STCE Newsletter

23 Jan 2012 - 29 Jan 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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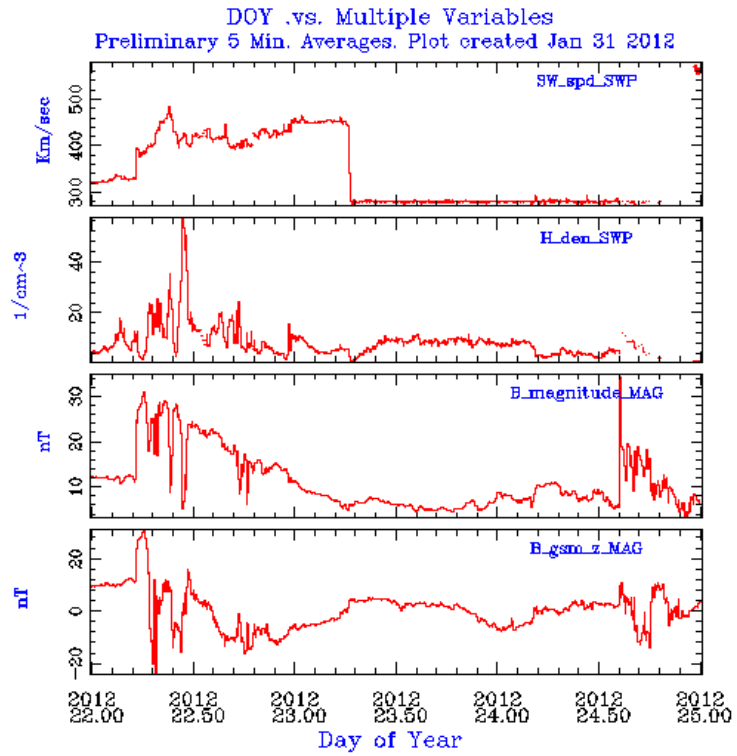
1. Global Navigation Satellite System, GNSS research

Disturbed radio communication and satellite navigation on Jan 22, 2012

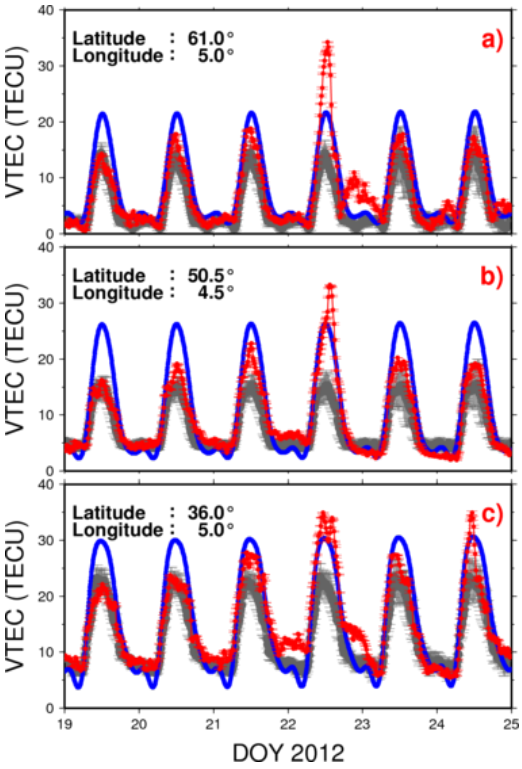
The GNSS research group of the Solar-Terrestrial Centre of Excellence measured ionospheric disturbances on Jan 22 which impact the communication and satellite navigation at that moment.

The Jan 22 event versus THE Jan 24 event

On Jan 22, a plasma cloud that travelled from the Sun to the Earth, bumped into the Earth magnetosphere. The plasma was ejected on the Sun on Jan 18-19. The deformation of the Earth magnetic shield was strong enough to cause changes in the ionosphere, a layer of our atmosphere. These changes can disturb radio communication and satellite navigation.
In particular, the Global Navigation Satellite System or GNSS research group of the Solar-Terrestrial Centre of excellence noticed that the Total Electron Content, TEC changed considerably due to the arrival of the cloud. The American GPS and the European Galileo make part of GNSS. The TEC is a measure for the total number of electrons present in a cylindrical volume of 1m2 cross section, straight through the ionosphere. The TEC determines how signals pass through the ionosphere. On Jan 22, the communication and satellite navigation was vulnerable due to the arrival of a solar plasma cloud.
On Jan 23, a relative strong flare occurred, a plasma cloud was ejected and not long after these events, a stream of protons passed several satellites and finally hit the Earth. The solar wind speed measurements done by the satellite ACE were interrupted because of this proton storm as you can see in the top panel of the picture. The bulk of the plasma cloud did not hit the Earth, it was only a glancing blow. The GNSS research group did not notice any disturbances at the time of arrival. On Jan 24, the communication and satellite navigation was not disturbed because of to the glancing blow of the Jan 23 solar plasma cloud.



The satellite ACE measures the solar wind parameters at the L1 point: speed, density, total magnetic field, north-south component of the magnetic field. In the top panel we see a sudden drop on January 23, AM from 450 to 300 km/s. This drop is caused by a measurement failure induced by the proton storm that hit the satellite. Only by the end of January 25, the speed measurements were again reliable.



The Vertical Total Electron Content for three different places in Europe. The red curves show a clear irregularity for Jan 22.

The ionosphere and space weather

The ionosphere is a peel around the Earth making part of our atmosphere. The ionosphere is the key layer for communication. For satellite navigation, a signal passes through the ionosphere. For other purposes like long distance radio communication, the ionosphere is used as a mirror to reflect radio signals such that these signals can bounce back to a receiver. It's clear that if the ionosphere is disturbed and changes features, navigation and radio communication can be in trouble. Space Weather can alter the features of the ionosphere.

The ionosphere is formed by the UV and X-ray solar radiation - the sort of radiation that travels with the speed of light and that doesn't need a medium to propagate. If the intensity and the strength of that radiation suddenly changes, the ionosphere and its properties also change. A sudden and intense brightning on the sun, a flare, can introduce ionospheric irregularities on the day side of the Earth.

When a plasma cloud hits the Earth's magnetosphere, our magnetic shield, it causes a geomagnetic storm. Such a storm on its turn can also drive the ionosphere away from its more regular state. A geomagnetic storm can pass along the day side, but also on the night side. A geomagnetic storm is generally linked with latitude: closer to a pole of the Earth, the stronger a geomagnetic storm can be.

For comparison: the magnetosphere extends up to 20 - 25 Earth radii (= 6353 km) on the day-side, i.e. around 130 000 - 160 000 km, while the atmosphere is a layer of 100 km.

References

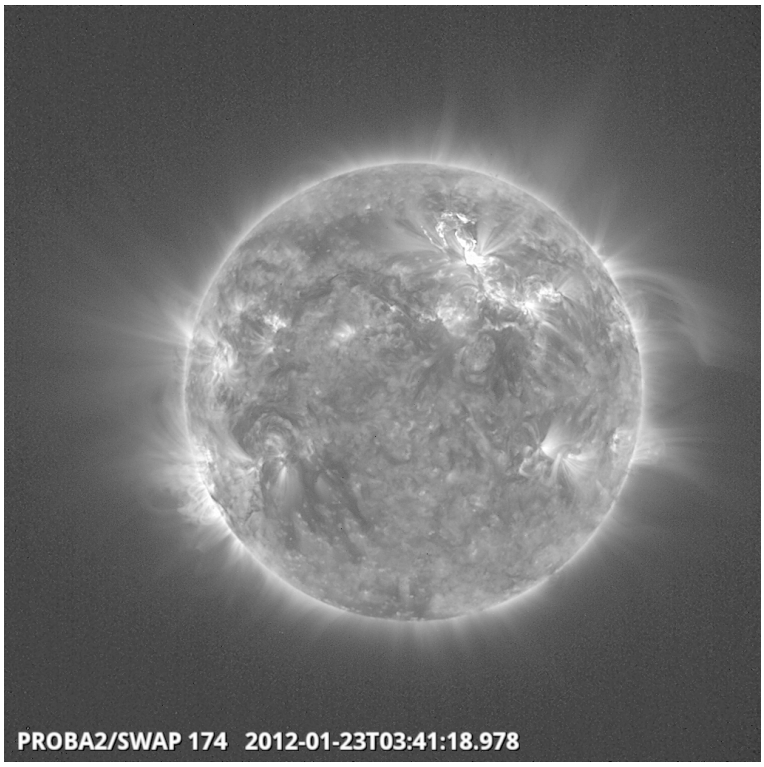
Check it out on the GNSS website about the Jan 22 event: http://gnss.be/Atmospheric_Maps/ionospheric_event_22012012.php

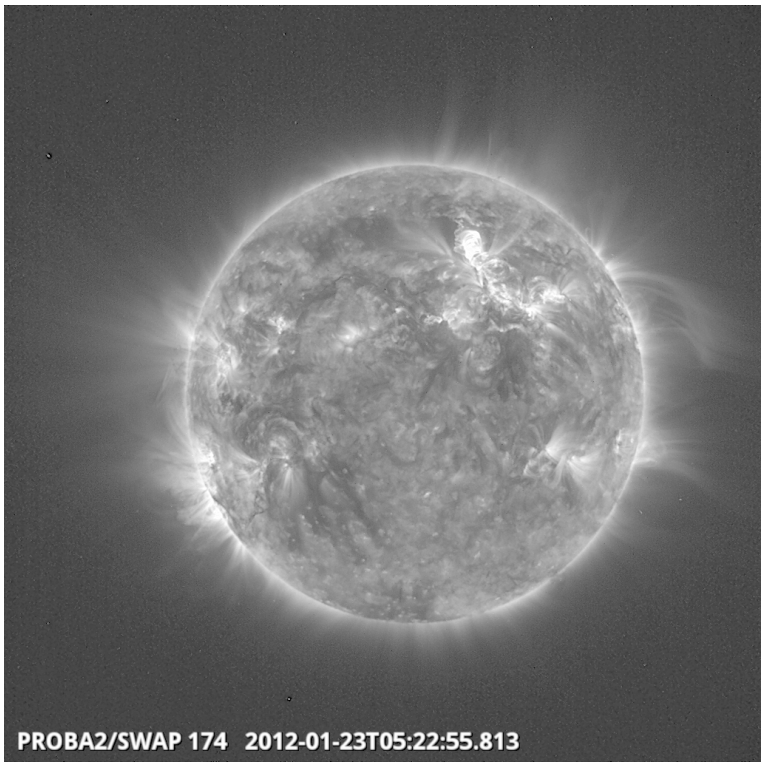
The GNSS group observes the ionosphere in near-real time. The result is shown in a map: http://gnss.be/Atmospheric_Maps/ionospheric_maps.php

2. PROBA2 Observations (23 Jan 2012 - 29 Jan 2012)

The week started off with a long-lasting energetic M8.7 flare, early Monday morning. This event was seen by both LYRA and SWAP.

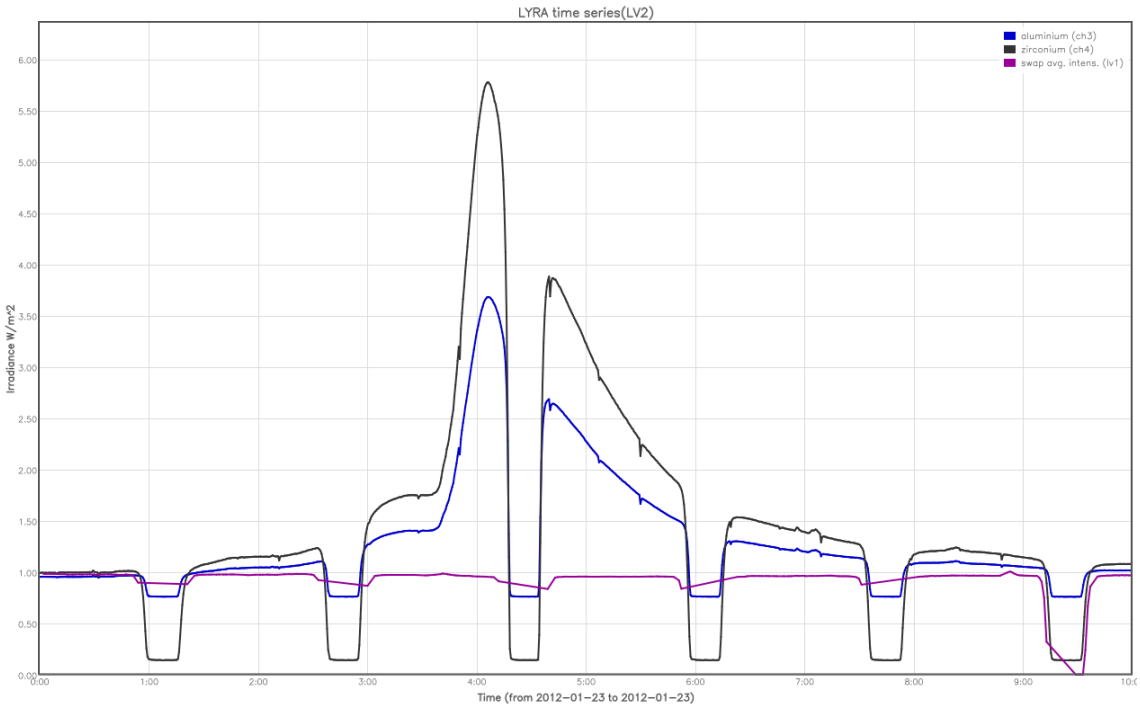
* SWAP pictures and movies:





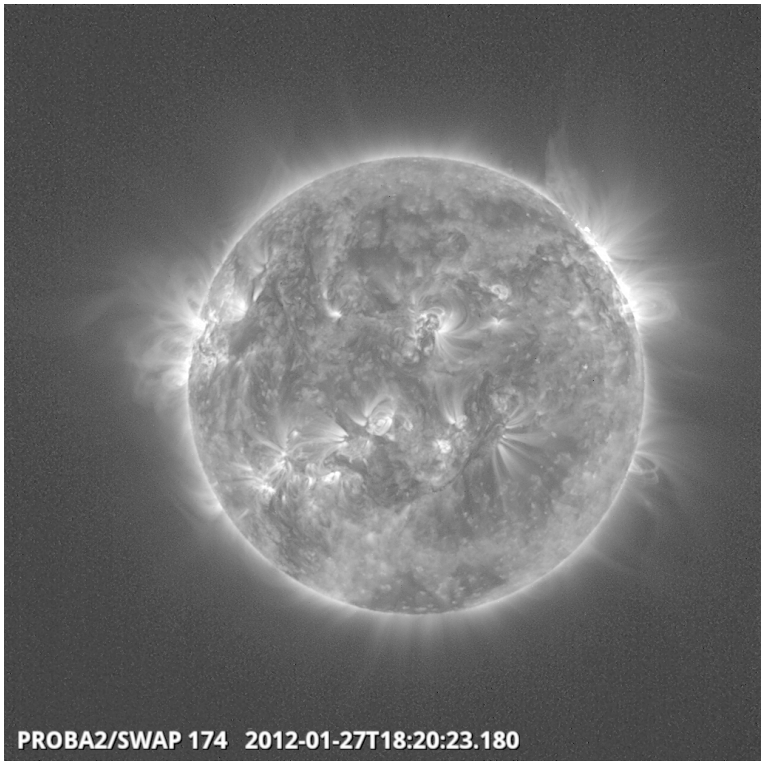
1. Onset: http://proba2.oma.be/swap/data/qlviewer/2012/01/23/swap_01149369661925_0beacdfc.png
2. Maximum: http://proba2.oma.be/swap/data/qlviewer/2012/01/23/swap_01149399808541_77ede27f.png
3. Movie: http://proba2.oma.be/swap/data/mpg/movies/20120123_swap_movie.mp4

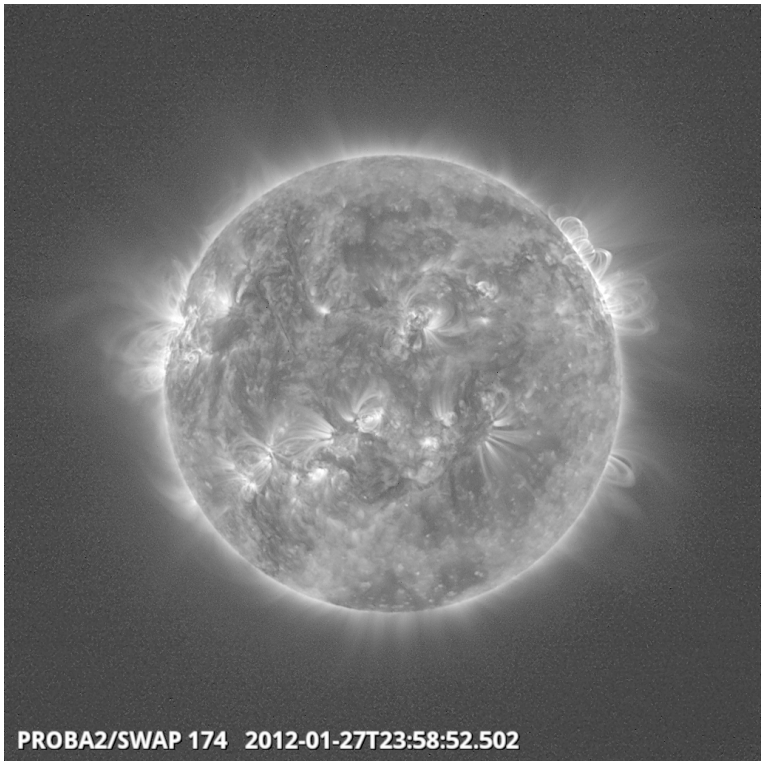
* LYRA curves for the M8.7 event:



On Friday, AR 11402 - rounding the west limb of the Sun - waved goodbye with an X1.7 flare. The flare started around 18:20.

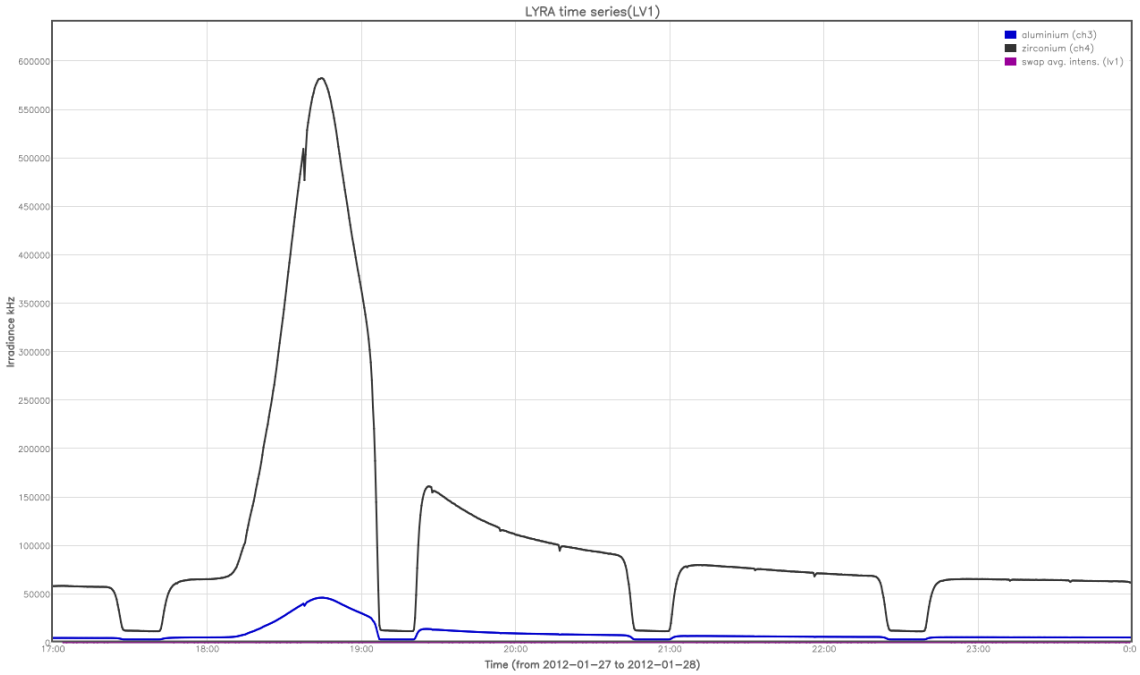
* On the first image below, the - previously closed - magnetic structure on the upper North-West limb is seen to be opened resulting from the explosive onset of the flare.
The next image shows the solar arcade which was formed between 18:30 and 23:50.





1. Onset: http://proba2.sidc.be/swap/data/qlviewer/2012/01/27/swap_01155894753625_a5b21150.png
2. Later: http://proba2.sidc.be/swap/data/qlviewer/2012/01/27/swap_01156228808602_23d6d330.png
3. Movie: http://proba2.oma.be/swap/data/mpg/movies/20120127_swap_movie.mp4

* LYRA curves for the X1.7 event of Friday 27/01/2012:



3. Review of solar and geomagnetic activity (23 Jan 2012 - 29 Jan 2012)

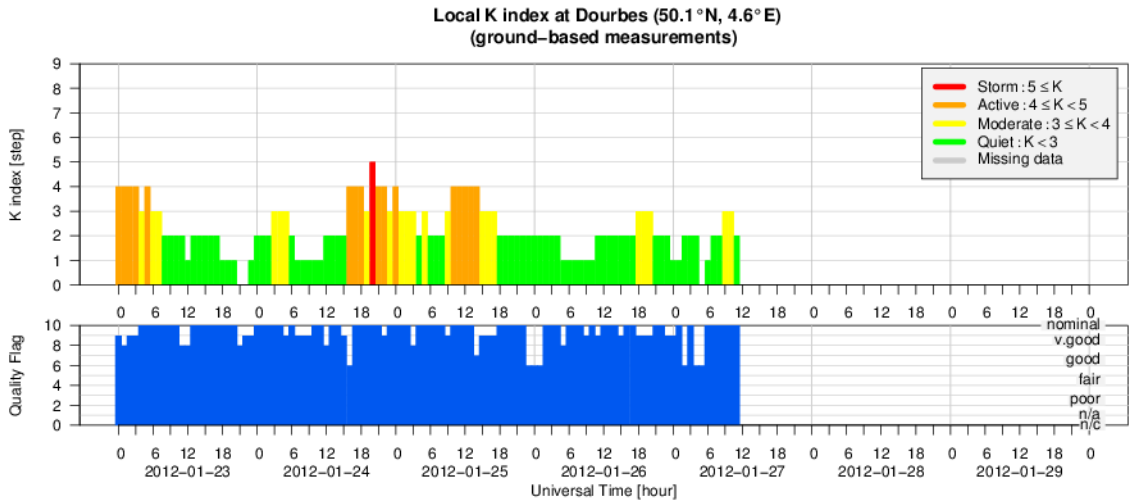
SOLAR ACTIVITY

Solar activity was dominated by the flaring activity of NOAA AR 1402, which produced a M8.7 flare on Jan. 23 (0359 UT peak time) accompanied by a fast halo CME (1400 km/s as measured using COR2 A coronagraph) and a proton event (10 and 50 MeV protons), which ended on Jan. 27.
The >10 MeV proton flux reached quite a high value of 6300 pfu on Jan. 24 at about 1530 UT, shortly after the arrival of the shock linked to the halo CME at Earth.
While close to the west limb, AR 1402 produced an X1.7 class flare on Jan. 27, peaking at 1837 UT. It was linked again to a fast halo CME (1900 km/s on COR2 A) and a new proton event from 10 to 100 MeV, although the maximum of the 10 MeV flux was below 1000 pfu.

GEOMAGNETIC ACTIVITY

Geomagnetic activity reached minor storm levels at planetary level on Jan. 24 due to the arrival of the shock, linked to the halo CME of Jan. 23 around 14:30 UT. Unsettled to active periods were observed for nearly 24 hours. Apart from a brief period of active conditions on Jan. 23, which was the tail of a previous minor storm, the rest of the week was rather quiet.

4. Geomagnetic Observations at Dourbes (23 Jan 2012 - 29 Jan 2012)



5. Future Events

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

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

18th SPINE Meeting at Noordwijk, The Netherlands

Start : 2012-03-07 - End : 2012-03-07
You are invited to participate in the 18th workshop in the SPINE series. Attendees are invited to make presentations on their work in the field of spacecraft plasma interactions. Presentations of a general nature are welcome and this is a good opportunity to present work to European colleagues that may later be given at the SCTC in May.
In addition, we invite your ideas on two specific themes:
* 'R&D Requirements for Spacecraft Plasma Interactions' to help ESA to define a new Technical Dossier outlining the needs for future tools, testing, experimentation and Methodologies, and ;
* SPIS improvements and Evolutions' describing recent changes to SPIS and needs for future evolution.
Website: http://dev.spis.org/projects/spine/home/meeting/mxviii

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. 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 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/

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/

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/

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 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/

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/

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/

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

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/

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