

# STCE Newsletter

25 Jun 2012 - 1 Jul 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. Solar Orbiter Conference

Solar Orbiter is intended to brave the fierce heat and carry its telescopes to nearly one quarter of the Earth's distance from the Sun, where sunlight will be thirteen times more intense than satellites in the vicinity of the Earth feel it. The spacecraft must also endure powerful bursts of atomic particles from explosions in the solar atmosphere. The reward will come in the form of sharp images obtained together with unprecedented measurements of the local near-Sun phenomena.



Some key issues to be addressed by the Solar Orbiter mission ( <http://sci.esa.int/solarorbiter> ) are:

- How exactly is the solar wind propelled?
- How does the Sun rule interplanetary space?
- How does the Sun's dynamo work?
- How can we predict eruptions on the Sun?
- Can we make long-term forecasts of solar activity?

Solar Orbiter is currently scheduled to be launched in 2017. However, there are quite some challenges for a spacecraft operating in such a harsh environment. Therefore, meticulous preparation of the mission is required, with several workshops being organized.

The Fifth Solar Orbiter Workshop will take place in the medieval city of Bruges (Brugge) in Flanders/ Belgium on September 10-13. All information on this conference can be found at <http://www.stce.be/solarorbiter5/>. A first iteration of the scientific program with the invited speakers can be found here <http://www.stce.be/solarorbiter5/program/program.php>

Now would be a good time to register and submit your abstract for a talk and/or poster. The abstract submission deadline has been extended to July 15. Authors will be notified by July 28. Bruges is a city with high touristic appeal, so make sure to book your hotel well in advance.

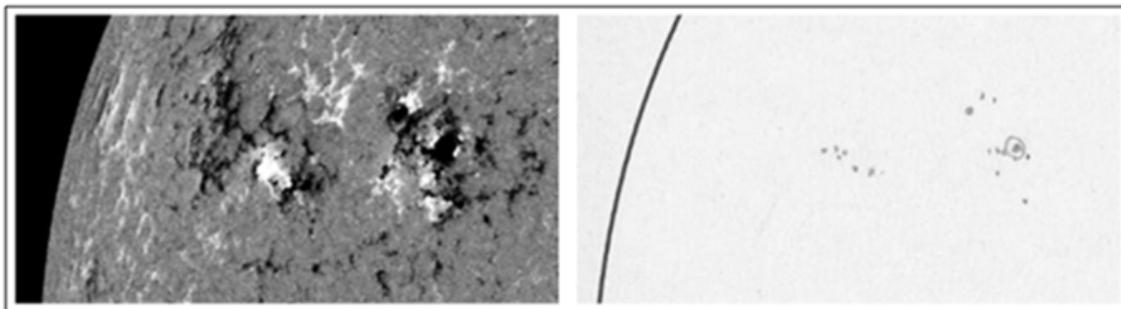
The conference poster can be found underneath. It was created by Wim Vander Putten from the Planetarium, Heizel, Belgium. Please give it maximal visibility.



## 2. Solar highlight of the week: NOAA 1513

Sometimes, it happens that a sunspot group appears simple in white light, yet it proves to be quite active when it comes to the production of medium or strong x-ray flares.

Such was the case for NOAA 1513, which appeared on 26 June at the north-east limb. This bipolar sunspot group only displayed one mature sunspot, and a few small spots without penumbra. A typical outlook can be seen in this drawing made on 29 June using the white-light telescope of the Uccle Solar Equatorial Table (USET , <http://www.sidc.oma.be/uset/index.php> ). See figure underneath at right, showing NOAA 1516 (left) and NOAA 1513 (right).



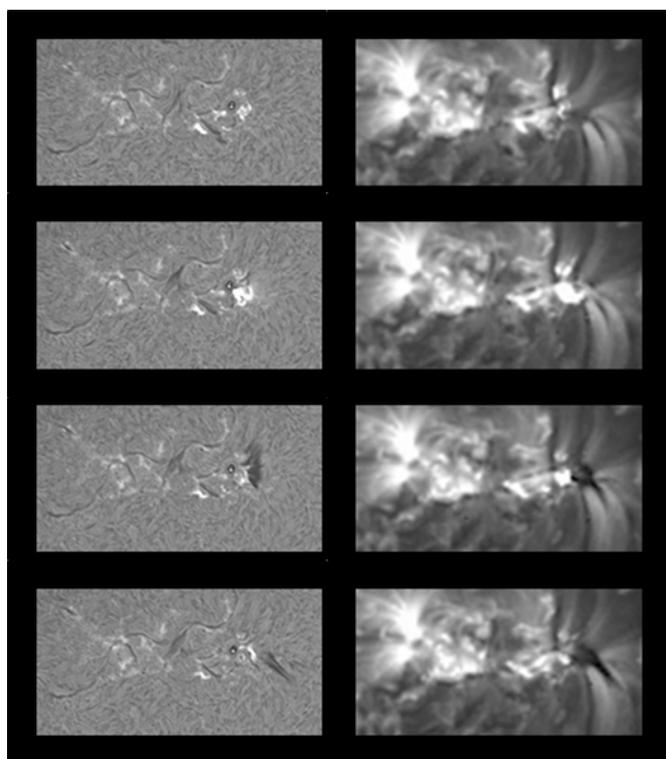
The SDO/HMI magnetogram (figure above, at left) shows the main spot of this region in black magnetic polarity, at about the same time as the white light observation. Upon careful examination, one can see some white dots close to NOAA 1513's main spot. These dots indicate opposite magnetic polarity, and some of them correspond to the small sunspots visible in the white light drawing. Normally, this is OK, but these spots are really close to the main spot, inviting to short circuiting. This is comparable when

one comes out of an easy chair and wants to touch something metallic: Only when the hand is close enough to the metal, a small spark ignites. On the Sun, this happens when magnetic field of opposite polarity come close enough together. The resulting "sparks" have of course astronomical proportions.

In the case of NOAA 1513, this magnetic configuration resulted in several eruptions. In fact, this sunspot group produced 14 C- and 5 M-flares during its 6 days that it was visible last week. That is on the average about 2 small and 1 medium flare every day! Quite an accomplishment for such a small group.

The figure underneath shows one of the medium flares in action (M1.6 peaking at 18:32UT on 30 June). The 4 images on the left show the Sun in H-alpha (relatively cool, lower atmosphere of the Sun), as imaged by the GONG H-alpha Network ( <http://halph.nso.edu/> ). The 4 images on the right show magnified images taken by the PROBA2-spacecraft ( <http://proba2.oma.be/ssa> ). Its SWAP instrument is observing in the much hotter upper atmosphere of the Sun ("corona"), explaining the huge difference in outlook between the two series. The 4 pairs of pictures were taken in intervals of about 8 minutes, starting at 18:24UT.

As expected, the explosion occurred in the area of opposite magnetic polarities, i.e. to the west and to the south of the main spot. The two bottom pairs of pictures also show some dark material being ejected. No material seems to have left the Sun though, as no CME-signature was detected by the SOHO-coronagraphs.



### 3. Review of solar activity (25 Jun 2012 - 1 Jul 2012)

Solar activity was very low in the beginning of the week, with only two B flares on June 25. The flaring activity gradually rose to M flare levels, mainly as a result of flux emergence in NOAA AR 11512, 11513 and 11515. June 28, 29 and 30, and July 1st each featured at least one M flare. In total, 35 C flares and 5 M flares were observed.

#### 4. Noticeable Solar Events (25 Jun 2012 - 1 Jul 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
28	1607	1612	1615	N16E45	M2.4	1B	0	III/2	96	1513	
29	0913	0920	0922	N17E37	M2.2	1B	0	III/2	96	1513	
30	1248	1252	1254	N17E21	M1.0	1N	0	III/3	96	1513	
30	1826	1832	1834		M1.6		0	III/2	96	1513	
1	1911	1918	1921	N14E04	M2.8	SB	66	V/3	96	1513	

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

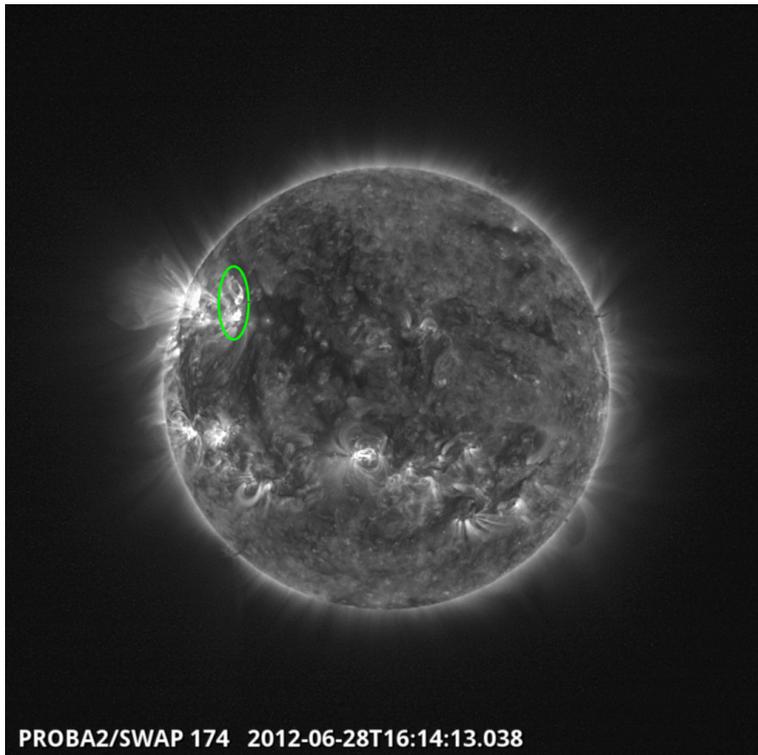
#### 5. PROBA2 Observations (25 Jun 2012 - 1 Jul 2012)

Solar Activity as recorded by SWAP and LYRA

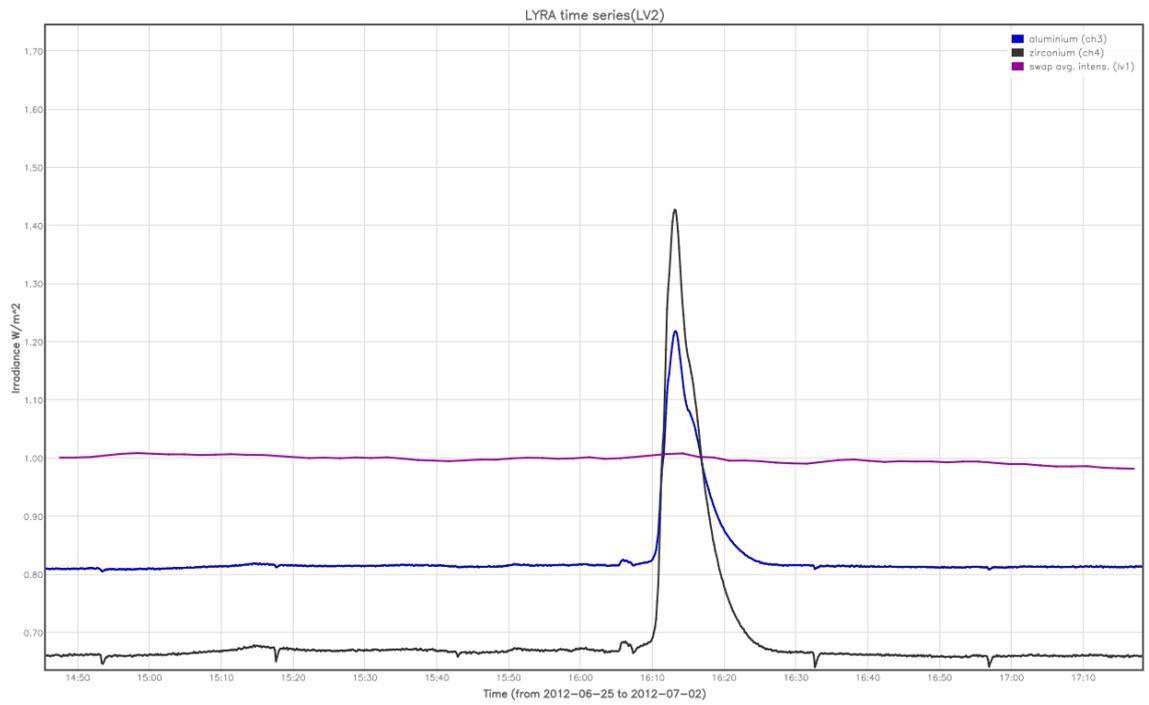
This week, the Sun's activity level went from \*low\* early in the week up to \*moderate\* from Thu on until the end of the week.

5 M-level flares occurred during the last 4 days of the week - SWAP pictures and LYRA curves below:

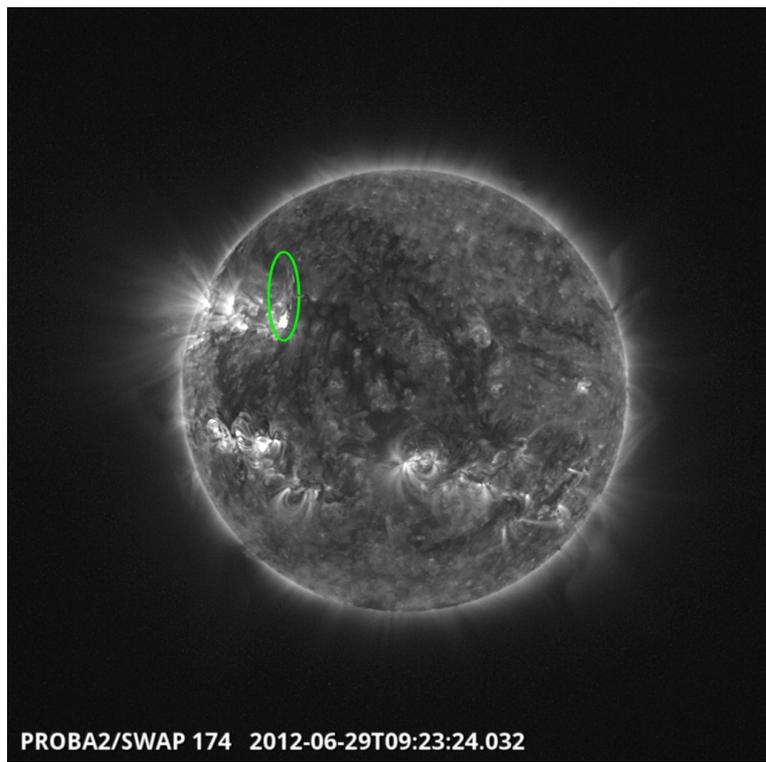
SWAP Image - M2.4 flare on Thursday 28/06



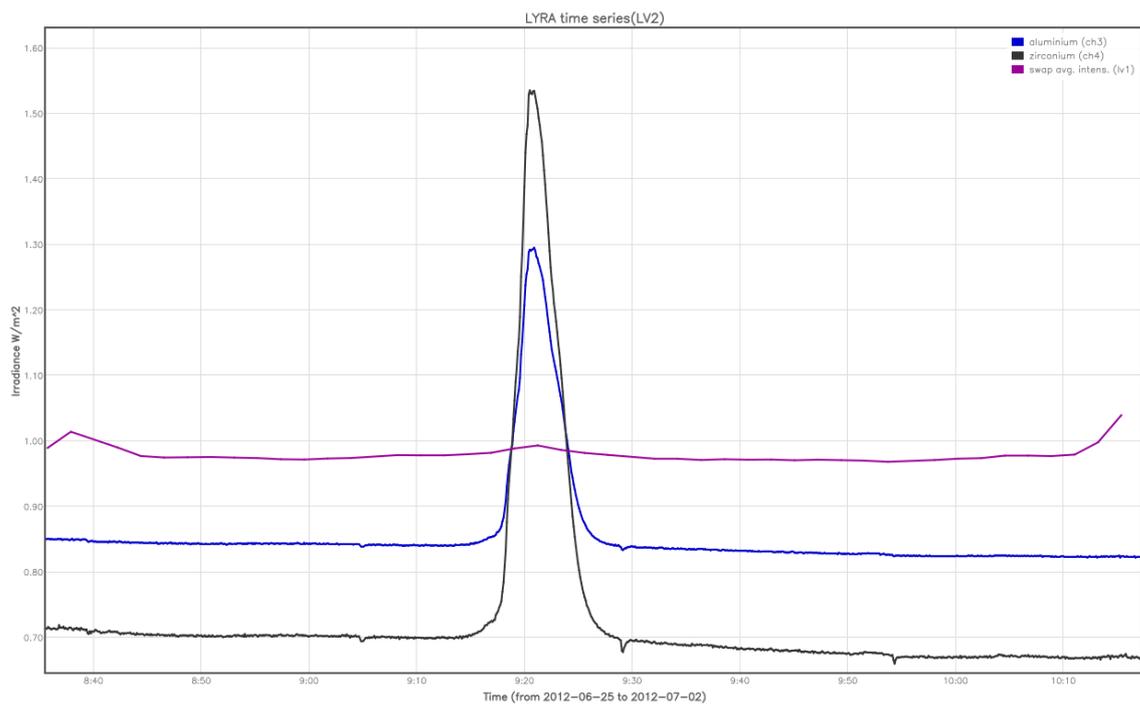
LYRA Curves - M2.4 flare on Thursday 28/06



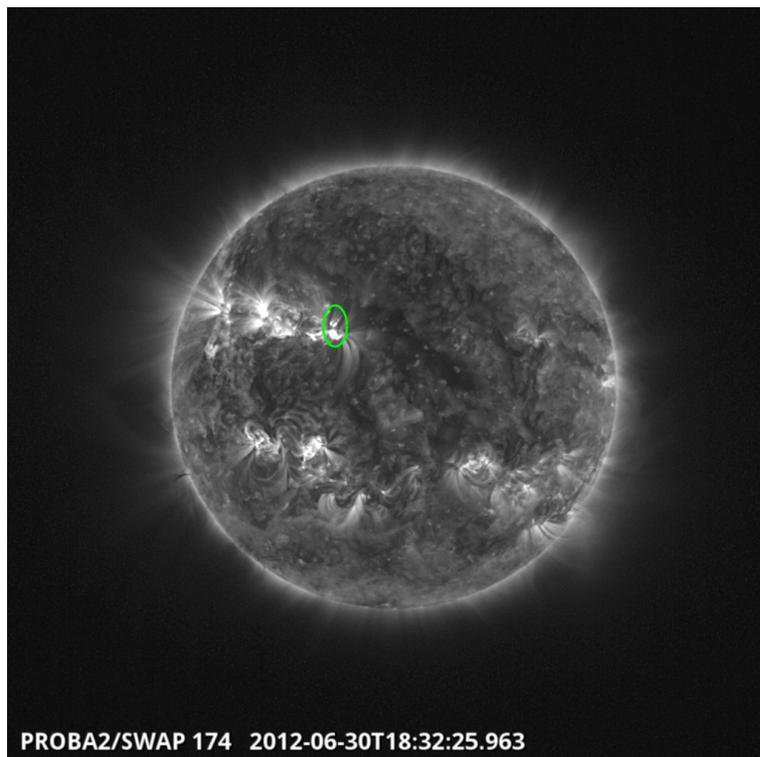
SWAP Image - M2.2 flare on Friday 29/06



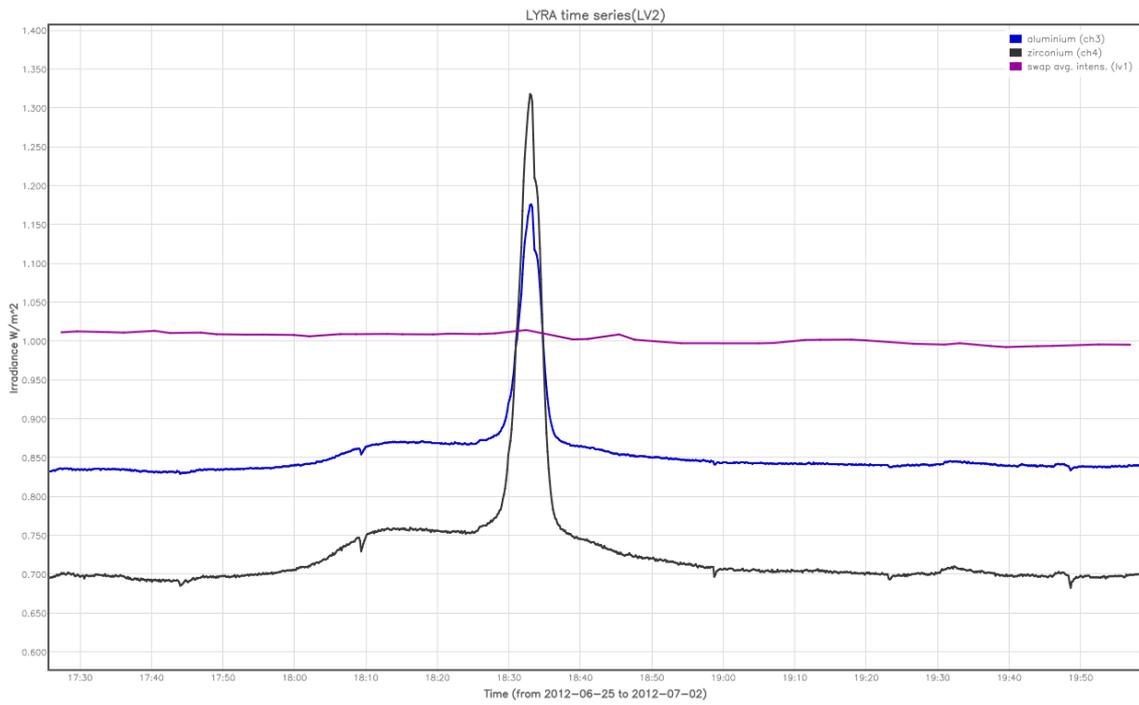
LYRA Curves - M2.2 flare on Friday 29/06



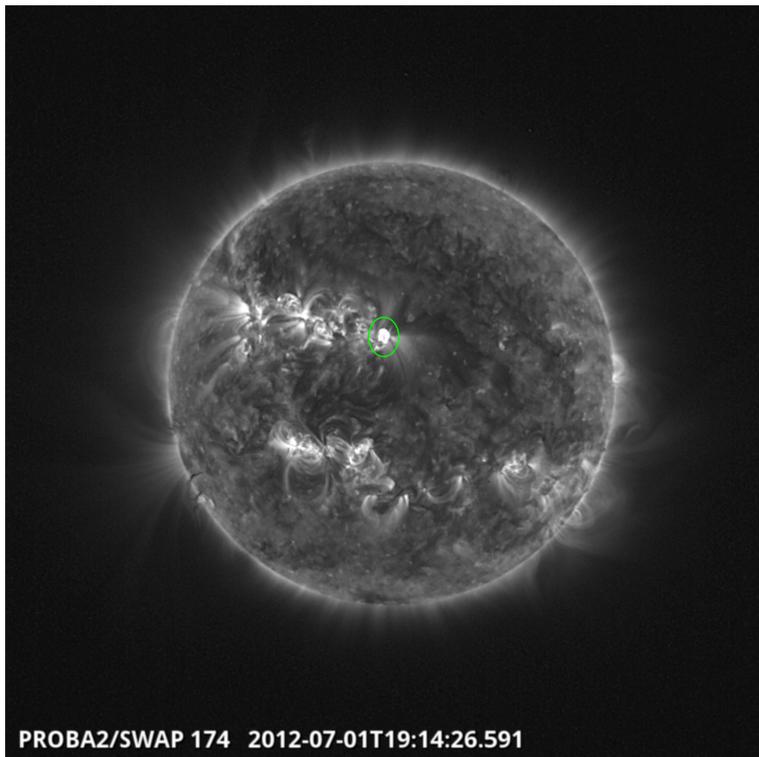
SWAP Image - M1.6 flare on Saturday 30/06



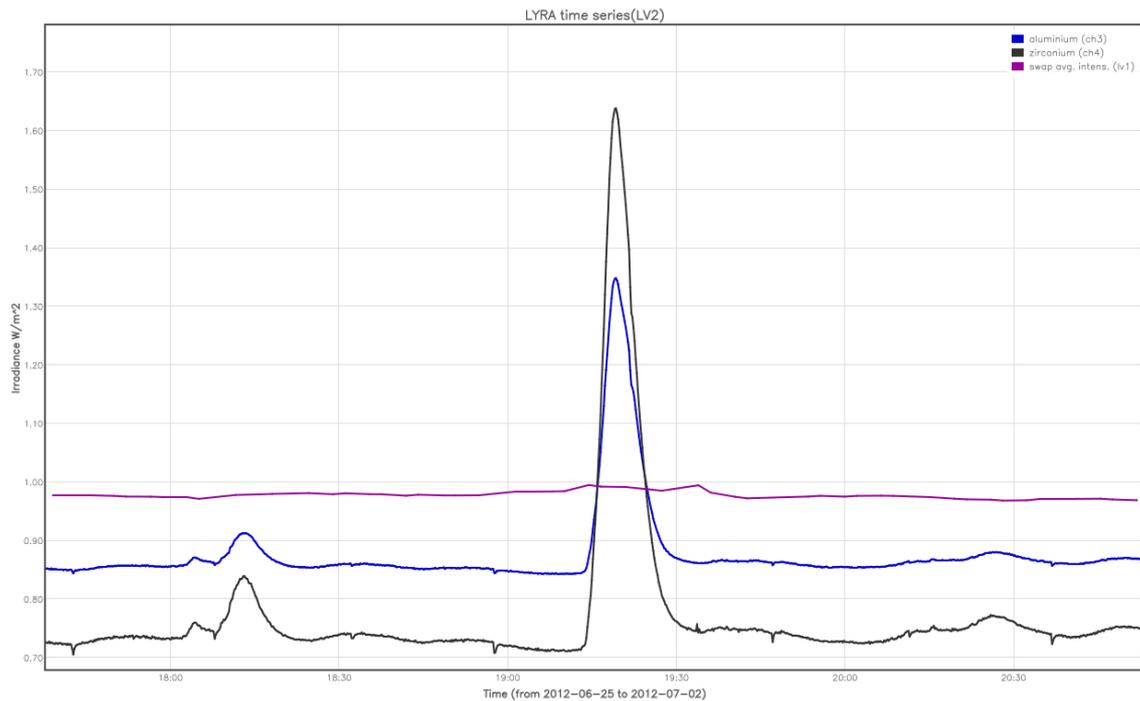
LYRA Curves - M1.6 flare on Saturday 30/06



SWAP Image - M2.8 flare on Sunday 01/07



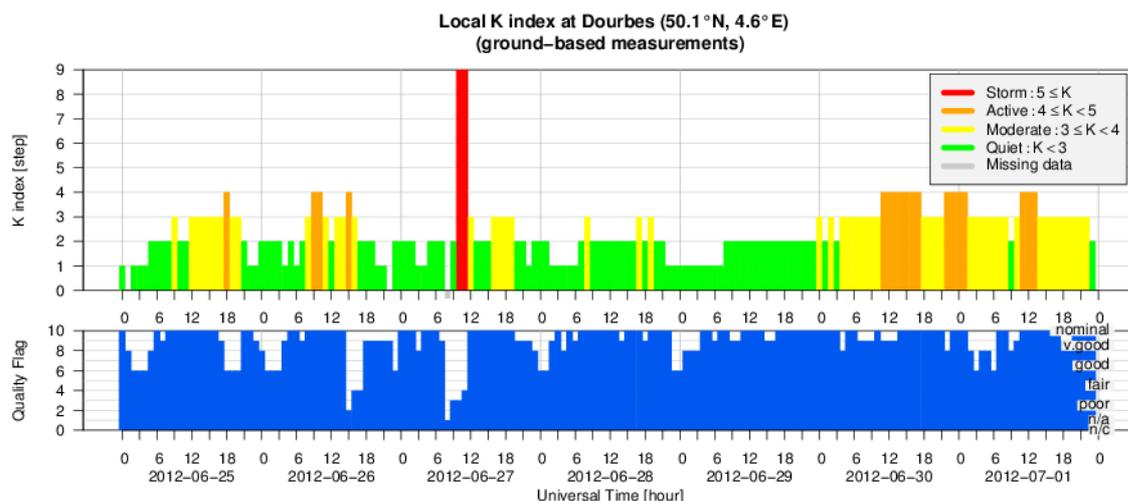
LYRA Curves - M2.8 flare on Sunday 01/07



## 6. Review of geomagnetic activity (25 Jun 2012 - 1 Jul 2012)

Geomagnetic activity was quiet (K Dourbes less than 4) until the arrival of an expected coronal hole high speed solar wind stream in the early UT hours of June 30. Solar wind velocity increased gradually from about 400 km/s to a plateau of about 700 km/s while Interplanetary Magnetic Field strengths between 5 and 15 nT were observed, with the Bz component sometimes reaching -10 nT for short periods. Decreasing solar wind density around 16:00 UT on June 30 indicated the transition from stream interface to the coronal hole high speed stream itself. Meanwhile, the Interplanetary Magnetic Field had stabilized around 5 nT. The geomagnetic field responded with a few intervals of active geomagnetic levels (Dourbes K and NOAA Kp = 4) on June 30 and July 1st.

## 7. Geomagnetic Observations at Dourbes (25 Jun 2012 - 1 Jul 2012)



Please note the K-values are incorrect for 27 June at 10:00 and 11:00UT. These values should be ignored by the user.

Occasionally, such spikes occur due to technical problems with the instrumentation, lack of data, etc. For this reason, a data quality system quality flag (displayed in blue in the bottom plot) was implemented so the user can double-check the reliability of the K value. The K-value is deemed unreliable if the quality flag is not good, as in this case on June 27, 2012, and should be ignored.

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

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

### 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>

### STCE annual meeting 2012 - Highlights, opportunities and challenges

The 'Highlights, opportunities and challenges' presented during the STCE annual meeting 2012.

<http://www.spaceweather.eu/en/repository/show?id=212>

## 9. Future Events

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

### **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.dsIs.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/)

## **SOLSPANET-1: First Solar and Space Weather Network of Excellence summer school and workshop in Tbilisi (Georgia)**

Start : 2012-08-27 - End : 2012-09-21

The Solar and Space Weather Network of excellence will hold its first Summer School and Workshop in Tbilisi Georgia. The meeting will focus on the first results achieved within the network and is also open to the wider international scientific community involved in solar and space weather modeling, monitoring and forecasting activities.

The Summer school will be open to all early-stage researchers from the SOLSPANET member groups as well as to other young scientists from institutes active in solar and space weather studies.

The week of September 17-21 will be dedicated to the International SOLSPANET-1 workshop. The workshop is also devoted to the memory of the great Georgian scientists, professors Rolan Kiladze and Avtandil Pataraya.

Scientific topics will include:

\* Monitoring of precursors for solar flares and CMEs- solar weather

- \* MHD waves in non-equilibrium medium
- \* Numerical and observational studies of CMEs
- \* CME manifestation in the decametre wavelength band
- \* Impact of space weather on terrestrial life and technological systems
- \* Advanced computational tools and knowledge base for better solar and spaceweather forecasting

Website:

<http://www.solspanet.eu/solspanet>

### **International School of Space Science on "Astrophysical and Space Plasmas" in L'Aquila, Italy**

Start : 2012-09-02 - End : 2012-09-08

The International School of Space Science of the Consorzio Interuniversitario per la Fisica Spaziale organizes a Course on "Astrophysical and Space Plasmas", to be held in L'Aquila, Italy, September 02-08, 2012, and directed by A. Ferrari, M. Tavani, B. Coppi and R. Rosner.

The aim of the Course is to present a comprehensive discussion of the plasma processes relevant to the astrophysical context, from low energy phenomena in planetary systems to the very high energy objects recently discovered through X and gamma ray observatories.

Introductory lectures will be dedicated to an analysis of observations available from ground and space observatories enlightening the thermal and non-thermal plasma processes necessary for their interpretation. At the same time the theoretical tools, analytical and numerical, necessary for their interpretation will be presented from an institutional point of view. Finally current models of the astrophysical objects and phenomena will be discussed with particular attention to the critical points with the objective of selecting new research lines.

Website:

<http://www.cifs-iss.org/>

### **TRANSMIT Summer School 2012 in Neustrelitz, Germany**

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

The Summer school is part of the training program of the Marie Curie Initial Training Network TRANSMIT, funded by the European Commission. Young scientists involved in TRANSMIT shall be trained and educated for being aware and getting basic understanding of ionospheric threats in different fields of application. Awareness and knowledge of ionospheric threats is the starting point of subsequent work to reduce or mitigate them in practical applications.

Well recognized experts in their fields will give lectures to better understand/learn about:

- \* Physical nature of ionospheric perturbations at all scales
- \* Ionospheric impact on radio wave propagation
- \* Detection/Monitoring of ionospheric perturbations
- \* Estimation the degree of ionospheric perturbation
- \* Mitigation techniques for avoiding threats in technical systems

It is expected that lectures and discussions at the summer school will help in particular early stage researchers to improve their scientific work.

Website:

<http://www.transmit-ionosphere.net/>

### **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 School of Astrophysics 'F. Lucchin' in Vulcano, Sicily (Italy)**

Start : 2012-09-17 - End : 2012-09-22

The School of Astrophysics 'Francesco Lucchin' is addressed to PhD students in Astronomy and Physics, as well as to interested young researchers. The school aims at providing a comprehensive background in Astronomy and Astrophysics, from both a theoretical and an observational point of view.

The main purpose of the school is to provide common cultural ground on hot topics of research, both observational and theoretical, to young astronomers. This will reveal the potential links between the various projects in which the PhD students and young researchers are involved, and encourage collaborative research for the future.

The school is open to students and young researchers of all backgrounds (experimental, observational, theoretical).

The topics of the school are:

\* The Sun: a Plasma Physics Laboratory (Chair: Francesca Zuccarello)

\* Formation of the solar system: clues from exploration (Chair: Priscilla Cerroni)

Website:

<http://www.iasf-roma.inaf.it/IAPS/AstroSchool/>

## **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 poster sessions.

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/>

## **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 possibly 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 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>