

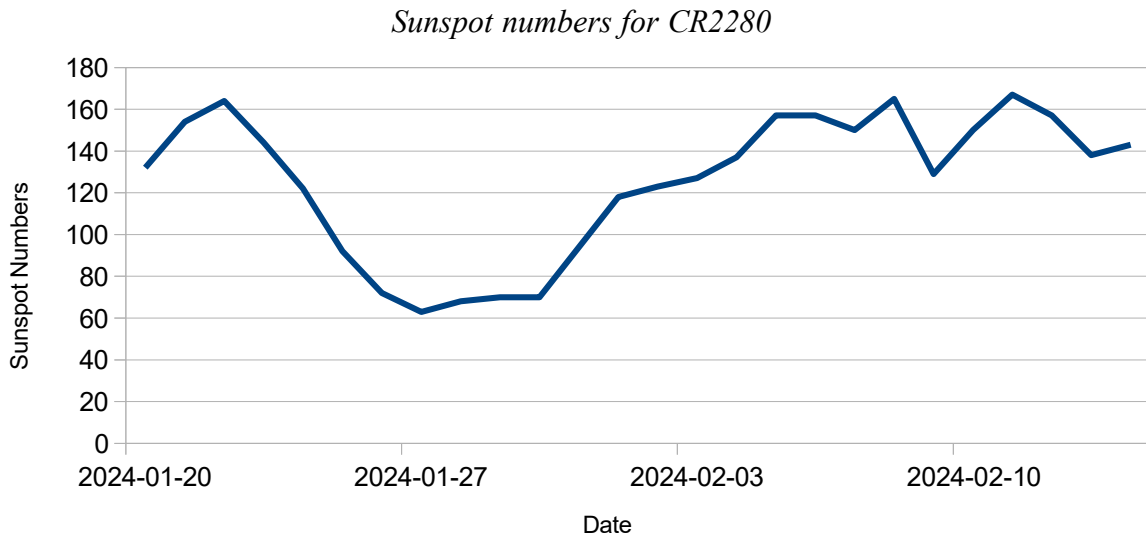
Carrington Rotation Report CR2280-CR2282 (January 18 - April 8, 2024)

by Kim Hay

CR2280 JANUARY 19, 2024 - FEBRUARY 14, 2024

29-day Cycle

(Sunspot information from SILSO Monthly reports)



On January 27, 2024 the lowest sunspot number was reported, where by February 12, 2024 it was up to 167.

Major groups during this rotation were AR3559, 3561, 3575, 3576, 3577. AR3575 fired off an X class flare rated at 3.38 on February 9, 2024.

Flares (Rotation)	C	M	X
	245	51	1

Sunspot Groups (Introduced in Rotation)	North	South
26	10	16

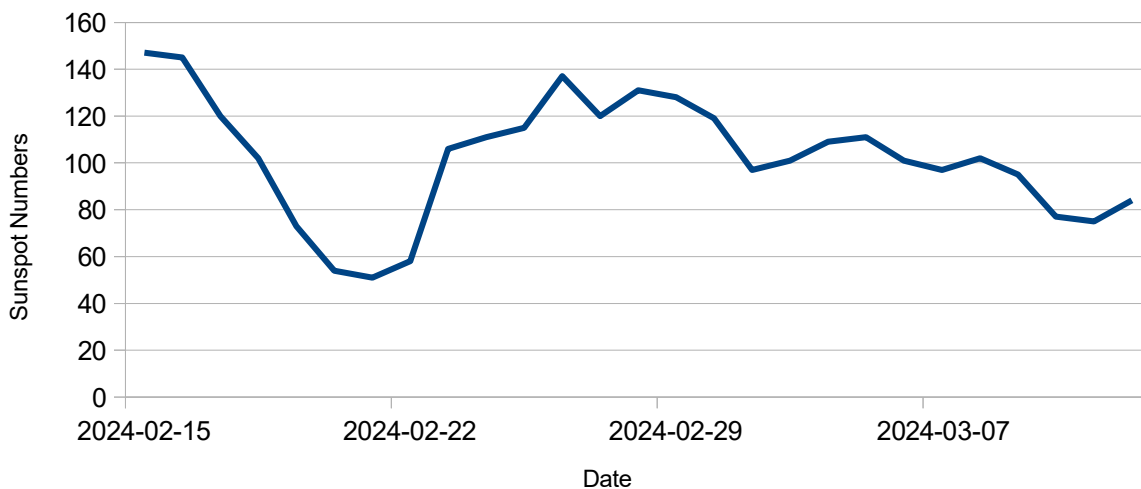
There were 35 groups in CR2280 of which 26 were new during the rotation period.

466 images and sketches were submitted from 10 observers for CR 2280

NAMES	WL	HAWL	HA	CAK	CAK/WL
DVDTSK	X	X	X		
EFRNMRLS			X		
GEVDBU	X				
GLHGRSM			X	X	
HWESK	X		X	X	
JMKVTY	X		X	X	
MKTH	X		X		
RKHLL					X
THRMK	X		X	X	
VDSLJ			X		

CR2281 FEBRUARY 15, 2024- MARCH 12, 2024
 27-day Cycle

Sunspot numbers for CR2281



Flares (Rotation)	C	M	X
	191	16	4

Sunspot Groups (Introduced in Rotation)	North	South
21	10	11

There were 32 sunspot groups in total during this rotation with 21 as new groups.

Major groups during this period were AR3590, which produced 3 X class flares in February. Within 24-hours it produced an X1.8 and X1.7 flare. These three flares did not produce any CMEs. However, on Feb 23rd, an X class flare rated at 6.3 erupted, the strongest in Cycle 25.

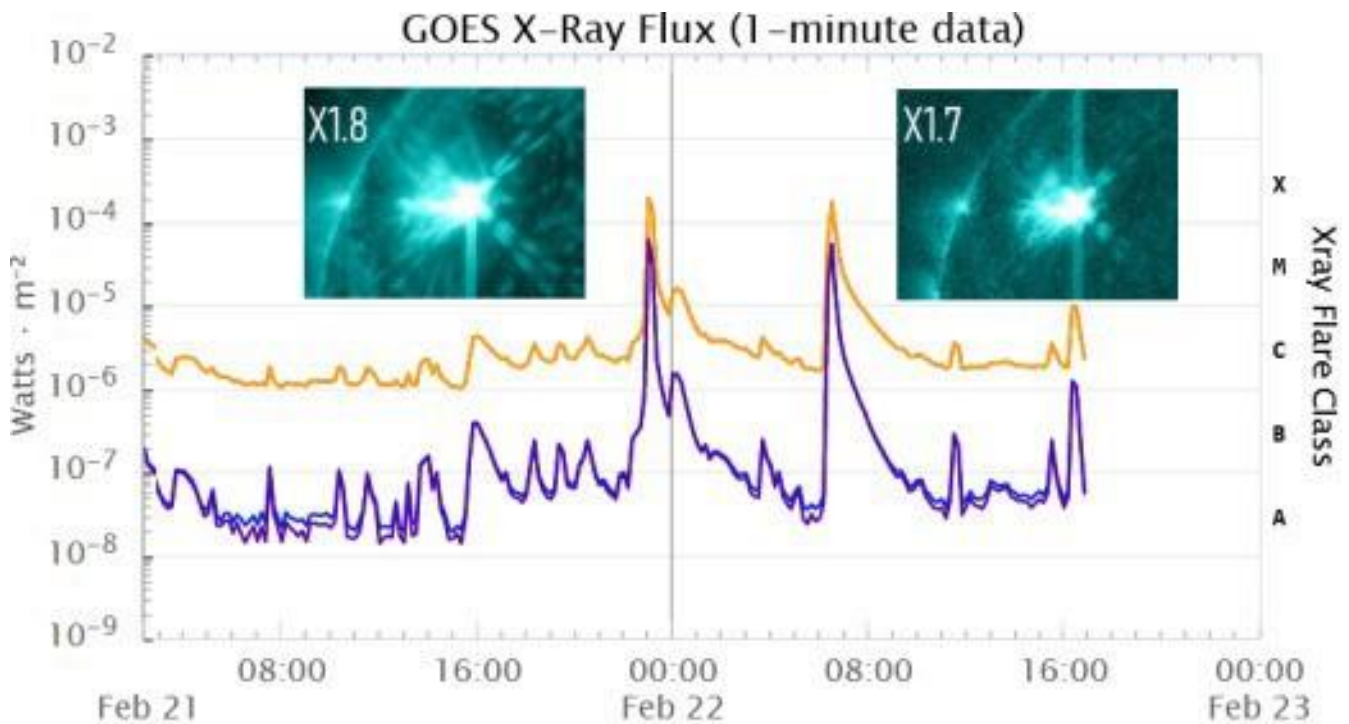


Image from GOES X-Ray Flux -from spaceweather.com

AR3591 also produced two X class flares on February 23. Another large active region was AR3599. This had a β - γ - δ but only produced C class flares.

This rotation had a drop in C class flares from CR2280 but an increase in X class flares. The Sun's magnetics are getting stronger, resulting in the uptick of Cycle 25.

Observers for CR2281 submitted a total of 384 images and sketches. The 12 contributors are noted below:

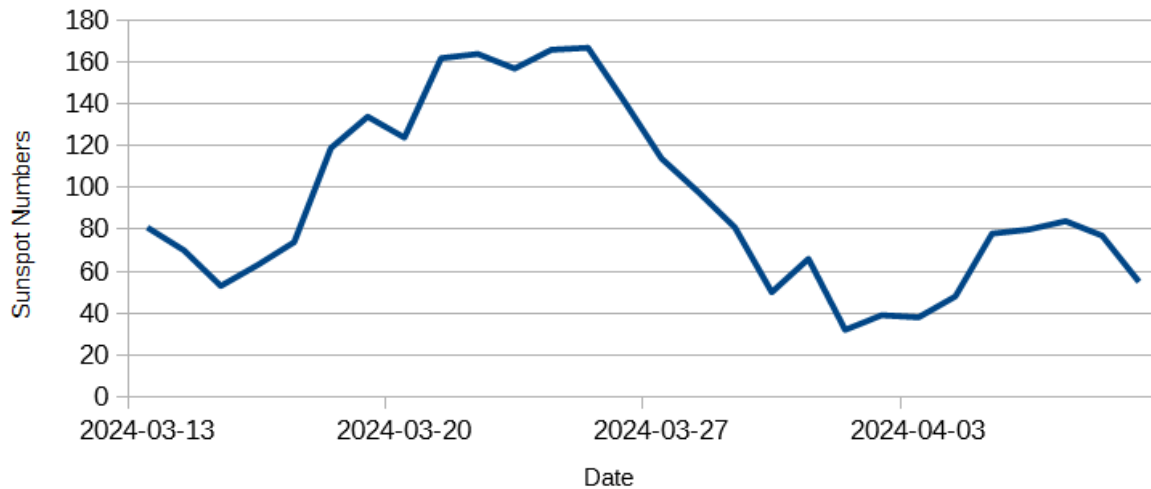
NAMES	WL	HAWL	HA	CAK
CHRVLDR	X			X
DVDTSK	X	X	X	
EFRNMRLS			X	
GEVDBU	X			
FRNMILO	X	X	X	
GEVDBU	X			
GLHGRSM			X	X
HWESK	X		X	X
JMKVTY	X		X	X
MKTH	X		X	
RKHLL	X			
THRMK	X		X	X
VDSLVI			X	

CR2282 MARCH 13, 2024- APRIL 9, 2024
28-day Cycle

The lowest number of Total Sunspots in this cycle was on March 30th with 50, and the highest was March 25th at 167.

CR2282 March 13- April 9, 2024

Sunspot Numbers from SILSO



Flares (Rotation)	C	M	X
	178	47	2

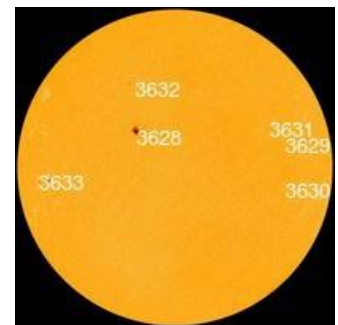
Sunspot Groups (Introduced in Rotation)	North	South
27	18	9

There were a total of 29 groups, with 27 new groups in this rotation. The Northern Hemisphere dominated this rotation with group activity. The largest active group was AR3615 which produced an X 1.1 flare on March 28, 2024. However, this group had rotated off the view of the Sun by eclipse day, with AR3628 being the largest group.

For CR2282 the ALPO Solar Section received 346 images and sketches from the 13 observers listed here:

Names	WL	HAWL	HA	CAK	CAK/WL
CHRVLDR				X	
DVDTSK	X	X	X		
EFRNMRLS			X		
FRNMILO	X		X		
GEVDBU	X		X		
GLHGRSM			X	X	
HWESK	X		X	X	
JMKVTY	X				
KIMHAY	X	X			
LGIMRRN	X				
RKHLL	X	X	X		X
THRMK	X	X	X		
VDSLVI		X			

This was a special rotation as it held the Total Solar Eclipse of April 8, 2024. Depending on where you observed it from, it was a weather battle right up to hours before the eclipse. Many travelled many miles (kms) up and down roads dodging clouds of various intensities. The weather apps certainly got a workout! The largest active region seen on the sun at time was AR3628.



This author stayed at home in Yarker, Canada with family to share the 2 mins 3 seconds of Totality. The day started off clear, but the clouds moved in making imaging difficult. However, clouds parted at the important times and images and natural phenomena were observed. Our temperature experiment had us drop 5° C during totality. The day maximum temperature was 17° C with it dropping to 12° C at totality. The highlight was seeing prominences naked eye, and so many. The corona was breathtaking. The movement of the shadow was very dark, much darker than the 2017 TSE. It heavily clouded over after 3rd contact with Mammatus cloud in the west, threatening rain. So we packed up and headed in for Birthday/Eclipse celebrations. The skies cleared just before the end of the 4th contact, and it was seen from the living room window. Despite the intermittent clouds it was a great success and created many family memories.

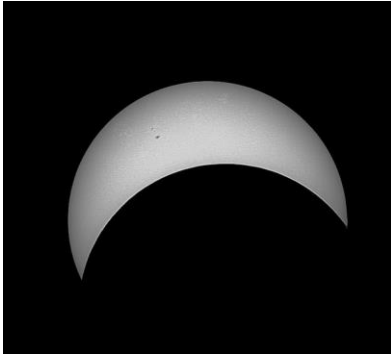


Image by Kim Hay taken using Celestron 80mm apo refractor with ASI174mm camera using a 1000 Oaks Solar filter on an Ioptron mount



Summary of the last three rotations (CR2280-CR2282) shows that the Northern Hemisphere is leading in sunspot groups.

Flare activity is picking up with X class flares with larger groups being prominent. We are in Cycle 25 but it does not seem to have peaked yet. According to the NOAA's predictions the peak will not happen until mid-July in 2025.

The next several months could be quite a ride!

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Names of Observers

DvdtSk	David Teske	MkTh	Michael Teoh
EfrnMrls	Efrain Morales	Ligmrrn	
FrnMilo	Frank Mellilo	Rkhll	Rik Hill
GevDbU	Gerd Vanderbulcke	ThRmk	Theo Ramakers
GlhGrsm	Guilherme Grassmann	VdslvJ	Vlamiir da Silva Junior
HwEsk	Howard Eskildsen		
JmKvTy	James Kevin Ty		
KimHay	Kim Hay		

Wavelength Legend for Observations

WL – White Light

HAWL-Hydrogen Alpha & White Light

HA- Hydrogen Alpha

CAK- calcium K

CAK-WL-Calcium K and White Light

OIII- Oxygen III

References

SILSO <https://www.sidc.be/SILSO/home>

Space Weather Live www.spaceweatherlive.com

Space Weather spaceweather.com

NOAA Goes Xray Flux images

Images by Kim Hay (Eclipse and Mammatus)