



Founded in 1890

# The British Astronomical Association

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## BAA Solar Section Newsletter

### Sunspot data 2024 November

Day	g	R
1	12	181
2	10	159
3	11	157
4	10	155
5	9	153
6	9	153
7	9	155
8	8	146
9	6	103
10	7	131
11	6	110
12	6	92
13	4	76
14	4	76
15	4	62
16	4	62
17	6	75
18	8	97
19	7	94
20	7	97
21	7	98
22	9	124
23	9	126
24	8	122
25	8	125
26	8	135
27	10	157
28	9	140
29	8	132
30	6	99

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Images for the web should be sent to Peter Meadows: [peter@petermeadows.com](mailto:peter@petermeadows.com) and copied to me. All digital images must be in "JPEG" format with the same orientation as naked eye orientation. Include initials, date and time in the file name. Keep each image file to less than 1Mb.

#### On-line Reporting:

<https://britastro.org/solarwl>

<https://britastro.org/solarha>

#### Observers:

M J Armstrong, Kendal	A Johnston, Denbighshire
J Arnold, Leeds	R Johnson, Surrey
C Bailey, Suffolk	S L Karl, Aberdeen
R Battaiola, Milan, Italy	D Keep, Lincoln
M Boschat, Canada	K Kilburn, Staffordshire
C F Bowron, South Yorks	M Kinder, Cheshire
A Bowyer, Epsom Downs	L Macdonald, Berkshire
S Brown, Leicestershire	R Mackenzie, Kent
E Bryant, North Devon	P Meadows, Essex
M Buck, Bristol	A Mengus, France
L Cambon, France	H Meyerdierks, Germany
I Chouinavas, Greece	B Mitchell, Norwich
G Clarke, Australia	C C Moraes, Brazil
E Colombo, Italy	R Samworth, Leicestershire
J Cook, Wolverhampton	J D Shanklin, Cambridge
A Coombs, Vic, Aust	D Smith, Essex
P Curtin, USA	L Smith, Angus
A Devey, Spain	A Stone, Bristol
R Dryden, Oxon	T Tanti, Malta
F Dubois, Belgium	D Teske, Mississippi, USA
T Emmett, Cambs	C B Thielke, Denmark
M Giuntoli, Italy	Towarzystwo Milosnikow
D Glover, Essex	Towarzystwo Obs Slonca
S Green, Lancs	S Ove Thimm, Denmark
K Hall, Warrington	P Urbanski, Poland
B Halls, W Sussex	G Vargas, Bolivia
K Hay, Canada	F Ventura, Malta
R Heard, Suffolk	D Vidican, Romania
R Hill, Arizona, USA	S Viney, Cheshire
J Janssens, Belgium	

### Monthly Means

MDFg:	7.48	(42 observers)
MDFNg	1.73	(36 observers)
MDFSg	5.77	(36 observers)
Mean R:	117.83	(42 observers)

## **The Sun in White Light – November**

The trend in white light is remaining constant with the southern hemisphere dominating. There was a very slight decrease in activity in both hemispheres returning to the level of activity seen in September. A corresponding minor decrease in the R and Q figures was also recorded. Forty-four sunspot groups were allocated a Boulder number, the largest/most active are reported on below.

**AR3878 N16°/137° & AR3887 N16°/151°** AR3878 survived from the previous month, being in the NE quadrant, east of the central meridian (CM). The group was type Eko on the 1<sup>st</sup>, the largest sunspot being an asymmetrical penumbral follower, the leading sunspots being minor in comparison. By the 3<sup>rd</sup>, the group had crossed into the NW quadrant and the large follower sunspot was much reduced. Minor leader sunspots maintained the group's classification as Eao. Thereafter the leaders faded and reduced the group to D class and then H class as it approached the NW limb. By the 6<sup>th</sup>, another group (AR3887) had formed between AR3878 and the NW limb, type Dsi. The group maintained its D classification rounding the limb on the 7<sup>th</sup>.

**AR3879 N17°/111°** also survived from the previous month being to the east of AR3878. This group consisted of a large single penumbral sunspot type Hhx. The group was impressive on the 3<sup>rd</sup> and 4<sup>th</sup> as it approached the CM with an area of 610 millionths. The group was reported visible with the protected naked eye (PNE) and continued its journey to the NW limb unchanged rotating on the 10/11<sup>th</sup>.

**AR3883 S05°/077°** was reported not far from the SE limb on the 3<sup>rd</sup> as a Dao type group with a small asymmetric leader and more symmetrical follower. It had changed shape the following day consisting of several small penumbral sunspots leading the group and a slightly larger follower not far behind. The group had an area of 420 millionths. This group grew substantially and was type Fkc across the CM on the 7<sup>th</sup>. Due to adverse weather conditions throughout the UK, there were few reports of this group until the 12<sup>th</sup> when the group was much reduced and approaching the limb. The group was reported in the SW quadrant, an H class sunspot elongated to the limb with a possible light bridge across its umbra.

**AR3884 S06°/058° & AR3886 S05°/045°** rounded the SE limb on the 3<sup>rd</sup> and 4<sup>th</sup> as a large group of sunspots which were difficult to define into the two separate numbered groups. AR3884 appeared to be the single small Hsx type sunspot that led the far larger more spread-out group of AR3886 following behind. AR3886 was allocated Fki classification on the 7<sup>th</sup> when midway across the SE quadrant. Again, due to adverse weather, there were few detailed reports of this group's progress and development. Once into the SW quadrant, the group rapidly faded. AR3884 fared better maintaining its structure until near to the limb.

**AR3889 S08°/002° & AR3892 S11°/351°** AR3889 appeared around the SE limb on the 7<sup>th</sup> and looked substantial even at this early point. The group was type Eko on the 8<sup>th</sup> and it developed and extended as it crossed the SE quadrant. By the 11<sup>th</sup> the group was just to the east of the CM and was type Fac with a total area of 820 millionths. The largest sunspot was the leader with smaller follower sunspots. The following day, the follower sunspots were numbered as AR3892 with a longitudinal extent for both groups around 24° which it maintained for the next three days. The group remained very prominent on the 12<sup>th</sup> and 13<sup>th</sup> and a bright light bridge was seen across the southern portion of the umbra of the leading sunspot. By the 15<sup>th</sup>, AR3892 had faded and AR3889 now consisted of two large sunspots quite some distance apart. The leading sunspot of the group was approaching the limb on the 18<sup>th</sup> with the follower visible close to the limb the following day.

**AR3905 S08°/167° & AR3906 S15°/160°** both appeared around the SE limb on the 22<sup>nd</sup> with AR3905 to the north of AR3906 and with its leading sunspot slightly more westward. Both groups appeared quite separate the following day being types Eso and Dai respectively. Thereafter, smaller sunspots appeared to the south of AR3905 and north of AR3906 giving a merging appearance. By the 26<sup>th</sup> AR3905 was type Eac with an area of 700 millionths and AR3906 was type Ekc through a moderately sized follower, with an area of 680 millionths. On the 28<sup>th</sup> AR3905 was just into the SW quadrant with AR3906 straddling the CM. The following day, AR3905 had lost its penumbral sunspots between the leader and follower,

reducing its total area to 400 millionths. AR3906 followed suit, but both the leader and in particular the follower, increased in size giving the group an area of 870 millionths. The month closed with both groups about midway across the SW quadrant.

**AR3910 N18°/108°** was over the NE limb on the 26<sup>th</sup>, type Hax with an area of 440 millionths. The group then developed some minor companion sunspots giving the group a Cso classification to the end of the month.

22 observers reported a Quality number of **24.80** for November.

### **The Sun in H-alpha Prominences**

15 observers reported a prominence MDF of **8.24** for November.

Due to poor observing conditions at the start of the month, few reports were received until the 11<sup>th</sup>. However, on the 3<sup>rd</sup> a large and complex prominence hearth was reported on the SE limb and another smaller but still impressive prominence hearth was on the SW limb.

A complex, moderately sized and impressive prominence was seen on the NW limb on the 12<sup>th</sup>, part of which was above the limb. It rose to about 40,000 km in height with a protrusion extending above the main body a further 30,000 km and extended around the limb for 120,000 km.

The W and NW limb contained several moderately sized prominences on the 17<sup>th</sup> including one that resembled a leaning tree. This latter prominence was more extensive the following day as a billowing cloud of plasma and was detaching from the limb when seen on the 19<sup>th</sup>.

Another anvil shaped prominence was on the NW limb on the 18<sup>th</sup> and the eastern limb was busy with several prominence hearths including a flat arch, a flame and several pillars.

On the 20<sup>th</sup> a pillar prominence rising to 120,000 km was on the SW limb and another was near the South Pole at a height of 100,000 km.

Several smaller prominences were reported along the SE to S limb on the 22<sup>nd</sup> and on the 25<sup>th</sup>, an inclined pillar prominence with a length of 100,000 km was on the SE limb. This inclined pillar was still present on the 26<sup>th</sup> at a similar length and on the 27<sup>th</sup> but reduced.

Also, on the 27<sup>th</sup>, a detached jet of plasma was seen off the E limb not far from the emerging sunspot group AR3912. A small prominence hearth on the NE limb on the 27<sup>th</sup>, grew into a moderately sized flame type prominence the following day.

### **Filaments & Plage**

14 observers reported a filament MDF of **10.26** and 13 observers reported a plage MDF of **5.98** for November.

On the 3<sup>rd</sup>, a long, curved filament was in the SW quadrant between AR3872 and AR3885 and curving to the south of AR3885. Another long east/west aligned filament was further east and to the south of AR3881 in the southern hemisphere. A long filament was seen trailing eastward towards the NE limb from AR3879 and another more curved filament trailed to the east of AR3875 as the group neared the NW limb.

The extensive prominence hearth on the SE limb on the 3<sup>rd</sup> gave rise to a spectacular filament that crossed the SE quadrant during the early part of the month. By the 11<sup>th</sup> it was reported as aligned north/south with a length of around 400,000 km and a width of 60,000 km. Thereafter is dissipated into a much smaller cloud of plasma but eventually reached the SW limb giving rise to the large prominence reported on the 17<sup>th</sup>, 18<sup>th</sup> and 19<sup>th</sup>.

A bright region of plage was observed in a north/south direction through AR3884 with several small filaments associated with it on the 12<sup>th</sup>.

On the 18<sup>th</sup>, another long east/west aligned filament was strewn across the SW quadrant. The following day, the western end of the filament reached the limb resulting in a prominence but the filament was by far the more extensive feature. The filament persisted until the 23<sup>rd</sup> shortening daily until only the prominence was left on the limb.

A long quite faint filament stretched across the southern hemisphere on the 25<sup>th</sup> for about 350,000 km.

On the 26<sup>th</sup>, AR3905 and AR3906 in the SE quadrant, displayed bright plage at the eastern end whilst small active filaments were associated with both groups. Bright plage was also observed on the 27<sup>th</sup> from south-east of AR3901 to AR3907 and the emerging AR3911 in-between. A broken east/west aligned filament was to the north of AR3908 in the NE quadrant.

**CaK**

There was no CaK report for November due to poor weather conditions for observing.

**Flares**

Fewer flares were reported during November by Section members. Andy Devey reported four M class flares; 5<sup>th</sup> at 1442 UT M3 AR3883, 10<sup>th</sup> at 1204 UT M9 AR3889, 18<sup>th</sup> 1106 UT M2 AR3889; 22<sup>nd</sup> at 1545 UT M2 AR3905. Arthur Coombs imaged an M4.8 flare within AR3889 on the 10th at 2023 UT and Andrew Johnson reported a C8 flare associated with AR3905 on the 27<sup>th</sup> at 1145 UT.

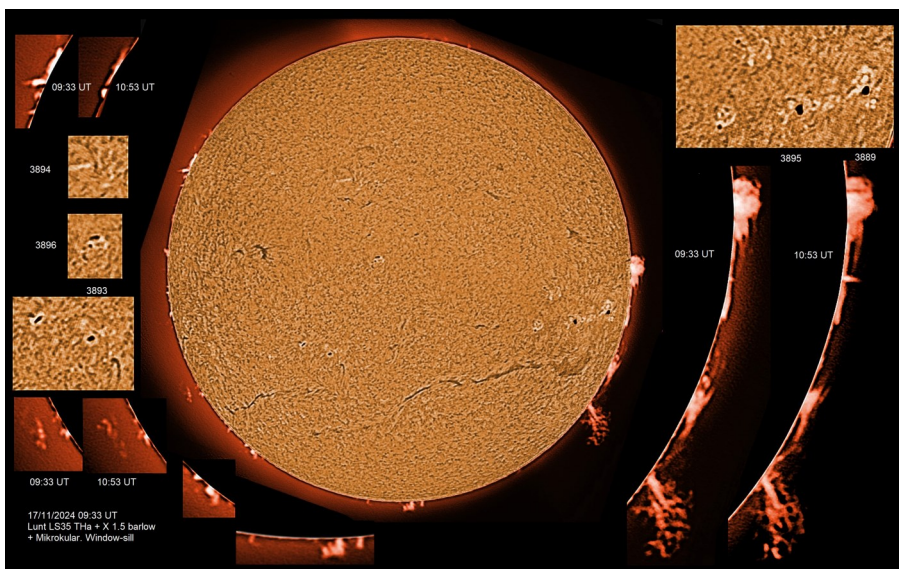


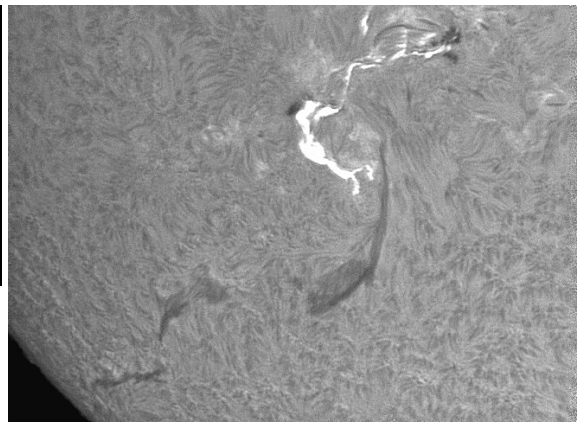
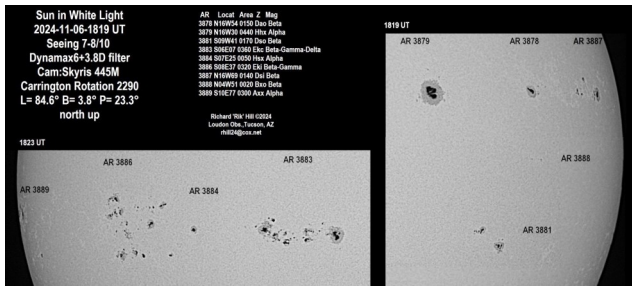
Image by  
Roger Samworth  
using Lunt LS35  
(indoor set-up)  
0953 UT  
20241117

**MAGNETOMETER REPORT                      2024 NOVEMBER**

DATE	DURATION (UT)		ACTIVITY
2	08:00	16:00	Disturbed
2	19:00	00:00	Disturbed
3/4	17:00	16:30	Disturbed
4/5	23:00	01:00	Disturbed
5/6	08:00	08:00	Disturbed
6	17:30	19:00	Disturbed
7/8	20:45	01:00	Disturbed
8/9/10	19:00	18:00	Disturbed
10	18:00	20:00	Active
14/15/16	15:00	16:00	Disturbed
19	15:30	19:00	Disturbed
21	20:00	23:30	Disturbed
22/23	16:00	01:00	Disturbed
24	04:00	07:00	Disturbed
24/25	22:00	12:00	Disturbed
27	22:45	00:00	Disturbed
29/30	20:30	07:00	Disturbed

Solid-state magnetometer,  
Uncalibrated  
John Cook

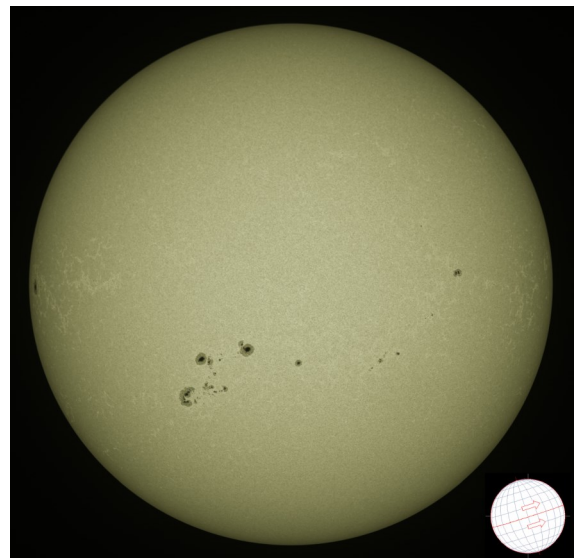
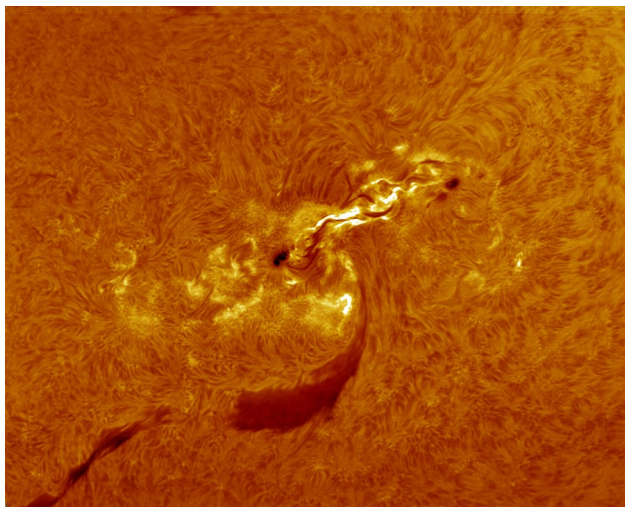
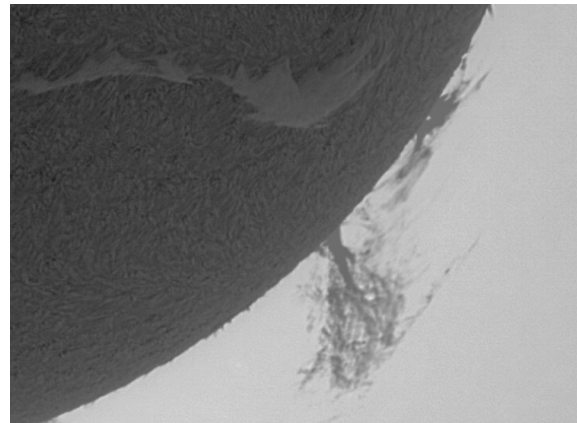




**Above:** Composite of images by Rik Hill showing new and old sunspot activity 20241106 Imaged at 1819 UT

**Top Right:** Image by Arthur Coombs showing M4.8 flare in AR3889 at 2023 UT 20241110

**Right:** Inverted Ha image of large prominence on the SW limb 20241117 by Chris Bailey



**Above:** AR3839 and filament imaged by Ella Bryant 20241113 at 1326 UT

**Right:** AR3905/06 imaged in white light by Dave Smith 20241126 at 1114 UT

**Below Right:** Close up of AR3905/06 and AR3902 leading. Imaged by Ron Johnson 20241126 at 0941 UT

**Below:** Estimated measurement of the long filament associated with AR3889. Imaged by Stuart Green 20241114 at 1013 UT

