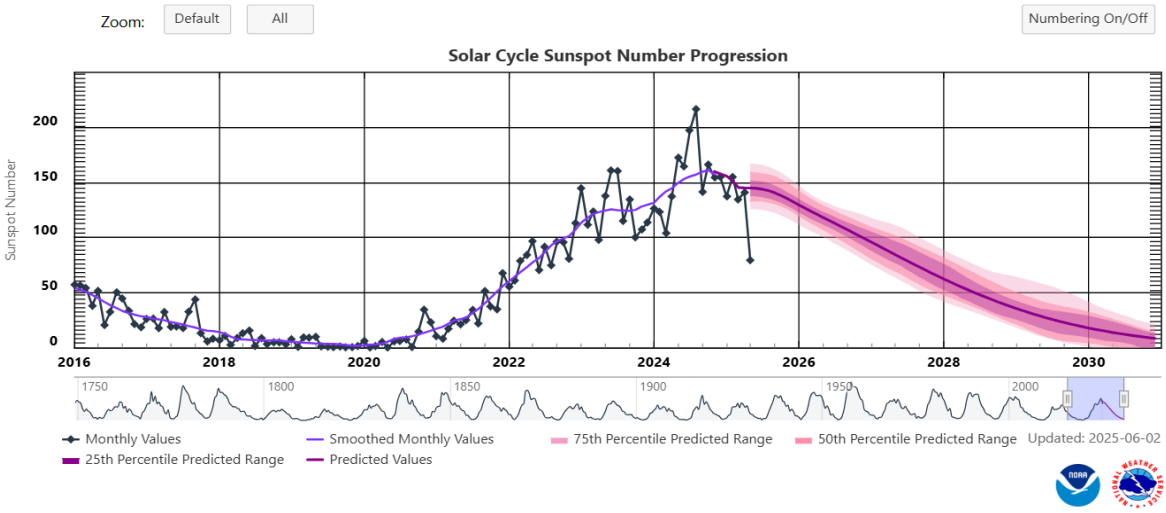
Month: May 25

- **NEWS FROM THE SOLAR SECTION**

May 2025 Solar News

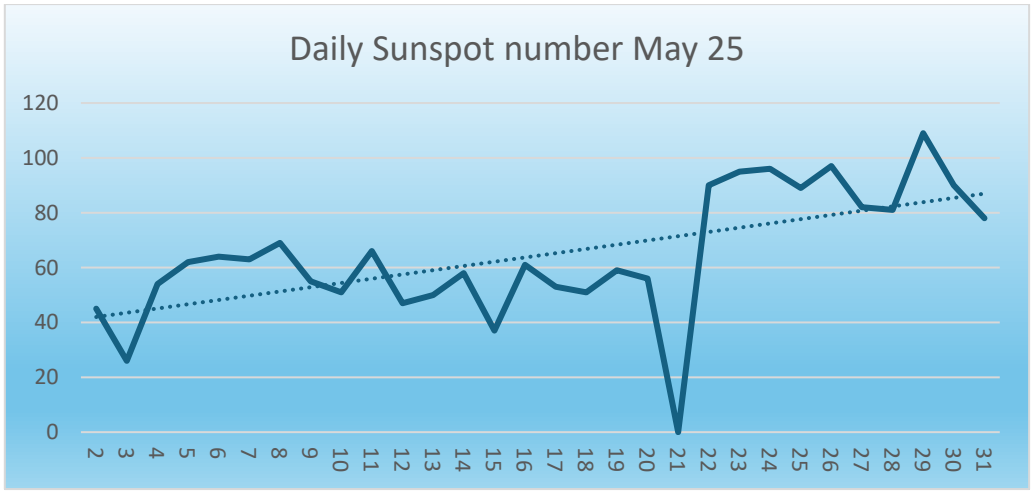
Solar Cycle 25 appears to have reached its peak in late 2024 or early 2025, aligning closely with NOAA's predicted sunspot trend. Current observations show a gradual but steady decline in sunspot numbers, marking the beginning of the downward slope toward the next solar minimum, expected around 2030. While variability in monthly sunspot activity persists, the overall trajectory suggests waning solar magnetic activity in the years ahead.



SUNSPOT OBSERVATIONS May 2025

2025	May	Time	Seeing	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
		Jacques v Delft		Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft
Thu	1	955	G	4	15	55	2	2	11	4
Fri	2	1155	G	3	15	45	2	1	13	2
Sat	3	1410	G	2	6	26	2	0	6	0
Sun	4	1530	G	4	14	54	3	1	13	1
Mon	5	1335	G	4	22	62	3	1	19	3
Tue	6	1015	G	4	24	64	3	1	19	5
Wed	7	955	G	3	33	63	2	1	24	9
Thu	8	1020	G	4	29	69	2	2	20	9
Fri	9	1135	G	4	15	55	2	2	10	5
Sat	10	1020	G	4	11	51	2	2	7	4
Sun	11	1035	G	5	16	66	3	2	12	4
Mon	12	1105	G	4	7	47	2	2	4	3
Tue	13	1125	G	4	10	50	3	1	9	1
Wed	14	1055	G	5	8	58	4	1	7	1
Thu	15	1035	G	3	7	37	2	1	6	1
Fri	16	1245	G	5	11	61	4	1	10	1
Sat	17	1440	G	4	13	53	3	1	10	3
Sun	18	1320	g	4	11	51	2	2	6	5
Mon	19	1125	G	5	9	59	2	3	4	5
Tue	20	1045	G	5	6	56	2	3	6	3
Wed	21	NOBS				0				
Thu	22	1345	G	7	20	90	3	4	12	8
Fri	23	1150	G	8	15	95	3	5	5	10
Sat	24	1030	G	8	16	96	3	5	3	13
Sun	25	1050	G	7	19	89	2	5	2	17
Mon	26	1100	G	8	17	97	2	6	3	14
Tue	27	1235	G	6	22	82	2	4	7	15
Wed	28	1005	G	6	21	81	3	3	12	9
Thu	29	1055	G	8	29	109	4	4	15	14
Fri	30	1005	G	6	30	90	4	2	19	11
Sat	31	1045	G	5	28	78	4	1	18	10

Observations	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
30	149	499	1989	80	69	312	190



Monthly Means		
MDF	66,3	1 Observer
MDF g	5,0	1 Observer
MDF Ng	2,7	1 Observer
MDF Sg	2,3	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 MARCH 2024

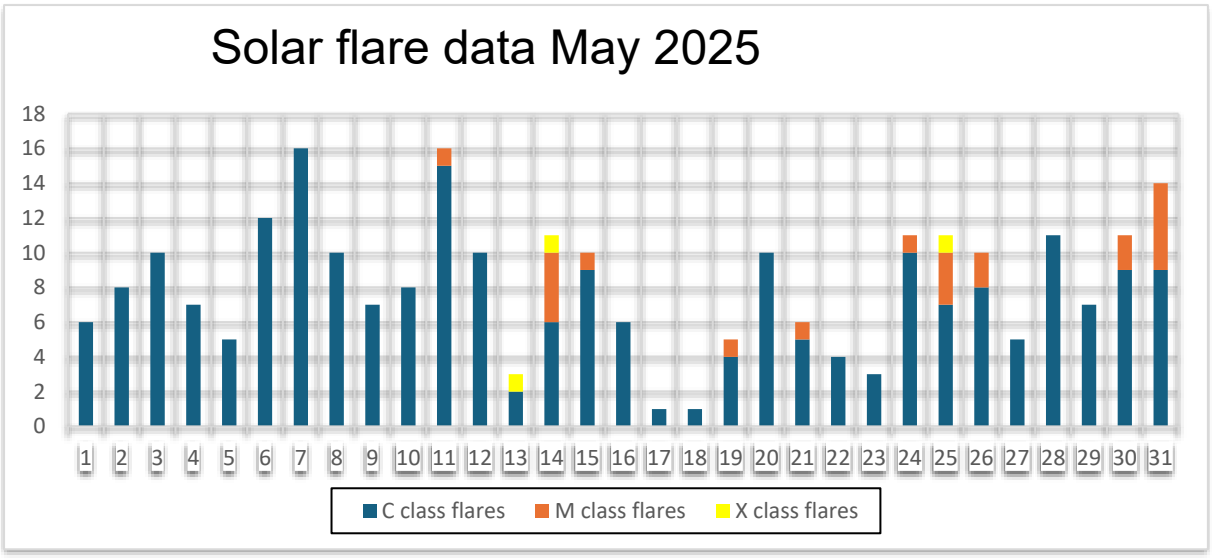
Solar flares are classified according to their x-ray brightness in the wavelength range 1 to 8 Angstrom. There are 3 categories: C class – minor, M class – medium and X class – big. Each category has 9 subdivisions.

A total of 255 solar flares were observed: 231 C-class flares and 21 M-class flares and 3 X class flare.

Solar flare data: LABORATORY OF X-RAY ASTRONOMY OF THE SUN

2025	May	C class	M class	X class	NOA No	
Thu	1	6	0	0		
Fri	2	8	0	0		
Sat	3	10	0	0		
Sun	4	7	0	0		
Mon	5	5	0	0		
Tue	6	12	0	0		
Wed	7	16	0	0		
Thu	8	10	0	0		
Fri	9	7	0	0		
Sat	10	8	0	0		
Sun	11	15	1	0	4079	M1,9
Mon	12	10	0	0		
Tue	13	2	0	1	4086	**X1,2**
Wed	14	6	4	1	4087	M5,3 M1,2 M7,7 M4,7 **X2,7**
Thu	15	9	1	0	4087	M2,1
Fri	16	6	0	0		
Sat	17	1	0	0		
Sun	18	1	0	0		
Mon	19	4	1	0	Filament	M3,2
Tue	20	10	0	0		
Wed	21	5	1	0	4087	M1,2
Thu	22	4	0	0		
Fri	23	3	0	0		
Sat	24	10	1	0	4098	M2,1
Sun	25	7	3	1	4098	M1,7 M3,4 M8,9 **X1,1**
Mon	26	8	2	0	4100/4098	M1,4/ M2,9
Tue	27	5	0	0		
Wed	28	11	0	0		
Thu	29	7	0	0		
Fri	30	9	2	0	4100/ 4104	M3,4/ M1,6
Sat	31	9	5	0	4100	M8,1 M1,0 M2,4 M4,5 M2,9
	Totals	231	21	3		

Credit: https://xras.ru/en/sun_flares.html



- **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.

2025	May	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
Thu	1	3,33	4,00	3,67	4,00	4	3,33	4,67	5,00	28
Fri	2	5,33	4,67	4,00	4,33	4,67	4,67	4,00	5,33	39
Sat	3	5,00	4,00	3,67	4,67	3,33	3,33	2,67	3,67	26
Sun	4	4,00	3,33	4,67	2,33	3,67	4,33	4,00	4,00	25
Mon	5	3,33	4,67	4,33	4,00	4,00	4,67	3,67	4,00	29
Tue	6	3,67	2,33	3,00	2,67	2,33	2,67	3,33	3,67	15
Wed	7	2,33	2,67	2,67	2,67	1,67	1,00	1,67	2,00	9
Thu	8	2,33	3,00	3,00	1,67	2,33	2,33	0,67	4,00	12
Fri	9	2,67	2,33	1,67	2,00	2,33	3,00	4,00	4,33	15
Sat	10	4,33	3,67	2,33	2,33	2,00	1,33	1,33	2,33	12
Sun	11	2,33	3,33	2,67	2,00	3,00	1,33	4,67	4,00	17
Mon	12	2,33	2,00	1,67	1,67	2,00	1,00	1,33	2,00	6
Tue	13	1,67	1,67	1,67	1,67	1,67	2,00	1,33	1,33	9
Wed	14	3,33	2,33	2,00	3,00	3,67	3,67	4,00	2,33	16
Thu	15	3,00	4,00	2,67	2,00	2,00	2,67	2,33	3,00	13
Fri	16	2,33	3,00	3,00	2,33	2,67	2,00	1,67	4,33	13
Sat	17	6,33	5,33	3,33	4,67	4,33	4,00	3,67	3,33	38
Sun	18	4,00	3,00	4,67	3,33	2,33	4,00	4,00	2,67	22
Mon	19	3,33	3,00	1,67	1,67	2,33	2,33	1,67	2,00	10
Tue	20	2,33	3,00	3,00	3,00	3,00	2,67	2,00	3,00	13
Wed	21	4,00	3,00	3,00	3,00	2,33	1,33	1,67	2,33	13
Thu	22	2,00	2,00	2,00	1,33	1,67	1,33	2,33	1,67	7
Fri	23	2,00	1,67	2,00	2,00	2,33	2,33	1,33	2,00	7
Sat	24	1,67	1,33	1,67	1,33	1,67	1,00	0,67	1,33	5
Sun	25	1,67	2,00	2,00	1,33	2,00	1,33	1,00	1,00	6
Mon	26	1,67	1,67	2,00	1,67	3,00	1,33	2,00	2,67	8
Tue	27	2,33	2,33	1,67	2,67	3,00	2,67	4,00	4,00	15
Wed	28	4,00	4,33	2,67	3,33	1,67	3,33	3,33	2,67	18
Thu	29	6,67	5,33	5,00	5,33	5,67	5,67	5,67	5,00	65
Fri	30	5,00	4,33	4,00	3,33	4,00	4,33	4,33	3,67	30
Sat	31	3,33	3,00	3,00	2,33	3,67	2,33	3,00	3,67	16

Geomagnetic Storm Index

G1	G2	G3	G4	G5

Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

A INDEX

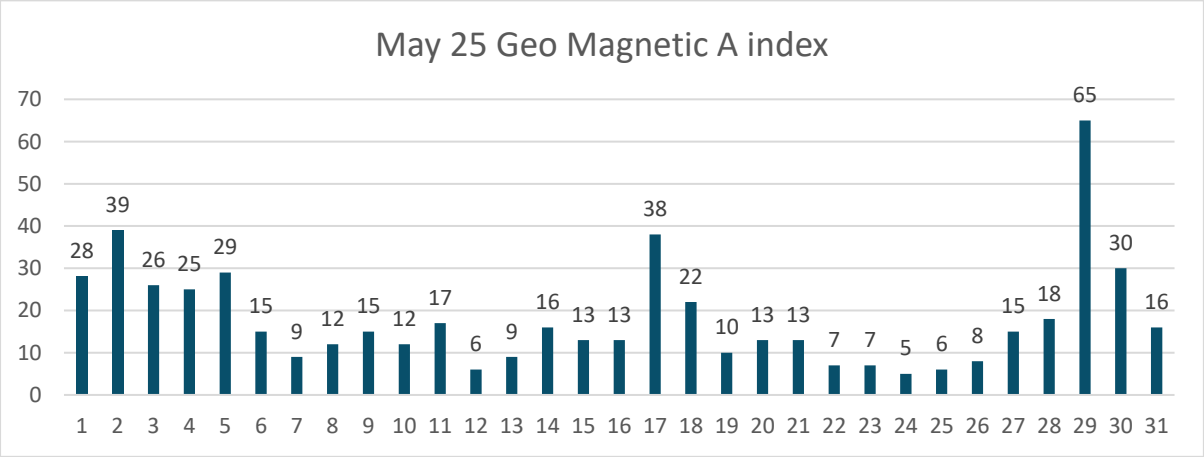
The solar A Index is a numerical scale that represents the geomagnetic activity in the Earth's ionosphere caused by solar flares and other solar phenomena. It measures the overall geomagnetic disturbance level on a scale from 0 to 400. The index is derived from the observed planetary A index, which quantifies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

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

- 0 to 7: Quiet geomagnetic conditions.
- 08 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.



May 2025 showed a dynamic geomagnetic profile, with multiple disturbances punctuating otherwise quiet conditions. Notable peaks are on 2 May with 39 and 17 May at a level of 38. The most significant geomagnetic storm occurred on May 29, with the A-index spiking to 65, marking one of the most intense geomagnetic days of the year so far. This surge likely resulted from a CME impact, aligning with elevated sunspot numbers observed during the solar maximum phase of Solar Cycle 25.

H Alpha Observations

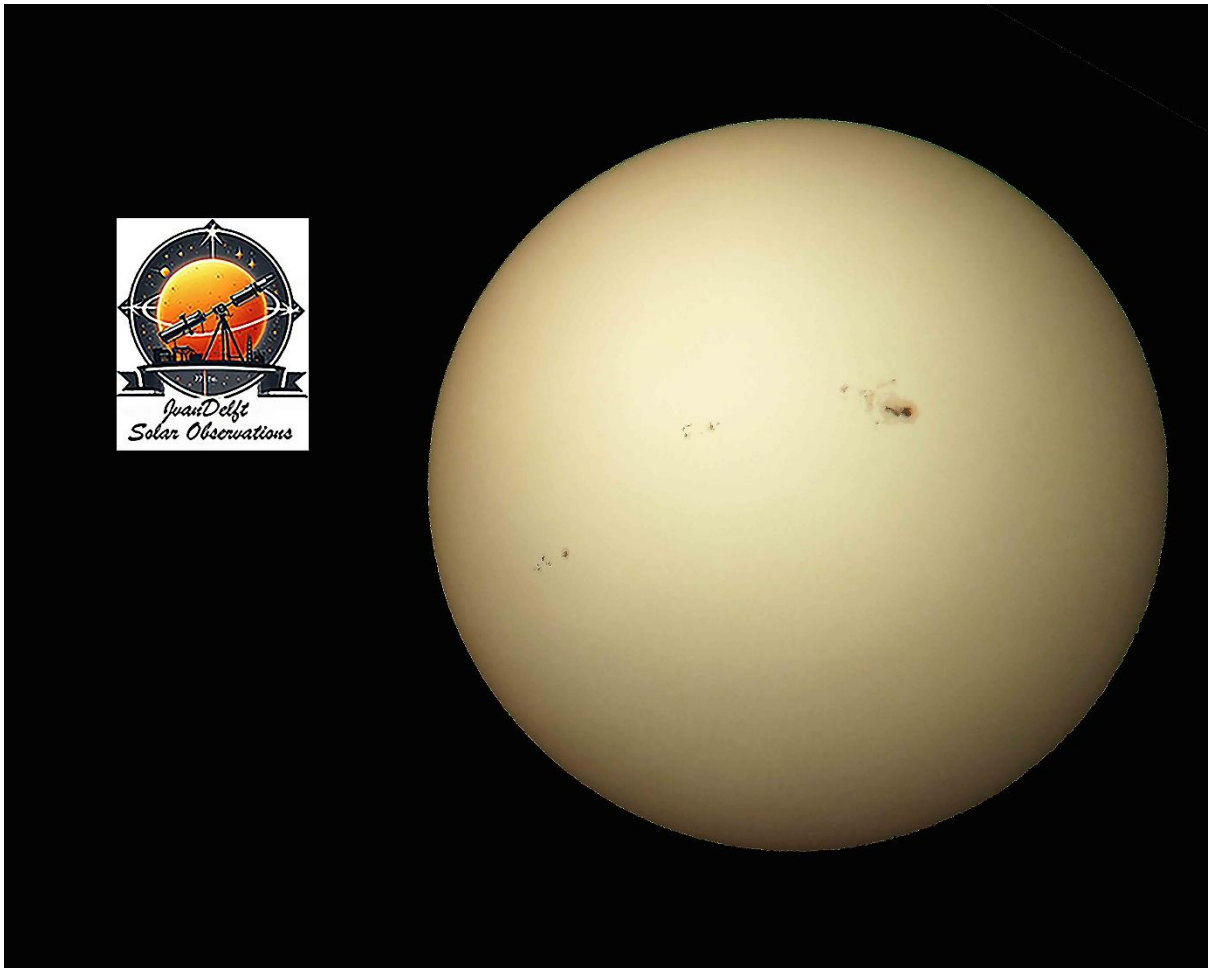
One observers shared his H-Alpha data for March 2025. Andrew Devey from BAA & MSAS living in Spain.

May-25	Prominance Active		Prominance Quit		Prominance Total		Plage Areas		Filaments		Flares	
	Andrew Devey	Mick Nicholls	Andrew Devey	Mick Nicholls	Andrew Devey	Mick Nicholls	Andrew Devey	Mick Nicholls	Andrew Devey	Mick Nicholls	Andrew Devey	Mick Nicholls
1												
2	2		2		4		2		7		0	
3	3		2		5		2		8		0	
4	3		2		5		2		8		0	
5	2		3		5		3		7		0	
6												
7	3		3		6		3		7		0	
8												
9	3		3		6		3		7		0	
10	3		1		4		4		7		0	
11												
12												
13												
14												
15	3		1		4		4		7		0	
16	5		0		5		4		6		0	
17	3		2		5		4		6		0	
18	2		3		5		4		5		0	
19	2		2		4		4		5		0	
20												
21	2		2		4		5		6		0	
22	2		3		5		5		6		0	
23												
24	2		1		3		5		6		0	
25	2		2		4		5		5		0	
26												
27	3		2		5		5		7		0	
28												
29	2		1		3		3		7		0	
30	3		0		3		4		6		0	
31	3		0		3		4		7		0	
Total Nr	53		35	0	88	0	75	0	130	0	0	0

May 2025	Counts	Observations	MDF
Prominance	88	20	4,4
Plage Areas	75	20	3,8
Filaments	130	20	6,5
Flares	0	20	0,0

- **Solar images**

WHITE LIGHT



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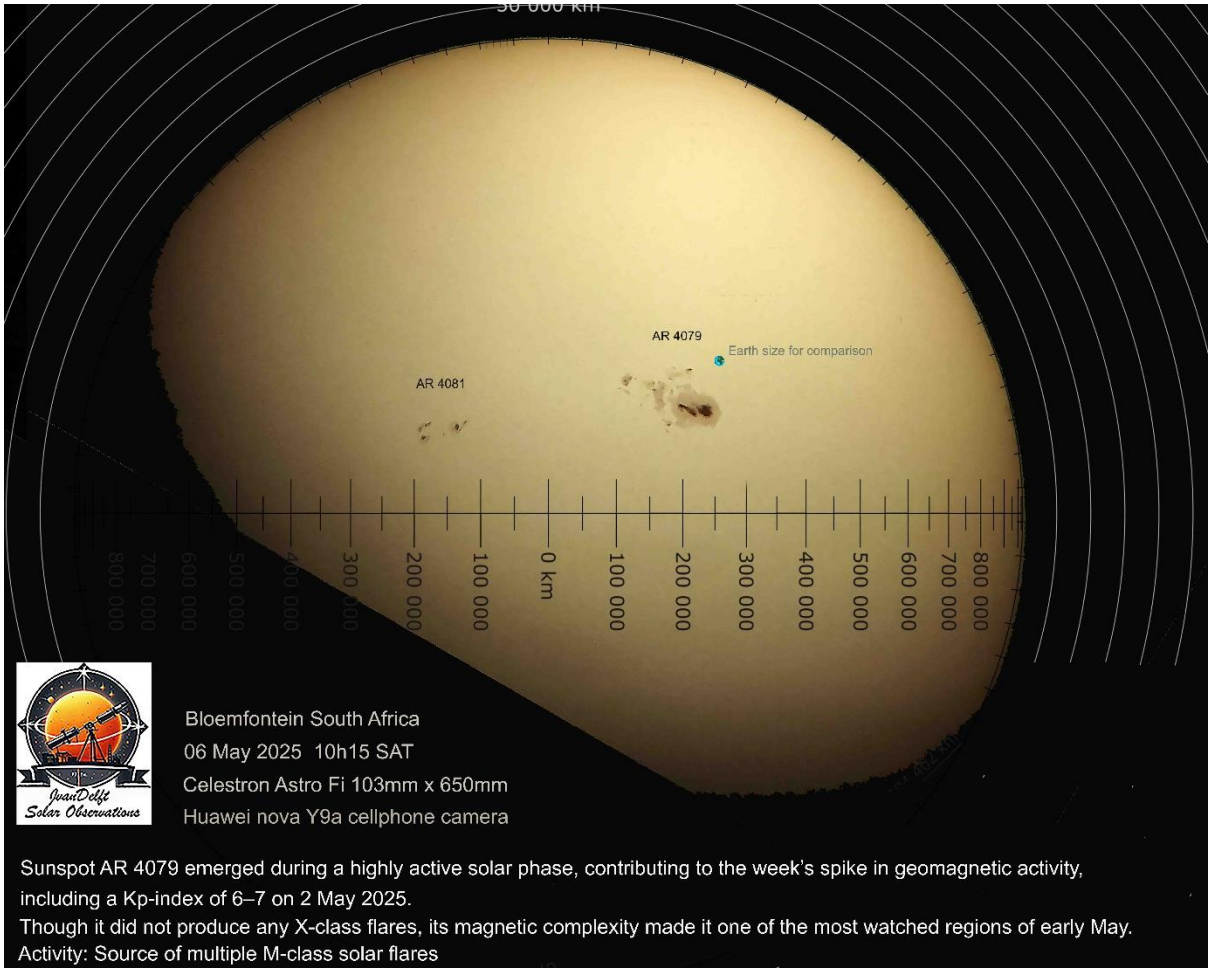

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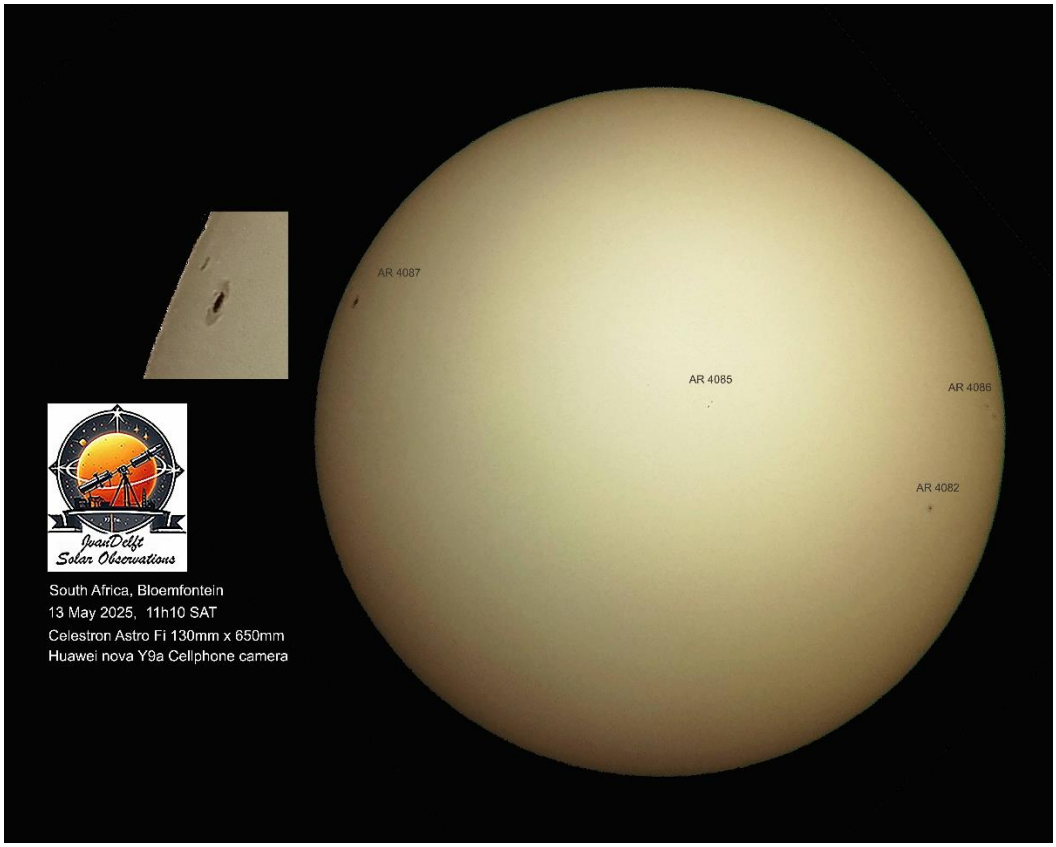

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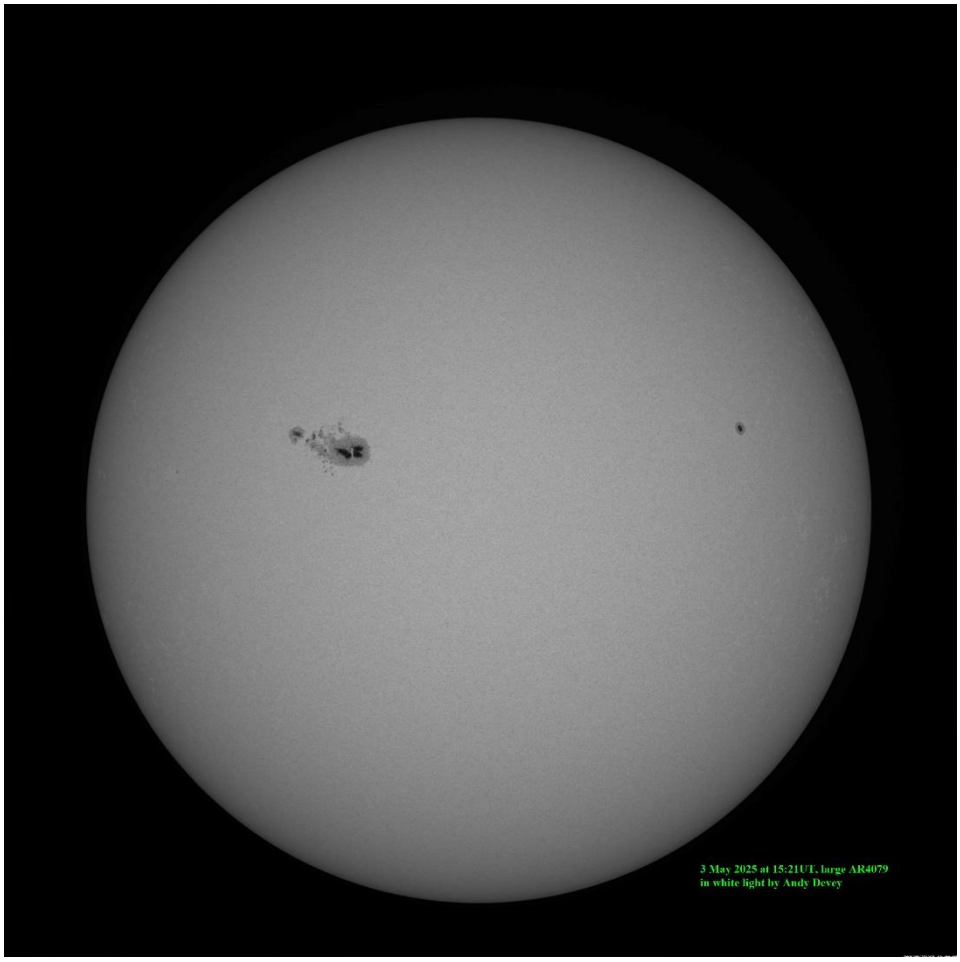
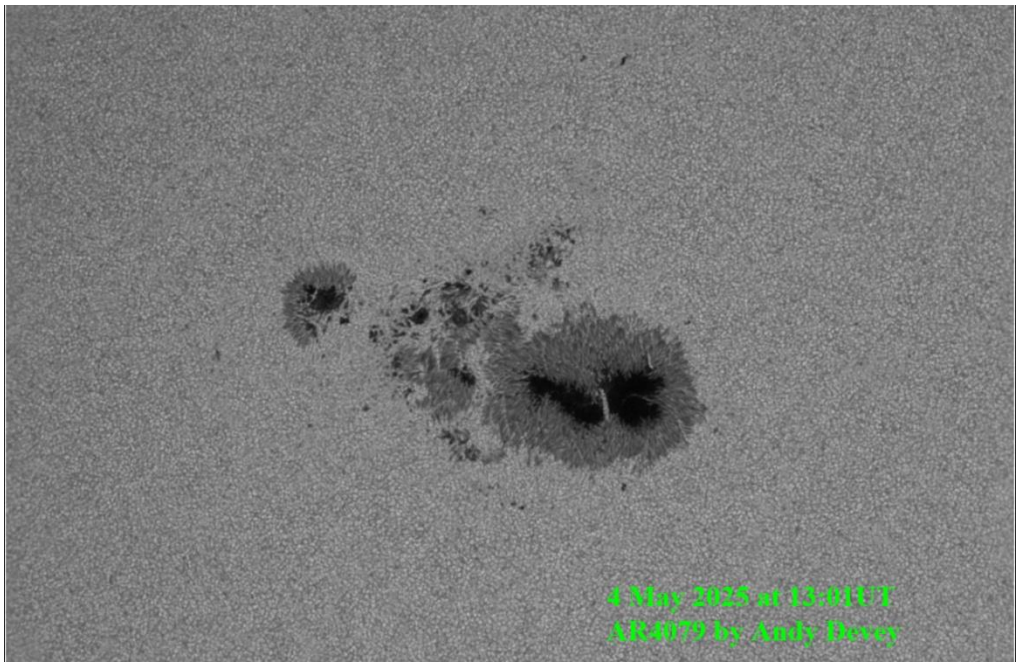
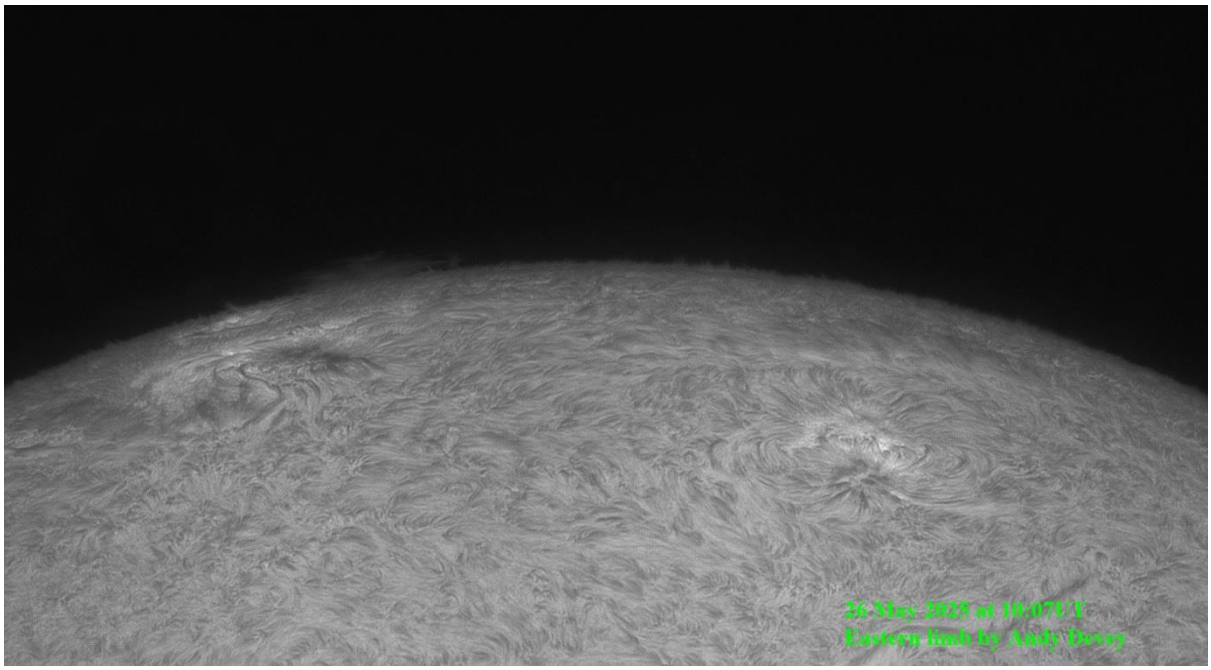


Andrew Devey, BAA/MSAS Spain.



Andrew Devey, BAA/MSAS Spain.

H-Alpha



Andrew Devey, BAA/MSAS Spain.

Thanks to the contributors of data and images,

Clear skies and regards
Jacques van Delft

ASSA Solar Section