



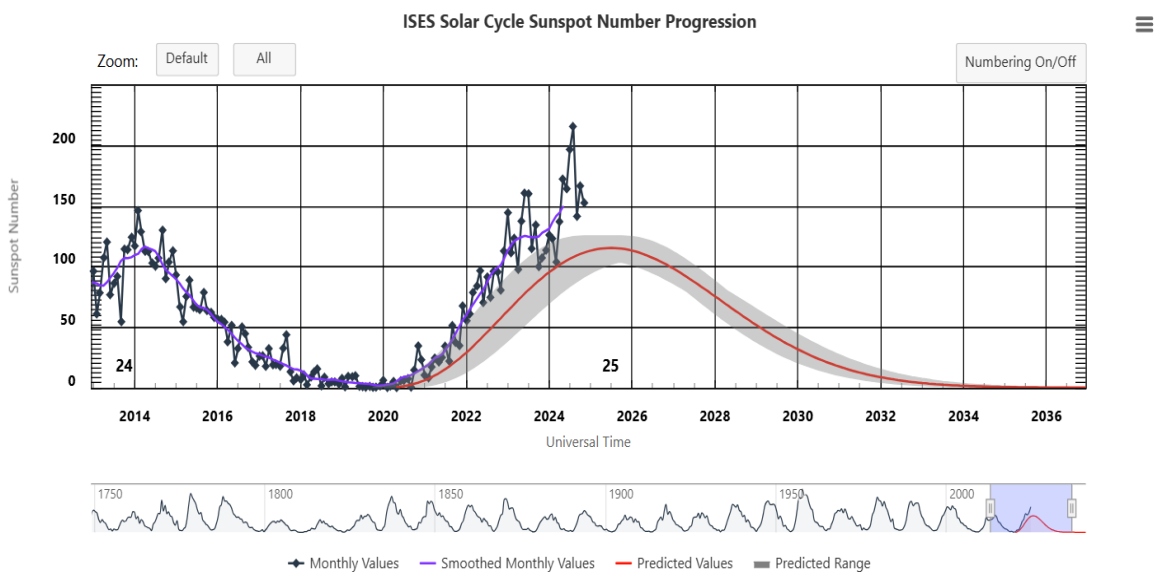
Month: November 2024

NEWS FROM THE SOLAR SECTION



November 2024 solar news

The sunspot number for November has dropped from 166.4 to 152.5, marking a decrease of 13. Despite this decline, we remain above the average projection line and are still in the solar maximum phase.



SUNSPOT OBSERVATIONS NOVEMBER 2024

November 24		Jacques v Delft		Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft	Jacques v Delft
	Day	Time	Seeing	Groups	Spots	W no.	North Groups	South groups	North spots	South spots
Fri	1	1530	G	11	44	154	4	7	20	24
Sat	2	1135	G	10	31	131	4	6	17	14
Sun	3					0				
Mon	4	1345	G	10	30	130	3	7	7	23
Tue	5	1425	G	8	23	103	6	2	4	19
Wed	6	1330	G	8	33	113	3	5	11	22
Thu	7	1405	G	6	27	87	2	4	4	23
Fri	8	1145	G	7	26	96	2	5	3	23
Sat	9	1125	G	6	32	92	1	5	1	31
Sun	10	1315	G	6	30	90	1	5	2	28
Mon	11	1345	G	6	27	87	1	5	1	26
Tue	12	1455	G	7	26	96	0	7	0	26
Wed	13	1105	G	6	34	94	0	6	0	34
Thu	14	1125	G	6	24	84	0	6	0	24
Fri	15	1320	G	4	17	57	1	3	2	15
Sat	16	1230	G	5	15	65	1	4	1	14
Sun	17	1025	G	4	8	48	0	4	0	8
Mon	18	1230	G	8	16	96	2	6	3	13
Tue	19	1055	G	8	21	101	2	6	4	17
Wed	20	1030	G	8	26	106	2	6	5	21
Thu	21	1030	G	7	14	84	2	5	4	10
Fri	22	1105	G	9	23	113	2	7	3	20
Sat	23	1055	G	9	20	110	1	8	2	18
Sun	24	1015	G	9	24	114	1	8	2	22
Mon	25	1125	G	10	47	147	2	8	6	41
Tue	26					0				
Wed	27	1055	G	7	17	87	1	6	1	16
Thu	28	1115	G	9	23	113	2	7	2	21
Fri	29	1020	F	5	11	61	1	4	1	10
Sat	30	1035	F	6	15	75	1	5	2	13
						0				

Observations
 28
 Groups
 205
 Spots
 684
 W no.
 2734
 North Groups
 48
 South groups
 157
 North spots
 108
 South spots
 576

Monthly Means		
MDF	97,6	1 Observer
MDF g	7,3	1 Observer
MDF Ng	1,7	1 Observer
MDF Sg	5,6	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 NOVEMBER 2024

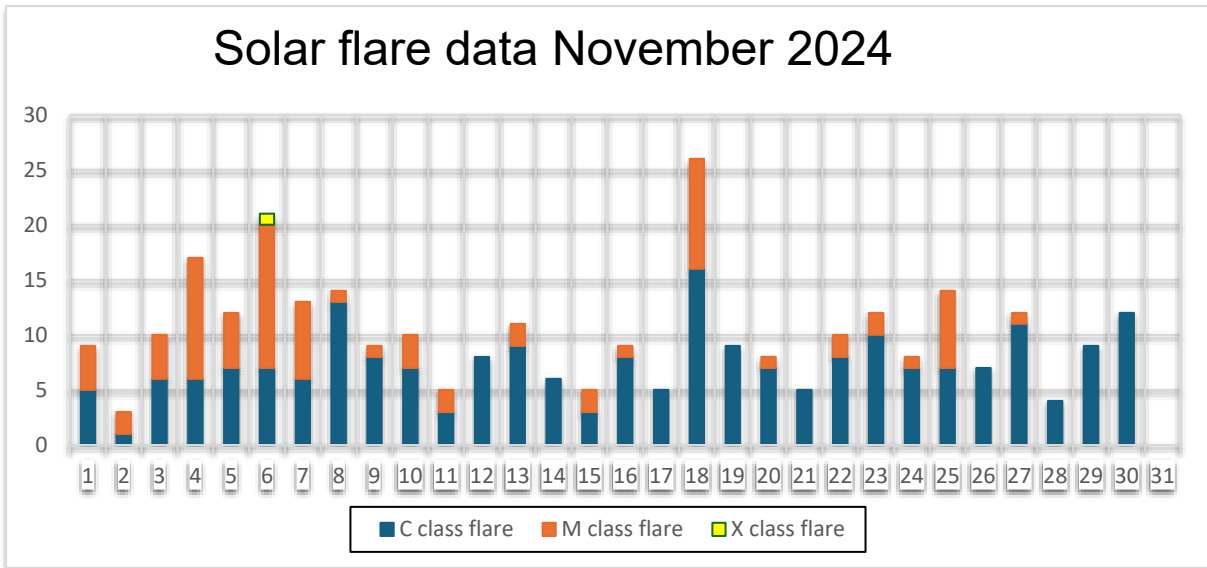
Solar flares are classified according to their x-ray brightness in the wavelength range 1 to 8 Angstrom. There are 3 categories: C class – minor, M class – medium and X class – big. Each category has 9 subdivisions.

A total of 303 solar flares were observed: 220 C-class flares and 82 M-class flares and 1 X class flares.

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

2024	November	C class	M class	X class	NOA No	
Fri	1	5	4	0	3876/3878	M1,0 M1,3/ M1,3 M2,0
Sat	2	1	2	0	3876/3876	M1,0/M1,2
Sun	3	6	4	0	3869/3878/3838	M1,1 M1,4/M1,1/M1,3
Mon	4	6	11	0	3878/3883/3886/	M1,4/M1,5 M3,8 M1,0 M1,3 M1,2 M1,6 M1,1 M1,3 M5,5/M1,1
Tue	5	7	5	0	3872/3883/??	M4,1/M1,0 M1,2 M2,9/M2,6
Wed	6	7	13	1	3883/3887/3889	M1,1 M1,2 M2,9 M1,5 X2,3/M5,8/M1,2 M5,3 M1,2 M1,1 M1,3 M1,1 M1,1 M1,1 M1,6
Thu	7	6	7	0	3883/3889	M2,5 M1,6 M2,7 M1,4/M2,5 M1,3 M2,3
Fri	8	13	1	0	3883	M1,5
Sat	9	8	1	0	3889	M1,2
Sun	10	7	3	0	3889	M4,2 M9,4 M4,9
Mon	11	3	2	0	3889	M1,1 M1,,4
Tue	12	8	0	0		
Wed	13	9	2	0	3889	M1,0 M1,7
Thu	14	6	0	0		
Fri	15	3	2	0	3893	M1,1 M1,0
Sat	16	8	1	0	3889	M1,6
Sun	17	5	0	0		
Mon	18	16	10	0	3889/3897/3901	M1,1/M1,5 M1,6/M2,0 M1,8 M3,7 M2,5 M1,2 M1,7 M1,0
Tue	19	9	0	0		
Wed	20	7	1	0	3897	M1,1
Thu	21	5	0	0		
Fri	22	8	2	0	3905/3906	M1,6/M1,0
Sat	23	10	2	0	3901/3908	M1,1/M1,1
Sun	24	7	1	0	??	M1,1
Mon	25	7	7	0	3901/3905/3906/3910/??	M1,9/M2,0/M1,1 M1,0 M1,8/M1,5 M1,9
Tue	26	7	0	0		
Wed	27	11	1	0	3901	M1,0
Thu	28	4	0	0		
Fri	29	9	0	0		
Sat	30	12	0	0		
Totals	220	82	1			

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.

Nov 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	1,33	1,33	2,33	2,67	0,67	1,33	0,33	7
2	0,67	1,00	1,67	4,00	3,67	2,67	3,00	3,33	13
3	2,67	1,00	1,00	1,33	0,67	3,33	3,33	4,00	11
4	4,00	4,33	2,67	2,33	2,33	1,67	1,00	2,67	14
5	2,67	1,67	3,00	2,67	2,67	2,67	2,33	2,67	11
6	3,33	3,33	2,33	2,00	2,33	2,00	2,00	1,67	10
7	1,33	1,00	2,00	2,33	0,67	3,00	2,67	3,00	9
8	2,33	1,00	1,33	1,67	2,00	1,33	4,00	3,67	11
9	4,00	4,00	3,67	5,00	5,00	4,33	4,33	3,67	32
10	4,00	4,00	2,33	2,33	4,33	4,00	5,33	3,00	25
11	2,33	2,00	3,67	2,67	2,00	2,67	1,67	1,33	10
12	2,00	1,33	1,00	1,00	1,33	1,67	1,00	0,67	5
13	3,00	2,33	0,33	1,33	2,67	1,33	1,67	1,00	7
14	1,00	3,33	1,33	1,33	2,00	2,67	3,33	3,67	11
15	3,00	3,67	2,67	2,33	2,67	2,67	2,67	2,33	13
16	3,67	2,67	2,67	2,00	1,67	0,67	0,33	0,67	8
17	3,67	2,67	2,67	2,00	1,67	1,67	0,33	0,67	8
18	1,00	2,00	0,33	0,67	1,00	1,33	1,00	1,33	4
19	1,00	1,00	1,67	2,00	3,00	3,00	2,67	1,33	9
20	1,00	3,00	3,00	2,67	1,67	1,67	1,00	1,67	9
21	0,67	1,33	1,67	1,67	1,00	1,67	3,00	3,00	8
22	2,33	2,00	0,67	1,67	3,00	3,67	2,67	3,33	12
23	2,00	1,67	1,67	1,67	3,00	1,67	2,33	1,67	8
24	1,67	1,67	1,67	1,00	0,67	1,67	1,67	3,67	7
25	3,33	2,33	2,00	2,33	2,67	3,00	2,33	2,33	11
26	3,33	2,33	1,00	1,33	1,00	0,67	1,00	2,00	7
27	1,00	0,67	1,67	2,00	0,67	1,00	1,00	2,33	5
28	2,00	1,00	0,67	1,00	0,67	0,67	1,00	0,33	4
29	1,67	2,33	1,67	2,33	2,00	1,33	2,67	2,67	8
30	4,67	3,33	2,33	0,67	1,00	0,67	1,00	2,33	11

Geomagnetic Storm Index



Credit: NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

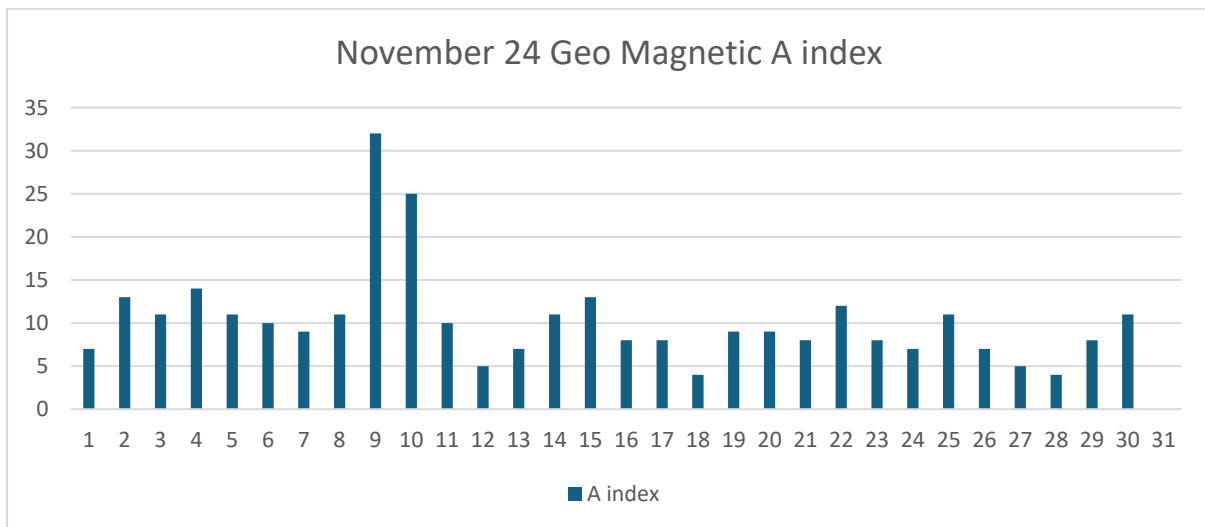
A INDEX

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.
- 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.



Geo-magnetic activity in November was moderate to low except for 9 and 10 November. Aurora activity was therefore low for November.

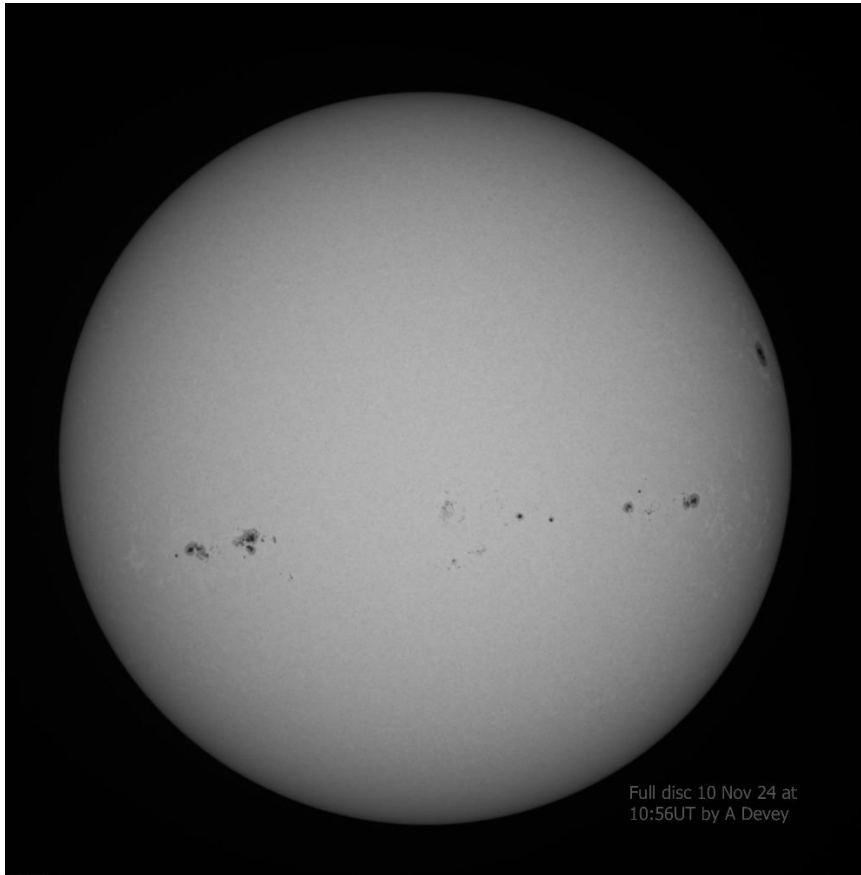
- **H Alpha Observations**

One observer shared his H-Alpha data for Sept 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.

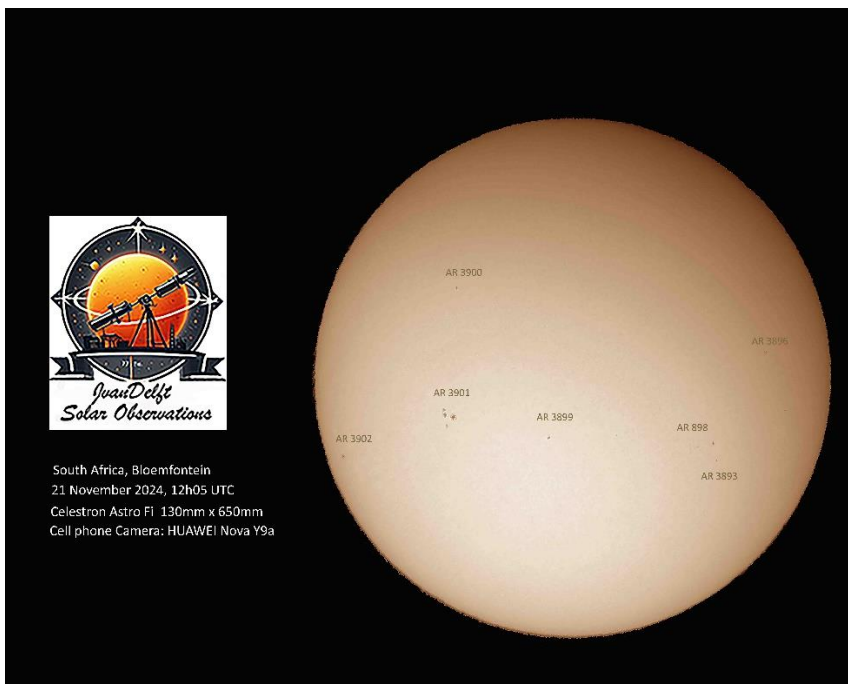
November 2024	Counts	Observations	MDF
Prominance	113	19	5,9
Plage Areas	85	19	4,5
Filaments	152	19	8,0
Flares	5	19	0,3

- **Solar images**

WHITE LIGHT

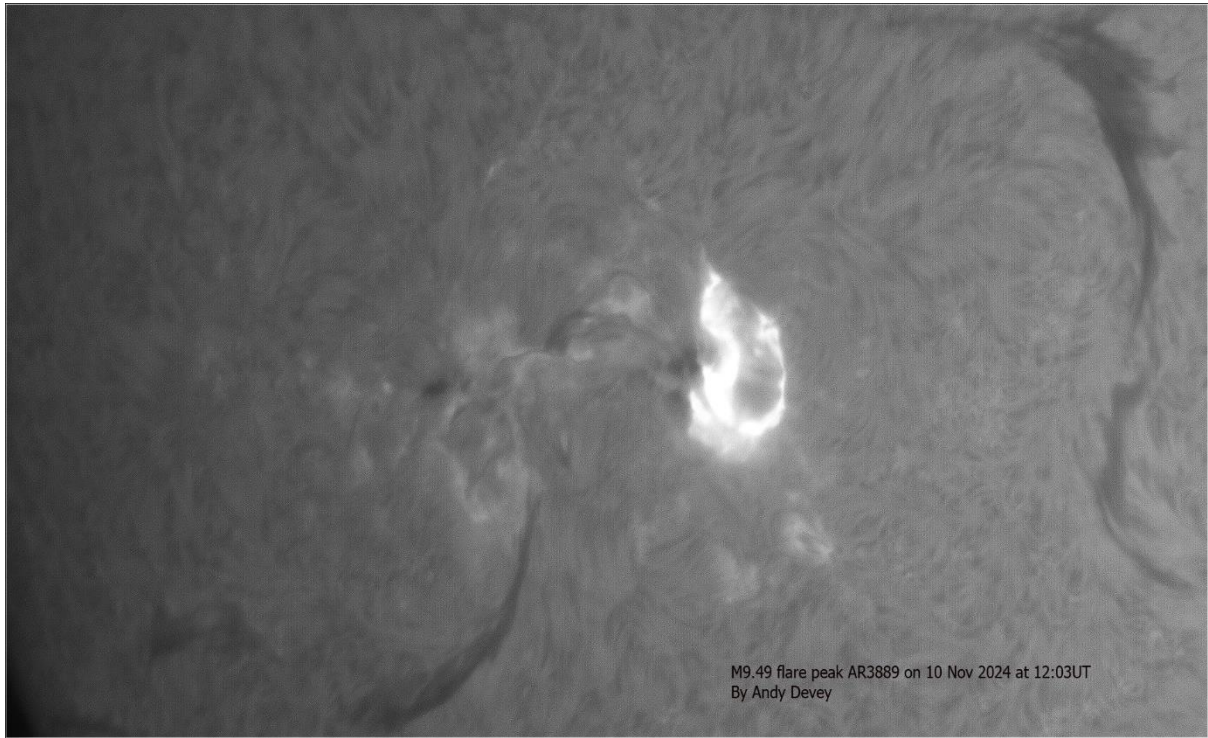


Andrew Devey, BAA/MSAS Spain.



Jacques van Delft ASSA South Africa

H-Alpha



Andrew Devey, BAA/MSAS Spain.

This is the final Solar Bulletin of 2024, and I want to extend my gratitude to all the contributors for their submissions throughout the year. Wishing you all a Merry Christmas and a prosperous New Year!

Clear skies and regards
Jacques van Delft

ASSA Solar Section