

# STCE Newsletter

1 May 2017 - 7 May 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.

| <b>Content</b>   | <b>Page</b> |
|--|-------------|
| 1. ESWW14 - Hot news   | 2           |
| 2. PROBA2 Observations (1 May 2017 - 7 May 2017)                 | 2           |
| 3. Review of solar and geomagnetic activity                      | 4           |
| 4. The International Sunspot Number                              | 5           |
| 5. Geomagnetic Observations at Dourbes (1 May 2017 - 7 May 2017) | 6           |
| 6. Review of ionospheric activity (1 May 2017 - 7 May 2017)      | 7           |
| 7. Future Events   | 8           |

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## 1. ESWW14 - Hot news

European Space Weather Week 14,  
Ostend, Belgium, 27 November – 1 December, 2017, <http://www.stce.be/esww14>

\*\*\* 4 announcements \*\*\*

Dear Colleagues

We have ESWW14 news.

First, we are happy to announce that ESWW14 will take place in Ostend at the Belgian coast.  
Second, the deadline for submission of a Topical Discussion Meeting is shifted to May 31. Don't hesitate to submit. Read about the format and submit online: <http://www.stce.be/esww14/tdm.php>  
Third, a first deadline for submission of an abstract to one of 15 ESWW14 sessions is May 31. What happens if you miss May 31? Do you really have to hurry up? Find the answers: <http://www.stce.be/esww14/program/sessions.php>  
Fourth, for your convenience, we have put all the deadlines on 1 page: <http://www.stce.be/esww14/deadlines.php>

If you have questions, don't be afraid to ask.

With kind regards

Mauro Messerotti and Petra Vanlommel, on behalf of the PC



## 2. PROBA2 Observations (1 May 2017 - 7 May 2017)

### Solar Activity

Solar flare activity remained 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 371):

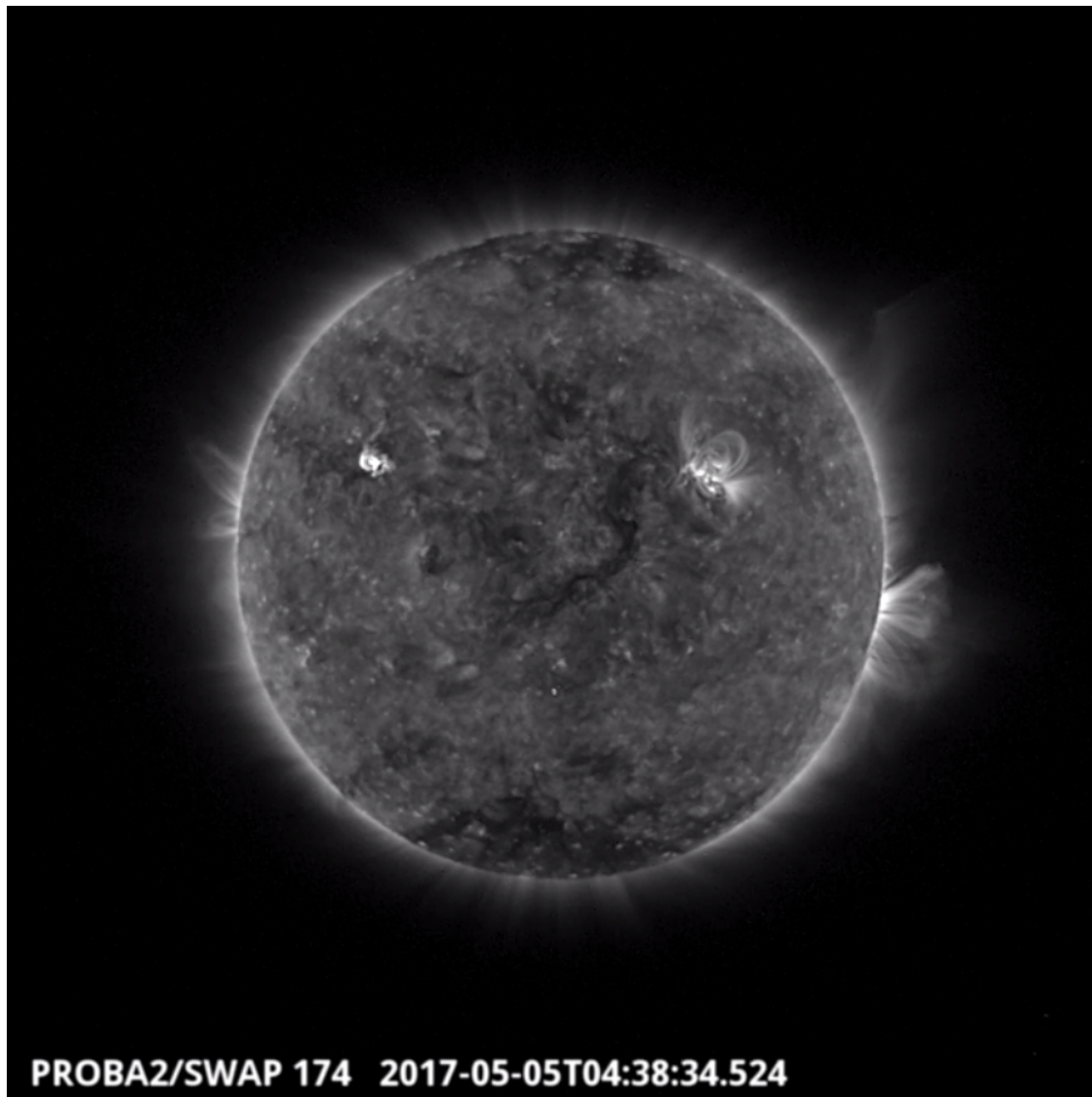
[http://proba2.oma.be/swap/data/mpg/movies/weekly\\_movies/weekly\\_movie\\_2017\\_05\\_01.mp4](http://proba2.oma.be/swap/data/mpg/movies/weekly_movies/weekly_movie_2017_05_01.mp4)

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/>

## Friday May 05



A CME from active region NOAA 2655 occurred on 05-May-2017 in the north east quadrant of the Sun.

The region also produced multiple B-flares, the largest of which (B4.7) is shown here at 4:38 UT.

Find a movie of the event here (SWAP movie):

[http://proba2.oma.be/swap/data/mpg/movies/20170505\\_swap.mp4](http://proba2.oma.be/swap/data/mpg/movies/20170505_swap.mp4)

### 3. Review of solar and geomagnetic activity

#### SOLAR ACTIVITY

Over the past week solar activity was very low. No significant flares have been recorded. No Earth directed Coronal Mass Ejections (CMEs) have been detected, although a slow but large CME was observed to travel to the North East around 02:00 UT on 05-May-2017, however it is not expected to interact with the Earth system. The greater than 10MeV proton flux remained at background levels throughout the week. Low levels of activity are expected to persist next week.

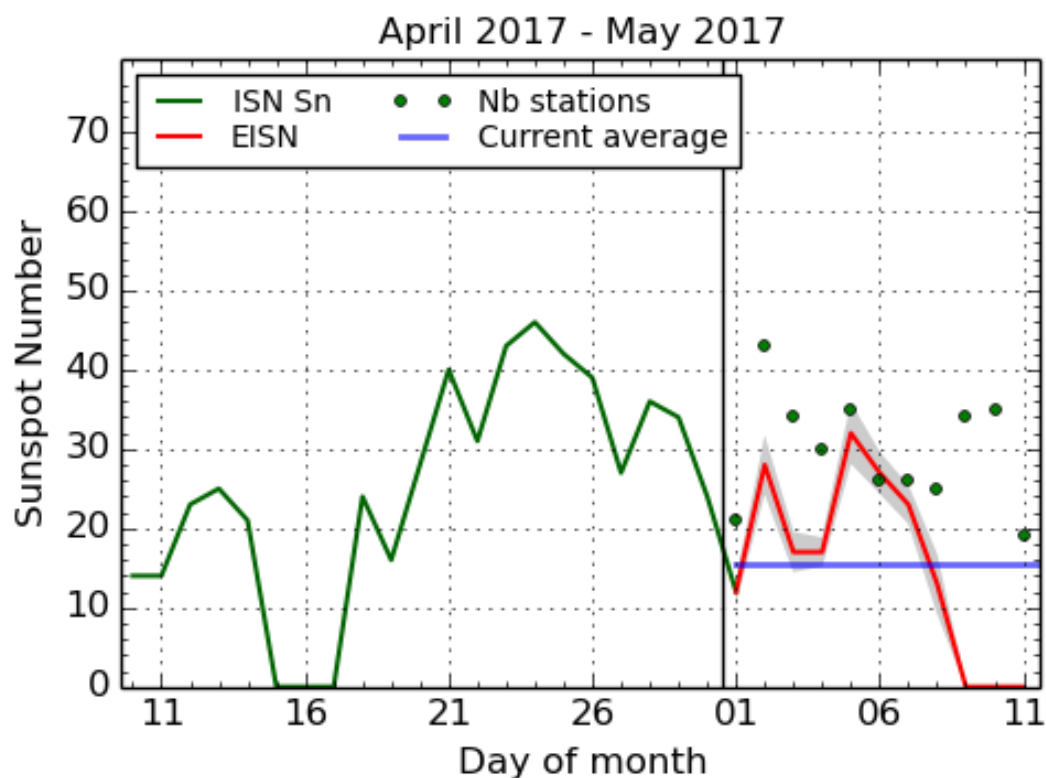
#### GEOMAGNETIC ACTIVITY

The solar wind speed has fluctuated between 340 and 450 km/s over the past week. The total magnetic field strength has fluctuated between 3 and 9 nT peaking. The Bz component fluctuated between -7 and +8 nT. Geomagnetic conditions ranged between Kp index 0-3 (NOAA) and local K index 0-4 (Dourbes) over the past week. A small low latitude coronal hole may increase solar wind speeds in a few days for a short period.

Review of the space weather briefing presented at the Regional Warning Centre of Belgium:



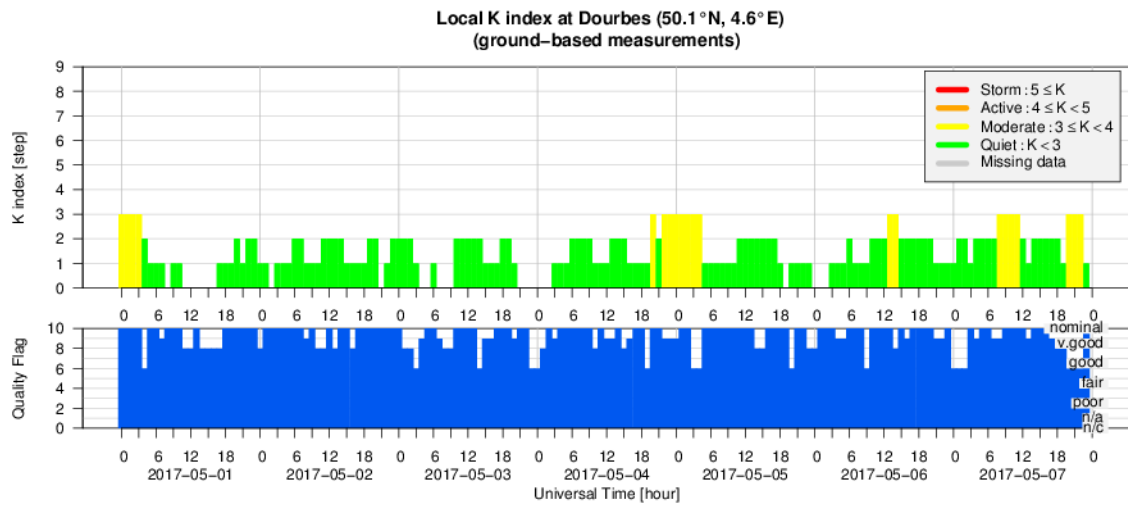
## 4. The International Sunspot Number



SILSO graphics (<http://sidc.be/silso>) Royal Observatory of Belgium, 2017 May 11

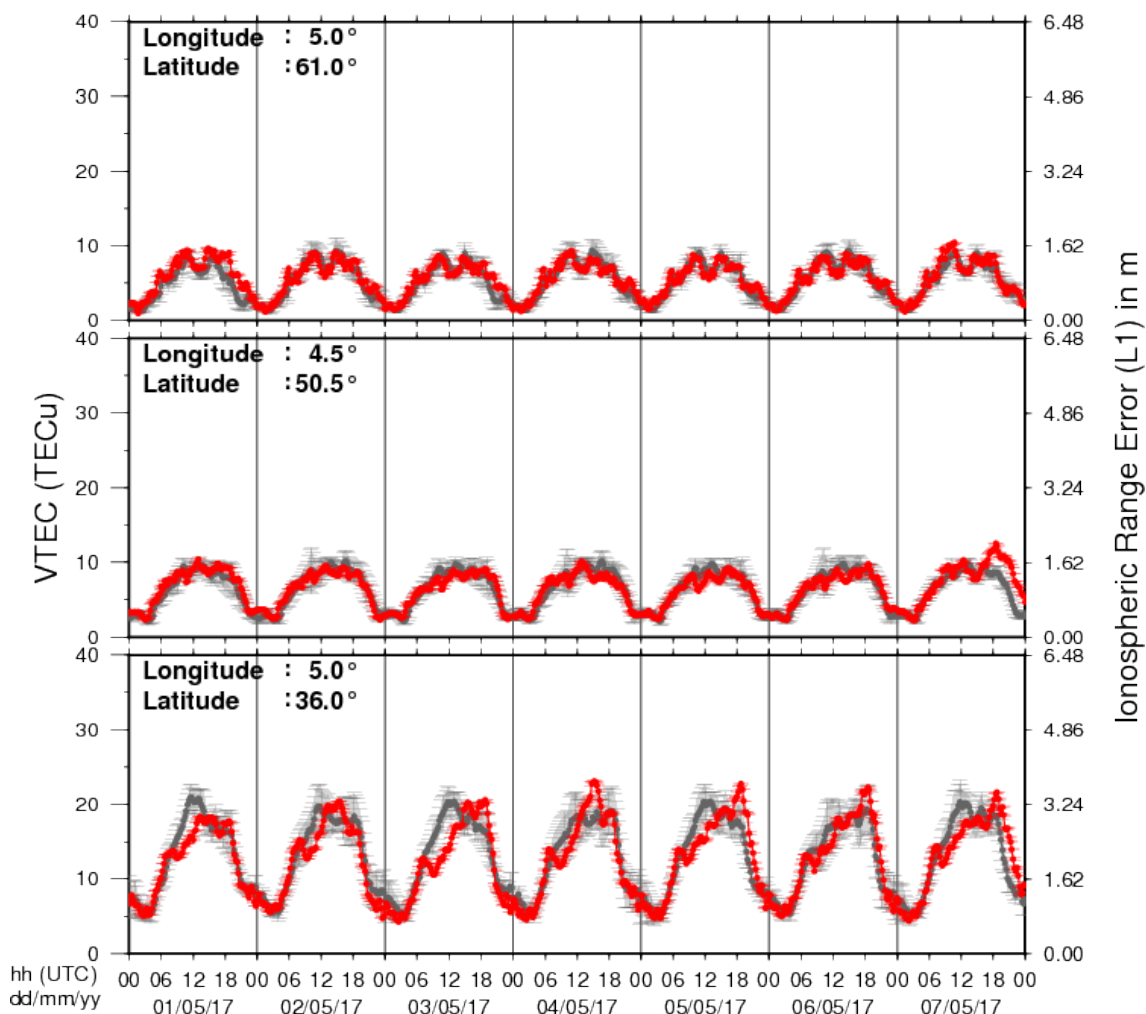
The daily Estimated International Sunspot Number (EISN, red curve with shaded error) derived by a simplified method from real-time data from the worldwide SILSO network. It extends the official Sunspot Number from the full processing of the preceding month (green line). The plot shows the last 30 days (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 (1 May 2017 - 7 May 2017)



## 6. Review of ionospheric activity (1 May 2017 - 7 May 2017)

### VTEC Time Series



The figure shows the time evolution of the Vertical Total Electron Content (VTEC) (in red) during the last week at three locations:

- in the northern part of Europe (N61°, 5°E)
- above Brussels (N50.5°, 4.5°E)
- 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  $\text{TECu} = 10^{16}$  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](http://stce.be/newsletter/GNSS_final.pdf) for some more explanations ; for detailed information, see [http://gnss.be/ionosphere\\_tutorial.php](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 Plasmopause' 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 Steinberg has been one of the major pioneers in radioastronomy. Co-founder of the Nançay Observatory, he has actively participated to, and 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 lives 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/>