STCE Newsletter

3 Sep 2012 - 9 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. All quiet on the solar front (3 Sep 2012 - 9 Sep 2012)

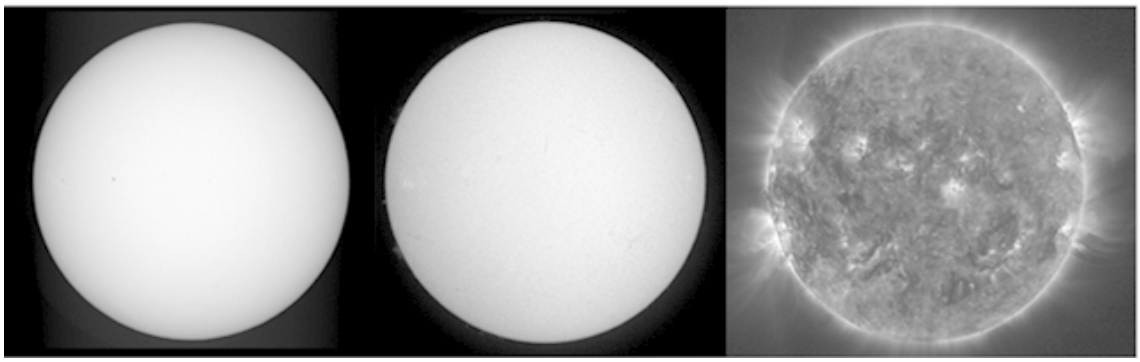
Even when a solar cycle is close to its maximum, it may happen from time to time there are periods with low solar activity. This is especially true when the maximum is predicted to be already low to medium, as is the case for ongoing solar cycle 24.

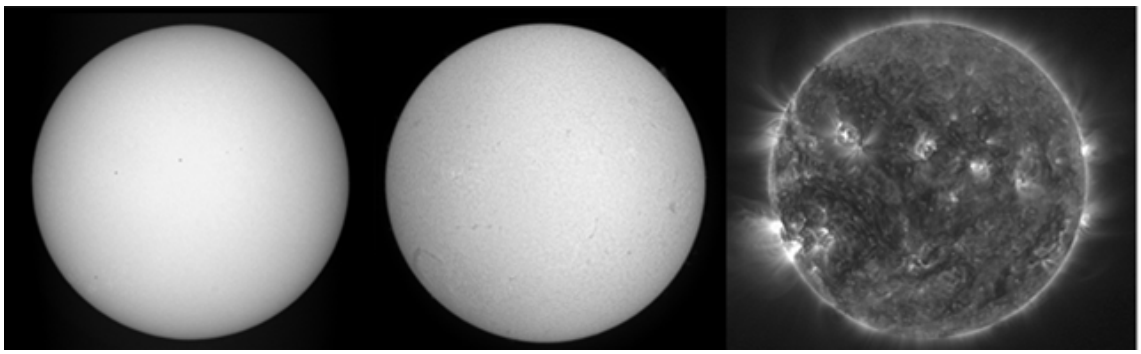
Space weather forecasters can issue an alert when solar activity is extremely low. This "all quiet alert" is a message sent when quiet space weather conditions are expected for the next 48 hours or until further notice. This implies that:
- the solar x-ray output is expected to remain below C-class level (so B-class flares at most);
- no geomagnetic storming is in the offing (so Kp remains below 5);
- the high-energy proton fluxes are expected to remain below the event threshold.

This kind of alerts are used by satellite operators. Indeed, when they are maneuvering the satellites, these become particularly vulnerable, so it's very useful to be sure really nothing will happen then.

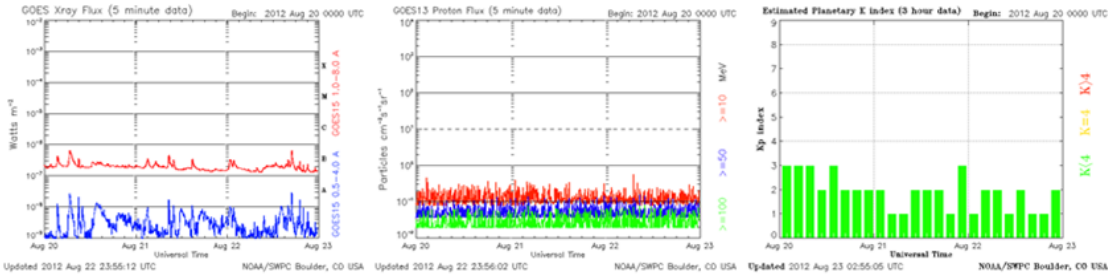
Usually, the number and complexity of the sunspot groups determine whether or not the aforementioned criteria are met. But also other solar features can affect radiation and geomagnetic conditions. Indeed, a well-aimed coronal hole can cause geomagnetic storming, and it is well known that some erupting filaments are accompanied by C-class (or higher) flares and proton events.

Nonetheless, one would expect these all quiet conditions are only satisfied during solar cycle minimum. In 2008, the doldrums year of the last solar cycle transit, such conditions were predicted for one day out of every three, with less than 3% misses.
As it turns out, "all quiet periods" can also occur during the years of maximum solar cycle activity. The most recent all quiet alert was issued on August 20 by space weather forecasters of the SIDC (http://www.sidc.oma.be/). It was halted on August 22, when active regions were appearing at the solar east limb, thus increasing the potential on small C-class flares. As shown in the USET (http://sidc.be/uset/) and PROBA2 (http://proba2.oma.be/) images for those days, the sun was populated by few and simple sunspots, with no large filaments or coronal holes on the disk. The 22 August PROBA2-image heralds the arrival of possibly flare-active regions at the south-east limb (bright).





As NOAA's satellite and ground-based recordings for the 20-22 August period show, there were no C-class flares, no proton events, and geomagnetic conditions were unsettled at most. All quiet at the solar front.



2. Review of solar activity (3 Sep 2012 - 9 Sep 2012)

Flaring activity has been at eruptive levels with mainly NOAA Active Regions (AR) 1560 and 1564 (Catania 64 and 67 respectively) producing C-class flares. Three M-class flares occurred this week: on 6 September an M1.6 flare peaked at 04:13 UT in NOAA AR 1560, on 8 September an M1.4 flare at 17:59 in NOAA AR 1564 and on 9 September an M1.2 flare at 22:36, also in NOAA AR 1564.

Two CME's (coronal mass ejections) were observed in the morning of 2 September, originating in NOAA AR 1560 (in STEREO-A COR2 images starting at 02:24 UT and 09:24 UT). Their speeds were around 480 km/s and 430 km/s respectively.

3. Noticeable Solar Events (3 Sep 2012 - 9 Sep 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
6	0406	0413	0420	N04W61	M1.6		0		64	1560	Location from SolarSoft
8	1735	1759	1820	S13W40	M1.4		0		67	1564	Location from Solar Monitor
9	2150	2236	2256	S15W52	M1.2	1F	0		67	1564	

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

4. PROBA2 Observations (3 Sep 2012 - 9 Sep 2012)

Solar Activity
This week, the Sun's activity level evolved from *Low* to *Moderate*. 3 M-flares (medium) occurred in the second part of the week.
The M-flares this week were not particularly spectacular events (in the SWAP images).

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.

On Tuesday, September 4th, two specific solar events occurred (see below):
1. eruption on the South East (SE) quadrant, between 7 and 8 o'clock;
2. eruption on the North West (NW) limb which lasted about 5 to 6 hours, centered around noon.

The eruption which occurred in the SE quadrant was particularly visible in the SWAP difference movie (http://proba2.oma.be/swap/data/mpg/movies/20120904_swap_diff.mp4).

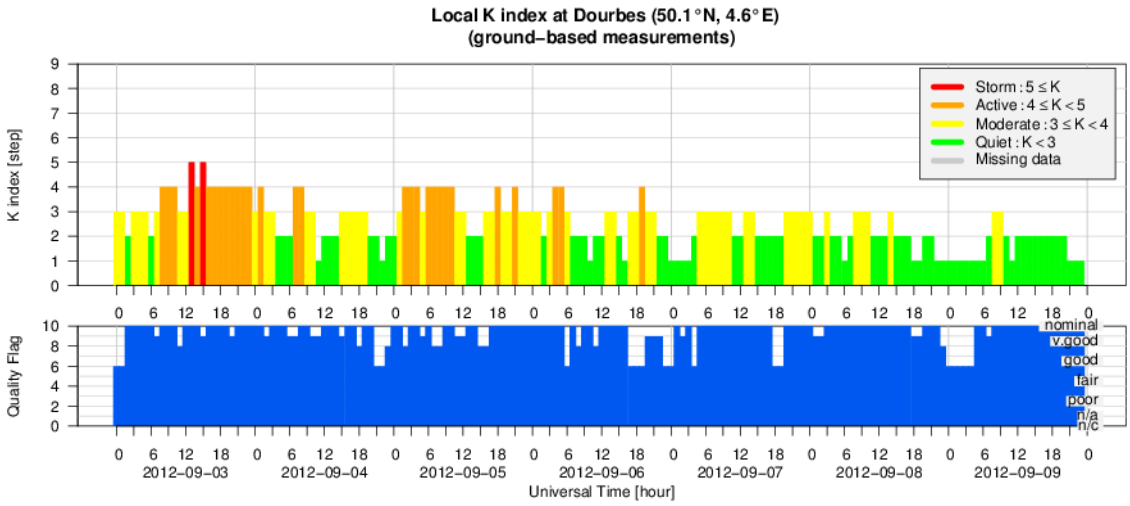
The NW limb prominence eruption was only slightly visible in SWAP, but very spectacular in lower level energies (see e.g. SDO/AIA/304 on HelioViewer.org; http://helioviewer.org/?movieId=Lxf55) or H-alpha.

5. Review of geomagnetic activity (3 Sep 2012 - 9 Sep 2012)

On 3 September around 11:20 UT a shock was observed in the solar wind, which indicated the arrival of the ICME (interplanetary coronal mass ejection) linked to the filament eruption on 31 August. The solar wind speed jumped from 300 km/s to 450 km/s. The southward component of the interplanetary magnetic field (Bz) reached a value of -20 nT for a short period. Geomagnetic conditions reached storm levels (Kp max 6, KDourbes max 5). Around 22:00 UT on 5 September, a change in the solar wind parameters was observed. This was probably related to the arrival of two CME's that were observed on

September 2. The Kp index reached storm levels again (Kp max 6), while the local K index indicated active geomagnetic conditions (K=4).

6. Geomagnetic Observations at Dourbes (3 Sep 2012 - 9 Sep 2012)



7. New documents in the European Space Weather Portal Repository

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

Bright point study with SWAP

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=242

Time delays in quasi-periodic pulsations observed during the X2.2 solar flare on 2011 February 15

http://www.spaceweather.eu/en/repository/show?id=243

Impact of the Particle Environment on LYRA Data

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=244

Energetic particle environment as seen by SphinX

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=245

Two studies with LYRA: Ly-alpha flare observations and Long-term trend

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=246

Impact of particles on SEM and EVE data

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=247

Energetic particle environment as seen by RESIK

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=248

The Venus Transit

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=249

Observing “EIT waves” with SWAP, EIS and AIA

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=250

Using Proba2 for coronal seismology

PROBA2 Science Days May 2012
http://www.spaceweather.eu/en/repository/show?id=251

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

8. Future Events

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

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/

Solar Radiation and Climate Experiment (SORCE) Science Meeting in Annapolis, Maryland (USA)

Start : 2012-09-18 - End : 2012-09-19
The 2012 Solar Radiation and Climate Experiment (SORCE) Science Meeting examines modeling efforts to understand solar spectral irradiance (SSI) variability, in terms of both its origins in the solar atmosphere and its impact on Earth's climate and atmosphere. In solar physics, advancements in radiative transfer, surface feature identification, dynamics and how observations of solar magnetic fields and irradiance all lead to an improved understanding of the mechanisms of irradiance change. Earth-atmospheric general circulation models (GCM) incorporating sophisticated codes for chemistry, radiation, dynamics, and feedback mechanisms associated with clouds, aerosols, and ocean processes are able to address the role of SSI variability in climate. In both cases, comparisons with observations lead to a deeper understanding of the dynamic solar atmosphere and our complex Earth climate system.
Website:
http://lasp.colorado.edu/sorce/news/2012ScienceMeeting/

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.
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