



The British Astronomical Association

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BAA Solar Section Newsletter

Sunspot data 2025 February

Day	g	R
1	6	114
2	6	131
3	7	142
4	7	133
5	6	116
6	8	132
7	8	119
8	8	111
9	8	108
10	7	86
11	5	63
12	6	76
13	7	90
14	8	118
15	11	166
16	11	161
17	10	136
18	9	127
19	8	108
20	7	107
21	7	116
22	8	144
23	8	139
24	8	133
25	7	121
26	6	91
27	6	90
28	7	96

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Images for the web should be sent to
Peter Meadows: 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:

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

Monthly Means

MDFg:	7.49	(43 observers)
MDFNg	4.58	(36 observers)
MDFSg	3.07	(36 observers)
Mean R:	118.99	(42 observers)

The Sun in White Light – February

There was a slight overall increase in solar activity during the month. Although southern hemisphere activity declined slightly, a rise in northern hemisphere activity more than compensated. There was a corresponding rise in the quality number. Thirty-five sunspot groups received Boulder numbers, the most significant are reported below.

AR3976 N13°/001°; AR3977 N19°/001°; AR3978 N11°/351° & AR3981 N08°337° The first three sunspot groups had been significant at the close of the previous month. On the 1st, all three were still significant in the NE quadrant and difficult to identify as separate groups when seen visually. AR3981 was seen on the 1st to the SE of the main collection of sunspots as a separate minor emerging group. By the 2nd, the main collection of sunspots was classified as a Fac type group with an area of 1070 millionths comprising of many small penumbral and other sunspots. AR3981 had developed to an Esc type group with an area of 310 millionths. By the 5th with the groups now into the NW quadrant, the size of the penumbral sunspots in AR 3976/77/78 had reduced to give an area of 550 millionths while AR 3981 had grown to 1070 millionths through the increase in size of both the symmetrical leader and the irregularly shaped follower. This group was now also much closer to AR's 3976/77/78. By the next day the decay of AR's 3976/77/78 continued, the area now being 360 millionths but still type Fac while the follower of AR3981 had split into several penumbral sunspots, although the group was only slightly smaller at 960 millionths. The leading sunspot had a Y shaped light bridge across the eastern section of its umbra. Over the next few days, the leading collection of sunspots continued to fade as they reached and crossed the NW limb. AR3981 was still significant when it arrived at the limb on the 10th type Esi.

AR3990 S08°/190° was close to the SE limb on the 9th. When fully on the disk the group comprised of a single large penumbral sunspot with an asymmetric penumbra. By the 14th the main sunspot was surrounded by much smaller penumbral sunspots and pores giving the group a Dko classification and a total area of 350 millionths. The group was near the CM on the 16th with the main sunspot reduced and more symmetrical in shape. Many smaller sunspots now surrounded it but they reduced in number the following day and had all nearly faded by the 18th with the surviving main sunspot having an area of 220 millionths. The group reached the SW limb on the 22nd without any further development.

AR3996 S15°/126° & AR3998 S13°/111° AR3996 was over the SE limb on the 15th and was reported on the 16th as a Dac type group. To the east of this group was a small Axx type sunspot being AR3998. By the 18th, AR 3996 had become type Eai with an area of 310 millionths while AR 3998 had developed to type Dsi with an area of 160 millionths. The leading sunspot of AR3996 was asymmetrical with the trailing sunspot being larger with a light bridge crossing its umbra. Twelve or so smaller sunspots lay between the leader and follower. By the 21st, both groups were near the CM with the follower sunspot of AR3996 quite close to AR3998 which now consisted of more small penumbral sunspots, type Dac with an area of 300 millionths. As the group progressed across the SW quadrant, AR3996 declined to just a single Hsx sunspot by the 24th whilst AR3998 had grown to type Ekc with an area of 670 millionths through the development of a larger leader. AR3996 rounded the limb on the 26th with AR3998 following on the 27th.

AR4000 N17°/104° developed on the disk on the 21st in the NE quadrant just east of the CM. The group was type Dai consisting of a asymmetric penumbral leader and an arc of smaller sunspots looping to a higher latitude and then descending to end in a small follower sunspot. There was more development overnight with three strong penumbral sunspots being prominent within the group. It also maintained its high inclination with the leader being at the lowest latitude. The group thereafter went into decline as it crossed in the NW quadrant being type Cai by the 26th. The group was not seen on the 28th.

AR4006 N17°/027 rounded the NE limb on the 23rd type Dai. The group consisted of three small leading sunspots which over subsequent days merged together to form one asymmetric penumbral sunspot accompanied by minor sunspots and a smaller penumbral follower. The group was type Dki on the 26th and 27th but was fading on the 28th particularly in the

follower region.

21 observers reported a Quality number of **Q = 23.25** for February.

The Sun in H-alpha

Prominences

15 observers reported a prominence MDF of **7.08** for February.

A small blob of plasma was noted off the NW limb on both the 1st and 2nd. An arch prominence was reported on the SW limb on the 2nd with a height of about 50,000 km and a base width of 40,000 km. Two large tree-shaped prominences were seen on the NE limb. On the 5th an eruptive prominence on the SE limb was reported by several observers. Peter Meadows reported – “At the start of the observing period at 10:25 UT a moderately sized dome-shaped prominence was seen on the eastern limb, however a few minutes later it could be seen that its height was increasing quite rapidly. This continued with various jets being thrown outwards from the limb. At one point several blobs of bright hydrogen were seen within these jets. By 10:55 UT there was reduced activity near the limb but several jets were seen above the limb. By 11:10 UT very little could be seen either near the limb or above.”

The extension of erupting material was estimated to be around 300,000 km in length at its maximum extent.

A small hedgerow prominence was on the SW limb on the 11th which developed into a longer hedgerow the following day comprising of three elements.

The NE limb was active with several small prominences on the 15th and 16th and a large loop prominence graced the NE limb on the 19th extending southward the following day but becoming less structured.

A large irregular prominence was on the SE limb on the 24th until the 26th changing shape over the 3 days. An active prominence was also reported on the NE limb on the 25th with an easterly appendage at the top.

Filaments & Plage

14 observers reported a filament MDF of **9.77** and 13 observers reported a plage MDF of **5.99** for February.

On the 1st, three long filaments were strewn across the southern hemisphere. The middle one around the CM was broad and extensive in length, roughly east/west aligned. The following day it was estimated to be 400,000 km in length. This filament was in the mid-SW quadrant on the 4th but was not present on the 5th. The most easterly of the three filaments seen on the 1st was now the most impressive aligned east/west across the SW quadrant. It was estimated to be 375,000 km long on the 5th and 400,000 km on the 6th. As this filament rotated over the SW limb, it produced the hedgerow prominence seen on the 11th and 12th.

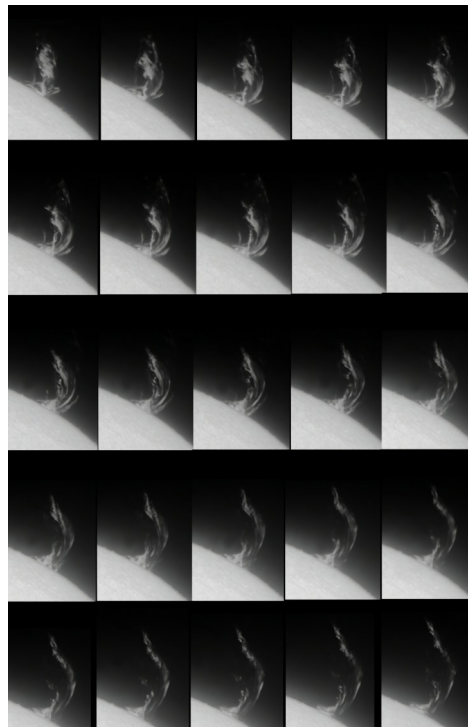
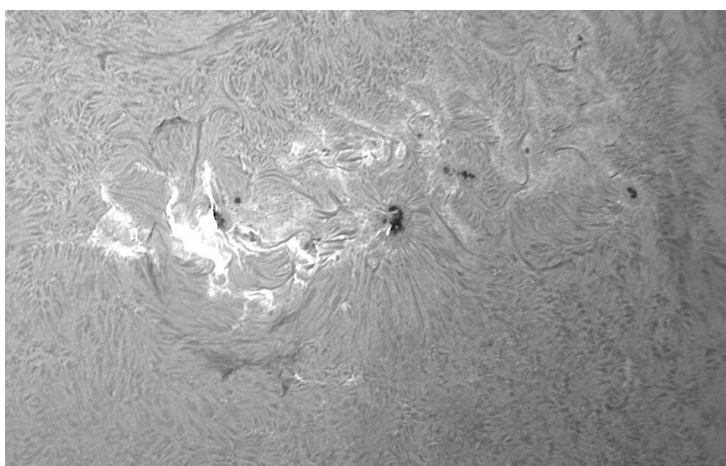
On the 17th a broad north/south filament was close to the NE limb. The feature moved across the NE quadrant but started to break up on the 20th and was not present on the 21st.

On the 18th a bright area of plage was noted between the leader and follower of AR3999.

A long filament extended from the SE limb across the SE quadrant on the 25th just south of the irregular prominence reported above. The following day it was joined by another long east/west aligned filament extending from just below the prominence. On the 28th both filaments were more extensive and were joined by a further long east/west aligned filament to the south-west.

Flares

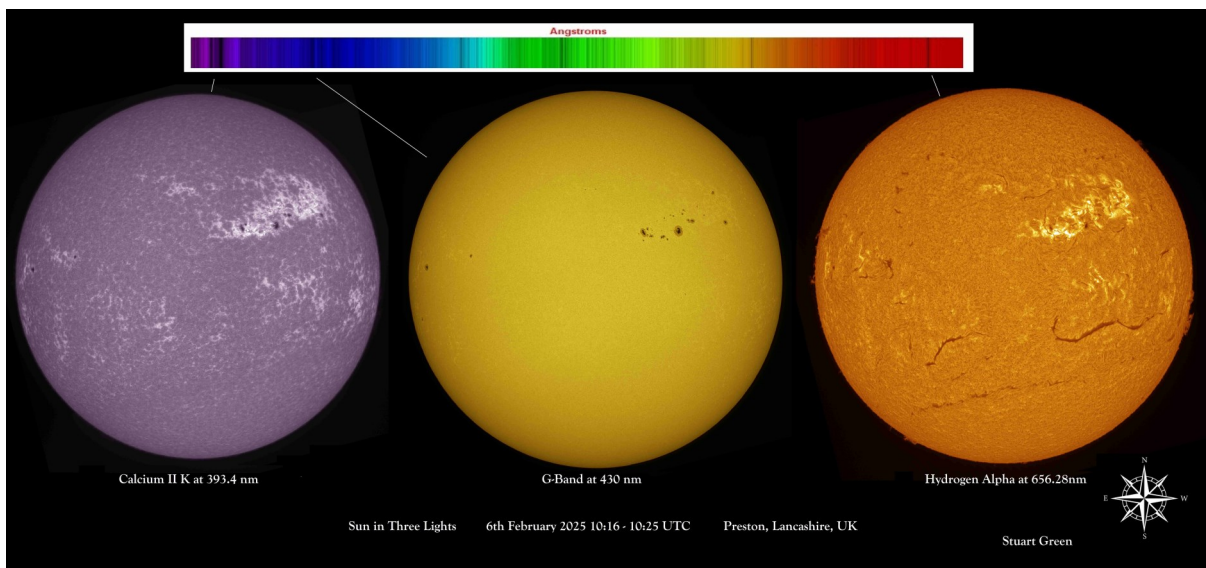
Minor flares were reported throughout the month. Andy Devey reported an M2 flare on the 2nd at 1404 UT and an M7.7 flare associated with AR3981 was reported on the 6th between 1050 UT and 1115 UT by Arthur Coombs, Derek Glover, Brian Halls and Andrew Johnston. Massimo Giuntoli reported a flare associated with AR3978 on the 4th at 1315 UT and Peter Meadows recorded a C4.8 flare from AR3994 on the 14th at 14.15 UT.



Above: Brian Halls captured an M7 class flare within AR3981 on the 6th at 11.15 UT

Right: John Arnold's sequence of an eruptive prominence SE limb on the 5th between 1034 and 1056 UT—Lunt 50 and ZWO ASI 178MM camera

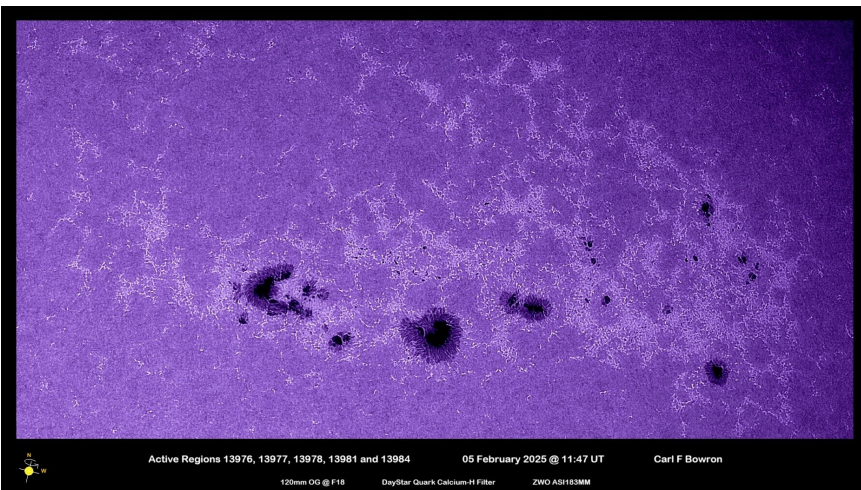
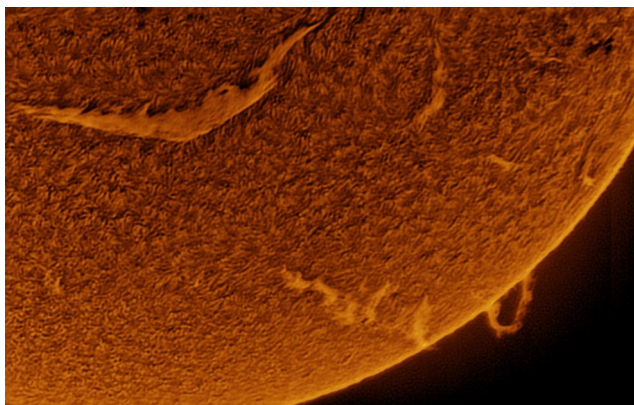
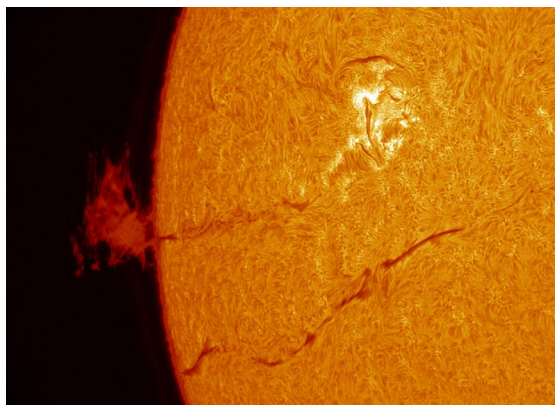
Below: AR's 3976/77/78/81 imaged in 3 wavelengths by Stuart Green on the 6th (CaK, WL G band & H-alpha).



MAGNETOMETER REPORT 2025 FEBRUARY

DATE	DURATION (UT)		ACTIVITY
1/2	02:15	18:00	Disturbed
5/6	23:00	01:15	Disturbed
8	07:45	15:00	Disturbed
9/11	09:00	06:00	Disturbed
11/12	10:00	22:00	Disturbed
13/17	00:30	18:00	Disturbed
17/18	22:00	07:00	Disturbed
18/19	21:45	08:00	Disturbed
19/20	20:00	03:15	Disturbed
22/23	22:30	01:00	Disturbed
25/26	20:00	19:00	Disturbed
27/28	00:45	21:00	Disturbed

Solid State, magnetometer
Uncalibrated
John Cook

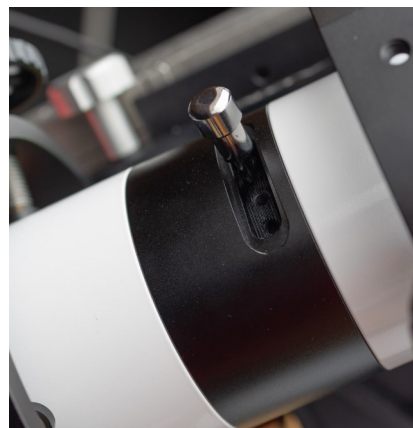


Top Left: Irregular prominence 25th imaged by Ella Bryant 1244 UT

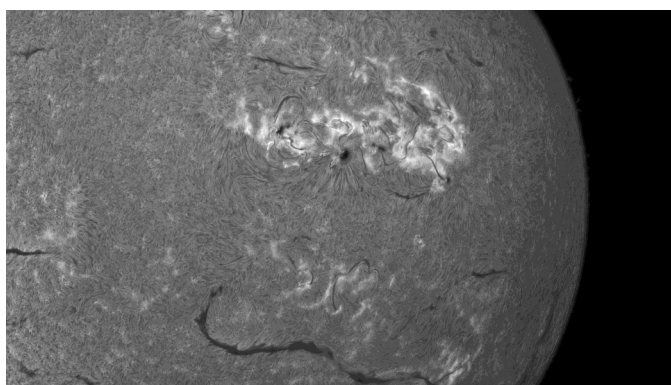
Above: Inverted image of filaments and loop prominence on the 2nd at 1119 UT imaged by Dave Smith

Left: CaK image of AR3976/77/78/81 and 84 imaged by Carl Bowron on the 5th at 1147 UT

then tuned the scope without further problem. Compared to my Lunt 152 DS II, the image is very bright and, visually, its quite dazzling and a polarising filter is useful. When I had my first view, I emitted an expletive I won't repeat here. I was quite taken aback at how much detail and contrast the image had. In my opinion it easily competes with my Lunt 152. Here are a couple of pictures which show how good it is. I prefer the monochrome images as detail is more apparent than coloured versions. It comes with a sun shield, a mobile phone mounting kit and an 20mm eyepiece. As I said above, I am very impressed. Lunt must be quite concerned!



Left Image taken 20250204 at 1333 UT and below image 20250205 at 1302 UT—Gordon Ewen.



Section News

Some very useful discussion took place at our last Zoom meeting into data collection and Peter and I are investigating how to include more information on both the database and the web pages. The meeting was attended by 25 members from around the world including Australia, Canada and South Africa. Our next Zoom meeting will be on Friday 25th April 2025 at 19.30 hrs BST (18.30 hrs UT).

The meeting also requested that I post the BAA seeing conditions as a reminder to all observers as the numbering process can be different from that of other organisations.

BAA Seeing Conditions

1. Clear fine structure in penumbra, granulation very well visible, no limb motion visible.
2. Some fine structure in penumbra, small spots within groups easily seen, granulation visible, slight image motions at limb.
3. Granulation barely visible, umbra-penumbra limit clear, limb motion boiling.
4. Umbra and penumbra of large spots separable, no granulation visible. Some bad image and limb boiling (about the limit for any useful observation). Drifting cloud also influences this category.
5. Large spots only can be seen, bad boiling or cloud. Umbra and penumbra can not be distinguished.

Thanks go to Gordon Ewen who reviews the Skywatcher Heliostar below.

Skywatcher Heliostar - a new H-alpha solar telescope - Gordon Ewen

Skywatcher have recently introduced their first solar telescope, with a 76 mm aperture and a bandpass of 0.5Å from a single etalon. That is a very impressive specification and especially so given its price of £2399 in the UK. With the demise of Meade and Coronado its mainly Lunt and Daystar making solar telescopes so it nice to see another brand adding to the competition. And this Heliostar is competitive. To get similar performance from a Lunt scope you would be contemplating getting the Lunt 80 or 100 with double stacked etalons which would set you back something like £11000!

For some background info you might like to look at this Skywatcher USA video:

<https://www.youtube.com/watch?v=xZKjEZiDF94&t=1826s>

It describes the construction of the etalon and how it works. One element of the etalon is mechanically 'pressurised' by an adjustable lever (the silver knob on the top of the tube in the above picture) which allows the bandpass to be centred on the H-alpha wavelength. I've had one for just over a month now and have, in spite of the dreadful weather, managed to spend some time using it and I am very impressed! It's very straightforward to use. There is a sighting tube on the top of the scope which facilitates finding the Sun. The focuser is of reasonable quality and works fine. To tune the etalon the small silver knob is rotated within about a 30 degree arc, it is quite obvious when it is in tune. At first I wasn't sure I could get it tuned as the lever was at its furthest adjustment in the 30 degree slot. Close inspection of the knob showed that there were several threaded holes in which it could sit, (see picture on page 5). I removed the knob and moved it one hole further back in the rotating part and

