# STCE Newsletter

## 17 Sep 2012 - 23 Sep 2012

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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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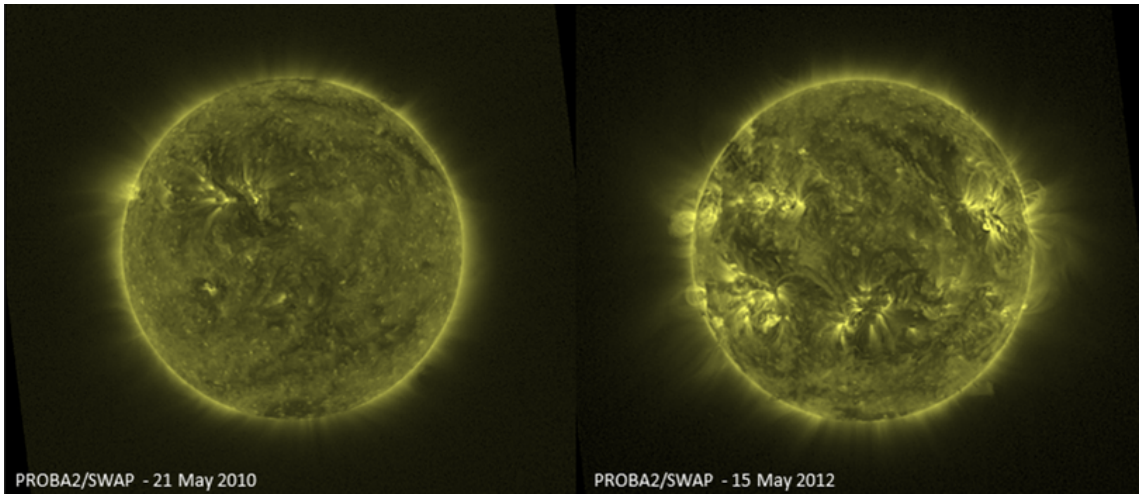
# 1. The Solar Corona according to PROBA2 (17 Sep 2012 - 23 Sep 2012)

PROBA2 is an ESA micro-satellite that was launched on November 2, 2009.

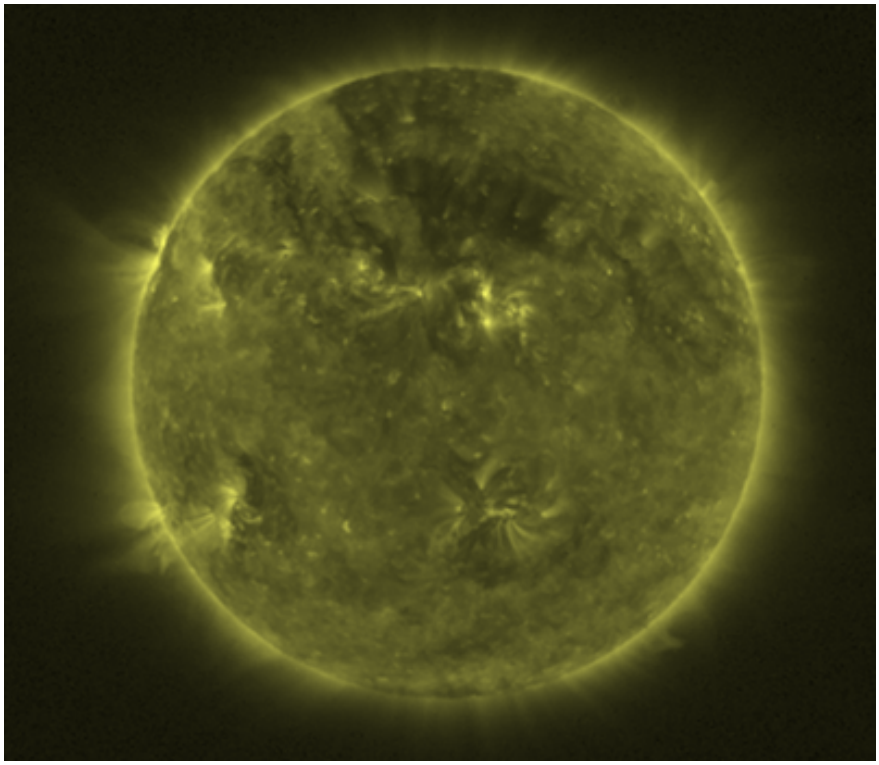
It carries an on-board camera to image the Sun in the Extreme Ultra-Violet (EUV). The images obtained with this SWAP-instrument show the solar corona at 1 million degree, with a cadence of 1 image per 1-2 minutes, and a field of view (FOV) of minimum 1.7 solar diameters. More information on this imager is available at http://proba2.oma.be/about/SWAP

As PROBA2 radioed the first SWAP-images to Earth early January 2010, there are now more than 2.5 years of EUV-images available. This corresponds to the rising phase of the ongoing solar cycle 24.
At the most recent Solar Orbiter workshop (http://www.stce.be/solarorbiter5/), the SWAP-team presented a movie showing the evolution of the solar corona throughout this period (February 2010 till July 2012). This movie is available at http://proba2.oma.be/Presentations/20120910_SolarOrbiter5/mission_stack_movie_slow.mp4

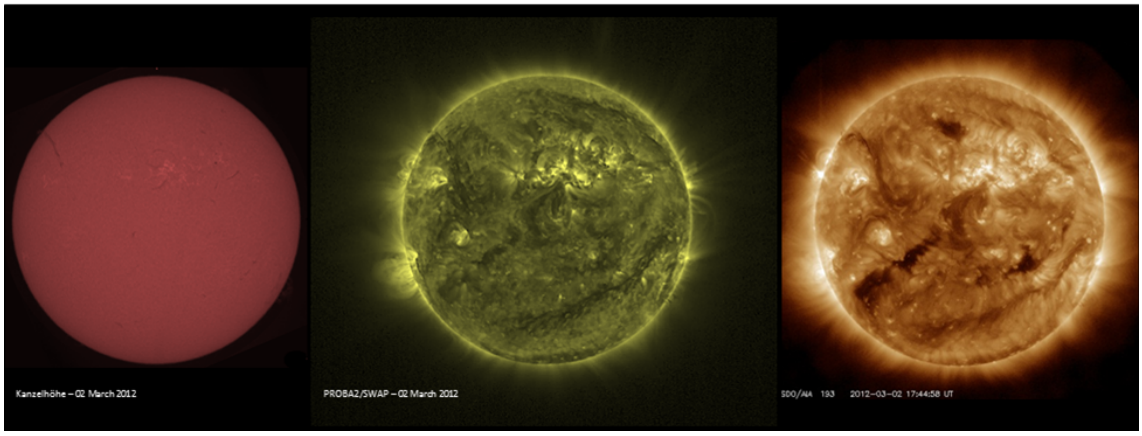
The increase of active regions (bright) is easily noticed. These areas often correspond to sunspot regions. Initially the northern hemisphere dominates the solar activity, but at the end of the period the southern hemisphere catches up.

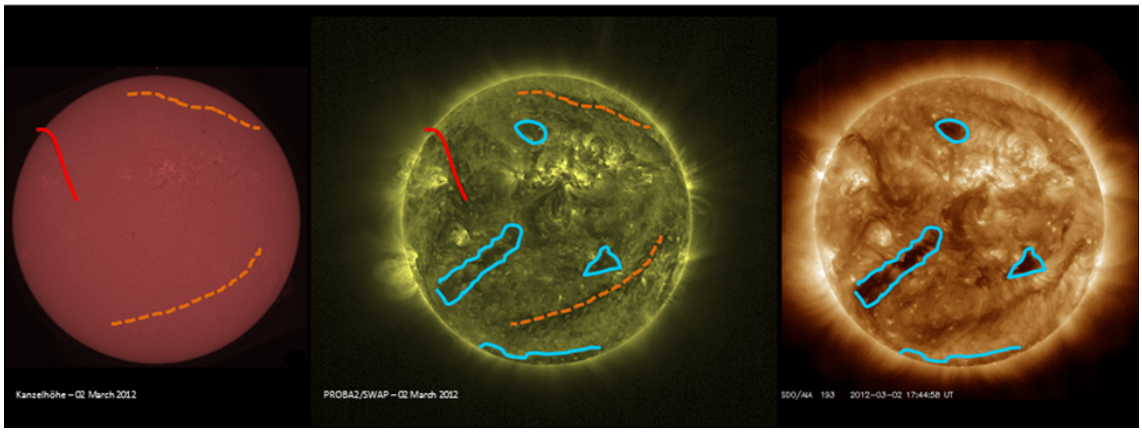



Because the solar rotation axis is not perpendicular to the plane of the Earth around the Sun, we have a better view on the solar north pole during August-October, and on the solar south pole during February-April. This can also be seen in the SWAP-movie, where one has a better view on the polar coronal holes pending the month of observing. These coronal holes have a dark appearance because they are colder and less dense than the surrounding (coronal) areas. The polar coronal holes are explicitly present during solar minimum. As the solar cycle gradually progresses, coronal holes can appear all over the solar surface. The SWAP-image underneath (29 June 2010) shows the northern polar coronal hole with a large extension up to mid-latitudes.



Some of the dark, long-stretched features are not coronal holes, but filaments. These are areas of dense, but cool material in the Sun's lower atmosphere where they separate regions of opposite magnetic polarity. They can become very long, some even longer than a solar radius! The distinction between a stretched coronal hole and a filament can be made using different filters (coronal holes do not show up in lower temperature filters), or when the object reaches the solar limb: If it is a filament, its silhouette can then be seen in EUV as a dark feature towering over the limb against the bright coronal background. Note that in EUV, not all dark, stretched areas delineating regions of opposite magnetic polarity have a chromospheric counterpart. Such areas are sometimes called "pseudo coronal holes". In the figure underneath, borders separating areas of opposite magnetic polarity were indicated by red if they have a visible filament in the chromosphere, or dashed-orange if not (or only partially). The areas in blue indicate coronal holes. Images are from the Kanzelhöhe observatory (http://cesar.kso.ac.at/ ), PROBA2/ SWAP and SDO/AIA193.





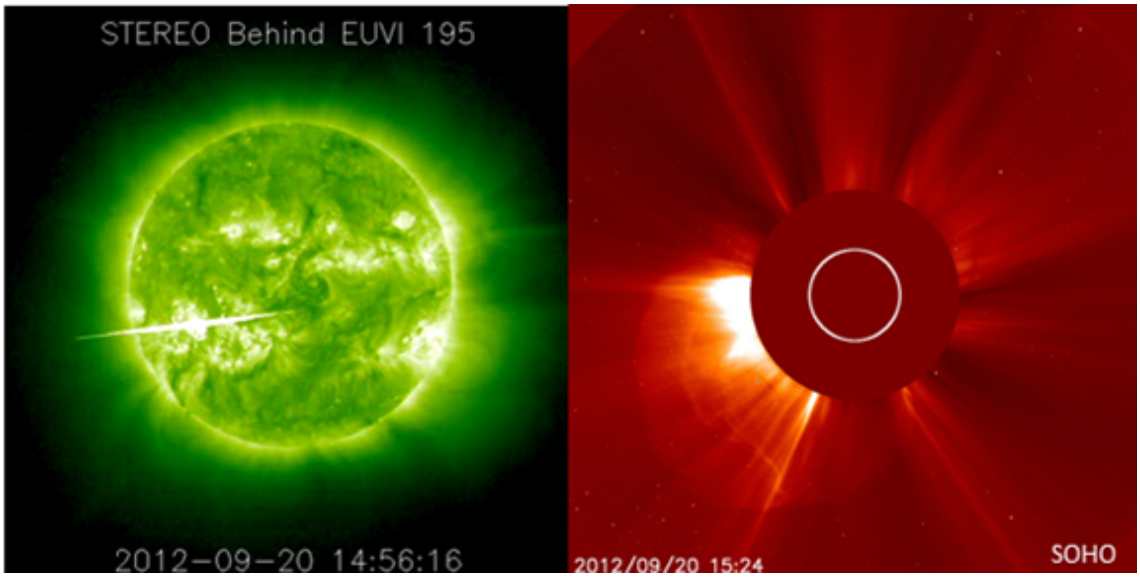

## 2. Review of solar activity (17 Sep 2012 - 23 Sep 2012)

The flaring activity was low during this week with only eight weak C-class flares reported by GOES. The strongest flare of the week was C 2.6 flare, on September 19. The flare originated from the Catania sunspot group 88 (NOAA Active Region 1576) and peaked at 15:12 UT.

Four halo and two partial halo Coronal Mass Ejections (CMEs) were observed this week, all of them backside events and associated with the flares at about at about 60 degrees behind the East limb as seen from the Earth (on September 21). The CMEs were not directed to the Earth due to their source region positions on the far side of the Sun.

On September 19, in close succession, two full halo CMEs were observed. The CMEs were first seen in SOHO's LASCO-C2 field of view at 11:48 and 12:36 UT, respectively.

Two full halo CMEs were observed on September 20. The first CME appeared in the SOHO LASCO-C2 field of view at 05:48 TU, and the second at 15:12 UT. The second CME was associated with a dimming and EIT wave. Images underneath show the view by STEREO-B(ehind) on this strong flare and by SOHO on the subsequent CME.



On September 21, a partial halo CME was observed. The CME was first seen in the SOHO coronagraphs (LASCO-C2) at 06:12 UT. The second partial halo CME observed this week was on September 23, at 14:48 UT. The CME was associated with a dimming and EIT wave.

## 3. Review of geomagnetic activity (17 Sep 2012 - 23 Sep 2012)

Geomagnetic conditions were quiet to active this week. In the beginning and the end of the week, the Earth was inside a slow solar wind flow, and the geomagnetic conditions were quiet. ACE solar wind data showed the arrival of the solar sector boundary on late September 19, which preceded the arrival of the fast stream due to the small coronal hole, early on September 20. The solar wind speed reached the maximum value of about 550 km/s on the same day.

The influence of the high speed stream was accompanied with the stable value of the interplanetary magnetic field (about 5 nT). The occasional intervals of negative value of the Bz component of the interplanetary magnetic field (up to -10 nT) caused active to minor storm geomagnetic conditions (Dourbes reported K=4, and IZMIRAN reported Kp=5) on late September 19.

## 4. PROBA2 Observations (17 Sep 2012 - 23 Sep 2012)

Solar Activity
This week, the Sun's activity level was *Low* to *Very low*.

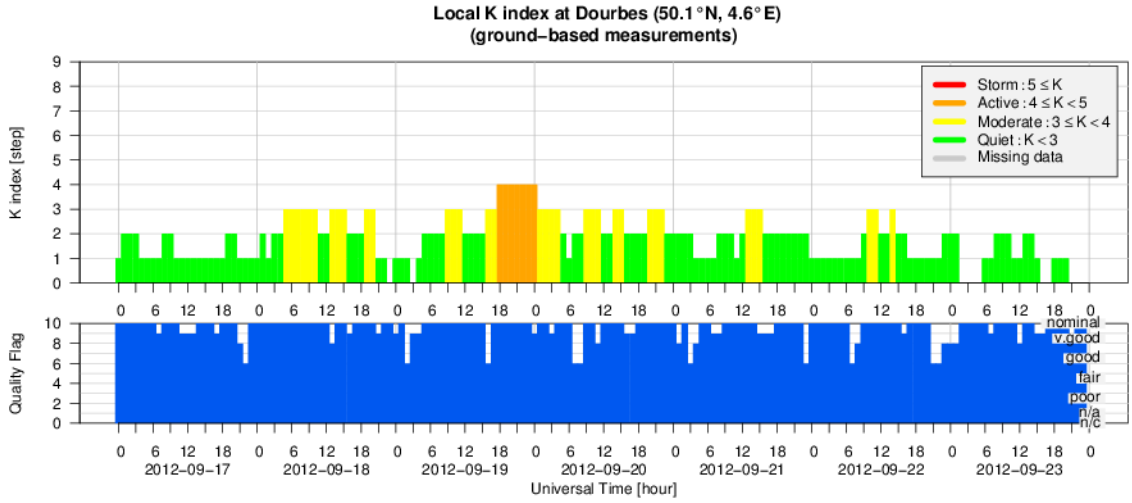
During the week, new active regions appeared on the East limb, increasing the back-ground EUV radiation.

On Sunday 23rd, a big eruption could be seen on the East limb.
Below is a SWAP difference image of that eruption:

A SWAP difference movie of this occurrence can be found here: http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/SWAP_Diff_eruption_23092012.mp4.

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.

## 5. Geomagnetic Observations at Dourbes (17 Sep 2012 - 23 Sep 2012)




## 6. New documents in the European Space Weather Portal Repository

### See http://www.spaceweather.eu/en/repository

### ESWW9 SWWT SALE abstracts

The SALE Executive is pleased to announce that a set of high level talks on various aspects of the energetic particle radiation hazard to aviation crews and personnel aboard spacecraft in LEO will be presented at a meeting of the Spacecraft, Aircraft and Launcher Environments group during Space Weather Week in Brussels, Belgium (8 November, 2012). Abstracts of these talks are attached and EVERYONE is cordially invited to attend on this very special occasion.
http://www.spaceweather.eu/en/repository/show?id=252

### Solar Orbiter 5 Workshop - Session 1: Review on Helioseismology and Helioseismology with Solar Orbiter

Invited talk in the session Solar Magnetism and the Solar Cycle.
http://www.spaceweather.eu/en/repository/show?id=253

### eHEROES - Solar Cycle 24, zonnecyclus in het vizier

Presentatie over de 24ste zonnecyclus voor leden van de volkssterrenwacht Urania in het kader van hun wekelijkse voordrachten. Een basiskennis is vereist.
http://www.spaceweather.eu/en/repository/show?id=254

## eHEROES - de Zon

Presentatie over de zon voor leden van de volkssterrenwacht MIRA in het kader van een cursus sterrenkunde. Een basiskennis is vereist.
http://www.spaceweather.eu/en/repository/show?id=255

## Solar Orbiter 5 Workshop - Session 1: Solar Magnetic Field Reversal and the Role of the Dynamo Families

Talk in the session Solar magnetism and the solar cycle
http://www.spaceweather.eu/en/repository/show?id=256

## Solar Orbiter 5 Workshop - Session 1: Planning for Helioseismology with SO/PHI

Talk in the session Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=257

## Solar Orbiter 5 Workshop - Session 1: Small Magnetic Elements, Bright Points and Solar Irradiance

Talk in the session Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=258

## Solar Orbiter 5 Workshop - Session 1: The Solar Cycle as seen in the Heliospheric Magnetic Field

Talk in the session Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=259

## Solar Orbiter 5 Workshop - Session 1: The heliospheric magnetic flux density through several solar cycles

Talk in the session Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=260

## Solar Orbiter 5 Workshop - Session 2 - Part I: Ejection of Cool Plasma into the Corona - Comparison of 1D and 3D Loop Models

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=261

## Solar Orbiter 5 Workshop - Session 2 - Part I: Outflow Velocity Structure in the Upper Transition Region and Corona

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=262

## Solar Orbiter 5 Workshop - Session 2 - Part I: Interchange Reconnection in a Turbulent Corona

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=263

## Solar Orbiter 5 Workshop - Session 2 - Part II: Slow Solar Wind Coronal Sources: Comparison between two Solar Minima (UVCS/SOHO)

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=264

## Solar Orbiter 5 Workshop - Session 2 - Part II: The Helium corona as observed by the HERSCHEL Sounding Rocket

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=265

## Solar Orbiter 5 Workshop - Session 2 - Part II: Linking in-situ Measurements with SPICE

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=266

## Solar Orbiter 5 Workshop - Session 2 - Part II: Understanding the Nature of the Solar Wind in the Solar Orbiter Era

Invited talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=267

## Solar Orbiter 5 Workshop - Session 2 - Part II: Kinetic Processes in the Solar Wind

Invited talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=268

## Solar Orbiter 5 Workshop - Session 2 - Part II: SWAP/PROBA2 Observations of the Largescale, Longterm Evolution of the EUV Corona

Talk in the session Processes of slow/steady energy release in the solar atmosphere and heliosphere
http://www.spaceweather.eu/en/repository/show?id=269

## Solar Orbiter 5 Workshop - Session 3 - Part I: Physics of Solar Flares

Invited talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=270

## Solar Orbiter 5 Workshop - Session 3 - Part I: Direct Imaging and Spectroscopy of Flare Accelerated Electron Beams with STIX

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=271

## Solar Orbiter 5 Workshop - Session 3 - Part I: Pre-flare Signatures in Large Flares

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=272

## Solar Orbiter 5 Workshop - Session 3 - Part I: Observations of CME's In the Outer Corona

Invited talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=273

## Solar Orbiter 5 Workshop - Session 3 - Part I: Changes in the Photospheric Magnetic Field during CMEs

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=274

## Solar Orbiter 5 Workshop - Session 3 - Part II: CMEs: Taking Magnetic Helicity from Low Corona into Interplanetary Space

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=275

## Solar Orbiter 5 Workshop - Session 3 - Part II: Observation of a Post-CME Current Sheet with SOHO/UVCS and RHESSI

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=276

## Solar Orbiter 5 Workshop - Session 3 - Part II: Magnetic Cloud-erosion by Magnetic reconnection during propagation, geom. imp.

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=277

## Solar Orbiter 5 Workshop - Session 3 - Part II: Energetic Particle Acceleration on the Sun and in the Heliosphere

Invited talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=278

## Solar Orbiter 5 Workshop - Session 3 - Part II: Solar Energetic Particle Events and their Parent Activity - Statistical Rel.

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=279

## Solar Orbiter 5 Workshop - Session 3 - Part III: Radial Dependence of Solar Energetic Particle Intensities

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=280

## Solar Orbiter 5 Workshop - Session 3 - Part III: Influence Interplanetary Shock on Heliocentrical Radial Var. of Gradual SEP

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=281

## Solar Orbiter 5 Workshop - Session 3 - Part III: Observations of Solar Wind Coherent Structures During SEP Dropouts Events

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=282

## Solar Orbiter 5 Workshop - Session 4: Solar Flare Forecasting from Solar Orbiter Observations

Talk in the session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=283

## Solar Orbiter 5 Workshop - Session 4: Modeling the Corona and Solar Wind using Synchronic Maps

Invited talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=285

## Solar Orbiter 5 Workshop - Session 4: Dust detection with radio instruments: RPW experiment onboard Solar Orbiter

Talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=286

## Solar Orbiter 5 Workshop - Session 4: Visualizing the Sun and Heliosphere in 3D

Talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=287

## Solar Orbiter 5 Workshop - Session 4: Pushing Solar Image Compression to its Limit

Talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=288

## Solar Orbiter 5 Workshop - Session 4: Exploring Heterogeneous Solar Data

Invited talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=289

## Solar Orbiter 5 Workshop - Session 1: The Solar Dynamo

Invited talk given in the Session Solar Magnetism and the solar cycle
http://www.spaceweather.eu/en/repository/show?id=290

## Solar Orbiter 5 Workshop - Session 3 - Part II: Recent Advances in Understanding the Nature of CMEs by Combining Solar Observati

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere.
http://www.spaceweather.eu/en/repository/show?id=291

## Solar Orbiter 5 Workshop - Session 4: Mass Estimates of Rapidly-moving Prominence Material from High-cadence EUV Images

Talk in session Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=292

# 7. Future Events

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

## 63rd International Astronautical Congress in Naples, Italy

Start : 2012-10-01 - End : 2012-10-05
At the forthcoming 63rd International Astronautical Congress in Naples a special session on the theme 'Effects of Space Weather on GEO Satellites' will be held as part of the 25th Symposium on Space Policy, Regulations and Economics.
This session will discuss case histories and mechanisms of effects of space weather on GEO satellites, models for prediction, and mitigation approaches. We would like to invite you to consider submitting abstracts for this session.
The call for papers can be found at The deadline for abstract submission is 29 February 2012.
http://www.iafastro.org/docs/2012/iac/IAC2012_CallForPapers.
Website: http://www.iac2012.org/

## UN/Ecuador Workshop on the International Space Weather Initiative in Ecuador

Start : 2012-10-08 - End : 2012-10-12
Initiated in 1990, the United Nations Basic Space Science Initiative (UNBSSI) has contributed to the international and regional development of astronomy and space science through annual workshops organized under the umbrella of the United Nations, focusing specifically on the International Heliophysical Year 2007 (IHY, 2005-2009) and the International Space Weather Initiative (ISWI, 2010-2012). UNBSSI has led to the establishment of planetariums, astronomical telescope facilities, and IHY/ISWI instrument arrays worldwide, particularly in developing nations. ISWI is envisioned to continue the tradition of IHY in the worldwide deployment of space weather monitoring instrument arrays. To date, ISWI contributes to the observation of space weather through 18 instrument arrays with close to 1000 operating instruments in more than 100 nations supported by designated national ISWI coordinators.
The first workshop on ISWI was held in Helwan, Egypt and hosted by the Helwan University, Egypt, in 2010, particularly for the benefit of nations in Western Asia. In 2011 the United Nations/Nigeria Workshop on ISWI was hosted by the Centre for Basic Space Science of the University of Nigeria at Nsukka, Nigeria, particularly for the benefit of nations in Africa. The third ISWI workshop will be hosted by Ecuador in 2012 for the region of Latin America and the Caribbean.
Website:
http://iswiecuador.epn.edu.ec/

## Space Weather and Challenges for Modern Society in Oslo, Norway

Start : 2012-10-22 - End : 2012-10-24
2012 - 2013 is expected to be years with high solar activity. This can trigger larger solar storms which can generate geomagnetic induced currents (GIC ) on the earth. GIC can affect the normal operation of specific industrial operations and critical infrastructure (e.g power grids, telecom, navigation systems, etc).
During space weather events, like solar storms, electric currents in the magnetosphere and ionosphere experience large variations, which manifest also in the earth's magnetic field. These variations induce currents (GIC ) in conductors operated on the surface of the earth. Electric transmission grids and buried pipelines are common examples of such conductor systems. GIC can cause problems, such as increased corrosion of pipeline steel and may disturb and possible damaged high-voltage power transformers and it can also have damaging effects on communication systems, navigation systems and oil and gas operations.
Vulnerable industries are the oil and gas industry, railways, telecommunication industry, navigation industry and not at least the society, which is very vulnerable concerning short or long term interruption of critical infrastructure.

The conference will focus on increasing the general knowledge of solar storms, space weather and GIC and the possible consequences for different industries and critical infrastructure, and look into reasonable means of protection, and consider possible early warning solutions.
Website:
http://www.tiems.info/about-tiems/oslo-conference-2012.html

## Ninth European Space Weather Week in Brussels, Belgium

Start : 2012-11-05 - End : 2012-11-09
We are pleased to announce that the Ninth European Space Weather Week will take place at the AcadÃ©mie Royale de Belgique, Brussels, Belgium between 5 and 9 November 2012.
This meeting is being jointly organised by the Solar-Terrestrial Centre of Excellence (STCE), ESA , the SWWT and the COST ES0803 communities. The local organisation is done by the STCE. This event will continue to build on the advances made during the first eight European Space Weather Weeks held between 2004 and 2011.
Website:
http://www.sidc.be/esww9/

## International Symposium on Solar-Terrestrial Physics in Pune, India

Start : 2012-11-06 - End : 2012-11-09
The International Symposium on Solar-Terrestrial Physics will be held during November 6 - 9, 2012 at the Indian Institute of Science, Education and Research, Pune, India. This meeting under the aegis of the SCOSTEP is expected to draw leading scientists from around the world in the increasingly important, interdisciplinary fields of Solar activity and its impact on geospace and life on the Earth. With major observational solar facilities being planned in India, this meeting is especially pertinent in the Indian context.
The meeting is expected to involve professional scientists as well as graduate students, and will have a mixture of invited and contributed talks and posters. There will also be a one-day tutorial for the benefit of young people beginning work in the field of solar-terrestrial physics.
Website:
http://www.iiserpune.ac.in/~isstp2012/

## Eclipse on the Coral Sea: Cycle 24 Ascending in Palm Cove, Queensland (Australia)

Start : 2012-11-12 - End : 2012-11-16
As we emerge from one of the deepest and longest solar minima on record, with a new and powerful eye on the Sun -SDO- we invite all those with an interest is solar activity to gather in beautiful Palm Cove, Australia to review and assess our current knowledge and understanding of our magnetic star , and to experience the awe and wonder of a total solar eclipse on November 14, 2012.
Website:
http://moca.monash.edu/eclipse/

## Total solar eclipse

Start : 2012-11-13 - End : 2012-11-13
For more information:
http://eclipse.gsfc.nasa.gov/OH/OH2012.html#SE2012Nov13T

## EC Space Conference in Larnaca, Cyprus

Start : 2012-11-15 - End : 2012-11-16
The European Commission will organise the 'Let's embrace space - FP7 Space Conference 2012', in cooperation with the Cypriot EU Presidency, on 15 and 16 November 2012 in Larnaca, Cyprus.
This scientific conference will present the current status and results of the 3rd call of FP7 space research, and also discuss future options for European research in the space field. In doing so, the conference will

aim at demonstrating the evolution and use of space tools for a sustainable economic and environmental development in a European and global context.
Website:
http://www.fp7-space.eu/news-119.phtm

## Solar Physics with Radio Observations in Aichi, Japan

Start : 2012-11-20 - End : 2012-11-23
Nobeyama Radioheliograph (NoRH) has been observing the Sun since 1992. This year is the 20th year of science operation. Instruments are still in good shape and producing images of the Sun every day with the same quality as the beginning. Due to the nature of the instrument and long and uniform observations, data can be used for wide variety of solar physics and also for solar terrestrial physics. To mark the 20 years of operation, we will organize a symposium to summarize what has been done with NoRH and to discuss what we should do in the future. Papers to be presented in the meeting will be mainly concerned with the results from NoRH and future plans.
Website:
http://st4a.stelab.nagoya-u.ac.jp/SPRO2012/

## Tracing the Connections in Solar Eruptive Events in Petaluma, CA, USA

Start : 2012-11-30 - End : 2012-12-05
The overarching objective of the conference is to examine the connections amongst the phenomena that lead to solar eruptive events. The current state of themes includes:
* Measuring the Coronal Magnetic Field;
* Connections to, and Reactions of, the Large-Scale Corona;
* Large-scale Magnetic Connectivity of Active Regions;
* Transfer of Energy to, and Storage of Energy in, the Corona;
* The High-Energy Particle - Flare - CME connection.
Working groups will address topics such as:
* Energy Transfer throughout a Solar Eruptive Event;
* Global Energetics of an Ensemble of Events;
* Coronal Influences to the Lower Atmosphere;
* CME Initiation and Type II Bursts;
* The Release of Energetic Particles in the Low Corona;
* Flows vs. Waves;
* Microflares/Nanoflares.
Website:
http://hessi.ssl.berkeley.edu/petaluma/index.shtml

## Earth-Sun System Exploration 5 in Kona, Hawai'i USA

Start : 2013-01-13 - End : 2013-01-19
Information coming soon!
Website:
http://sd-www.jhuapl.edu/Aurora/ESSE/index.html

## 2013 LWS Solar Dynamics Observatory Science Workshop in Cambridge, MD (USA)

Start : 2013-03-03 - End : 2013-03-08
Living With a Star 's Solar Dynamics Observatory invites you to its 2013 Science Workshop to be held March 3-8, 2013 at the Hyatt Regency Chesapeake Bay in Cambridge, MD (http://chesapeakebay.hyatt.com/). The workshop is a follow-on to the 'Many Spectra of Solar Activity' workshop held May 1-5, 2011 in Squaw Valley, CA.
Scientific sessions will feature a broad spectrum of science topics fundamental to SDO's science investigations: Atmospheric Imaging Assembly (AIA), EUV Variability Experiment (EVE), and

Helioseismic and Magnetic Imager (HMI), as well as the overlap between SDO and other scientific missions and activities.
Website:
http://lws-sdo-workshops.org/

## Chapman Conference on Fundamental Properties and Processes of Magnetotails in Reykjavik, Iceland

Start : 2013-03-10 - End : 2013-03-15
Spacecraft observations have established that all magnetized planets in our solar system interact strongly with the solar wind and possess well-developed magnetotails. Magnetotails are the site for many dynamic processes critical to the circulation of mass, energy and magnetic flux. The great differences in solar wind conditions, planetary rotation rates, ionospheric conductivity, and physical dimensions from Mercury's small magnetosphere to the giant magnetospheres of Jupiter and Saturn provide an outstanding opportunity to extend our understanding of the influence of these factors. Therefore, this Chapman conference will provide a forum in which various communities can come together and discuss recent achievements of observational, theoretical, and modeling studies with the objective to develop a deeper understanding of fundamental properties and processes of planetary magnetotails through a comparative examination.

## Annular solar eclipse

Start : 2013-05-10 - End : 2013-05-10
For more information:
http://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2013May10A.GIF

## IAU Symposium: Nature of prominences and their role in space weather in Paris, France

Start : 2013-06-10 - End : 2013-06-16
Topics:
* Prominences : formation, dynamics
* Prominence plasma properties, including prominence seismology
* Magnetic field : measurements, topology, support
* Large-scale patterns and cyclic evolution
* Prominence destabilization, CMEs, reconstruction in 3D
* ICMEs in the heliosphere, magnetic clouds; their impact on the Earth environment
* Stellar quiescent and eruptive prominences and stellar CME
* Requirements for future instrumentation and prospects for future missions
Website:
http://www.iau.org/science/meetings/future/symposia/1065/

## CESRA Workshop 2013: New eyes looking at solar activity: Challenges for theory and simulations in Prague, Czech Republic.

Start : 2013-06-24 - End : 2013-06-29
Solar cycle 24 has opened a new era in solar radio physics as we now have instruments that can probe solar processes from sub-millimeter to kilometer waves. ALMA and LOFAR are entering full-operation state and observations of the Sun will be made in the near future.
At the same time extensive use is being made of radio spectrometers in space, STEREO /WAVES and Wind -WAVES, and existing and upgraded ground-based instruments like Nobeyama Radioheliograph, Nancay Radioheliograph, Ratan, SSRT, and many others. These instruments provide data that enable studies of both energetic particles and thermal plasma , enhancing our knowledge of solar eruptions and acceleration and propagation of particles, all through the solar chromosphere and corona and into interplanetary space.
The CESRA 2013 Workshop will highlight these new observational capabilities and discuss the theoretical issues connected to solar radio emission and interplanetary radio physics.

Website:
http://wave.asu.cas.cz/cesra2013/

## 2013 Meeting of the Solar Physics Division of the AAS

Start : 2013-07-08 - End : 2013-07-11
The 2013 meeting of the AAS/SPD will be July 8-11 (and possibly July 12), hosted by the Solar Physics Group of Montana State University, in Bozeman, Montana.
Website:
http://solar.physics.montana.edu/SPD/

## Hybrid solar eclipse

Start : 2013-11-03 - End : 2013-11-03
For more information:
http://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2013Nov03H.GIF