

STCE Newsletter

9 Jan 2012 - 15 Jan 2012



Published by the STCE - this issue : 20 Jan 2012. Available online at <http://www.stce.be/newsletter/>.

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.

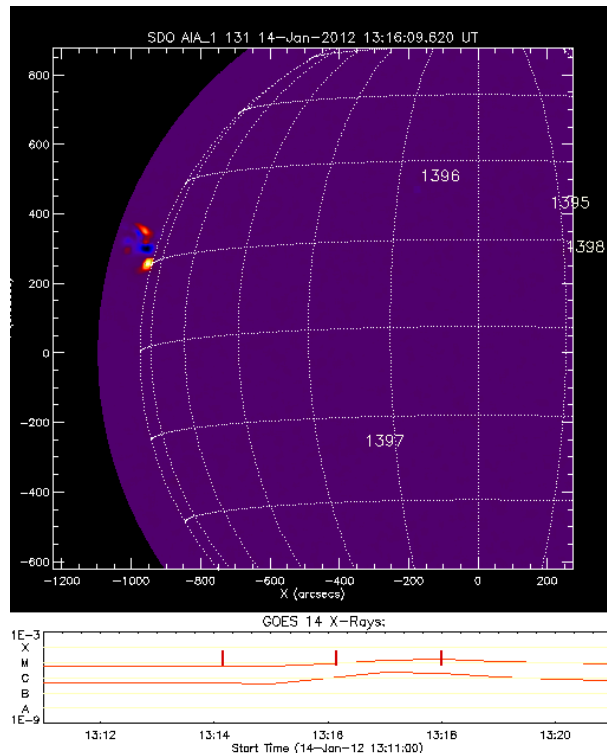
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1. PROBA2 Observations (9 Jan 2012 - 15 Jan 2012)

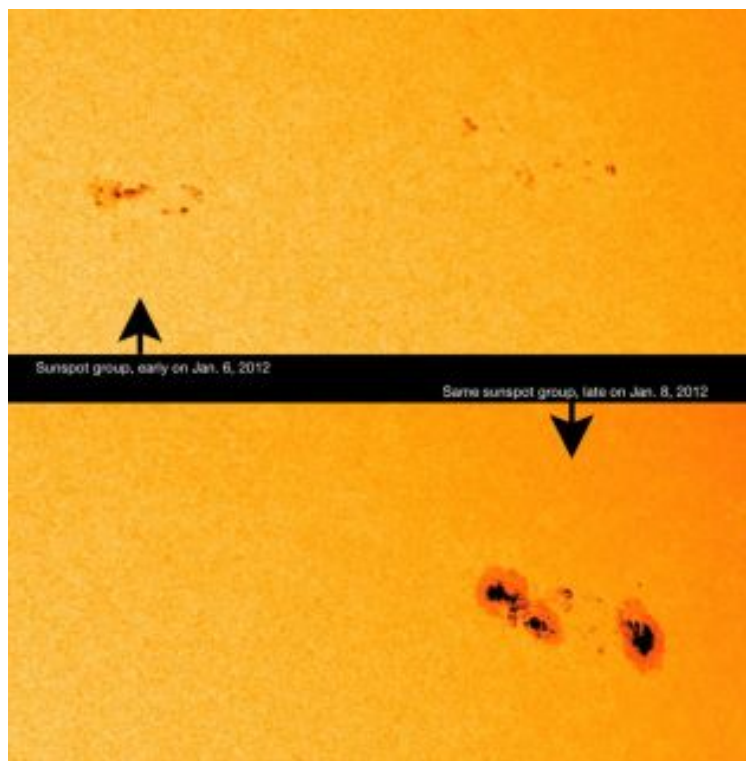
Overall solar activity was MEDIUM (i.e. essentially between 5-10 C-flares per day) from Monday till Thursday. Two days of LOW activity followed, until Sunday, when AR11401 crossed the East limb. This AR is very active with several C-flare occurrences and an M1.4 flare.

The M1.4 (GOES) flare occurred in AR 11401 on Saturday 14 (13:14:00), on the North-East limb (SDO-AIA).



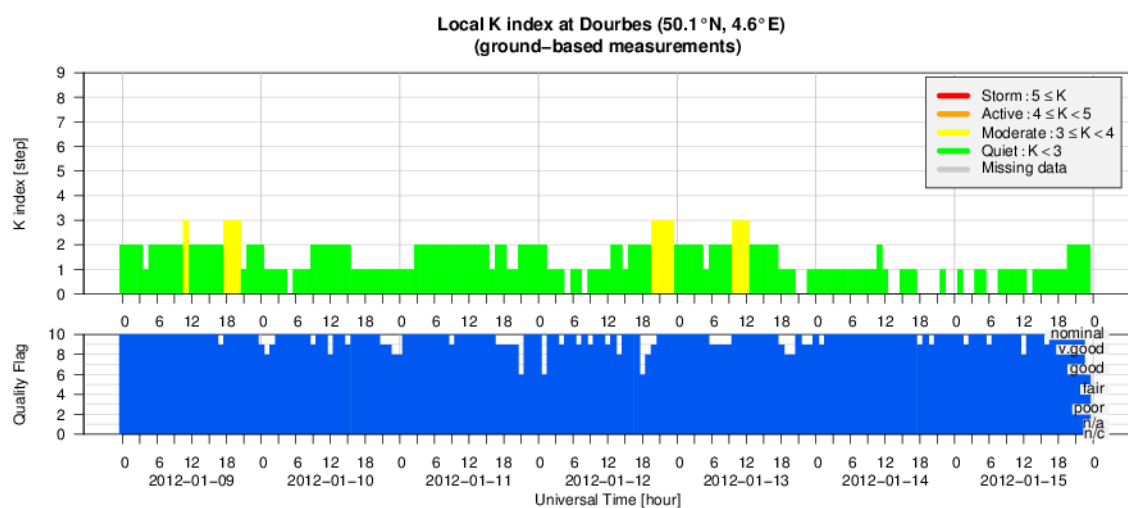
The onset and maximum of this flare was observed by LYRA. The decay, however, was interrupted by two occultations.

Earlier in the week, the growth, in barely 1 day, of the sunspot group associated with AR 11396 was remarkable:



Sunspot group 11396 barely visible left of 11395, on Jan 12, grew to be a big sunspot group on Jan 13.

2. Geomagnetic Observations at Dourbes (9 Jan 2012 - 15 Jan 2012)



3. Review of solar and geomagnetic activity activity (9 Jan 2012 - 15 Jan 2012)

SOLAR CONDITIONS

Solar activity was rather quiet with only a few small C flares during the first half of the week. Two noteworthy flares occurred: a long duration C2.5 flare in the morning of Jan 12 and a M1.4 flare on Jan 14. Both flares originated on the eastern limb in an active region that rotated onto the disk around 15 Jan. The NOAA AR numbers related to this activity are 11401 and 11402. Worth to mention also is the appearance of several sunspot groups on the solar disk, one on Jan 12 in the north-east (corresp. to NOAA 11396), one in the south-east late on Jan 12 (corresp. to NOAA 11397), one on Jan 13 in the north around central meridian (corresp. to NOAA 11398) and a small group in the south-west early on Jan 14 (corresp. to NOAA 11400). None of these active regions produced significant activity up till now.

Several CMEs erupted during this week, although none were geoeffective. On Jan 10-11 a slow streamer blowout occurred in the east, related low-coronal activity was seen in SDO and SWAP images as expanding loops. A CME was associated with the long duration C2.5 flare on Jan 12, and was directed to the north-east. Additionally on Jan 12, there was a large filament eruption near central meridian situated in the northern hemisphere leading into a CME seen north of the occulter in LASCO. On Jan 13 there were three CMEs, two of them were first observed in LASCO C2 around 9UT at the north-east and north-west and one was first observed around 13UT directed to the south-east. It is hard to link any on-disk signature to these CMEs. On Jan 15 there was a CME observed in LASCO C2 around 05:48 UT in the north-east, presumably originating from the back side.

GEOMAGNETIC CONDITIONS

Geomagnetic conditions were quiet during this week. The increase of the IMF magnitude, as well as the sector boundary crossing in the night of January 14/15 indicated a possible arrival of a faster solar wind flow from a narrow low-latitude elongated coronal hole, that was at central meridian on Jan 12.

NOTICEABLE EVENTS

JAN 14 - time: begin 13:14UT, peak 13:18UT, end 13:20UT - solar coordinates of source region N14E88 - Xray magnitude M1.4

4. Journal of Space Weather and Space Climate

Special issue on Space Climate

It is my pleasure to draw your attention to the possibility of submitting papers to the Special issue on Space Climate in the Journal of Space Weather and Space Climate (SWSC).

This is an open call for papers discussing any aspect of Space Climate, i.e., the long-term change in the Sun and its effects in the heliosphere (solar wind, HMF, cosmic rays etc.) and the near-Earth space environment, including magnetosphere, ionosphere, and the solar effects on the atmosphere and climate.

This Special issue originates from, but is not restricted to contributions presented at the Space Climate Symposium-4 in January, 2011 in Goa, India, and in the Space Climate Session at the ESWW8 meeting in November 2011 in Namur, Belgium.

Only full-length papers written in readable English will be considered for publication, and are subject to peer review by two reviewers. There is no page limit although the length of the paper should be appropriate for the material being presented. Both original papers and, e.g., review papers (for instance from invited review talks presented in SC4) can be considered for publication.

Publication in SWSC is free of charge. The manuscripts should be submitted electronically to SWSC web page <https://articlestatus.edpsciences.org/is/swsc/home.php> by February 29, 2012. The general format for submission of papers is on the SWSC web site <http://www.swsc-journal.org/> (Author information).

Please send the (preliminary, non-binding) title and author list of Your coming manuscript to kalevi.mursula@oulu.fi by January 15, 2012

Kalevi Mursula (for the Guest Editors)
Jean Lilensten and Anna Belehaki, EiC for SWSC

5. Future Events

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

From the Heliosphere into the Sun in Physikzentrum Bad Honnef, Germany

Start : 2012-01-31 - End : 2012-02-03

This meeting is dedicated to the processes in the solar wind and corona in the light of the upcoming Solar Orbiter mission. Over the last three decades there has been astonishing progress in our understanding of the solar corona and the inner heliosphere driven by remote-sensing and in-situ observations. This period of time has seen the first high-resolution X-ray and EUV observations of the corona and the first detailed measurements of the ion and electron velocity distribution functions in the inner heliosphere. Today we know that we have to treat the corona and the wind as one single object, which calls for a mission that is fully designed to investigate the interwoven processes all the way from the solar surface to the heliosphere.

Website: <http://www.mps.mpg.de/meetings/heliocorona/>

SWIFF1-CPA20, Plasma Astrophysics, acquired knowledge and future perspectives in Leuven, Belgium

Start : 2012-02-20 - End : 2012-02-24

This meeting will combine a historic overview on (Flemish) scientific achievements made in plasma-astrophysics, together with a state-of-the-art, international viewpoint on modern algorithmic developments for space plasmas. The meeting intentionally coincides with celebrating the 20 year existence of the Centre for Plasma Astrophysics (Department of Mathematics, K.U.Leuven), along with the upcoming emeritus status of its founder, Prof. Marcel Goossens. At the same time, the first annual progress meeting of the FP7-project SWIFF (space weather integrated forecasting framework), coordinated by Prof. Giovanni Lapenta, will provide the most updated account of modern, algorithmic-computationally driven research efforts in space plasma modeling. The weeklong event will serve to survey acquired knowledge, identify modern challenges barely researched by theoretical approaches, and stimulate new collaborations on both historic as well as contemporary open questions.

The meeting objective is to, on the one hand, present the space weather integrated forecasting framework (SWIFF) progress to the wider scientific community, and provide an opportunity for cross-fertilization of related international efforts on multi-physics modeling. As ongoing FP7 project, its annual meeting allows to present the first achieved milestones to scientific peers. Part of the programme will be filled in through an open call for also project-external contributions, and the remainder will concentrate on the achievements in the various work packages. The final two days shift the objective from future developments to acquired knowledge and achievements made as a result of 20 years of Centre for Plasma Astrophysics (K.U.Leuven) initiated research, ending with an international tribute to its founder. In the last two days, we foresee a programme of invited international speakers whose research has benefitted from K.U.Leuven collaborations, along with a contemporary contribution from current staff members.

Website: <https://wis.kuleuven.be/cpa/SWIFF1-CPA20/>

Sustainability of Space Activities: International Issues and Potential Solutions in Strasbourg (France)

Start : 2012-02-21 - End : 2012-02-23

Each year, the International Space University (ISU) organizes a three day symposium addressing a topical theme from an interdisciplinary and international perspective. These symposia attract an audience of around 200 members of the space sector from agencies, industry and academia worldwide.

Our next annual symposium, the sixteenth in a series, will address the risks faced by spacecraft and crew due to various natural and human generated threats. Looking beyond the current situation we ask what can be done to mitigate the threats in order to assure long-term sustainability of space activities particularly through increased co-operation between nations.

The scope of the Symposium will be in line with the main objective of the UN COPUOS Working Group on the subject established in early 2010, that is, "to examine and propose measures to ensure the safe and sustainable use of outer space for peaceful purposes, for the benefit of all countries".

Website: <http://www.isunet.edu/index.php/symposium/isu-symposium-16-final-program>

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/>

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. Lübken, 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 paid 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/>

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 research 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/>

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 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/>

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/>

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

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

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

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

European Week of Astronomy and Space Science in Rome, Italy

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

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

Website: <http://www.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/>

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/>

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/>

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>