

STCE Newsletter

7 Sep 2026 - 13 Sep 2026



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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.

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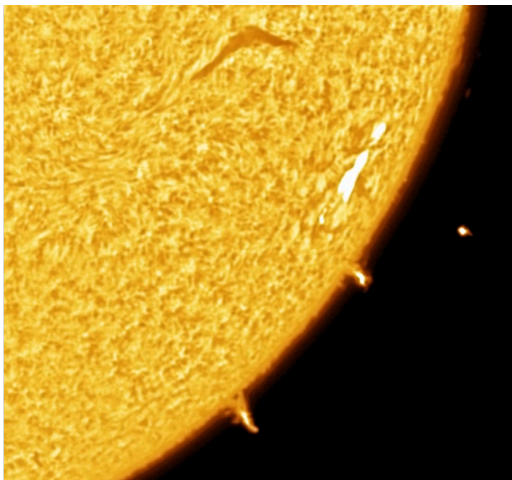
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1. Readers write

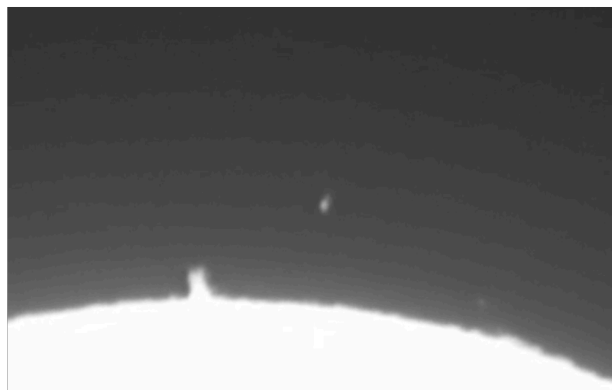
Following the previous STCE newsitem "Antics of a spotless active region" (<https://www.stce.be/news/835/welcome.html>) on an eruption in a spotless region, Peter Meadows -director of the Solar Section of the British Astronomical Association (<https://britastro.org/sections/solar>) - forwarded us two video clips of this very same event. They were made by amateur astronomers Scott Benavente (Silverton, Texas, USA) and Mike Cuffe (Isle of Wight, United Kingdom).

Peter writes: "Early last week I received two emails about a fast moving eruptive prominence observed on the 5th of September at around 15:10 to 15:15 UTC. Both Scott Benavente and Mike Cuffe had imaged this spectacular event and created videos." On reading the STCE newsitem, Peter quickly realised that the article and the clips all referred to the same active region 4520 and associated flare, and connected it also to GONG H-alpha images. H-alpha is an absorption line in the red portion of the solar spectrum, and is often used in ground-based observations to image filaments, prominences and solar eruptions. Solar H-alpha telescopes use ultra-narrow filters (usually etalons with a bandpass under 0.1 nanometers) that completely block out the overpowering, blinding light of the photosphere. By tuning exactly into the dark absorption line, the telescope allows one to see the much fainter light being re-emitted by the active structures in the chromosphere.

The clips underneath were made with dedicated, but small H-alpha solar telescopes: Scott made his recordings with a LUNT 50 (5 cm diameter), while Mike used a Coronado PST (4 cm in diameter). These modest apertures make the obtained clips of course even more impressive. The links in the description provide more information on the recordings. The images have not been corrected for the usual orientation (north on top, west to the left), and may also have been mirrored due to camera and telescope optics. Clips are online at <https://www.stce.be/news/835/welcome.html>



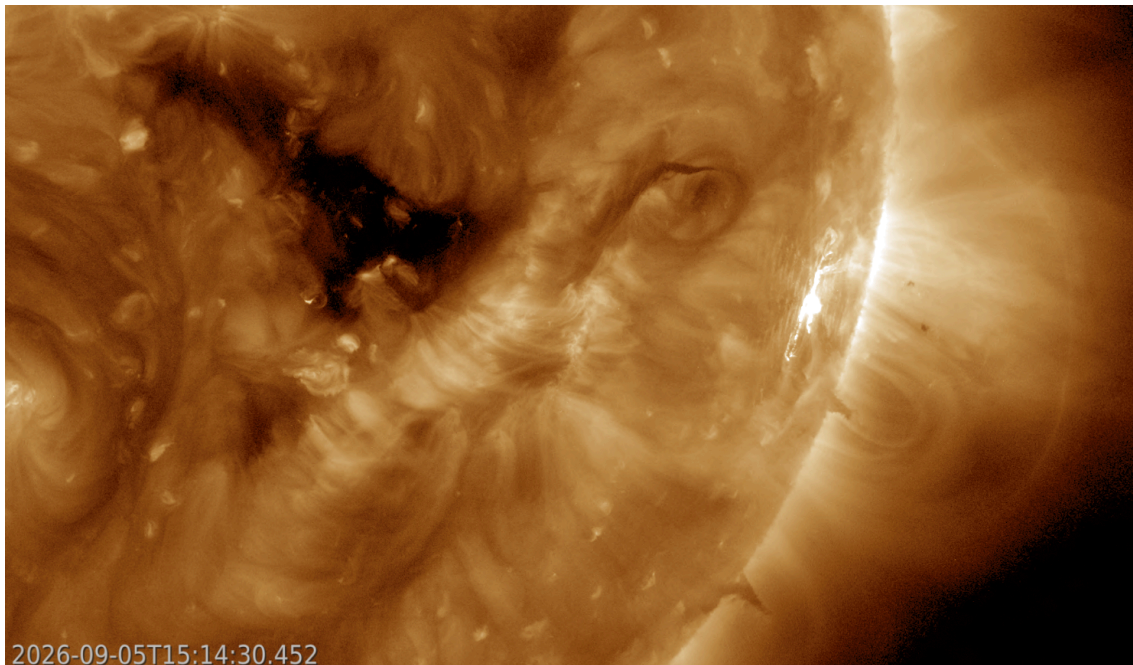
Credits: Scott Benavente
<https://www.youtube.com/shorts/hwJ1CMIMMg>
<https://www.facebook.com/groups/1278689162297491/posts/3597558917077159/>



Credits: Mike Cuffe
<https://westwightbackyardastronomy.blogspot.com/>

An interesting feature that could be seen in the video clips was a blob being ejected during the eruption. Mike Cuffe roughly estimated it to be travelling with a speed near 430 km/s in the plane of the sky. Using higher cadence (1 image per minute) SDO/AIA 193 imagery, some of the blobs are well visible in extreme ultraviolet (EUV) too as can be seen in the imagery underneath. The largest and densest of the blobs visible in EUV corresponds most likely to the blob seen in H-alpha. It moved at an average speed around 480 km/s, slightly higher than inferred from the H-alpha images. That this blob is visible in both H-alpha and EUV most likely means that it consisted of "cold" material (around 10.000 to 20.000 degrees), thus becoming visible as a dark silhouette against the bright, million degree hot background imaged by the AIA 193 filter. See e.g. this STCE newsitem <https://www.stce.be/news/500/>

welcome.html for another example, and the introduction in Parenti et al. 2012 (<https://iopscience.iop.org/article/10.1088/0004-637X/754/1/66>) for a more in-depth discussion. Finally, it is possible that the blobs were originally part of a lean filament in a nearly empty filament channel. This filament may have been too small and too fragmented to have been obviously visible in solar imagery prior to its eruption.



2. The 90th parallel



The Solar Orbiter satellite is a true explorer. Just as scientists set sail more than 100 years ago for the Earth's freezing polar regions, Solar Orbiter is hurling towards uncharted territories close to the hot solar poles. A heat shield is no luxury.

Both expeditions, to the Earth's and solar poles, have to withstand harsh conditions. Equipped with instruments and cameras, they brave storms and extreme temperatures to advance science and to go where no one has gone before.

Scientific story telling

Story telling can be an engaging and powerful tool to share complex science, especially when it is told as a personal journey. It helps to understand and remember. In this way, science becomes more trustable and can even inspire next generations.

Both stories, Belgica and Solar Orbiter, touch similar all times themes: the need to explore, unforeseen situations and misfortunes and discoveries.

The Belgica has already strong scientific legacy, while Solar Orbiter has still a bright scientific future.

The format of scientific story telling will be presented at the ESA Heliophysics workshop, Monday 21 September to Thursday 24th September.

3. Review of space weather

Solar Active Regions (ARs) and flares

Solar flaring activity was low during the week. Fifteen (15) C-class flares were observed. The largest flare was a C5.8 flare (SIDC Flare 8571) peaking on September 12 at 17:20 UTC, which was produced by SIDC Sunspot Group 952 (NOAA Active Region 4521). Eight (8) active regions were observed on the visible solar disk over the week, all having alpha or beta magnetic configuration.

Coronal mass ejections

One faint CME (Coronal Mass Ejection) SIDC CME 720 with an Earth directed component was observed in LASCO C2 images on September 6 11:00 UTC.

The full halo CME observed on August 21 08:24 UTC, was back-sided.

Coronal Holes

The small polar positive polarity equatorial SIDC Coronal Hole (CH) 180 crossed the central meridian on September 8.

A long east-westwards elongated southern mid latitude negative polarity coronal hole (SIDC CH 149) started crossing the central meridian on September 10.

The northern mid latitude negative polarity coronal hole (SIDC CH 142) started its crossing of the central meridian on September 12.

Proton flux levels

The greater than 10 MeV GOES proton was below the 10pfu threshold.

Electron fluxes at GEO

The greater than 2 MeV electron flux was mainly above the 1000 pfu threshold since September 8.

Solar wind

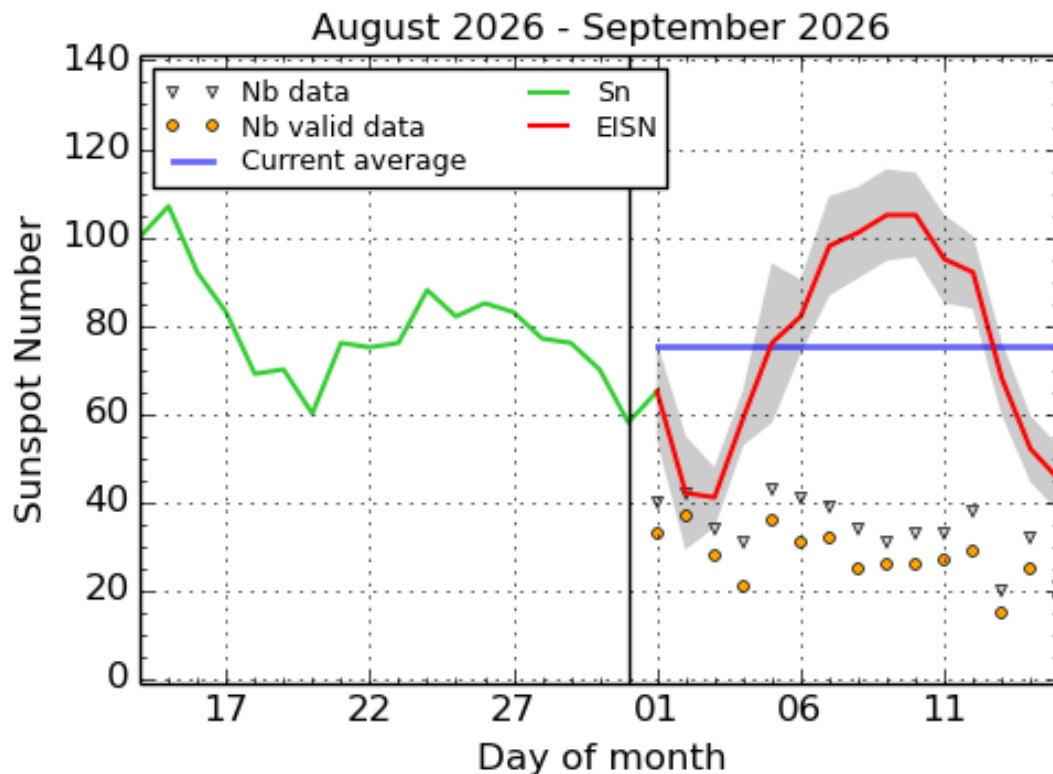
At the start of the week, the solar wind near Earth was slow. On September 7, the high speed solar wind emanating from SIDC Coronal Hole 179 arrived. On September 9, the solar wind returned gradually to slow conditions.

The solar wind ranged between 290 and 626 km/s and the interplanetary magnetic field between 0.83 and 12 nT, with the Bz reaching a minimum of -14 nT.

Geomagnetism

Geomagnetic conditions became active ($K_p=4$) on September 7 and 8, with an isolated minor storm on September 8 ($K_p=5$).

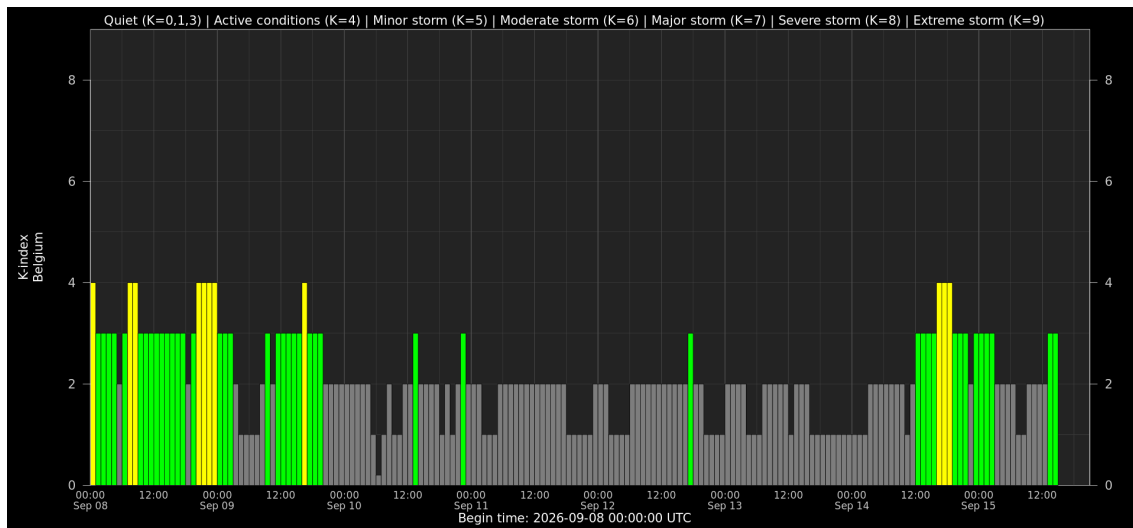
4. International Sunspot Number by SILSO



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium, 2026 September 15

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. 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/

6. The SIDC Space Weather Briefing

The forecaster on duty presented the SIDC briefing that gives an overview of space weather from September 7 to 13: https://www.stce.be/briefings/20260914_SWbriefing.pdf

Summary Report

Active regions	8 AR - SIDC 952 (NOAA 4521) & SIDC 943 (NOAA 4524) & SIDC 946 (NOAA 4528) & SIDC 958 (NOAA 4530)
Flares	# C-class flare: 15 # M-class flare: 0 # X-class flare: 0
Coronal Holes	1 +CH & 2 -CH
CMEs	CME 718 Sept 6 11:00 UTC
Proton flux	Below 10 pfu threshold
Electron flux	Since 8 Sept: mainly above 1000 PFU threshold
ICMEs	1 ICME (Sept 08 – CME 718)
Solar wind conditions	B : 0.83 - 17.4 nT// Bz: -14.13 nT to 12.32 nT// Speed: 290.8 - 626.9 km/s
Geomagnetic conditions	max K _{Bel} : 4.0, max K _p (NOAA): 5.0, Minor Storm conditions

Space Weather Briefing – Solar Influences Data analysis Centre www.sidc.be

7. PROBA2 Observations (7 Sep 2026 - 13 Sep 2026)

Solar Activity

Solar flare activity fluctuated from very low to low during the week.

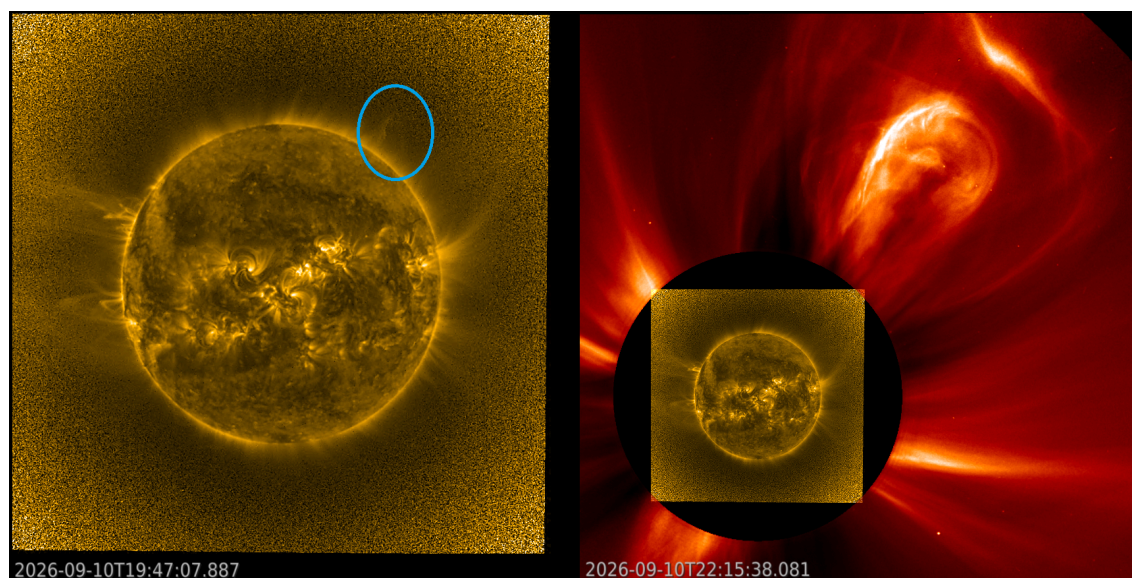
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: <https://proba2.oma.be/ssa>
This page also lists the recorded flaring events.

A weekly overview movie (SWAP week 859) can be found here: https://proba2.sidc.be/swap/data/mpg/movies/weekly_movies/weekly_movie_2026_09_07.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/>.

Thursday September 10



In the absence of large flares during this week, one of the more interesting events was a filament eruption that occurred on 2026-Sep-10 and originated from the encircled area, seen in the left panel in an observation taken by SWAP at 19:47 UT. The eruption was associated with a coronal mass ejection directed north-west (right panel), as seen by the LASCO-C2 coronagraph (in red) onboard SOHO spacecraft.

Find a SWAP movie of the event here: https://proba2.sidc.be/swap/movies/20260910_swap_movie.mp4.

8. STCE courses and seminars

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.

* Sep 21, 2026, STCE Seminar: ESA Project SWiIFT – Space Weather Resilience - <https://stce.be/content/stce-seminar-esa-project-swift-%E2%80%93-space-weather-resilience>

* Sep 26-27, 2026, Open Days at the Space Pole, Ukkel, Belgium - <https://spacepole.be/en/open-days>

- * 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 16, 2026, Watching the Sun: a 200-year journey, guided tour Solar Physics, Ukkel, Belgium - register <https://events.spacepole.be/category/2/>
- * 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 13, 2026, Watching the Sun: a 200-year journey, guided tour Solar Physics, Ukkel, Belgium - register <https://events.spacepole.be/category/2/>
- * 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/>
- * Nov 30, 2026, Watching the Sun: a 200-year journey, guided tour Solar Physics, Ukkel, Belgium - register <https://events.spacepole.be/category/2/>
- * Dec 7-9, 2026, STCE Space Weather Introductory Course for Aviation, Brussels, Belgium - register: <https://events.spacepole.be/event/262/> - Fully booked

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](mailto:stce_coordination@stce.be)



Space Weather Education Centre

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