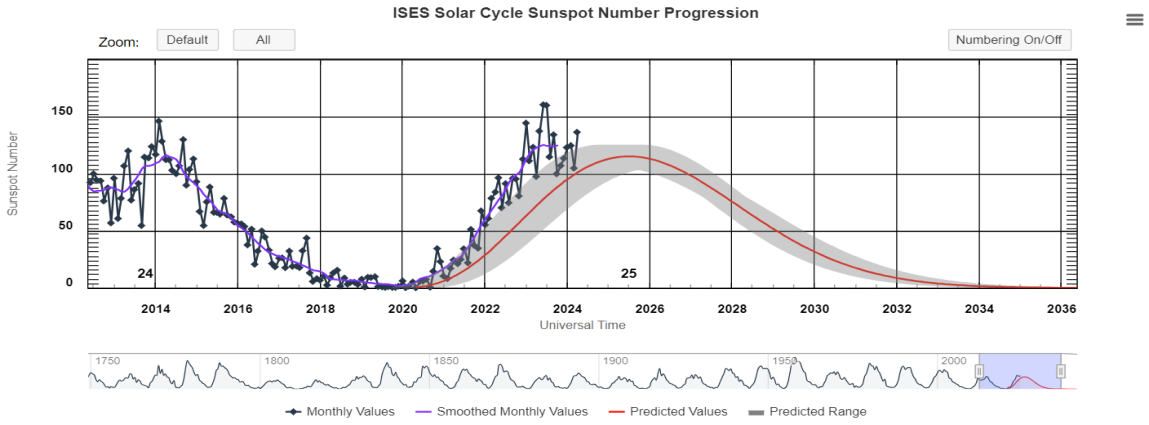
Month: April 2024

- **NEWS FROM THE SOLAR SECTION**

April 2024 solar news

The sunspot number in April increased from 109 to 136.5. The Sunspot number according to the graph is showing a sharp increased trend on the average line indicating that the maximum of solar cycle is still not reached. This means that high sunspot numbers and high solar activities can still take place in the months to come. A new solar observer Stephanus du Toit from South Africa joint the solar section. Stephanus will submit his sunspot data from next month but he already submitted a image of the sun. Thanks Stephanus and welcome.



- **SUNSPOT OBSERVATIONS**

Apr 24		Day	Time	Seeing	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
	Mon	1									
	Tue	2	10h00	E	1	3	13	1	0	3	0
	Wed	3					0				
	Thu	4	1410	E	2	4	24	2	0	4	0
	Fri	5					0				
	Sat	6					0				
	Sun	7					0				
	Mon	8					0				
	Tue	9					0				
	Wed	10	1325	E	3	11	41	3	0	11	0
	Thu	11	1325	E	5	23	73	3	2	15	8
	Fri	12	1320	E	5	21	71	3	2	17	4
	Sat	13					0				
	Sun	14					0				
	Mon	15					0				
	Tue	16	1033	E	8	31	111	3	5	15	16
	Wed	17	1320	E	11	46	156	5	6	18	28
	Thu	18	1310	E	10	55	155	5	5	23	32
	Fri	19	1345	E	12	68	188	6	6	22	46
	Sat	20	1325	E	10	42	142	3	7	15	37
	Sun	21	1255	E	11	65	175	3	8	23	42
	Mon	22	1325	G	13	78	208	5	8	26	52
	Tue	23	1330	G	13	66	196	6	7	32	34
	Wed	24					0				
	Thu	25	1325	G	9	36	126	4	5	10	26
	Fri	26	1415	G	6	23	83	3	3	6	17
	Sat	27	1240	G	6	11	71	3	3	4	7
	Sun	28					0				
	Mon	29	1225	G	6	20	80	4	2	6	14
	Tue	30	1215	G	4	32	72	2	2	13	19
			Observations		Groups	Spots	W no.	North Groups	South groups	North spots	South spots
			17		135	635	1985	64	71	263	382

Monthly Means

MDF 116,8 1 Observer

MDF g	7,9	1 Observer
MDF Ng	3,8	1 Observer
MDF Sg	4,2	1 Observer

Observers:

Jacques van Delft ASSA Bloemfontein South Africa

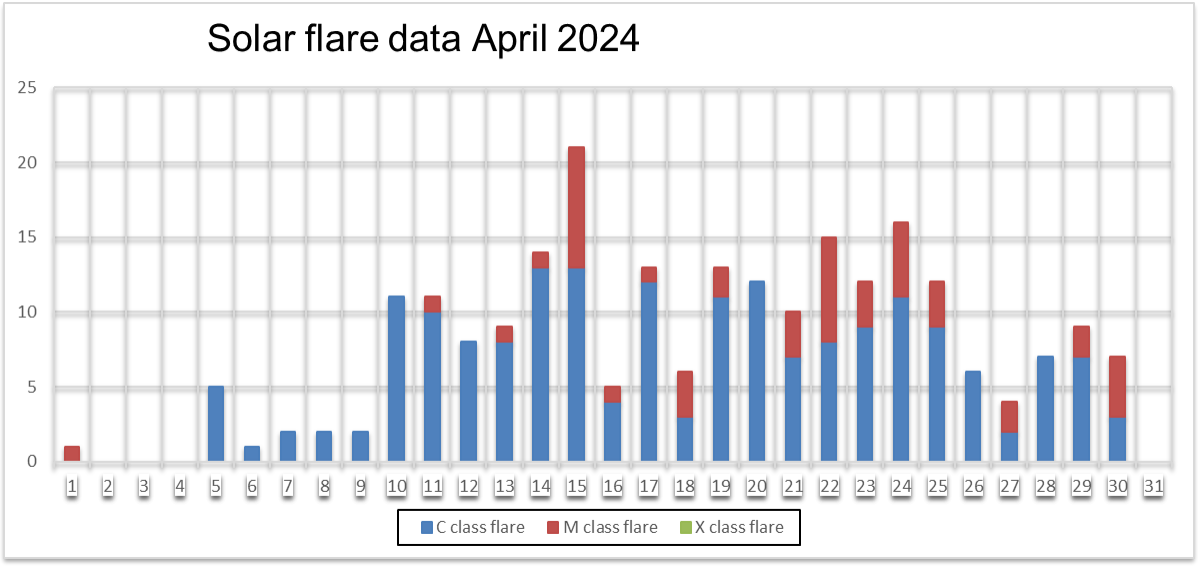
When more than 1 observer is submitting sunspots, the average per day is calculated and noted.

- **SOLAR FLARE ACTIVETY 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 303 solar flares were observed: 253 C-class flares and 45 M-class flares and 5 X class flares.

Solar flare data: LABORATORY OF X-RAY ASTRONOMY OF THE SUN
https://xras.ru/en/sun_flares.html

2024	April	C class	M class	X class	NOA No	
Mon	1	0	1	0	3625	M3,9
Tue	2	0	0	0		
Wed	3	0	0	0		
Thu	4	0	0	0		
Fri	5	5	0	0		
Sat	6	1	0	0		
Sun	7	2	0	0		
Mon	8	2	0	0		
Tue	9	2	0	0		
Wed	10	11	0	0		
Thu	11	10	1	0	3635	M5,4
Fri	12	8	0	0		
Sat	13	8	1	0	3637	M2,4
Sun	14	13	1	0	3637	M4,3
Mon	15	13	8	0	3639/3634/	M1,7 M1,0 M1,2 M1,1 M1,4 M2,2 M4,0/M2,3
Tue	16	4	1	0	3645	M1,1
Wed	17	12	1	0	3643	M1,6
Thu	18	3	3	0	3638/3643/3647	M2,2/M1,3/M1,6
Fri	19	11	2	0	3647	M2,1 M1,0
Sat	20	12	0	0		
Sun	21	7	3		3645/3638	M1,0/M2,2 M3,4
Mon	22	8	7		3645/3646/3656/3638	M1,0 M1,6/M1,6/M1,0/M1,5
Tue	23	9	3		3654/3638	M3,6 M3,0/ M2,9
Wed	24	11	5		3638/3645/3647	M1,7 M1,8 M2,0/M1,4/M1,1
Thu	25	9	3		3645/3638	M1,0/M1,0 M1,3
Fri	26	6				
Sat	27	2	2		3654	M2,1 M3,0
Sun	28	7				
	29	7	2		3654	M2,5 M3,7
	30	3	4		3654	M1,6 M1,2 M1,3 M9,5
	Totals	186	48	0		



- **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.

Apr 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	2,00	3,33	3,67	2,00	1,67	2,33	2,33	1,67	11,00
2	1,67	1,67	1,67	3,33	2,33	2,00	1,67	1,33	8,00
3	3,00	2,33	1,67	1,33	1,67	1,33	0,67	1,33	7,00
4	1,67	1,33	2,67	3,00	2,67	3,00	2,33	3,67	12,00
5	2,33	3,33	3,00	3,33	2,67	2,00	2,00	2,33	12,00
6	3,33	2,33	3,33	2,00	2,33	1,33	1,67	2,33	10,00
7	1,67	2,00	1,00	2,00	1,67	1,33	1,33	1,67	6,00
8	2,67	3,33	3,00	1,67	0,67	1,33	0,67	0,67	8,00
9	0,67	2,67	3,00	3,00	2,67	1,67	2,00	3,00	11,00
10	3,00	1,67	2,00	2,00	2,00	2,33	2,33	1,67	8,00
11	2,33	2,67	0,67	1,00	1,33	1,33	1,33	1,00	6,00
12	2,33	2,67	1,67	1,67	1,00	1,00	1,33	1,67	7,00
13	2,00	2,33	0,67	1,00	1,33	1,67	0,67	1,33	5,00
14	2,33	1,00	2,00	2,00	1,33	1,00	1,67	1,67	6,00
15	2,33	2,00	0,67	1,67	1,00	2,00	2,33	3,00	8,00

16	4,00	3,33	4,33	4,33	3,33	4,00	5,00	5,00	31,00
17	3,00	1,33	1,33	1,67	1,67	1,67	1,67	2,00	7,00
18	1,67	0,67	0,33	1,00	0,67	1,00	0,33	2,00	4,00
19	2,33	1,33	4,33	4,33	4,67	5,00	7,00	4,33	41,00
20	2,67	2,00	3,33	3,33	2,33	2,33	2,00	2,67	12,00
21	3,00	3,00	3,33	3,33	4,00	3,67	3,67	3,67	19,00
22	2,33	2,67	2,67	2,00	2,00	1,67	1,67	2,33	9,00
23	2,00	1,00	2,33	2,00	2,00	1,67	2,67	2,33	8,00
24	2,00	0,33	0,67	1,33	1,33	0,67	0,33	0,67	4,00
25	0,67	0,33	0,00	1,33	1,00	1,00	0,67	1,33	3,00
26	2,00	2,33	3,33	3,00	3,67	5,33	3,00	2,00	19,00
27	3,00	3,00	2,00	1,33	3,33	2,67	3,00	2,67	12,00
28	3,67	2,00	1,33	1,33	0,67	0,67	0,67	1,00	7,00
29	2,00	1,33	2,00	1,33	1,33	1,33	2,33	1,33	6,00
30	2,00	1,67	0,67	1,00	2,67	2,67	3,67	4,33	12,00

Geomagnetic Storm Index

G1	G2	G3	G4	G5

Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

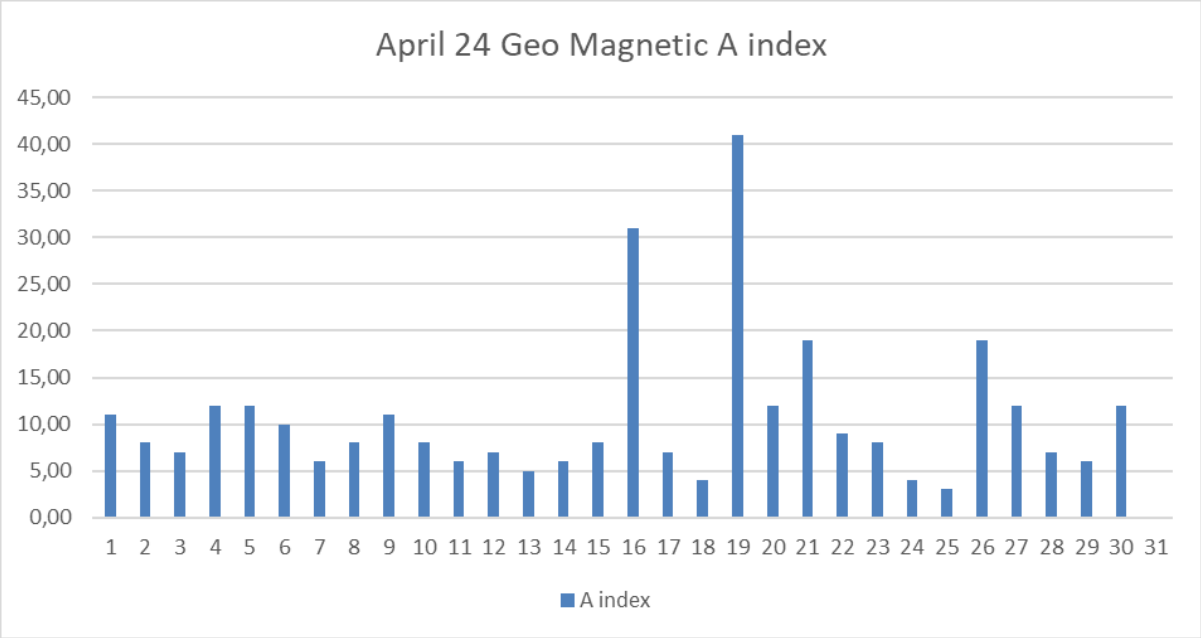
A INDEX

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.



Periods of unsettled and high Geo-magnetic activities were experienced in March and special notice must be made on the G4 / KP 8 storm condition experienced on 24 March 24 which sparked high Aurora activities and high disturbance in the Earths atmosphere.

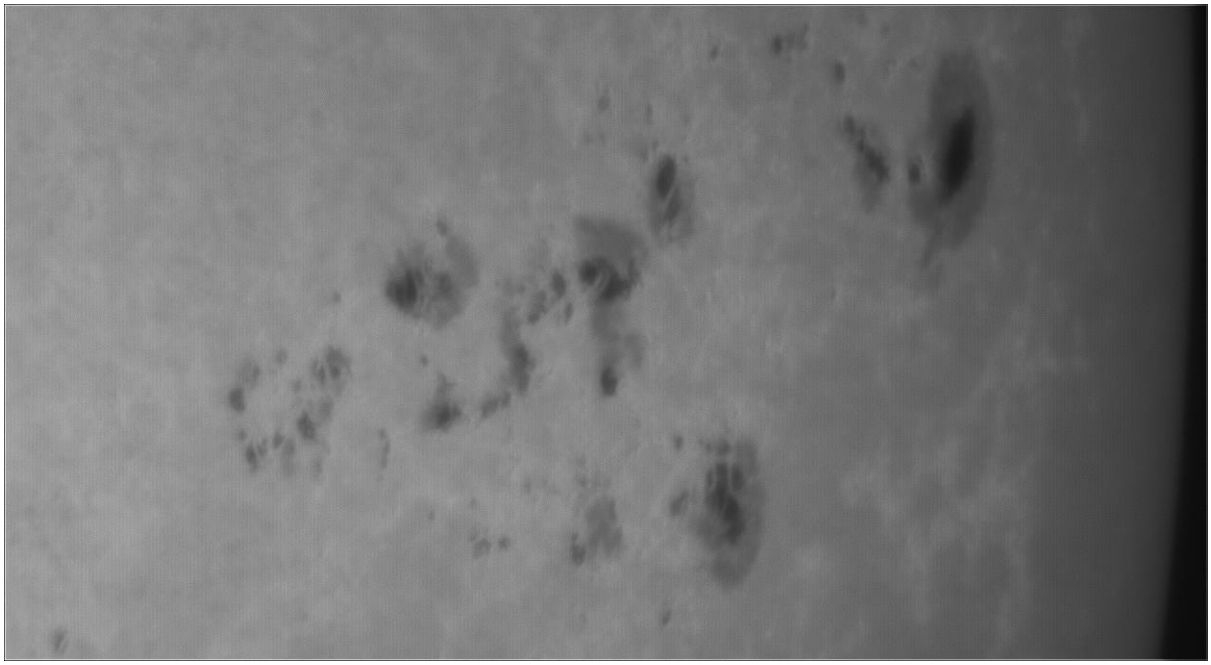
- **H Alpha Observations**

Two observer shared their H-Alpha data for March 2024. Andrew Devey from BAA & MSAS living in Spain using a PST double stack H Alpha telescope and Mick Nicholls from BAA & MSAS living in the UK.

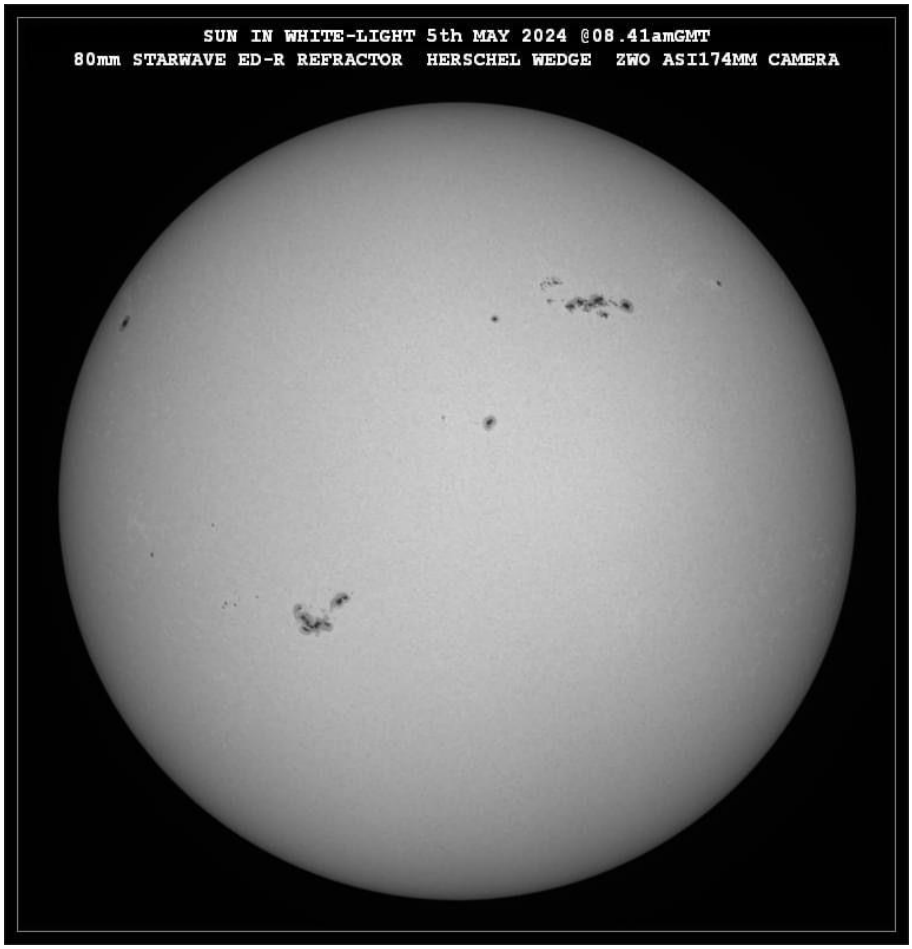
April 2024	Counts	Observations	MDF
Prominance	133	26	5,1
Plage Areas	114	26	4,4
Filaments	176	26	6,8
Flares	0	26	0,0

- **Solar images**

WHITE LIGHT



Andrew Devey, BAA/MSAS Spain. 2024-04-24-0901UT complex AR's AR2643, AR3647, AR3638 and AR3645



Mick Nicholls BAA/MSAS, United Kingdom

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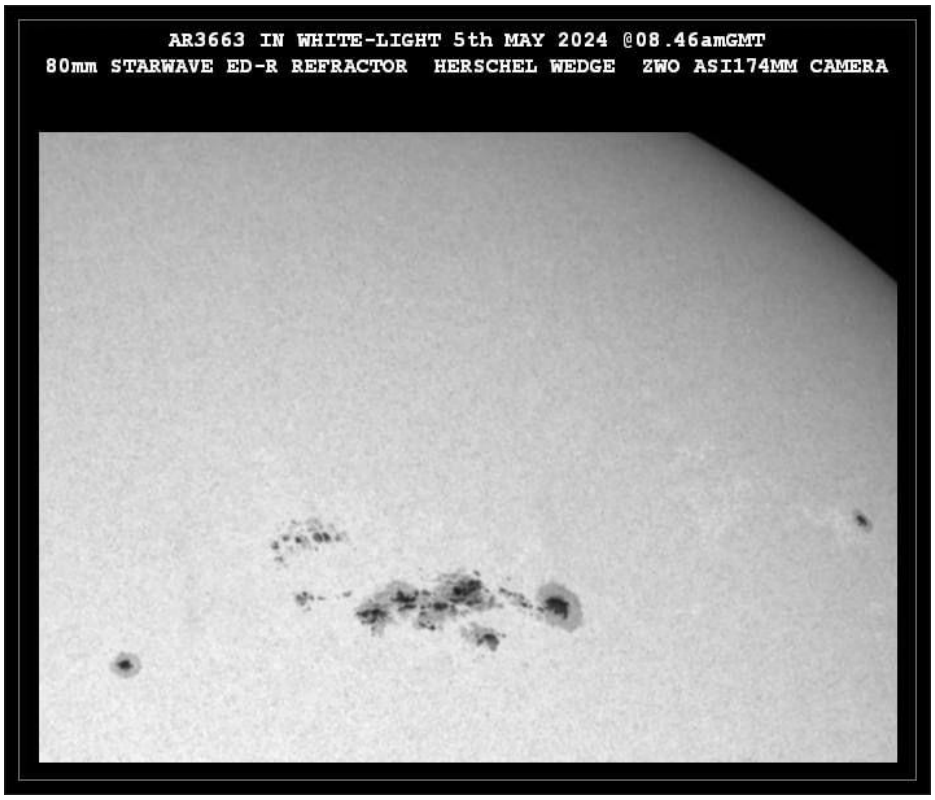

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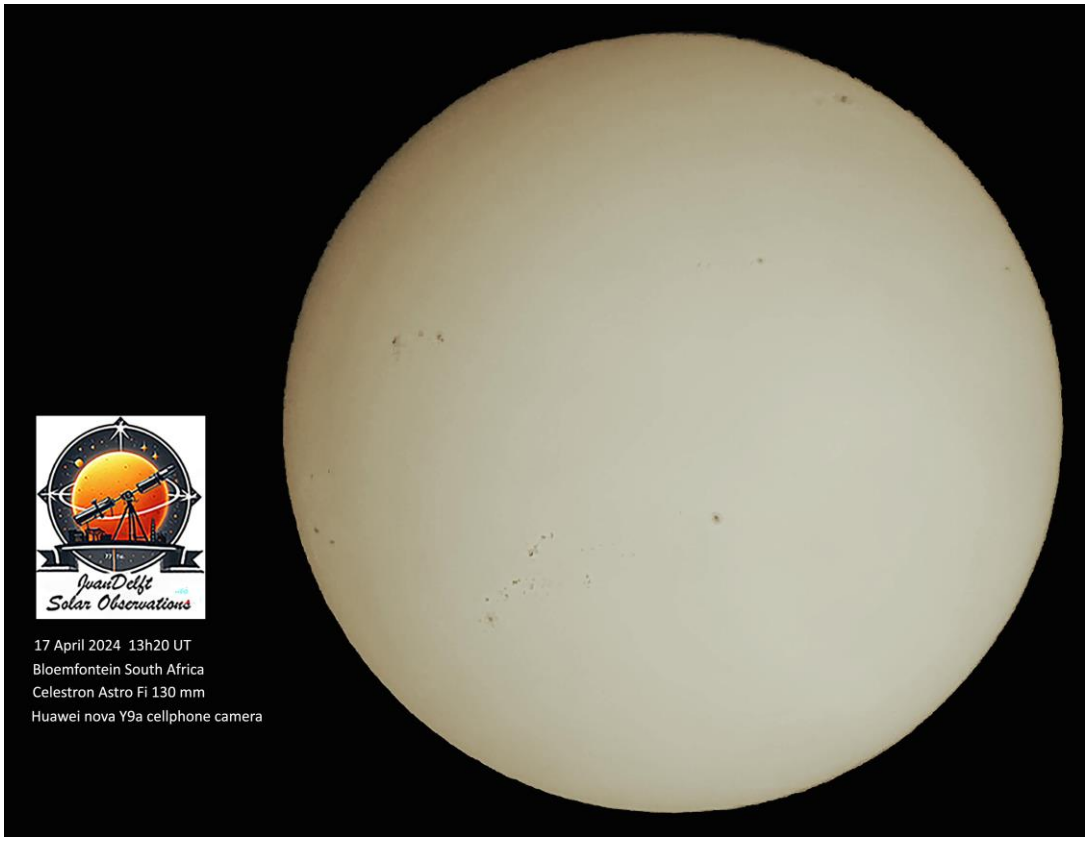
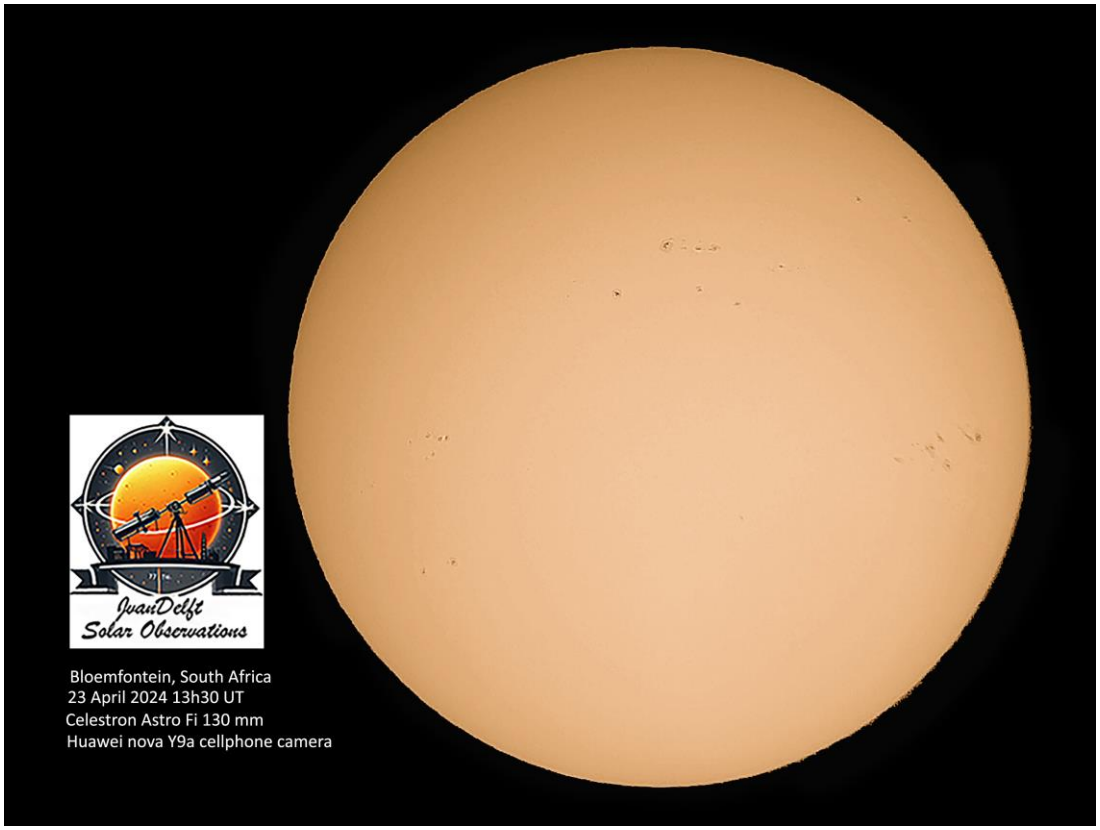


Jacques van Delft ASSA South Africa



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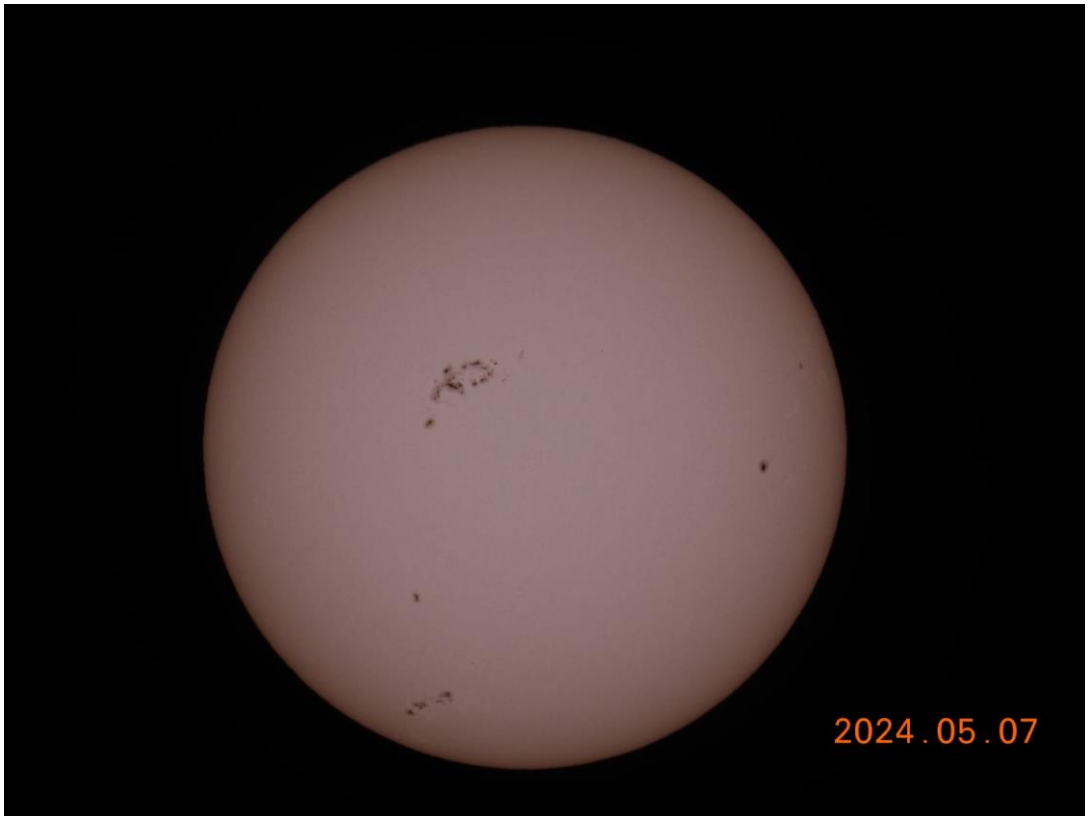
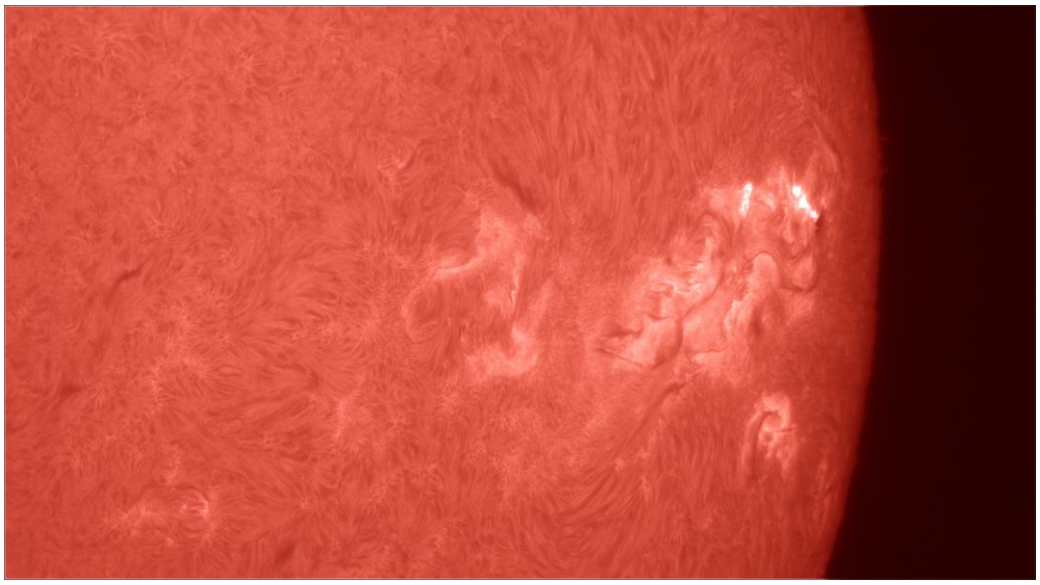
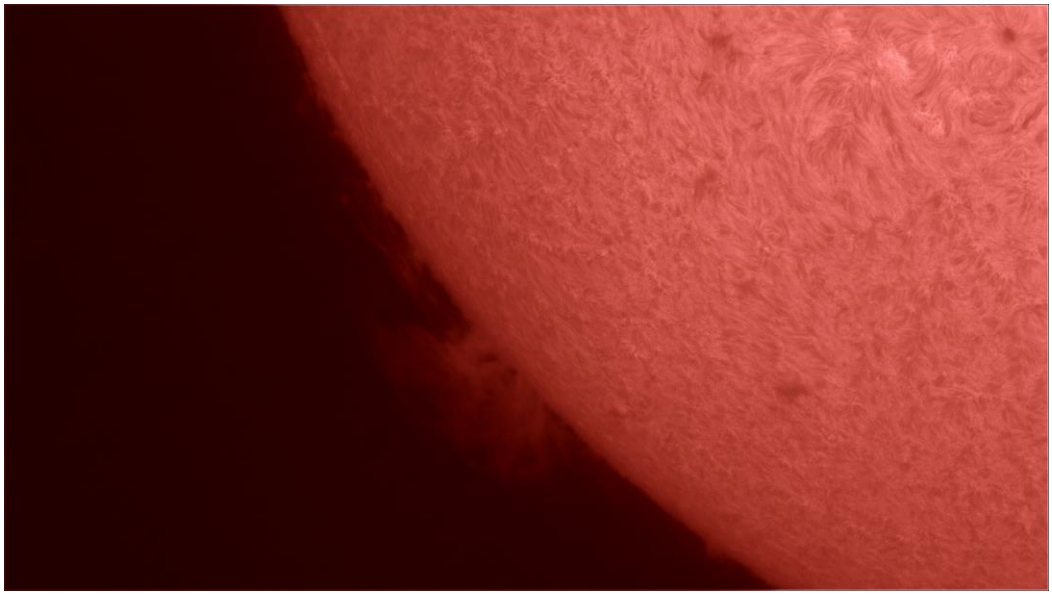


Stephanus du Toit South Africa

Stephanus du Toit South Africa

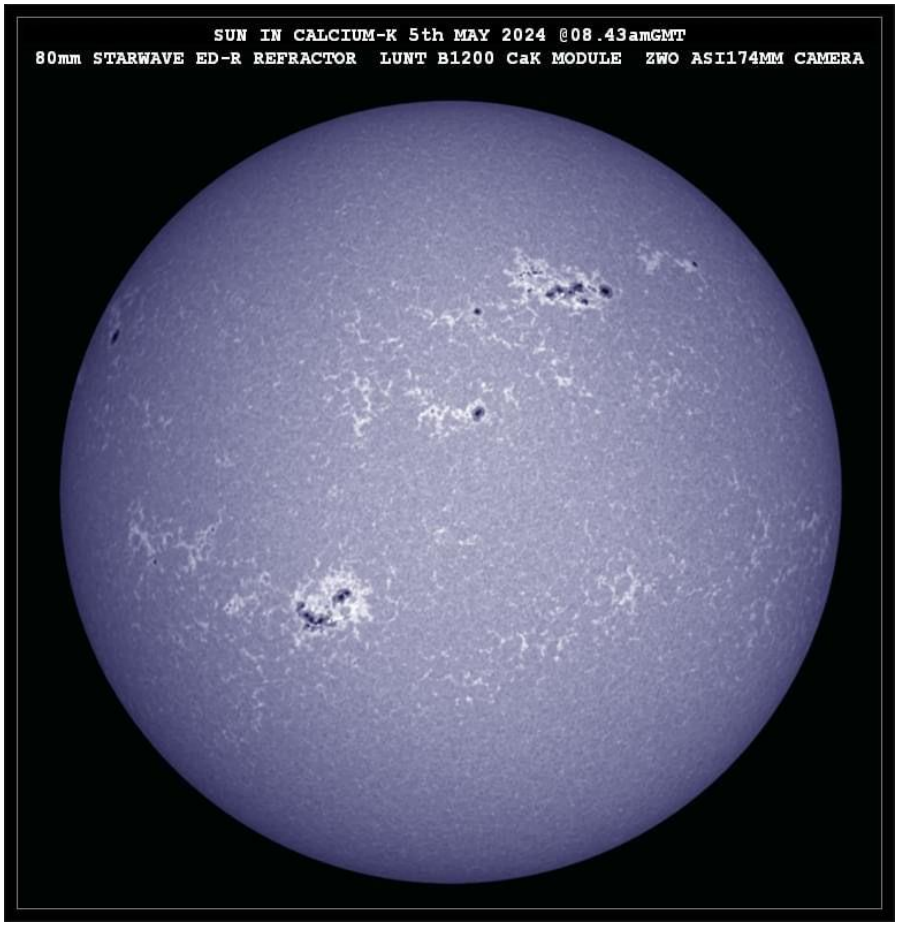
H-Alpha


Andrew Devey, BAA/MSAS Spain. 2024-04-24-1215UT M2 flare on AR3645



Andrew Devey, BAA/MSAS Spain. 2024-04-24-1237UT large prominence on SE limb

Ca-K



Mick Nicholls BAA/MSAS, United Kingdom

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

Jacques van Delft

ASSA Solar Section