



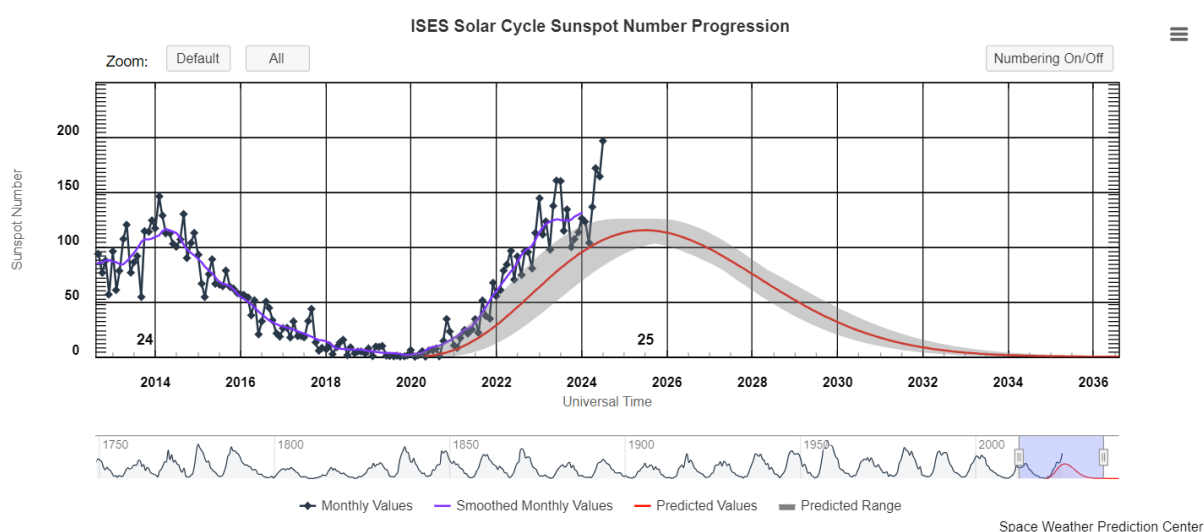
Month: July 2024

NEWS FROM THE SOLAR SECTION



July 2024 solar news

This month the Sunspot number increased from 164.2 to 196.5 which is the highest sunspot number since 2001 (cycle23) Despite the high increase in the sunspot number, the solar flare number and geo magnetic activities declined.



SUNSPOT OBSERVATIONS

		Jacques v Delft		Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft
July 24	Day	Time	Seeing	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
Mon	1	1135	G	15	35	185	4	11	10	25
Tue	2	1215	G	10	19	119	3	7	5	14
Wed	3	1445	G	7	19	89	2	5	4	15
Thu	4	1120	G	7	21	91	2	5	3	18
Fri	5	1125	G	7	15	85	3	4	6	9
Sat	6	1130	G	8	20	100	3	5	7	13
Sun	7	1240	G	8	16	96	4	4	7	9
Mon	8	1245	G	6	15	75	3	3	3	12
Tue	9	1150	G	5	11	61	2	3	2	9
Wed	10	1050	G	8	51	131	3	5	4	47
Thu	11	1335	G	7	26	96	2	5	5	21
Fri	12	1310	G	7	33	103	2	5	6	27
Sat	13	1325	G	10	60	160	2	8	10	50
Sun	14	1225	G	11	60	170	3	8	13	47
Mon	15	1155	G	9	50	140	3	6	6	44
Tue	16	1210	G	14	89	229	5	9	29	60
Wed	17	1010	G	14	57	197	6	8	18	39
Thu	18	1145	G	17	55	225	7	10	15	40
Fri	19	1425	G	15	59	209	6	9	13	46
Sat	20	1045	G	17	79	249	7	10	21	58
Sun	21	1110	G	12	36	156	6	6	11	25
Mon	22	1050	G	8	41	121	3	5	6	35
Tue	23	1155	G	9	26	116	2	7	3	23
Wed	24	1057	G	9	32	122	3	6	4	28
Thu	25	1410	G	11	44	154	4	7	4	40
Fri	26	1340	G	9	38	128	3	6	5	33
Sat	27	1245	G	8	35	115	1	7	1	34
Sun	28	1115	G	9	32	122	2	7	2	30
Mon	29	1350	G	9	39	129	4	5	8	31
Tue	30	1435	G	9	43	133	3	6	4	39
Wed	31	855	G	11	42	152	4	7	9	33

Observations
31

Groups
306

Spots
1198

W no.
4258

North Groups
107

South groups
199

North spots
244

South spots
954

Monthly Means		
MDF	137,4	1 Observer
MDF g	9,9	1 Observer
MDF Ng	3,5	1 Observer
MDF Sg	6,4	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**

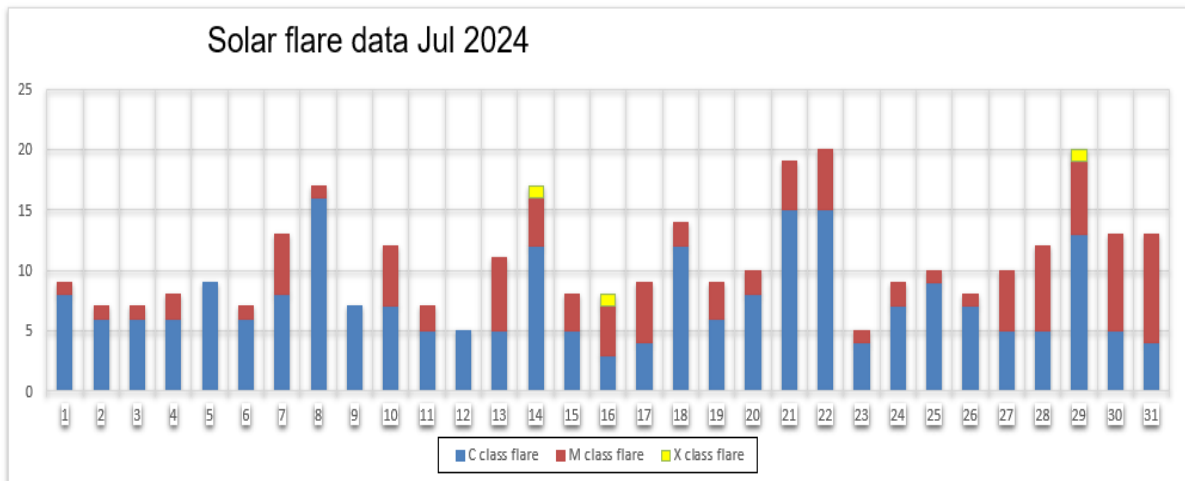
Solar flares are classified according to their x-ray brightness in the wavelength range 1 to 8 Angstrom. There are 3 categories: C class – minor, M class – medium and X class – big. Each category has 9 subdivisions.

A total of 333 solar flares were observed: 233 C-class flares and 97 M-class flares and 3 X class flares.

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

2024	July	C class	M class	X class	NOA No	
Mon	1	8	1	0	3730	M2,1
Tue	2	6	1	0	3729	M1,5
Wed	3	6	1	0	3729	M1,5
Thu	4	6	2	0	3723/3730	M1,0/M1,4
Fri	5	9	0	0		
Sat	6	6	1	0	3738	M1,0
Son	7	8	5	0	Unknown	M1,0 M1,3 M1,1 M1,4 M2,4
Mon	8	16	1	0	Unknown	M1,1
Tue	9	7	0	0		
Wed	10	7	5	0	3738	M1,5 M1,3 M1,4 M1,1 M1,0
Thu	11	5	2	0	3745/3738	M1,2/M1,3
Fri	12	5	0	0		
Sat	13	5	6	0	3738/3747	M1,4 M5,3 M1,0 M5,0/M1,8 M1,9
Sun	14	12	4	1	3738	M1,7 X1,2 M3,0 M1,0 M1,0
Mon	15	5	3	0	3738	M1,2 M2,7 M1,9
Tue	16	3	4	1	3738/3744/3753	X1,9 /M1,4 M1,9/M1,6
Wed	17	4	5	0	3738/3743/3753	M1,2/M5,0 M3,4/M1,2 M2,0
Thu	18	12	2	0	3751	M2,2 M2,0
Fri	19	6	3	0	3751/3753/3758	M2,0/M3,2/M1,0
Sat	20	8	2	0	3744/3751	M1,5/M1,8
Sun	21	15	4	0	3744/3751/3757	M1,4 M3,2/M1,5 M1,0
Mon	22	15	5	0	3744/3762/??	M1,5/M1,4 M3,9 M1,9/M1,4
Tue	23	4	1	0	??	M2,4
Wed	24	7	2	0	3751	M3,6 M2,9
Thu	25	9	1	0	3751	M1,3
Fri	26	7	1	0	3761	M1,7
Sat	27	5	5	0	3762/3765/3766/3767	M3,4 M3,1/M2,7/M4,2/M2,0
Sun	28	5	7	0	3762/3766/3768	M1,5 M1,9 M7,7/M7.8 M9,9 M2,6/M1,3
Mon	29	13	6	1	3762/3766/3768/3772	M1,6 M8,7/M1,0 M1,1 X1,5 /M4,2 M6,4
Tue	30	5	8	0	3762/3764/3766/3772	M1,7 M1,2 M1,3/M1,9/M1,4 M1,5 M1,5/M9,4
Wed	31	4	9	0	??/3768/3772/3773/3774	M1,0 M4,4/M7,7 M5,3 M1,2/M6,0 M1,9/M4,7 M1,4
Totals	233	97	3			

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.

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

Geomagnetic Storm Index

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

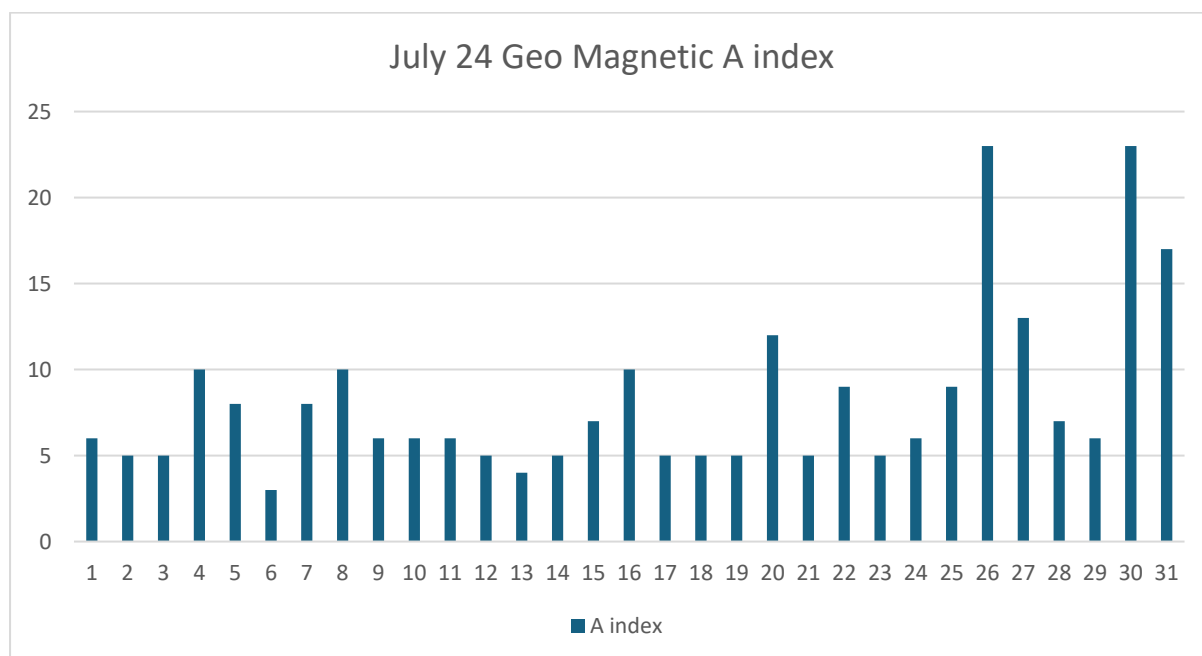
A INDEX

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.

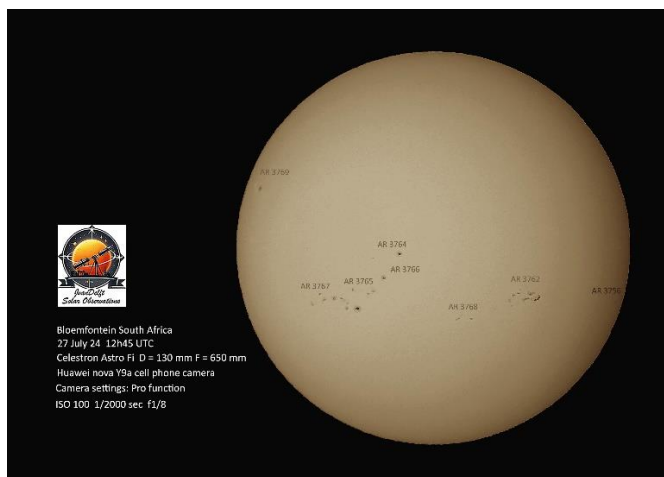
A higher A Index generally indicates more disturbed geomagnetic conditions. This index is valuable for radio operators, especially those involved in high-frequency (HF) radio communication, as it helps predict the likelihood of signal disruptions due to solar activity. The solar A Index is typically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



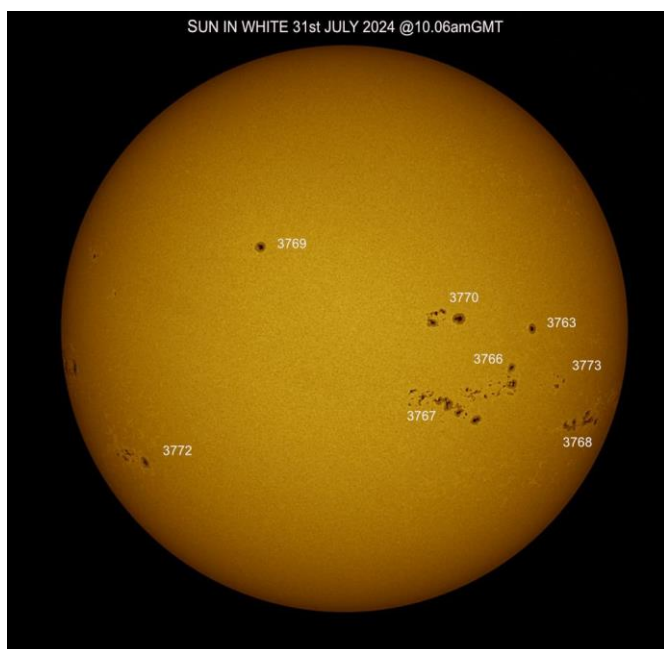
Geo-magnetic activities were most of the month 10 or less with only 5 days above the 10 level. The highest KP level was recorded on 30 and 31 of June with a KP5/G1 storm level.

• H Alpha Observations

Two observer shared their H-Alpha data for July 2024. Andrew Devey from BAA & MSAS living in Spain and Mick Nicholls from BAA & MSAS living in the UK.



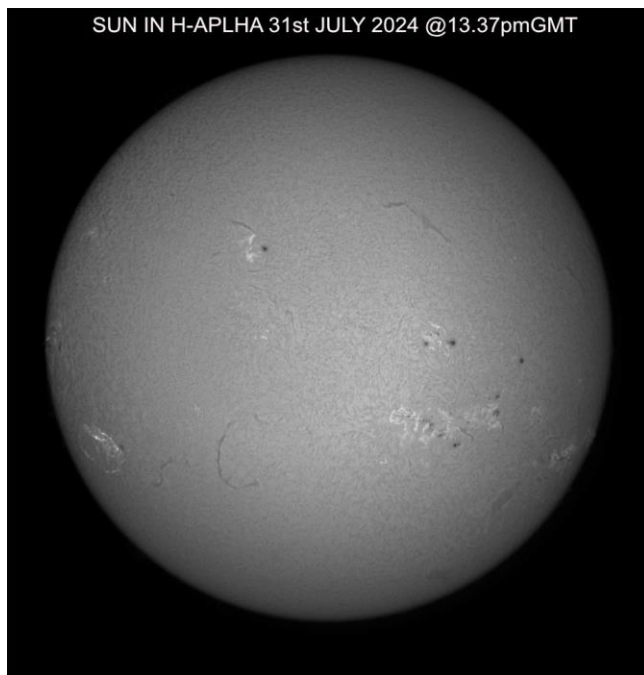
Mick Nicholls



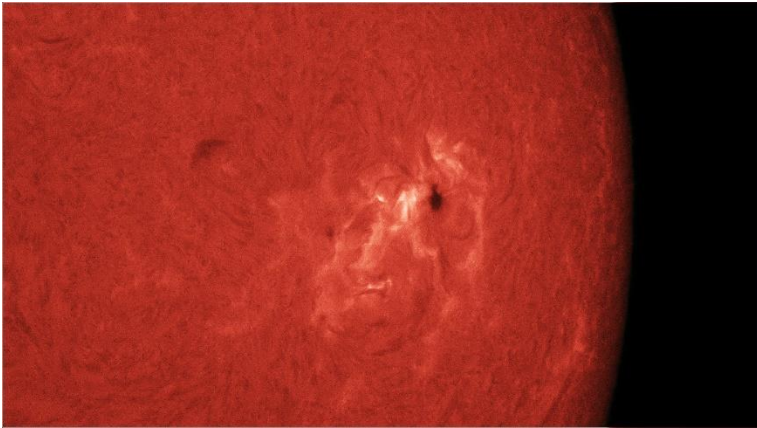


H-Alpha

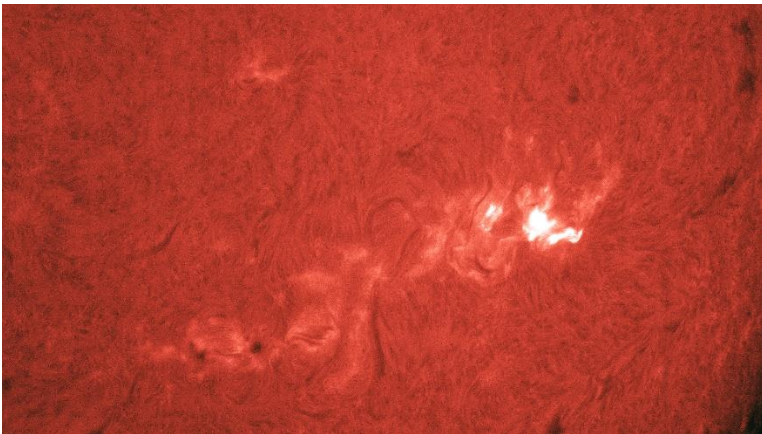
Mick Nicholls



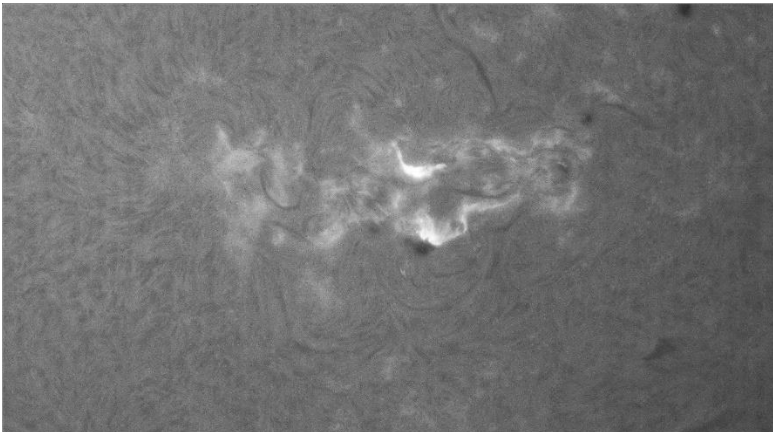
Andrew Devey, BAA/MSAS Spain.



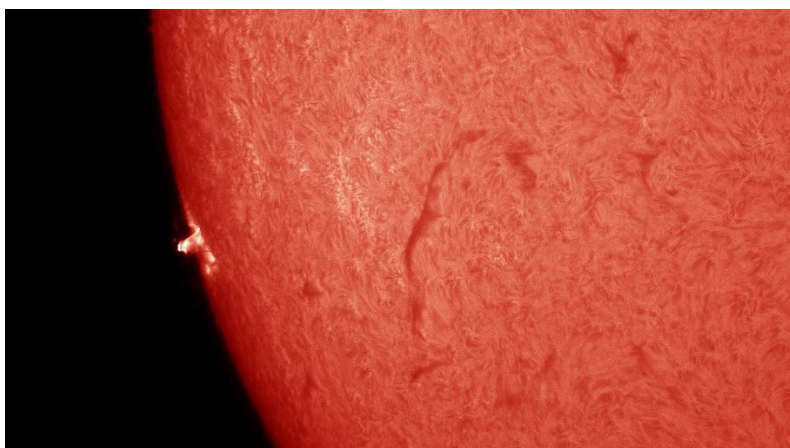
2024-07-14-0900UT AR3738



2024-07-28-1043UT AR3762 M8 class flare

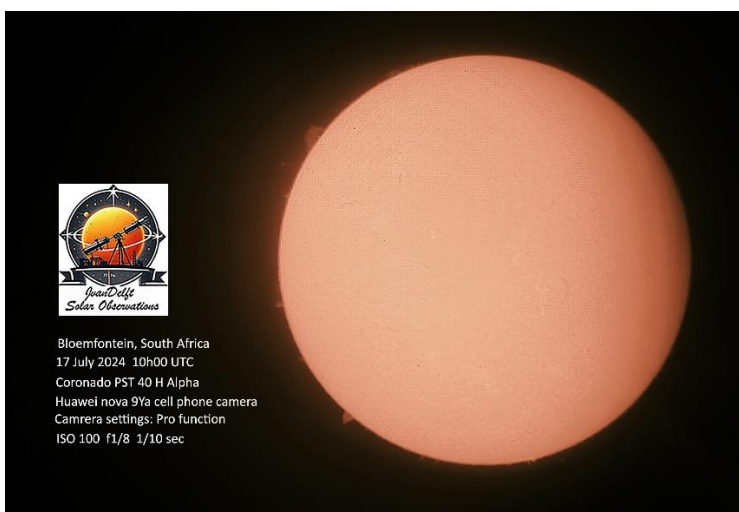


2024-07-29-1434UT AR3765 3766 3767 M 2 flare



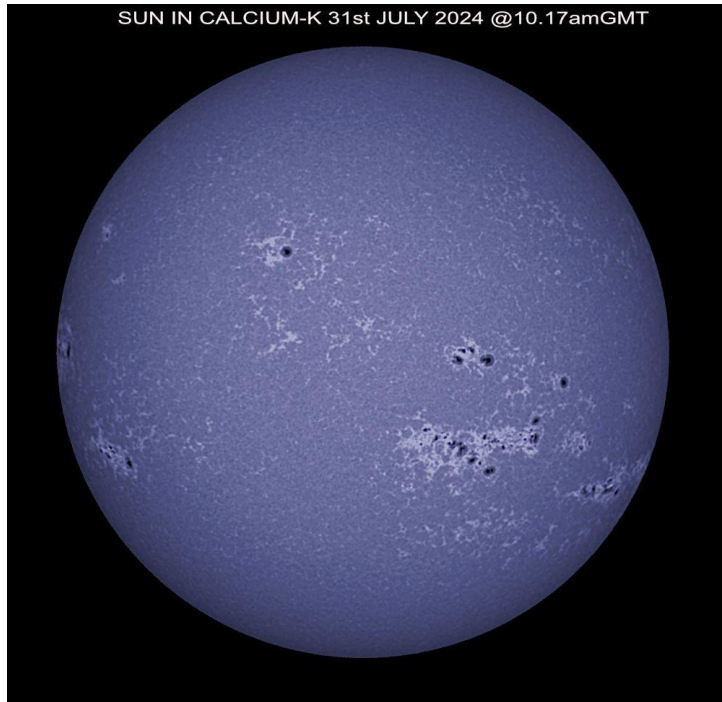
2024-07-29-1458UT AR3772 M4 flare

Jacques van Delft ASSA South Africa



Ca-K

Mick Nicholls BAA/MSAS, United Kingdom



Clear skies and regards

Jacques van Delft

ASSA Solar Section