STCE Newsletter

15 Jun 2026 - 21 Jun 2026

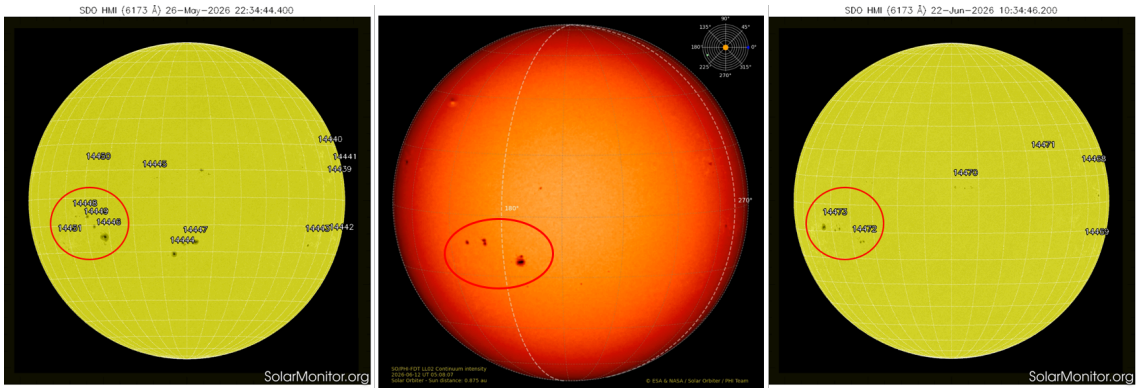
Published by the STCE - this issue : 26 Jun 2026. Available online at https://www.stce.be/newsletter/ .

The Solar-Terrestrial Centre of Excellence (STCE) is a collaborative network of the Belgian Institute for Space Aeronomy, the Royal Observatory of Belgium and the Royal Meteorological Institute of Belgium.

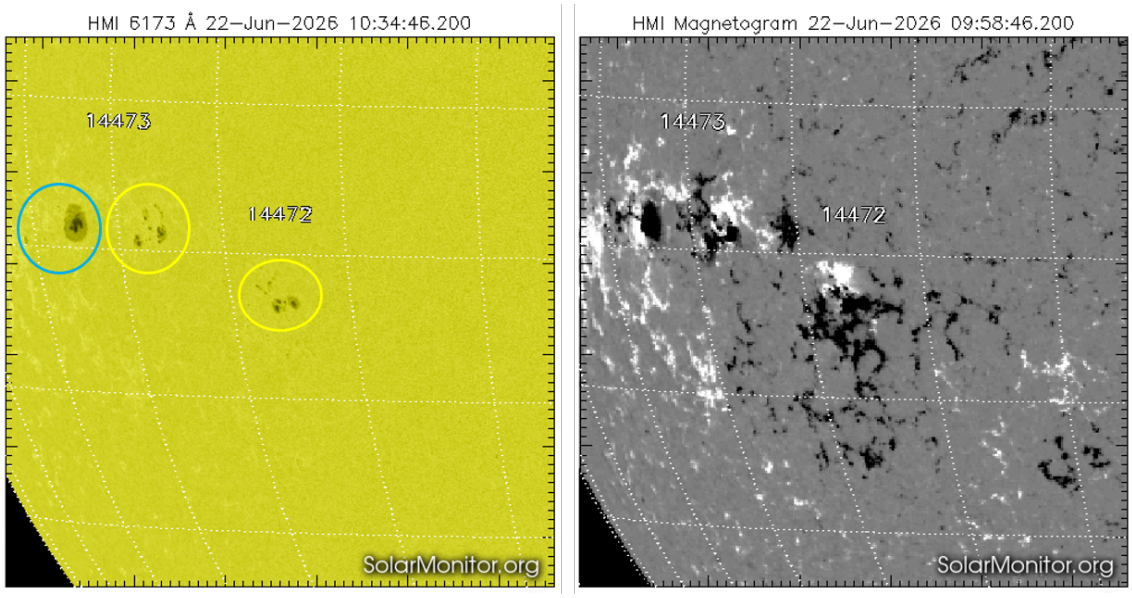
Final Editor : Petra Vanlommel
Contact : R. Van der Linden, General Coordinator STCE,
Ringlaan - 3 - Avenue Circulaire, 1180 Brussels,
Belgium

1. Look who's back!...

A nest of several active regions has returned on the solar disk, after its 2-week passage on the Sun's far side, as seen from Earth. This group of active regions was discussed in this STCE newsitem (https://www.stce.be/news/819/welcome.html). As can be seen in the white light imagery underneath, the annotated SDO/HMI images on the left (26 May) and on the right (22 June) show the group of sunspot regions one solar rotation apart. The middle image was obtained by the Polarimetric and Helioseismic Imager (PHI) on board of Solar Orbiter (https://www.mps.mpg.de/solar-physics/solar-orbiter-phi) on 12 June, when the sunspot nest was directly on the far side as seen from Earth (indicated by the 180° meridian).

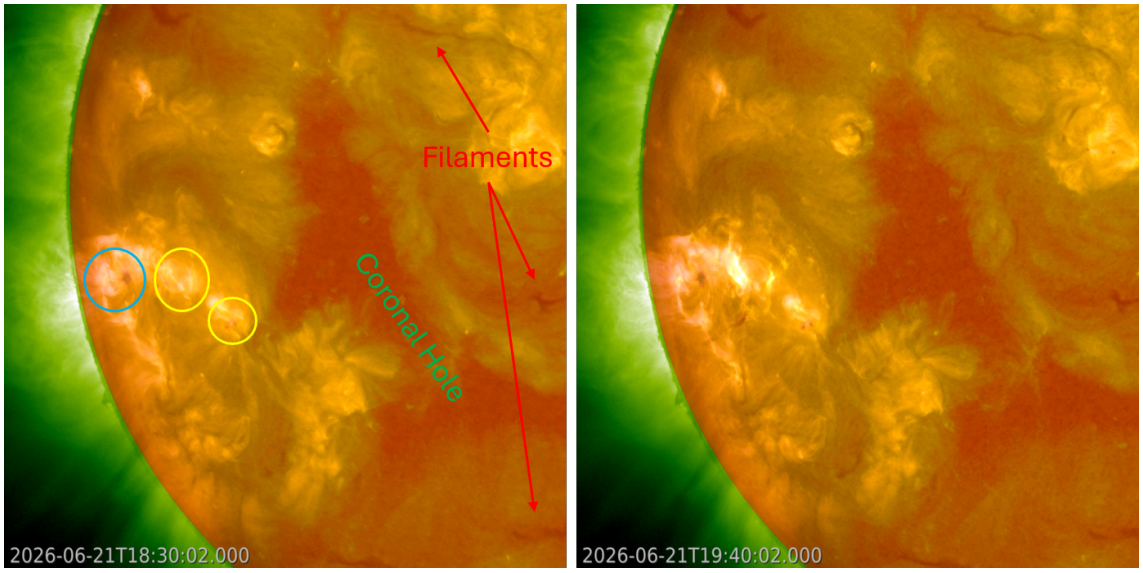


Both groups were in the decaying phase of their life, and -according to the PHI imagery- the trailing portion of the second group gave way to the development of a new active region. By the time they rounded the Sun's east limb as seen from Earth, the leading spot of this new region had become the largest spot in the nest. As could be expected, the main (leading) sunspots of all 3 regions have the same magnetic polarity (black, "negative"). This can be seen in the annotated SDO/HMI imagery underneath, with the old active regions in yellow circles and the new region in blue.

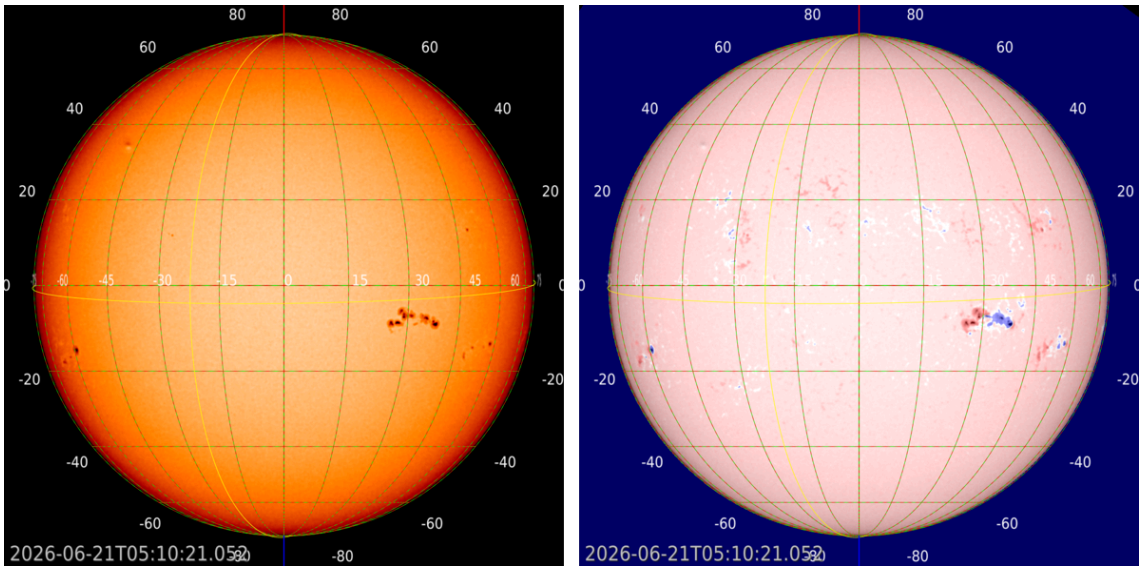


Unlike a solar rotation ago, this time, the sunspot regions were not afraid to show what they were capable of. "Old" region NOAA 14472 and the "new" region produced an M1 flare each on 20 June. The strongest

flares were produced by "old" region NOAA 14473: An M2 flare early on 21 June, and an M6 flare around 19:30 UTC on the same day. The annotated images underneath combine H-alpha images (red portion of the solar spectrum, showing the lower, "cooler" solar atmosphere) from the GONG network with extreme ultraviolet images from SDO/AIA 211 (showing the "corona", or the Sun's multimillion-degree hot upper atmosphere). This combination allows in a single image a view on the largest sunspots, filaments, flares and coronal holes. The image on the right shows the M6 flare in NOAA 14473, and on the left the outlook an hour before the eruption.



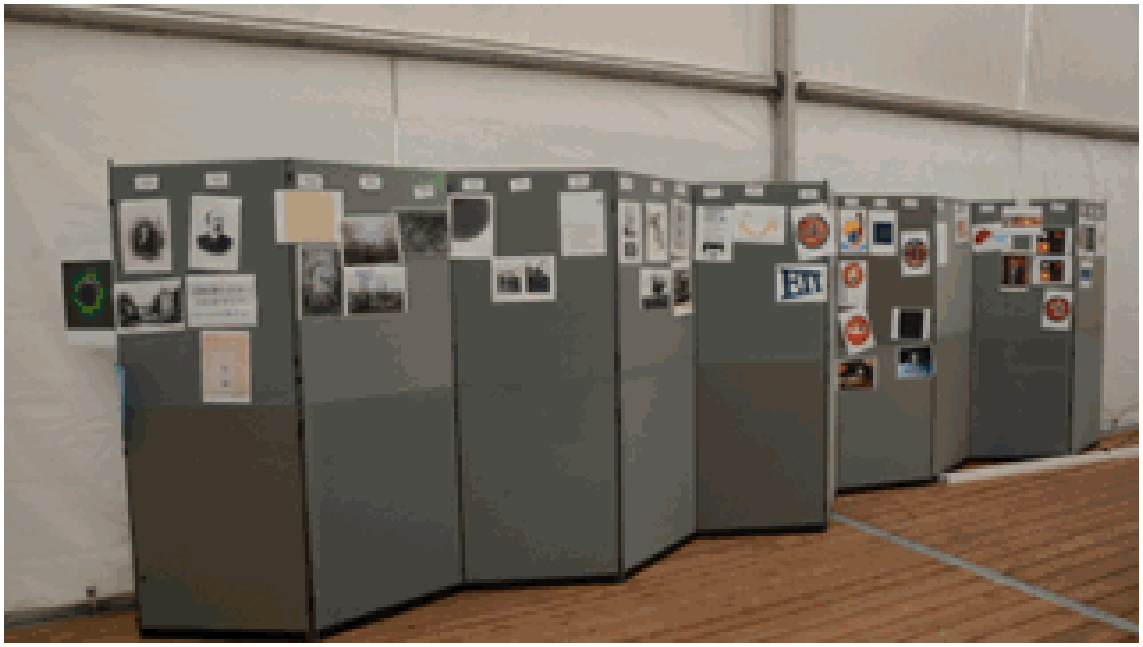
Meanwhile, a new active region is ready to rotate over the Sun's east limb, probably from 23 June onwards. This is a brand-new sunspot region that developed about a week ago on the Sun's far side, and is now a big and complex sunspot group as shown in the PHI imagery underneath (left: white light ; right: magnetogram). Hence, it is perfectly possible that the flare activity remains enhanced over the next few days.



2. 1981-2026: 45 years SIDC retrospective

In 2026, we celebrate two significant milestones: the 200th anniversary of the Royal Observatory of Belgium (ROB) and the 45th anniversary of the SIDC, Solar Influences Data Analysis Center. These are not just institutional achievements - they also reflect the dedication and contributions of all the people who have worked (or are still working) at SIDC and made their contributions in the past 45 years.
We reflected on this shared history with current and former SIDC colleagues at the 2026 ROB/SIDC Retrospective Conference.
The conference was a unique opportunity to reconnect, celebrate, and look back on the achievements during everybody's time at ROB/SIDC. Former colleagues presented their solar journey and beyond spiced with personal anecdotes and even juiced with poetry.

Thanks to all for the joyful and touching trip of 45 years SIDC.



3. Review of Solar and Geomagnetic activity

WEEK 1329 from 2026 Jun 15

Solar Active Regions (ARs) and flares

There were 12 sunspot groups visible during the week, from SIDC Sunspot Group 825 (NOAA 4463) to SIDC Sunspot Group 896 (NOAA 4471). The most complex of these groups was SIDC 885 (NOAA 4373), that reached a beta magnetic field configuration. Four M-class flares were observed during the week, three from SIDC 885 (NOAA 4373) and one from SIDC 873 (NOAA 4446/4472). The strongest flare was an M6.8 one (SIDC Flare 7988) on 21 June at 19:29 UTC, from SIDC 885 (NOAA 4373).

Coronal mass ejections

No clear Earth directed CMEs were observed during the week. The M6.8 flare (SIDC Flare 7988) on 21 June had an associated wide CME with a possible Earth-directed component, but the CME was slow and weak.

Coronal Holes

There were several CHs visible during the week, but they were all small. The ones located close to the equator and in the west hemisphere were SIDC Coronal Hole 168 (small equatorial coronal hole with a positive polarity) and SIDC Coronal Hole 169 (equatorial coronal hole with a positive polarity).

Proton flux levels

The greater than 10 MeV proton flux remained below the 10 pfu threshold throughout the week.

Electron fluxes at GEO

The greater than 2 MeV electron flux, as measured by GOES-19, intermittently exceeded the 1000 pfu alert threshold during the week, mainly on June 8-10 and again from June 13. The 24-hour electron fluence was at normal to moderate levels throughout the week.

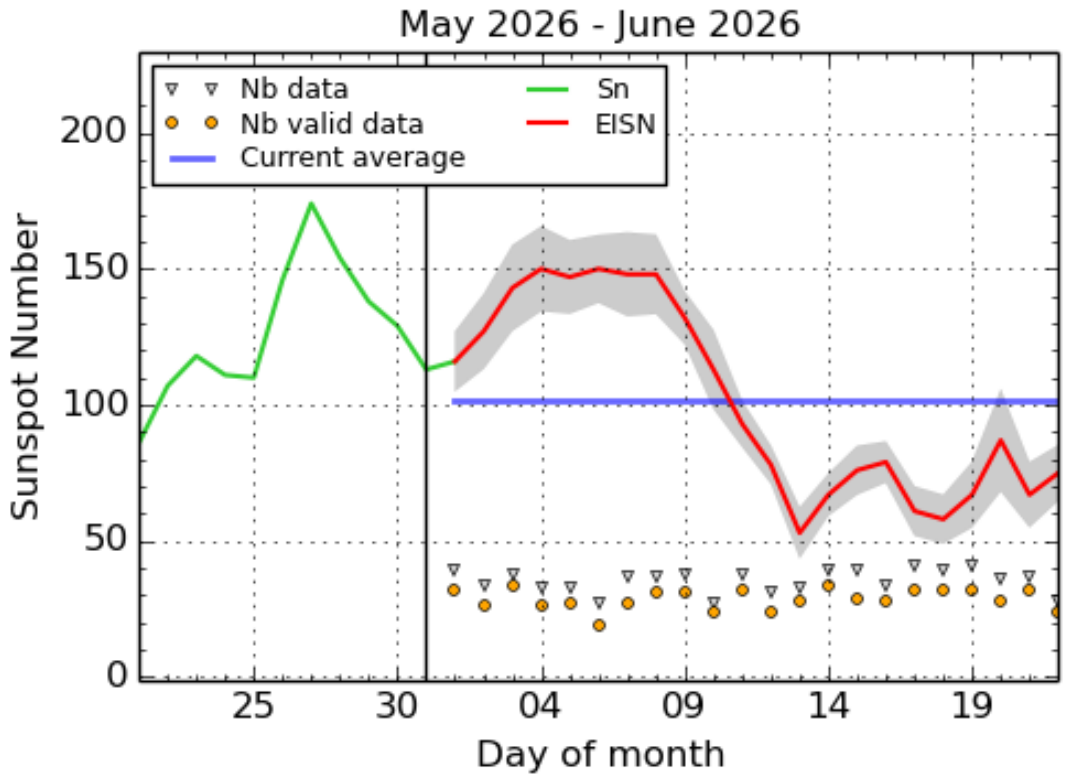
Solar wind

The solar wind at the Earth was slow most of the week. On June 17, the ICME corresponding to the 12 June CME arrived to the Earth early on 17 June, with a magnetic field reaching 12 nT (with Bz mostly positive) and a speed around 415 km/s. A mild high speed solar wind stream from SIDC Coronal Hole 168 arrived at the Earth on 18 June, with speeds reaching 520 km/s and magnetic fields of 6 nT.

Geomagnetism

The geomagnetic conditions were quiet to unsettled the full week with Kp and K_Bel up to 3.

4. International Sunspot Number by SILSO



SILSO graphics (http://sidc.be/silso) Royal Observatory of Belgium, 2026 June 22

The daily Estimated International Sunspot Number (EISN, red curve with shaded error) derived by a simplified method from real-time data from the worldwide SILSO network. It extends the official Sunspot Number from the full processing of the preceding month (green line), a few days more than one solar rotation. The horizontal blue line shows the current monthly average. The yellow dots give the number of stations that provided valid data. Valid data are used to calculate the EISN. The triangle gives the number of stations providing data. When a triangle and a yellow dot coincide, it means that all the data is used to calculate the EISN of that day.

5. PROBA2 Observations

Solar Activity

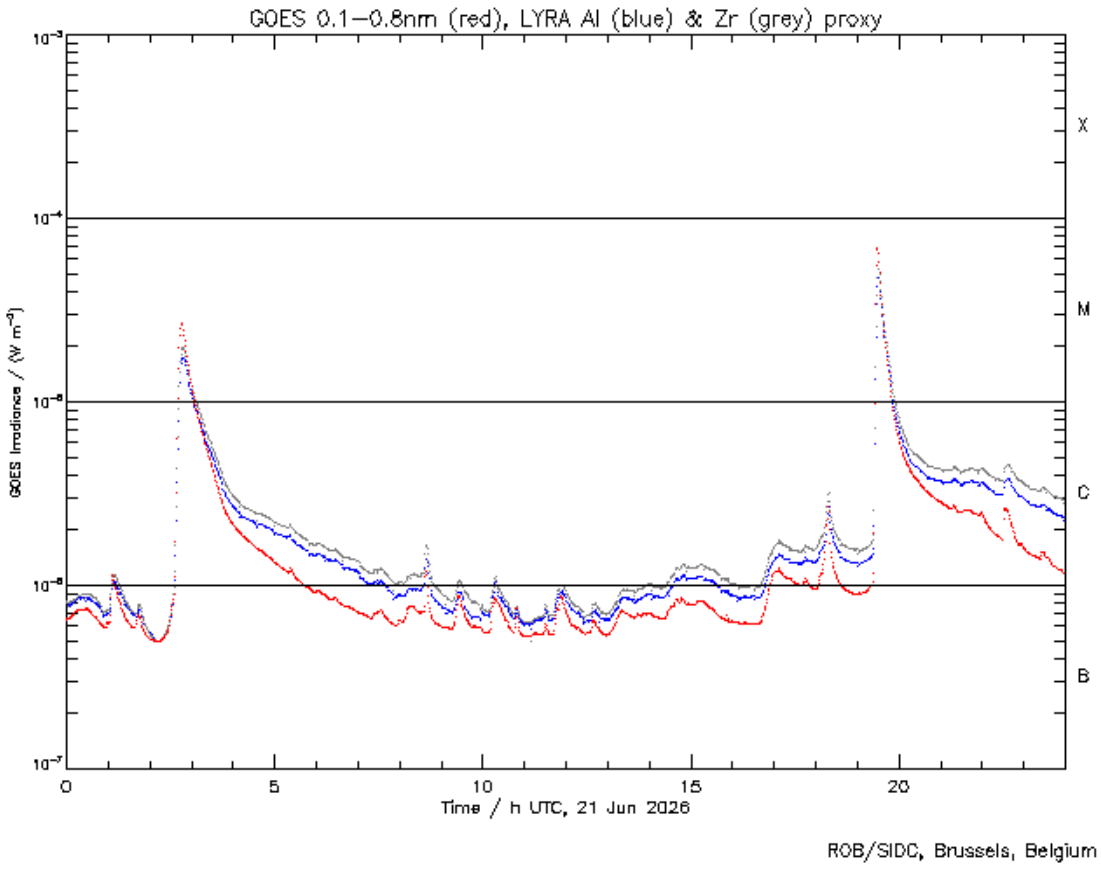
Solar flare activity fluctuated from low to moderate during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: https://proba2.oma.be/ssa
This page also lists the recorded flaring events.

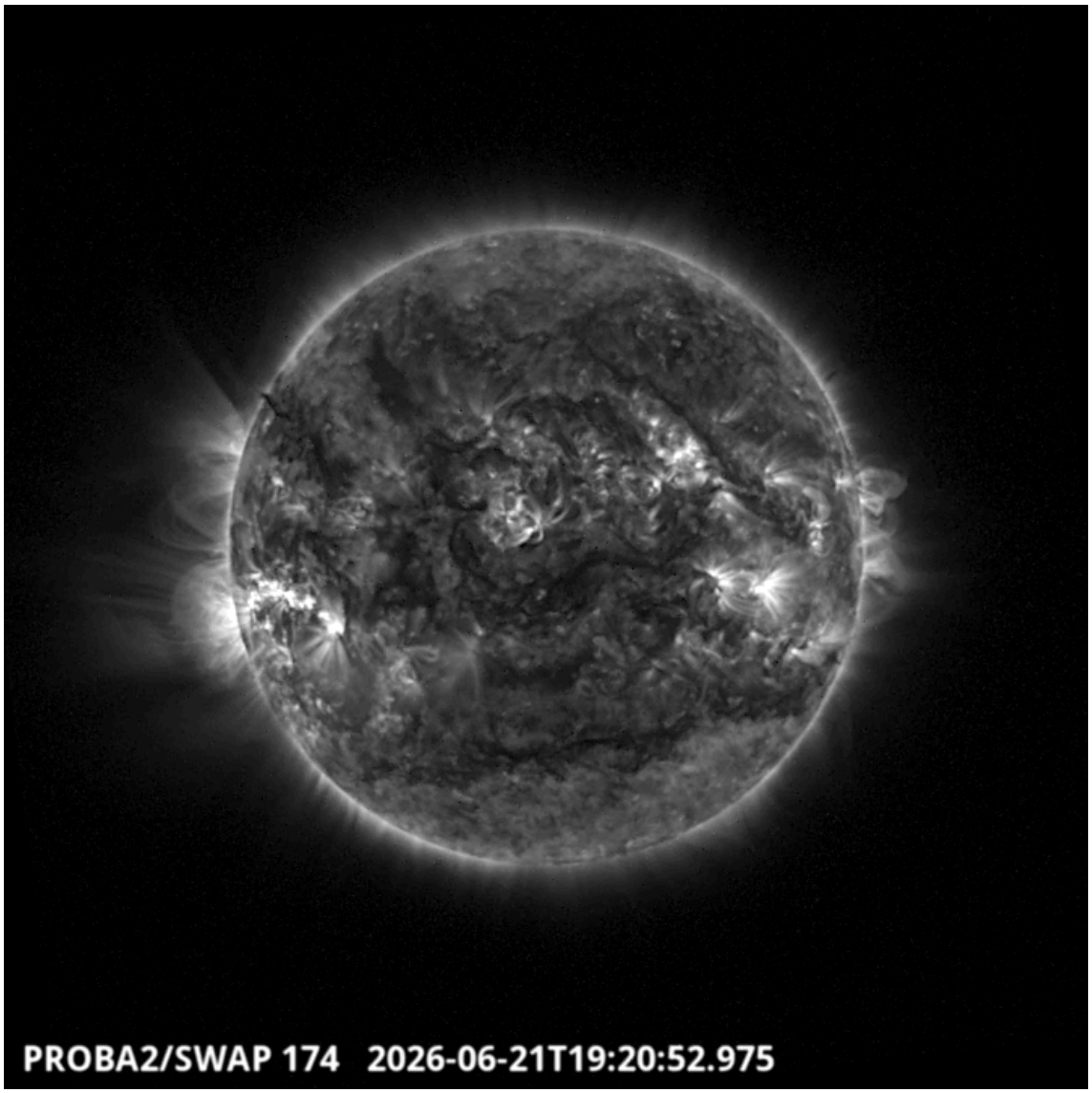
A weekly overview movie can be found here (SWAP week 847). https://proba2.sidc.be/swap/data/mpg/movies/weekly_movies/weekly_movie_2026_08_15.mp4

Details about some of this week's events can be found further below.

If any of the linked movies are unavailable they can be found in the P2SC movie repository here https://proba2.oma.be/swap/data/mpg/movies/

Sunday Jun 21





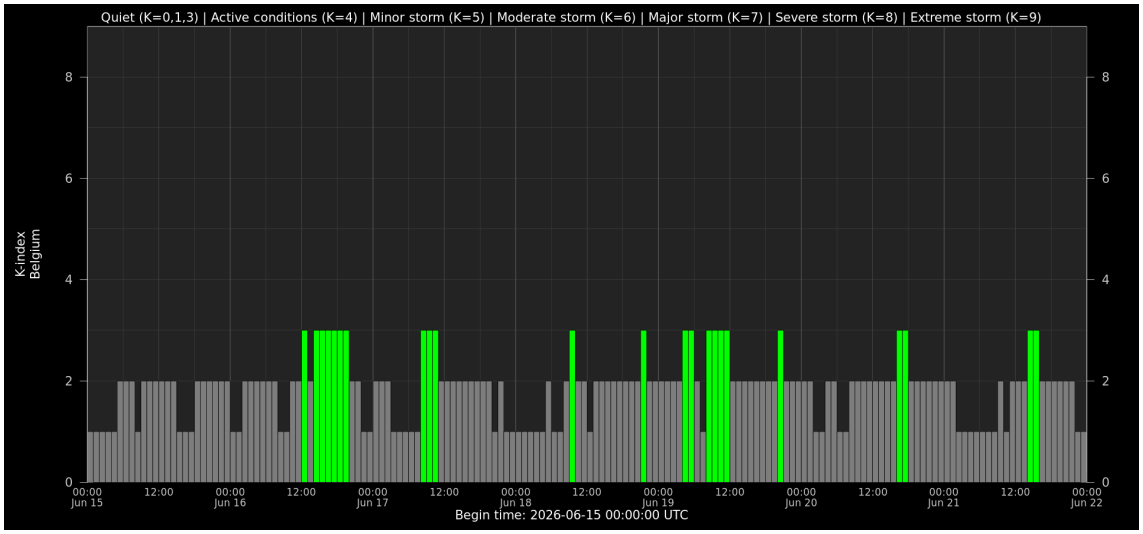
The largest flare of this week was an M6.8, and it was observed by LYRA (top panel) and SWAP (bottom panel). The flare peaked on 2026-Jun-21 at 19:29 UT and occurred in the South East part of the solar disk originating from active region NOAA4473 (SIDC885). Find a SWAP movie of the event here. https://proba2.sidc.be/swap/movies/20260621_swap_movie.mp4

6. Noticeable Solar Events

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA
20	0126	0151	0204		M1.3				54	4472
20	1450	1500	1505		M1.0					4473
21	0225	0246	0258		M2.6					4473
21	1917	1929	1935	S7E55	M6.8	2B		III/2II/1		4473

LOC: approximate heliographic location
XRAY: X-ray flare class
OP: optical flare class
10CM: peak 10 cm radio flux
TYPE: radio burst type
Cat: Catania sunspot group number
NOAA: NOAA active region number

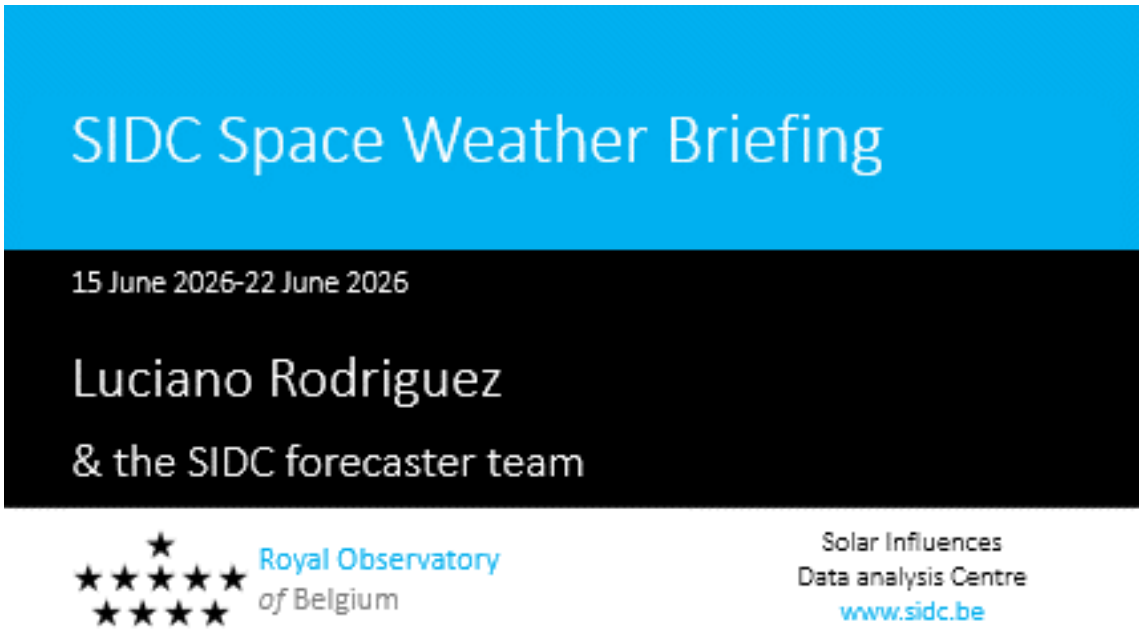
7. Geomagnetic Observations in Belgium



Local K-type magnetic activity index for Belgium based on data from Dourbes (DOU) and Manhay (MAB). Comparing the data from both measurement stations allows to reliably remove outliers from the magnetic data. At the same time the operational service availability is improved: whenever data from one observatory is not available, the single-station index obtained from the other can be used as a fallback system.
Both the two-station index and the single station indices are available here: http://ionosphere.meteo.be/geomagnetism/K_BEL/

8. SIDC Space Weather Briefing

The forecaster on duty presented the SIDC briefing that gives an overview of space weather from June 15 to June 22.
The pdf of the presentation can be found here: https://stce.be/briefings/20260622_SWbriefing.pdf



9. Upcoming Activities

Courses, seminars and events with the Sun-Space-Earth system and Space Weather as the main theme. We provide occasions to get submerged in our world through educational, informative and instructive activities.

* July 8, 2026, Watching the Sun: a 200 year journey, public visits of the solar physics and space weather department, NL/FR/EN, Brussels, Belgium - book: https://200year.observatory.be/en-gb/coupole

* Aug 6, 2026, Watching the Sun: a 200 year journey, public visits of the solar physics and space weather department, NL/FR/EN, Brussels, Belgium - book: https://200year.observatory.be/en-gb/coupole

* Oct 12-14, 2026, STCE Space Weather Introductory Course, Brussels, Belgium - register: https://events.spacepole.be/event/257/ - Fully booked

* Oct 15, 2026, Post Space Weather Introductory Course, Brussels, Belgium - register: https://events.spacepole.be/event/286/

* Oct 29- Nov 1, 2026, Prior to ESWW2026 - Space Weather Training Course in Firenze, Italy - Applications closed

* Nov 2-6, 2026, European Space Weather Week, Florence, Italy, https://esww2026.eswan.eu/

* Nov 23-25, 2026, STCE course: Role of the ionosphere and space weather in military communications, Brussels, Belgium - register: https://events.spacepole.be/event/259/

* Dec 7-9, 2026, STCE Space Weather Introductory Course for Aviation, Brussels, Belgium - register: https://events.spacepole.be/event/262/

To register for a course and check the seminar details, navigate to the STCE Space Weather Education Center: https://www.stce.be/SWEC
If you want your event in the STCE newsletter, contact us: stce_coordination at stce.be

Website: https://www.stce.be/SWEC