

White light MDF, 2000 February

Observer	MDF				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
P. Meadows	3.4	5.7	9.5	12	134.7	12	27.8	12
K. Medway	2.6	2.6	5.2	23	-	-	-	-
G. Johnstone	3.2	4.7	7.9	13	-	-	-	-
J. Shanklin	2.4	4.9	7.3	19	94.0	19	-	-
T. Tanti	3.6	5.4	9.0	19	137.2	19	23.2	19
D. Storey	3.7	4.9	8.6	7	-	-	-	-
A. Ibrahim	-	-	8.5	19	114.8	19	-	-
E. Strach	3.1	4.5	7.6	22	117.7	19	23.1	22
L. Smith	2.7	4.2	6.9	9	90.9	9	-	-
M. Hendrie	4.1	6.4	10.6	14	141.4	14	-	-
G. North	2.8	3.9	6.7	10	96.8	10	-	-
W. Heyes	2.6	3.8	6.4	11	-	-	17.2	11
MEANS	3.1	4.6	7.8	178	117.3	121	23.0	64

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

White light activity, 2000 February

We welcome back Lyn Smith this month. Lyn's last solar observations to TA were submitted back in 1972! Tony Tanti has also returned after a break of only two years. Hopefully both will be regular contributors in the future.

Activity in February showed a welcome increase with some nice groups visible. Despite the fact that we must be close to sunspot maximum many observers reported that a number of high-latitude spots were visible. In particular Heyes reported a spot at N37 visible between the 25th and 28th.

Meadows reports that the largest of the seven groups seen on the 2nd was a Dsc group at N27/291. This had an area of 100 millionths. The S hemisphere included high and low latitude groups at S35/223 and S8/311 (both Hsx spots). Meadows' next two observations on the 5th and 11th showed increased activity with nine and 10 groups respectively but the size of all the groups remained small.

Strach noted that an innocent looking spot came around the E limb on Feb 10th at S24/118. During the next few days it gradually developed into a bipolar group. After its passage across the CM the two leading spots became more prominent on the 17th. On the next day new spots appeared and it dominated the S Hemisphere as a Eao type. It reached the W limb on the 22nd.

With excellent seeing conditions on the 16th Meadows reported a total of 14 groups, all but two of which were in the S hemisphere and half of these were either of type Axx or Bxo. Meadows' observation made on the 20th showed a single Hhx spot at N22/20 with an area of 260 millionths. The appearance of this group remained the same on the 21st and 22nd but by the 25th it had developed a following penumbral spot together with other smaller following spots. This following penumbral spot was seen to decay by the 26th and it had

disappeared completely by the 28th when the group was near the W limb.

The 21st saw a small Cso group near the E limb. By the following day Meadows noted that several penumbral spots had developed. By the 25th the group had grown again into a Dkc group with asymmetrical leading and following penumbral spots together with small penumbral and other spots between. Now the group had an area of 520 millionths as it was at a mean location of S15/331. On the 26th, the following spot had increased in size again and it had engulfed two penumbral spots seen the previous day to give a group with just the leading and following penumbral spots. A light bridge was seen within the following spot. On the 28th, the following spot had increased in size further and it appeared to be joined to the leading spot. The total area of the group was now 910 millionths although the group remained type Dkc. A light bridge was again seen in the following part of the group. Strach observed this group in H α and his results are reported later in this column.

On the 25th and 26th a large irregularly shaped group of type Ekc was seen close to the E limb at S15/278. It covered some 8° in latitude and it comprised one main irregular penumbral spot with several umbra embedded within it and a few following small penumbral spots. Medway reports that this group was easily visible to the naked eye using an Orion Telescopes Solar Filter. By the 28th, the effects of foreshortening had reduced to show the group better; it had an area of 890 millionths.

H α activity, 2000 February

Medway observed prominences and chromospheric disk phenomena on 6 days in February. He notes that, although very numerous on some days, prominences were mostly small, the most notable being a long low mound seen on February 26th between S7 and S26 on the SE limb. Small arches were noted on the SW limb on February 20th. He comments that filaments were very numerous on all days. A very long filament was

seen on February 12th near the S pole. Eight were seen on the disk on the 13th, and six on the 18th.

Strach comments: "It is strange that my prominence MDF for 2000 Feb is the lowest since 1999 Sept although the spot count showed a significant rise". He notes that, despite this, some remarkable prominences were seen during the month.

A high slender prominence was seen on the 2nd and 3rd at N64 on the E limb. It had a striking resemblance to a Leyland Cypress. Strach estimated its height at 130,000km. A mountain-like prominence was seen on the E-limb at S33 to S39 on the 4th. It must have been very bright since it was seen in very poor transparency and no other prominences were visible.

A prominence eruption was seen on the 22nd at 0947 with position N27/E. There were multiple fairly low but brilliant bright red jets, with the brightest reaching any height and veering towards a prominence at N21. During the next 10 minutes the configuration changed constantly. At 1015 it diminished in height and at 1012 it started to fade.

Strach reported a classical example of a hedgerow prominence seen on the E limb on the 26th. It was associated with the appearance of the extensive spot group at S13/278. The prominence was low but unusually extensive and it reached from N3 to S17. At his next observation on the 28th only its S portion was present as a prominence, the main part was seen on the disc as a broad and pronounced filament of a similar extent as the hedgerow seen two days earlier.

In the first week of the month Strach reported that there were relatively few filaments on the solar disk but from

the 9th onwards many were seen especially in the S hemisphere. There were no fewer than 13 on the 9th. One particularly dark one was seen to the West of the spot group at N25/202 which came round the E limb on the 4th with the filament preceding. It remained the most pronounced filament on the disc and crossed the CM on the 8th, but seemed to have failed to produce prominences after crossing the W limb.

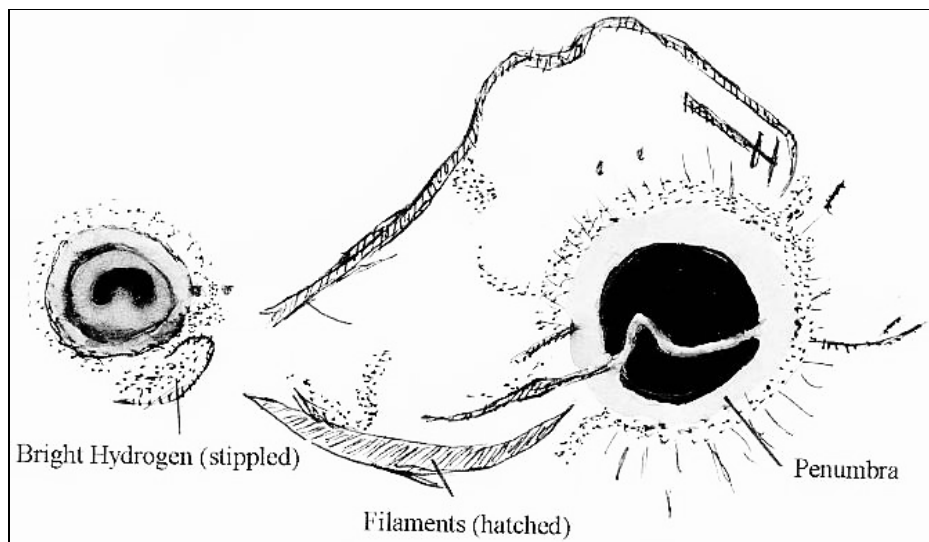
Strach observed the large group at S15/333 in H α using a CCD TV camera and VCR. He notes that this gives him a greatly enlarged image and shows quite incredible details. Scrutiny of the leader spot gave a different picture than the one seen in white light. The large spot did not seem to contain three umbrae but he had the impression of a filament passing over it. The shape of the "filament" over the umbra is illustrated in the figure. Another possible explanation of the strange appearance is that it represented a photospheric bridge. Note from the report earlier that Meadows reported a white-light bridge over the *following* spot.

Flares, 2000 February

Date	Time	Lat	CMD	Type	Obs.
2	1300	24N	70E	Sf	EHS
12	1425	27N	27W	Sf	KJM
17	1220	27S	12W	Sf	EHS
19	1030	23S	39W	Sf	EHS
20	1400	16S	51W	Sf	KJM
20	1428-1435	16S	W51	Sf	KJM
20	1432	16S	51W	Sf	KJM
23	1238	21S	37W	Sf	EHS
23	1243	19S	80W	Sf	EHS
25	0855	36N	55E	Sf	EHS
26	1015	21N	29W	Sf	KJM

Prominence MDF, 2000 February

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
M. Hendrie	6.5	7.3	13.8	6	3.7	4.8	8.5	2.8	2.5	5.3
E. Strach	4.6	4.2	8.7	19	1.6	1.7	3.3	2.9	2.4	5.3
K. Medway	2.0	4.0	6.0	8	1.4	1.6	3.0	0.6	2.4	3.0



Spot group at S15/333. 2000 Feb 26. 1300 UT. 0.6Å H α filter + CCD. Drawn from monitor. EHS.