

## The Solar Rotation Report

Kim Hay

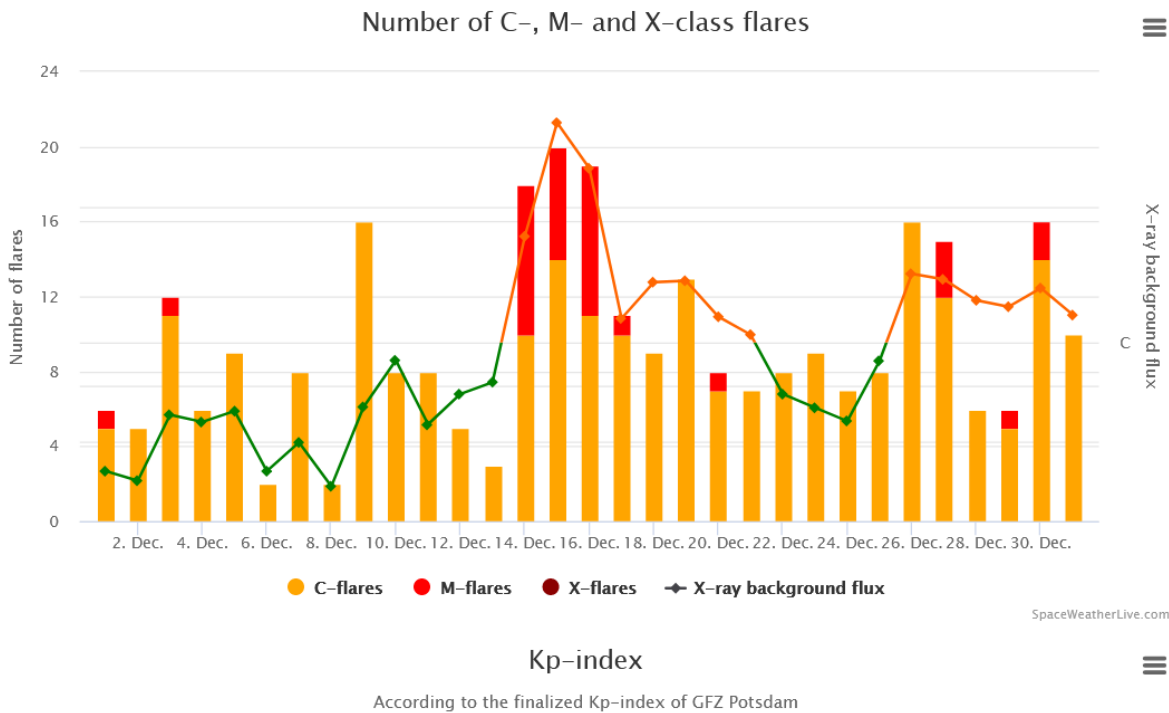
During this reporting we will be looking at CR2265, CR2266, CR2267.

Solar Activity has certainly picked up with February (CR2267) producing quite the aurora activity. The sunspot numbers and groups have also climbed. In CR2265 Dec 13 produced **158** sunspot count , in CR2266 January 13th with **158** sunspot count , and CR2267 February 13, 2023 producing 175 sunspot count. Does it seem like a coincidence that the highest sunspot count is around mid-month? Interesting!

Group numbers are still higher in the North over all. There has been X class flares also thrown into the mix showing the Sun is ramping up its activity.

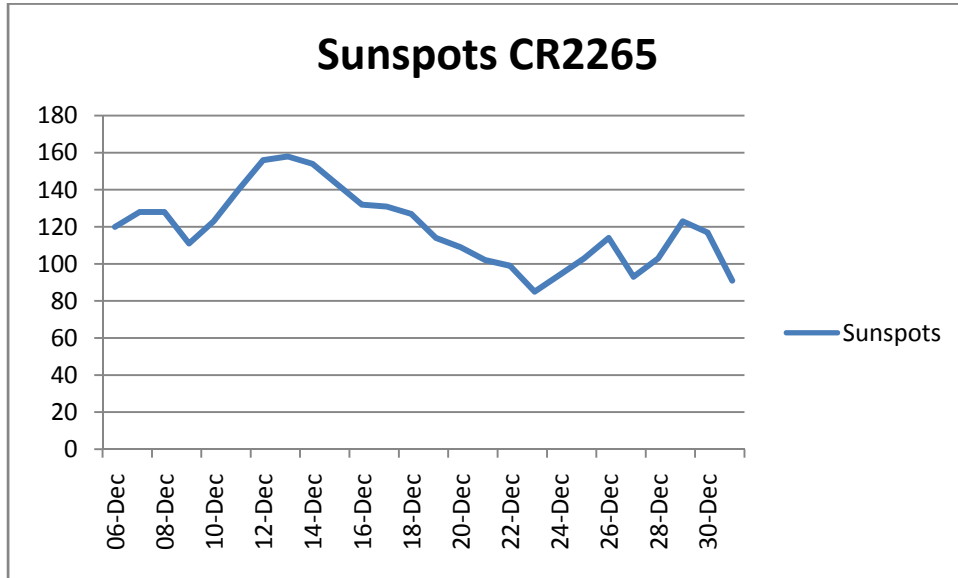
CR number	North Groups	Southern Groups	Flares C	Flares M	Flares X
CR2265	15	12	228	30	
CR2266	16	11	217	41	3
CR2267	22	14	205	46	2

### December 2022 Flare activity



**CR2265 (Dec 6 2022- Dec 31, 2022)**

The sunspot count was waning off at the end of this rotation, but flare activity has been increasing. Some of the most active groups during this time was AR3153, AR3163, AR3165, AR3169, AR3176. On December 16, the area AR3163 had a very unstable magnetic field.



Sunspot data "**Source: WDC-SILSO, Royal Observatory of Belgium, Brussels**".

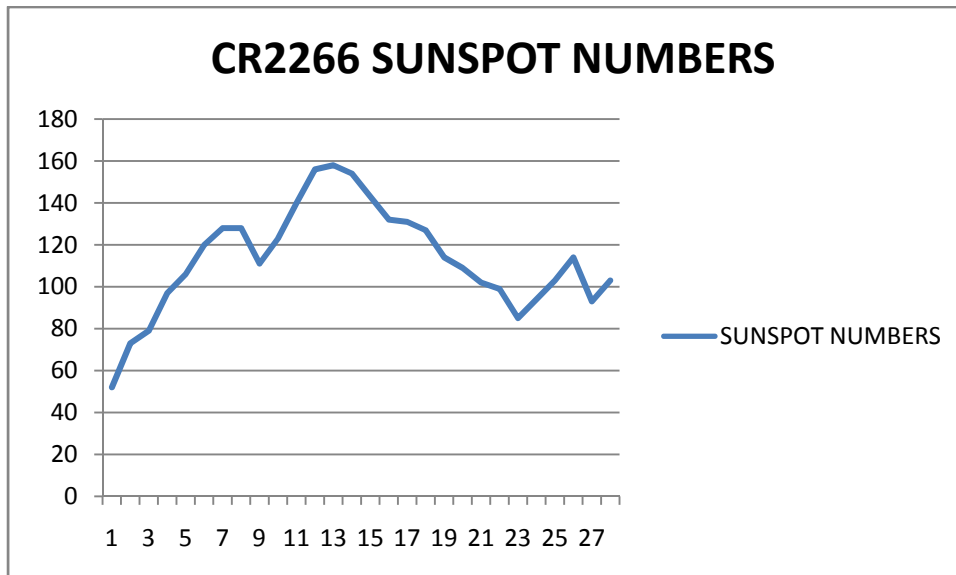
We had 448 images from 12 Observers for CR2265

Name	White Light	Ha/WL	Ha	CaK	CaKWL	CaKHa
DVDTSK	X	X	X			
EFRNMRLS			X			
FRNMILO	X		X			
GEVDBU	X					
GLHGRSM			X	X		X
HWESK	X		X	X		
JMKVTY	X		X			
KIMHAY	X		X			
MNTLVNT		X				
RKHLL	X		X	X	X	
THRMK	X		X	X		
VDSLJ			X			

### CR2266 January 1- January 28, 2023

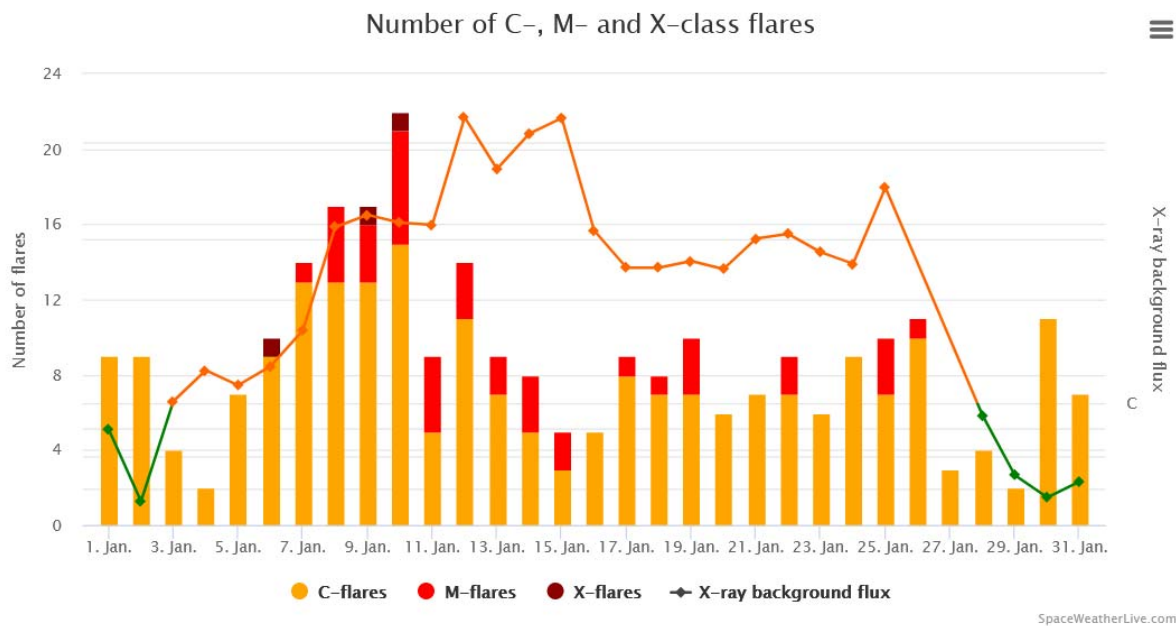
The beginning of the year and the Sun itself started to increase in sunspot activity. The highest sunspot date was January 13, with 158 total sunspots, and then slowly decreasing, with a small uptick on January 25th.

Groups presenting lots of magnetic activity during this rotation where AR3176 (N), AR3180 (N), AR3181 (S), AR3182 (S), AR3184 (s), AR3186 (N) AR3190 (S)



Sunspot data **"Source: WDC-SILSO, Royal Observatory of Belgium, Brussels"**.

January 2023 Flare activity



### Kp-index

According to the finalized Kp-index of GFZ Potsdam

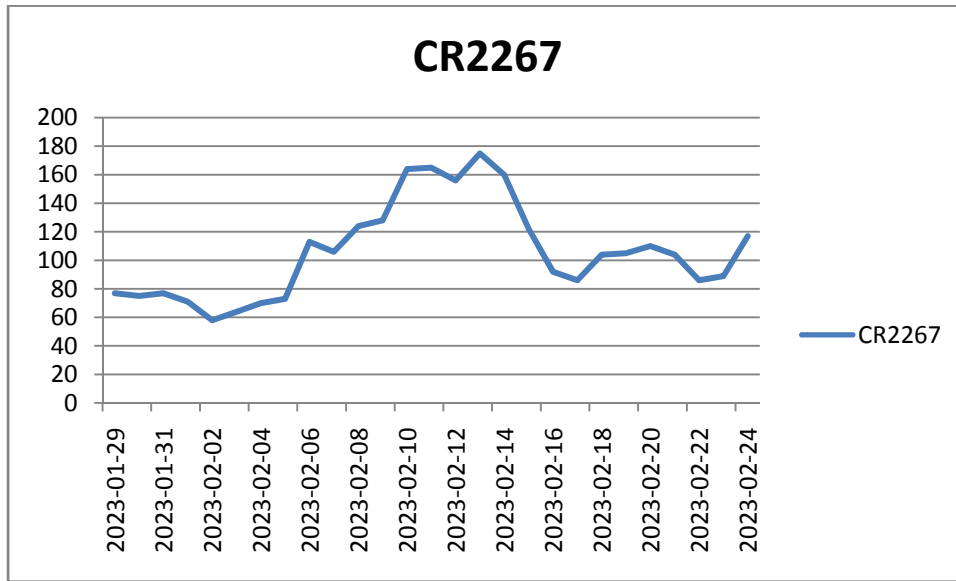
We had 502 images to the ALPO Solar Gallery. There were 13 observers.

Name	White Light	Ha/WL	Ha	CaK	CaKWL	CaKHa
DVDTSK	X	X	X			
EFRNMRLS			X			
FRNMILO	X		X			
GEVDBU	X					
GLHGRSM			X	X		X
HWESK	X		X	X		
JMKVTY	X		X			
KIMHAY	X		X			
MKTH	X		X			
MNTLVNT		X				
RKHLL	X		X	X	X	
THRMK	X		X	X		
VDSLJ			X			

**Carrington Rotation 2267 (Jan 29-Feb 24, 2023)**

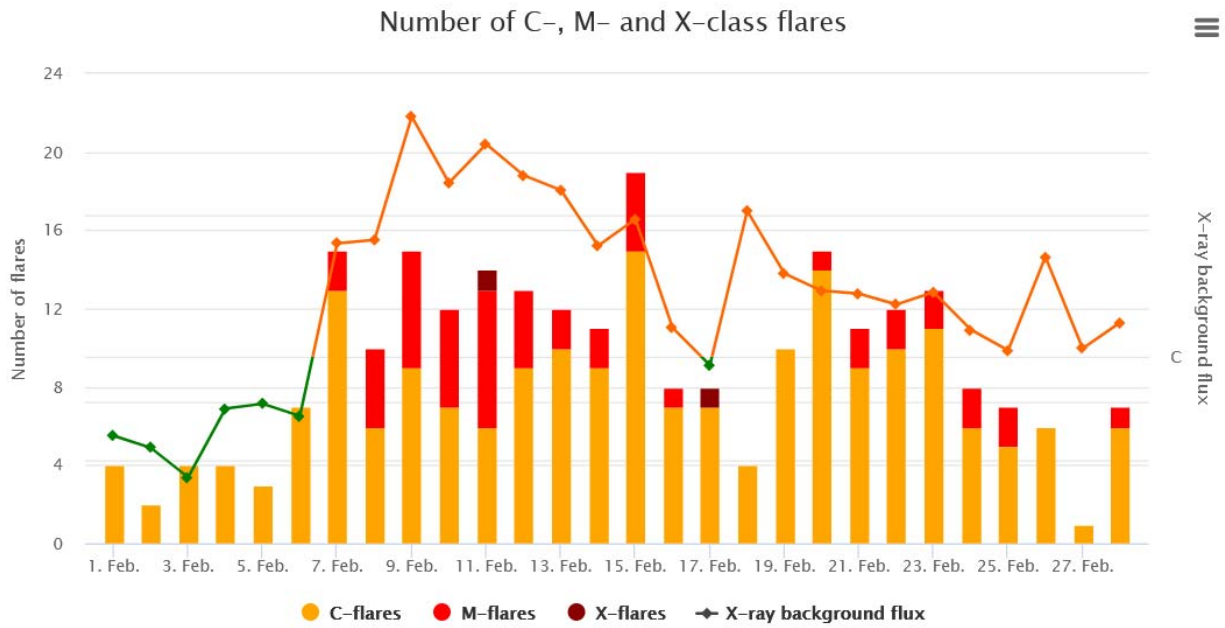
This rotation had 5 active magnetic groups in the Northern Hemisphere (AR3213, AR3214,AR3226,AR3229,AR3234) and one in the Southern Hemisphere (AR3217).

Maximum peak day for Sunspots was February 17th with 175.



Sunspot data "**Source: WDC-SILSO, Royal Observatory of Belgium, Brussels**".

**February Flare Activity**



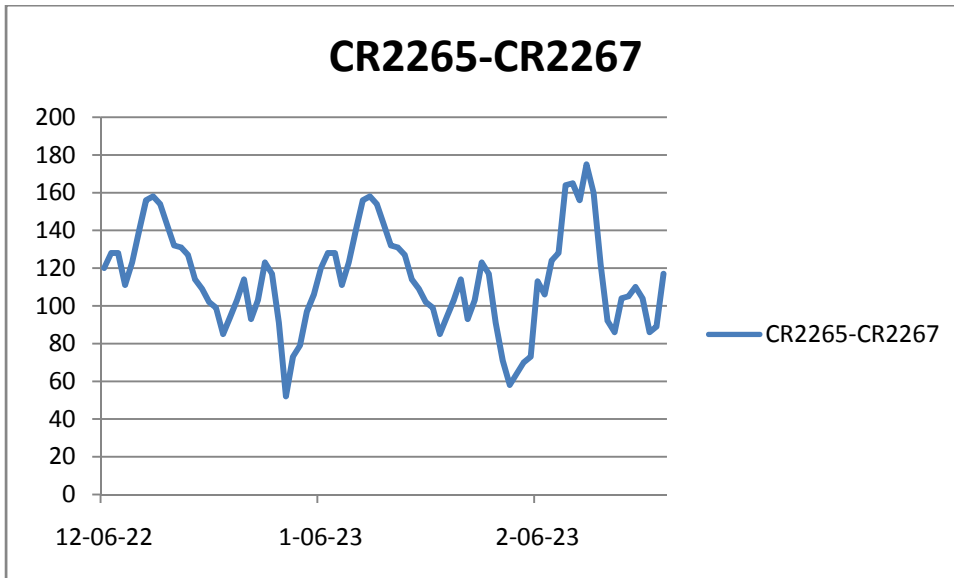
### Kp-index

According to the finalized Kp-index of GFZ Potsdam

## CR2267 had 403 IMAGES and 12 Observers

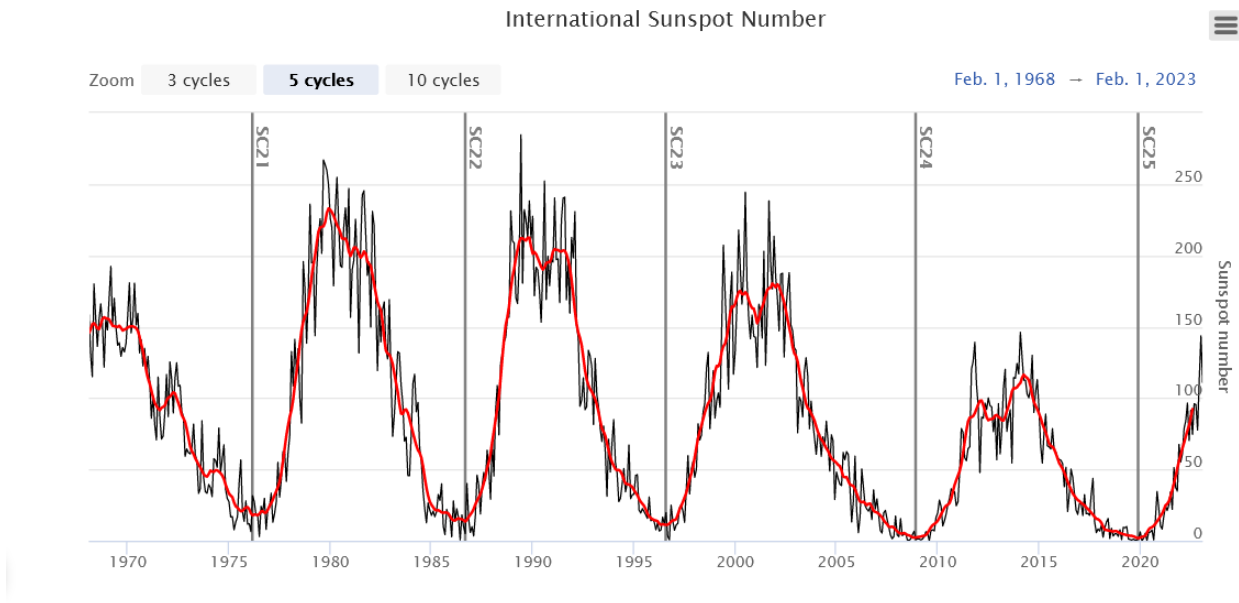
Name	White Light	Ha/WL	Ha	CaK	CaKWL	CaKHaWL
DVDTSK	X	X	X			
EFRNMRLS			X			
FRNMILO		X	X			
GEVDBU	X					
GLHGRSM			X	X		
HWESK	X		X	X		
JMKVTY	X		X			
KIMHAY	X		X			
MNTLVNT		X				
RKHLL	X		X	X	X	X
THRMK	X		X	X		
VDSLJ			X			

This is the graph with all three Rotations. The sunspot numbers show they are increasing.

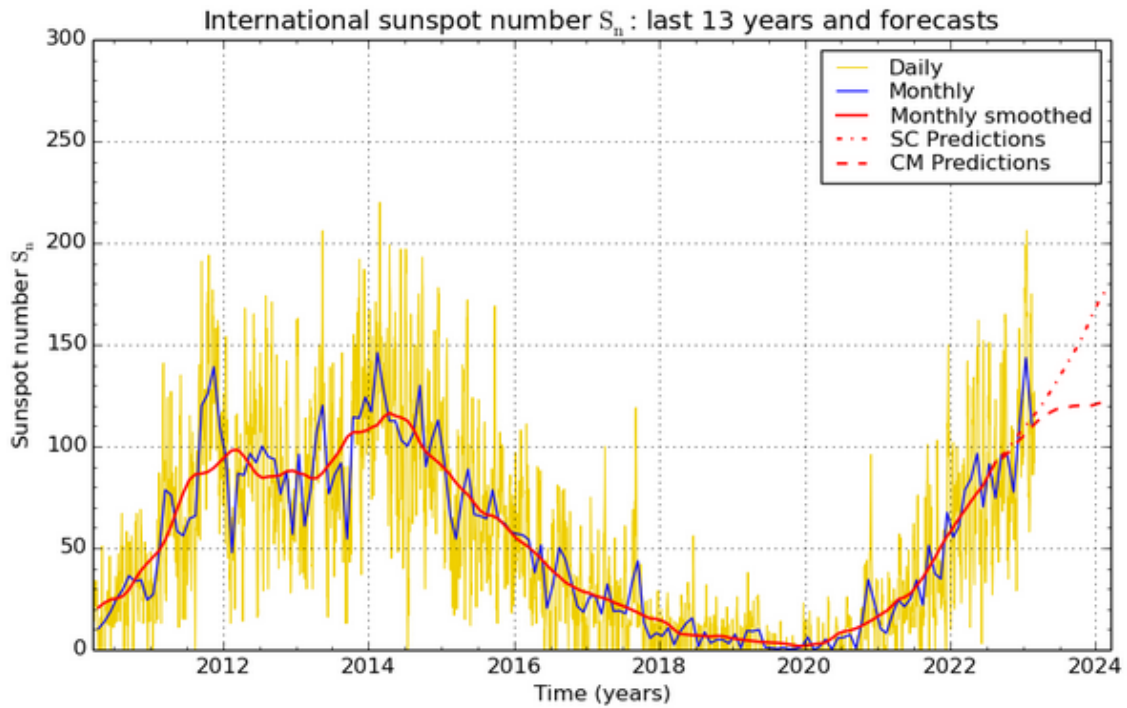


February 11 there was a X class flare of 1.1 with a KP index of 4, and February 17th an X class flare of 2.2 with a G1 level radio blackout.

Cycle 25 is out predicting some aspects of Cycle 24 yet, it is still too close to know for sure how this cycle will behave.

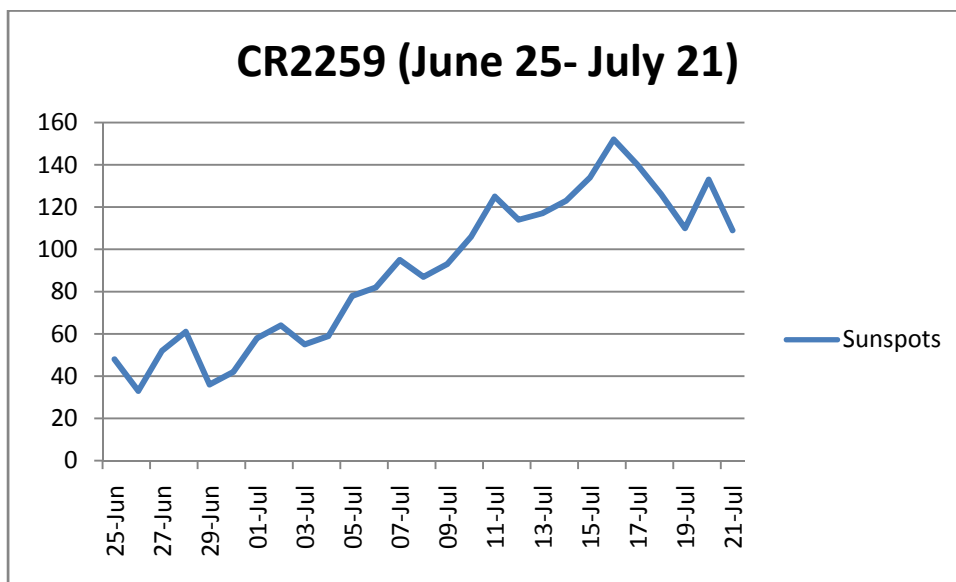


## Sunspot number series: latest update



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium 2023 March 1

**Corrections-** It was brought to my attention from Rik Hill that the number for July 4th 2022 was wrong. It was reported as 9 but the total sunspot count was 59. Below is the corrected graph





## Legend of Observers

Initials	Name
DVDTSK	David Teske
EFRNMRLS	Efrian Morales
FRNMILO	Frank Melillo
GEVDBU	Gerd Vanderbulcke
GLHGRSM	Guilherme Grassmann
HWESK	Howard Eskildsen
JMKVTY	James Kevin Ty
KIMHAY	Kim Hay
MKTH	Michael Teoh
MNTLVNT	Monty Leventhal
RKHLL	Rik Hill
THRMK	Theo Ramakers
VDSLJ	Vlamiir da Silva Junior

## **Bibliography**

Spaceweatherlive.com <https://www.spaceweatherlive.com/en/solar-activity.html>

Spaceweather.com <https://spaceweather.com/>

Sunspot Index with Long-term Solar Observations SILSO <https://www.sidc.be/silso/>

A.L.P.O Solar Image Gallery <https://alpo-astronomy.org/gallery3/index.php/Solar-Observations-Archive>

**Notes:** If there are any omissions or corrections please send them to Kim Hay at [cdns spooky@gmail.com](mailto:cdns spooky@gmail.com)