

White light Mean Daily Frequencies, 2001 April

Observer	AA				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
R. Dryden	3.9	3.8	7.7	12	120.8	12	-	-
A. Gabriël	4.0	4.0	8.0	27	133.0	27	-	-
M. Hendrie	4.6	5.4	10.0	10	141.6	10	-	-
G. Johnstone	4.2	2.5	6.7	12	-	-	-	-
P. Meadows	3.1	3.8	6.9	14	112.1	14	20.5	14
K. Medway	3.3	2.5	5.8	28	-	-	-	-
J. Shanklin	3.5	4.0	7.5	26	110.0	26	-	-
L. Smith	3.3	4.0	7.3	4	109.0	4	20.0	4
E. Strach	3.6	3.5	7.1	22	124.8	19	21.6	22
D. Storey	3.4	5.0	8.4	5	-	-	-	-
MEANS	3.7	3.6	7.3	160	122.3	112	21.1	40

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

This month I have the pleasure in welcoming back the well know solar observer Harold Hill to these Solar Notes.

White light activity, 2001 April

Strach noted that the high solar activity of the end of March continued for the first 10 days of the month. He observed that the large March sunspot group remained active on the 1st and that it was last seen close to the W limb on the 3rd. On this date, Strach also observed that a new group had rotated onto the disk at S20/2. On the 7th Meadows reports that this group was of type Ekc, it comprised of three irregular penumbral spots with a few surrounding spots and its total area was 800 millionths. On the 8th, Meadows noticed that one of the following penumbral spots had decayed, as had the leading penumbral spot while Strach saw it as an important Eko group with four complex penumbral spots. Meadows comments that the appearance of this active group had changed again by the 9th with the introduction of other smaller penumbral spots; it was now near the central meridian. By the 11th, the group had begun to decay in size; now it had an area of 530 millionths. This reduction in area continued such that on the 13th it was 270 millionths and it had become a Dki type group. Strach last saw it in a much diminished form as it reached the W limb on the 15th.

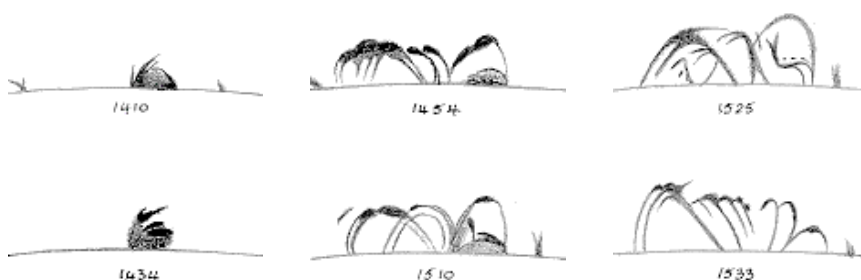
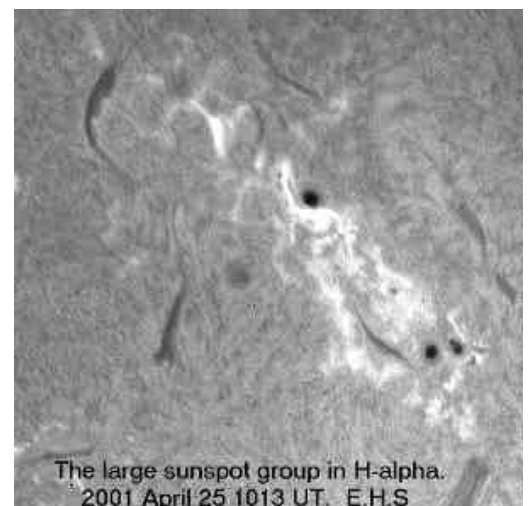
Meadows reports that during the period from the 7th to 13th the number of groups seen varied between 7 and 10. On the 17th Meadows saw only 3 groups and the largest of these was an Hsx group at N7/226 with an area of just 70 millionths. On the 18th, the disk also looked rather barren although a Hhx spot could be seen on the NE limb - this was the return of the large March sunspot group. More of this returning group could be seen by Meadows on the 19th; now it was a Fkc group at N16/155 with the main spots being the leading and following penumbral spots. On the 20th, Strach reported that the group spanned 18° of longitude while Meadows notes that more penumbral spots could be seen to give a total area of 690 millionths. On the 21st, Meadows observed an area of photosphere within the leading penumbral spot while smaller spots were present between the leading and following spots. The appearance of this group changed substantially by the 22nd because of the splitting of the leading spot and the appearance of larger following penumbral spots. Further development took place on the 23rd, again with an increase in the number of small penumbral spots throughout the group. On the 25th Strach saw that the group cross the central meridian - see below for a CCD image of this group in Há. When next seen by Meadows on the 26th, the following spot had increased in size compared to the 23rd, the total area was slightly higher at 700 millionths and the longitudinal extent had increased to almost 25°. When the group was last seen by Meadows on the 28th, the number of penumbral spots had reduced but the total area was seen at its largest at 740 millionths. Strach saw the group crossing the western limb on the 30th.

Ha activity, 2001 April

On the 1st Strach observed two relatively minor prominence eruptions, one on the W limb at N14 to N23 and the other on the E point, taking the shape of multiple loops. Both were associated with spots on the averted hemisphere, the one in the W having already rotated around the limb, the one in the E was seen on the 3rd. The loops changed their shape rapidly throughout the day. On the 2nd, Gabriël observed a SF a flare at 0805 within the large March sunspot group (now approaching the western limb). This was of short duration, but it was followed by several other flares in the immediate neighbourhood. On the SE limb, faint long threadlike prominences were seen by Gabriël to be rising during the morning of the 2nd, some reaching a height of some 200,000 km. During the morning of the 3rd, Gabriël observed a magnificent loop prominence above the large March sunspot group at the NW limb; at first it was very bright before gradually becoming fainter. At the SE limb, a series of fine loop prominences were visible above a new large sunspot group had rotated on the

disk. These were very active and changing in number and appearance all the time. Gabriël could still observe them in the early afternoon, although still active, they were fainter and less numerous. Medway also observed the SE limb prominence, at 0650, and he referred to it as an impressive multi-loop prominence system and also noted that it was not visible on the 4th. On the 10th Strach saw a dense hedgerow type of prominence on the NE limb at N11 to N20 and further north a spire formation at N34. On most days of the month Strach found some prominences in the south polar region but none in the north polar region. On the 19th one of the south-polar prominences became exceptionally high as a C-shaped ejection at S83W. The most outstanding prominence of the month observed by Strach was a massive mountainous structure in the NW on the 20th at 0720, extending from N33 to N50. It showed constant changes and its southernmost border becoming very bright and growing in size. He observed the structural changes from 0745 to 0900. At the same time the main body of the mass started to lift off the limb, forming an arc. Cloud precluded Strach from making any further observations until 1155 when the whole structure had disappeared. On the 15th, Hill followed the development of a loop prominence system that followed a flare, at 1410, on the SW limb over the active naked eye sized group at S21/359 (see the drawings below). Medway also observed this loop system. On the 20th, Gabriël saw a very large hedgerow prominence on the NE limb and its southern portion was, at 0840, very bright and active. An hour later the prominence had risen to well over 200,000km with its northern portion still touching the limb. The prominence was very active, and had an extremely complex structure; it changed shape very rapidly and was one of the most spectacular prominences Gabriël has ever seen. By 1200 the prominence had completely disappeared. During the afternoon of the 23rd, Medway and Hill observed, on the SW limb, a very tall arch prominence. Medway referred to it as one of the most impressive prominences of its type he has seen so far this solar cycle.

Strach observed filaments on each of the 22 days he was able to observe. On the 10th and 11th they were mainly in the southern hemisphere, and from the 16th to the 21st they were almost confined to the eastern hemisphere. Medway comments that, as in previous months, filaments were again very numerous, with 10 being counted on the 28th.



2001 April 15. Development of loop prominence system on the SW limb. Harold Hill. 71mm promscope (coronagraph type) 1.5Å filter and drive.

2001 April 25 1013UT. Large March group in Há. Eric Strach. CCD image.

Flares, 2001 April (excluding type S)

Date	Time UT	Lat	CMD	Type	Obs.	Date	Time UT	Lat	CMD	Type	Obs.
1	1400	N14	W55*	1N	EHS	22	1015	N16	E60	1B	KJM
3	0915 - 0933	S09	W54	2F	EHS	23	1250	S16	W16	1F	EHS

3	0921	S10	W48	1N	AG	24	0655	N19	E10	1N	AG
9	1632-1700	S21	W5	1B	KJM	25	0912	N18	W04	1N	AG
10	1440	S08	W30	1N	EHS	26	1514	N20	E01	2N	EHS
15	1445	N36	W64	1B	KJM	* Flare associated with the large sunspot group.					

Prominence Mean Daily Frequencies, 2001 April

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
A. Gabriël	3.9	6.8	10.7	25	3.7	4.8	8.5	0.2	2.0	2.2
K. Medway	3.1	3.5	6.6	20	2.5	2.2	4.7	0.6	1.3	1.9
E. Strach	2.6	4.1	6.7	22	2.4	2.1	4.5	0.2	2.0	2.2