

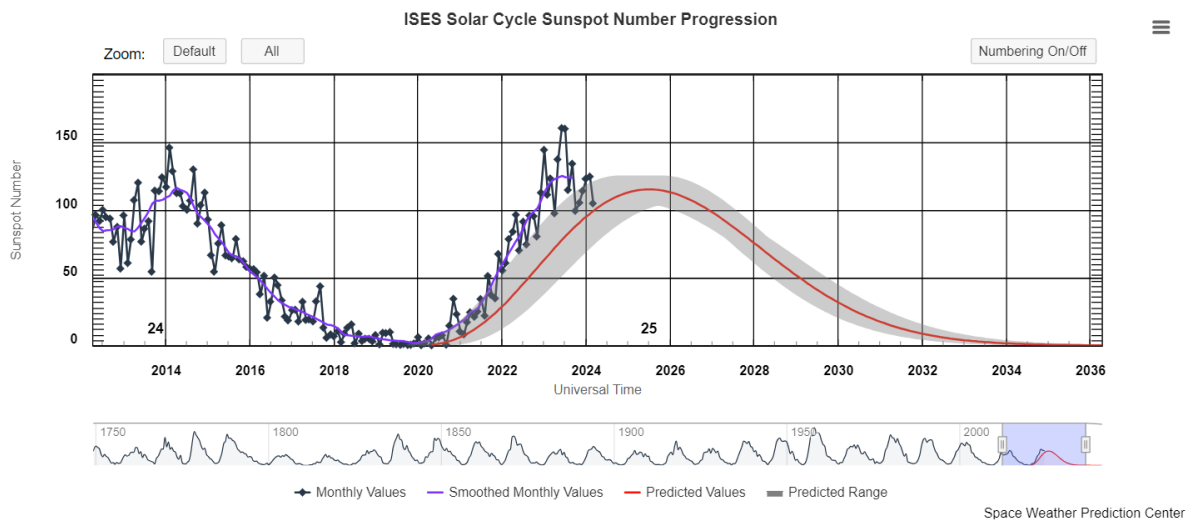


Month: March 2024

NEWS FROM THE SOLAR SECTION



March 2024 solar news



The sunspot number in March decreased from 124,7 to 104.9. The Sunspot number according to the graph is still showing a downward trend on the average line and is almost even with the prediction line. As this is an indication that we are close to maximum, it can still increase again but will eventually flatten over the next couple of months whereafter we will see it moving down towards the minimum of cycle 25.

• **SUNSPOT OBSERVATIONS**

Mar 24	Day	Time	Seeing	Groups	Spots	W no.	North Group	South groups	North spots	South spots
Fri	1	1323	P	5	9	59	4	1	8	1
Sat	2	1310	E	6	22	82	2	4	8	14
Sun	3	1210	E	6	15	75	2	4	3	12
Mon	4					0				
Tue	5	1255	E	7	16	86	4	3	6	10
Wed	6	1245	E	6	18	78	3	3	5	13
Thu	7	1255	E	6	19	79	3	3	3	16
Fri	8	1245	E	6	23	83	3	3	4	19
Sat	9	1525	E	6	21	81	3	3	4	17
Sun	10	1355	E	4	14	54	2	2	9	5
Mon	11					0				
Tue	12					0				
Wed	13					0				
Thu	14					0				
Fri	15					0				
Sat	16					0				
Sun	17					0				
Mon	18					0				
Tue	19					0				
Wed	20					0				
Thu	21					0				
Fri	22					0				
Sat	23					0				
Sun	24	1215	E	7	44	114	4	3	7	37
Mon	25	1315	E	7	45	115	3	4	7	38
Tue	26	1325	E	6	54	114	3	3	15	39
Wed	27					0				
Thu	28	1425	E	4	26	66	2	2	4	22
Fri	29	1405	E	4	17	57	2	2	2	15
Sat	30					0				
Sun	31					0				
		Observations		Groups	Spots	W no.	North Group	South groups	North spots	South spots
		14		80	343	1143	40	40	85	258

Monthly Means			
MDF	81,6	1 Observer	
MDF g	5,7	1 Observer	
MDF Ng	2,9	1 Observer	
MDF Sg	2,9	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 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 303 solar flares were observed: 253 C-class flares and 45 M-class flares and 5 X class flares.

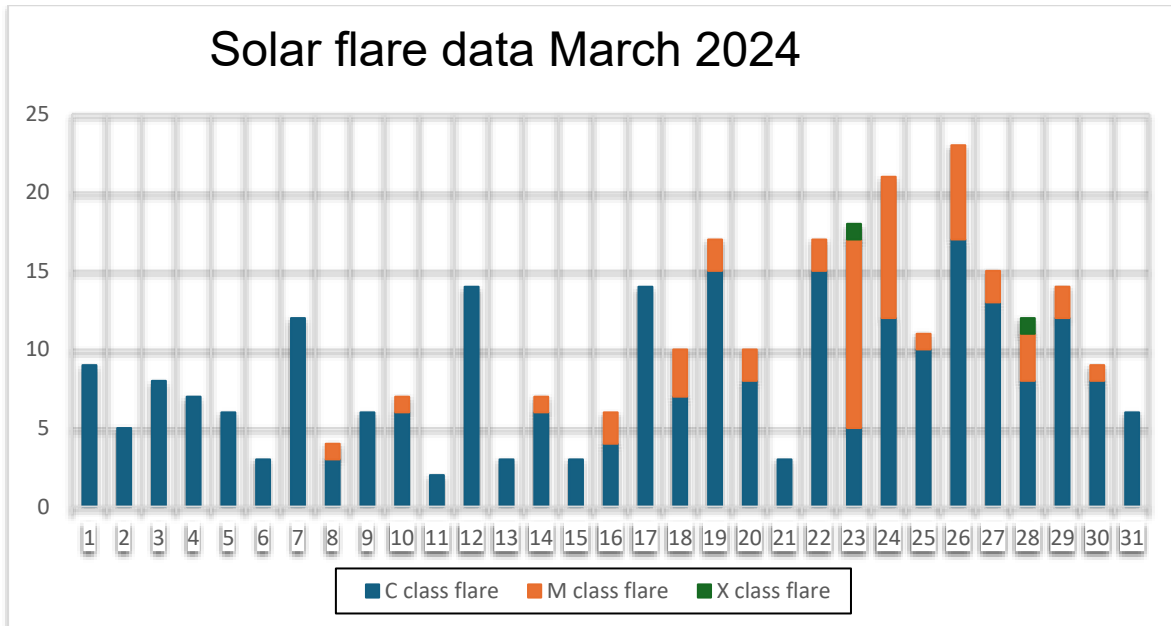
Solar flare

data: LABORATORY OF X-RAY ASTRONOMY OF THE SUN

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

2024	March	C class	M class	X class	NOA No
Fri	1	9			
Sat	2	5			
Sun	3	8			
Mon	4	7			
Tue	5	6			
Wed	6	3			
Thu	7	12			
Fri	8	3	1		3599 M1,3
Sat	9	6			
Sun	10	6	1		3599 M7,4
Mon	11	2			
Tue	12	14			
Wed	13	3			
Thu	14	6	1		3599 M1,0
Fri	15	3			
Sat	16	4	2		?/? M3,5/M1,1
Sun	17	14			
Mon	18	7	3		3612/3614/3615 M2,7/M1,0/M6,7
Tue	19	15	2		3615 M1,4/M2,1
Wed	20	8	2		3615 M7,4/M1,9
Thu	21	3			
Fri	22	15	2		3615 M4,2/M1,1
Sat	23	5	12	1	3615/3614 M1.1/M2.4/M3.1/M1.1/M1.3/M1.1/M1.9/M5.3/M1.5/M3.8/M2.8/M2.4 – X1.1
Sun	24	12	9		3615 M1.4/M2.1/M2.3/M2.7/M2.2/M1.3/M1.1/M1.1/M1.0/M1.2
Mon	25	10	1		3615 M4,4
Tue	26	17	6		3615 M1.8/M1.0/M1.3/M1.9/M1.7/M1.6
Wed	27	13	2		3615 M1,1/M1,1
Thu	28	8	3	1	3615 M7,1/M6,1/M1,1/ X1,1
Fri	29	12	2		3615 M3,2/M1,2
Sat	30	8	1		3615 M9,4
Sun	31	6			

Totals	250	50	2	
--------	-----	----	---	--



- **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.

Mar 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	3,00	3,00	3,00	1,67	1,67	2,00	2,00	1,00	9,00
2	2,33	1,67	1,00	1,33	1,33	0,33	1,00	0,67	5,00
3	2,67	1,00	0,67	3,33	5,33	5,00	5,67	4,00	29,00
4	4,00	2,33	1,67	1,67	1,67	1,33	1,33	2,33	10,00
5	2,67	1,00	2,33	1,67	1,67	1,33	2,00	1,00	7,00
6	1,00	3,00	2,00	2,00	2,00	1,00	0,33	0,67	6,00
7	3,00	2,00	2,33	2,67	1,67	2,67	3,33	3,00	12,00
8	3,00	3,33	2,00	1,33	2,00	1,00	2,00	3,67	11,00
9	4,00	3,33	2,67	2,00	2,67	1,67	2,67	1,67	13,00
10	1,33	1,33	2,00	3,00	3,67	1,33	2,00	0,33	7,00
11	1,00	1,00	2,33	1,67	1,00	0,67	0,33	0,67	4,00
12	3,00	1,00	1,00	2,00	1,33	1,37	1,00	0,33	6,00
13	1,33	0,67	3,33	2,67	2,33	3,00	2,00	1,00	9,00
14	1,33	2,67	2,00	2,00	1,67	2,33	1,67	3,00	8,00
15	3,67	2,33	2,00	2,00	1,00	1,00	1,00	0,67	8,00
16	0,33	0,33	0,67	0,67	1,00	0,33	0,33	0,67	3,00
17	0,33	0,67	0,67	1,00	0,67	0,67	0,00	0,33	3,00
18	0,33	0,33	0,67	2,00	1,00	1,00	2,33	3,00	6,00
19	3,00	2,33	2,67	2,67	1,67	1,00	1,67	1,67	9,00
20	1,67	0,67	1,67	1,33	0,67	0,33	0,67	2,00	4,00
21	3,33	2,33	3,33	2,67	5,00	5,00	4,67	4,00	27,00
22	3,67	3,33	3,00	3,33	1,33	1,33	0,67	0,67	11,00
23	2,67	5,00	4,67	4,00	4,00	4,00	4,67	5,67	36,00
24	4,67	3,33	3,67	3,67	6,00	8,00	6,33	4,00	64,00
25	4,33	5,00	3,33	3,67	4,00	3,00	2,33	1,67	22,00
26	3,33	2,67	1,00	3,00	2,00	2,00	2,67	3,00	11,00
27	3,00	1,33	2,00	1,67	1,33	1,00	1,00	2,00	7,00
28	2,00	1,33	2,00	1,67	2,33	1,67	2,00	2,67	7,00
29	2,00	1,33	2,00	1,67	2,33	1,67	2,00	2,67	6,00
30	0,67	1,00	1,00	1,33	1,33	1,67	1,00	2,00	5,00
31	3,67	2,00	2,33	1,67	1,33	1,33	1,33	2,33	9,00

Geomagnetic Storm Index



Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

A INDEX

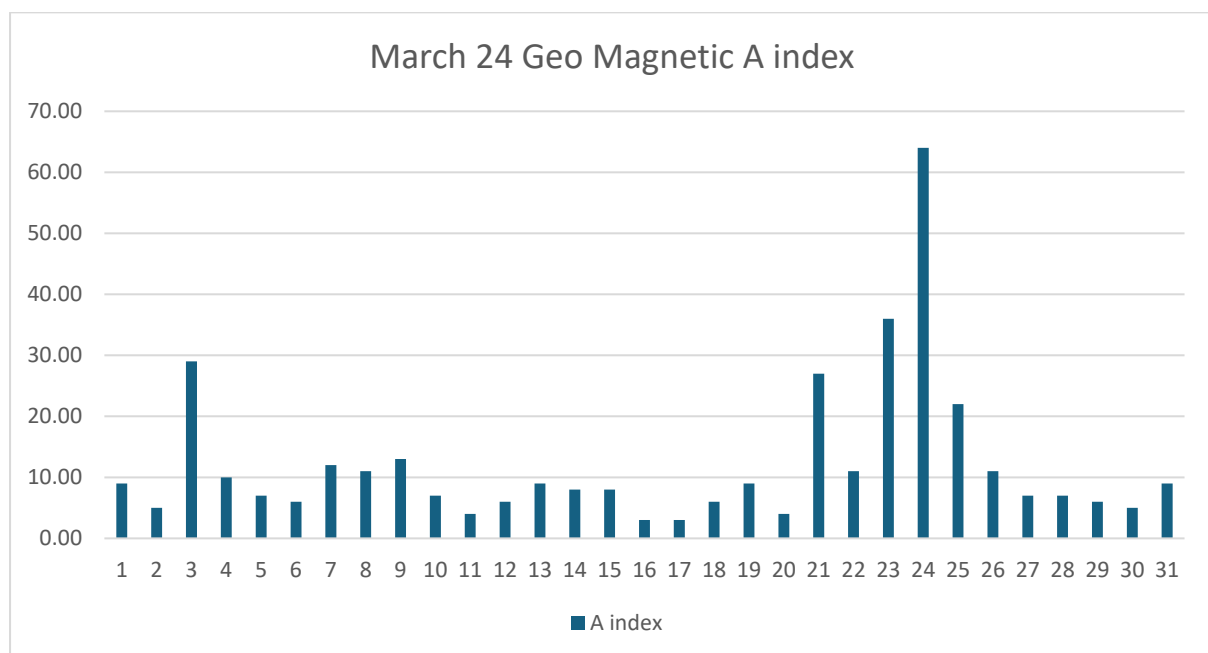
The solar A Index is a numerical scale that represents the geomagnetic activity in the Earth's ionosphere caused by solar flares and other solar phenomena. It measures the overall geomagnetic disturbance level on a scale from 0 to 400. The index is

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 Earth's atmosphere.

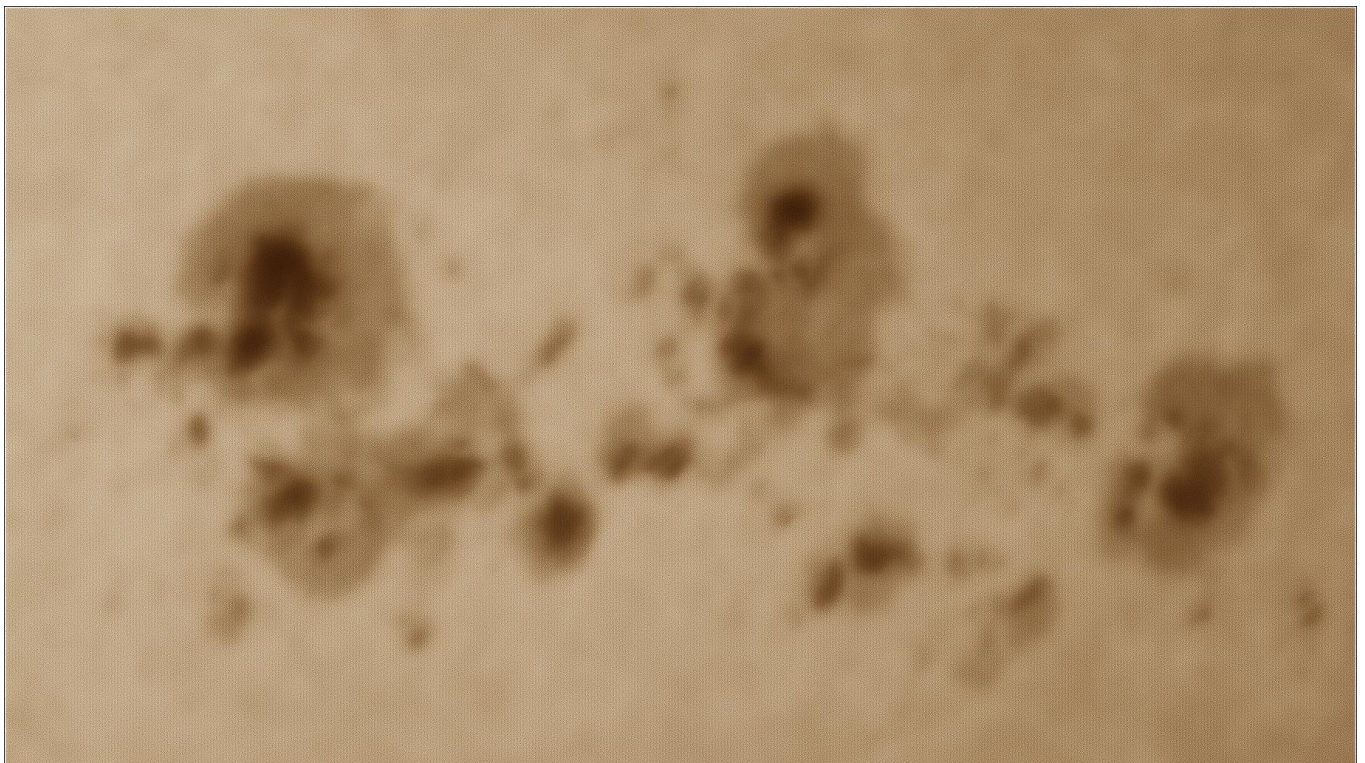
- **H Alpha Observations**

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.

March 2024	Counts	Observations	MDF
Prominance	82	21	3,9
Plage Areas	81	21	3,9
Filaments	126	21	6,0
Flares	1	21	0,0

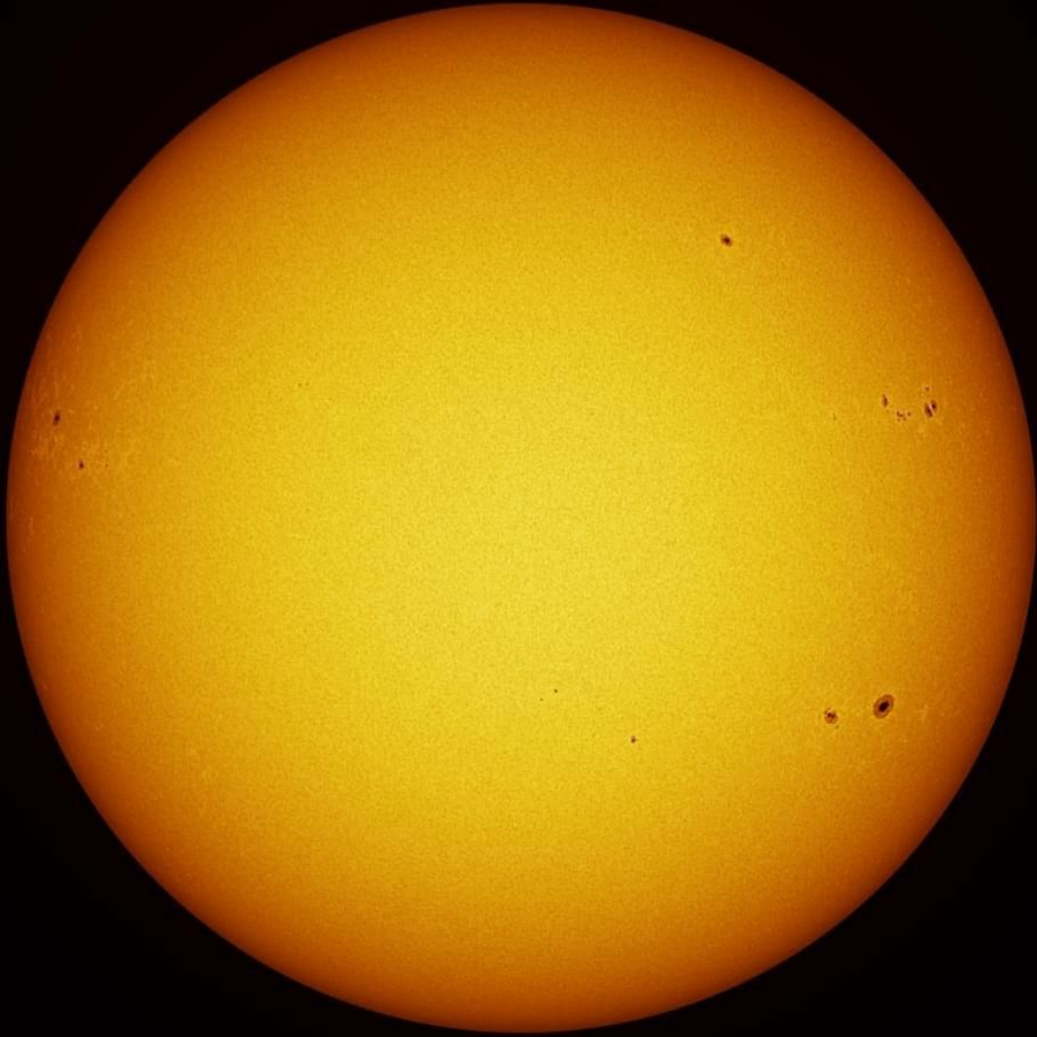
- **Solar images**

WHITE LIGHT



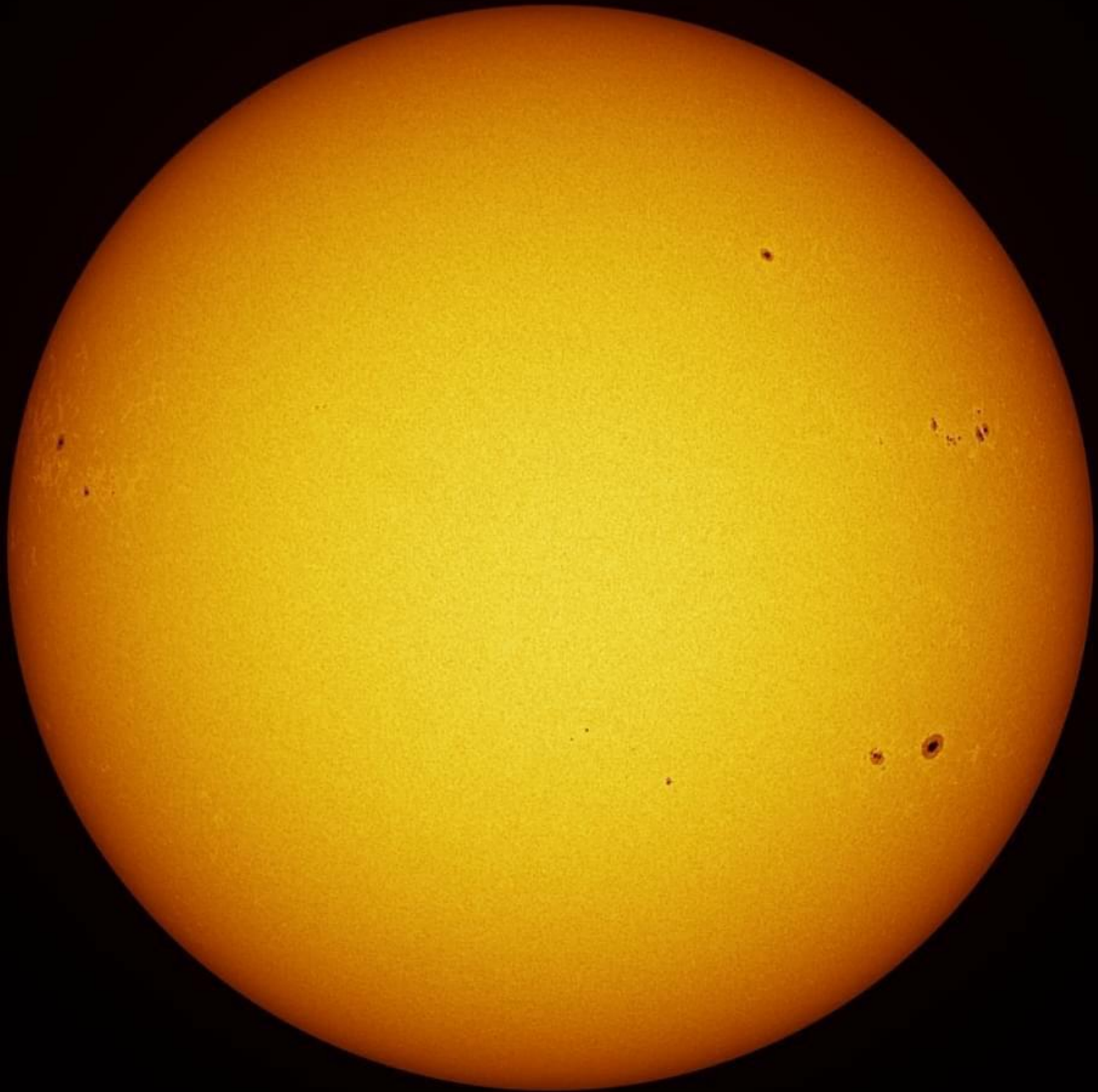
Andrew Devey, BAA/MSAS Spain. AR3615 11h33UT 27.03.2024

SUN IN WHITE-LIGHT 3rd MARCH 2024 @10.45amGMT
80mm STARWAVE ED-R REFRACTOR HERSCHEL WEDGE ZWO ASI174MM CAMERA

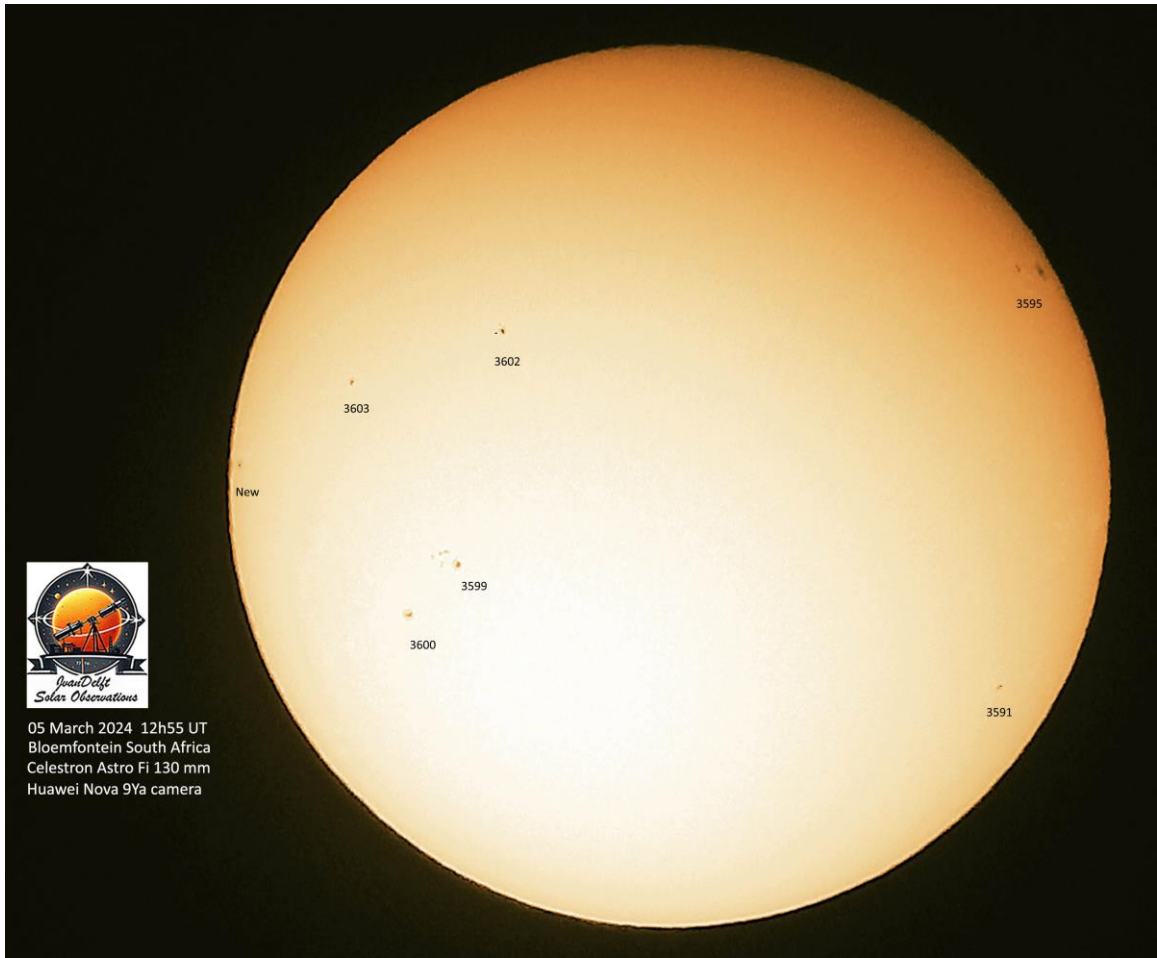


Mick Nicholls BAA/MSAS, United Kingdom

SUN IN WHITE-LIGHT 3rd MARCH 2024 @10.45amGMT
80mm STARWAVE ED-R REFRACTOR HERSCHEL WEDGE ZWO ASI174MM CAMERA



Mick Nicholls BAA/MSAS, United Kingdom

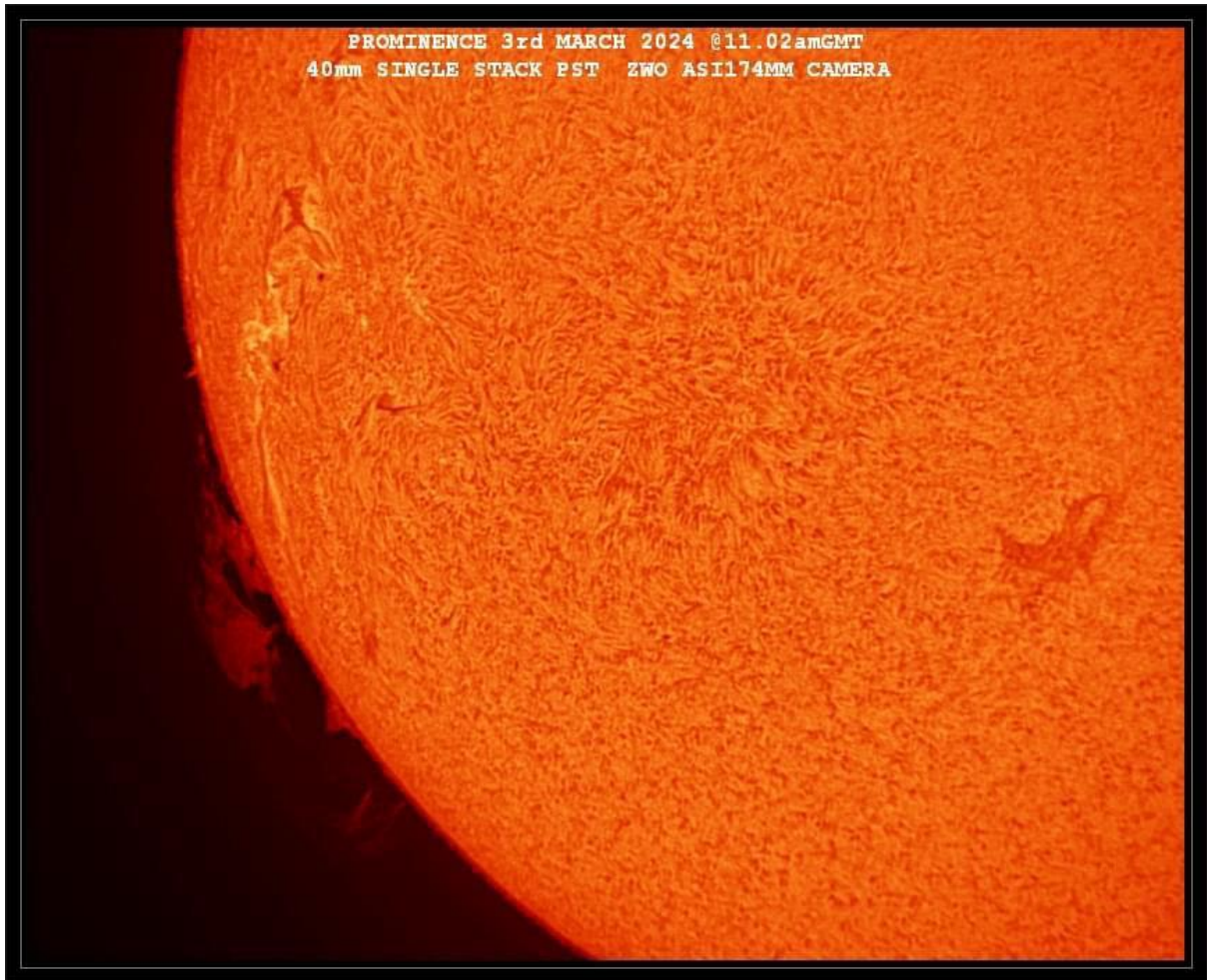


Jacques van Delft ASSA South Africa



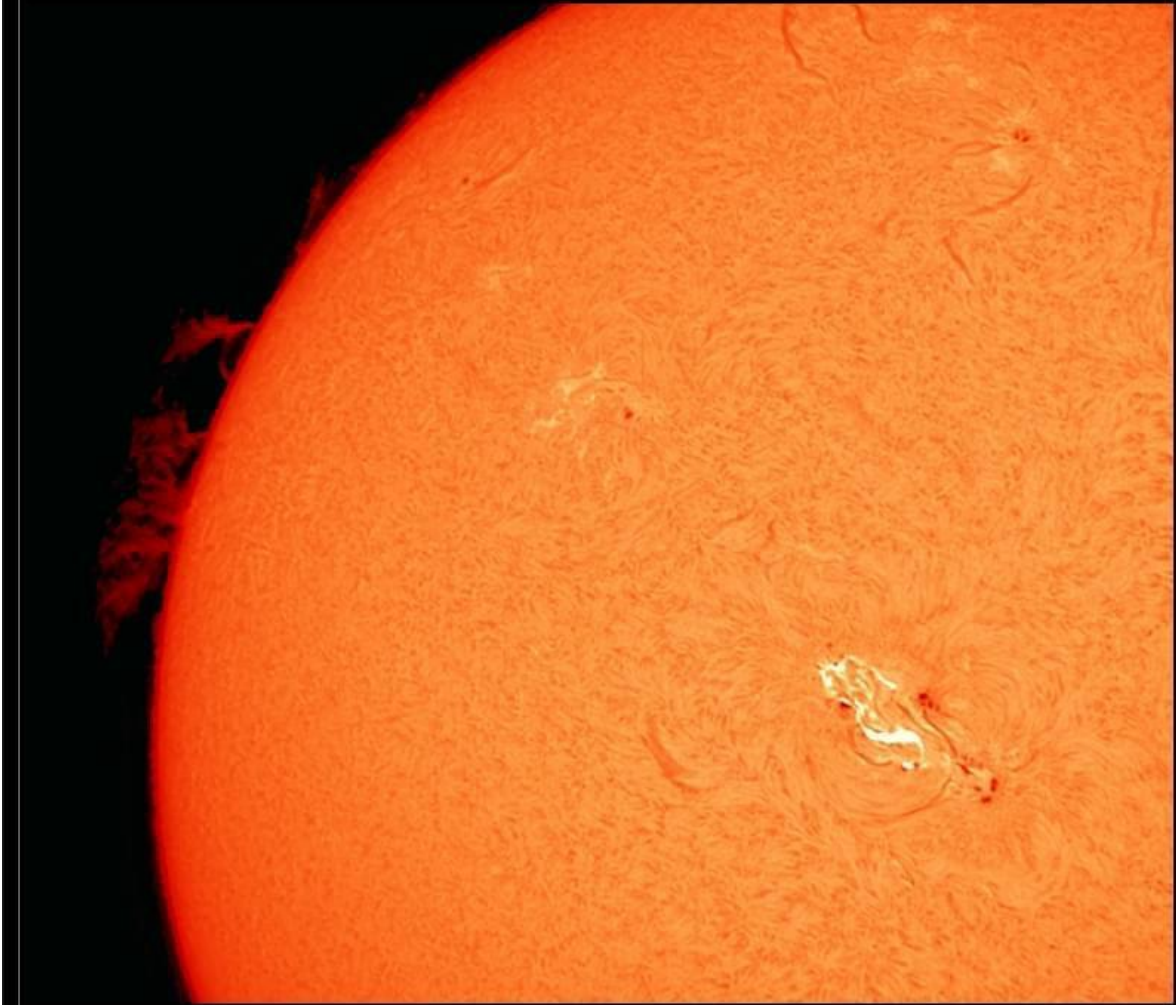
Jacques van Delft ASSA South Africa

H-Alpha



Mick Nicholls BAA/MSAS, United Kingdom

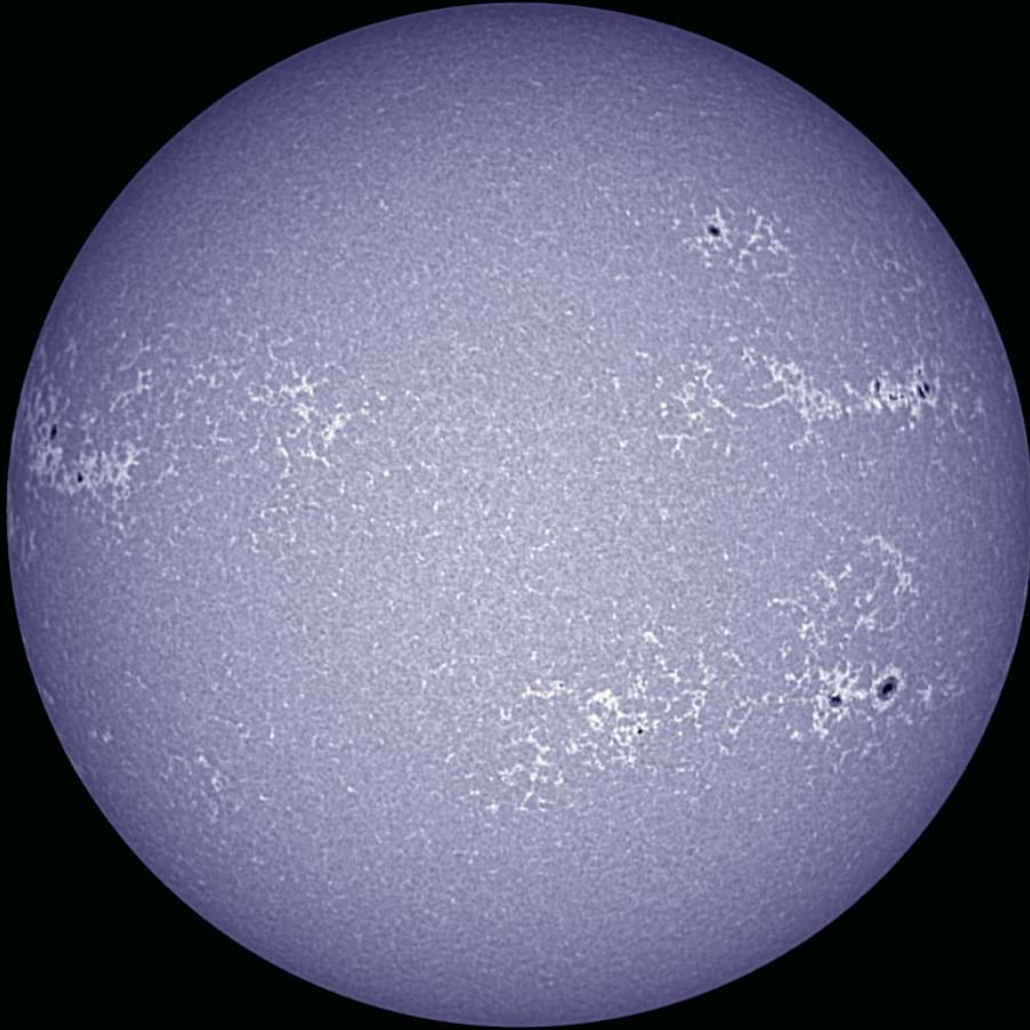
AR3615 IN H-ALPHA PRODUCING A M5.4 CLASS FLARE 23rd MARCH 2024 @14.20pmGMT
40mm SINGLE STACK PST ZWO ASI174MM CAMERA



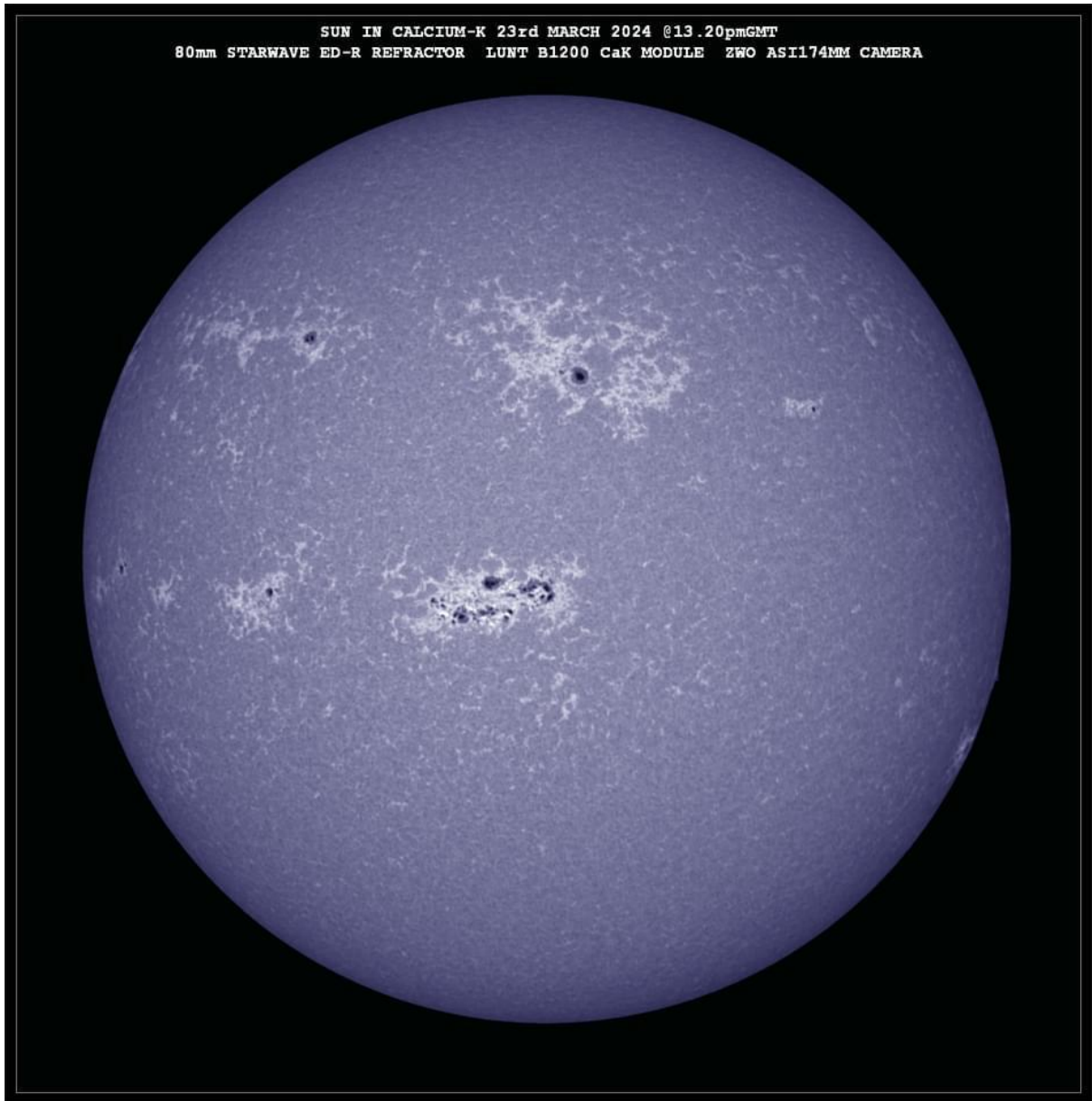
Mick Nicholls BAA/MSAS, United Kingdom

Ca-K

SUN IN CALCIUM-K 3rd MARCH 2024 @10.47amGMT
80mm STARWAVE ED-R REFRACTOR LUNT B1200 CaK MODULE ZWO ASI174MM CAMERA



Mick Nicholls BAA/MSAS, United Kingdom



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