STCE Newsletter

7 May 2012 - 20 May 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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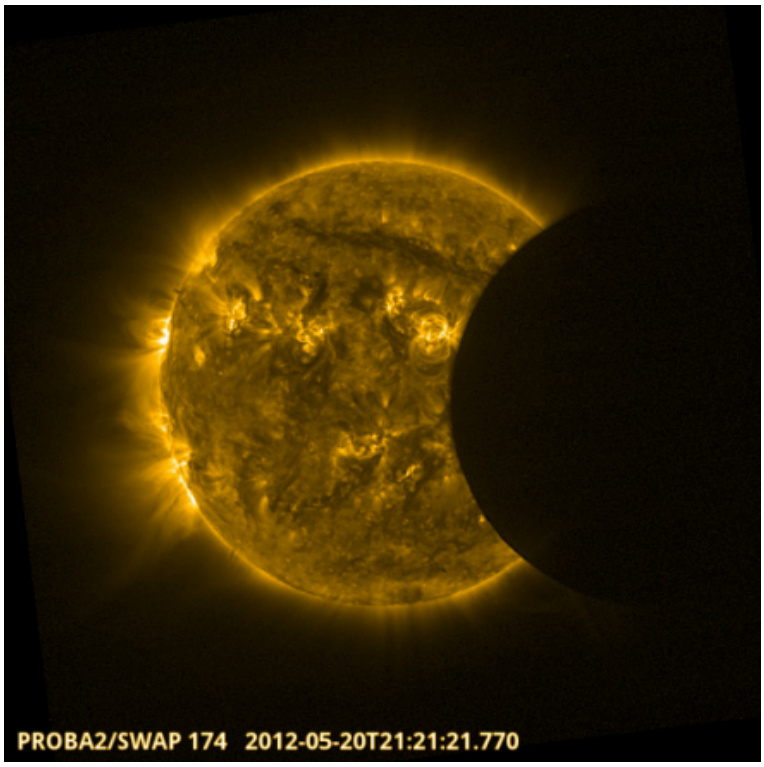
1. Solar eclipse May 20-21, 2012

On Monday May 21, between 00:10 and 03:36 Belgian time, the shadow of the Moon swept over the Earth. An observer in this shadow band could see for several minutes the Sun partially covered by the Moon. If you were in the center of the shadow band, you could watch an annular eclipse: the Moon covers the solar disk, but not completely; the outer ring of the solar disk will still be visible. In Belgium, we were not able to watch the solar eclipse since the Moon's shadow did not pass over Belgium. It was night time and we were on the backside of the Earth at the time of the eclipse.

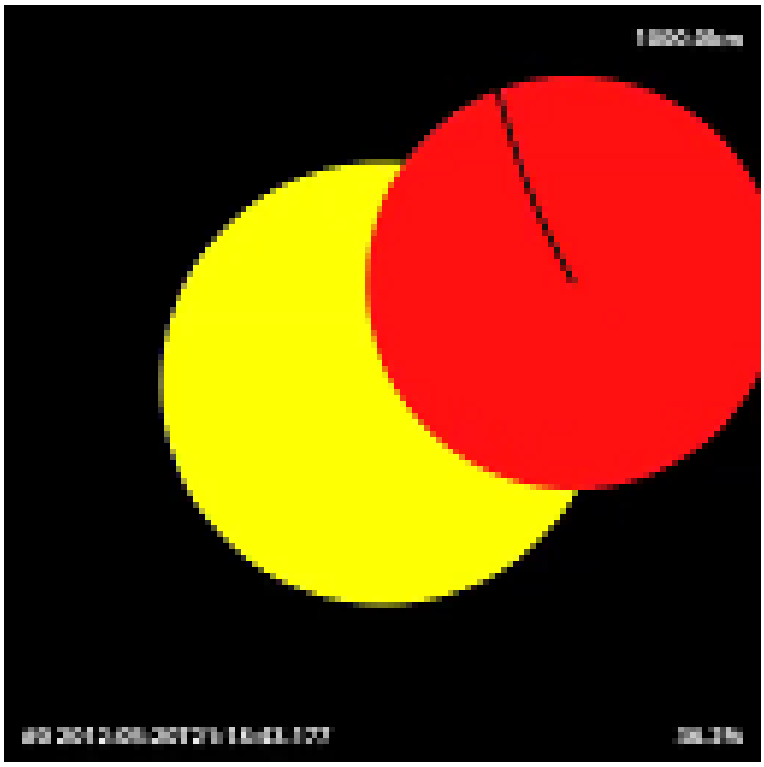
But, PROBA2, an ESA micro-satellite with Belgian instruments onboard observed the solar eclipse, up to 4 times! PROBA2 circles Earth in 100 minutes and passes 4 times through the shadow. SWAP, an EUV camera onboard PROBA2 filmed the solar eclipse 4 times. PROBA2 flies at a height of 700 km above the Earth's surface. This enables the satellite to have an earlier glimpse of the solar eclipse: SWAP saw the first contact on Sunday May 20 at 23:09 Belgian Time. The last contact finished on Monday May 21, 05:04 Belgian Time.



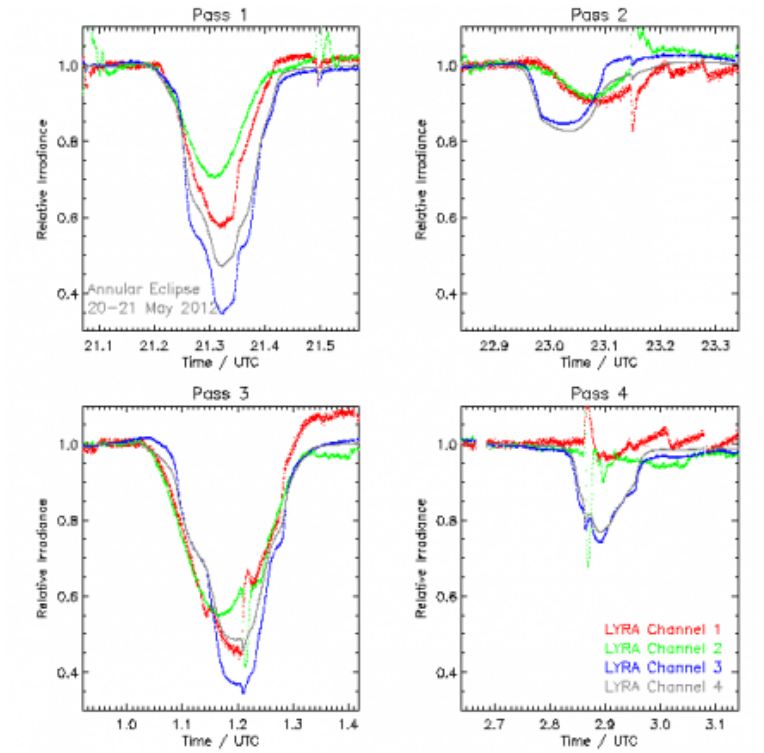
The movie: http://proba2.sidc.be/swap/data/mpg/movies/campaign_movies/20120520_eclipse.mp4

Apart from the science aspect, the solar eclipse gives the PROBA2 researchers the opportunity to characterize the pixels of the EUV-camera. The places where the lunar disk covers the Sun, should give a black EUV image. But scattered light and noise can lighten up a pixel. The solar eclipse will help to determine how good or how bad a pixel is performing. LYRA measures in 4 band passes measuring irradiance from the photosphere up to the corona. The signal becomes less intense during an eclipse as part of the solar radiation is blocked by the Moon. But the decrease and afterwards the increase is not always symmetric as you would expect: active regions contribute the most to the coronal signal and they are not spread symmetric over the solar disk.

The simulation shows the Sun, a yellow ball and the Moon, a red ball. The animation is a nice exercise to model the orbit and the relative positions of the sky bodies.



check out the animation: http://proba2.nicula.net/eclipse_2012-05-20_predict.mov



LYRA channel 1 observes the Sun around the Lyman-line (spectral interval 120-123nm plus possible longer-wavelength contributions). LYRA channel 2 observes the Sun around the Herzberg continuum (190-222nm) LYRA channel 3 observes the Sun through an Aluminium filter (17-80nm plus an X-ray

contribution below 5nm) LYRA channel 4 observes the Sun through a Zirconium filter (6-20nm plus an X-ray contribution below 2nm)

The differences between the longer-wavelength observations (channels 1 and 2, ultraviolet radiation) and the shorter-wavelength observations (channel 3 and 4, extreme ultraviolet [EUV] and soft X-ray [SXR] radiation) demonstrate the inhomogeneous distribution of EUV and SXR radiation across the solar surface. This is especially visible in passes 2 and 4, where the solar disk is hardly touched, but the off-disk active regions are significantly covered by the lunar disk (compare SWAP movie).

Channels 1 and 2 have degraded to such a degree that they are extremely sensible to artifacts like the regular spacecraft rotations or temperature changes, i.e. the data must be interpreted carefully.

About the Sun Watcher using Active Pixel System detector and Image Processing, SWAP telescope

SWAP is designed by the Centre Spatiale de Liège, CSL. The Royal Observatory of Belgium takes care of the operational activities. SWAP is an Extreme Ultraviolet solar telescope onboard of PROBA2. The instrument pictures the explosive and dynamical atmosphere, the corona, of the Sun.

About LYRA, Large Yield RAdiometer

LYRA is a solar X-ray and UV filter photometer, designed and manufactured by a Belgian–Swiss consortium. It monitors the solar irradiance in four passbands relevant to Solar Physics, Space Weather and Aeronomy.

The PROBA2 Science Center

The PROBA2 Science Center (P2SC), headquartered at the Royal Observatory of Belgium, handles all aspects of mission science planning and instrument commanding for SWAP and LYRA as well as processing and distribution of all SWAP and LYRA science data.

2. The STCE planeterrella

From 1896 to 1917, the Norwegian physicist Kristian Birkeland designed an experiment called the Terrella. The experiment helped him to understand polar light. He placed a magnetised sphere in a vacuum chamber. With an electron gun, electrons were shot on the sphere. The gun was the Sun and the sphere represented the Earth. Birkeland saw a light ring near the poles and the equator. Later on, the light ring near the equator was identified as a ring current discovered by James Van Allen.
A century later, the Terrella experiment was redefined by Jean Lilensten, Research Director at the Institute of Planetology and Astrophysics in Grenoble. The new design demonstrates aurora, but can simulate also the interaction between other stars and planets. The experiment is now re-baptized as the Planeterrella.
With the help of Jean Lilensten, the STCE, BIRA-IASB and the ROB is now building its own planeterrella experiment. Planeterrella enthusiasts met on a regular basis to discuss and dream about what could be possible with our own planeterrella. Our planeterrella needed to be mobile, easy to operate, with a flexible and adaptable configuration, save for the operator and audience and of course, budget friendly but above all, a tool for various scientific experiments.

We want our planeterrella to serve educational but also scientific purposes. STCE scientists want to check if the measured polarization of the emitted light fits the theory. Besides the visible light, UV radiation will also be emitted. The experiment will also allow us to check the degradation of filters caused by UV-radiation. The planeterrella represents a beautiful and accessible introduction to space science and space weather. Class room experiments can also be done with it: measuring the UV transmission and compare it with the UV radiation outside - to check if it the experiment is a threat for your health or not.

Eddy Equeter (on the left) is the key person to assemble the planeterrella. He is an expert in vacuum, electronics, pomp systems, ... in fact, the planeterrella technical expert. Claudio Queirolo (on the right) takes care of the technical drawings of the planeterrella. What you see is the plexi glass bell jar in which the spheres will be placed. It gives an idea of the size of the experiment. A vacuum pomp and a gas injector need to be attached. Other gases give other colours.

3. Review of solar activity (07 May 2012 - 20 May 2012)

Several M-flares were produced from Monday May 7 till Thursday May 10. NOAA AR 1471 was active in the beginning of the period (M1.9 flare on May 7) but most flaring and the largest flare of the period (M5.7 on May 10) was produced by NOAA AR 1476. After that, flaring activity decreased although NOAA AR 1476 retained a beta-gamma-delta configuration till the end of the period.
The ACE low energy proton fluctuated since May 11 suggesting that the Earth environment was magnetically connected to NOAA AR 1476 in the second half of the period. Nevertheless, the NOAA GOES proton event threshold was not reached during the period.

On May 17, we had a moderate revival: one M-class flare was detected, an M5.1 event peaking at 01:47 UT, again from NOAA AR 1476. This flare was related to a proton event and a CME with an Earth directed component and type II and III radio bursts. During the following days, only minor C-class flares were monitored.

4. Review of geomagnetic activity (07 May 2012 - 20 May 2012)

Enhanced geomagnetic conditions were observed on May 9 and May 10. KDourbes, as well as NOAA's planetary K-index registered K=4 values. This enhanced activity was a consequence of a coronal hole passing the solar central meridian. The solar wind speed, as recorded by the ACE spacecraft at L1, gradually rose from 300km/s to nearly 700 km/s with intermittent episodes in which the Bz component of the interplanetary magnetic field turned southwards.

On May 15 an ICME arrived on Earth, most probably coming from an eruption on May 12, but did not cause any geomagnetic consequences. On May 20 at 01:44 UT a shock coming from the CME on May 17 was detected at ACE, without geomagnetic consequences (it produced active conditions at planetary levels Kp=4, but only k=2 at Dourbes).

5. Noticeable Solar Events (7 May 2012 - 13 May 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
7	1403	1431	1452	S19W46	M1.9	1N	230	IV/1		1471	observed by PROBA2/SWAP
8	1302	1308	1312	N13E44	M1.4	1F	69			1476	
9	1221	1232	1236	N13E31	M4.7	1N	110			1476	
9	1402	1408	1414	N06E22	M1.8	1B	68	III/2		1476	
9	2101	2105	2109		M4.1		240			1476	
10	0411	0418	0423	N13E22	M5.7	2B	690	III/2		1476	
10	2020	2026	2030	N12E12	M1.7		100		25	1476	

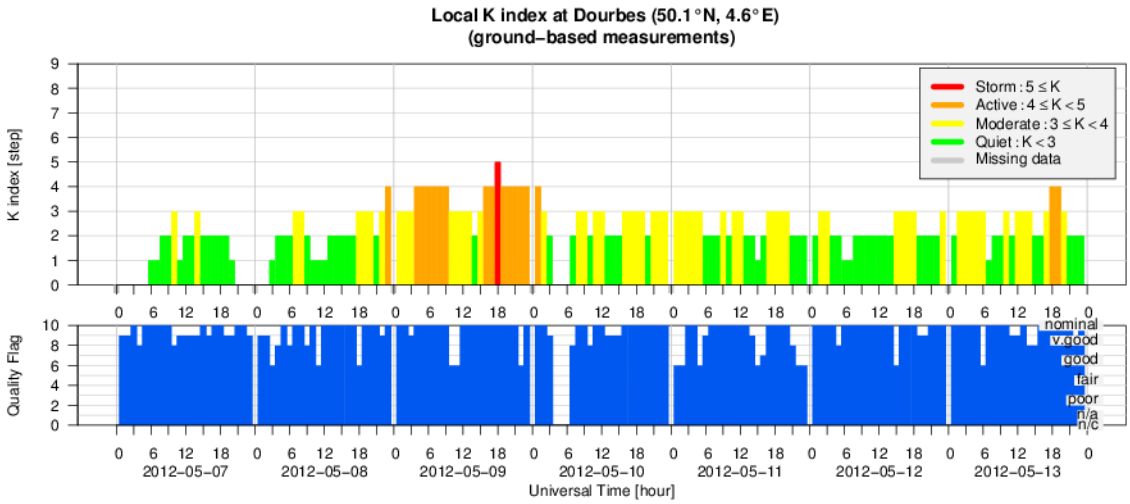
LOC: approximate heliographic location
XRAY: X-ray flare class
OP: optical flare class
10CM: peak 10 cm radio flux
TYPE: radio burst type
Cat: Catania sunspot group number
NOAA: NOAA active region number

6. Noticeable Solar Events (14 May 2012 - 20 May 2012)

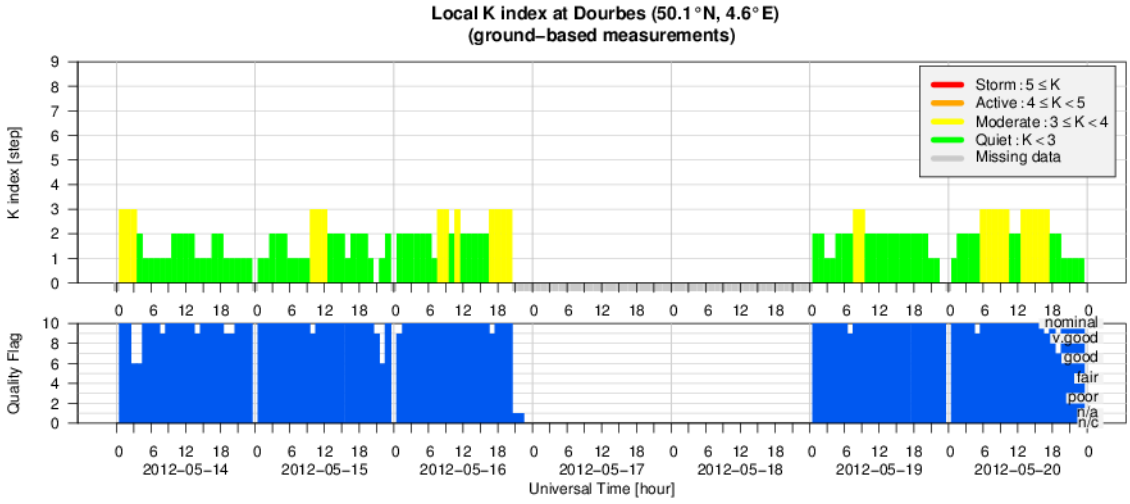
DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
17	0125	0147	0214	N11W76	M5.1	1F	540	II/3 IV/2 III/3		1476	

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

7. Geomagnetic Observations at Dourbes (7 May 2012 - 13 May 2012)



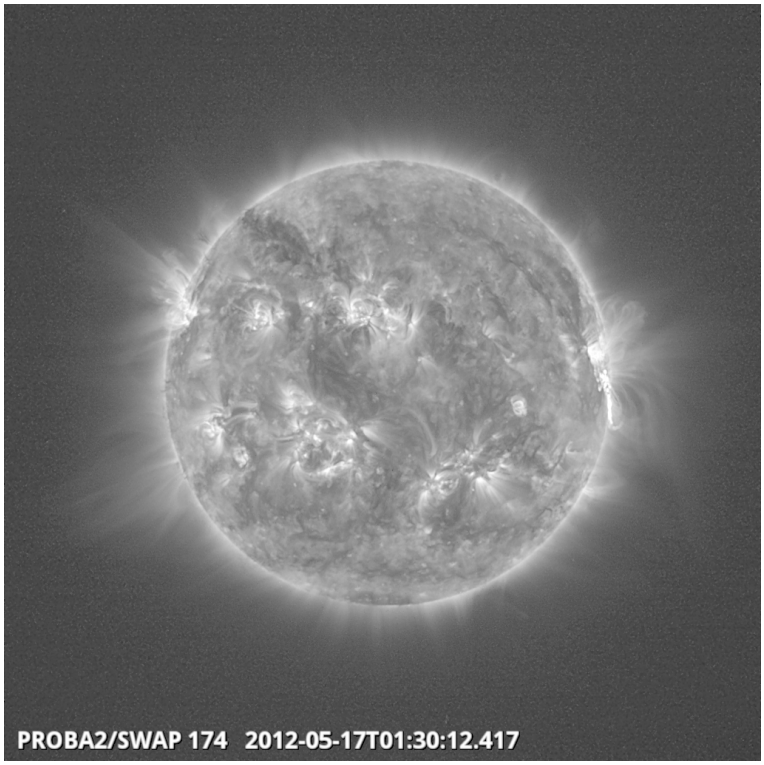
8. Geomagnetic Observations at Dourbes (14 May 2012 - 20 May 2012)



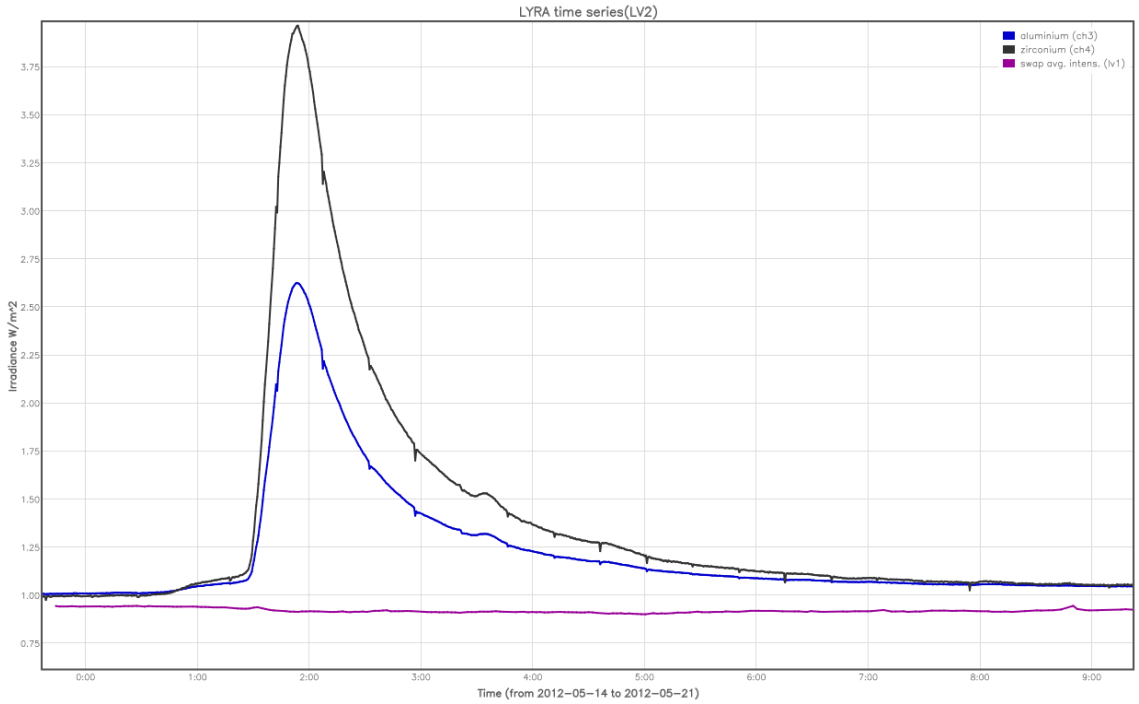
9. PROBA2 Observations (14 May 2012 - 20 May 2012)

This week, the Sun's activity was low to moderate. An M-flare occurred on Thursday 17th, 01:25 (see below).

M5.1 Flare - West limb, 17/05 @ 01:25 - normal SWAP image



M5.1 Flare - West limb, 17/05 @ 01:25 - LYRA curves

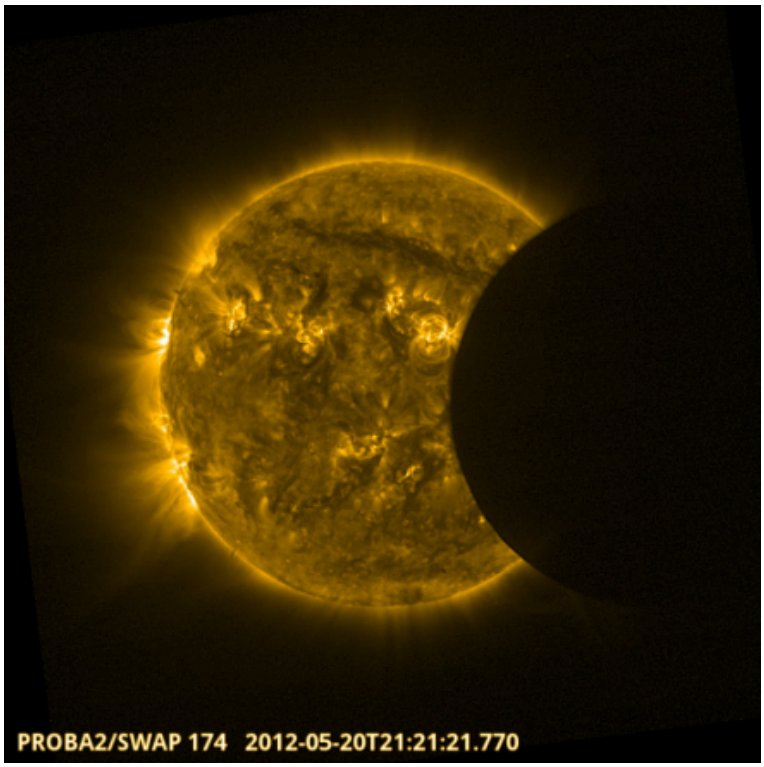


This event can be seen in its totality in a difference movie here: http://proba2.oma.be/swap/data/mpg/movies/20120517_swap_diff_extract.avi

Solar Eclipse:

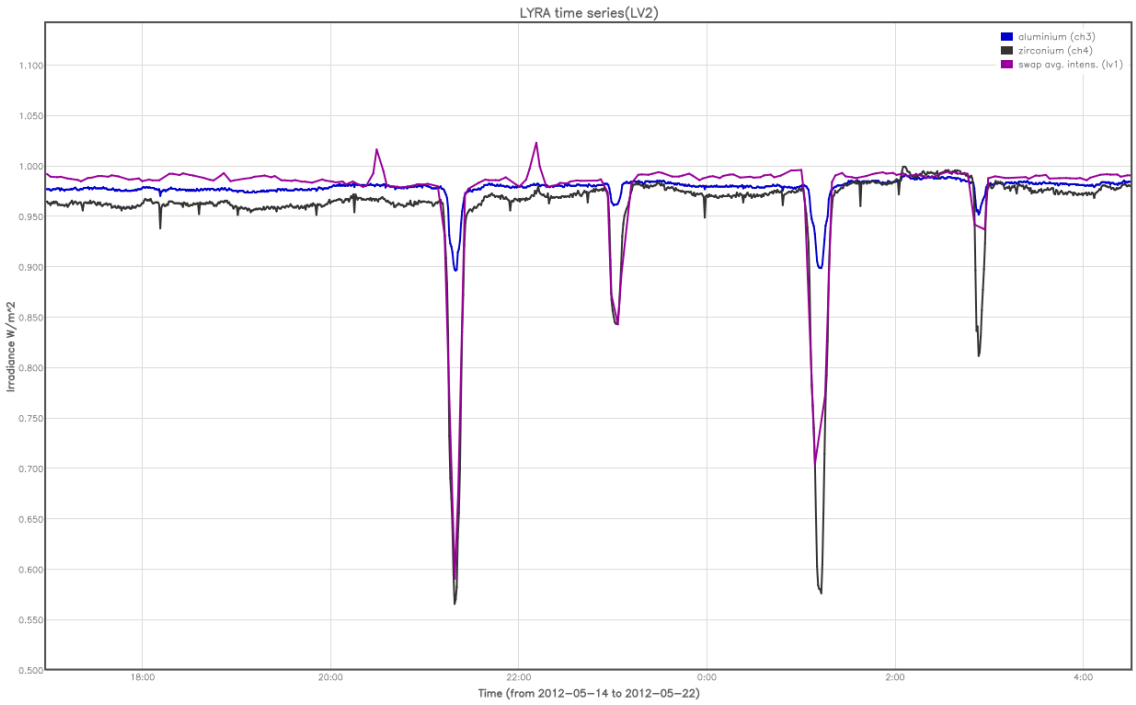
From Sun 20th to Mon 21st, an annular solar eclipse occurred (as seen from ground).

SWAP and LYRA were prepared to gather data during this specific event.



A SWAP movie of this occurrence (4 eclipses!) can be seen here:
http://proba2.sidc.be/swap/data/mpg/movies/campaign_movies/20120520_eclipse.mp4

The associated LYRA curves - as well as the dips in the mean solar intensity (SWAVINT; in purple) - are shown below:



At the occasion of the solar eclipse of Sunday 20th/Monday 21st, a press release was released by the Royal Observatory of Belgium. The release can be found here:
http://proba2.oma.be/index.html/outreach/breve/solar-eclipse-20-21-may-2012

SWAP's movie of the eclipse has been noticed on the following public webpages:
http://www.spacedaily.com/reports/Proba_2_catches_solar_eclipse_999.html
http://www.youtube.com/watch?v=Ybzkl5enXQo
http://news.softpedia.com/news/Proba-2-Catches-Sunday-s-Solar-Eclipse-270841.shtml
http://www.flickr.com/photos/europeanspaceagency/7240932650/
http://digg.com/news/science/proba_2_catches_solar_eclipse
http://astronews.skynetblogs.be/archive/2012/05/21/proba-2-attrape-l-eclipse-solaire.html
http://pgj-new.pagesperso-orange.fr/0512-nouvelles.htm#Proba-2
https://plus.google.com/100720077817157516563/posts/EZRcaE733ao
http://www.portaltotheuniverse.org/news/view/196142/
http://www.onenewspage.co.uk/n/Science/74r8tfcyr/Proba-catches-solar-eclipse.htm
http://spacefinalfrontier.blogspot.com/2012/05/proba-2-observes-solar-eclipse.html
http://inagist.com/all/204532587702665216/
http://www.space.com/15797-solar-eclipse-satellite-pictures.html
http://redux.com/stream/item/2264663/Proba-2-Catches-Solar-Eclipse
http://www.lalibre.be/archives/divers/article/739215/breves.html

In addition, the NASA SDO page on Facebook referenced to the PROBA2 movie..
Also, the P2SC web page with the eclipse movie was mentioned on various Facebook pages (astro/ solar photography).

10. Future Events

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

Heliophysics Summer School in Boulder, Colorado

Start : 2012-05-31 - End : 2012-06-07
The 2012 Heliophysics Summer School will focus on the science underlying current and future heliophysical missions, including but not limited to MMS, Themis , RBSP, IRIS, SDO, and Solar Probe Plus. After providing students with broad overviews of the solar atmosphere, the solar wind , the Earth's magnetosphere , and ionosphere , the course will cover the basic concepts and unanswered questions pertaining to magnetic reconnection, shocks, plasma instabilities, turbulence, and heating, and the manner in which these concepts and questions affect our understanding of phenomena such as substorms, radiation belt and chromospheric dynamics, solar wind turbulence and particle heating, and heliospheric shocks.
Link:
http://www.vsp.ucar.edu/Heliophysics/summer-about-over.shtml

Los Alamos Space Weather Summer School

Start : 2012-06-04 - End : 2012-07-27
The Los Alamos National Laboratory established a summer school in 2011 dedicated to space weather , space science and applications. Every year we solicit applications for the Los Alamos Space Weather Summer School. This summer school is sponsored by IGPP (Institute of Geophysics and Planetary Physics) and PADSTE (Principal Associate Directorate for Science, Technology and Engineering), and PADGS (Principal Associate Directorate for Global Security) and has been established to bring together top space science students with internationally recognized researchers at LANL.
Website:
http://www.swx-school.lanl.gov/

First European School on: Fundamental processes in Space Weather in Spineto, Italy

Start : 2012-06-04 - End : 2012-06-09
The Space Weather Integrated Forecasting Framework network (http://www.swiff.eu) organizes in June 2012 the "First European School on Fundamental processes in space weather , a challenge in numerical modeling". The School will focus on the theoretical study of Space plasmas, in particular on those systems where a continuous energy injection flow leads to a self-consistent coupling of the large scale, low frequency motions with the small scale, high frequency fluctuations including kinetic effects. Progress in this field heavily relies on numerical simulations that, as a matter of fact, are nowadays more similar to laboratory experiments than to theoretical exercises. This is true in terms of planning efforts in the preparatory phase, of manpower required, of data analysis and cost. The understanding of these processes represents a fundamental step for the future of Space Weather models.
Website:
http://www.df.unipi.it/~califano/SWIFF_School/
EU_School_on_Space_Weather_fundamental_plasma_processes.html

Space Weather Effects on Humans: in Space and on Earth in Moscow, Russia

Start : 2012-06-04 - End : 2012-06-08
During the last thirty years there has been steady progress in our understanding of the influence that space weather has on the state of human health both in Space and at Earth. This development is mainly based on research conducted on humans onboard space stations and spacecrafts, as well as on ground based observations and experimental studies simulating conditions in space. This interdisciplinary field of research requires a wide exchange of expertise in various topics. Only with a global approach it will be possible to establish a mutual understanding, in regard to defining the current state of this research problem as well as identifying what should be pursued in future research activities.

Website:
http://swh2012.cosmos.ru/

Remote Sensing of the Inner Heliosphere 2011 in Aberystwyth, UK

Start : 2012-06-06 - End : 2012-06-10
We announce the 'Second Remote Sensing of the Inner Heliosphere Workshop' to be hosted by Aberystwyth University and held in Aberystwyth, Wales, UK, 06-10 June 2011. The workshop aims to gather experts from the various fields of remote-sensing observations of the inner heliosphere , including white-light, EUV, and radio observation, together with modellers in order to tackle key outstanding science issues, establish closer working relations, and devise the best ways to move the field forward. In addition, the science learned from remote-sensing observations is key to improving our capabilities of space weather forecasting. The workshop also aims to look at ways in which we can more easily and efficiently share and access the various types of data between individual groups and sub-communities, ways in which we model the inner heliosphere looking at the advantages and disadvantages of the available modelling, updates on present and future remote-sensing capabilities - including those on the STEREO /SDO/Solar Orbiter/Solar Probe+ Missions, and progress on use of the LOw Frequency ARray (LOFAR) and Murchison Widefield Array (MWA) radio arrays - pathfinders for the Square Kilometre Array (SKA) - linking remote-sensing observations of the inner heliosphere with those closer-in to the Sun as well as with in-situ measurements, and investigating further the ways in which these data sets all complement each other and are necessary to gain knowledge and understanding of the fundamental physical processes that occur within the inner heliosphere .
Website:
http://heliosphere2011.dph.aber.ac.uk/

Solar Wind 13

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 ofthe 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, formely known as Jenam. In 2012, the meeting will take place in Rome, Italy, at the Pontificia UniversitÃ Lateranense.
Website:
http://www.ifsi-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 Astronomico Nacional and the Universidal 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 ungraduate 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/

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

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

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

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 or 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/

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 a 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

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/

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/

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

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

Hybrid solar eclipse

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

11. New documents in the European Space Weather Portal Repository

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

UNIGRAZ effort for eHEROES

Presentation of UNIGRAZ research in the frame of the eHEROES project. Collaborations and cross-disciplinary possibilities.
http://www.spaceweather.eu/en/repository/show?id=179

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 ROBRoyal Meteorological Institute RMIBelgian Institute for Space Aeronomy BISAThe 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

Space Weather Working Team: Terms of Reference

The SWWT is a forum open to European experts in space weather applications and related science as well as users of space weather products. The SWWT investigates space weather applications' requirements, space weather services and the underpinning research and development. It also advises ESA on strategies and activities related to space weather.
http://www.spaceweather.eu/en/repository/show?id=183

SWWT background

http://www.spaceweather.eu/en/repository/show?id=184

SWWT introduction

http://www.spaceweather.eu/en/repository/show?id=185