

White light MDF, 2000 September

Observer	MDF				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
L. Smith	2.0	2.7	4.7	6	105.7	6	-	-
K. Medway	2.2	2.6	4.8	25	-	-	-	-
G. North	2.7	2.8	5.5	10	107.8	10	-	-
W. Heyes	2.9	2.6	5.4	7	-	-	13.3	7
M. Hendrie	3.3	2.5	5.8	10	110.2	10	-	-
P. Meadows	3.6	2.8	6.4	16	126.0	16	20.1	16
R. Dryden	2.9	3.0	5.9	13	119.5	13	-	-
G. Johnstone	4.0	3.2	7.2	12	-	-	-	-
D. Storey	2.5	2.8	5.3	4	-	-	-	-
J. Shanklin	2.7	3.0	5.7	24	93.0	24	-	-
T. Tanti	1.9	0.8	2.7	10	42.2	10	7.4	10
E. Strach	2.5	2.6	5.1	22	97.3	19	17.0	22
MEANS	2.8	2.7	5.4	159	100.8	108	15.7	55

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

Announcement

Almost one solar cycle ago, in 1991 May, I took over the TA solar notes column from Wilfrid Heyes. I have enjoyed compiling these notes but after nine years I feel that it is time to hand over to a new sub-editor. We are lucky that Peter Meadows has agreed to take on this important role from next month. Peter is an active solar observer and his white-light reports have featured prominently in these columns. Please send your observations to him (address inside front cover) from next month. Thank you very much for your support over the last nine years. I am sure that you will support Peter just as enthusiastically.

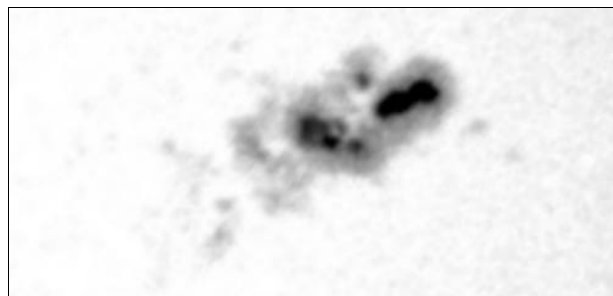
White light activity, 2000 September

In my last month as Solar Notes sub-editor we have seen the largest group of the cycle so far. The moderate activity seen at the end of August continued into the early part of the month. On the 2nd Meadows reported that the largest of the 12 groups seen was an Ekc type at N14/357 and near the CM with an area of 370 millionths. The size of the leading spot had reduced by the 3rd so the group became type Eac with an area of 260 millionths. When Meadows next saw it on the 6th the group consisted of a collection of penumbral spots surrounding the near-symmetrical leading spot.

A small group of spots appeared on the disk on the 4th and Strach estimated its position as S18/330. This group developed rapidly into an Eai group on the next day when it was on the CM. On the 4th Meadows estimated the area to be 130 millionths. He notes that no group was seen at this location on the previous day. The group had many small spots and pores following a quite asymmetrical leading penumbral spot. By the 6th a string of penumbral spots followed an enlarged and symmetrical leading spot. The total area was now 330 millionths. By the 9th, the group was nearing the W limb and Meadows last saw it on the 10th.

Only a few small groups were seen on the E part of the disk on the 6th. As the disk rotated no further moderately sized groups appeared - indeed the number of groups

reduced such that on the 11th many observers reported a spotless disk. Close examination by Hendrie early in the morning showed two very small spots and Medway measured the position of one as N8/E61. On the next day Meadows reported three groups, all having formed on the disk since the previous day, while on the 14th, four groups were seen with three having small penumbral spots.

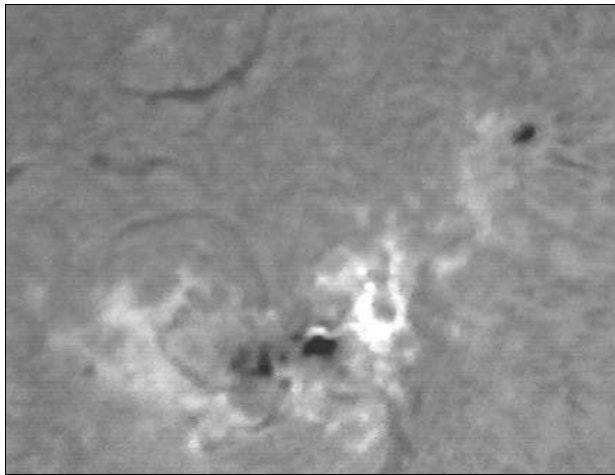


The large spot group. 2000 Sept 25, 0749. Canon 500mm f/8 mirror lens with Canon 2x-A extender. Baader full aperture filter, 1/250 sec. Kodak Tech Pan developed in HC-110 (B) for 12min @ 20°C (see cover). Graeme Waddington.

On the 17th Strach recorded small spots near the E limb between N16/94 and N11/88. On the 18th the largest spot of this group had rotated round the E limb. Meadows' first saw this large group, which he classified as Fkc, on the 20th. At that time it consisted of one irregular main spot with many umbrae within it and many following small penumbral spots. He estimated the total area as 2040 millionths which makes it the largest group of this solar cycle so far. Medway reports that it was a naked eye object throughout its passage across the disk. This group was first seen at the same position on the disk one rotation earlier as an Hrx spot on the 23rd August. On September 21st the total area remained almost the same and the shape of the main spot changed slightly. By the 22nd the size of the umbra within the main spot had increased and regions of photosphere could be seen within it. A finger of penumbra had appeared stretching from the leading part of the main spot.

As the group neared the CM on the 23rd and 24th it appeared larger although the total area had reduced slightly to 1960 millionths on both dates. When seen on the 23rd a larger region of photosphere could be seen just following the leading umbra together with a string of photosphere across the following part of the main spot. There were still many surrounding small penumbrae and other spots around the main spot, especially in the following direction. The 23rd was a Saturday and many photographs of the Sun were obtained on that day. In particular an excellent picture by Graeme Waddington appears on this month's cover.

By the 24th Meadows reports that the finger of penumbra seen on the previous two days had separated to form two penumbral spots. Also on this date the size of the photosphere regions in the following part of the main spot had increased. Indeed on the 25th this part of the main spot started to split and it was completely separate on the 26th. The total area of the group reduced to 1460 millionths on the 25th and further to 1310 millionths on the 26th; the number of surrounding spots had also reduced on these two dates.



2000 Sept 22, 1014. Large group in Ha. CCD video frame-grab. Eric Strach.

Meadows reported a further naked eye group on the 20th, this being a Dkc group at S12/126. On the 21st it attained its maximum area of 730 millionths when it consisted of an irregular main spot which had an extent of almost 7° in both latitude and longitude. By the next day this spot had decayed into two such that they were at almost the same longitude. Further decay could be seen on the 23rd and 24th when there were many penumbral spots but now the total area had reduced to 400 millionths. This group was seen nearing the W limb on the 25th and 26th.

Prominence MDF, 2000 September

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
K. Medway	5.8	5.5	11.4	43	3.5	3.4	6.9	2.4	2.2	4.5
M. Hendrie	5.0	6.0	11.0	2	4.0	3.5	7.5	1.0	2.5	3.5
E. Strach	5.9	4.9	10.8	20	2.9	3.4	6.3	3.0	1.5	4.5

Ha activity, 2000 September

Strach comments that his prominence MDF showed a slight reduction in September. On the 3rd a rather innocent looking flat prominence on the W limb at N20 to N24 developed an extension towards the N at 1515. At 1545 the extension became more pronounced and formed a low arc, reaching the solar limb at N31 at 1550. The arc was higher by 1558 when cloud intervened.

A triangular filament was seen on the disk on the 19th at 0845 at S27. The filament's most westerly corner was touching the W limb and at this point a faint prominence appeared which consisted of a faint line of dots. On the next day the prominence was cone-shaped and had dissolved into three dense portions. By the 22nd its outline was triangular.

Strach reported numerous filaments in the first half of the month and he comments that some of them were of considerable length. One of them was seen on the 5th crossing the NE 40° parallel at an angle of 35° and stretching over 43° of longitude. It was seen on subsequent days and on the 10th it crossed the 40° parallel (NE) at a shallower angle, extending from the CM at N48 to N30/W60. On the 10th there was no trace of it.

On the 10th Medway reported an arching prominence on the NW limb between 1635 - 1645. He noted that one of the finest prominence displays for many years was seen on the 20th. Two wide, high loops were seen on the SE/SW limbs between S15 and S35 and S75 to S85. Unfortunately bad weather meant that observations were curtailed after 20 minutes.

Major flares, 2000 September

Strach comments that he would have expected to see many flares associated with the very large sunspot group but he witnessed only two. One was seen on the 22nd, between 0950 and 1058. It was of only Sf importance but was interesting as it was seen penetrating into the main umbra of the spot seemingly between the most northerly components of the large umbra. This was caught on CCD and is illustrated in the figure taken at 1014. By 1041 only a small remnant of the flare was seen in the most westerly portion of the large umbra.

Date	Time	Lat	CMD	Type	Obs.
16	1426	N12	W4	3B	KJM
19	0828-0925	N13	W43	1B	EHS