

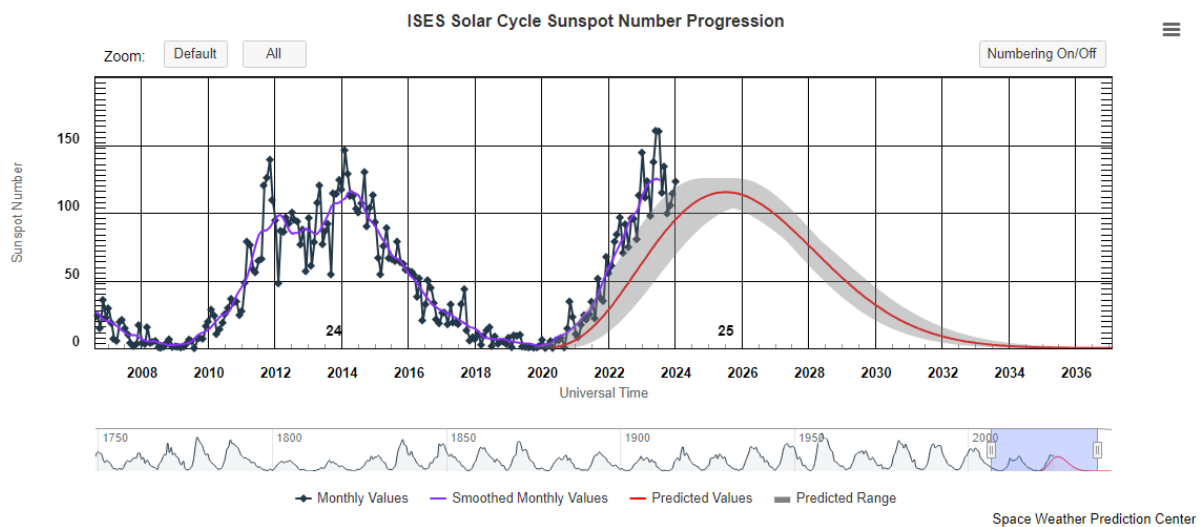


**Month:** January 2024

• **NEWS FROM THE SOLAR SECTION**

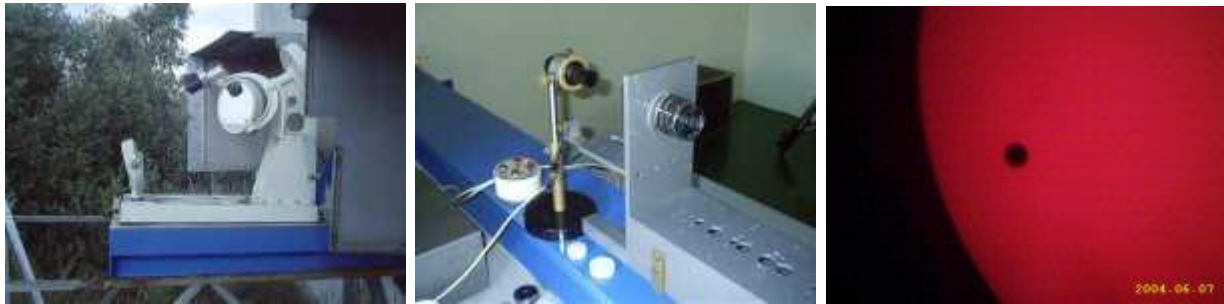


January 2024 solar news



The sunspot number in January increased 114 to 123. We are still rising towards the solar maximum which is expected towards the end of 2024.

As the Director of the ASSA solar section I am engaging with the University of the Free State to get the 20 cm Ceolostat solar telescope at Boyden observatory outside Bloemfontein working again. Some minor repairs on the electronics and upgrade on the inside of the building are planned in the next couple of weeks. Once the telescope is in operation again it will be used for white light observations on Sunspots and H Alpha observations for Solar flares and prominences. Images from left to right: Mirrors outside - H Alpha filter & lens inside - projection of Venus transit on screen inside.



• **SUNSPOT OBSERVATIONS**

Jan 24	Day	Time	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
Mon	1	1335	3	8	38	0	3	0	8
Tue	2	1305	4	19	59	2	2	13	6
Wed	3	1310	3	16	46	3	0	16	0
Thu	4	1320	4	28	68	3	1	23	5
Fri	5				0				
Sat	6				0				
Sun	7				0				
Mon	8				0				
Tue	9				0				
Wed	10	1310	11	38	148	6	5	18	20
Thu	11	1215	9	34	124	4	5	6	28
Fri	12	1300	10	45	145	5	5	17	28
Sat	13	1300	10	44	144	4	6	12	32
Sun	14				0				
Mon	15	1300	10	24	124	3	7	8	16
Tue	16				0				
Wed	17	1320	10	19	119	4	6	7	12
Thu	18	1205	8	23	103	3	5	6	17
Fri	19				0				



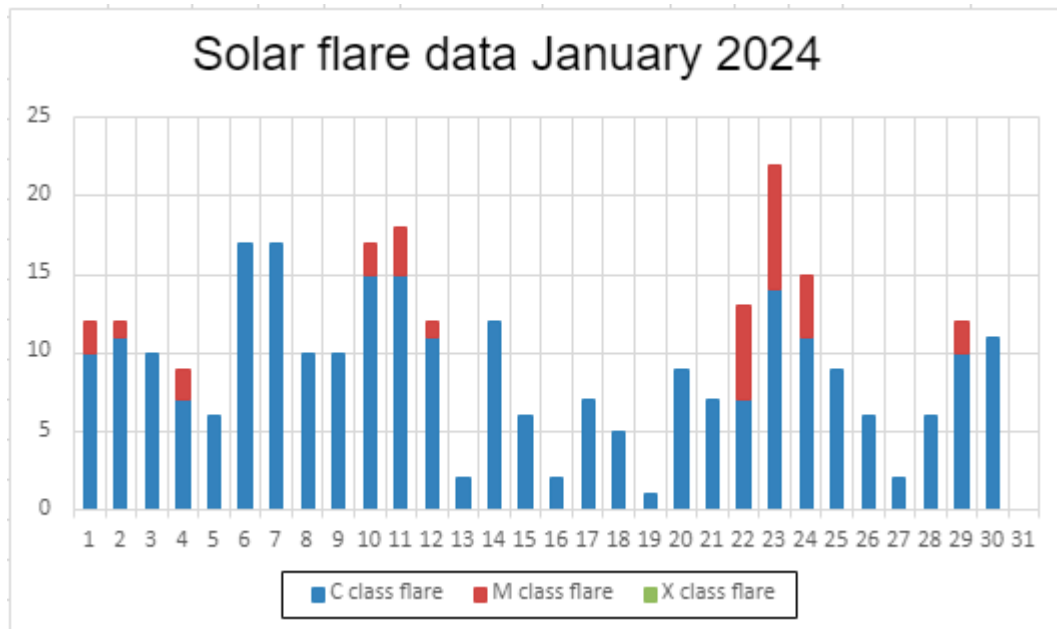
• **SOLAR FLARE ACTIVITY OCTOBER 2023**

Solar flares are classified according to their x-ray brightness in the wavelength range 1 to 8 Angstrom. There are 3 categories: C class – minor, M class – medium and X class – big. Each category has 9 subdivisions. A total of 308 solar flares were observed: 277 C-class flares and 31 M-class Flares.

2024	January	C class	M class	X class	AR NO	
Mon	1	10	2		3536	M2.3/M4.7
Tue	2	11	1		?	M1.1
Wed	3	10				
Thu	4	7	2		3536	M1.1/M3.8
Fri	5	6				
Sat	6	17				
Sun	7	17				
Mon	8	10				
Tue	9	10				
Wed	10	15	2		?/3538	M1,0/M1,9
Thu	11	15	3		3538/3539	M1,3/M1,2/M1,5
Fri	12	11	1		3547	M1,0
Sat	13	2				
Sun	14	12				
Mon	15	6				
Tue	16	2				
Wed	17	7				
Thu	18	5				
Fri	19	1				
Sat	20	9				
Sun	21	7				
Mon	22	7	6		3559/3561	M1.5 M1.2 /M1.2 M2.0 M3.4 M1.6 M2.1
Tue	23	14	8		3559/3561	M5.1 M1.0 M /M2.4 M2.3 M1.3 M4.3 M1.1 M1.0
Wed	24	11	4		3561	M1.0 M2.6 M1.4 M1.3
Thu	25	9				
Fri	26	6				
Sat	27	2				
Sun	28	6				

Mon	29	10	2		3559	M1,2 M6,8
Tue	30	11				
Wed	31	11				
Totals	277	31	0			

Credit: NASA SDO



- **Geomagnetic data**

### **K INDEX**

Scientists monitor geomagnetic activity using various instruments, including magnetometers and satellites, to better understand the processes involved and predict potential impacts on technological systems such as power grids, communication networks, and navigation systems as well as changes in our climate. Severe geomagnetic storms have the potential to disrupt these systems, making the study of geomagnetic activity crucial for both scientific understanding and practical applications.

Increased geo-magnetic activities are caused by Coronal Mass Ejections (CME's) triggered by solar activities such as solar flares, filament eruptions and Coronal openings.

The K-index scale has a range from 0 to 9 and is directly related to the maximum amount of fluctuation (relative to a quiet day) in the geomagnetic field over a three-hour interval.

Jan 24	0hrs to 03hrs	03hrs to 06hrs	06hrs to 09hrs	09hrs to 12hrs	12hrs to 15hrs	15hrs to 18hrs	18hrs to 21hrs	21hrs to 24hrs	A Index
1	0,33	1,00	1,00	1,67	2,00	2,67	3,00	4,00	10,00
2	2,67	2,67	1,00	2,00	2,33	2,67	1,33	1,00	8,00
3	2,67	2,67	1,67	2,00	2,00	2,67	3,00	3,00	11,00
4	2,33	0,67	1,67	1,00	0,67	1,33	1,00	2,67	6,00
5	2,33	1,33	0,33	1,33	1,33	2,00	0,67	1,33	5,00
6	0,67	1,33	0,00	0,33	0,33	0,33	0,67	1,00	3,00
7	0,33	0,00	0,67	0,67	0,67	1,00	0,67	0,33	3,00
8	0,33	0,67	0,33	0,67	2,00	1,33	1,67	1,67	4,00
9	2,00	1,67	2,67	1,00	1,33	1,67	0,67	1,00	6,00
10	1,67	2,00	1,33	2,33	2,33	1,67	2,33	2,00	7,00
11	1,00	1,33	2,33	2,00	2,33	1,33	1,00	1,67	6,00
12	0,67	1,33	1,33	1,33	0,67	1,33	1,00	1,00	4,00
13	0,67	0,33	0,33	1,33	1,00	1,00	1,00	0,67	3,00
14	1,00	1,33	1,67	2,00	1,67	2,00	2,00	2,33	6,00
15	1,00	0,67	1,67	1,67	2,33	0,67	2,00	1,67	6,00
16	3,00	2,33	1,00	0,67	1,00	1,00	1,33	0,67	6,00
17	0,67	0,67	1,33	0,67	0,67	1,00	1,00	1,33	4,00
18	1,00	1,00	2,00	2,00	1,67	1,33	2,00	2,00	6,00
19	1,33	2,33	1,33	1,67	1,67	2,00	1,67	2,00	8,00
20	1,33	2,33	1,33	1,33	2,33	2,00	1,00	1,67	6,00
21	0,67	1,67	2,00	2,67	2,00	0,67	1,00	1,33	6,00
22	0,67	0,67	1,33	1,00	2,00	2,33	3,33	3,67	9,00
23	2,33	2,67	2,00	1,33	1,67	1,33	1,33	2,00	7,00
24	3,67	3,00	3,33	1,67	1,67	1,00	0,67	1,00	10,00
25	0,67	1,00	1,00	1,67	2,33	2,00	1,67	2,00	6,00
26	1,00	1,33	0,33	0,67	2,67	2,00	1,67	2,33	6,00
27	2,67	1,33	1,33	1,33	0,67	1,33	1,00	1,00	5,00
28	1,33	1,00	2,00	2,00	2,00	1,67	3,00	3,00	8,00
29	3,00	1,67	1,33	1,00	2,33	2,33	2,33	2,67	9,00
30	2,33	3,00	2,33	1,67	1,33	1,00	2,33	2,00	8,00
31	2,00	2,33	1,33	1,67	1,67	2,00	1,67	1,00	6,00

### Geomagnetic Storm Index

G1	G2	G3	G4	G5
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Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

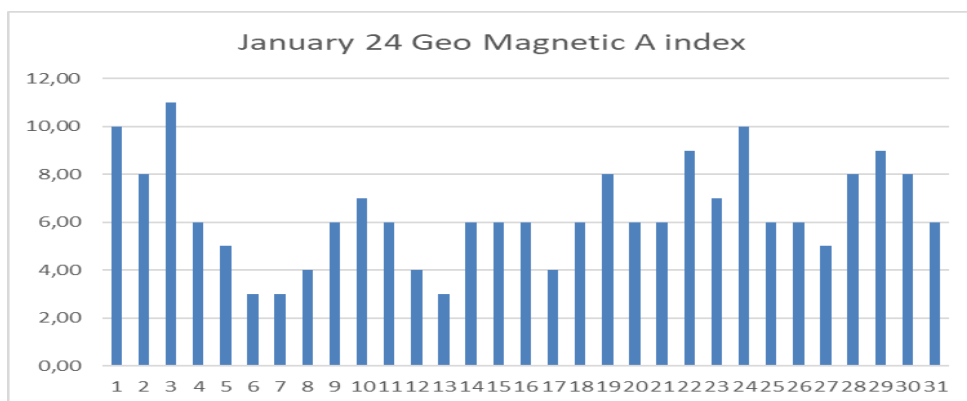
## A INDEX

The solar A Index is a numerical scale that represents the geomagnetic activity in the Earth's ionosphere caused by solar flares and other solar phenomena. It measures the overall geomagnetic disturbance level on a scale from 0 to 400. The index is derived from the observed planetary A index, which quantifies the magnetic activity over a 24-hour period.

Here's a breakdown of the solar A Index scale:

- 0 to 7: Quiet geomagnetic conditions.
- 8 to 15: Unsettled geomagnetic conditions.
- 16 to 29: Active geomagnetic conditions.
- 30 to 49: Minor storm levels.
- 50 to 99: Major storm levels.
- 100 and above: Severe storm levels.

A higher A Index generally indicates more disturbed geomagnetic conditions. This index is valuable for radio operators, especially those involved in high-frequency (HF) radio communication, as it helps predict the likelihood of signal disruptions due to solar activity. The solar A Index is typically updated regularly and is an important tool for space weather monitoring and forecasting.



No extreme Geo-magnetic activities were recorded during January 24.

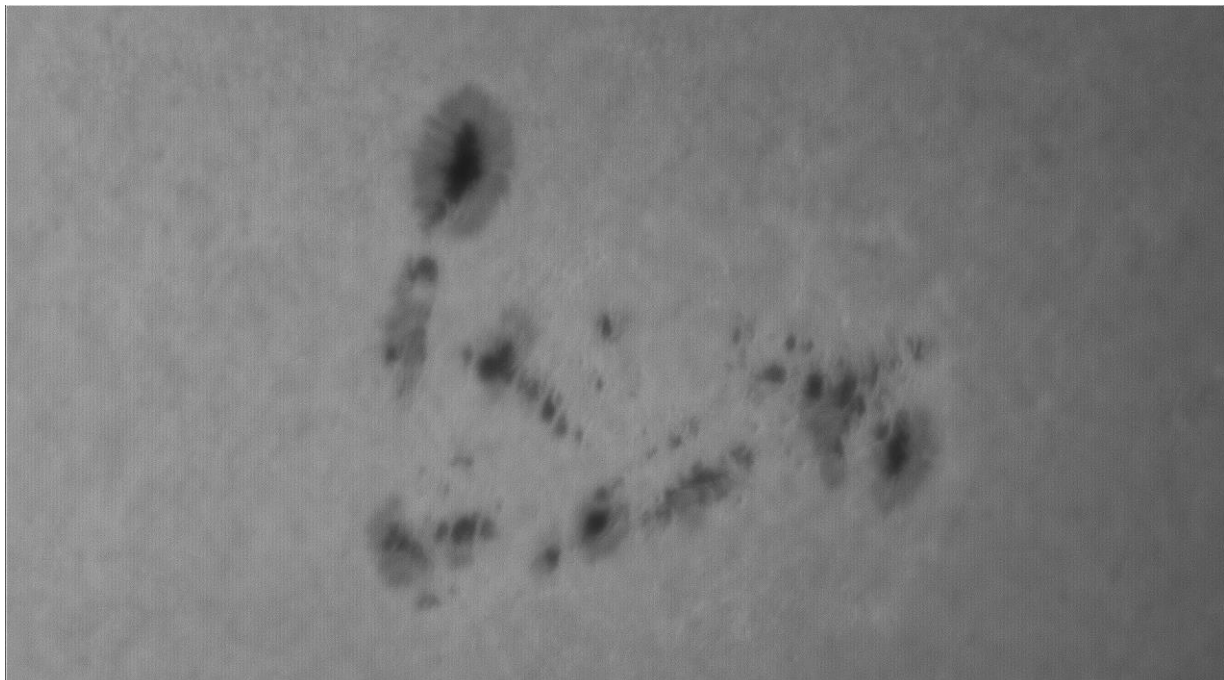
- **H Alpha Observations**

One observer shared his H-Alpha data for November 2023. Andrew Devey from BAA & MSAS living in Spain using a PST double stack H Alpha telescope.

November 2023	Counts	Observations	MDF
Prominance	148	28	5,3
Plage Areas	97	28	3,5
Filaments	171	28	6,1
Flares	0	28	0,0

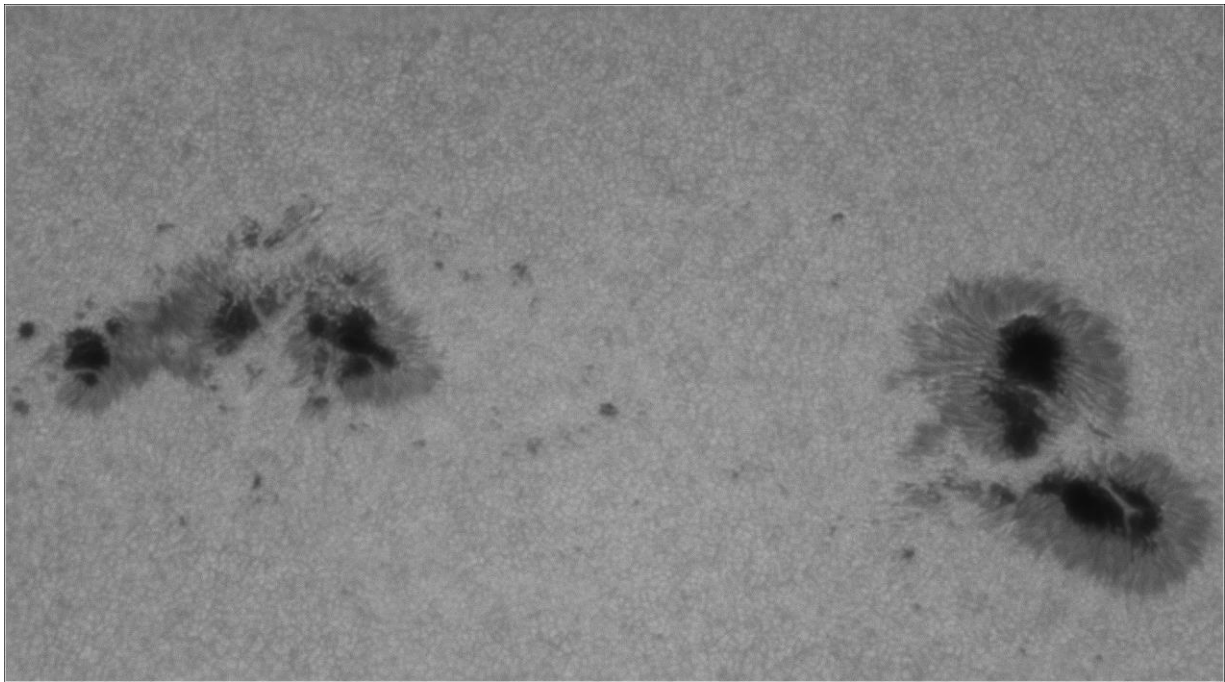
- **Solar images**

**WHITE LIGHT**





Andrew Devey, BAA/MSAS Spain. AR3561 10h07UT 24.01.2024



Andrew Devey, BAA/MSAS Spain. AR3559 10h07UT 24.01.2024



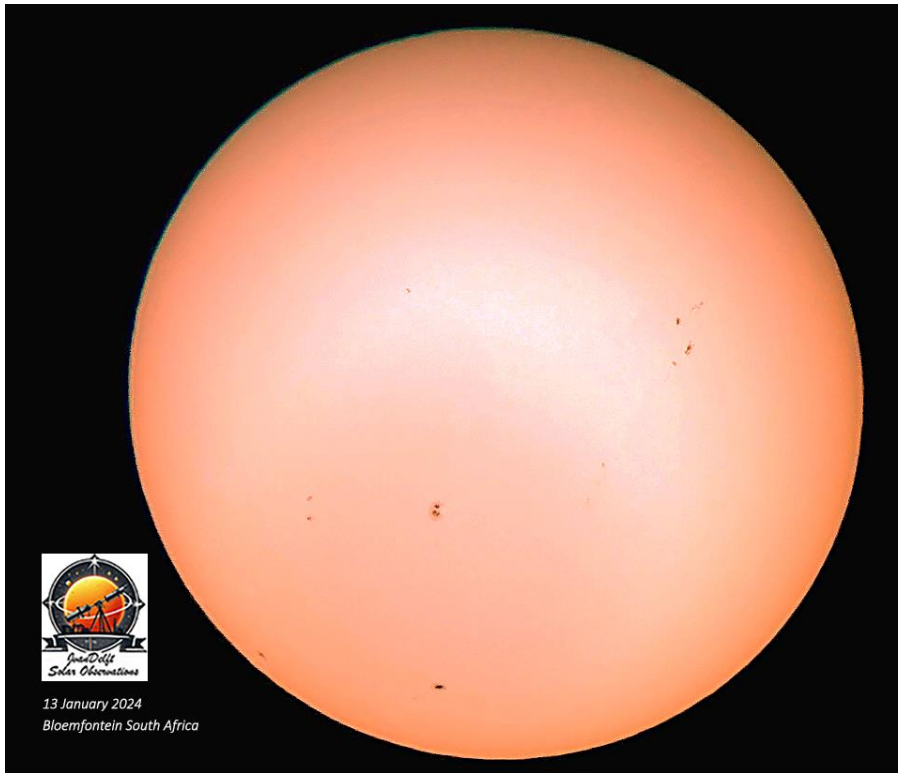
J van Delft ASSA, South Africa



11 January 2024 12h15 UT  
Celestron Astro F1 D130 mm F650 mm  
2x Acro Barlow & 20 mm eyepiece  
Hauwei Nova T5 cell phone camera



J van Delft ASSA, South Africa



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11 January 2024 12h15 UT  
Celestron Astro F1 D130 mm F650 mm  
2x Acro Barlow & 20 mm eyepiece  
Hauwei Nova T5 cell phone camera



J van Delft ASSA, South Africa

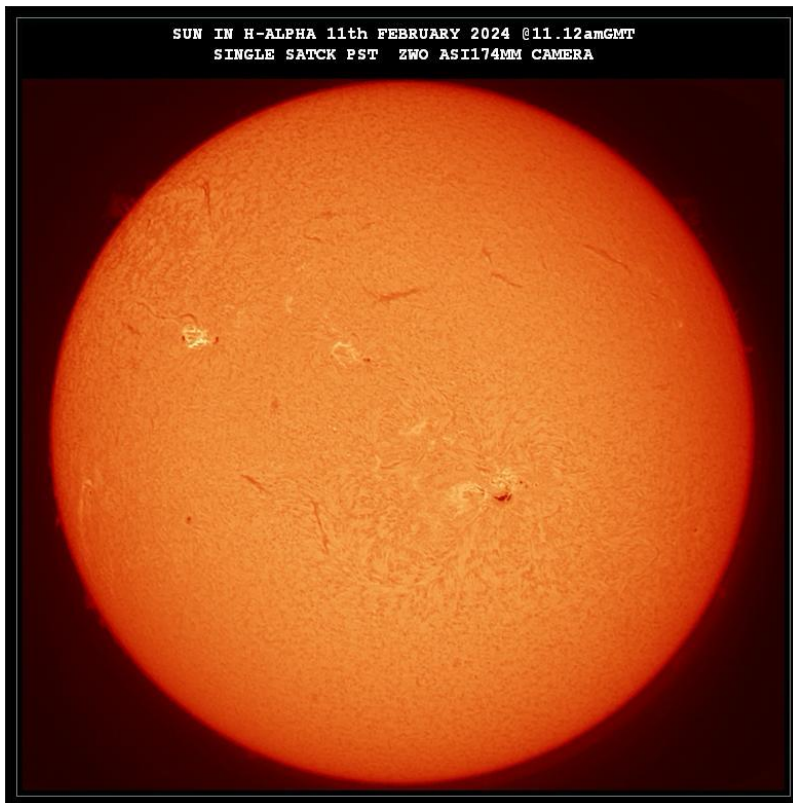


Mick Nicholds BAA/MSAS, United Kingdom

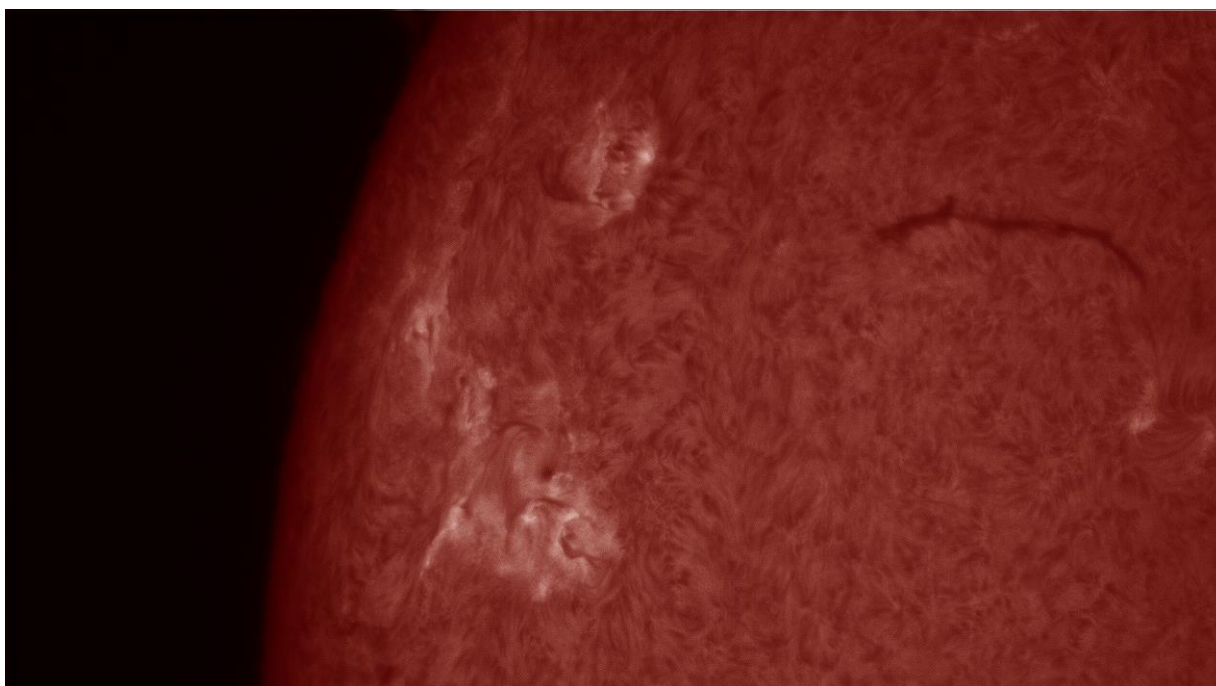


Mick Nicholds BAA/MSAS, United Kingdom

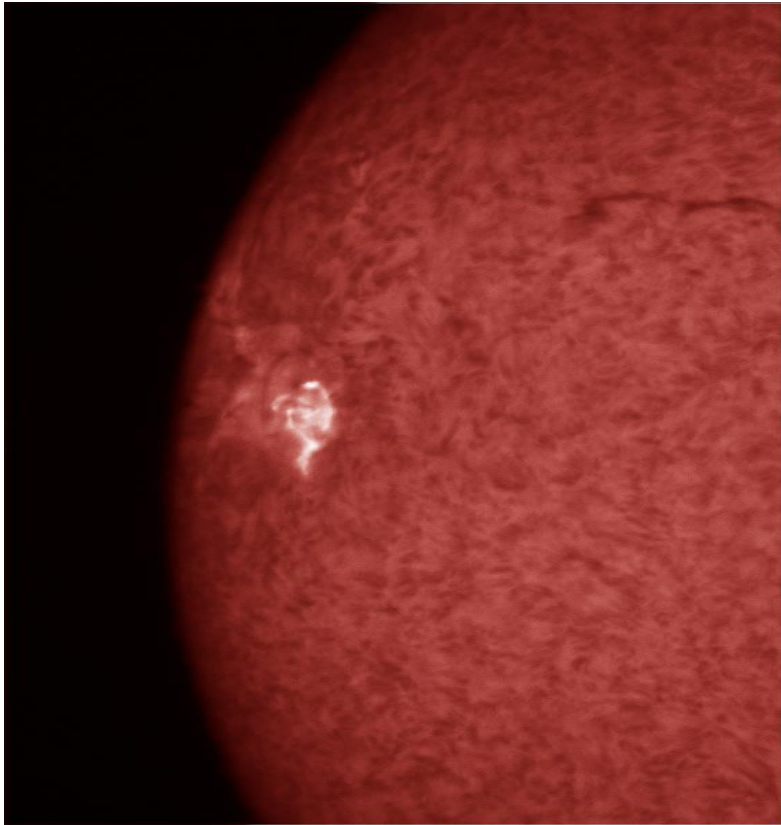
**H-Alpha**



Mick Nicholds BAA/MSAS, United Kingdom

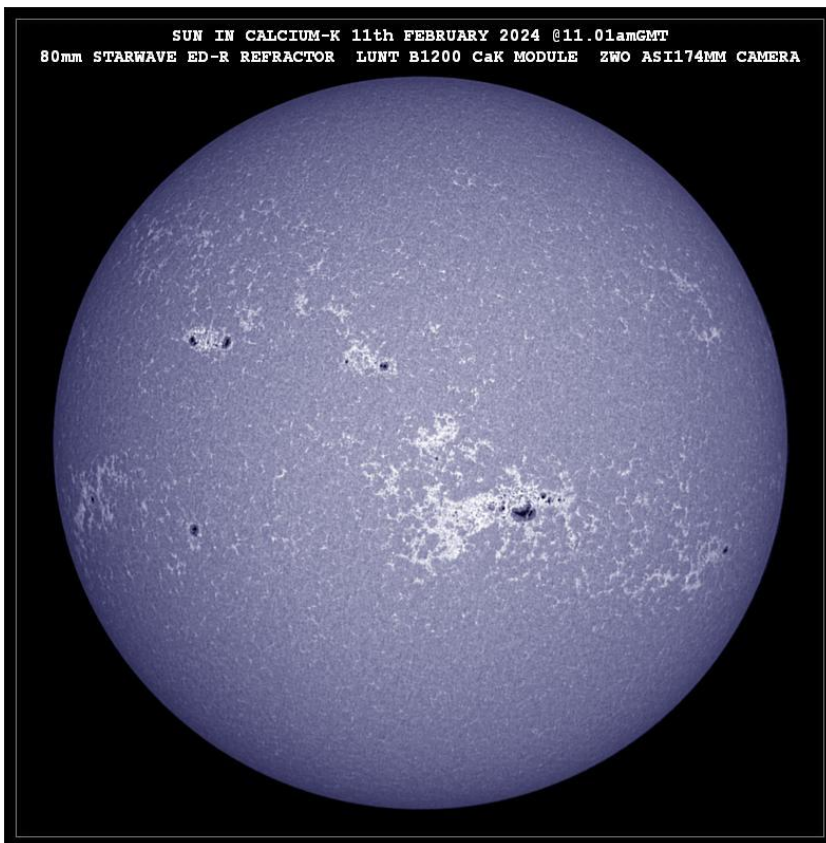


Andrew Devey, BAA/MSAS Spain. AR3536, 2024-01-02 at 1225UT



Andrew Devey, BAA/MSAS Spain. M5 flare AR3536 01.01.24

### Ca-K



Mick Nicholds BAA/MSAS, United Kingdom

I would like to thank the contributors for their valuable inputs.

Clear Skies

Jacques van Delft

Solar Section ASSA