



The British Astronomical Association

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BAA Solar Section Newsletter

Sunspot data 2025 June

Day	g	R
1	5	98
2	5	85
3	4	72
4	5	76
5	4	71
6	5	80
7	4	64
8	3	59
9	4	68
10	6	91
11	8	111
12	8	112
13	8	126
14	8	127
15	7	117
16	6	97
17	5	88
18	6	100
19	6	105
20	6	86
21	6	80
22	5	84
23	4	70
24	5	70
25	5	75
26	5	79
27	6	90
28	8	103
29	9	122
30	8	117

Monthly Means

MDFg:	5.93	(41 observers)
MDFNg	3.13	(37 observers)
MDFSg	2.86	(37 observers)
Mean R:	92.48	(42 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:

P Abel, Leicester	A Johnston, Denbighshire
J Andrews, Lincs	R Johnson, Surrey
R S Armas, Cuba	S L Karl, Aberdeen
J Arnold, Leeds	D Keep, Lincoln
C Bailey, Suffolk	M Kinder, Cheshire
R Battaiola, Milan, Italy	C Longthorn, Rugby
M Boschat, Canada	L Macdonald, Berkshire
C F Bowron, South Yorks	R Mackenzie, Kent
A Bowyer, Epsom Downs	M Mattos, Spain
S Brown, Leicestershire	P Meadows, Essex
M Buck, Bristol	A Mengus, France
L Cambon, France	H Meyerdierks, Germany
G Clarke, Australia	C C Moraes, Brazil
E Colombo, Italy	M Nicholls, Sheffield
J Cook, Wolverhampton	P Norman, Worcester
P Curtin, USA	G Palmer, Wales
S Dawes, London	R Samworth, Leicestershire
A Devey, Spain	J D Shanklin, Cambridge
R Dryden, Oxon	D Smith, Essex
F Dubois, Belgium	L Smith, Angus
T Emmett, Cambs	N Spencer, York
E Fabrigat, France	M Stephanou, Greece
D Glover, Essex	G Steigmann, Hull
S Green, Lancs	T Tanti, Malta
K Hall, Warrington	D Teske, Mississippi, USA
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	S Viney, Cheshire

The Sun in White Light – June

Although activity increased from that seen last month, June's activity was still the second lowest recorded for the year. Northern activity returned to levels seen in 2025 April and the southern hemisphere also showed a slight upsurge but not to the same extent. There was a corresponding increase in the Quality number. Unusually, a spread in latitude was noted from around 27° to 02°, the former being more typical of an early stage of the solar cycle whilst the latter more typical towards the end of a cycle. Thirty-one groups were assigned a Boulder number, the largest/most complex are reported below.

AR4099 S12°/254° survived from the previous month and was into the SW quadrant on the 1st. The group was a compact Dac type with an irregular leader, the group having a total area of 410 millionths. The leader and follower had merged when seen on the 2nd and its area had reduced to 240 millionths. When next reported on the 4th, the group was approaching the SW limb. The main sunspot had fine light bridges crossing its umbra and the penumbra seemed to be decaying on its eastern edge. Small sunspots and pores trailed behind the main sunspot. A fine network of faculae could be seen surrounding the group as it approached the limb.

AR4100 N11°/243° also survived from the previous month in the northern hemisphere and was the largest sunspot on the disk as the month commenced. The group was just past the central meridian (CM) on the 1st and featured a very elongated sunspot in latitude, situated in the centre of the group. Smaller penumbral sunspots both led and followed this main sunspot. The group was classified as type Fkc with an area of 810 millionths on the 1st. The following day, the central penumbral sunspot started to split and by the 4th had decayed into many pores. The group was type Ekc with an area of 610 millionths on the second but had reduced to type Eai with an area of 260 millionths by the 4th. The group continued to decay as it approached the limb.

AR4105 S14°/130° was reported close the SE limb on the 4th as a compact collection of sunspots. Detail was difficult to ascertain with the group being so close to the limb but bright thread-like networks of faculae entwined the sunspots. On the 6th the group was assessed as type Dac comprising several small penumbral sunspots with a total area of 390 millionths. On the 8th the group was described as "longitudinally spread-out" and many following pores were visible. These pores had disappeared by the following day when the group had a total area of 200 millionths. The group changed its appearance slightly from day-to-day but increased its area to 570 millionths on the 11th due to the development of several irregular penumbral sunspots. The largest sunspot was the leader. The group was of similar size during the next two days before being seen close to the SW limb on the 14th and 15th.

AR4107 S17°/155° formed on the disk on the 6th to the west of AR4105. The group remained insignificant until the 10th when it developed rapidly into a Dao type group. The group obtained its maximum area of 390 millionths on the 11th before decaying as it approached the limb on the 13th.

AR4114 N19°/032° & AR4115 N21°/019° comprised of a close pair of sunspots coming within the BAA ten-degree rule where they can be counted as one group. The leading sunspot of AR4115 was always in close association with AR4114 whilst the AR4115 follower trailed behind with little evidence of activity between leader and follower. A tiny cluster of sunspots was seen close to the NE limb on the 11th. By the 13th the group was onto the disk as an Eac group with an area of 390 millionths. More penumbral sunspots developed over the next few days with the group being classified as type Eac on the 15th with an area of 950 millionths. The group was slightly larger on the 16th when it was near the CM and was the dominant group on the disk. The group started to decay as it crossed the NW quadrant, reducing in sunspots and overall size. However, it was still substantial on the 21st as it approached the limb with an area of 650 millionths and of type Fac. The group was last reported on the 23rd close to the limb as a pair of sunspots. The group was reported visible to the protected naked eye on the 17th.

AR4117 S16°/303° & AR4118 S14°/292° another two groups with separate magnetic identity that drifted into the ten-degree rule and could be counted as one group. AR4117 appeared around the SE limb on the 18th type Dac. AR4118 followed on the next day as a

Dao group. By the 20th the overall group comprised of several penumbral sunspots with a total area of 540 millionths and was type Eac. AR4117 had a triangular formation when viewed on the 21st with AR4118 being a close association of two small penumbral sunspots. On subsequent days, the overall group became type Fac and its area peaked at 650 millionths on the 22nd. When reported on the 24th, the group was near the CM and fewer sunspots were visible in the middle portion. By the 26th the two magnetic groups had separated sufficiently for them to be classified as two separate visual groups. Both groups decayed as they progressed towards the SW limb; AR4117 being close to the limb on the 29th and appeared as an ellipse due to foreshortening. AR4118 comprised of small sunspots and pores nearing the limb.

AR4122 N13°/219° was first reported close to the NE limb on the 25th as a Bxo type group consisting of three small sunspots in a triangular formation. The group developed rapidly overnight to be type Dai on the 26th. When seen on the 28th, the group had an elongated penumbral leader with a smaller penumbral follower and several accompanying pores throughout the group. The following day the leader had become more symmetrical in shape with an almost circular bridge-like feature arcing out across its umbra and returning to the penumbra near to where it began. Following were intermediate sunspots and pores with partial areas of penumbra. On the 30th the group crossed the CM with the followers in a state of decay.

AR4128 S05°/181° formed on the disk in the SE quadrant on the 29th type Dro. The following day the group was stronger being type Dao with the largest sunspot being the follower.

24 observers reported a Quality number of **Q = 18.76** for June.

The Sun in H-alpha

Prominences

19 observers reported a prominence MDF of **6.56** for June.

A large arch prominence reported at the end of May was still present on the NE limb on the 1st. The feature rose to about 60,000 km in height with a base of 90,000 km. A short filament was seen to extend from the southern extent of the arch and onto the disk. As the prominence shortened on the 2nd and 3rd, the filament element grew as it rotated onto the disk.

On the 10th both the NE and NW limbs were active with small prominences, the largest being on the NE limb, a hearth consisting of three elements with a central pyramid that was the largest of the three. This hearth was still present the following day with some shape changes but consisting of just two elements.

On the 14th a column prominence was seen on the NW limb rising to about 70,000 km with a stream of plasma detached from the top, streaming southward, extending to about 100,000 km. The following day, the column was now a double column around the same height as the previous day and still with a stream of plasma extending southward for about 100,000 km.

Two long but low arching prominences were reported on the 18th, one on the NE limb and the other on the SE limb, the latter extending for about 180,000 km along its base.

An arch prominence was reported on the SE limb on the 19th rising to about 50,000 km but was even higher and more distinctive the following day.

A longer slender prominence was seen along the eastern limb on the 22nd.

A broad filament reached the NW limb on the 26th resulting in a hedgerow prominence.

This prominence grew into two large tree type prominences the following day and by the 28th formed a very large broken arch, breaking from the southern end. The prominence was estimated to reach a height of 120,000 km. Two moderately tall prominences were also reported on the SW limb which were still present on the 29th. The tall arch on the NW limb had completely detached by the 29th and was seen as two streams of plasma high above the limb.

Filaments & Plage

18 observers reported a filament MDF of **9.60** and 16 observers reported a plage MDF of **5.41** for June.

A small filament started to encroach on the disk from a large prominence on the NE limb on the 1st. This feature continued to lengthen over the coming days as it formed a long east/west aligned and broad filament in the NE quadrant. On the 6th it was estimated to be 200,000 km in length. Another long but thinner filament was reported in the southern hemisphere and estimated at 250,000 km in length. The northern filament persisted into the NW quadrant on the 9/10th and broadened further as it approached the limb. It reached the NW limb on the 12/13th resulting in a prominence and was responsible for the large prominence with ejecta flowing from the top of it on the 14/15th.

A large filament arced over AR4115 on the 15th from a point just east of the leading sunspot to east of the follower. Minor plage lay between the two sunspots. Another arc filament aligned east/west was to the south of AR4115 and a dark blob of filament was seen to the east of AR4110 approaching the NW limb.

On the 21st, a very small prominence on the NE limb appeared to be the source of a very long filament stretching from the limb towards the centre of the disk. The filament was estimated to be around 400,000 km in length. Another long but broken filament was seen lying across the SE quadrant. A small filament was seen arcing south from AR4114 from the leading sunspots to a bright point laying to the south between the leader and follower of AR4115. The trailing sunspots of AR4115 were bright in plage. Plage was also seen in the centre of AR4117.

The very long filament continued to cross the northern hemisphere, occasionally broken but thickening towards its western extremity as it approached the limb on the 25th. It was estimated at around 800,000 km in length. The filament produced the spectacular prominence the following day on the NW limb that persisted through to the 29th. A long broad north/south aligned filament was closing in on the W limb on the 29th which lay very close to the limb on the 30th. Another long, broken filament was roughly aligned north/south and lay to the northwest of AR4123. It was also present on the 30th.

Plage was present with most sunspot groups throughout the month.

Flares

Observers reported a quantity of minor flares throughout the month. Andy Devey and Andrew Johnston both recorded an M2.2 flare associated with AR4105 on the 15th at 0752 UT and 0805 UT respectively. Mick Nicholls recorded an M1.2 flare with AR4114 on the 16th at 10.14 UT.

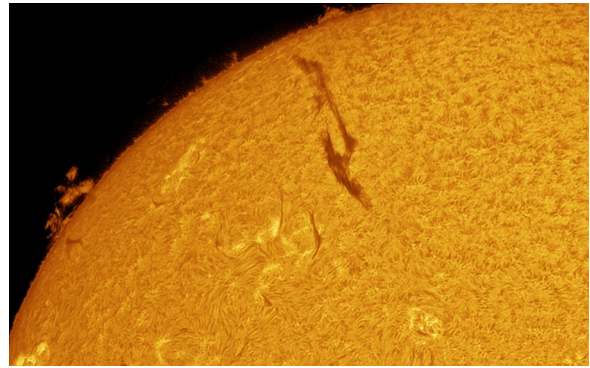
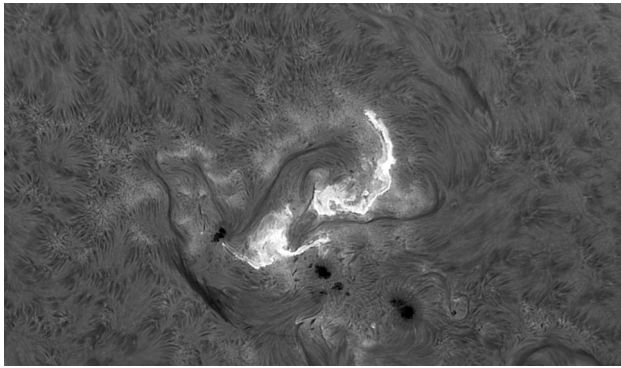
There were no CaK reports for June and no polar faculae were recorded.

MAGNETOMETER REPORT

2025 JUNE

DATE	DURATION (UT)		ACTIVITY
31/1	21:00	05:30	Disturbed
1	05:30	13:00	Active
1/2/3	13:00	17:00	Disturbed
4	11:00	18:00	Disturbed
7	20:00	23:00	Disturbed
8	21:15	00:00	Disturbed
11	00:15	04:00	Disturbed
11/12	22:00	10:30	Disturbed
12/13/14	19:45	06:00	Disturbed
14	21:30	00:00	Disturbed
16	02:00	08:00	Disturbed
19	19:45	22:00	Disturbed
22	01:00	03:00	Disturbed
25/26	20:30	07:00	Disturbed
26/27	18:00	03:00	Disturbed

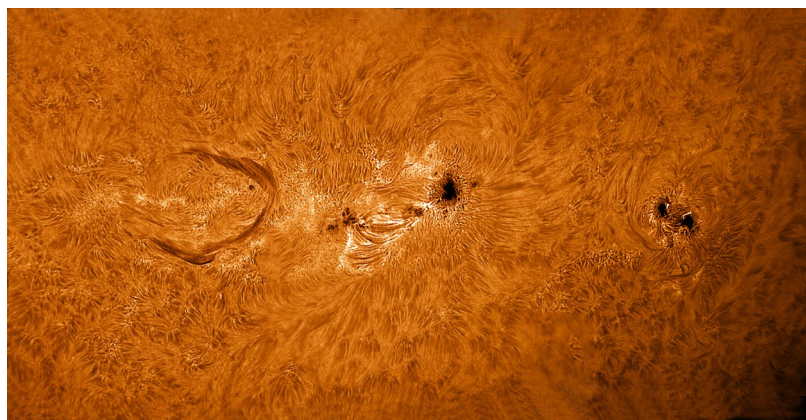
**Solid-state magnetometer,
Uncalibrated.
John Cook**



Above left: Flare imaged with AR4100 on the 2nd by Gary Palmer

Above Right: Image by Dave Smith showing the broad filament near the NE limb on the 4th

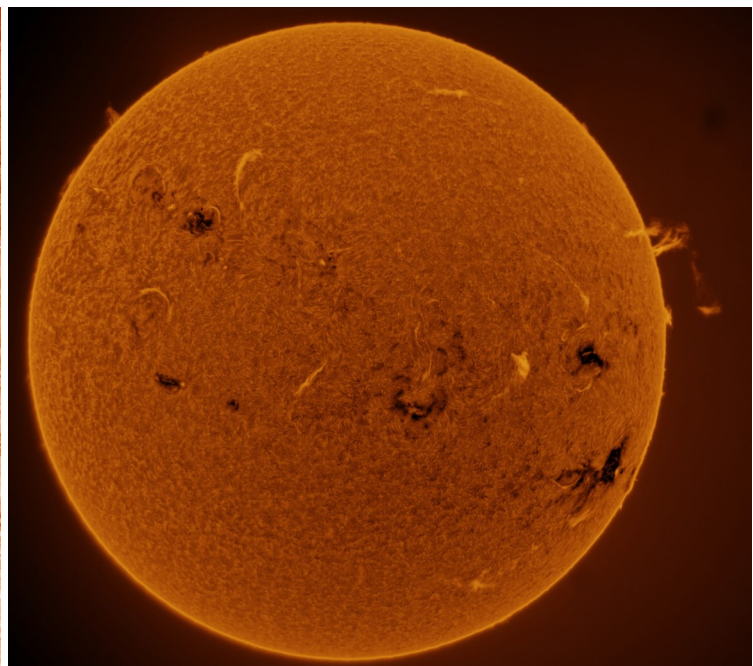
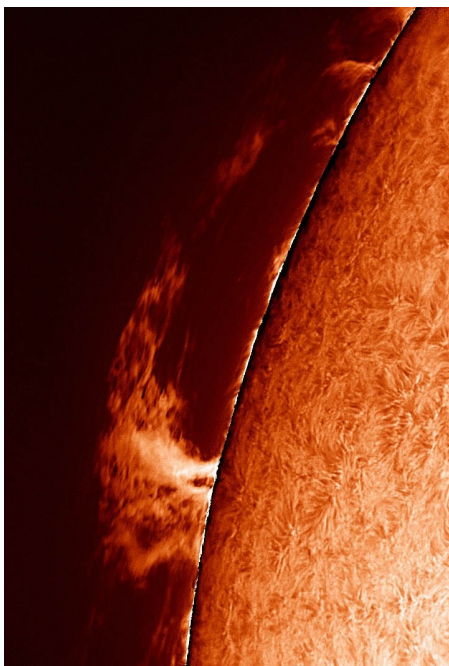
Below Left: Panorama of AR4109, AR4015 and AR4107 by Gottfried Steigmann on the 11th



Right: The western limb showing a jet prominence and approaching filaments, imaged by Sheri Lynn Karl on the 28th

Below Left: Arch prominence on the NE limb imaged by Carl Bowron on the 19th using 120 og and Daystar Quark

Below Right: Full disk (inverted image) showing the large prominence on the NW limb on the 14th imaged by Dave Smith



Section News

The new Section WhatsApp group is proving to be a big success. We now have 41 members in the group, exchanging information and expertise. If you haven't yet joined, click the below link and wait for an admin to admit you to the group. Be aware your telephone number will be visible to all members of the group.

<https://chat.whatsapp.com/GoozDTr6AbIKVWpeB28nmC>

Nic Spencer has made a YouTube video of the SUNSCAN, how to build and use one. It's an excellent video and you can watch her presentation by clicking the below link.

<https://youtu.be/hh22dkVnpQ0?si=lt1FjiJrmgp8Tobu>

Long-term solar observer Brian Mitchell has decided to step down from active observing as he approaches his 90th birthday. The BAA President has sent her compliments to Brian and her appreciation of his long service to the BAA and astronomy. I would like to add my thanks and congratulations on a fantastic observing career.

James Dawson recently visited Brian and toured his solar observatory. I include below a few of the photos that James took during his visit (Brian on the right of the picture). Phil Shepherdson of York AS has written a few words about his relationship with him:

"I've known Brian for decades and in the late sixties when he lived close by in York he inspired me to create my Red bean-can telescope which now resides in the London Science Museum. It was a daunting task to grind polish and optically figure my 9inch reflector but his encouragement helped me achieve my goal. He even built my equatorial stand for me. My extras were a coat hanger wire plus tree stumps to create the cradle for supporting the telescope which was fashioned out of huge bean cans, something he approved of! When he moved to Norwich, we still constantly kept in touch even to this day. In short, we grew old together."

