Rotation Report for CR2259-CR2261

by Kim Hay

The Sunspot activity over these last three rotations has been intense, not only with the morphology of the groups, but with the Solar flares as well. In particular, August 18th reported 26 flares: 1 B, 22 C, and 3 M class flares with AR3078 having the most activity. (See flare chart below)

As we came into Cycle 2259 on July 4th (also Aphelion day in which the Sun was 1.017 AU from Earth) had a very low sunspot count of 9 from SILSO. Yet by July 16th, it had the largest count of 152.

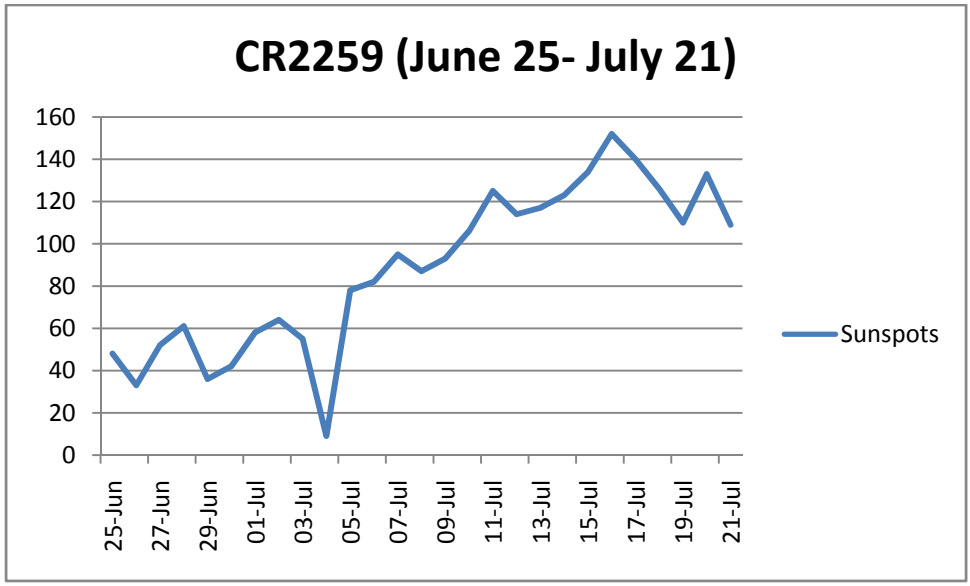
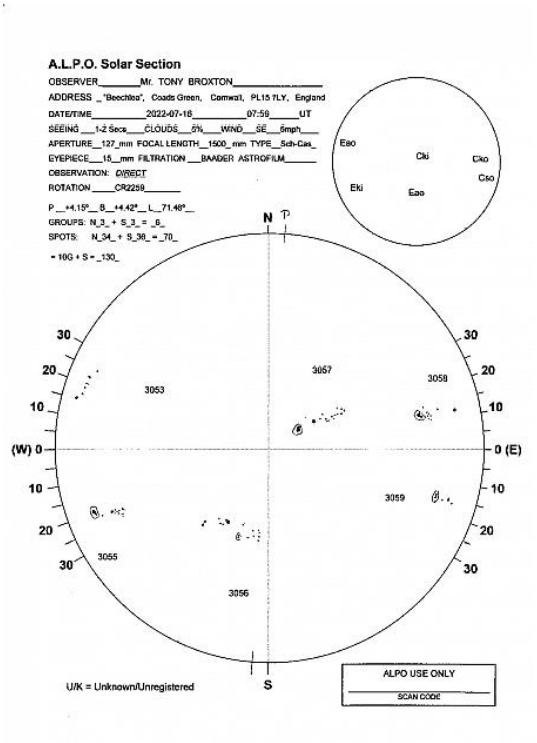


Chart created with numbers from SILSO*

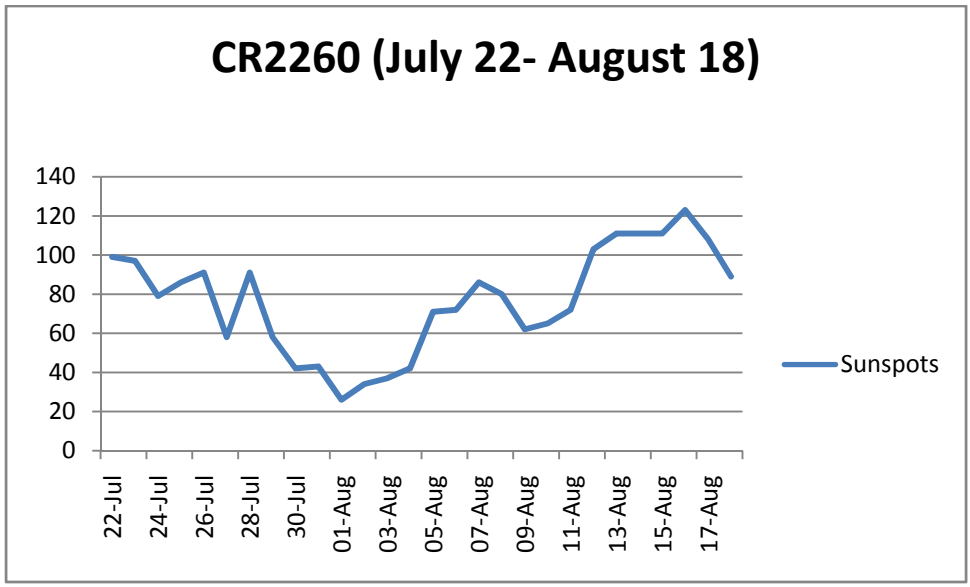


Observation by Tony Broxton

We had 568 observations from 18 observers submitted to the A.L.P.O Solar Gallery.

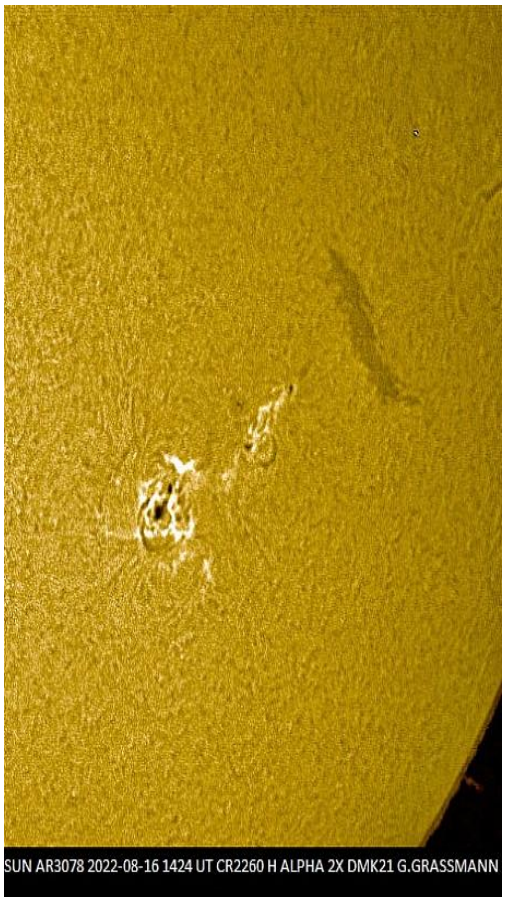
Name	White light(WL)	H-alpha-WL	H-alpha	Calcium K	Other
ANTHBX	X				
CHRVLDR			X	X	X
DVDLDV			X		
DVDTSK	X	X	X		
EFRNMRLS					
FRNMITO		X	X		
GEVDHN	X				
GLHGRSM			X	X	
HWESK	X		X	X	
JMKVTY	X		X	X	
KIMHAY	X		X		
LGIRRN	X				
MNTLVNT		X			
PATPTVN			X		
RKHLL	X		X		
RNDTTM			X		
THRMK	X		X	X	
VDSLVJ			X		

CR2260 was a moderate month with 274 Flares being produced, but M class flares being produced from August 15th to August 19th with the main groups being AR3078 and AR3079. August 12th marked the 4th birthday of the Parker Solar Probe (https://www.nasa.gov/content/goddard/parker-solar-probe) , during which time it achieved its 13th perihelion approach to the Sun on September 6th.



By August 18th, sunspot counts were heading downward again, after a high count of 123 on August 16th.

This is a H-alpha image by Guilherme Grassmann on August 16th. This is one of the flare areas (AR3078) that put out the C 5.9 flare at 13:31 UT. This image was taken at 14:24 UT, capturing the afterglow.



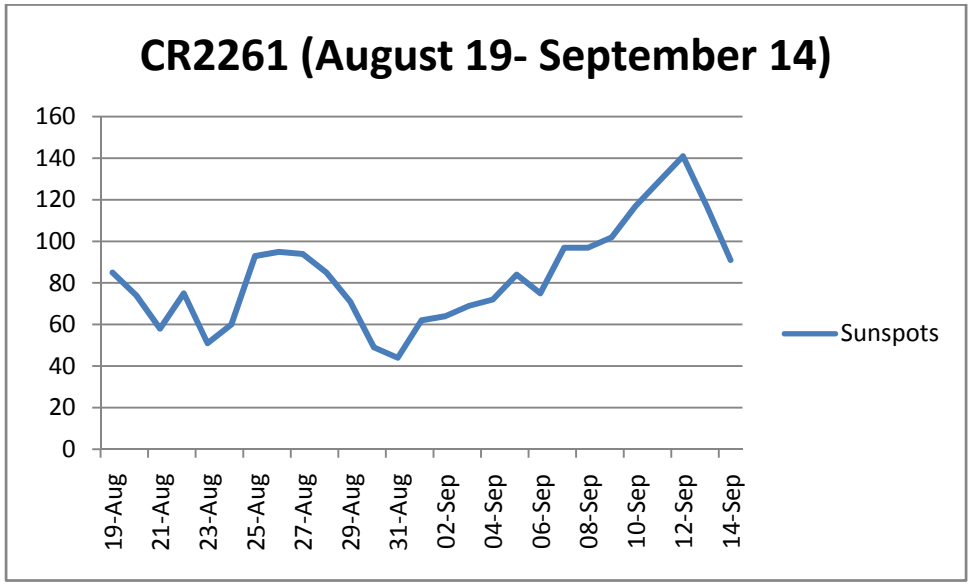
Auroras were expected to be seen in the mid states on August 18-19th ; however, they did not materialize. But the Earth was still being hit by CME's from AR3078 on August 17th, which produced an M class flare.

We had 251 observations (sketches and images) by 18 observers this month.

Name	White light(WL)	H-alpha-WL	H-alpha	Calcium K	CAKWL
ANTHBX	X				
CHRVLDR			X	X	X
DVDLDV			X		
DVDTSK	X	X	X		
EFRNMRLS			X		
FRNMITO		X	X		
GEVDHN	X		X		
GLHGRSM			X	X	
HWESK	X		X	X	
JMKVTY	X		X	X	
KIMHAY	X		X		
MNTLVNT		X			
PATPTVN			X		
RKHLL			X		X
THRMK	X		X	X	
VDSLVJ			X		

Rotation CR2261 started off with a CME hitting Earth at 17:34 UT, but the geomagnetic disturbance was weak. However, as reported on Spaceweather.com, the Norwegian arcticwas treated to blue sky auroras.

Sunspot activity was moderate with the peak on September 12th of 141 sunspots. There were several groups in this rotation that we very active, producing numerous flares: AR3085, AR3088, AR3089, AR3098, and AR3101. From August 15th-19th, 12 M class flares were produced and from August 25th - 30th, 20 M class flares were produced. Sept 5th, 12th and 14th produced 1 M class flare each day.



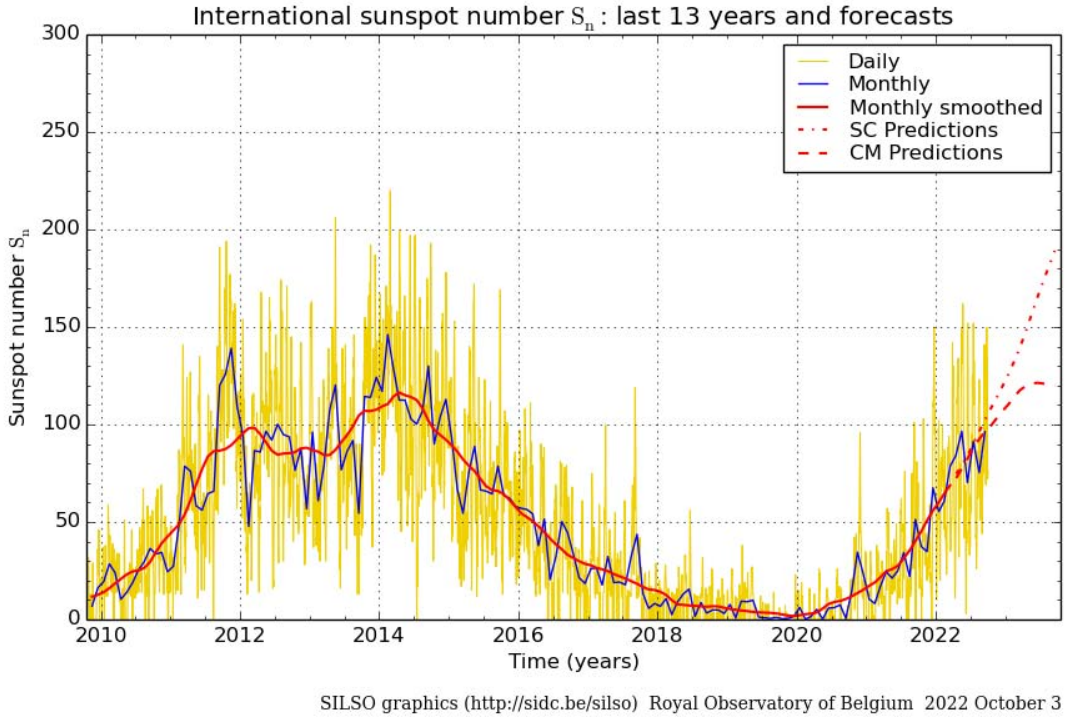
There were 270 images 13 observers for this Rotation.

Name	White light(WL)	H-alpha-WL	H-alpha	Calcium K	CAKWL
ANTHBX	X				
DVDTSK	X	X	X		
EFRNMRLS			X		
FRNMITO		X	X		
GLHGRSM			X	X	
HWESK	X		X	X	
JMKVTY	X		X	X	
KIMHAY	X		X		
MKTH	X		X		
MNTLVNT		X			
RKHLL			X		X
THRMK	X		X	X	
VDSLVJ			X		

For more great images of these Rotation Periods please visit https://alpo-astronomy.org/gallery3/index.php/Solar-Observations-Archive/SolarImages2022

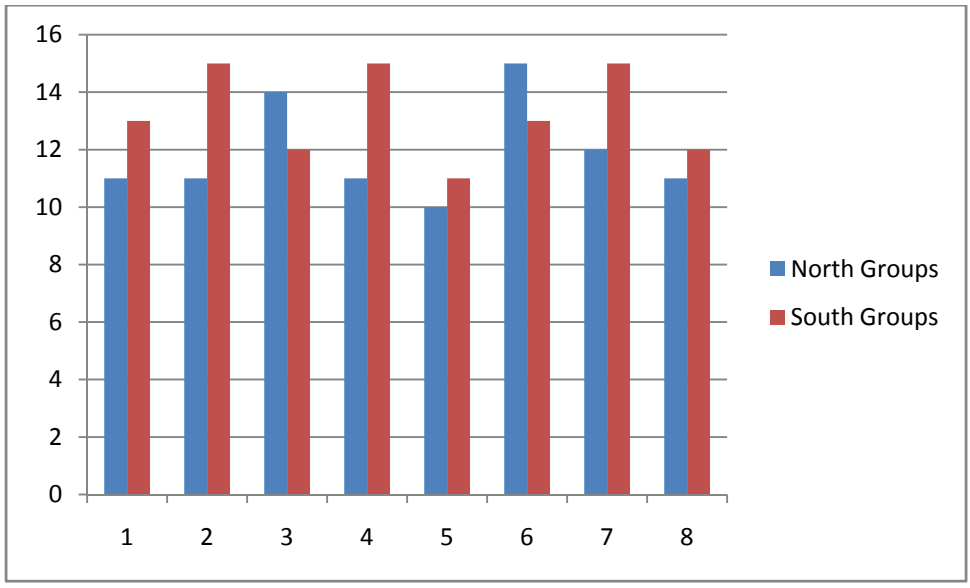
Group AR3088 38 C class flares and 16 M class flares and AR3089 with 1 B, 91 C class flares and 5 M class flares. These groups are in the Southern Hemisphere. Looking at the chart the group count for CR2261 is actually down from the previous CR2259 and CR2260

Rotation	North Groups	South Groups	Total
2259	15	13	28
2260	12	15	27
2261	11	12	23



This particular Cycle (Cycle 25) seems to be on track with surpassing the earlier prediction of intensity . However , looking at the early prediction line , the sunspot count is on par , but it's still too early to say for certain how the prediction will go

This chart shows the distribution of Sunspot Groups in both Hemispheres from CR2544 to CR2261. The Northern Hemisphere is still lagging behind the Southern Hemisphere, as it was when Cycle 25 first started. I am sure there is more to come!



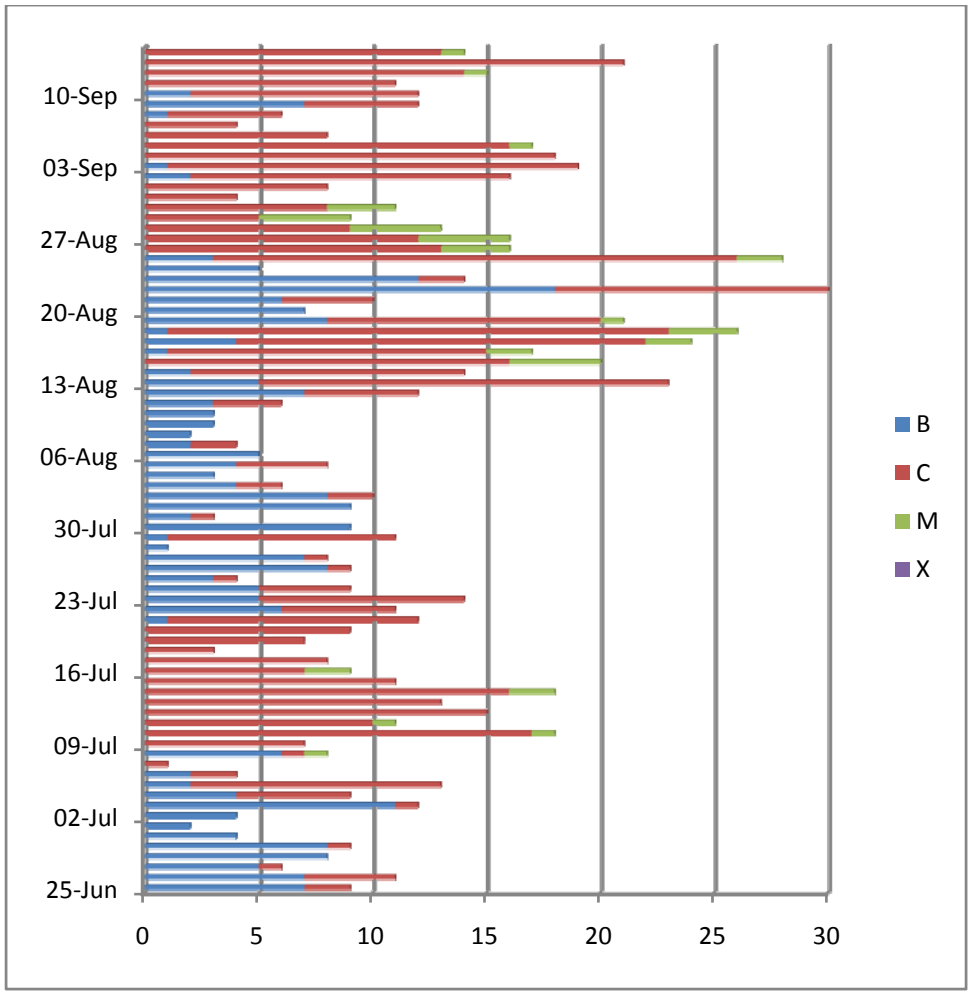


Chart data showing the number of flares for CR2259-CR2261

Total number of flares this rotation period of CR2259 - CR2261

Rotation	B	C	M	Total No.
2259	70	155	7	241
2260	113	150	11	274
2261	72	269	24	365

References

*Sunspot Index and Long-term Solar Observations https://www.sidc.be/silso/

Parker Solar Probe https://www.nasa.gov/content/goddard/parker-solar-probe

Aurora Information https://Spaceweather.com

Sunspot group distribution and Flare information https://Spaceweatherlive.com

Images & Sketches https://alpo-astronomy.org/gallery3/index.php/Solar-Observations-Archive/SolarImages2022