



# The British Astronomical Association

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## BAA Solar Section Newsletter

### Sunspot data 2025 September

| Day | g  | R   |
|-----|----|-----|
| 1   | 10 | 151 |
| 2   | 10 | 138 |
| 3   | 9  | 127 |
| 4   | 9  | 137 |
| 5   | 8  | 119 |
| 6   | 6  | 84  |
| 7   | 6  | 88  |
| 8   | 7  | 98  |
| 9   | 6  | 82  |
| 10  | 6  | 79  |
| 11  | 5  | 69  |
| 12  | 4  | 47  |
| 13  | 3  | 49  |
| 14  | 5  | 61  |
| 15  | 5  | 71  |
| 16  | 7  | 90  |
| 17  | 7  | 106 |
| 18  | 7  | 103 |
| 19  | 7  | 120 |
| 20  | 9  | 136 |
| 21  | 9  | 141 |
| 22  | 10 | 138 |
| 23  | 11 | 156 |
| 24  | 9  | 128 |
| 25  | 9  | 129 |
| 26  | 8  | 114 |
| 27  | 8  | 103 |
| 28  | 9  | 127 |
| 29  | 9  | 145 |
| 30  | 9  | 150 |

### Monthly Means

|         |        |                |
|---------|--------|----------------|
| MDFg:   | 7.53   | (42 observers) |
| MDFNg   | 4.04   | (37 observers) |
| MDFSg   | 3.66   | (37 observers) |
| Mean R: | 109.94 | (43 observers) |

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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:

|                           |                            |
|---------------------------|----------------------------|
| R S Armas, Cuba           | R Johnson, Surrey          |
| J Arnold, Leeds           | S L Karl, Aberdeen         |
| C Bailey, Suffolk         | D Keep, Lincoln            |
| R Battaiola, Milan, Italy | M Kinder, Cheshire         |
| M Boschat, Canada         | C Longthorn, Rugby         |
| C F Bowron, South Yorks   | L Macdonald, Berkshire     |
| A Bowyer, Epsom Downs     | R Mackenzie, Kent          |
| P Brierley, Cheshire      | P Meadows, Essex           |
| S Brown, Leicestershire   | A Mengus, France           |
| M Buck, Bristol           | H Meyerdierks, Germany     |
| L Cambon, France          | R Morgan, East Sussex      |
| G Clarke, Australia       | M Nicholls, Sheffield      |
| E Colombo, Italy          | P Norman, Worcester        |
| J Cook, Wolverhampton     | R Samworth, Leicestershire |
| A Coombs, Vic, Aust       | J D Shanklin, Cambridge    |
| P Curtin, USA             | D Smith, Essex             |
| S Dawes, London           | L Smith, Angus             |
| A Devey, Spain            | N Spencer, York            |
| R Dryden, Oxon            | G Steigmann, Hull          |
| F Dubois, Belgium         | T Tanti, Malta             |
| T Emmett, Cambs           | D Teske, Mississippi, USA  |
| E Fabrigat, France        | C B Thielke, Denmark       |
| M Giuntoli, Italy         | N Tonkin, Cornwall         |
| D Glover, Essex           | Towarzystwo Milosnikow     |
| S Green, Lancs            | Towarzystwo Obs Slonca     |
| K Hall, Warrington        | B Tynan, Renfrewshire      |
| B Halls, W Sussex         | S Ove Thimm, Denmark       |
| K Hay, Canada             | P Urbanski, Poland         |
| R Heard, Suffolk          | G Vargas, Bolivia          |
| R Hill, Arizona, USA      | D Vidican, Romania         |
| J Janssens, Belgium       | S Viney, Cheshire          |
| A Johnston, Denbighshire  |                            |

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

Numerous sunspot groups were once again recorded during the month, forty-two in total. Most sunspot groups were seen early and late in the month with a definite decline mid-month. There was a downward activity trend in the northern hemisphere with a slight increase in the southern hemisphere reducing the overall Relative Sunspot number to that seen in 2025 July. A corresponding slight reduction in the Quality number was also recorded. The largest/most active sunspot groups are reported below.

**AR4197 S17°/127° & AR4201 S22°/118° & AR4202 S14°/114°** survived on the disk from the previous month, now dominating the SW quadrant. AR4197 and AR4201 had the appearance of one Fac type group with components falling within the BAA ten-degree rule. AR4202 followed behind at a higher latitude adding to the overall visual appearance of the active area. The main group had an area of 1140 millionths on the 1<sup>st</sup> with the largest and leading sunspot being almost symmetrical with several irregular sunspots in the middle of the group. The smaller follower sunspot was designated AR4201. The group reduced in size slightly the following day to 930 millionths. When next reported on the 4<sup>th</sup>, the group was still Fac with AR4202 being type Cso and approaching the SW limb. On the 5<sup>th</sup> AR4197 was very close to the limb and appeared as a number of foreshortened sunspots.

**AR4207 N30°/045°** also survived from the previous month being near to the NE limb on the 1<sup>st</sup>, an Esc group with an area of 540 millionths. The group comprised of a main penumbral leader and three small penumbral followers with an extensive network of faculae within the group. The following day the leading sunspot was irregular in shape but by the 4<sup>th</sup> had resumed a more regular shape with a few surrounding pores. A small penumbral sunspot had also developed within the central area of the group. As the group approached the central meridian (CM) on the 5<sup>th</sup> it started to decay with most of the activity concentrated in the leading portion. The group was classed as type Fao but had declined considerably by the 7<sup>th</sup> when the group was type Dao with an area of 320 millionths and had a “tadpole” shape. Trailing pores faded as the group approached the limb being close to the NW limb on the 11<sup>th</sup>.

**AR4211 S13°/011° & AR4213 S13°/001°** formed another close pair of sunspot groups. AR4211 was first reported close to the SE limb on the 2<sup>nd</sup> as an Hsx type sunspot. Following pores formed on the 5<sup>th</sup> and 6<sup>th</sup> in an area of faculae and had an area of 190 millionths. On the 7<sup>th</sup>, several sunspots had developed from the pores with the group now type Eac with an area of 460 millionths. These new sunspots increased in size slightly by the 8<sup>th</sup> with group nearing the CM and was estimated to have an area of 600 millionths. SWPC

designated the developing sunspots as AR4213 which became the main active area as the two groups crossed into the SW quadrant. As the groups approached the limb on the 12<sup>th</sup>, AR4211 was an Hsx type sunspot which had changed very little during its progress across the disk. AR4213 remained in close proximity as a D class group. The leading sunspot had light bridges across its umbra and the follower sunspot had split into two with a bright light bridge. The groups rotated around the limb on the 14<sup>th</sup>.

**AR4216 N12°/248°** was reported close to the NE limb on the 12<sup>th</sup> as a cluster of sunspots surrounded by extensive faculae. At this point, only AR4211/4213 were the only other sunspots visible being close to the SW limb. On the 13<sup>th</sup> the group was estimated to be type Dsc with an area of 350 millionths and was of similar appearance on the 14<sup>th</sup>. Over the next few days, the group started to reduce in size and complexity. On the 19<sup>th</sup> it was a C class group and by the 22<sup>nd</sup> it had reduced to an Hsx type sunspot. The group was last reported close to the NW limb on the 23<sup>rd</sup>.

**AR4220 S15°/246°** formed on the disk in the SE quadrant on the 15<sup>th</sup> as a Bxo group. The group strengthened to type Cso the following day and by the 19<sup>th</sup> was type Dko with an area of 570 millionths with a bipolar structure. The follower was quite irregular and a horse-shoe shape, containing several umbrae. By the 21<sup>st</sup> the follower had started to split into several small penumbral sunspots with the group now having an area of 350 millionths. AR4220 was last seen on the 23<sup>rd</sup> type Dso, close to the SW limb.

**AR4226 S11°/132°** rotated over the SE limb on the 20<sup>th</sup> as a single Hsx sunspot. Accompanying sunspots followed the leader onto the disk making the group D class by the 22<sup>nd</sup>. The following day, the group consisted of two leading sunspots almost aligned north/south. The southern component had a tail of small sunspots arching out of its umbra and through its penumbra. The group strengthened on the 24<sup>th</sup> but thereafter was in decline. As the group crossed the CM on the 26<sup>th</sup>, the following sunspots were fading, a process that continued as the group crossed the SW quadrant. By the 29<sup>th</sup> the group was type Hax with a light bridge dividing its umbra.

**AR4230 S10°/109° & AR4238 S13°/113°** AR4230 appeared around the SE limb on the 23<sup>rd</sup> as a minor Dso group. By the 27<sup>th</sup> the group was type Eai with an area of 200 millionths. The leader was the largest sunspot with small followers and several pores in-between. The group then reduced in length to type Dai with many pores. Several of these pores then developed penumbra to make the group type Dac on the 30<sup>th</sup> with an increased area of 430 millionths. On the 29<sup>th</sup>, several small sunspots developed to the south of AR4230 being designated as AR4238 which developed into a Cao type group on the 30<sup>th</sup> with an area of 110 millionths. Both groups were mid-way across the SW quadrant on the 30<sup>th</sup>.

**AR4232 N04°/052° & AR4236 N11°/060°** AR4232 appeared over the NE limb on the 27<sup>th</sup> type Cao. On the 28<sup>th</sup>, two small sunspots formed to the north-west of AR4232 which was designated AR4236. On the following day it was AR4236 that had undergone substantial development and was now a Dao type group. It consisted of an irregular main penumbral sunspot containing many umbrae. Several smaller following penumbral sunspots developed on the 30<sup>th</sup> making the group type Dac with an area of 370 millionths. With AR4232 to its south-east, being a Dsc group with an area of 370 millionths, the overall extent of both groups led to an impressive sight in the NE quadrant at the close of the month. 24 observers reported a Quality number of **Q = 23.87** for September.

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

19 observers reported a prominence MDF of **8.69** for September.

A complex arch prominence was seen on the E limb on the 5<sup>th</sup> and another similar arch was seen on the SW limb on the 8<sup>th</sup>.

A curtain prominence was on the NW limb on the 9<sup>th</sup> rising to about 50,000 km and extending around the limb for 50,000 km.

An extensive curtain prominence graced the E limb on the 11<sup>th</sup> and on the 12<sup>th</sup> was estimated to be about 30,000 km in height and extended around the SE limb for 250,000 km. On the 13<sup>th</sup>, an arch prominence was seen on the SE limb rising to 30,000 km and extending for 100,000 km around the limb.

A curved spike prominence was on the N limb on the 21<sup>st</sup> and the following day an extensive faint platform arch prominence was reported on the NE limb.

On the 24<sup>th</sup>, a very active pillar prominence was seen on the SE limb rising to a height of around 80,000 km.

A moderately tall irregular prominence was on the SW limb on the 29<sup>th</sup> and a series of smaller but still impressive prominences were on the N limb.

The month closed with a hedgerow prominence on the SE limb consisting of five individual trees. The estimated height was around 20,000 km and extended for 120,000 km around the limb.

### **Filaments & Plage**

17 observers reported a filament MDF of **10.36** and 16 observers reported a plage MDF of **6.78** for September.

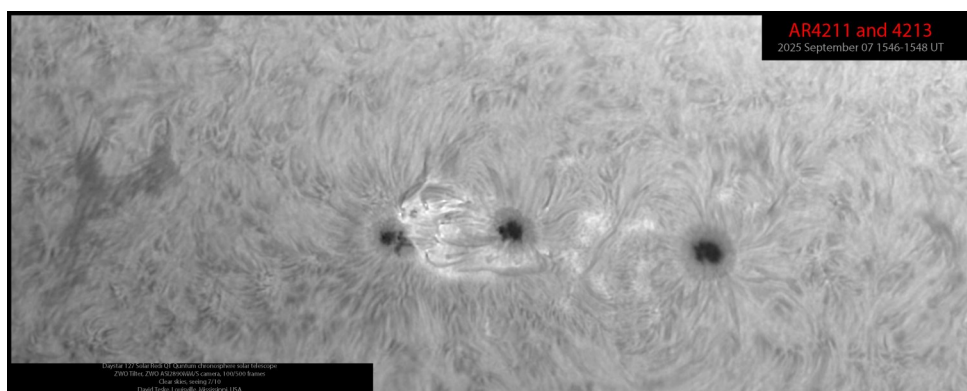
On the 1<sup>st</sup>, a long-broken filament could be seen at high latitude extending for about 350,000 km. The filament progressed towards the SW limb over several days and was responsible for the arch prominence on the 8<sup>th</sup>, reported above.

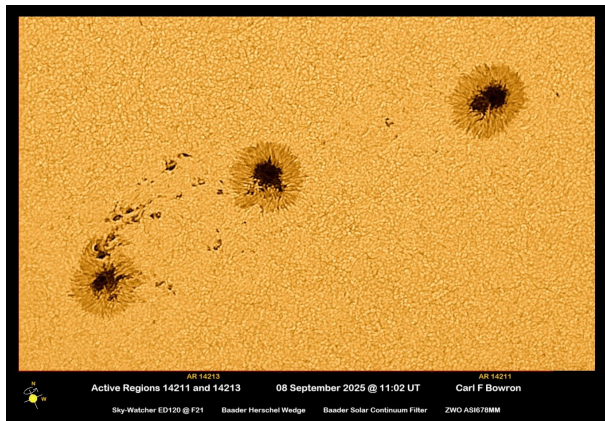
A long ribbon-like filament in a rough “S” shape lay between AR4197 and AR4210,

Plage accompanied most sunspot groups throughout the month.

No written polar faculae reports were received during the month although Brian Halls did submit images of polar faculae imaged at the north and south Polar regions on the 12th. No CaK reports were received.

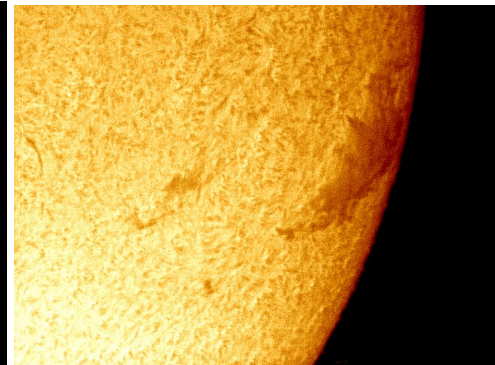
| DATE  | DURATION (UT) |              | ACTIVITY  |
|-------|---------------|--------------|-----------|
| 1/2   | 19:30         | 10:15        | Disturbed |
| 2/3   | 15:15         | 02:30        | Disturbed |
| 5/6   | 07:00         | 20:00        | Disturbed |
| 9/10  | 18:45         | 04:00        | Disturbed |
| 11    | 00:30         | 03:00        | Disturbed |
| 14/15 | 23:00         | 02:45        | Active    |
| 15/16 | 02:45         | 10:00        | Disturbed |
| 17/18 | 20:00         | 01:30        | Disturbed |
| 28    | 01:00         | 03:45        | Disturbed |
| 29/30 | 08:00         | 02:30        | Disturbed |
| 30    | 02:30         | 07:00        | Active    |
| 30    | 07:00         | Into October | Disturbed |





**Left:** Sunscan image by Nic Spencer on the 2nd at 0850 UT

**Above:** AR4211 and AR4213 imaged by Carl Bowron on the 8th at 1102 UT using a SkyWatcher ED120 @F21

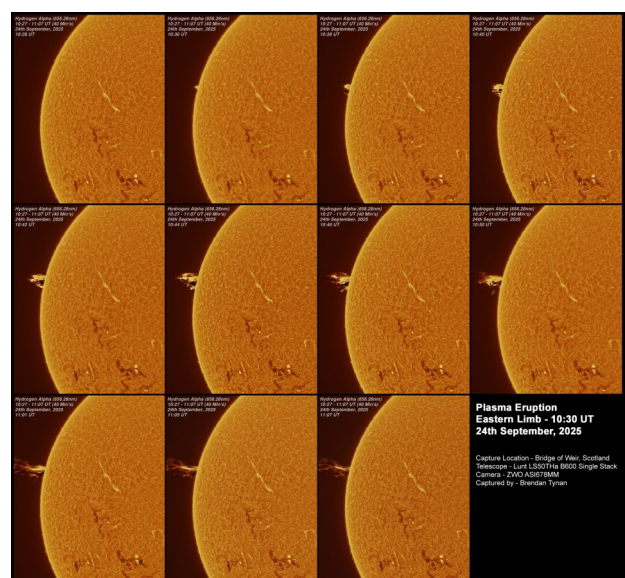
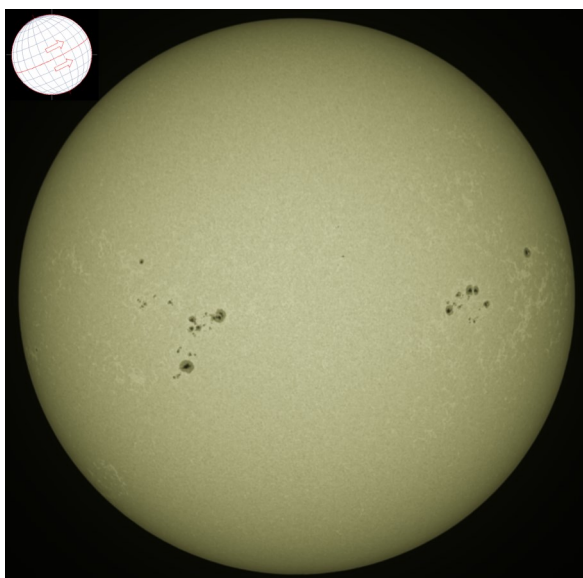


**Above:** Central region image showing multiple sunspot groups by Rik Hill, imaged on 22nd at 1943 UT

**Above Right:** The mass of filament close to the SW limb resulting in prominence activity over several days. Image by Arthur Coombs on the 16th at 2142 UT

**Below Left:** Whole disk image by Dave Smith on the 30th showing the two areas of activity, AR4232/36 in the NE quadrant and AR4230/38/39 in the SW quadrant.

**Below Right:** A sequence by Brendan Tynan showing an eruptive prominence on the 24th imaged between 1028 UT and 1107 UT



## Section News

The next Section meeting on the Zoom platform will be held on Friday 31st October 2025 at 1930 hrs UT. The link is below:

Topic: SOLAR SECTION ZOOM Meeting

Time: Oct 31, 2025 19:30 Greenwich Mean Time

Join Zoom Meeting

<https://us02web.zoom.us/j/88395937685?pwd=f4BP7x6MEVVQ6WbcV24NTORBZ7CHfj.1>

Meeting ID: 883 9593 7685

Passcode: 204237

Gordon Ewen concludes his article on the Moggerhanger Starshed below.

### **The Moggerhanger Starshed – by Gordon Ewen...Cont.**

The RC and Intes scopes are mounted on a modified EQ8; the counterweight bar has been replaced with another saddle allowing two scopes to be mounted at the same time. The old vertical pier was replaced with the angled 'pier' in the photo which now means there are no meridian flips. The mount and pier were installed in January by Tony Owens of Shibumi Astro-engineering.

One of the pictures I took in 2015 got a lot of attention (Mail on Line, The Times), the image is shown below and it appeared at Easter time. I'm sure you can see why. It became known as the chick pic.

In the last few years, I have taken to capturing time lapse videos of the Sun. Once data capture is under way I need to keep an eye on it the whole time it is running, correct any polar alignment induced drift, adjust focus, adjust exposure. The volumes of data are huge with one video capture being 6.5 Gb and hard drives fill up rapidly. I process the data in batches of approx 20 captures through the day and wipe the raw video file once it is stacked, which helps to manage hard drive capacity. Here's a link to my favourite, I wish I had more time to record this one but I had to go out.

<https://youtu.be/waFTsl6TGM8>

A few months ago, I acquired an MLAstro spectroheliograph which allows solar observing at any wavelength with a very narrow bandpass, 0.3Å. It has an Achilles heel, though. The seeing conditions have a huge impact on image quality given it takes several seconds to do a scan of the Sun so all the good and bad moments of seeing are in the recorded file. In typical video imaging the exposure is milli-seconds so seeing effects are much smaller. I need to spend some more time using it. Finally, here is my favourite white light image taken with the Intes MN106 at 6.8m focal length on July 29 2025 (pictured below right).

