



The British Astronomical Association

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BAA Solar Section Newsletter

Sunspot data 2025 May

Day	g	R
1	3	53
2	2	36
3	2	46
4	4	67
5	4	81
6	4	74
7	3	67
8	4	76
9	4	66
10	4	59
11	5	62
12	4	51
13	4	52
14	3	36
15	3	35
16	4	47
17	3	43
18	4	53
19	4	57
20	5	65
21	7	84
22	7	84
23	8	105
24	7	89
25	7	89
26	7	90
27	6	80
28	6	90
29	5	84
30	6	100
31	5	102

Monthly Means

MDFg:	4.50	(45 observers)
MDFNg	2.50	(40 observers)
MDFSg	2.01	(40 observers)
Mean R:	66.85	(45 observers)

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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	S L Karl, Aberdeen
J Arnold, Leeds	D Keep, Lincoln
C Bailey, Suffolk	M Kinder, Cheshire
R Battaiola, Milan, Italy	P Lawrence, Leicestershire
M Boschat, Canada	C Longthorn, Rugby
C F Bowron, South Yorks	L Macdonald, Berkshire
A Bowyer, Epsom Downs	R Mackenzie, Kent
S Brown, Leicestershire	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	M Nicholls, Sheffield
J Cook, Wolverhampton	G Palmer, Wales
P Curtin, USA	R Samworth, Leicestershire
S Dawes, London	J D Shanklin, Cambridge
A Devey, Spain	D Smith, Essex
R Dryden, Oxon	L Smith, Angus
F Dubois, Belgium	N Spencer, York
T Emmett, Cambs	G Steigmann
E Fabrigat, France	A Stone, Bristol
M Giuntoli, Italy	T Tanti, Malta
D Glover, Essex	D Teske, Mississippi, USA
S Green, Lancs	C B Thielke, Denmark
K Hall, Warrington	N Tonkin, Cornwall
B Halls, W Sussex	P Tosi, France
K Hay, Canada	Towarzystwo Milosnikow
R Heard, Suffolk	Towarzystwo Obs Slonca
R Hill, Arizona, USA	S Ove Thimm, Denmark
J Janssens, Belgium	P Urbanski, Poland
M Jenkins, Cambridge	G Vargas, Bolivia
S Jenner, Kent	F Ventura, Malta
A Johnston, Denbighshire	S Viney, Cheshire
R Johnson, Surrey	

The Sun in White Light – May

There was a substantial drop in white light activity in both solar hemispheres during May. If this downward curve continues then the maximum for Cycle 25 will have occurred during 2024 July/August coinciding with the peak of southern hemisphere activity. Both R and Q values recorded by the Section were the lowest since 2022 November. Only thirty groups were allocated Boulder numbers during the month, the largest/most complex are reported below.

AR4079 N09°/239° survived from the previous month, being a large Ekc sunspot group close to the NE limb on the 1st. The group was the second rotation of the earlier AR4055. It comprised of one main irregular penumbral sunspot, two small nearby penumbral sunspots and a few surrounding pores. The group had a total area of 1850 millionths but by the following day, had enlarged to 2260 millionths due to the development of the main sunspot which contained several umbrae. The main sunspot continued to undergo changes over subsequent days especially to the following part where many umbrae were seen. By the 5th, the group was just past the central meridian (CM) with the following section having the appearance of separating from the main sunspot. The group reduced in size to 1940 millionths by the 5th and sported a region of photosphere within the main sunspot on the 3rd. The follower sunspots started to decay on the 6th and by the 9th as the group approached the NW limb, all that was left was the two main umbra within the large leader sunspot.

Numerous pores were seen closely surrounding the main sunspot which was set in a large field of faculae. The group rotated around the limb on the 11th and was reported seen by the protected naked eye (PNE) from the 1st to 5th inclusive.

AR4081 N07°/213° formed on the disk in the NE quadrant on the 3th as an Hrx type sunspot. The group developed to type Dao the following day, continuing to strengthen as it crossed the CM on the 7th type Dai. The main sunspot was the leader which was almost circular in shape with two light bridges across its umbra on the 9th. The group started to decline on the 10th being type Cro due to the follower sunspots dissolving. The leader also declined on the 11th as the group approached the NW limb.

AR4087 N16°/057° appeared on the NE limb on the 12th being classified as type Dso on the 13th once it was fully onto the disk. The leader sunspot was almost circular in shape with a smaller follower with a divided umbra. The group remained fairly consistent as it made its way to the CM, having an area of 470 millionths on the 19th. The group was still type Dso on the 20th before losing the following sunspots by the time it reached the western limb on the 23rd. The group rounded the limb on the 24th as type Hsx.

AR4099 S13°/257° was reported as an Hsx sunspot seen close to the SE limb on the 25th. By the following day the group was more complex with a leading penumbral sunspot containing several umbrae and a few small followers. By the 28th there was just one irregular penumbral sunspot of type Hkx with an area of 640 millionths. When next reported on the 31st it was classed as a tightly packed D class group with a large leader, the umbra of which was bridged in several places. The follower sunspot area was close to the outer penumbra of the main sunspot. The group had reduced in area to 470 millionths.

AR4100 N10°/244° saw the return of AR4079 (AR4055) on its third rotation, appearing over the NE limb on the 26th. The group was in the form of an irregular Hkx sunspot but had a small penumbral follower on the 27th making the group type Dko. On the 28th the group consisted mainly of an L-shaped leading penumbral sunspot and a few nearby smaller sunspots, being type Dkc with an area of 880 millionths. When next reported on the 31st, the group was near to the CM but its appearance had changed to a collection of many penumbral sunspots with the largest being in the centre, quite elongated in latitude. The group was type Ekc with an area of 860 millionths. Reported PNE on the 31st. 25 observers reported a Quality Number of **Q = 13.96** for May.

The Sun in H-alpha Prominences

20 observers reported a prominence MDF of **6.59** for May.

A spray type prominence on the SW limb on the 2nd changed shape over several days to a

pillar type. On the 4th it was estimated at around 80,000 km in length and was no longer present on the 7th.

Minor prominence activity on the NE limb on the 3rd, matured over several days to become a substantial prominence hearth. The multiple elements condensed into a large wedge-shaped prominence on the 7th rising to about 100,000 km and with a base width of around 70,000 km. The feature was much reduced the following day. However, some prominence activity continued in this region over the coming days up to and including the 15th.

A broken arch prominence with a height of around 60,000 km was reported on the NW limb on the 9th which was still present on the 10th. Further activity was seen at the same location on the 13th in the form of a broken arch prominence. Also on the 13th, on the NE limb, a prominence hearth containing three elements was reported. This was much reduced the following day as the feature rotated onto the disk. A bright short prominence was seen on the W limb on the 14th.

A multiple element prominence hearth on the W limb on the 20th became a large hedgerow type prominence the following day.

A large hedgerow prominence hearth was on the NE limb on the 22nd which reduced in height but extended in expanse to become a flat arch prominence on the 23rd with a length of 80,000 km.

A tenuous but extensive multi arch prominence was observed on the NE limb on the 27th but only two of the northern pillars and some faint strands of plasma survived to the 28th.

The month ended with a large arch prominence on the NE limb on the 31st rising to 60,000 km with a base extent of about 100,000 km.

Filaments & Plage

18 observers reported a filament MDF of **8.49** and 16 observers reported a plage MDF of **4.14** for May

The long, curved filament approaching the NW limb at the end of April was still present on the 1st of May. The filament progressed towards the limb resulting in a hedgerow prominence on the 4th.

A long north/south aligned filament was in the NE quadrant on the 1st and was estimated at 270,000 km in length on the 2nd. Its length extended to 350,000 km the following day as it crossed the CM. The filament became even broader as it progressed across the NW quadrant, arriving at the limb on the 7th and possible the source of subsequent prominence activity.

A U-shaped filament was observed in the southern hemisphere on the 3rd and 4th with an estimated length of between 150,000 and 200,000 km.

A filament started to emerge from the SE limb on the 3rd into the SE quadrant. The feature gradually grew in length and was estimated at about 300,000 km in length on the 7th.

A broad C-shaped filament appeared near the NE limb on the 10th expanding into a straighter north/south aligned filament as it approached the CM on the 14th. The southern portion faded as it crossed the NW quadrant but the northern extent broadened arriving at the limb on the 19th and producing a prominence hearth on the 20th.

A fila-prom on the NE limb on the 14th, gradually extended onto the disk becoming a full filament on the 16th. The feature broadened on the 17th becoming quite substantial. However, the following day it became diffuse and was not on the disk on the 19th.

On the 26th a long east/west aligned filament was in the southern hemisphere to the south of AR4092. The filament was still present on the 27th and 28th. A broad north/south aligned filament was seen preceding AR4100 onto the disk on the 26th. The filament remained in association with the group to the end of the month but was thinner and less obvious.

Plage was seen in association with most sunspot groups throughout the month.

CaK

No reports received.

Polar Faculae

None reported during the month.

Flares

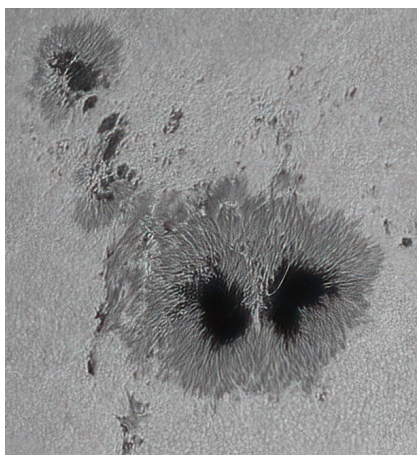
Numerous minor flares were reported throughout the month particularly in association with AR4087 and AR4079. On the 13th John Cook observed an X1.2 limb flare at 1520 UT possibly from the emerging AR4087. Mick Nicholls observed an M3.7 flare from this group the following day at 1816 UT.

MAGNETOMETER REPORT

2025 MAY

DATE	DURATION (UT)		ACTIVITY
1	00:30	09:00	Disturbed
1/2/3	18:00	15:50	Disturbed
3/4	23:00	09:00	Disturbed
4/5	16:00	10:30	Disturbed
5/6	19:45	03:00	Disturbed
6	18:15	22:45	Disturbed
8/9	22:00	02:30	Disturbed
9/10	18:15	00:30	Disturbed
11	20:00	23:45	Disturbed
15	00:45	08:00	Disturbed
15	20:30	23:30	Disturbed
16/17	22:00	06:00	Disturbed
17/18	21:30	08:30	Disturbed
18/19	19:00	04:30	Disturbed
20/21	23:45	02:30	Disturbed
27/28	18:30	06:00	Disturbed
28-31	15:30	07:00	Disturbed

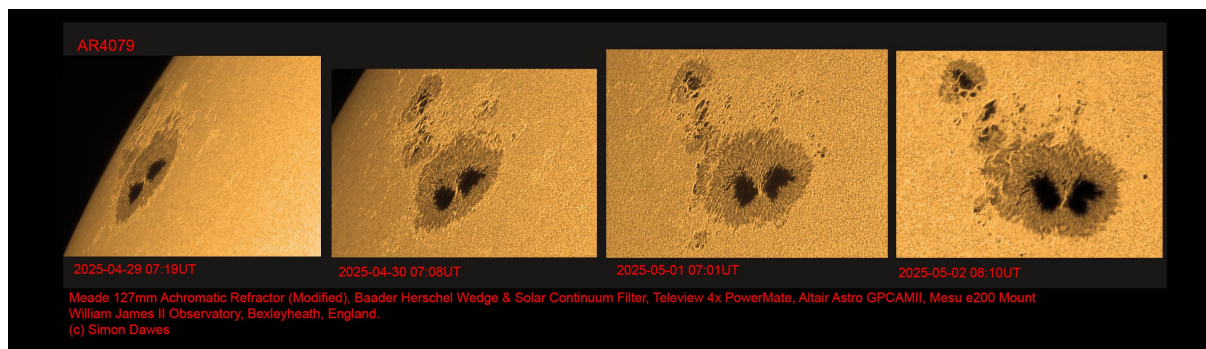
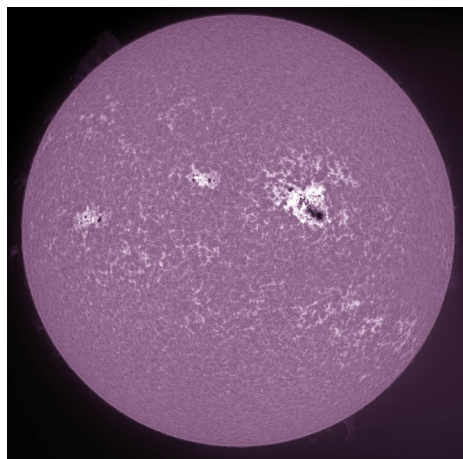
Solid-state magnetometer,
Uncalibrated.
John Cook

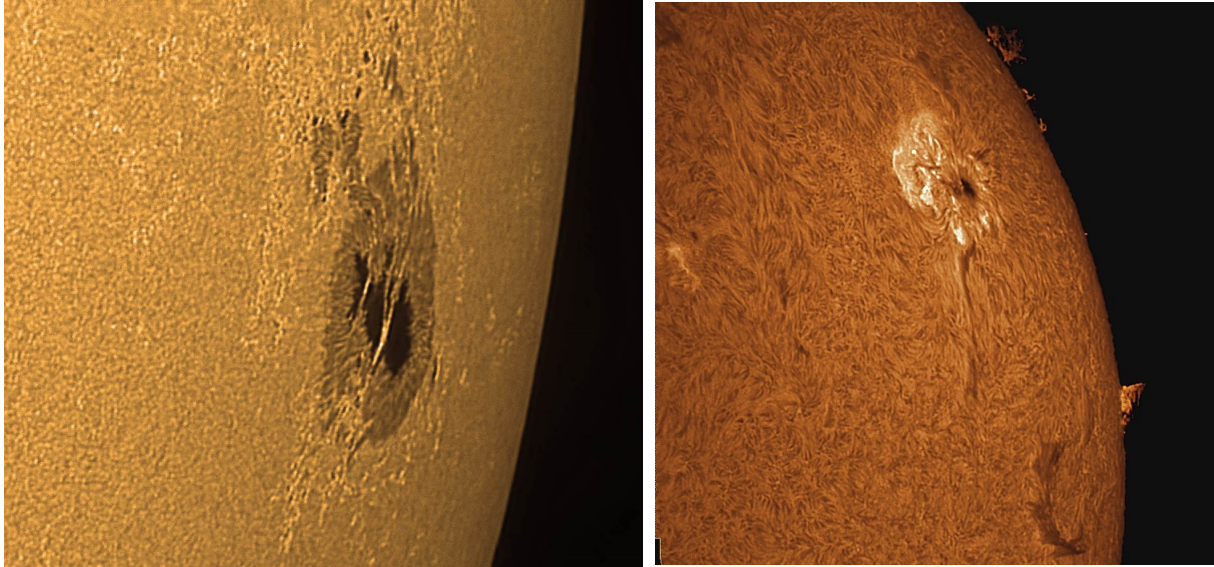


Left: AR4079 detailed Image by John Arnold 1st May at 1442 UT

Right: CaK image of AR4079 on the 6th at 0746 UT by Stuart Green

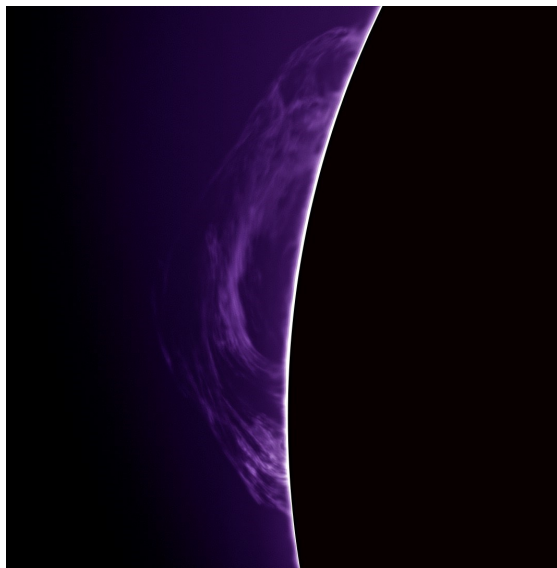
Below: Sequence by Simon Dawes showing AR4079 between April 29 and May 02 rotating onto the disk.





Above Left: AR4079 about to rotate across the NW limb, showing distinct light bridges.
Image by Simon Dawes, 10th May at 0705 UT using Meade 127 mm

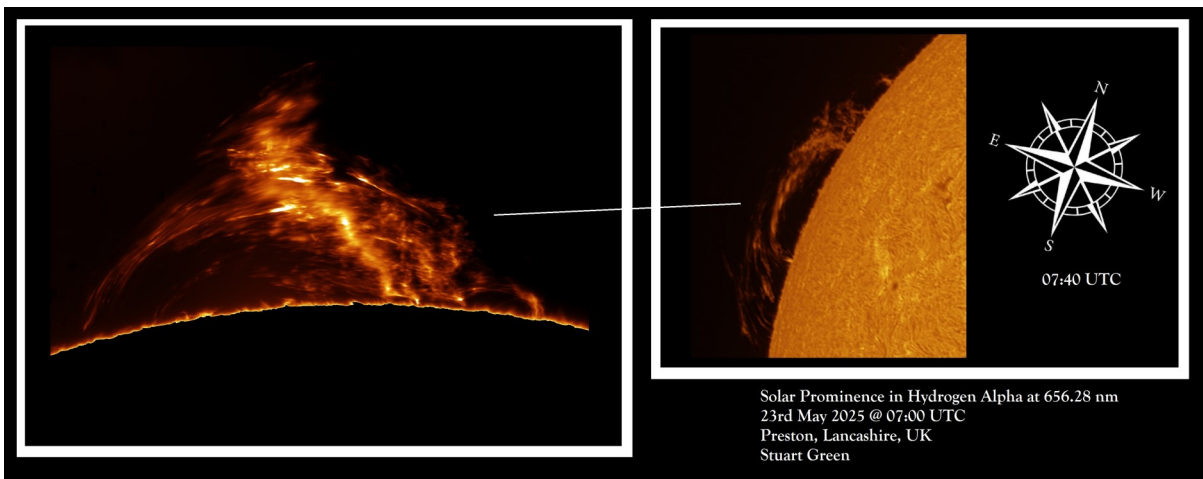
Above Right: H-alpha image of AR4079 in the NW quadrant on the 9th May. Imaged at 1046 UT by Sheri Lynn Karl



Above: AR4100 (third rotation) breaking up, imaged by Chris Longthorn on the 31st May at 1010UT

Left: A fine arch prominence captured in CaK by Nic Spencer on the 23rd at 0738 UT

Below: The same prominence in H-alpha
Imaged by Stuart Green, 23rd at 0700 UT



Solar Prominence in Hydrogen Alpha at 656.28 nm
23rd May 2025 @ 07:00 UTC
Preston, Lancashire, UK
Stuart Green

Section News

The next Section meeting is on Friday 20th June 2025 at 19.30 hrs BST (18.30 hrs UT) via the Zoom platform. Details have already been circulated separately but I've included the link below for ease of joining:

Topic: Solar Section Workshop

Meeting ID: 892 5595 6121

Time: Jun 20, 2025 19:30 London

Passcode: 186432

Join Zoom Meeting

<https://us02web.zoom.us/j/89255956121?pwd=KOWRZa2RifrwSkSQGERye3vBcGSmQW.1>

James Dawson has very kindly written a short article published below which may help some of us with older H-alpha telescopes. Or it may be our eyesight just isn't what it once was!

Is the view through your old hydrogen alpha scope a bit gloomy? It may be time to replace the induced-transmission filter...

Whilst helping Alan Heath's daughter Karen sort through his possessions after he passed away in November 2024, we discovered his old hydrogen alpha telescope, a 40mm Coronado SolarMax. I knew Alan had a hydrogen alpha telescope but I'd never seen it and I recall he hadn't used it for several years. Karen was keen that the Nottingham Astronomical Society had the scope and put it back into use.

I placed the scope on a suitable mount in March on a bright sunny day and the resulting view with its 12mm Coronado Cemax eyepiece was very poor. I tried other eyepieces but without any improvement. I could achieve focus of a sharp disc but the surface of the Sun was lacking any detail however when I adjusted the tilting etalon, I did get a hint of solar prominences projecting away from the disc.



I cleaned the front objective lens and took apart the blocking filter and cleaned the various surfaces in the diagonal, but it made no difference. I then put on a Lunt B600 blocking diagonal and the view was instantly very good.

Coronado had been taken over by Meade so I emailed Meade to see if they had any advice. Peter Karboulonis from [Opticstar Ltd](#) emailed back informing me Meade were no longer operational either. Peter thought the induced-transmission filter (ITF) in the diagonal was the likely culprit, but unfortunately this wasn't something which they carried replacements for. Peter found a company online ([Beloptik](#)) that did sell ITF replacements, but he had no prior knowledge or experience of them.

I contacted Oliver Smie at Beloptik in France and he was very helpful and could sell me a replacement ITF. The filter cost about £180 and I've since replaced it in the Coronado diagonal and the view is now as good as when I use the Lunt diagonal. I've yet to try imaging with this scope but it is a great addition to the small number of telescopes we have for members to use at the Nottingham Astronomical Society. Thank you, Alan, for the telescope and hopefully this will help inspire another generation of visual solar observers.



Members of the Solar Section who own an old hydrogen alpha telescope may want to compare the view they get with their own blocking filter diagonal with that from another telescope (if safe to do so), to check they don't also need to replace their ITF (or the blue filter which degrades over time in the Lunt) and rejuvenate the view they get of our most magnificent nearest star.

James Dawson

Nottingham Astronomical Society