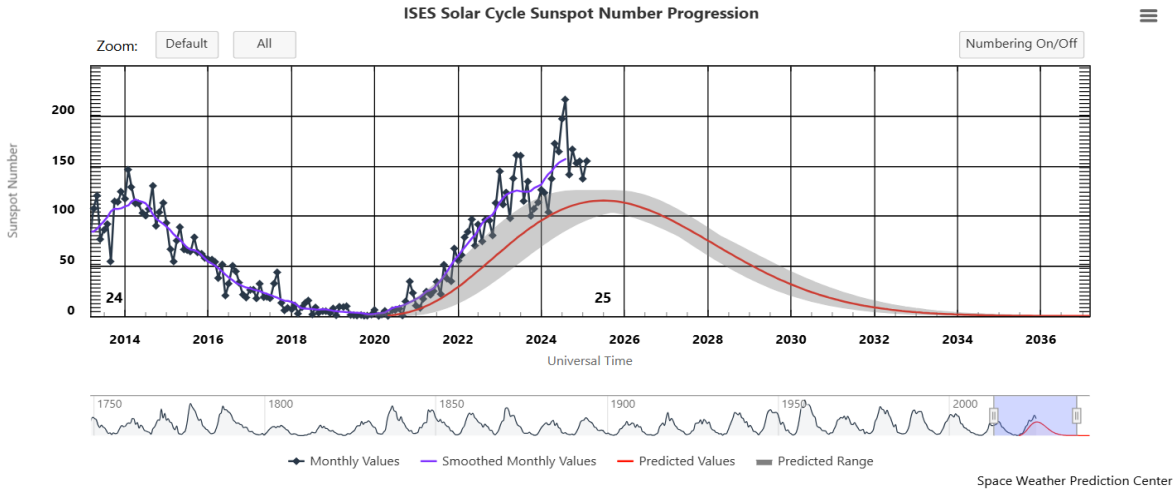
Month: February 2025

- **NEWS FROM THE SOLAR SECTION**

February 2025 Solar News

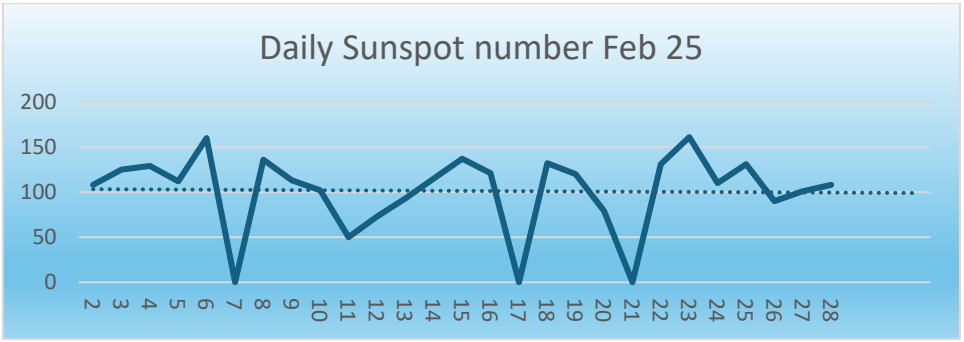
February witnessed a notable rise in sunspot activity, with the monthly sunspot number increasing from 137 to 154.6, reflecting a growth of 17.6. This increase aligns with the ongoing progression of Solar Cycle 25, suggesting heightened solar activity as the Sun approaches its maximum phase. The increase highlights the Sun's continued activity surge. With Solar Cycle 25 exceeding predictions, a second peak in the progression graph is still a possibility.



SUNSPOT OBSERVATIONS February 2025

2025	February	Jacques v Delft Time	Seeing	Jacques v Delft Groups	Jacques v Delft Spots	Jacques v Delft W no.	Jacques v Delft North Groups	Jacques v Delft South groups	Jacques v Delft North spots	Jacques v Delft South spots
Sat	1	1210	G	7	50	120	4	3	37	13
Sun	2	1300	G	6	48	108	3	3	39	9
Mon	3	1130	G	7	55	125	5	2	49	6
Tue	4	1255	G	9	39	129	7	2	36	3
Wed	5	1200	G	8	32	112	8	0	32	0
Thu	6	1345	G	11	50	160	8	3	47	3
Fri	7	Rain/cloudy				0				
Sat	8	1000	G	10	36	136	8	2	33	3
Sun	9	1100	G	9	23	113	7	2	19	4
Mon	10	1305	G	8	22	102	5	3	17	5
Tue	11	1250	G	4	10	50	3	1	7	3
Wed	12	1420	G	6	13	73	4	2	8	5
Thu	13	1150	G	7	23	93	5	2	15	18
Fri	14	1215	G	9	25	115	5	4	13	12
Sat	15	1005	G	10	37	137	4	6	10	27
Sun	16	1045	G	10	21	121	5	5	11	10
Mon	17	Rain/cloudy				0				
Tue	18	1500	G	10	32	132	5	5	10	22
Wed	19	1045	G	8	40	120	4	4	8	32
Thu	20	830	G	7	9	79	4	3	5	4
Fri	21	Rain/cloudy				0				
Sat	22	1015	G	9	41	131	6	3	21	20
Sun	23	1130	G	11	51	161	6	5	28	23
Mon	24	1135	G	8	30	110	4	4	15	15
Tue	25	1125	G	9	41	131	4	5	17	24
Wed	26	1145	G	7	20	90	3	4	11	9
Thu	27	1200	G	8	21	101	4	4	13	8
Fri	28	1430	G	9	18	108	6	3	13	5

Observations	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
25	207	787	2857	127	80	514	283



Monthly Means

MDF	114,3	1 Observer
MDF g	8,3	1 Observer
MDF Ng	5,1	1 Observer
MDF Sg	3,2	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.

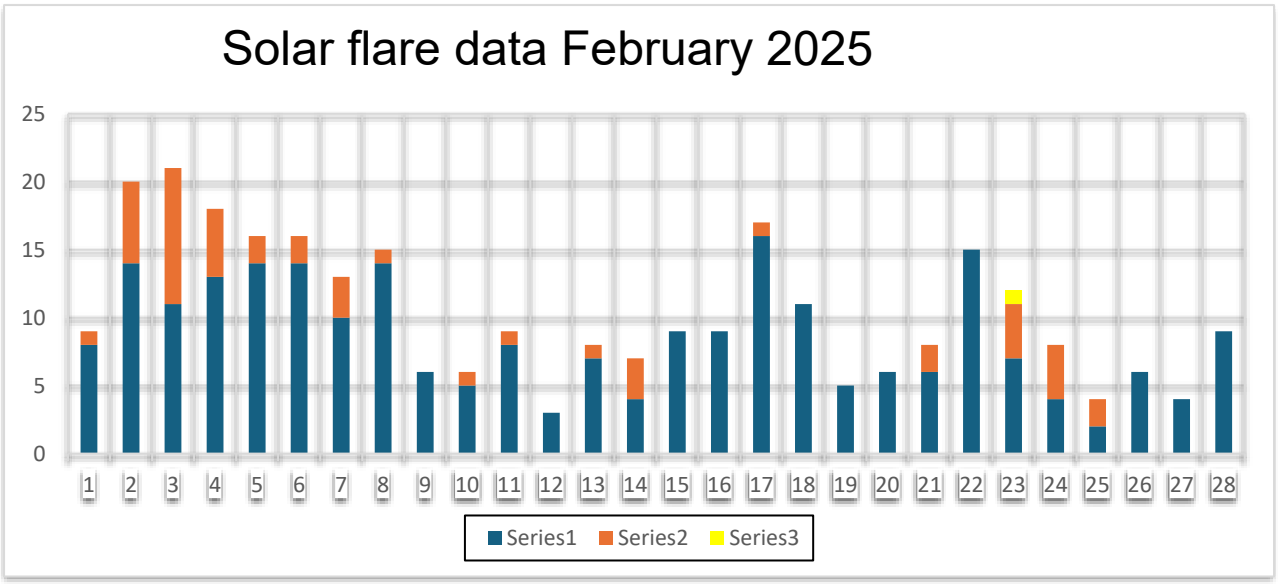
SOLAR FLARE ACTIVETY DECEMBER 2024

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 290 solar flares were observed: 240 C-class flares and 49 M-class flares and 1 X class flare.

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

2024	February	C class	M class	X class	NOA No	
Sat	1	8	1	0	3977	M2,4
Sun	2	14	6	0	3977/3981	M5,1 M1,2/ M3,0 M1,4 M2,7 M4,1
Mon	3	11	10	0	3981/??	M1,0 M8,8 M3,1 M2,5 M1,4 M6,1 M4,3 M1,4 M1,4/ M1,0
Tue	4	13	5	0	3977/3981/??	M1,2/ M2,6 M1,2 M4,7/ M3,2
Wed	5	14	2	0	3977/3981	M2,7/ M1,2
Thu	6	14	2	0	3978/3981	M2,3/ M7,6
Fri	7	10	3	0	3981	M1,6 M3,2 M7,5
Sat	8	14	1	0	3981	M2,0
Sun	9	6	0	0		
Mon	10	5	1	0	3981	M1,0
Tue	11	8	1	0	3981	M1,6
Wed	12	3	0	0		
Thu	13	7	1	0	3992	M1,0
Fri	14	4	3	0	3390/??	M1,2 M1,8/ M1,2
Sat	15	9	0	0		
Sun	16	9	0	0		
Mon	17	16	1	0	3992	M1,0
Tue	18	11	0	0		
Wed	19	5	0	0		
Thu	20	6	0	0		
Fri	21	6	2	0	4000	M3,3 M1,4
Sat	22	15	0	0		
Sun	23	7	4	1	3998/4001	M1,0 M1,0 X2,0/ M4,9 M1,6
Mon	24	4	4	0	4000/4001/??	M3,3 M1,5/ M1,3/ M3,9
Tue	25	2	2	0	3998	M1,3 M3,6
Wed	26	6	0	0		
Thu	27	4	0	0		
Fri	28	9	0	0		
	Totals	240	49	1		



- **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	February	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
Sat	1	4,00	3,67	3,67	3,00	4,33	4,00	4,33	4,00	26
Sun	2	3,67	4,00	3,67	3,33	4,00	4,33	2,67	2,00	21
Mon	3	1,67	0,67	1,00	1,33	0,67	0,67	0,33	1,00	4
Tue	4	1,00	1,00	1,67	1,67	0,67	1,00	1,33	1,00	5
Wed	5	1,00	2,00	1,00	1,67	1,67	2,67	1,33	2,00	6
Thu	6	2,33	3,00	2,33	1,33	2,67	2,33	1,67	1,33	9
Fri	7	0,67	0,33	0,67	1,33	0,67	1,33	1,00	0,67	4
Sat	8	1,00	2,67	3,67	3,00	3,33	2,00	1,67	1,33	11
Sun	9	1,33	2,00	2,00	2,33	3,00	4,00	4,67	4,33	18
Mon	10	4,67	2,33	4,00	4,00	2,33	4,00	3,33	4,00	24
Tue	11	4,00	3,00	3,33	3,33	2,33	3,33	3,00	3,00	17
Wed	12	3,33	4,00	3,00	3,33	3,67	3,00	3,00	2,67	17
Thu	13	3,33	4,33	3,67	4,00	3,67	2,67	3,67	4,33	23
Fri	14	4,67	4,33	3,67	3,00	4,67	3,33	3,67	4,00	27
Sat	15	3,67	3,67	3,33	5,00	3,33	4,67	3,67	4,33	28
Sun	16	3,00	3,67	3,33	3,33	3,00	2,67	3,33	4,00	18
Mon	17	3,00	3,33	2,00	2,33	3,33	4,00	2,33	3,33	15
Tue	18	3,67	3,33	2,00	1,00	1,00	2,67	1,33	4,67	14
Wed	19	5,00	3,33	4,33	1,67	1,67	2,33	3,67	3,33	20
Thu	20	3,67	2,67	1,33	0,67	1,00	0,33	0,33	0,67	7
Fri	21	3,00	0,67	1,00	1,33	1,67	0,67	0,67	2,00	6
Sat	22	3,00	0,67	0,67	1,33	2,00	1,33	1,33	2,33	7
Sun	23	3,00	1,67	1,00	1,00	0,33	1,00	1,32	3,00	7
Mon	24	3,33	1,33	1,33	3,00	3,00	2,00	4,33	2,67	14
Tue	25	1,67	2,00	1,67	1,67	1,00	1,67	3,00	3,33	9
Wed	26	3,00	3,67	3,00	2,67	3,00	3,33	3,33	2,33	16
Thu	27	4,00	4,33	3,33	5,67	4,00	4,67	3,33	4,33	33
Fri	28	5,00	4,00	4,33	3,67	4,67	4,67	4,33	3,00	32

Geomagnetic Storm Index

G1	G2	G3	G4	G5

Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

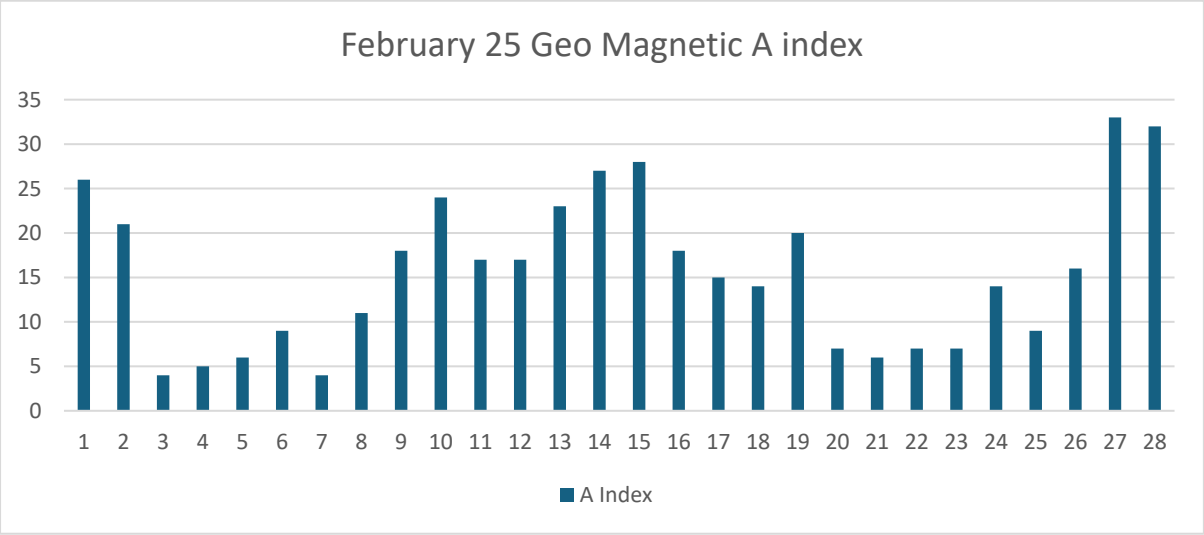
A INDEX

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.



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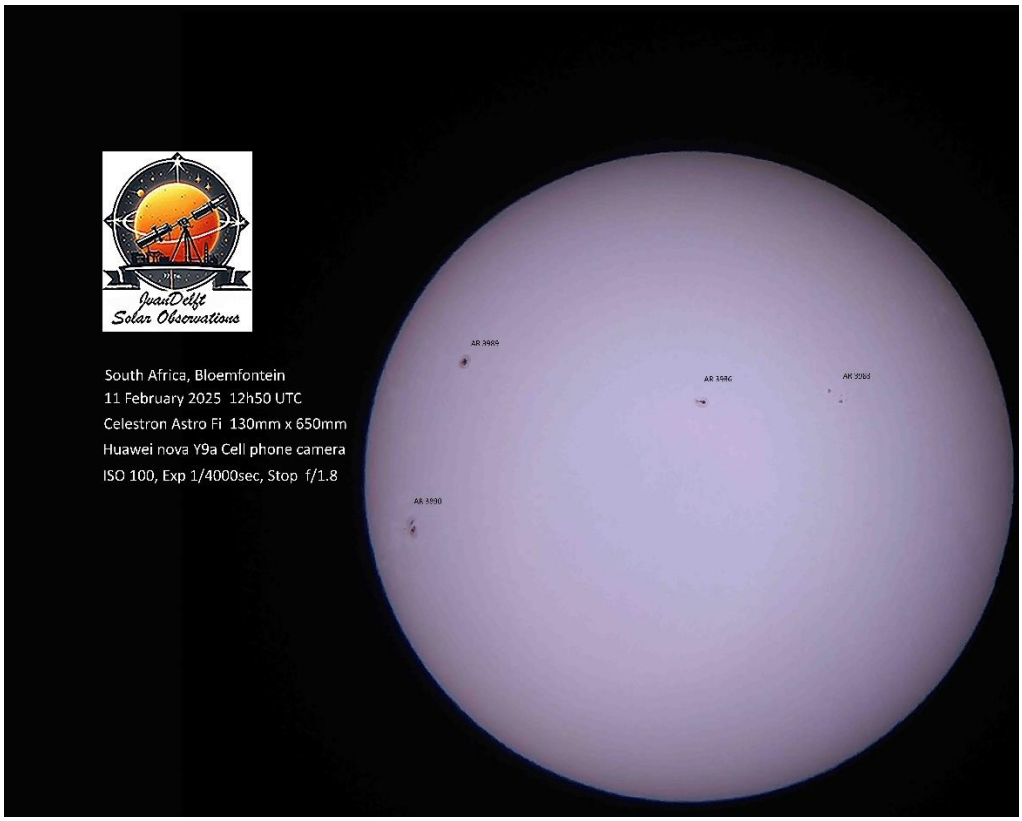
H Alpha Observations

One observer shared his H-Alpha data for December 2024. Andrew Devey from BAA & MSAS living in Spain. Our regularly observer Mick Nicholls from BAA & MSAS living in the UK will be out of action for some time due to the position of the Sun in winter. This makes observations not possible.

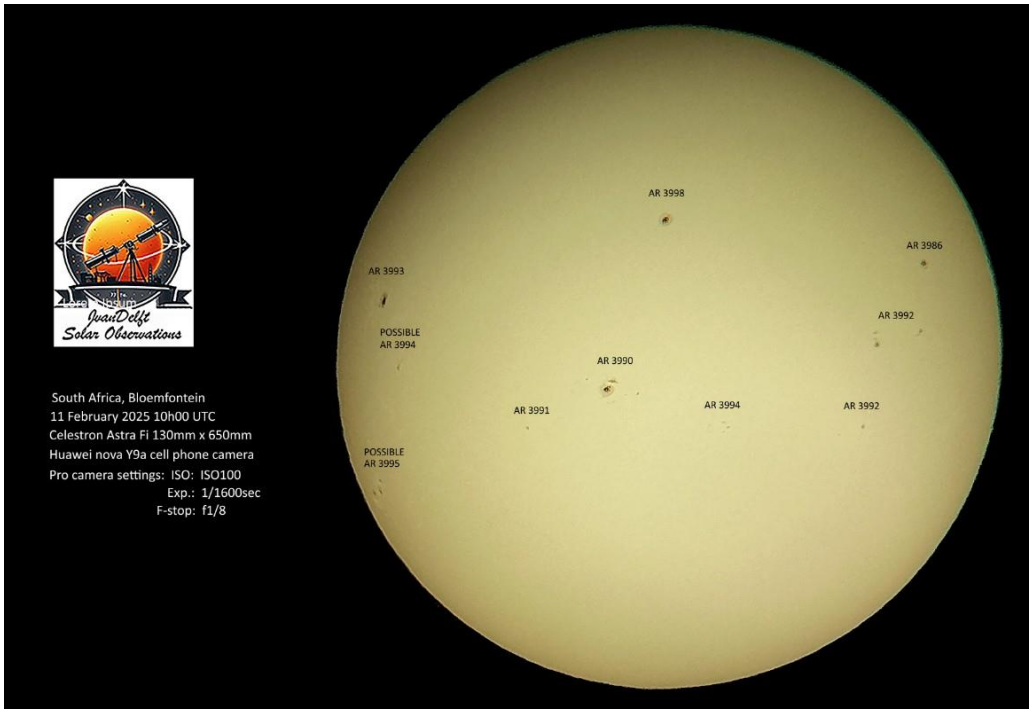
February 2025	Counts	Observations	MDF
Prominance	62	15	4,1
Plage Areas	63	15	4,2
Filaments	92	15	6,1
Flares	1	15	0,1

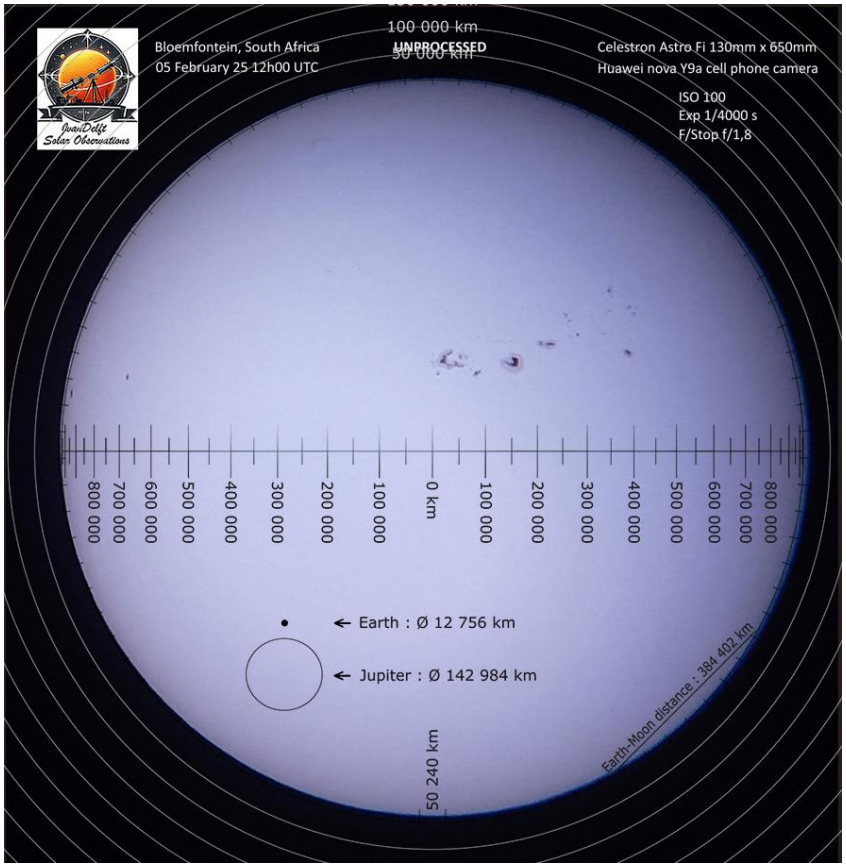
- **Solar images**

WHITE LIGHT



Jacques van Delft ASSA South Africa





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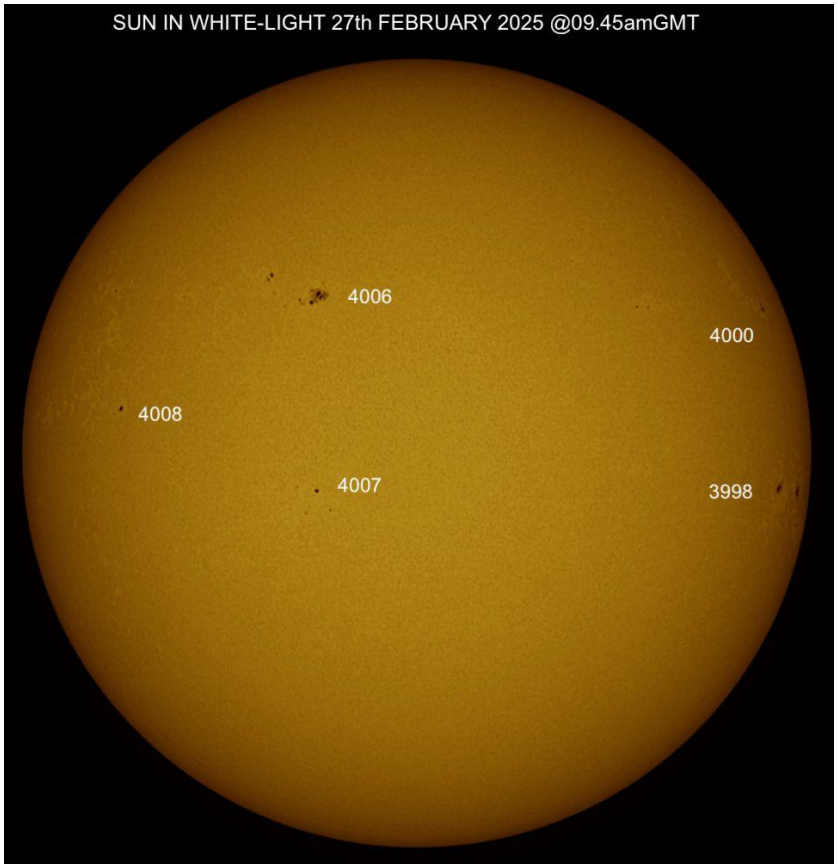
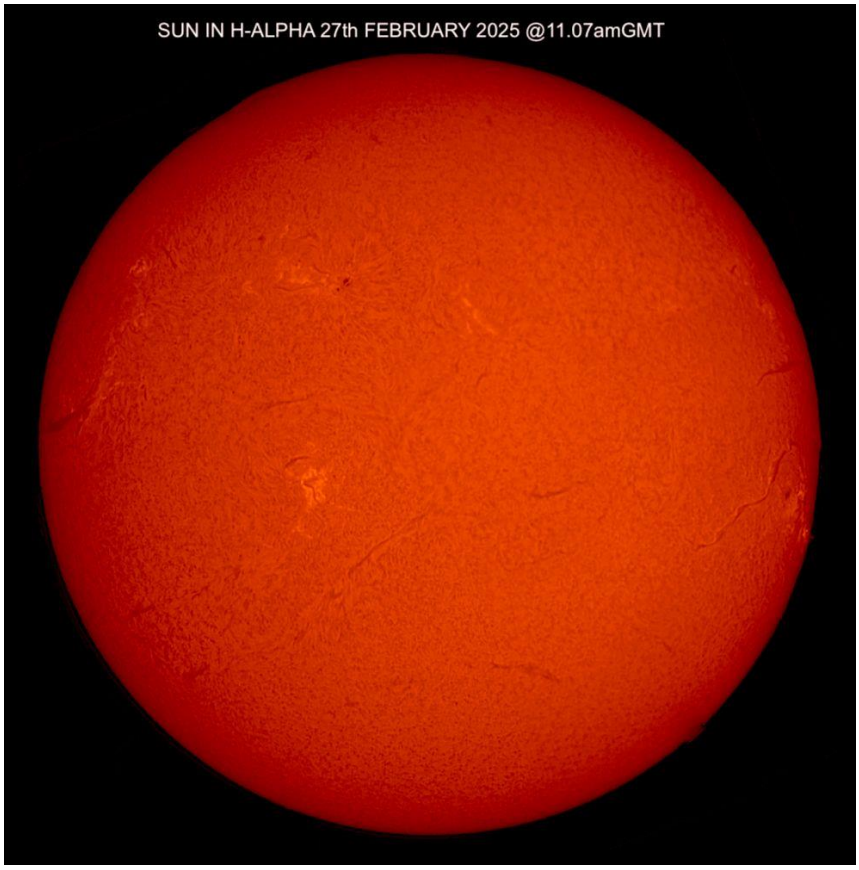


Mick Nicholls, BAA/MSAS, United Kingdom.

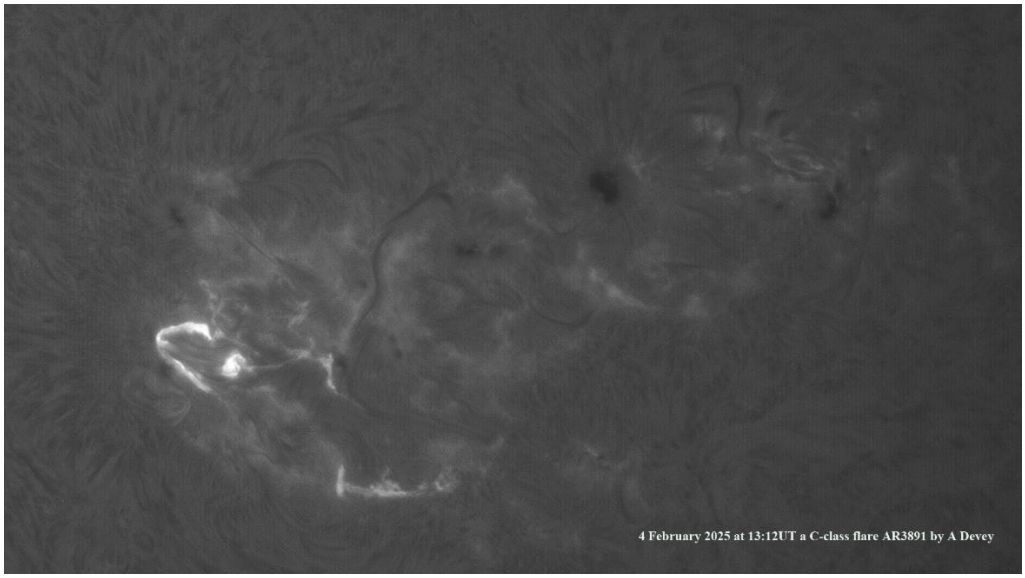
Andrew Devey, BAA/MSAS Spain.

Andrew Devey, BAA/MSAS Spain.

H-Alpha

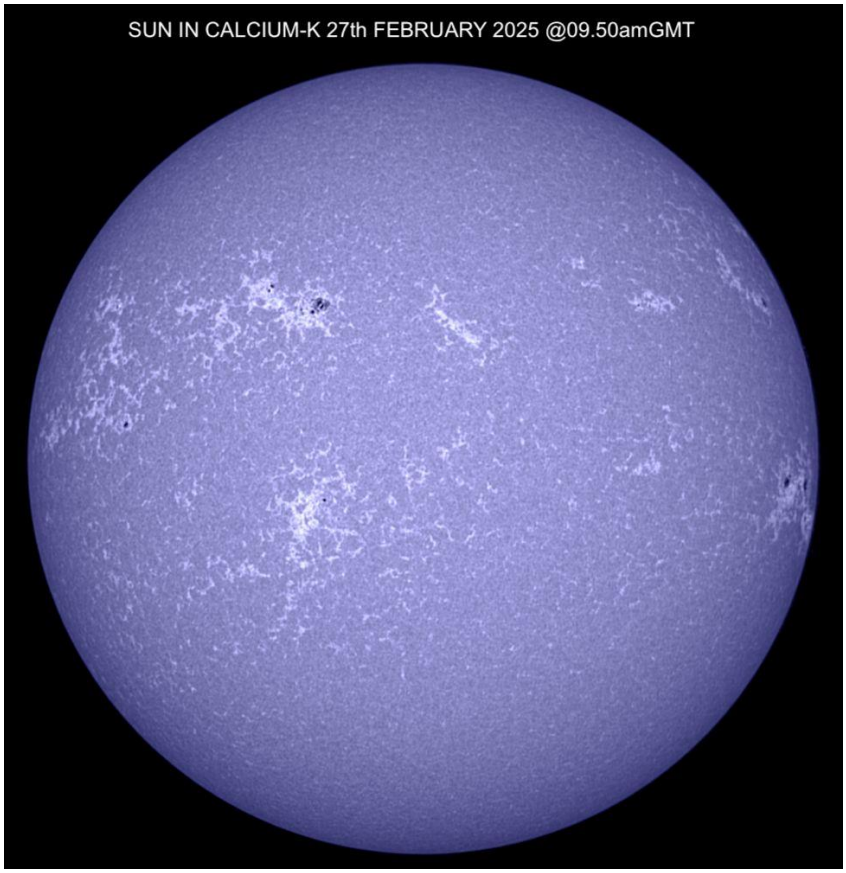


Mick Nicholls, BAA/MSAS, United Kingdom.



Andrew Devey, BAA/MSAS Spain.

C-Kal



Mick Nicholls, BAA/MSAS, United Kingdom.

Thanks to the contributors of data and images,

Clear skies and regards
Jacques van Delft

ASSA Solar Section