480 millionths when it was of type Dac.

On the 14th Meadows noted a single penumbral spot on the E limb at N19/308. By the 20th when the group was nearing the CM the leading spot was quite symmetric with smaller penumbral spots following together with many other spots between to give a total area of 700 millionths. To the S of this group was a Dko group at N11/316 which consisted primarily as an elongated irregular spot with an almost N/S orientation and an area of 460 millionths. Medway comments that the disk was very interesting and active on the 20th with *four* naked-eye spots visible.

Strach reported that low-latitude spots made their first appearance in the present cycle on May 28 at N3/210 (on the CM). On the next day two further groups appeared at N3.5/186 and at S2/201.

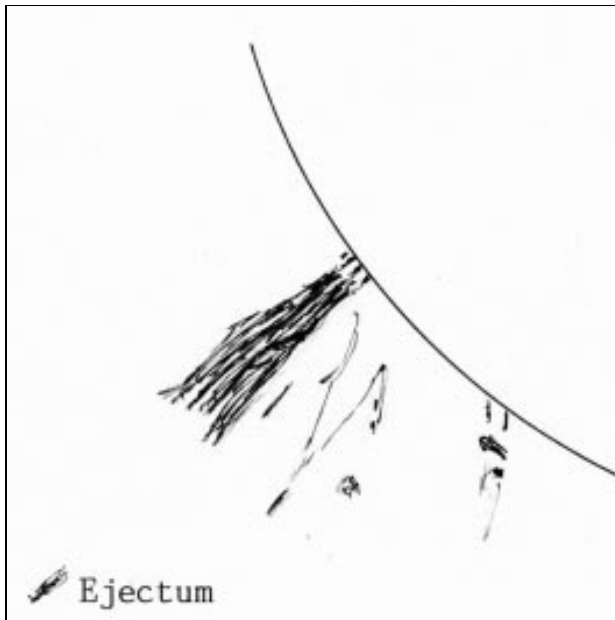
Medway comments that high-latitude spots were still in evidence during May with a small bipolar group seen at S33 between the 27th and 29th. Lyn Smith and Eric Strach also noted this group and they reported the position as S37/263 (Smith), S36/262 (Strach).

Heyes counted nine AAs on the 29th but only one was of any size. This was an E-type group with a very large penumbral leader at S14/12E and penumbral follower at S14/26E and many intermediate spots.

### H $\alpha$ activity, 2000 May

Strach comments that his prominence count remained high in May but there were wide variations in activity.

There were several remarkable prominence eruptions particularly one on the 4th. As Strach started to observe in H $\alpha$  light at 1100 he noted several prominences but his attention was drawn to a small but brilliant red spicule type of prominence on the W limb at S16. It grew steadily and it developed a cloud like envelope. At 1114 it reached the height of 285 arcsec (~200,000 km). After that the cloud-like envelope gave way to a elongated packed streamers, resembling a giant broom. six minutes later a single jet protruded from the top of the “broom” into space reaching a height of 550 arc sec (~390,000 km); at the same time another prominence further to the south also became slightly active. At 1125 the jet extension freed itself from the remaining prominence broom and it reached an altitude of about 700,000 km by 1129. The speed of the ejection must have been in the region of 400 km s<sup>-1</sup>. At that time Strach lost sight of the ejectum but activity remained in the “broom” when a single jet separated from the main mass and formed a second ejectum at 1140.



*Prominence. 2000 May 4, 1129 UT. EHS.*

This event dwarfed other eruptions, one of which was seen on the 14th. This occurred on the E limb at N16. Strach described it as a spray with flower like condensations at the tips.

Yet another prominence eruption occurred on the 19th on the NW limb at N40. At 1350 UT a single jet was seen extending northwards and inclined to the W, At its most distant part a triangular shaped prominence was attached. It changed shape and at 1400 it turned back on itself like a hanging lantern. By 1409 it had formed a

loop, the whole structure resembling a tennis racket. This dispersed at 1414 and by 1425 it had all but disappeared leaving an isolated ejectum some 200,000 km above the limb.

Medway describes a dramatic prominence eruption on the NW limb on the 28th. Hydrogen was ejected high above the chromospheric limb when seen at 1018. Medway comments that the event was short-lived since only a bright mound remained at 1048.

Both Strach and Medway noted that there were many filaments on the solar disc. Strach observed one emanating from a prominence at S43 on the E limb and extending to the N and slightly to the W. It was seen on a few days and on the 11th it became denser but there was no trace of it on the 12th.

Another disappearing filament occurred between the 13th and 14th. Strach notes that the related prominence was seen on the 9th, forming arches and towers at the limb from N28 to N47. As the formations rotated onto the disc several filaments formed. One of them extended from the limb at N43 in a S direction for a considerable length, It became very dense. On the 13th it dominated the N hemisphere, its length was estimated at two thirds of the solar radius. On the 14th there was no trace of it. Strach comments that it was an outstanding example of a disappearing filament.

### **Flares, 2000 May (S flares not reported)**

Date	Time	Lat	CMD	Type	Obs.
1	1020-1645	N25	W45	1B	KJM
13	0859	N20	E80	1N	EHS
13	1723	S21	W39	1B	KJM
15	1706	S9	E55	1N	KJM

### **Unusual object**

Strach was observing the sun on the 13th using a CCD camera attached to the 7Å H $\alpha$  filter. At 1202 he recorded a small, round object crossing the solar disk near the E limb. The transit lasted no longer than 2.5 s and the direction of the transit was NNW. More detailed study was possible by replaying the video recording. He established that the ingress was exactly at the E point but the point of egress could not be determined due to the limited field of view. I (NDJ) have viewed the video and the motion appears to be too slow for a low altitude satellite and the subtended size would appear to rule out a high altitude one. A weather balloon is a possibility but I would be interested in hearing readers' theories! Strach's observation site was 53° 23' N, 2° 52' W.

### **Prominence MDF, 2000 May**

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
E. Strach	6.3	4.6	11.0	28	3.5	2.9	6.4	2.8	1.7	4.5
K. Medway	5.5	3.0	8.5	20	2.6	1.7	4.3	2.3	1.4	3.7