STCE Newsletter

27 Feb 2012 - 4 Mar 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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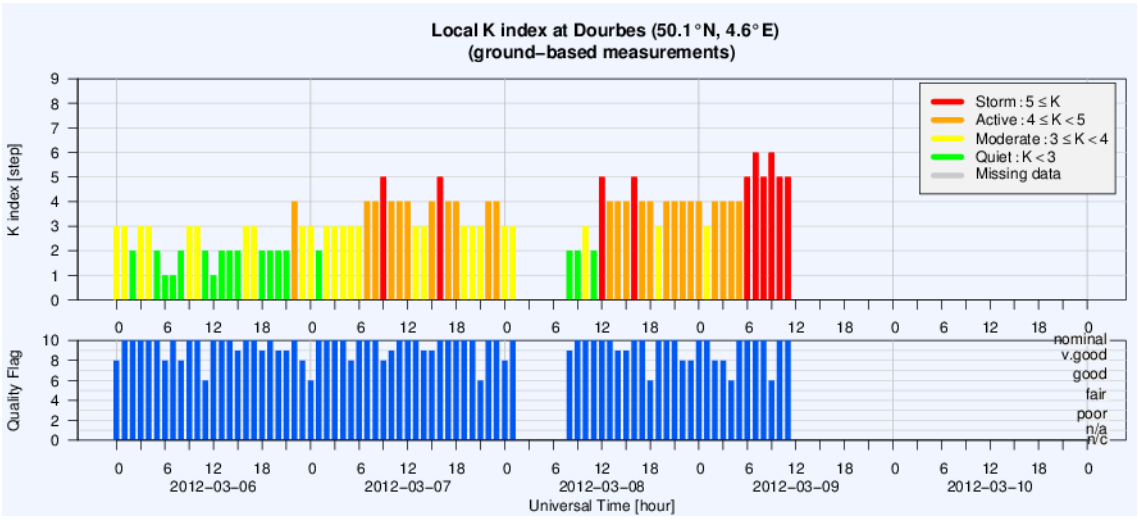
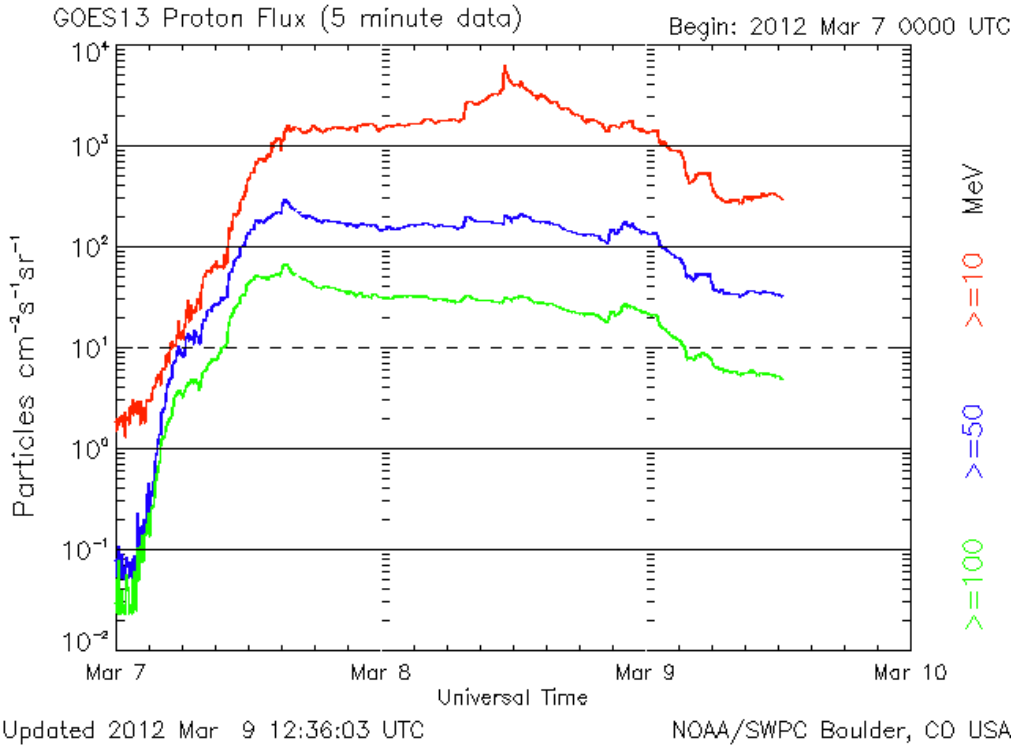
1. Space and Earth today, March 09

The active region that caused all the harassment the last day, is still in an energetic mood. It fired of again an M light flash - solar flare peaking just after midnight (March 09). The satellite SOHO has a front view of the Sun. It detected a plasma cloud ejected into space. The cloud is heading earth with a speed of 750 km/s. The Earth will encounter first a shock and secondly the cloud itself, probably on March 11, early on March 12. The magnetic field imbedded in the plasma cloud is probably oriented in such a way that it interact very easy with the magnetic shield of Earth. We are possibly heading for another strong geomagnetic storm.

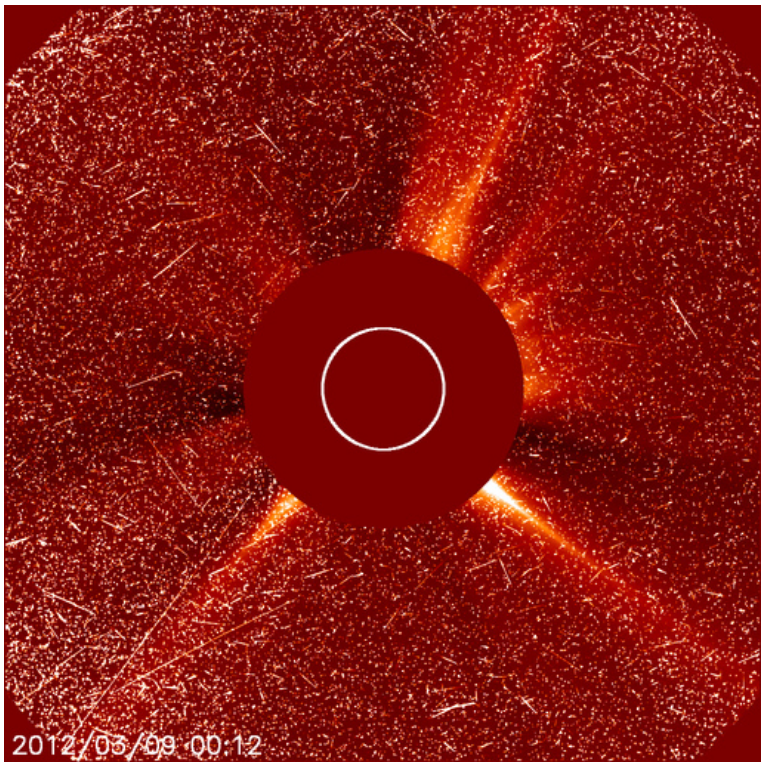
In the mean time, we are still experiencing a geomagnetic storm due to the arrival of the plasma cloud on March 08. The Earth is still under the influence of a high energy protons and electrons stream. This stream of particles is still blinding the satellite ACE. The particles are visible on the SOHO/LASCO images as spikes and dots. It gives a troubled view which it make it difficult for automated software to interpret the images.



The magnetometer located in Dourbes shows that there is a geomagnetic storm going on.



The satellite GOES counts the number of protons that fly by.



SOHO/LASCO shows the space around the Sun. The sun is behind the circular occulter, so the sun is not visible. The surrounding space would otherwise be overwhelmed by the sun light.

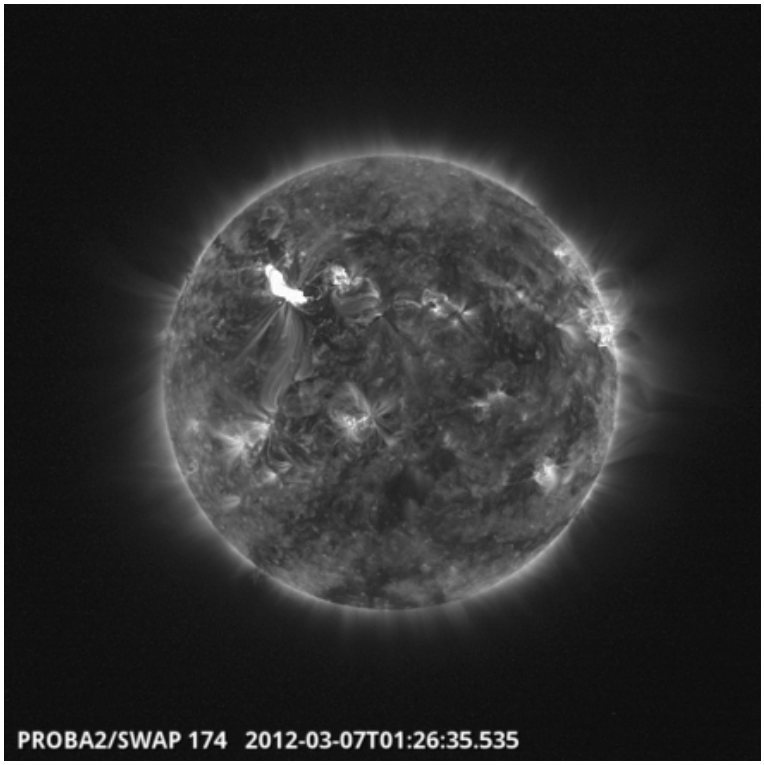
2. Press release: Solar Activity on March 07, 2012

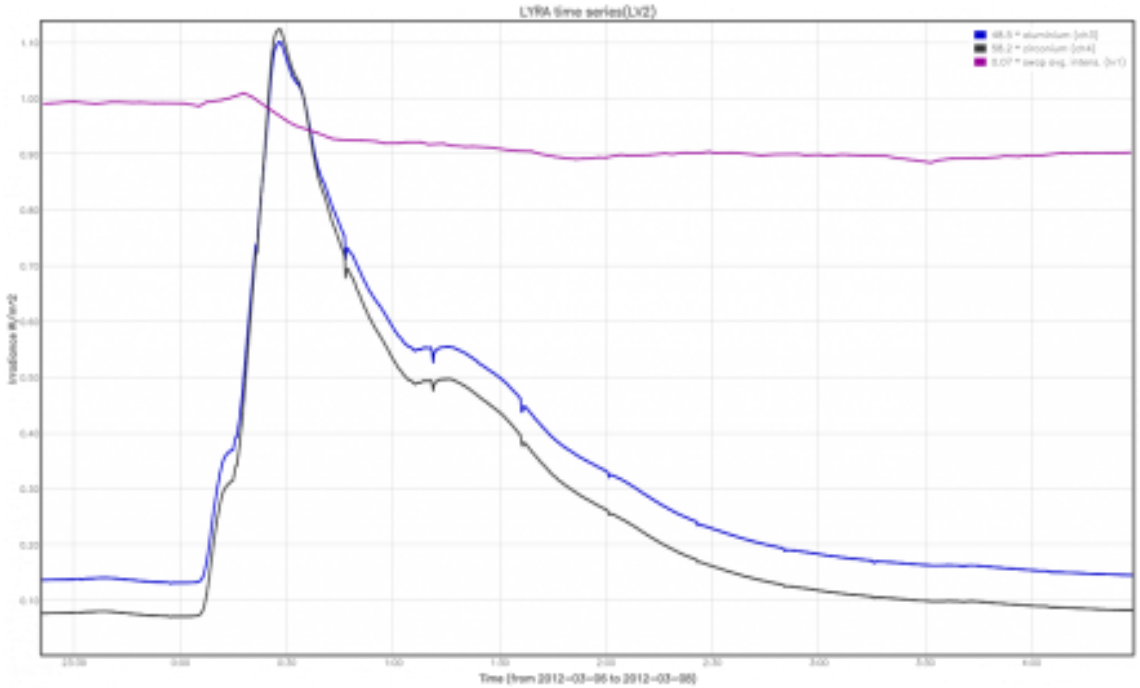
A very strong flare occurred on the Sun on March 07, 2012 around 1h30 Belgian time. A magnetized plasma cloud was ejected into space. The consequences for Belgium are for this moment limited. Updates are available on our website. The rise of activity is normal in this phase of the solar cycle and more and even stronger activity is expected in the next years.

SOLAR FLARE
Event: On March 07, 2012, around 1h30 Belgian time, an X5.4 flare was detected in the same sunspot group that produced the X1.1 flare on March 05.
Consequences for Belgium: Due to the position of Belgium on the night side of the Earth during the flare, no perturbation of the HF radio-communication occurred.
Next days: The sunspot group that produced the flare is still very large and complex. Another major flare is possible.

PLASMA CLOUD
Event: A magnetized plasma cloud was ejected around the same time. The cloud had a speed of around 2300 km/s. The arrival of the cloud at the Earth is expected in the course of March 08, 2012, with at least a strong geomagnetic storm (K=7) as a result.
Consequences for Belgium: We expect at least a strong geomagnetic storm (K=7) in the course of March 08, 2012, with some consequences for navigation (e.g. GPS) and satellites (drag force). Electricity networks may be slightly affected.
Aurora: Moderate chance for aurora in Belgium (when clear sky)
Next days: A similar plasma cloud could be ejected again.

PROTON STORM
Event: A stream of high-energy protons is strongly increased due to the ejection of the fast magnetized plasma cloud that drives a shock wave in front of it.
Consequences for Belgium: No effects on the ground. Aircraft at high altitude and high geographic latitudes may experience enhanced radiation levels.
Next Days: The stream of high-energy protons will stay above the event threshold at least until the arrival of the plasma cloud on March 08 and probably even longer.
Observed effects from this event worldwide: Impact on HF radio communication has been experienced in the southern hemisphere since 05:30 UT as a consequence of the proton storm.





more http://www.sidc.be/news/147/welcome.html

3. Press release: Solar Activity on March 05, 2012

A strong flare occurred on the Sun on March 05, 2012 around 5h Belgian time. A plasma cloud was ejected into space. The consequences for Belgium were limited. Updates are available on our website .

SOLAR FLARE
Event: On March 05, 2012, around 5h Belgian time, an X1.1 flare was detected at the east side of the Sun (left on images).
Consequences for Belgium: weak degradation of the HF radio-communication above Belgium in the morning of March 05, 2012.
Next days: a similar event could occur, with stronger degradation of the HF communication above Belgium as a consequence.

PLASMA CLOUD
Event: A plasma cloud was ejected around the same time. The cloud had a speed of ~1000 km/s. Because the plasma cloud was not ejected straight to the Earth, only partially, we expect only a small impact on the Earth when the associated shock or cloud itself passes Earth. The initial speed in the direction of the Earth is estimated to be 890 km/s. The arrival at Earth is expected on March 07, 2012 between 5h and 17h Belgian time.
Consequences for Belgium: We expect a minor to moderate geomagnetic storm (K=5-6) on March 07, 2012 between 5h and 17h Belgian time, with limited consequences for navigation (e.g. GPS) and satellites (drag force). Electricity plants may be slightly affected.
Aurora: only a small chance for aurora in Belgium
Next days: a similar plasma cloud could be ejected with a possible stronger geomagnetic storm on Earth.

More http://www.sidc.be/news/146/welcome.html

4. STCE annual meeting, Radio Day workshop

For the third year in a row, Christophe Marque and Herve Lamy invite you to a "radio day" meeting which aims at discussing present and future radio activities within the framework of the STCE.

The radio day will be organized on 15 May from 10:00 to 12:00 at the RMI meeting room.

This year, we plan to discuss the following topics :
- Protection of the radioastronomical observations in Humain (problems with windmills, querry, ...)
- Status of BRAMS and solar radio observations. Possible use of BRAMS data for characterization of solar flares.
- Future meteor radar in Dourbes
- Use of SDR system such as USRP2. Possibility to use it for solar observations in Humain.

Of course, this list covers only our activities and any additional topic is welcome. If you would like to attend and possibly contribute to this radio day meeting, send an e-mail to herve.lamy at aeronomie.be or Christophe.Marque at oma.be.

Looking forward to meeting you in May.
Herve Lamy and Christophe Marque

5. Review of solar activity (20 Feb 2012 - 26 Feb 2012)

On Feb 27, 28 and 29, there was some flaring activity in the B-level. March 01, a C-flare occurred. From March 02 onwards, active region NOAA 11429, still behind the east limb, increased the flaring level considerably. It started with an M3.3 flare, peaking at 17:46UT on March 02. A CME was associated with it. Due to the location of the source region, it was clear that the CME was not Earth directed. There was another M-flare on March 04 from the same active region, also associated with a CME. Again, because of the location of the source region at that moment, the CME was not ejected straight to Earth.

6. Review of geomagnetic activity (20 Feb 2012 - 26 Feb 2012)

On Feb 26, 21UT, a shock passed the ACE satellite. The cloud itself followed 1 day later, around 18UT on Feb 27. The magnetic structure was associated with the filament eruption of Feb 24. At Dourbes, the shock and plasma cloud arrival induced a minor geomagnetic storm on Feb 27. On March 01, the local geomagnetic conditions pimped up to 4, active conditions. This could be the aftermath of the magnetic cloud.

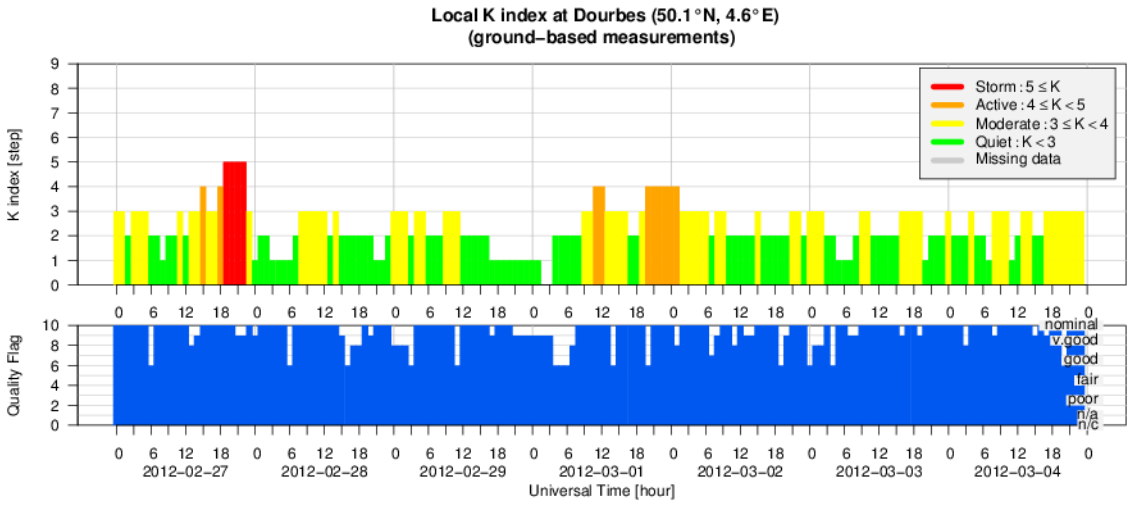
7. Noticeable Solar Events (27 Feb 2012 - 4 Mar 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
2	1729	1746	1807	N16E83	M3.3	SF	0			1429	Faint CME, directed to the East
4	1029	1052	1216	N19E61	M2.0	1N	2500	IV/2	65	1429	

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

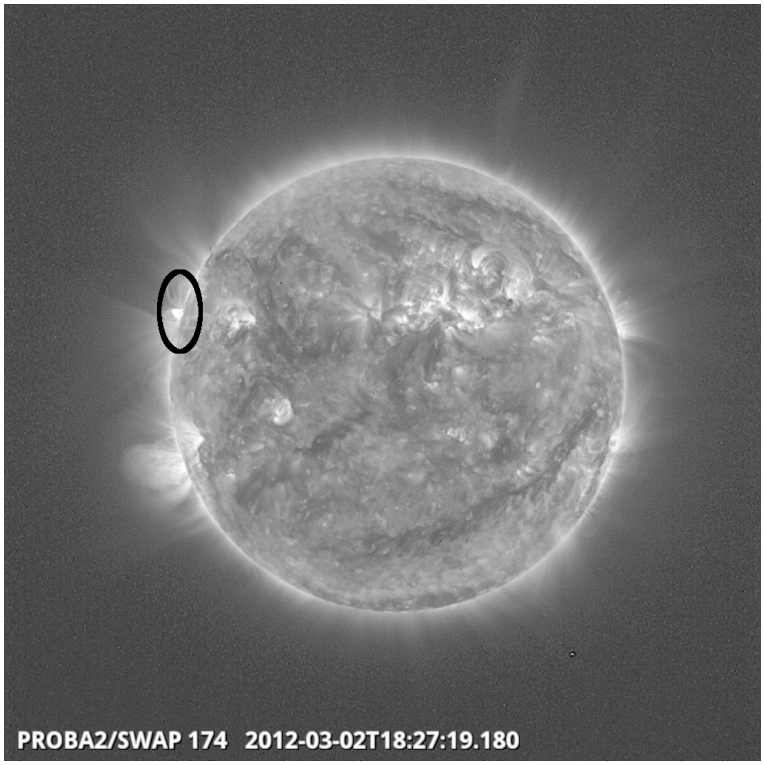
8. Geomagnetic Observations at Dourbes (27 Feb 2012 - 4 Mar 2012)

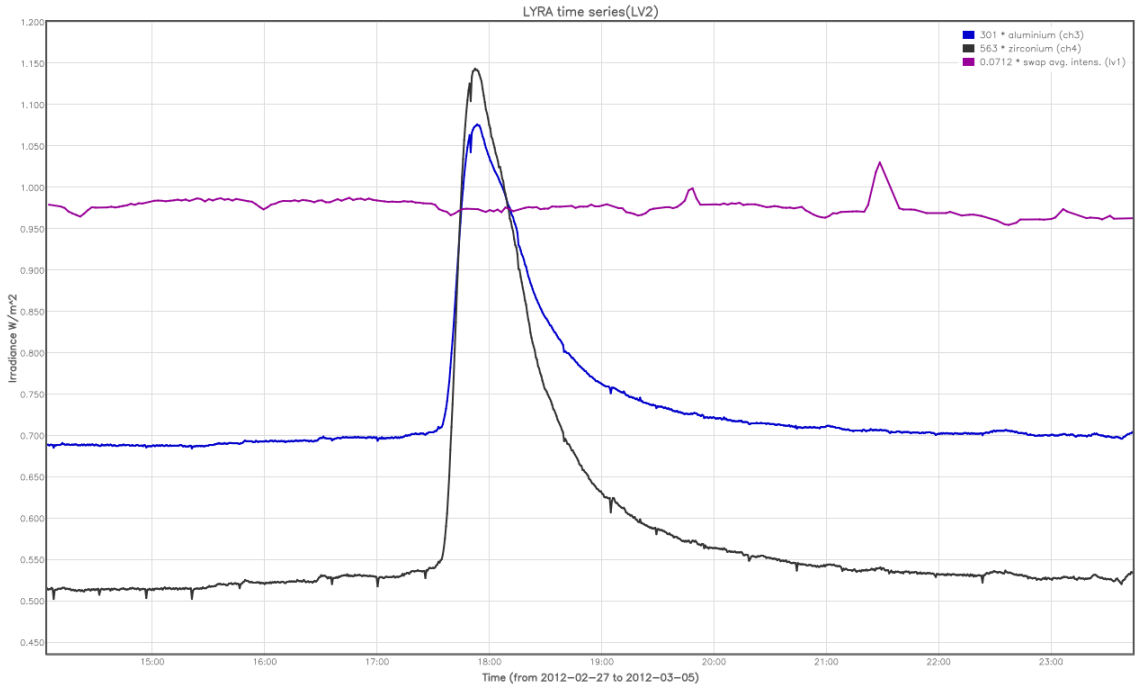


9. PROBA2 Observations (27 Feb 2012 - 4 Mar 2012)

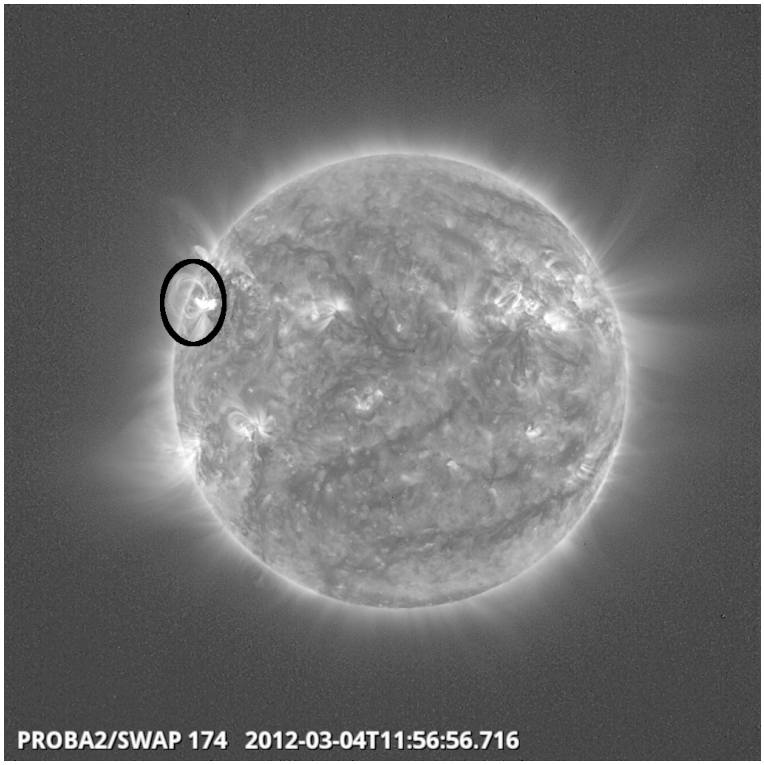
On Friday 2nd, as well as on Sunday 4th, an active sunspot group (AR 11429) appearing on the East limb generated an M flare (and an X flare early, last Monday 5th):

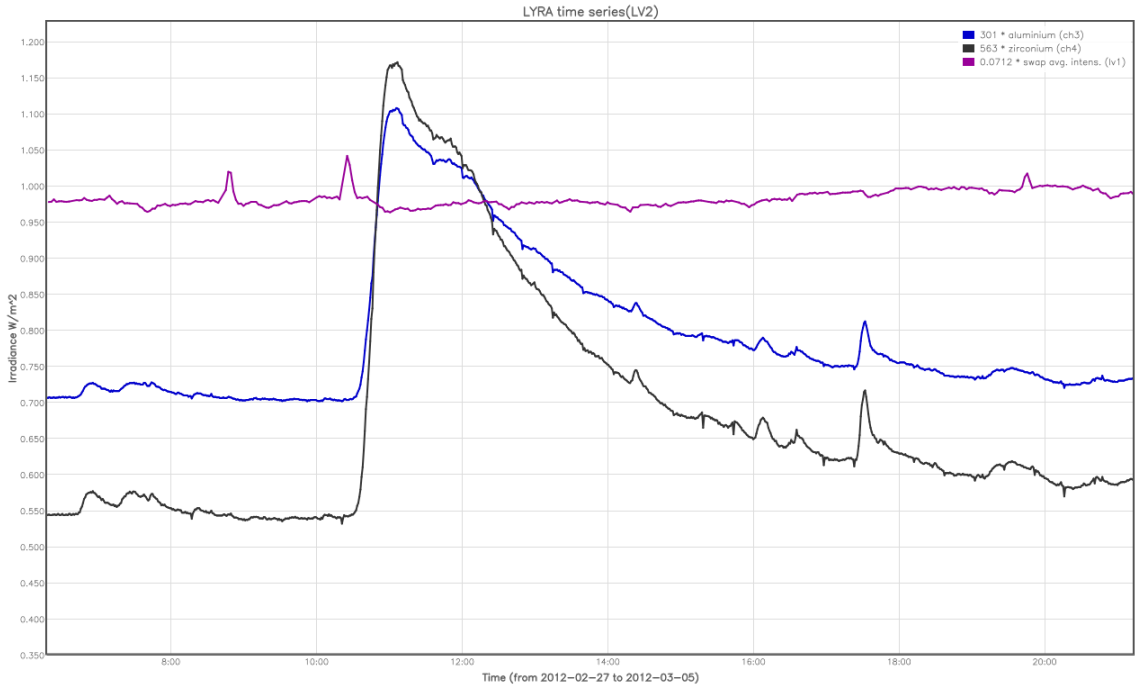
M3.3 Flare on Fri March 02 at 18h27



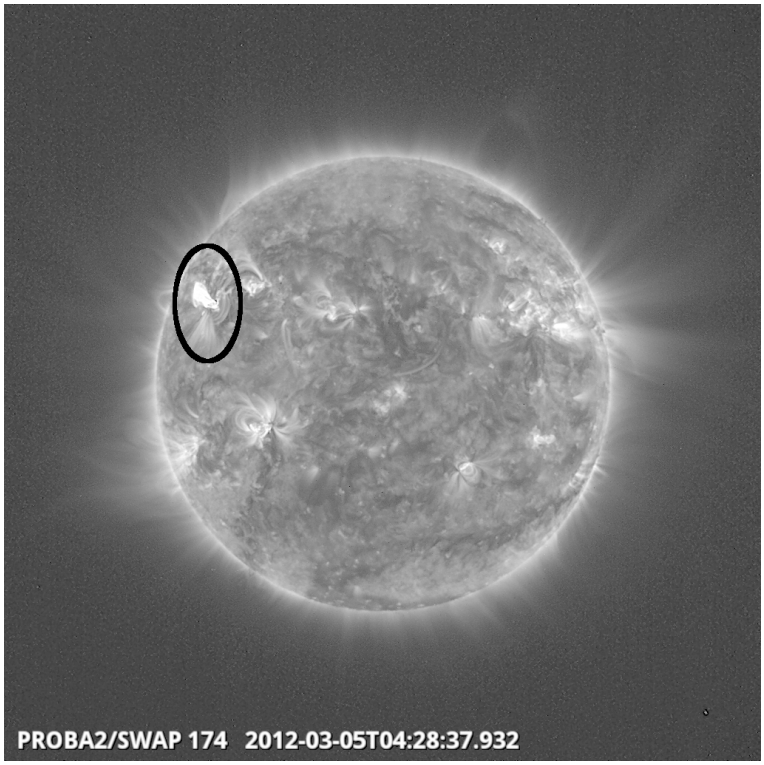


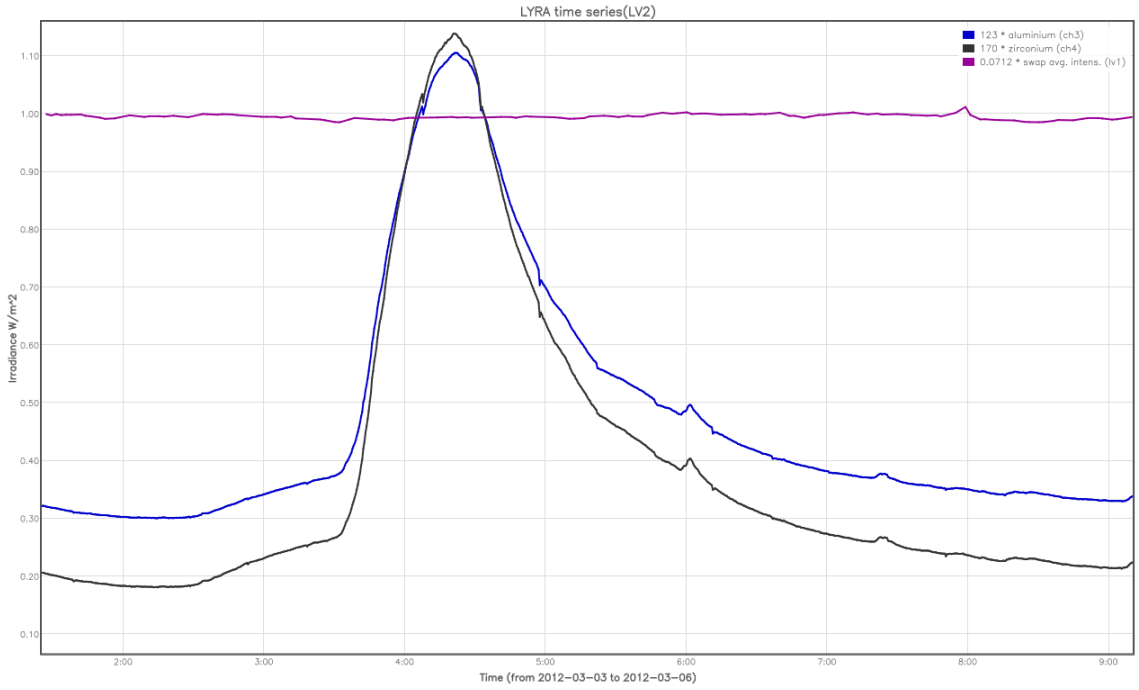
M2.0 Flare on Sun March 04 at 11h57





X1.1 Flare on Mon March 05 at 04h28

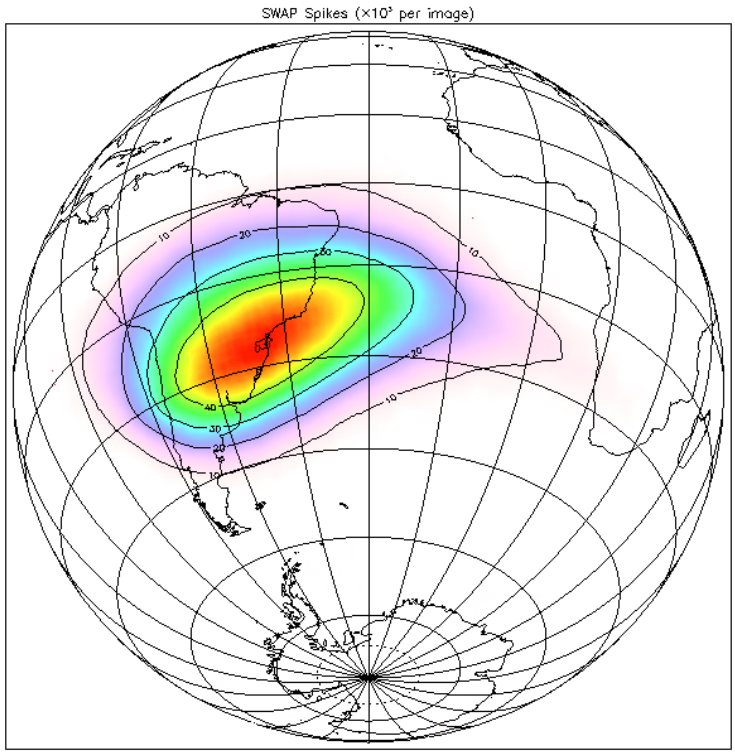




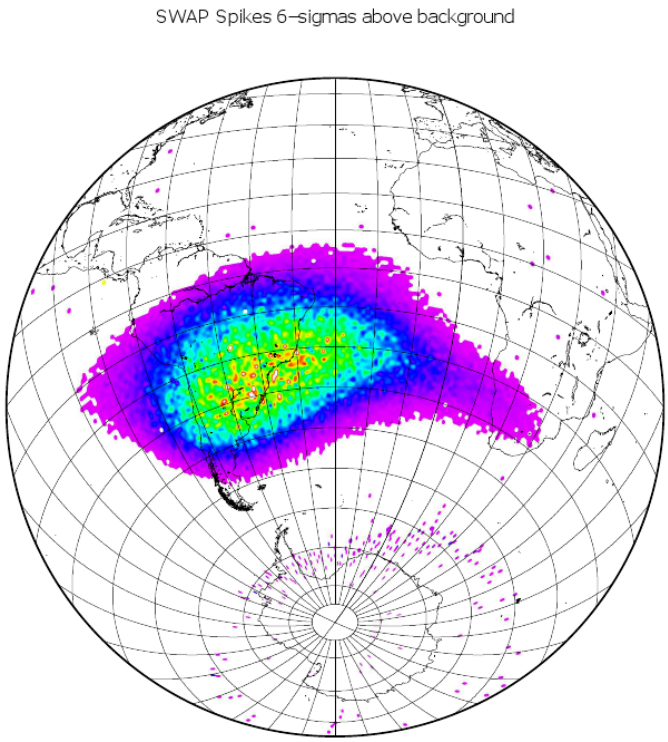
SWAP images and SAA intensity map

We studied the evolution of the number of pixels automatically detected as spiky, i.e. standing out in their spatial neighborhood, in the series of SWAP images. The following maps include the whole PROBA2 mission data. The aim is to study the influence on SWAP of the trapped particles in the Earth's magnetic

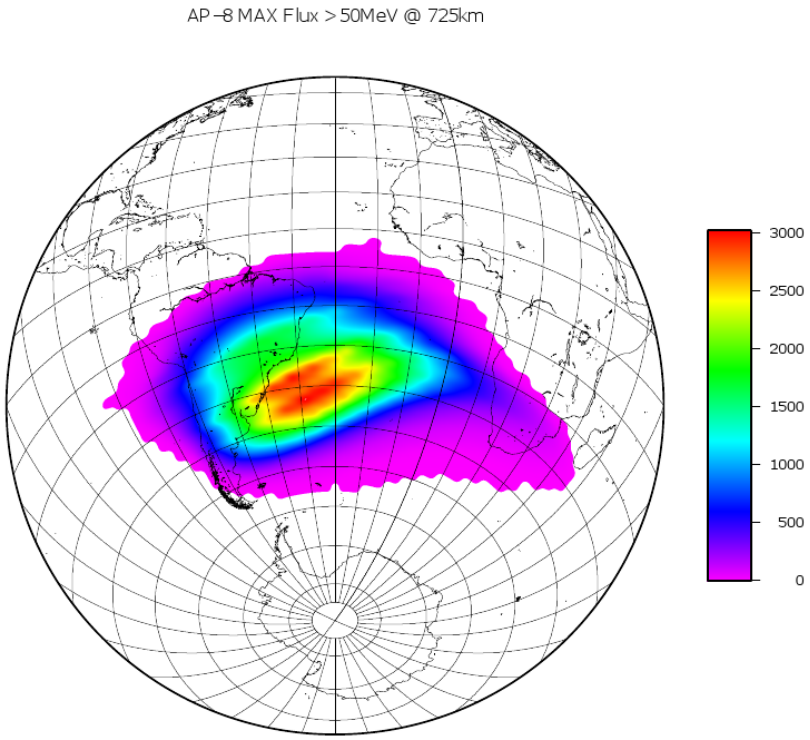
field and of the solar energetic particles (SEP) and to try to understand the evolution of the total dose received by the instrument (e.g., detected on-board memory errors).



Map of the accumulated number of spikes detected in the SWAP images

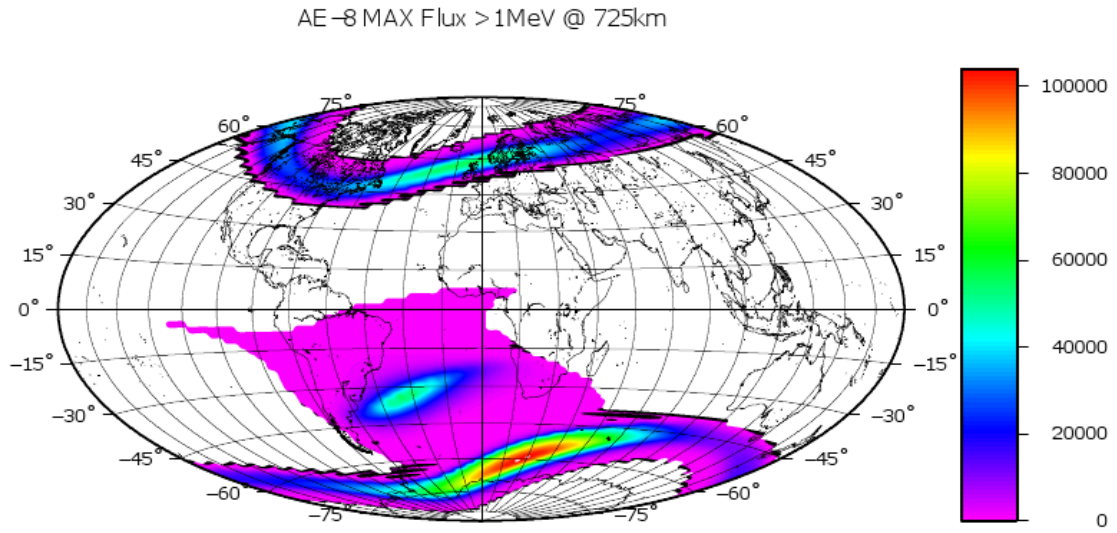


Map of deviations above 6 sigma in the time series of spikes detected in the SWAP images

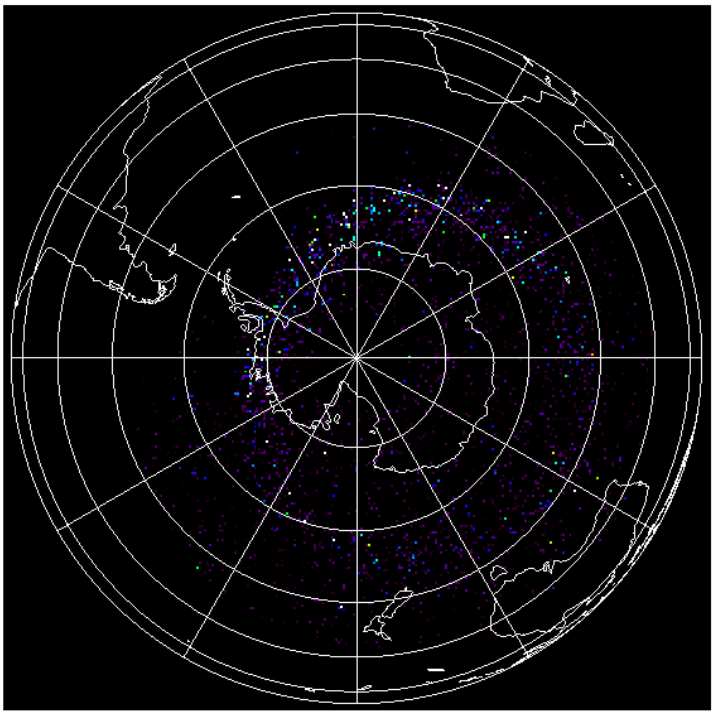


Map of omni-directional flux of protons with energy higher than 50 Mev at a height of 725km, AP-8 trapped proton model from SPENVIS at maximum solar activity.

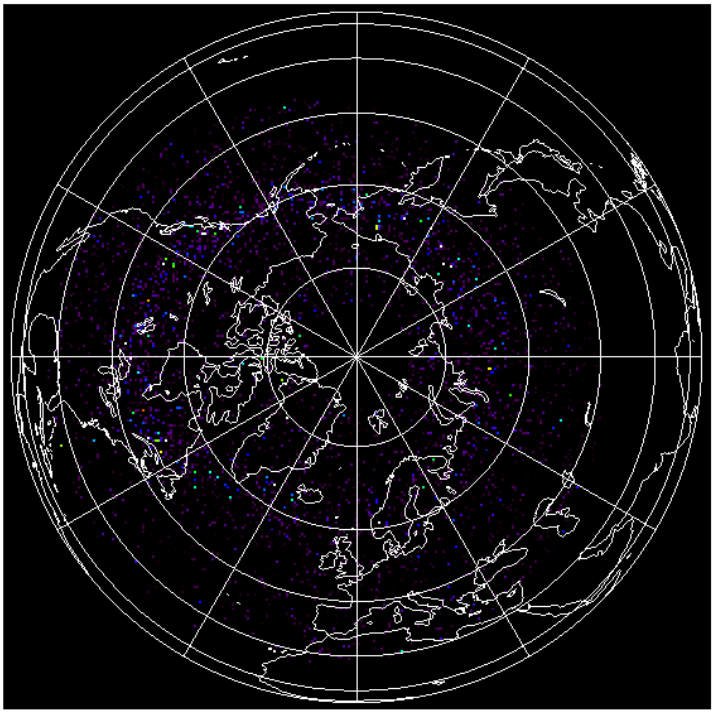
Note that the South Atlantic Anomaly (SAA), as based on data from the SWAP images, has drifted westward towards the South American coastline and is no longer situated above the South Atlantic (as is the case in the SPENVIS graphs below).



Map of omni-directional flux of electrons with energy higher than 1Mev at a height of 725km, AE-8 trapped electron model from SPENVIS at maximum solar activity.



SWAP registered spikes in the southern auroral band



SWAP registered spikes in the northern auroral band

Preliminary investigations show that the major southern auroral events can be linked to disturbed geomagnetic conditions in Apr, May 2010 and Sep 2011. We suspect that some of the registered events could be associated to SEPs. Further analysis will determine in more detail the contributing factors.

10. Future Events

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

SDO-4/IRIS/Hinode Workshop: 'Dynamics and energetics of the coupled solar atmosphere', in Monterey, CA.

Start : 2012-03-12 - End : 2012-03-16
An overarching theme of the meeting is to cover how different regions in the solar atmosphere are coupled, with a particular focus on the chromosphere , the region where most of the non-thermal energy in the solar atmosphere is deposited. The meeting will focus on quiescence, i.e., the non-flaring, non-eruptive state of the atmosphere in coronal holes, quiet Sun and active regions.
The major goals of this meeting are:
* Provide an overview of recent insights in how different regions in the solar atmosphere are coupled and energized with a focus on how magnetic flux, mass and energy are transported through the atmosphere. This will be done by confronting recent advanced numerical models with state-of-the-art high resolution observations.
* Provide the community with an overview of outstanding challenges, such as the heating of the chromosphere , its connection to the corona, the role and interpretation of chromospheric magnetism in revealing the connectivity and energy deposition in the low solar atmosphere, and the relative role of waves and braiding in the heating of coronal plasma .
* Prepare the community to fully exploit the novel diagnostic capabilities that will be provided by future missions such as the Interface Region Imaging Spectrograph (IRIS) small explorer, due for launch in late

2012, ESA 's Solar Orbiter, or Japan's Solar C mission. This will be done in part by providing tutorial and discussion sessions on optically thick chromospheric diagnostics (including spectropolarimetry) which are a major part of the diagnostic capabilities of both missions, and in part by illustrations of how detailed comparisons between synthetic observables from numerical models and observations lead to physical insights.
Site:
http://sdo4.lws-sdo-workshops.org/

Spectroscopy of the Dynamic Sun

Start : 2012-04-18 - End : 2012-04-20
We are hosting a conference celebrating the careers of Prof. George Doschek from NRL and Prof. Tetsuya Watanabe from NAOJ focussing on the topic of Spectroscopy of the Dynamic Sun.
George Doschek has played a major part in space solar spectroscopy for many decades. Following a key role in exploiting Skylab data, he made huge contributions to the design and build of instruments on board the P78-1, Yohkoh and Hinode missions, being US PI for the Hinode EIS. His knowledge of spectroscopy is recognized and respected internationally and he has published very many papers on high temperature solar plasmas.
Tetsuya Watanabe is a leading spectroscopist in Japan. Following work with stellar atmospheres, he has been involved from the start of Japanese space solar physics with significant roles in the Bragg spectrometers the Tansei 4, Hinotori and Yohkoh missions. He is Japanese PI for Hinode EIS. He has published extensively on solar X-ray and EUV spectra.
This conference will focus on recent results using spectroscopy to probe fundamental questions in solar physics.
Website:
http://msslxr.mssl.ucl.ac.uk:8080/SolarB/spectrosun/index.jsp

EGU General Assembly in Vienna, Austria

Start : 2012-04-22 - End : 2012-04-27
The EGU General Assembly 2012 will bring together geoscientists from all over the world into one meeting covering all disciplines of the Earth, Planetary and Space Sciences. Especially for young scientists the EGU appeals to provide a forum to present their work and discuss their ideas with experts in all fields of geosciences. The EGU is looking forward to cordially welcome you in Vienna.
Space weather related sessions:
Impact of solar and geomagnetic variabilities on the Earth's lower,middle and upper atmospheres (Thierry Dudok de Wit, Jean Lilensten, F.-J. LÃ¼bken, M. Kaufmann and P. Preusse)
This interdisciplinary session focuses on the multiple impacts of solar activity on climate variability. The session will address both forcing mechanisms such as solar spectral irradiance, geomagnetic perturbations and galactic cosmic rays, and the response of the upper, middle and lower atmosphere. Special attention will be payed to the solar flares and geomagnetic storms as well as to the role of the long-term trends of the solar activity, in particular, in global climate changes and modern global warming. Papers involving the physical processes in the ionosphere and stratosphere will be welcome in the first place. The objective is to go beyond correlation analyses and gain a better quantitative understanding of the different contributions of solar variability to the terrestrial environment.
More information:
http://meetingorganizer.copernicus.org/EGU2012/provisionalprogramme/CL
Space Weather and its Effects on Terrestrial and Geo -Space Environments: Science and Applications (Viviane Pierrard (BIRA-IASB, Belgium), Hanna Rothkaehl (Space Research Centre PAS, Poland), Norma Crosby (BIRA-IASB, Belgium)
This session gathers together scientists with expertise in various fields of solar-terrestrial physics that deal with the effects of space phenomena on different levels of geo -space. Effects range from those observed on spacecraft related activities all the way down to Earth, including technological systems, human health and the Earth's climate. We welcome contributions (theoretical and observational) as well as applied (effects on terrestrial and geo -space environments), on all aspects of space weather .

Contributions related to the ESA Space Situational Awareness (SSA) programme, or the EU FP7 programme, are very welcome. We look forward to a dynamic and interdisciplinary session.
Website:
http://meetings.copernicus.org/egu2012/

NOAA Space Weather Workshop in Boulder (USA)

Start : 2012-04-24 - End : 2012-04-27
Space Weather Workshop is an annual conference that brings industry, academia, and government agencies together in a lively dialog about space weather . What began in 1996 as a conference for the space weather user community, Space Weather Workshop has evolved into the Nationâ€™s leading conference on all issues relating to space weather .
The conference addresses the remarkably diverse impacts of space weather on todayâ€™s technology. The program highlights space weather impacts in several areas, including communications, navigations, spacecraft operations, aviation, and electric power. The presentations and discussions at the Space Weather Workshop also focus on identifying the highest priority needs for operational services that can guide future research and identifying new high-value capabilities that can be transitioned into operations. The conference fosters communication among researchers, space weather service providers, and users of space weather services.
Researchers have the opportunity to discuss relevant research in many areas of the space environment. Recent progress in large-scale modeling efforts will be featured; while new developments in Sun-to-Earth coupled modeling systems will also be a highlight.
Website:
http://www.swpc.noaa.gov/sww/

26th NSO Workshop: 'Solar Origins of Space Weather and Space Climate: Connecting the Interior to the Corona'

Start : 2012-04-30 - End : 2012-05-04
As the impact of space weather and climate on daily life is becoming more important, it is timely to discuss the latest reseach on the solar origin of these phenomena. Recent advances in helioseismology have demonstrated that subsurface dynamics are closely associated with aspects of solar activity from the long-term timing of the solar cycle to the short-term eruption of solar flares. The advent of synoptic vector magnetic field measurements is opening up a new path for research on active regions, flares and CME 's. Coronal magnetic field measurements should become available in the next 5-10 years, supplying another physical constrain on space weather events.
Website:
http://www.nso.edu/general/workshops/2012/

Advances on space radiation and plasma environment monitoring, data analysis and flight opportunities workshop in Noordwijk, NL

Start : 2012-05-09 - End : 2012-05-11
The workshop on 'Advances on Space Radiation and Plasma Environment Monitoring, Data Analysis Methods and Flight Opportunities Workshop' is the forth of a series of workshops proposed under the auspices of the Space Environments and Effects Network of Technical Competences established to further cooperation in Europe.
The number of flying or ready to fly European radiation and plasma instruments has increased significantly since the last SEENoTC workshop on the subject in 2008 and a round-table at CNES in 2009. Research programmes have also made good progresses in investigating innovative technologies and new concepts designs which will allow a substantial reduction of mass, power and data rate budgets compared to traditional instrumentation, whilst providing equivalent or higher detection efficiency. With many future missions in Navigation, Telecommunications, Exploration, Science, GMES domains flying in severe radiation environments and carrying highly sensitive components and systems, the need for such radiation instrumentation is increasing. Accurate measurements of the Space Environment plays

also a crucial role in improvement of radiation enviroment models and the development of the space weather services required by the Space Situational Awareness programme.
The intention of this workshop is to provide a venue for discussing the latest developments on space plasma and radiation environments and effects instrumentation, to examine possible flight opportunities for such instruments, and to establish the necessary technical and management steps necessary to ensure collaboration on future data analyses, databases, data sharing, and lessons learned from flight experience. It will also allow further discussion and capture of explicit experiment needs and further the harmonization of cooperation on instrument development, flight plans and data exploitation.
Website:
http://www.congrexprojects.com/12C16

Annular solar eclipse

Start : 2012-05-20 - End : 2012-05-20
For more information:
http://eclipse.gsfc.nasa.gov/SEgoogle/SEgoogle2001.html

HELAS-5: The Modern Era of Helio- and Asteroseismology

Start : 2012-05-20 - End : 2012-05-25
Helioseismology and asteroseismology are the only means to investigate the interior of the Sun and stars. They are crucial for understanding the structure and evolution of stars, which produce all chemical elements in the universe heavier than helium, and which host and influence planets which may carry life. Understanding the physics of the Sun's interior is essential for understanding the solar dynamo and consequently for predicting solar magnetic activity, which has a severe impact on the operation of space missions. Understanding the interior of the stars is essential for understanding those astronomical objects that host and influence planets. With the suite of the latest instruments and missions, e.g. BiSON, GONG, SOHO , SDO, Hinode and Picard for solar exploration and MOST, CoRoT, Kepler, BRITE, SONG for stellar and exoplanetary research, the precision on the seismically determined quantities, e.g. flows in the solar interior or the ages and radii of stars will be greatly improved. This will allow creating new knowledge in solar physics and astrophysics and therefore makes the proposed conference particularly timely.
Website:
http://www.esf.org/index.php?id=9140

Workshop on Coronal Magnetism at Boulder, Colorado (USA)

Start : 2012-05-21 - End : 2012-05-23
The purpose of this workshop is to foster the development of tools to interpret current and future measurements of coronal magnetic fields in order to improve our understanding of the Sun and the sources of Space Weather . This is motivated by the anticipated rapid growth over the next decade in our remote sensing capabilities of the coronal plasma . These new capabilities can only be exploited with improvements in our ability to model the polarized radiative transfer through the coronal plasma and by coupling information on the coronal magnetic field and plasma conditions with models extending to the near Earth environment.
This workshop will include a wide variety of subjects including, but not limited to, instrumentation, the interpretation of polarimetric signals in EUV and UV emission lines, techniques to mitigate the effects of line-of-sight integration effects of the optically thin corona such as tomographic inversions and forward modeling, models of the polarized radiative transfer at radio wavelengths, extrapolation and MHD modeling of coronal magnetic fields, as well as discussions on how to move forward with coupling these inferences of the coronal plasma with models of heliospheric structure and Space Weather prediction.
Website:
http://www.hao.ucar.edu/CoronalMagnetismWorkshop/index.php

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 Earthâ €™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 â€œFirst European School on Fundamental processes in space weather , a challenge in numerical modelingâ€. 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/

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 Investigatorsâ€™ Workshop in Durham, North Carolina (USA)

Start : 2012-07-08 - End : 2012-07-11
The 23rd Annual NASA Space Radiation Workshop is tentatively scheduled for July 8â€“11, 2012 in Durham, North Carolina. More information follows later.
Website: not available yet

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

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 â€˜Imageâ€™ to â€˜Informationâ€™ 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/

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

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/

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 â€“ 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.
More information:
http://www.tiems.info/images/stories/tiems%202012%20oslo%20conference%20call%20for%20papers.pdf

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

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

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

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