

# STCE Newsletter

28 May 2012 - 3 Jun 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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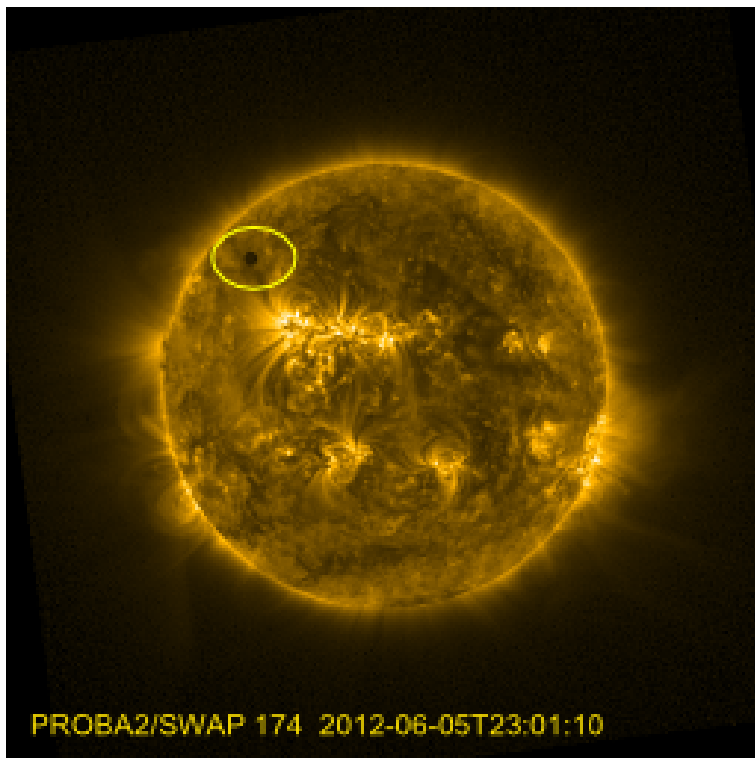
## 1. Venus transit, June 6

The Venus transit of the Sun was not visible in Belgium because it happened for the biggest part during the night and because of the bad weather this morning. But, the rare phenomenon was recorded from beginning to end by a Belgian instrument onboard the satellite PROBA2.

On June 6th 2012, a Venus transit of the Sun took place. It was visible as a black circle crossing the solar disk. From Belgium, we could only see the transit for a short period, as it was nighttime in Belgium for the majority of the transit, and it was only visible very early this morning. However, the ESA satellite PROBA2 observed the transit from the beginning to the very end from a front row seat in orbit! The event was recorded by SWAP, a Belgian EUV telescope onboard PROBA2 which filmed this rare event. We will have to wait until 2117 for the Earth, Sun and Venus to line up again. So, the next Venus transit will take place in 105 years!

### PROBA2 in the perfect position to observe the Venus transit

Last night, at 0:03 Belgian time, Venus seemed to touch the Sun before starting its transit. At 5:31 Belgian time, the Sun started to rise in Ukkel. It took a little bit longer before the Sun was high enough above the horizon to spot Venus. At 06:56 Belgian time, the black disk of Venus disappeared from sight. But, the micro-satellite PROBA2 orbiting the Earth at a height of 700 km, could observe the Venus transit completely. The hours of first and last contact differ however a little: from the point of view of PROBA2, Venus commenced its transit of the Sun on June 6th at 00:17 Belgian time and finished by 6:50 Belgian time.

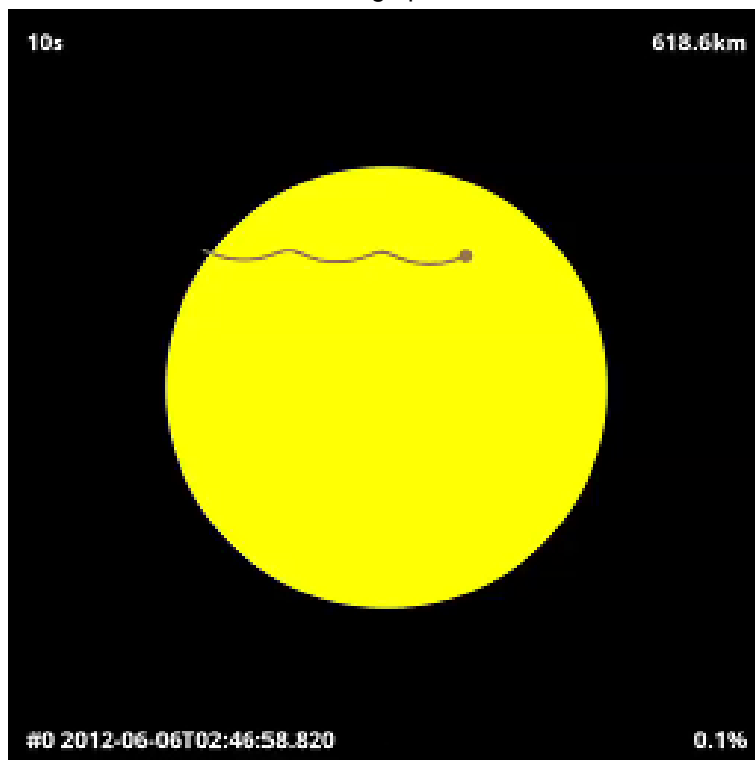


Check the movie: [http://proba2.oma.be/swap/data/mpg/movies/campaign\\_movies/201206\\_VenusTransit/20120605\\_SWAP\\_VenusTransit.mp4](http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/201206_VenusTransit/20120605_SWAP_VenusTransit.mp4)

### Does Venus move up and down – or not?

In simulations as well as in the SWAP EUV movie, Venus seems to move up and down on the solar disk. This can be explained by PROBA2's orbit around the Earth from the North Pole to the South Pole and back to the North Pole. The satellite thus observes the Sun sometimes from 'above' and sometimes

from 'below' the Earth. This creates the illusion that Venus moves up and down in the images, but in fact it is PROBA2 that is moving up and down.



Check the simulation: [http://proba2.nicula.net/venus\\_transit\\_2012\\_predict.mov](http://proba2.nicula.net/venus_transit_2012_predict.mov)

### Scientific results

The Venus transit was an opportunity for the scientists of the Royal Observatory of Belgium to check out their telescopes and calculations. Since Venus 'touched' the Sun exactly at the predicted time, they obtained re-assurance that PROBA2's orbit is accurately known.

The contrast of the images is limited by stray light in the telescope. Ideally Venus should block all the sunlight and should have appeared completely black. By measuring the amount of (undesired) light in the 'Venus spot', we learned a lot about the stray-light in the SWAP optical system.



When the transit was finished, SWAP followed Venus by pointing away from the solar disc and taking pictures of the upper solar atmosphere – also known as the solar corona - (This is not shown in the movie). Due to the low brightness of the corona in the background, Venus gradually ‘faded away’.

## **2. The RMI at Princess Elisabeth station - First results of the research on atmospheric composition**

by Dr. Alexander Mangold

In the framework of the BELATMOS project RMI participates together with the Aeronomy institute and Ghent University in the scientific research at the Belgian research station Princess Elisabeth at Utsteinen, East Antarctica. The objective of the project is to contribute to the long-term monitoring of the chemical and particle composition of the Antarctic atmosphere, and to quantify the UV irradiation. A suite of 8 complementary ground-based instruments have been set up for this purpose. Such measurements are important because aerosols play an essential role in atmospheric physics and chemistry. E.g., they attenuate, scatter and absorb solar and thermal radiation, re-distributing by this way energy, and influencing thus photochemical reactions, the temperature at the surface and within the atmosphere, and exerting a positive or negative radiative forcing. The precise measurement of the total amount of atmospheric ozone and its evolution is important because the Antarctic ozone hole is still developing every year in austral spring. In addition, the ground-based measurements can also be used for validation of satellite retrievals or global transport or climate models. The presentation will give an overview of the instrument set up at Princess Elisabeth station and first results of the past seasons (including some months of winter data) will be shown and discussed.

June 13, 14:00 in the conference room of the RMI

### 3. Review of solar activity (28 May 2012 - 3 Jun 2012)

Flaring activity was confined to B level in the beginning of the week. From Wednesday May 30 to Sunday June 3, the Sun produced at least one C flare per day, yielding a total of nineteen C flares. The main contribution was delivered by NOAA AR 11493 (returning region 11476) and NOAA AR 11496. At the end of the week, NOAA AR 11496 produced an M3.3 flare peaking at 17:55 UT on June 3.

### 4. Review of geomagnetic activity (28 May 2012 - 3 Jun 2012)

In the beginning of the week, the Earth left a slow (around 350 km/s) solar wind flow with 4 nT average Interplanetary Magnetic Field to enter a region of intermediate solar wind speeds up to 480 km/s and Interplanetary Magnetic Field strength up to 10 nT. From Thursday May 31 to Sunday June 3, solar wind speeds were near 350 km/s while the Interplanetary Magnetic field varied between 5 and 10 nT. The geomagnetic field was at quiet levels (K Dourbes less than 4) throughout the week, except for a few hours on Sunday June 3, when active conditions prevailed (K Dourbes = 4) due to Bz values below -5 nT.

### 5. Noticeable Solar Events (28 May 2012 - 3 Jun 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
3	1748	1755	1757		M3.3		320	V/2 II/2	64	1496	

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

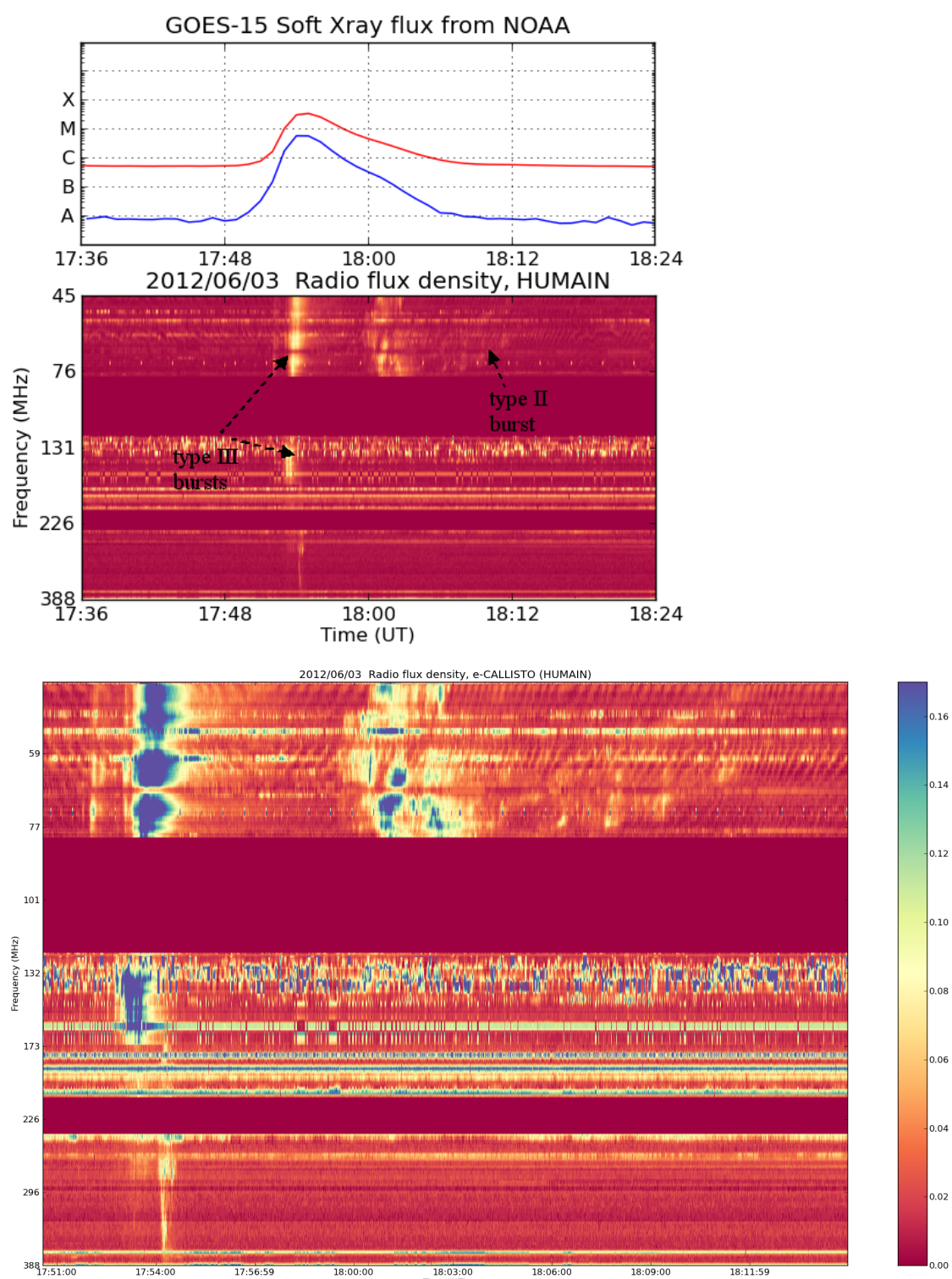
NOAA: NOAA active region number

### 6. Humain Observations (28 May 2012 - 3 Jun 2012)

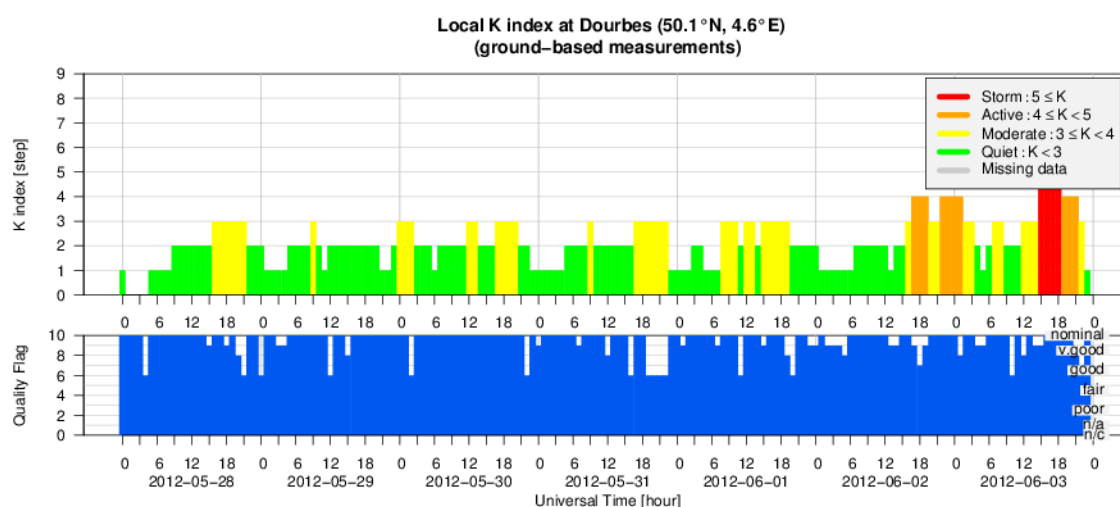
On June 3 a GOES M3.3 class flare was observed (Figure 1), with the start and peak time at 17:48 and 17:55 UT, respectively. The flare originated from Catania sunspot group 64 (NOAA AR 1496) situated at that moment close to the east solar limb, and was the strongest flare in the last few weeks. The associated CME did not arrived to the Earth and/or caused any geomagnetic disturbances.

The radio signatures of the shock wave, type II radio burst, triggered by this flare/CME event were observed by the HUMAIN Callisto radio spectrometer (Figure 1 and Figure 2). Using the frequency drift of the type II burst the shock speed of about 1100 km/s was estimated. The metric type III bursts observed at about 17:53 UT are indicating the impulsive phase of the flare.

The type II burst observed by HUMAIN seems to be rather faint, which is due to the stationary position of the radio antenna at the moment of the flare. In this time of the year the HUMAIN antenna is 'tracking' the Sun from about 7:30 UT until about 16:30 UT. Figure 2 shows dynamic spectrum with increased contrast to better stress type II radio burst.



## 7. Geomagnetic Observations at Dourbes (28 May 2012 - 3 Jun 2012)



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

See <http://www.spaceweather.eu/en/repository>

### STCE Activity Report 2007-2008

The Solar-Terrestrial Center of Excellence is a scientific project which aims at the creation of an international expert center and the valorization of Solar and Solar-Terrestrial research and services. The STCE clusters the know-how of 3 Belgian Federal institutes: Royal Observatory of Belgium ROB, Royal Meteorological Institute RMI, Belgian Institute for Space Aeronomy BIS. The STCE is built upon existing experience present in the 3 institutes related to Solar-Terrestrial physics and operates in a strong collaborative spirit within the international environment: we expect strong benefits from joint work within the networks created by ESA (SWWT, SWENET), EU (COST, FP7) and others (ISSI, ...). This document gives the first complete activity report of the STCE, covering the start-up phase 2007-2008.

<http://www.spaceweather.eu/en/repository/show?id=14>

### STCE Activity Report 2010

The report is a compilation of the activities done in 2010 within the frame of the STCE: progress in research, new or up-tuned applications and products, supporting and coordination activities.

<http://www.spaceweather.eu/en/repository/show?id=181>

### STCE annual meeting 2012 - Stratospheric aerosol characterization: GOMOS and other activities

Presentation given at the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' in the frame of the annual STCE meeting 2012

<http://www.spaceweather.eu/en/repository/show?id=186>

### STCE annual meeting 2012 - Atmospheric Composition Measurements at Princess Elisabeth Station

Presentation given during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' held in the frame of the STCE annual meeting 2012

<http://www.spaceweather.eu/en/repository/show?id=187>

### **STCE annual meeting 2012 - Climate monitoring with Earth Radiation Budget measurements**

Presentation given during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=188>

### **STCE annual meeting 2012 - VLIDORT and Linearized MIE for the Retrieval of Aerosol Parameters**

Presentation given during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=189>

### **STCE annual meeting 2012 - Retrieval of desert dust aerosols vertical profiles from IASI measurements in the TIR atmospheric win**

Presentation given during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=190>

### **STCE annual meeting 2012 - Aerosol retrieval from spectral measurements in twilight conditions: ground-based and satellite-based**

Presentation given during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=191>

### **STCE annual meeting 2012 - PROBA2: a success story**

This presentation was given in the frame of the STCE annual meeting of 2012.

<http://www.spaceweather.eu/en/repository/show?id=193>

### **STCE annual meeting 2012 - On-orbit degradation of solar and space weather instruments, lesson learned**

This workshop wrap up was presented during the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=194>

### **STCE annual meeting 2012 - Reduced MHD Turbulence, Homogeneous case and applications to loops and coronal holes**

Presentation given during the workshop 'Alfven Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=195>

### **STCE annual meeting 2012 - STORM: Solar system plasma Turbulence - Observations, inteRmittency and Multifractals**

Presentation given during the workshop 'Alfven Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=196>

### **STCE annual meeting 2012 - Implementing turbulence in kinetic modeling of solar wind particles**

Presentation given during the workshop 'Alfven Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=197>



### **STCE annual meeting 2012 - Kinetic-scale Alfvénic turbulence in the solar wind: dissipative versus dispersive effects**

Presentation given during the workshop 'Alfvén Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=198>

### **STCE annual meeting 2012 - Testing theoretical models of MHD turbulence by solar wind data**

Presentation given during the workshop 'Alfvén Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=199>

### **STCE annual meeting 2012 - Multifractal turbulence and magnetic reconnection at the leading edge of an interplanetary CME**

Presentation given during the workshop 'Alfvén Waves and Turbulence in Solar-Terrestrial Plasmas' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=200>

### **STCE annual meeting 2012 - Alfvén Waves and Turbulence in Solar-Terrestrial Plasmas**

This workshop wrap up was presented during the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=201>

### **STCE annual meeting 2012 - Interferometric Meteor Radar in Dourbes**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=202>

### **STCE annual meeting 2012 - BRAMS status**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=203>

### **STCE annual meeting 2012 - Detecting whistlers with a VLF antenna located in Humain (Belgium)**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=204>

### **STCE annual meeting 2012 - EISCAT proposal: high altitude radar echoes**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=205>

### **STCE annual meeting 2012 - Solar radio observations**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=206>

### **STCE annual meeting 2012 - Solar Irradiance, How could solar radio observations help?**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=207>

### **STCE annual meeting 2012 - Protection of the Humain station**

Presentation given during the workshop 'Radio Science' organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=208>

### **STCE annual meeting 2012 - Science and Space Weather Opportunities for PROBA2**

This workshop wrap up was presented during the STCE annual meeting 2012

<http://www.spaceweather.eu/en/repository/show?id=209>

### **STCE annual meeting 2012 - Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements**

This is the wrap up of the work presented during the workshop 'Retrieval of Aerosol Properties from Satellite and Ground-Based Measurements' that was organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=192>

### **STCE annual meeting 2012 - Water vapour, meteorology and climate**

The presentation is the avant première of the workshop 'Water vapour, meteorology and climate' that will be organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=210>

### **STCE annual meeting 2012 - Radio Science**

This is the wrap up of the work presented during the workshop 'Radio Science' that was organised in the frame of the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=211>

## **9. Future Events**

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

### **Solar Wind 13 in Hawaii, USA**

Start : 2012-06-17 - End : 2012-06-22

The Thirteenth International Solar Wind Conference, organized by the University of Alabama in Huntsville's Center of Space Plasma and Aeronomic Research (CSPAR) and the the University of California, Berkeley's Space Sciences Laboratory, will take place at Sheraton Keauhou Resort on Big Island, Hawaii, USA, from 17 to 22 June 2012. Please note that scientific sessions will start on Monday 18 June.

The conference will conform to the traditional solar wind themes, addressing the current state of knowledge in the relevant fields of solar and heliospheric physics. In particular, the conference will focus on the physics of the corona, the origin and acceleration of the solar wind, its dynamical interactions throughout the heliosphere and the interstellar medium and its boundaries. The program will be composed of both invited lectures and contributed talks and posters.

Website: <http://www.sw13.org/>

## **SHINE Conference 2012 in Wailea Maui, Hawaii**

Start : 2012-06-25 - End : 2012-06-29

SHINE stands for Solar Heliospheric and Interplanetary Environment. It is an affiliation of researchers within the solar, interplanetary, and heliospheric communities, dedicated to promoting an enhanced understanding of the processes by which energy in the form of magnetic fields and particles are produced by the Sun and/or accelerated in interplanetary space and on the mechanisms by which these fields and particles are transported to the Earth through the inner heliosphere .

SHINE research focuses in particular upon the connection between events and phenomena on the Sun and their relation to solar wind structures in the inner heliosphere . The goal of SHINE activities is to enrich and strengthen both physical understanding and predictive capabilities for these phenomena.

Website:

<http://shinecon.org/Current%20Meeting.htm>

## **Toulouse Space Show (France)**

Start : 2012-06-25 - End : 2012-06-28

Toulouse will host the most important players in the global aerospace industry, particularly those focusing on space applications. It will provide the opportunity to meet with more than 1000 experts, service providers, clients, users, researchers and students from all over the world.

Website:

<http://www.toulousespaceshow.eu/tss12/en/>

## **European Week of Astronomy and Space Science in Rome, Italy**

Start : 2012-07-01 - End : 2012-07-06

We have the pleasure to invite you in July 2012 to attend the European Week of Astronomy and Space Science, the now classical Ewass meeting, formerly known as Jenam. In 2012, the meeting will take place in Rome, Italy, at the Pontificia Università Lateranense.

Website:

<http://www.ifs-roma.inaf.it/ewass2012/>

## **International Summer School 'Solar Astrophysics: Modern trends and techniques' in Bogota, Colombia**

Start : 2012-07-03 - End : 2012-07-19

The Sun is our closest and most well studied celestial object. From the beginnings of human civilizations, the Sun has played a major role in their development, and in the rituals and customs that can still be perceived in the modern world. Unprecedented advances and new missions have revealed the real complexity of the Sun. New missions like SDO, SolarProbe Plus and other satellite missions (RHESSI, SOHO , TRACE , YOHKOH , etc.) provide information that may help to unveil the secrets of our star . The Observatorio Astronómico Nacional and the Universidad Nacional de Colombia organises an International Summer School in Solar Physics, with the purpose of promoting the solar research in Colombia and help in the personal development of postgraduate students and young postdocs in this area from other countries.

The International Summer School is intended to provide an advanced training in the field of solar physics to last year undergraduate students who are willing to write their final work in any area of solar physics, postgraduate students, and young post-docs having already some initial work in the fields of solar physics.

Website:

<http://www.observatorio.unal.edu.co/eventos/solarschool/>

## **BUKS2012 in Fodele Beach, Crete, Greece**

Start : 2012-07-04 - End : 2012-07-07

The Sun is the most important astronomical object for humankind with solar activity having a direct impact on Earth. From a fundamental point of view the Sun offers an exceptional physics laboratory where the interactions of the astrophysical plasma and the magnetic field can be studied in detail.

The BUKS workshops on MHD waves and oscillations of the solar atmosphere is organised by the following research groups from Belgium, Spain and the UK:

- \* The Centre for Plasma Astrophysics, Katholieke Universiteit Leuven, Belgium
- \* The Solar Physics & Space Plasma Research Centre, University of Sheffield, UK
- \* The Solar & Magnetospheric Theory Group, University of St Andrews, UK
- \* The Centre for Fusion, Space & Astrophysics, University of Warwick, UK
- \* The Solar Physics Group, Universitat de les Illes Balears, Spain
- \* The Astrophysics Research Centre, Queen's University Belfast, UK

BUKS2012 will also honour the contributions of Prof Marcel Goossens to the field of MHD waves and offer an opportunity to celebrate his 65th birthday.

Website:

<https://habu.pst.qub.ac.uk/groups/buks2012/>

### **23rd NASA Space Radiation Investigators' Workshop in Durham, North Carolina (USA)**

Start : 2012-07-08 - End : 2012-07-11

The 23rd Annual NASA Space Radiation Investigators' Workshop will be held July 8-12, 2012, at the Washington Duke Inn, Durham, North Carolina. The purpose of this workshop is to provide an opportunity for active researchers in the NASA Space Radiation Program to share the results of their work and to explore new directions for research that may benefit the NASA program. The workshop format will include plenary sessions, poster sessions, and a poster contest to recognize and honor student investigators. In addition, there will be special sessions on space physics and technology allowing opportunities for a comprehensive discussion on NASA's overall space radiation protection goals.

Principal investigators receiving NASA funds (including those from the NASA /DOE joint program and the NSBRI) are required to attend; principal investigators funded by the Department of Energy are strongly encouraged to attend. Although attendance at the workshop is by invitation only, other scientists with a legitimate interest in space radiation research are also welcome. If you wish to attend, please send your requests directly to . Requests should be accompanied by an explanation of your relationship to the Space Radiation Program and the type of contribution you wish to make.

Website:

<http://www.dsls.usra.edu/meetings/radiation2012/>

### **ESOF 2012 in Dublin, Ireland**

Start : 2012-07-11 - End : 2012-07-15

From 11th-15th of July 2012 international researchers, policy makers, business leaders and global media will gather in the Convention Centre in Dublin, Ireland to take part in the Euroscience Open Forum (ESOF), 2012. A science conference like no other, ESOF 2012 is unique in representing the largest convergence of the Sciences, Humanities and Culture in Europe in 2012. Some of the keynote speakers at ESOF 2012 will include Craig Venter, Rolf-Dieter Heuer, Charles Bolden, Mary Robinson, and Bob Geldof.

Website: <http://www.esof2012.org/>

### **39th COSPAR Scientific Assembly in Karnataka, India**

Start : 2012-07-14 - End : 2012-07-22

The 39th COSPAR Scientific Assembly will be held at the Global Education Centre, 2 Infosys Training Centre Mysore, Karnataka India from 14 - 22 July 2012. This Assembly is open to all bona fide scientists.

Website:

<http://www.cospar-assembly.org/>

## **CISM Summer School in Boulder (USA)**

Start : 2012-07-16 - End : 2012-07-27

The CISM Space Weather Summer School is a 2-week intensive program targeted to first-year graduate students but also attended by undergraduates and space weather professionals. The daily schedule includes morning lectures, followed by afternoon laboratory sessions where students further explore the day's topics using CISM model simulations, observational data, and sophisticated visualization tools. CISM is making the laboratory materials publicly available for use by others, for example to supplement lecture courses or for student independent study. The deadline for applications is May 1.

Website:

<http://www.bu.edu/cism/SummerSchool/overview.html>

## **IGS Workshop 2012 in Olsztyn, Poland**

Start : 2012-07-23 - End : 2012-07-27

The Department of Astronomy and Geodynamics of the University of Warmia and Mazury (UWM) is hosting the 2012 IGS Workshop.

This workshop will be composed of plenary sessions with invited oral presentations, and afternoon sessions composed of poster sessions and IGS Working Group splinter meetings. For this workshop we are soliciting abstracts for the poster sessions.

The key dates for this workshop are as follows:

- \* Poster Abstract Submissions: March 25 - April 30, 2012.

- \* Registration: March 25- May 28, 2012.

- \* Hotel Reservations: March 25- May 28, 2012.

- \* Workshop: July 23 - July 27, 2012.

Website:

[http://www.uwm.edu.pl/kaig/igs\\_workshop\\_2012/](http://www.uwm.edu.pl/kaig/igs_workshop_2012/)

## **International Radiation Symposium in Berlin (Germany)**

Start : 2012-08-06 - End : 2012-08-10

The IRC's International Radiation Symposium 2012 provides a forum for the scientific community to exchange recent results and evolving ideas relevant to many areas of atmospheric radiation. Quadrennially convened, the IRS assembles a global network of scientists and students engaged in studies pertaining to the Earth-atmosphere-Sun system, and encourages international cooperation in radiation research crucial to understanding and predicting Earth's dynamic climate and habitability. The IRC invites you to Berlin and welcomes your participation in this endeavor.

Website: <http://irs2012.org/>

## **Asia Oceania Geosciences Society (AOGS) Assembly in Singapore**

Start : 2012-08-13 - End : 2012-08-17

An international body established since 2003, the Asia Oceania Geosciences Society (AOGS) aims to promote geosciences and advance its applications for the benefit of humanity in Asia and Oceania.

Sessions:

- \* Atmospheric Sciences

- \* Biogeosciences

- \* Hydrological Sciences

- \* Ocean Sciences

- \* Planetary Sciences

- \* Solar & Terrestrial Sciences

- \* Solid Earth Sciences

- \* Interdisciplinary Working Groups

Website:

<http://www.asiaoceania.org/aogs2012/public.asp?page=home.htm>

## **Solar Information Processing Workshop (SIPWork VI), at Montana State University, Bozeman**

Start : 2012-08-13 - End : 2012-08-16

You will have noticed the slight re-branding of these workshops from 'Image' to 'Information' processing. We think it is time to expand the attention of these workshops to discuss more generally how information about the Sun can be derived, stored, shared, transformed and analyzed using appropriate techniques from many other disciplines. We will still be covering image processing and computer vision techniques applied to solar physics, but we will also be including other topics such as machine learning, data mining and new computing strategies. The re-branding simply acknowledges and makes explicit what the community has been doing to determine the physics of the Sun.

Link: <http://www.sipwork.org/>

## **Hinode-6 in St. Andrews, UK**

Start : 2012-08-14 - End : 2012-08-17

There will be 7 sessions, with 2 invited speakers per session. The following speakers have been invited to Hinode-6:

Website:

<http://www-solar.mcs.st-and.ac.uk/~hinode6/Hinode-6/Welcome.html>

## **XXVIII IAU General Assembly in Beijing, China**

Start : 2012-08-20 - End : 2012-08-31

In August 2012 China will for the first time host the General Assembly of the International Astronomical Union in Beijing. This triennial gathering of astronomers from around the world to discuss and debate the most recent discoveries about the universe is an important part of the vitality of our science. Astrophysics remains one of the most exciting areas of human endeavor, and the venue of the Beijing GA will be equally impressive: the new China National Convention Center that is housed in the Olympic Park in a beautiful, spacious building and area that is full of amenities for conference participants and visitors.

The contributions of Chinese astronomy to human knowledge and our understanding of the cosmos have been of historical significance, from the earliest to modern times. GA participants will have an opportunity to experience the wide range of astronomical activities now taking place in China that include new projects, facilities, and institutes. They will also report on, and hear, the latest research results from every field of astronomy. An exciting scientific programme is being developed that will hold the interest of everyone. I am pleased to welcome all Union members and invited guests to join us in Beijing for what will be a memorable General Assembly.

Website:

<http://www.astronomy2012.org>

## **Fermi Solar Data Analysis Workshop in Greenbelt, MD (USA)**

Start : 2012-08-22 - End : 2012-08-23

We are pleased to announce the Fermi Solar Data Analysis Workshop to be held at Goddard Space Flight Center on August 22-23, 2012. Although primarily an Astrophysics observatory, the Fermi Gamma-ray Space Telescope, and its Gamma-ray Burst Monitor (GBM) and Large Area Telescope (LAT), provide unique capabilities in the 8 keV - 300 GeV band to monitor and study both the quiescent and flaring Sun. Fermi has already made many observations of solar X-ray and gamma-ray emissions, and many more can be anticipated during the next few years with the peak in solar activity expected in 2013.

This workshop is meant to be informal and interactive. It will start with reviews of X-ray and gamma-ray solar studies to date, including results already obtained with the Fermi observatory. Extensive tutorials will be given on both GBM and LAT data analysis techniques, with time set aside for hands-on practice on your own laptop. We invite all of those interested in learning more about Fermi's Solar capabilities, and interested in interacting with experts in the field, to attend this 2-day workshop.

Website:

[http://fermi.gsfc.nasa.gov/science/mtgs/workshops/da2012\\_solar/](http://fermi.gsfc.nasa.gov/science/mtgs/workshops/da2012_solar/)

## **Fifth Solar Orbiter Workshop in Brugge, Belgium**

Start : 2012-09-10 - End : 2012-09-14

We are pleased to announce that the fifth Solar Orbiter Workshop will take place in Brugge, Belgium from Monday September 10 to Thursday September 13. Friday September 14 will be dedicated to a Science Working Team (SWT) meeting. The workshop will focus on the science questions addressed by this exciting and recently approved mission, which is a partnership between ESA and NASA . The scientific synergy of Solar Orbiter with Solar Probe Plus and other missions will also be highlighted.

Website:

<http://www.stce.be/solarorbiter5/>

## **International Space Weather Initiative (ISWI) School, in Bandung, Indonesia**

Start : 2012-09-17 - End : 2012-09-26

The International Space Weather Initiative (ISWI) is a program of international cooperation to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data from the deployed instruments in conjunction with space data, and communicate the results to the public and students. ISWI is a follow-up activity to the successful IHY 2007, but focusing exclusively on space weather . The goal of the ISWI is to develop the scientific insight necessary to understand the science, and to reconstruct and forecast near-Earth space weather . This includes instrumentation, data analysis, modeling, education, training, and public outreach. ISWI has conducted many programs not only to popularise space science all over the world but also to create favorable conditions for joint research and training in some sort of global framework. In the framework of IHY and ISWI, some research groups have been established in several countries. In order to establish the strong space research group, particularly in Asia-Oceania countries, a training to the young students and researchers is necessary. In the framework of this program, the Space Science Center of National Institute of Aeronautics and Space (LAPAN) is honored to host the 2012 ISWI and MAGDAS School in Space Science, the school to young solar physicists and geophysicists, to be held on 17-26 September 2012 in Bandung Indonesia.

Website:

<http://iswimagdas2012.dirgantara-lapan.or.id/>

## **In-situ Heliospheric Science Symposium in Maryland, MD (USA)**

Start : 2012-09-18 - End : 2012-09-20

In-situ observations by spacecraft provide [note in no particular order] the ground truth for comparison and constraining models, have transformed our ideas of the heliosphere , provide a natural laboratory for plasma physics, have challenged our pre-conceived ideas, and have discovered completely unexpected phenomena. This workshop will focus on in-situ observations of the heliosphere made by the unprecedented suite of instruments currently returning observations, including the STEREO spacecraft, near-Earth spacecraft (ACE,WIND , SOHO ) and the Voyager spacecraft that are probing the region approaching the heliopause. It is a follow on from the ACE/WIND /STEREO ... workshop held in Kennebunkport in June 2010. The program will include an overview of recent results from current missions, invited presentations, and splinter sessions with a heavy emphasis on discussion. These sessions will focus on the solar cycle variations, solar wind , solar energetic particles, suprathermal ions, coronal and interplanetary transients, and anomalous and galactic cosmic rays.

Website:

<http://stereo.ssl.berkeley.edu/meetings/Sept.2012meeting/>

## **International Meteor Conference in La Palma, Spain**

Start : 2012-09-20 - End : 2012-09-23

Every year, the International Meteor Organization (IMO) organizes the International Meteor Conference (IMC). This conference deals with all aspects of meteor observation as well as the underlying physics and is aimed at both amateurs and professionals.

The International Meteor Organization (IMO) will hold the 31st annual International Meteor Conference (IMC) on La Palma, Canary Islands, Spain, from 20 till 23 September, 2012. The conference will be

organized by the Astro Travels agency in collaboration with the Cabildo of La Palma island authority which will sponsor this event.

Website:

<http://www.imo.net/imc2012/>

### **RADECS 2012 in Biarritz, France**

Start : 2012-09-24 - End : 2012-09-28

The 21st European Conference on RADIATION AND ITS EFFECTS ON COMPONENTS AND SYSTEMS will be held in Biarritz, France, on September 24-28, 2012.

The aim of RADECS conferences is to provide an annual European forum for the presentation and discussion of the latest advances in the field of radiation effects on electronic and photonic materials, devices, circuits, sensors, and systems. The scope of the conference encompasses technological processes and design techniques for producing radiation tolerant systems for space, aeronautical or terrestrial applications, as well as relevant methodologies for their characterization and qualification. The conference features a technical program, an Industrial Exhibit, and one day meeting on ground effects offered on September 24 (RADGROUND). The technical program includes oral and postersessions.

The areas of interest for contributions to be submitted to RADECS 2012 include, but are not limited to:

- \* Basic mechanisms of radiation effects in electronic and optical materials
- \* Space, atmospheric and terrestrial environments
- \* Radiation effects on electronic and photonic devices, circuits and systems
- \* Radiation effects on sensors and emerging devices
- \* Technology and design hardening
- \* Radiation hardness assurance
- \* Irradiation facilities and testing

Website: <http://radecs2012.org>

### **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](http://www.iafastro.org/docs/2012/iac/IAC2012_CallForPapers).

Website: <http://www.iac2012.org/>

### **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 possibly damage 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 Académie 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 in 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.phtml>

### **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>

### **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/>

### **Hybrid solar eclipse**

Start : 2013-11-03 - End : 2013-11-03

For more information:

<http://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2013Nov03H.GIF>