

White light MDF, 1998 December

Observer	MDF				R		Q	
	North	South	Total	Days	Total	Days	Total	Days
J. Shanklin	2.5	1.0	3.5	23	44.0	23	-	-
K. Medway	2.5	0.6	3.2	11	-	-	-	-
G.F. Johnstone	3.7	1.7	5.3	3	-	-	-	-
M.J. Hendrie	2.7	1.3	4.0	3	26.0	3	-	-
G. North	2.4	0.8	3.2	5	47.0	5	-	-
E.H. Strach	3.0	2.1	5.1	17	82.6	21	17.2	21
P. Meadows	3.2	2.3	5.5	6	89.0	6	18.0	6
MEANS	2.7	1.4	4.1	68	62.0	58	17.4	27

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

Sunspot Activity, 1998 December

At the beginning of the month most sunspot activity occurred in the N hemisphere in a chain of groups in mid-latitudes. Meadows reports that the long Fai group seen at N19/189 at the end of November had decayed into two groups by the 6th. These groups were of types Hsx at N21/190 and Cao at N21/172 and both were seen approaching the W limb. Medway observed this large group with the naked eye on the 5th and 6th.

Also seen on the 6th was a single spot at N16/139 near the CM with an area of 280 millionths. Meadows classified this as Hkx. A similarly sized Dao group was also seen near the central meridian at N17/119. The other four groups seen on the 6th were all small in size.

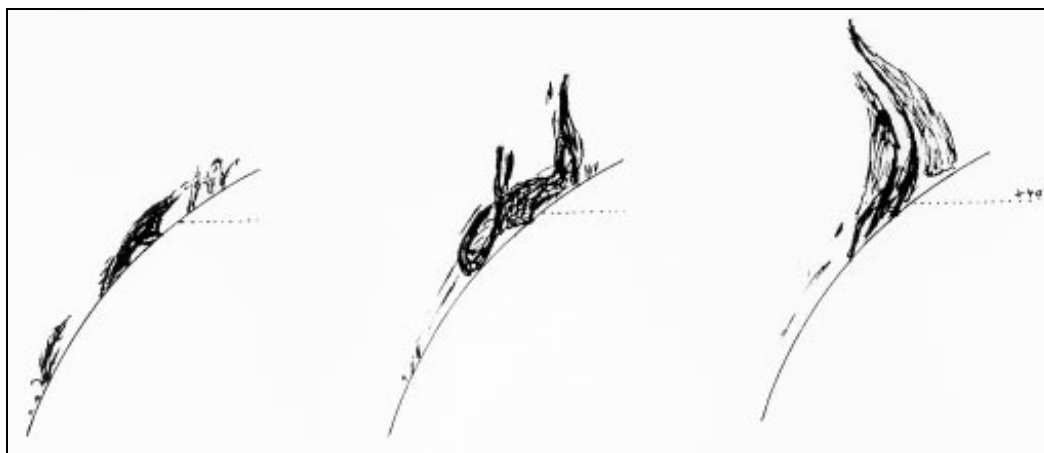
As the large groups rotated onto the W half of the N hemisphere around the 7th Strach reported that the E half remained blank for two days and the S hemisphere became more active. A Cao group at S21/118 had just crossed the CM on the 7th and by his next observation on the 9th it had developed into an Eko group.

By the 12th, Meadows reported that S hemisphere activity was the more dominant with an Fsi group at S27/24, area 220 millionths, and a nearby Csi group at S18/36. Both of these groups were just E of the central meridian. By the 19th, the F type group was very close to the W limb and it was of type Dso when last seen on the 20th. The C type group was not seen on the 19th.

On the 19th Meadows reported an Eso group at N21/254 with an area of 180 millionths - the several penumbral spots of this group were all small in size. This group had a similar appearance on the 20th but had decayed into an Axx spot by the 24th.

The end of the month saw two complex groups in the N containing several umbral spots. On the 24th, a small Esi group was seen at N24/224. It consisted of a spread out collection of small penumbral spots - the latitude and longitudinal spread being about 10° in both directions. By the 28th, this group had developed into a complex Ehc type group with a main leading penumbral spot and a variety of asymmetrical following penumbral spots. Meadows estimated the total area of this group to be 600 millionths.

Seen close to the eastern limb on the 24th was a Dso group at N30/172. This group also developed into a complex group by the 28th when it was of type Eac. The leading spot was smaller than the other E type group but it had large number of small following penumbral spots. Strach described it as having many small spots forming an ellipse between the main penumbral spot at either side. Meadows estimated the total area of the group as 370 millionths and Medway reported that it was easily visible with the naked eye. A small southern Dai group at S21/159, with an area of 100 millionths, was also seen on the 28th. This group brought the total sunspot area on this date to just over 1000 millionths - This was Meadows' largest daily area total since early September.



Large prominence. 1998 December 28. 1055, 1243 and 1252. EHS.

Prominence MDF, 1998 December

Observer	All Latitudes				0-40°			40-90°		
	North	South	Total	Days	North	South	Total	North	South	Total
K. Medway	8.5	3.2	11.7	4	5.0	2.0	7.0	3.5	1.2	4.7
E. Strach	4.7	4.9	9.5	15	2.9	1.8	4.7	1.7	3.1	4.8

Prominence activity, 1998 December

Prominences and filaments were abundant in the N hemisphere during the first six days of the month. On the 5th Medway reports that prominent arches dominated the NE limb. By the 6th an interesting loop was visible on the NE limb at N28.

Activity was lower in the middle of the month. On the 16th Strach recorded an arch formation in the NW at N45 to N54 and a tree in the SW between S59 and S61.

By the 20th a number of arches and mounds were visible on the E limb. The next day at 1150 Strach noted a convoluted structure in the SE between S53 and S58. This developed an extension within 30 minutes and by the 22nd the whole structure was lifting off with only a slender connection to the limb.

Both Medway and Strach reported an extensive hedgerow prominence on the 28th on the NW limb (see figure). When Strach started observations at 1055 the W

limb showed activity between N19 and N53. By 1230 the main body of the prominence was turning upwards away from the limb. Time and conditions did not permit any measurements of height but Strach estimates that the summit of the prominence had reached more than 150,000 km.

Filaments were always in evidence and Medway noted that they were particularly numerous on the 5th, 6th, 20th and 28th. No less than 11 were seen on the 6th and 12 on the 28th.

Flares, 1998 December

Date	Time	Lat	CMD	Type	Obs.
4	1105	N16	E25	-	EHS
6	1258-1304	N24	W40	-	KJM
6	1320	N16	W20	-	KJM
6	1311	S26	E12	-	KJM
28	1205	N24	W35	-	EHS