SOLAR NOTES

Edited by Peter Meadows

White light Mean Daily Frequencies, 2001 March

Observer	AA				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
R. Dryden	3.9	3.4	7.3	7	129.3	7	-	-
A. Gabriël	3.4	3.9	7.3	21	142.9	21	-	-
M. Hendrie	6.5	5.8	12.3	4	187.0	4	-	-
G. Johnstone	2.7	2.8	5.4	12	-	-	-	-
P. Meadows	4.1	4.3	8.4	7	147.0	7	23.1	7
K. Medway	3.4	2.6	6.1	16	-	-	-	-
J. Shanklin	2.7	3.7	6.4	16	94.0	16	-	-
L. Smith	2.0	2.4	4.4	7	89.9	7	13.0	7
E. Strach	3.0	2.8	5.8	21	104.9	21	18.5	21
D. Storey	2.3	3.0	5.3	4	-	-	-	-
MEANS	3.2	3.3	6.5	115	120.7	83	18.3	35

AA = active areas, R = sunspot number, Q = mean quality estimate (JBAA 98,6,pp282-286)

White light activity, 2001 March

Activity during the first three weeks of the month was similar to the previous few months while there was a dramatic increase during the final week of the month.

During the earlier part of the month Strach reports a blank southern hemisphere on the 8th and a spotless northern hemisphere on the 14th. Despite the reduced activity, Strach observed an innocent looking Dai spot group at N26/87 on the 4th which developed into type Eac with an area of 170 millionths when seen by Meadows on the 5th. Strach saw it on the 6th as type Eao type when it crossed the central meridian. Strach reports that it started to fade on the 10th and Meadows saw it as type Hsx on the 12th near to the western limb. Strach first saw another rapidly developing active area on the 10th as a quadrangle of 4 spots at S8/327 near the eastern limb. Meadows and Strach saw this group on the 12th as an Eac group which comprised of a string of 4 penumbral spots with other spots between; the largest was the following spot and the total area of the group was 260 millionths. Meadows and Strach next saw this group on the 14th - now there were penumbral spots at leading and following positions together with a large number of spot between these; some of these had small penumbra. The total area was estimated by Meadows to be 120 millionths. The group had a similar appearance on the following day except that it was slightly longer to become type Fsc; it was now straddling the central meridian. Strach reports that it reached it maximum longitudinal extent on the 15th. On the 18th Strach observed that its longitudinal extent was 22°. When next seen by Meadows on the 19th more penumbral spots had appeared while the total number of spots had reduced substantially.

On the 28th Strach notes that a large sunspot group dominated northern hemisphere activity. It was seen crossing the central meridian obliquely as a Fsi type covering 18° of longitude. He estimated its total area to be 2500 millionths. Strach saw this group earlier on the 23rd near the eastern limb at N19/152. Both Medway and Strach saw it on the 24th. On the 29th Meadows reports that there were many groups spread across the disk and in both the northern and southern hemispheres. The above large group still dominated and it was seen by Meadows as being of Fkc type just to the west of the central meridian at N16/155. Meadows estimated that it had an area of 2300 millionths to become the largest group of the current solar cycle. It comprised of 4 main irregularly shaped penumbral spots over 20° of longitude and 12° of latitude. These were a few surrounding penumbral and other spots. On the 30th, Meadows noted that its overall appearance was similar to the previous day except that the following spot had reduced slightly to give a total group area of 2100 millionths. Medway and Johnstone report that this group was easily seen with the protected naked eye.

Also on the 29th Meadows noted a Dac group some 20° following the large group at N22/137 with an area of 160 millionths (this was the second largest group on the 29th). The longitudinal extent of the group had increased by the 30th such that its leading spot was now close to the large group to give the impression of a string of spots stretching 40° in longitude.

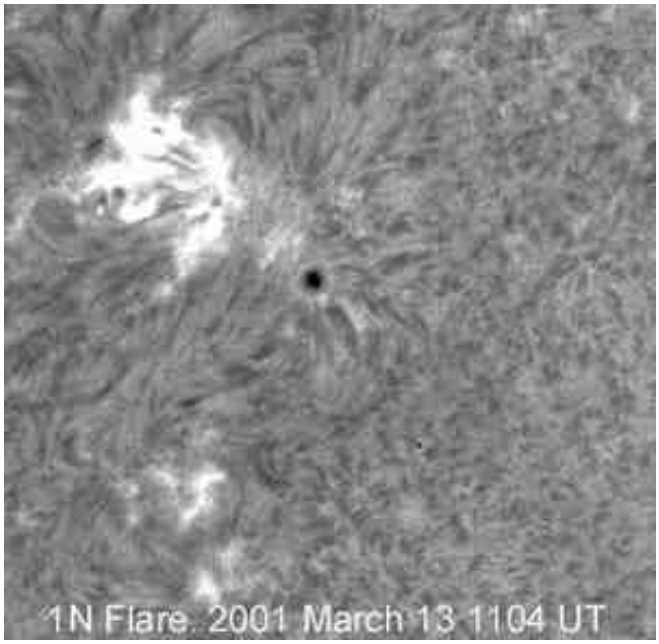
Hα activity, 2001 March

Strach comments that in contrast to the white light activity, his prominence MDF fell to its lowest value since 1998 September. He also comments that it was particularly surprising that there was no increase of prominence activity during

the last week of the month when sunspot numbers rose sharply; indeed Strach did not observe any prominences in the northern hemisphere during that period. Medway also noted a drop in prominences during the month. No outstanding prominences were observed by Strach during the month although he saw many prominences around the south polar region between S70W and S70E and this was quite pronounced from the 12th to 14th. Medway observed 2 arch prominences at the SW limb at S30 to S48 on the 27th.

Strach first saw an indication of what was to become the outstanding filament of the month on the 6th as a small streak at N28 on the eastern limb. On the following day it was seen in two parts: the northern part veering from the eastern limb around N40 towards the centre of the disk for some 15° and southern part hugging the E limb from N8 to N28. Between the two parts the structure was seen as a prominence from N30 to N36. Over the next few days the filament extended from around N45 on the western limb, in a SW direction and at the halfway position it pointed south. On the 13th, part of it crossed the central meridian and there seemed to be a southern extension to east and north forming a giant letter 'C' (see below for a CCD image from the 12th). Strach estimated its length to be in excess of that of the solar radius and notes that its intricate structure was quite breath taking. Strach was able to follow it up to the 15th but due to inclement weather he was unable to establish its ultimate fate. Medway had excellent views of this filament on the 15th.

2001 March 12, 1116UT. Long filament. Eric Strach.



2001 March 13 1104 UT. 1N Flare. Eric Strach.

Flares, 2001 March (excluding type SF)

Strach comments that, as expected, many flares occurred in association with the large spot group in the last week of the month, but it was remarkable that during that time flares were also present in other groups.

Date	Time UT	Lat	CMD	Type	Obs.	Date	Time UT	Lat	CMD	Type	Obs.
13	1104-1125	S08	E33	1N	EHS	28	1208	N19	E05*	SN	AG
19	0932	N09	E65	SN	AG	30	0910-0927	S08	E31	1F	EHS
27	1115	N12	E11*	SN	AG	30	0917-0924	S11	W01	2F	EHS
27	1345	N14	W20	2B	AG	30	0938	S10	E65	SN	AG
28	0910-0930	N12	W06*	2F	EHS	30	1114	S07	W85	SN	AG
28	0945-0958	N16	E09*	1N	EHS						

* Flares associated with the large sunspot group.

Prominence Mean Daily Frequencies, 2001 March

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
A. Gabriël	4.0	6.2	10.2	11	3.6	4.6	8.2	0.4	1.6	2.0
K. Medway	3.3	5.0	8.3	4	1.8	3.0	4.8	1.5	2.0	3.5

E. Strach	3.0	5.2	8.2	18	2.2	2.5	4.7	0.8	2.7	3.5