STCE Newsletter

24 Apr 2017 - 30 Apr 2017

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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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1. ESWW medal awards: nominate a winner

Dear colleagues

We are happy to announce the 2017 contest for the international space weather medals. The new medal recipients will be announced in a medal ceremony at the European Space Weather Week, the 27th of November, 2017.

All three prizes (Chizhevsky, Nicolet, Birkeland) are prestigious recognitions of recipients' major contributions in the field of space weather. Medal recipient's work must have been documented in peer review journals or book chapters, or must be a technological contribution that has led to a fully implemented new space weather capability. Medal recipient's work must be relevant to space weather and/or space climate. The work must also be internationally recognized.

Please find the necessary informations (how to nominate...) at http://www.stce.be/esww14/medals.php

We encourage all of you to think about potential nominees.

Best regards

The SW Medal Committee

2. PROBA2 Observations (24 Apr 2017 - 30 Apr 2017)

Solar Activity

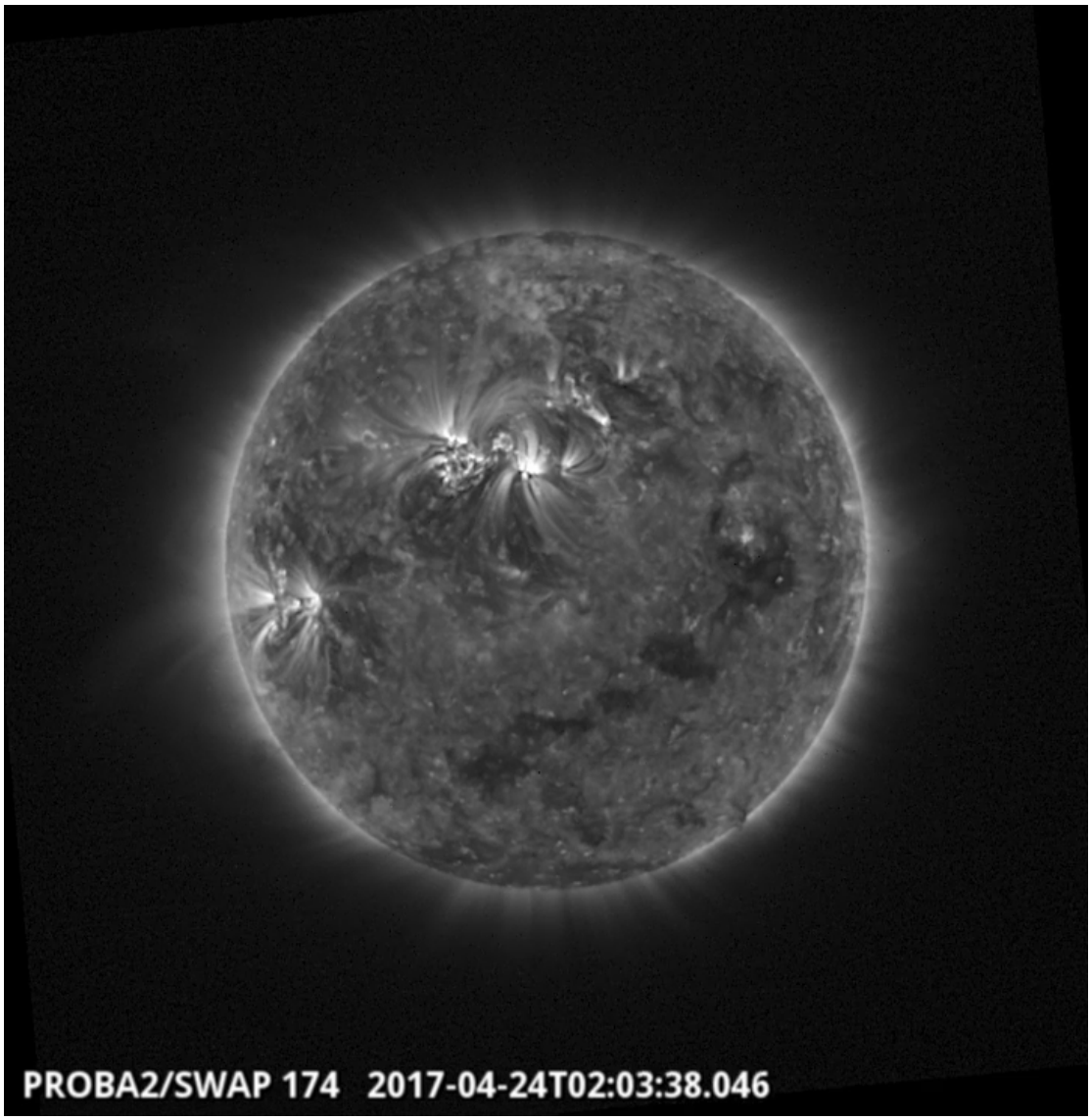
Solar flare activity was very low during the week.
In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa
This page also lists the recorded flaring events.

A weekly overview movie can be found here (SWAP week 370).
http://proba2.oma.be/swap/data/mpg/movies/weekly_movies/weekly_movie_2017_04_24.mp4

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

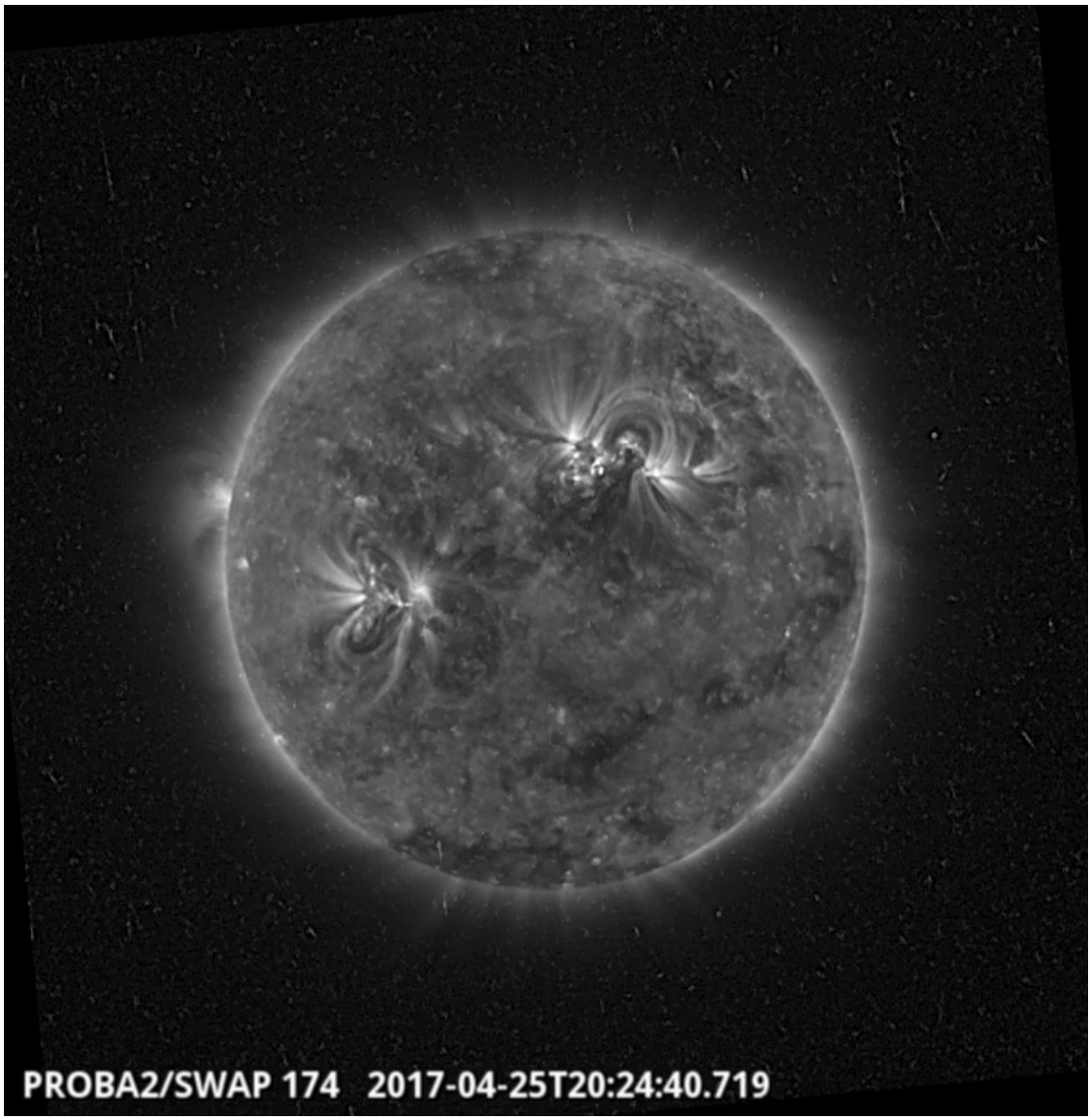
If any of the linked movies are unavailable they can be found in the P2SC movie repository here
http://proba2.oma.be/swap/data/mpg/movies/

Monday Apr 24



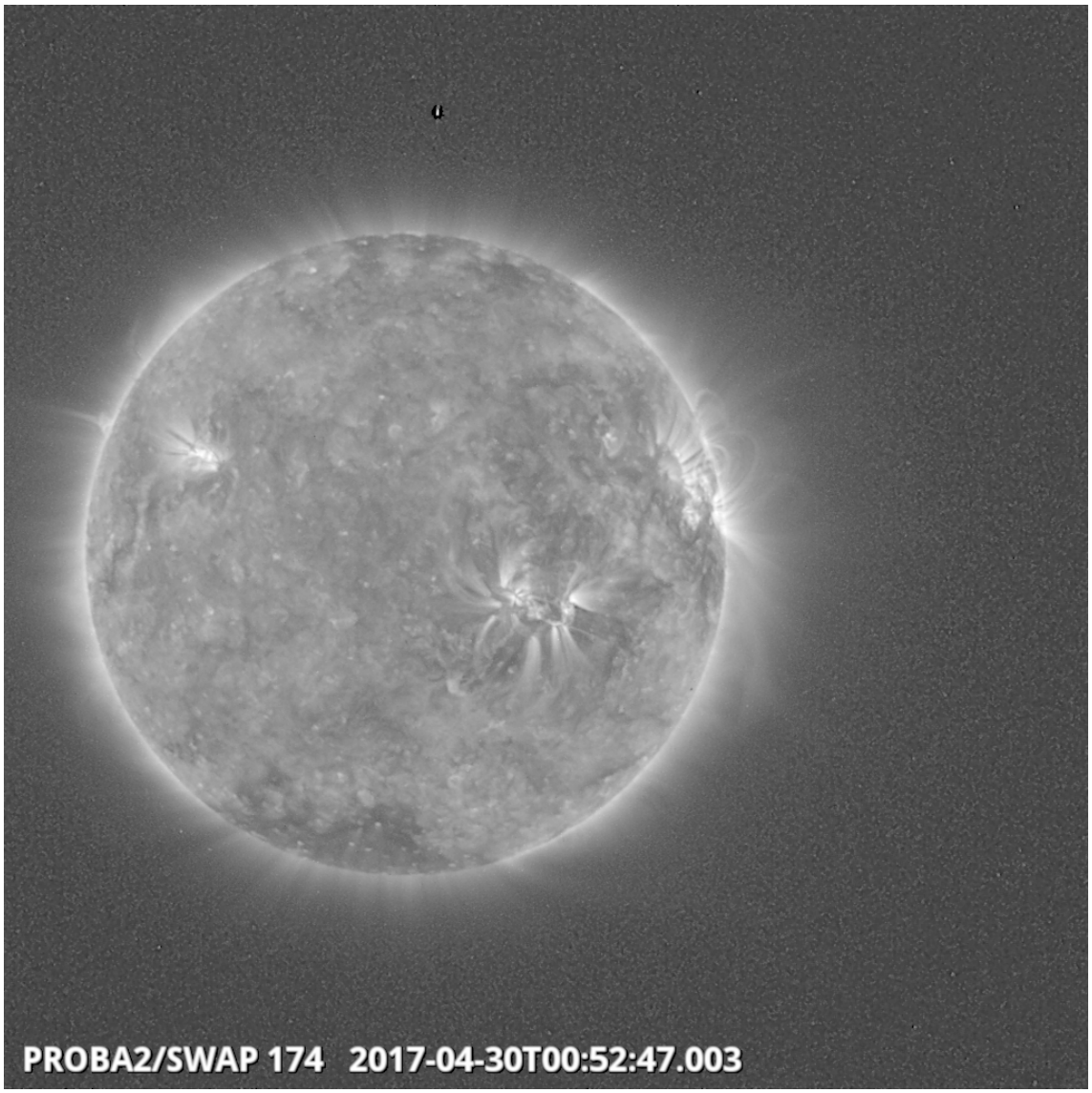
A filament eruption, from the north-east quadrant of the Sun, observed at about 02:00 UT on 24-April-2017 was associated with a narrow CME
Find a movie of the event here (SWAP movie)
http://proba2.oma.be/swap/data/mpg/movies/20170424_swap_movie.mp4

Tuesday Apr 25



The largest flare of the week was a B7.2 class flare, peaking at 20:25 UT on 2017-Apr-25 produced by the NOAA region 2651, which is visible in the North hemisphere of the above SWAP image
Find a movie of the events here (SWAP movie)
http://proba2.oma.be/swap/data/mpg/movies/20170425_swap.mp4

Sunday Apr 30

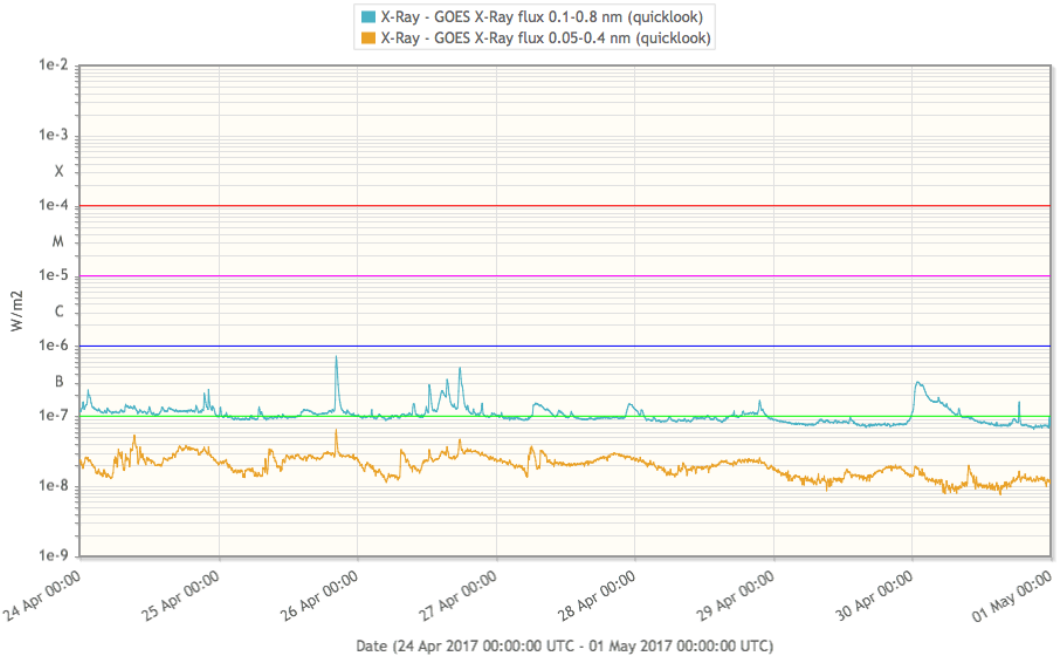


A long duration B3.0 class flare peaking at 00:57 UT on 30-April-2017 originated from the NOAA AR 2653, which is visible in the South West hemisphere of the above SWAP image. The flare was associated with an EIT wave, coronal dimming and CME.
Find a movie of the events here (SWAP movie)
http://proba2.oma.be/swap/data/mpg/movies/weekly_movies/weekly_movie_2017_04_24.mp4

3. Review of solar and geomagnetic activity

SOLAR ACTIVITY

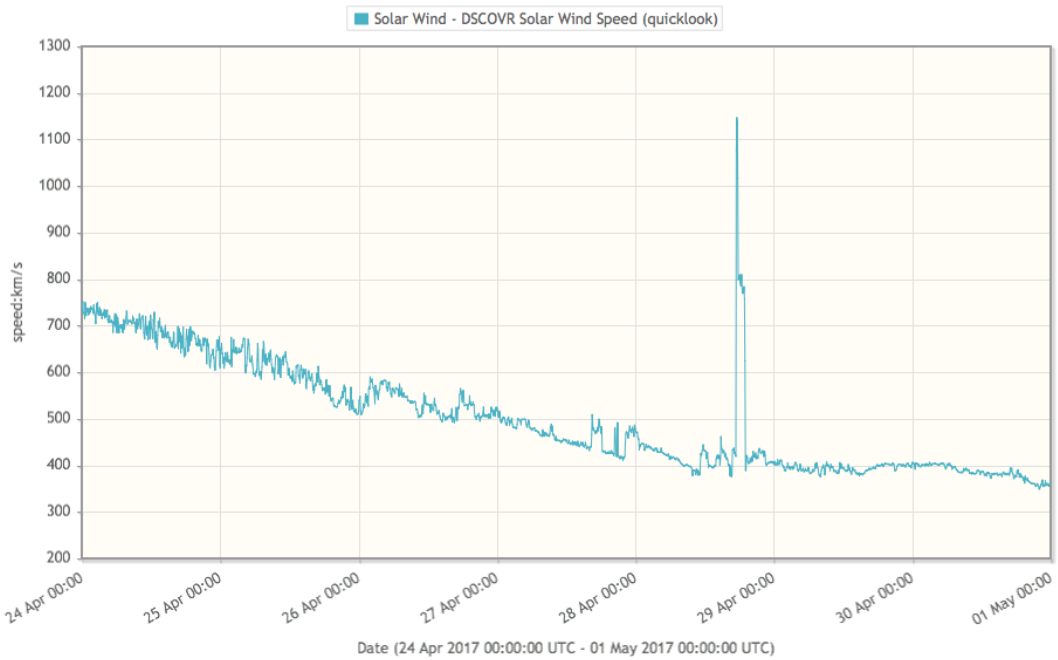
During this week solar activity was very low with 14 B-class and no C-class flares reported. The flares originated from the NOAA active regions 2651, 2652 and 2653 which were the only active regions observed on the solar disc during first five days of the week.

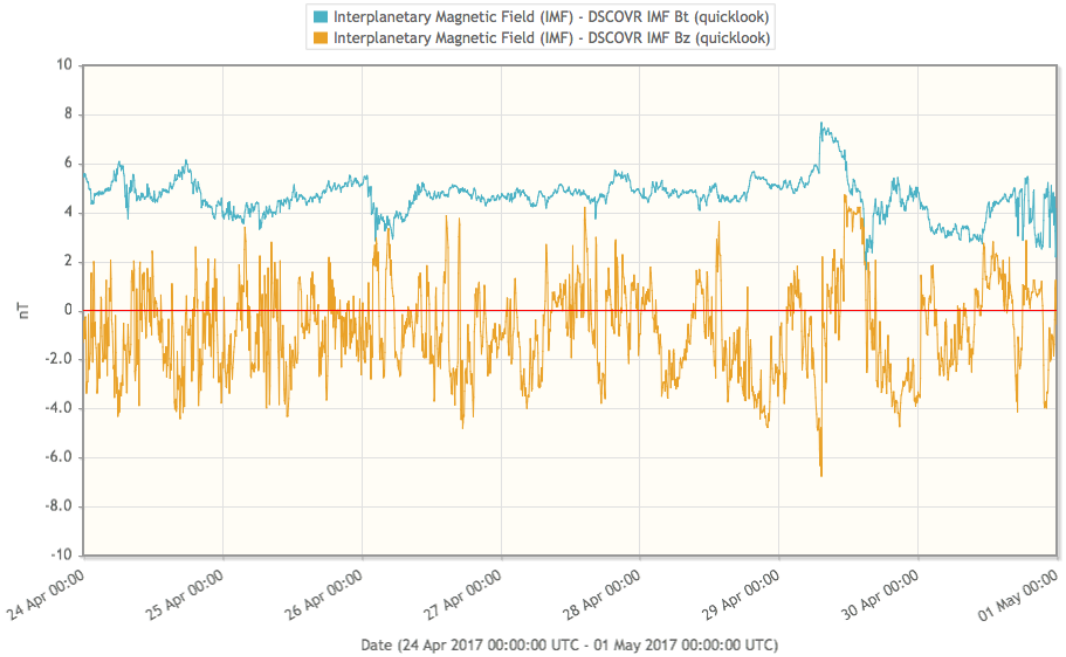


The CME associated with the filament eruption observed on April 24 at about 02:00 UT was a wide CME. It was first time seen in the SOHO/LASCO C2 field of view at 03:36 UT, and had an angular width of about 120 degrees. The bulk of the CME mass was directed mostly northward of the Sun-Earth line, so the CME is not expected to arrive at the Earth.

No significant coronal holes were observed crossing the central meridian this week.

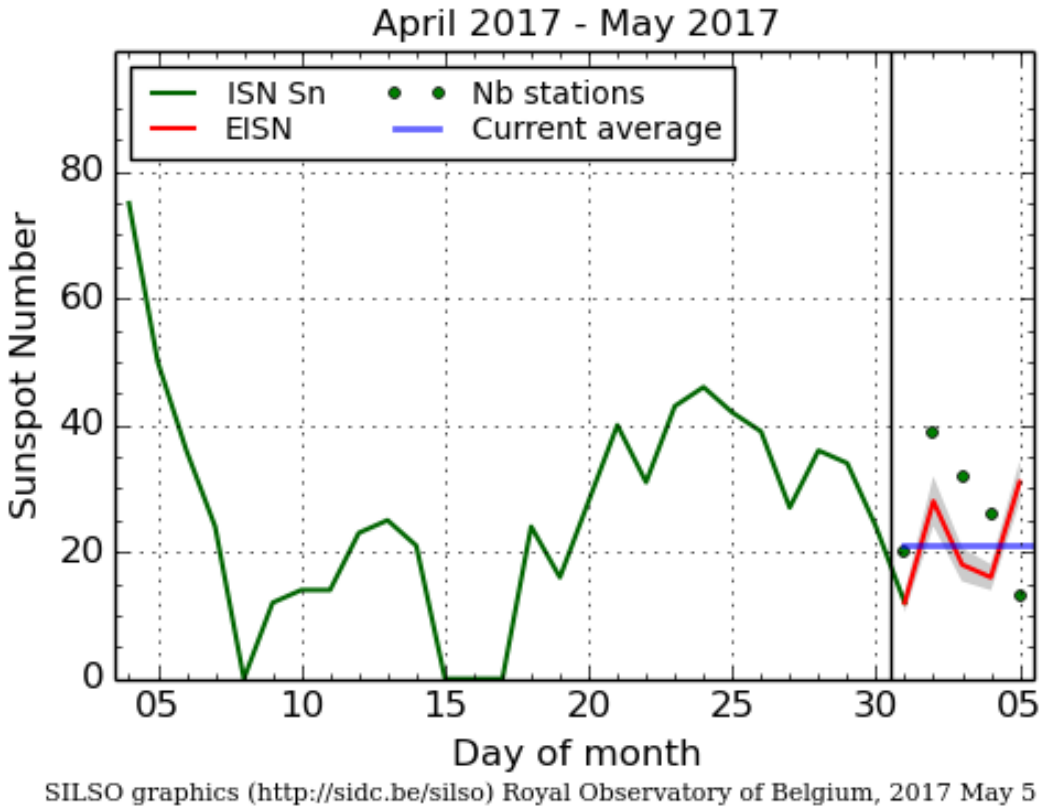
GEOMAGNETIC ACTIVITY





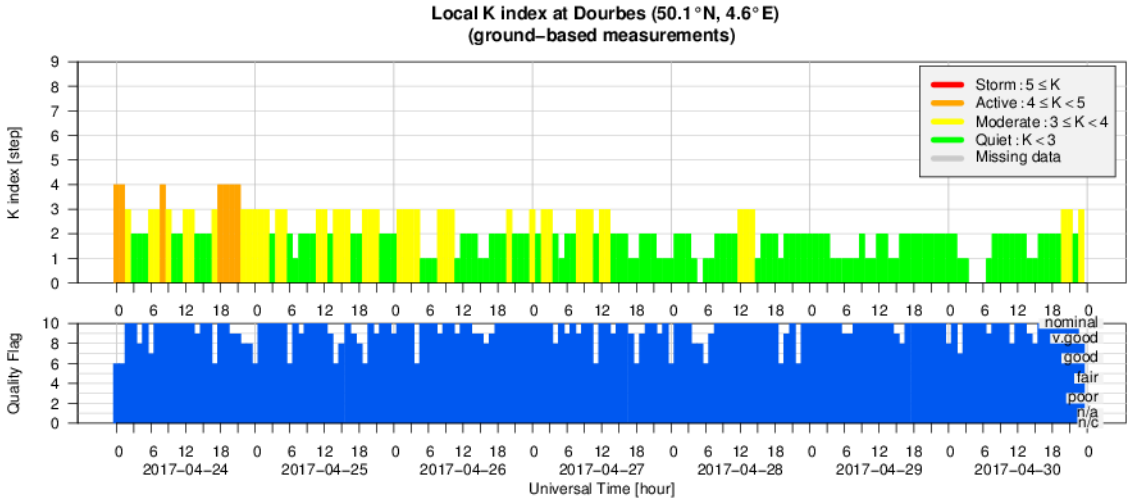
At the beginning of the week the Earth was inside a fast solar wind which on Monday 24, amounted about 720 km/s. The solar wind speed was slowly decreasing during the week and since late April 27, the Earth was inside the slow solar wind. Due to the fast solar wind and longer intervals of the negative value of the Bz component of the magnetic field, during first day of the week, unsettled to active geomagnetic conditions were reported (local station at Dourbes reported values of K=4 and NOAA reported Kp=4). The rest of the week geomagnetic conditions were unsettled to mostly quiet.

4. The International Sunspot Number

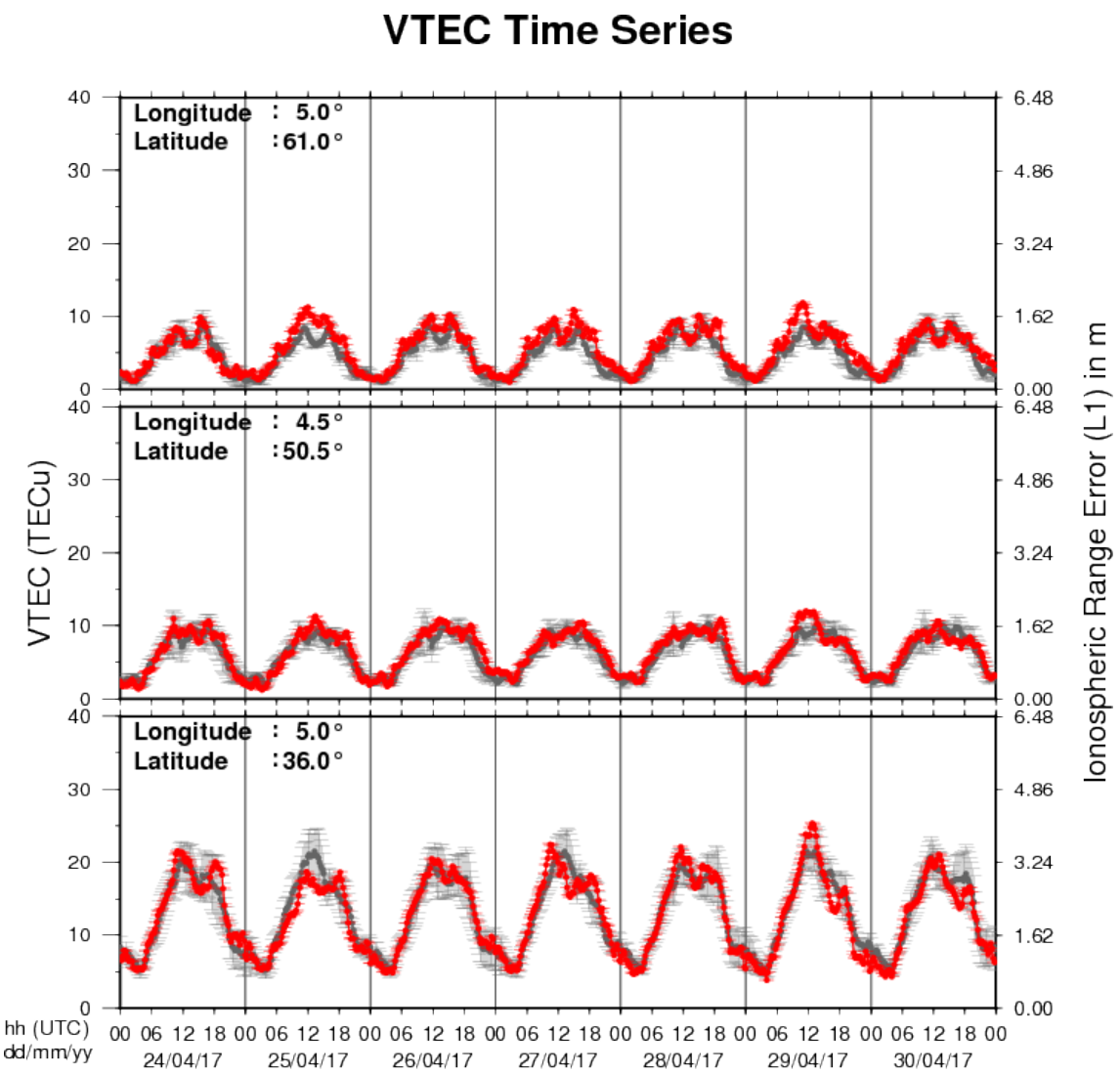


The daily Estimated International Sunspot Number (EISN, red curve with shaded error) derived by a simplified method from real-time data from the worldwide SILSO network. It extends the official Sunspot Number from the full processing of the preceding month (green line). The plot shows the last 30 days (about one solar rotation). The horizontal blue line shows the current monthly average, while the green dots give the number of stations included in the calculation of the EISN for each day.

5. Geomagnetic Observations at Dourbes (24 Apr 2017 - 30 Apr 2017)



6. Review of ionospheric activity (24 Apr 2017 - 30 Apr 2017)



The figure shows the time evolution of the Vertical Total Electron Content (VTEC) (in red) during the last week at three locations:
a) in the northern part of Europe(N61°, 5°E)
b) above Brussels(N50.5°, 4.5°E)
c) in the southern part of Europe(N36°, 5°E)
This figure also shows (in grey) the normal ionospheric behaviour expected based on the median VTEC from the 15 previous days.

The VTEC is expressed in TECu (with TECu=10^16 electrons per square meter) and is directly related to the signal propagation delay due to the ionosphere (in figure: delay on GPS L1 frequency).
The Sun's radiation ionizes the Earth's upper atmosphere, the ionosphere, located from about 60km to 1000km above the Earth's surface.The ionization process in the ionosphere produces ions and free electrons. These electrons perturb the propagation of the GNSS (Global Navigation Satellite System) signals by inducing a so-called ionospheric delay.

See http://stce.be/newsletter/GNSS_final.pdf for some more explanations ; for detailed information, see http://gnss.be/ionosphere_tutorial.php

7. Future Events

For more details, see http://www.spaceweather.eu/en/event/future

URSI General Assembly in Montreal, Canada

Start : 2017-08-19 - End : 2017-08-26
For the thirty-second time since the inception of URSI, Radio Scientists from across the world will get together for the URSI General Assembly and Scientific Symposium. This triennial gathering will take place from 19th to 26th of August 2017, in Montreal, Canada. This conference is a unique opportunity to learn about recent advances in all fields of Radio Science, as covered by all ten URSI Commissions. Among the different sessions, please note:
* 'Radio Science for Space Weather' Conveners: M. Messerotti, V. Pierrard
* 'Remote Sensing and Modeling of the Earth's Plasmasphere and Plasmapause' Conveners: A. M. Jorgensen, V. Pierrard, B. Heilig
The abstract deadline is 30 January 2017
Website: http://www.ursi2017.org

2017 Joint IAPSO-IAMAS-IAGA Assembly in Cape Town, South Africa

Start : 2017-08-27 - End : 2017-09-01
The Joint IAPSO-IAMAS-IAGA Assembly, endorsed by the University of Cape Town and the South African Department of Science and Technology, will take place from 27 August to 1 September 2017 at the Cape Town International Convention Centre (CTICC). Several IAGA and IAMAS sessions are of Space Weather interests as well as the joint session 'Space Weather throughout the Solar System: Bringing Data and Models together'.
Website:
http://iapso-iamas-iaga2017.com/index.php

Workshops on Radiation Monitoring for the International Space Station in Torino, Italy

Start : 2017-09-05 - End : 2017-09-07
The Workshop on Radiation Monitoring for the International Space Station is an annual meeting to discuss the scientific definition of an adequate radiation monitoring package and its use by the scientific community on the ISS. Types of instruments and research topics need to be defined in order to optimise the radiation safety of the ISS crew.
Website: http://wrmiss.org/

International Workshop on Solar, Heliospheric & Magnetospheric Radioastronomy in Meudon, France

Start : 2017-11-06 - End : 2017-11-10
Jean-Louis Steinbeg has been one of the major pioneers in radioastronomy. Co-founder of the NanÃ§ay Observatory, he has actively participated to, an inspired a large number of radio instruments on many international space missions. Jean-Louis Steinberg is the founder of the Space Radioastronomy laboratory of the Paris Observatory in 1963. Later on, this laboratory widened its science interests and became the DESPA (1971) and then the current LESIA (2002) which is one of the major space sciences laboratories in France. The aim of this workshop is to cover the science topics which Jean-Louis Steinberg has promoted during his career, focusing on Solar, Heliospheric & Magnetospheric radioastronomy & physics. This will be done by covering both observations from either ground facilities (NDA, RH, LOFAR, Artemis etc ...) or space missions (ISSEE, Ulysses, WIND, CLUSTER, STEREO, CASSINI, JUNO etc ...) and models/theories. A series of invited talks is also foreseen to cover the new

developments in the discipline which may come with the future facilities such as Solar Orbiter, Solar Probe Plus, JUICE, JUNO, LOFAR+, SKA etc ....
This workshop will also be the opportunity to remember both the extraordinary personal & professional lifes of Jean-Louis Steinberg especially for new generation of scientists. At the occasion of this workshop it is also expected that the Building 16 (historical Space Sciences building) on the Meudon campus will be renamed "Building Jean-Louis Steinberg".
Website:
https://jlsworkshop.sciencesconf.org/

European Space Weather Week 14

Start : 2017-11-27 - End : 2017-12-01
The ESWW is the main annual event in the European Space Weather calendar. It is the European forum for Space Weather as proven by the high attendance to the past editions. The agenda will be composed of plenary/parallel sessions, working meetings and dedicated events for service end-users. The ESWW will again adopt the central aim of bringing together the diverse groups in Europe working on different aspects of Space Weather.
Website:
http://www.stce.be/esww14/