STCE Newsletter

23 Jul 2012 - 29 Jul 2012

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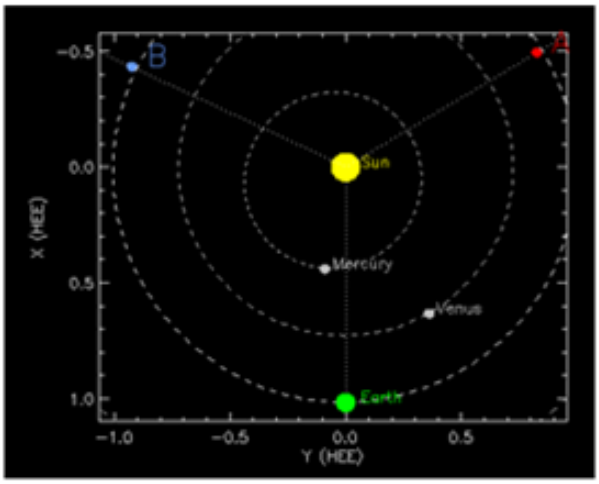
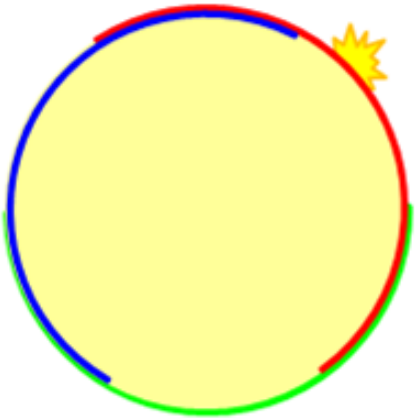
The Solar-Terrestrial Centre of Excellence (STCE) is a collaborative network of the Belgian Institute for Space Aeronomy, the Royal Observatory of Belgium and the Royal Meteorological Institute of Belgium.

Final Editor : Petra Vanlommel
Contact : R. Van der Linden, General Coordinator STCE,
Ringlaan - 3 - Avenue Circulaire, 1180 Brussels,
Belgium

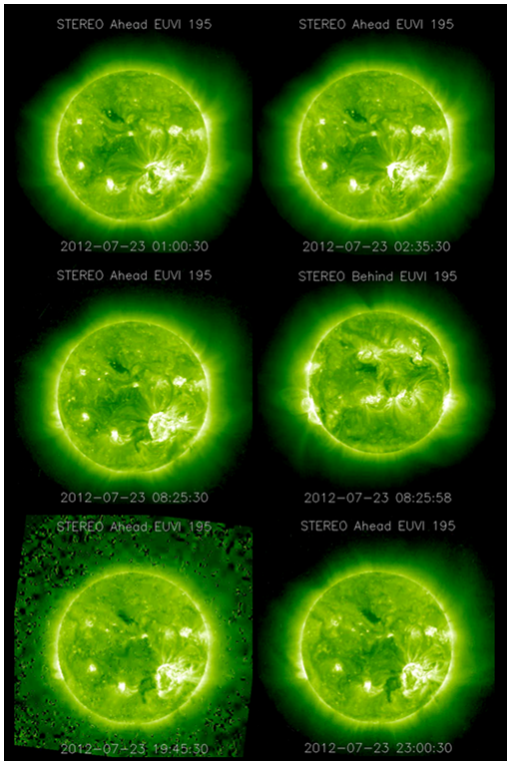
1. A CME with an Olympic speed (23 Jul 2012 - 29 Jul 2012)

NOAA Active Region 1520 certainly was a very active sunspot group. During its transit across the solar disk, it produced 5 M-class solar flares and even one X-flare (the strongest class). When it crossed the solar limb on 18 July, it certainly didn't diminish in activity. Indeed, over the next few days, several coronal mass ejections could be seen billowing away from behind the solar limb.
A particular interesting event occurred in the early morning hours of 23 July, when this active region produced another eruption. At that time, NOAA 1520 was already several days on the backside of the Sun, and no instruments from Earth could monitor the blast in x-ray or radio-wavelengths.
However, the STEREO-A satellite was well positioned to observe this event. Together with its twin brother STEREO-B, these spacecraft are orbiting the Sun in such a way that they gradually get a better view of the Sun's backside (http://stereo.gsfc.nasa.gov/beacon/) . The schematic underneath shows which part of the solar surface was visible from Earth (green), from STEREO-A (red), and from STEREO-B (blue). As can be seen, the flare was directed almost straight towards STEREO-A, and occurred very close to the "east" limb for STEREO-B.

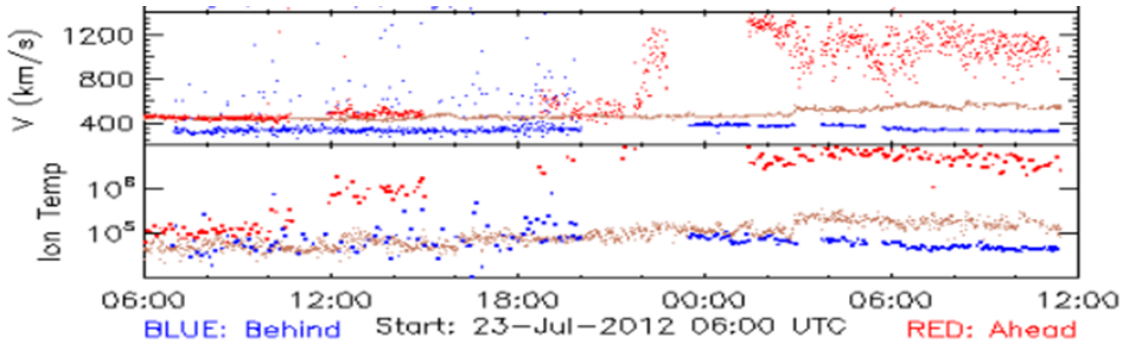




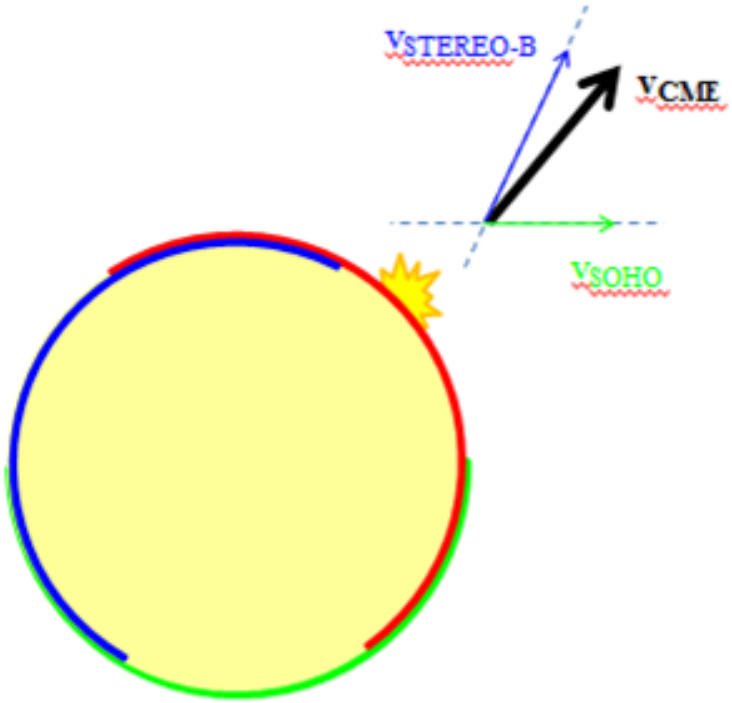
The flare itself occurred around 02:30UT in the morning, following some magnetic activity that had already been going on for an hour. From the brightness and the extent of the eruption, one can safely conclude that this was a high energetic event, probably belonging to the strongest X-class of solar flares. The ejection of material left its mark in the Sun's corona, being visible as an irregular dark hole to the bottom left of the flare. The ejected cloud was visible in images from SDO (http://sdo.gsfc.nasa.gov/), PROBA2 (movie at http://proba2.sidc.be/swap/data/mpg/movies/20120723_swap_movie.mp4), SOHO http://sohowww.nascom.nasa.gov/ , and both STEREO-satellites. STEREO-A saw this ejected material as a full halo emanating from the Sun, indicating that this particle cloud was on a collision course with the tiny spacecraft.
Even though the source of the eruption was behind the limb as seen from Earth, bright, hot post-flare loops of magnetic field, tell-tale markers of the magnetic activity that drives coronal eruptions, were soon visible rising high above the solar surface.
The powerful flare also produced what space weather experts call a proton event, generating a stream of high energy protons reaching STEREO-A in just a few hours. Starting at about 10:30UT, these high energy particles interfered with the spacecraft's onboard electronics, significantly degrading the quality of images from STEREO-A. Some of these protons managed to make it all the way to the Earth, causing a very weak proton event. This is not an uncommon occurrence, as –in the past- there have been other events so far on the Sun's backside to produce proton effects here on Earth.



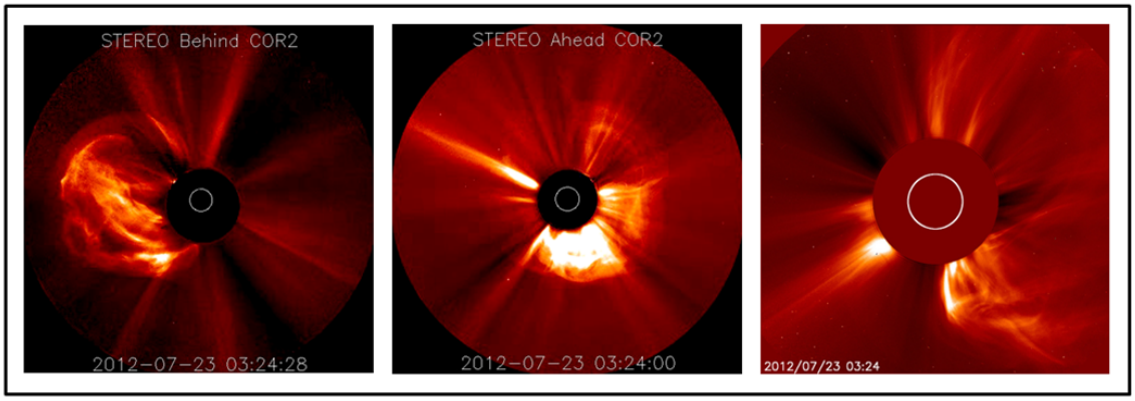
The most interesting part of this eruption, again testifying of its rare strength, occurred during the evening hours of the very same day. Indeed, the coronal mass ejection (CME) arrived at STEREO-A already around 20:00UT, with solar wind speed jumping from about 550 km/s to at least 1400 km/s. When a CME travels the Sun-Earth distance (in this case Sun - STEREO-A) in less than 22 hours, it gets a special name: Fast Transit Event. Only a handful of such events are known, and they are associated with severe geomagnetic storming. One of the last such events were the CME's from the Halloween events (29-30 October 2003), when speeds (near Earth) were recorded in excess of at least 1850 km/s, having travel times of about 19 hours.



Of course, one could ask with which speed the CME took off at the Sun. As a CME is usually decelerated by the much slower solar wind around it, this CME must have had a much higher speed than the 1400 km/s it had at STEREO-A. Usually, scientists take some key-points along the CME's outskirts to determine its speed. This is always a tricky case, because when the CME is traveling along the line-of-sight, the eruption's apparent speed might be significantly less than the true speed (see schematic underneath). With NOAA 1520 already well beyond the solar limb, this line-of-sight effect had a significant influence on the measurements by SOHO. STEREO-B on the other hand was best placed for this kind of calculations.

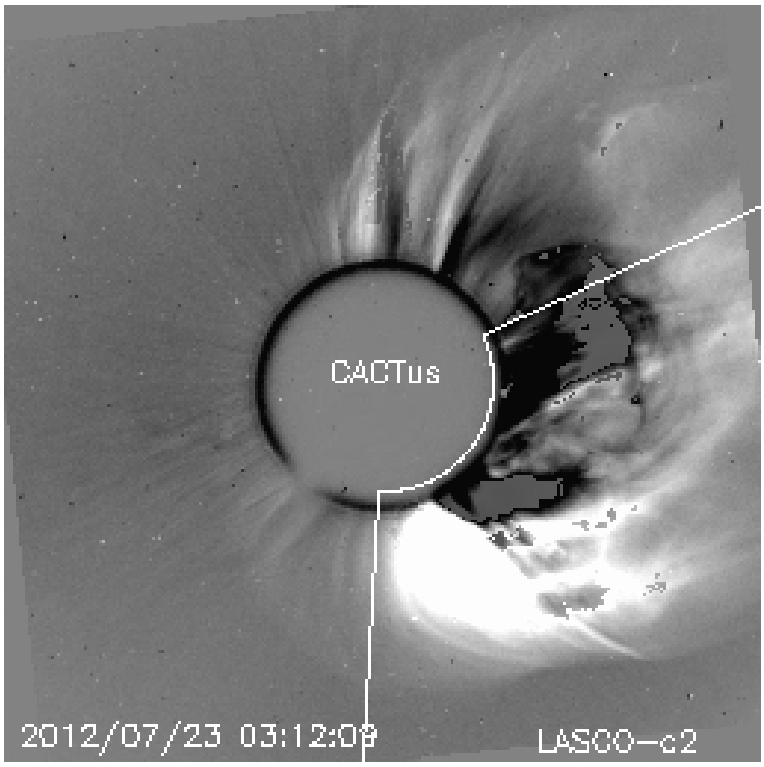


Combining images from the spacecraft (SOHO, STEREO-A and -B) in an advanced triangulation matrix, scientists from NASA's Space Weather Research Center (SWRC - http://swc.gsfc.nasa.gov/main/20120723-AL-005) were able to calculate the initial speed of the CME to be about 3400 km/s. Such a speed places it in the hall of CME's with the highest initial CME speed ever, comparable e.g. to the 20 January 2005 event. A performance worthy of a true Olympian!

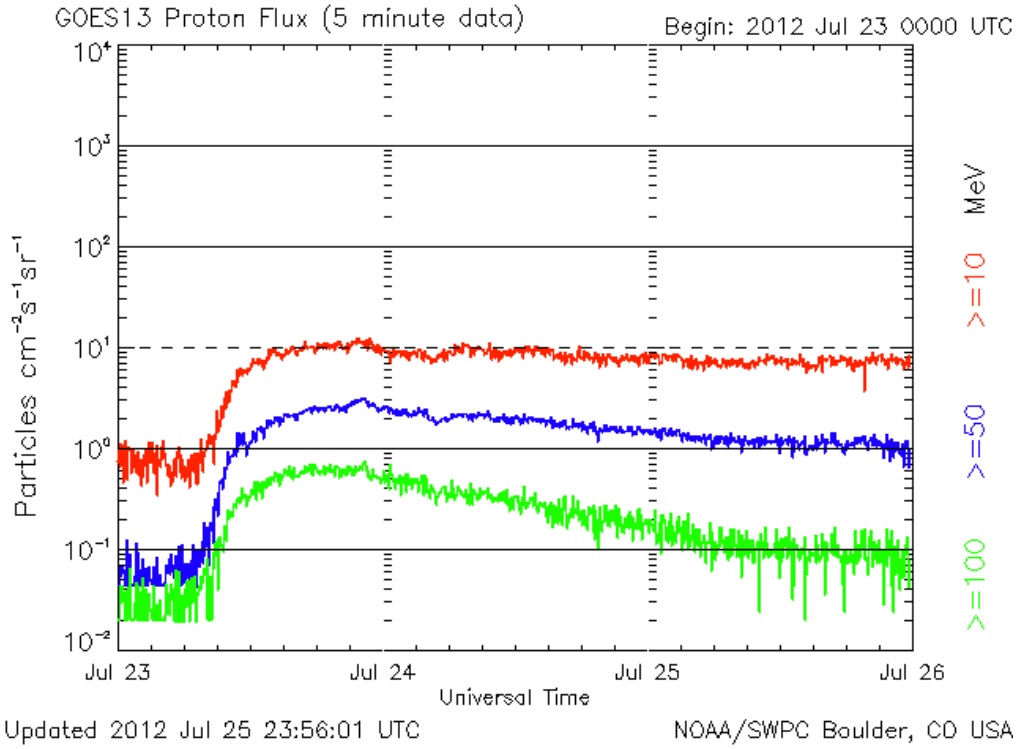


2. Review of solar activity (23 Jul 2012 - 29 Jul 2012)

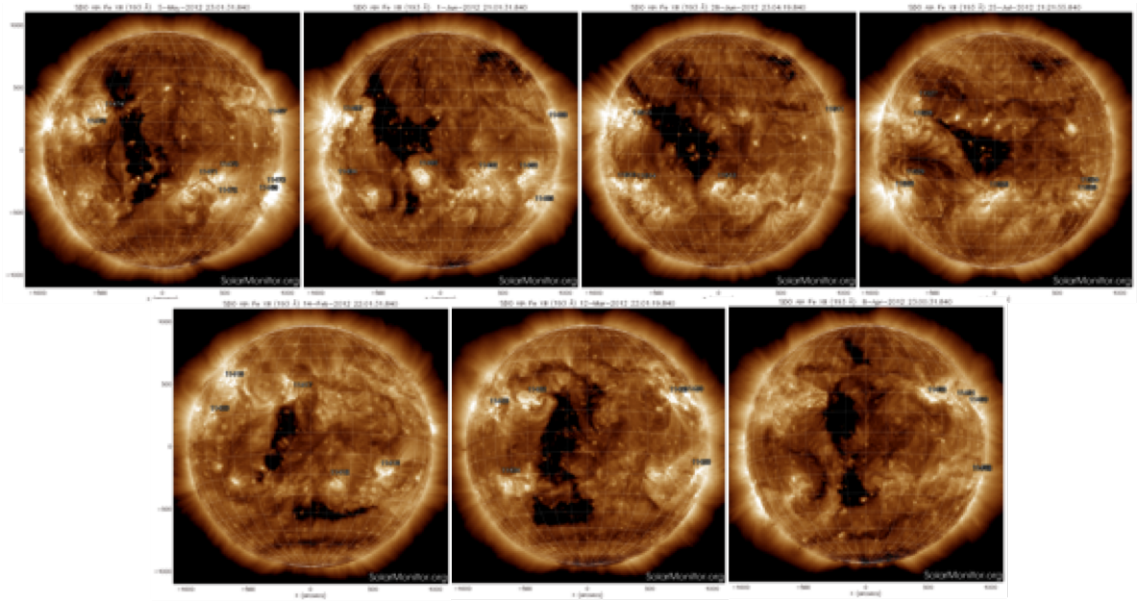
The week started with an event with a potential impact: active region 1520 was the source of a CME which caused CACTus (software for automated CME detection in LASCO coronograph images) to send a halo CME-alert. The picture below is a difference image: two pictures are subtracted from each other such that the differences between them become clear and the similarities are not shown. Moving structures pop up in a clear way in difference images. These images are made by LASCO, a coronograph onboard the spacecraft SOHO.



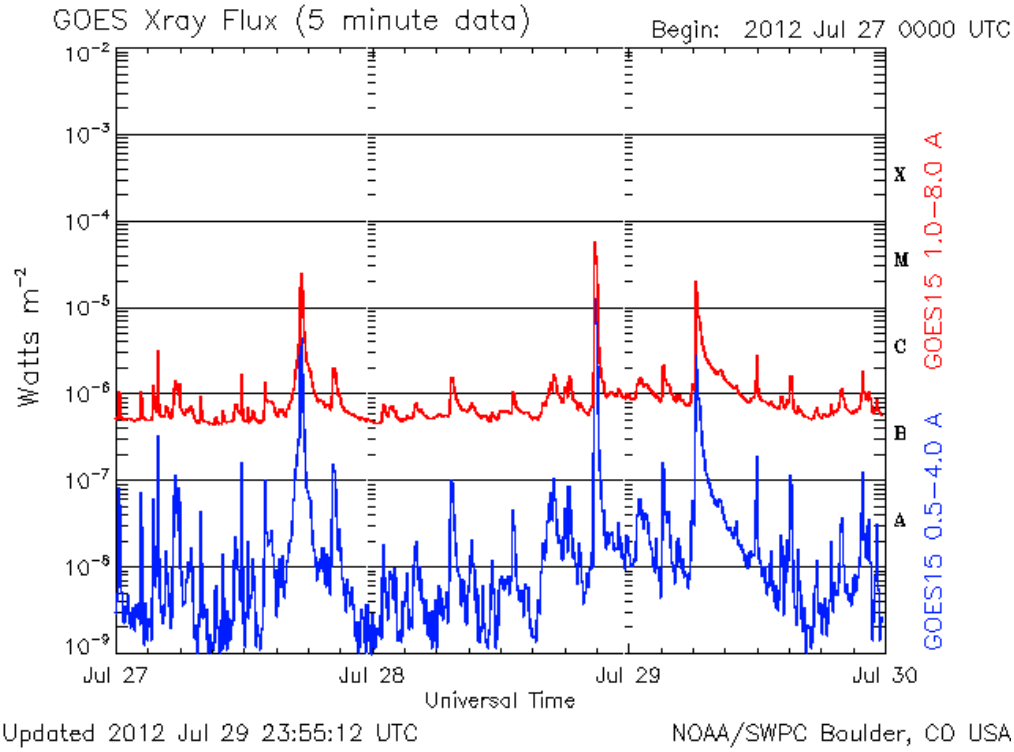
The active region was at that moment located behind the west limb. July 19 was the last day it got a NOAA number. The event caused a slow increase in the proton flux at the L1 point, just in front of the Earth. The >=10 MeV curve reached the threshold level by midday, but crossed it only slightly as is seen in the image below. It shows how many protons pass the spacecraft GOES s a function of time.



A recurrent coronal hole near the equator, reached the central meridian on July 25. The coronal hole was already present since February 2012 (see picture). This is definitely recurrent.



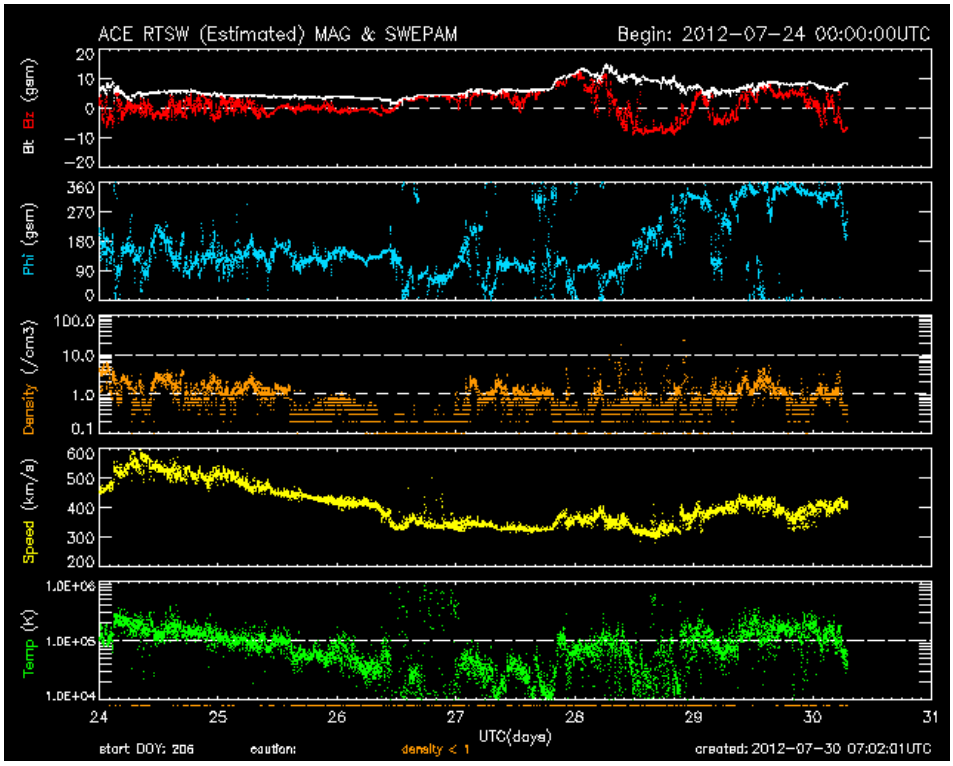
In the mean while, the proton flux stayed at an elevated level.
A new active region, NOAA AR 1532 made its entrance on the east side of the solar disk on July 26. It produced 3 M-flares in 3 days: M2.7 on July 27, M6.1 on July 28, M2.3 on July 29. The spacecraft GOES measures the solar X-ray radiation: you see three clear peaks in the picture below reaching the M-level.



All three events were associated with a CME. The July 27 CME has a strong east-southward component. On July 28, at the time of the flare, two successive CME's are detected. The first one was the strongest with a radial extent of 250°, but it had still a strong southward component. There was no evidence of an associated CME with the third M-flare.

3. Review of geomagnetic activity (23 Jul 2012 - 29 Jul 2012)

A sector boundary crossing caused unsettled conditions on July 23-24: the interplanetary magnetic field (IMF) oscillated such that the Earth passed from a region to another with a magnetic field pointing in the opposite direction.
A magnetic structure was visible in the solar wind on July 28 - see the top panel of the picture below. The structure had a speed of 350 km/s - see the fourth panel of the picture.



It is unclear if this structure is linked with the CME eruption on July 23. The arrival of the co-rotating interaction region between the slow and fast solar wind emanating from the 25 July coronal hole was masked in the solar wind curve by this structure. We had one active period on July 28.

4. PROBA2 Observations (23 Jul 2012 - 29 Jul 2012)

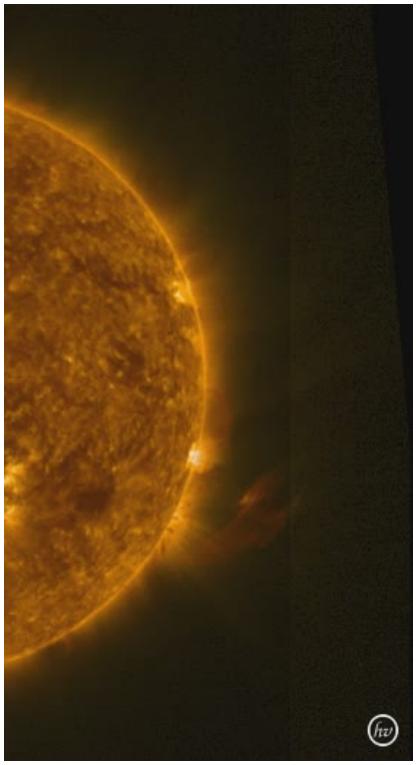
Solar Activity
Early this week, the Sun's activity level was generally *low* until AR 11532 crossed the East limb Thursday.

In order to view the activity of this week in more detail, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://proba2.oma.be/ssa.
This page also lists the recorded flaring events.

On Monday 23rd, AR11520, from behind the West limb, expelled a very rapid CME. According to some reports this could be the fastest CME ever recorded, with an ejection speed of around 3400 km/s.
A movie, showing the phenomenon can be found here:
http://proba2.oma.be/swap/data/mpg/movies/
campaign_movies/2012_07_23_01_50_08_2012_07_23_02_49_44_SWAP_174__AIA_304.mp4
The movie was generated with HelioViewer, using (colored) SWAP (174, yellow) and SDO AIA (304, orange) images.

One image of the movie is shown below:

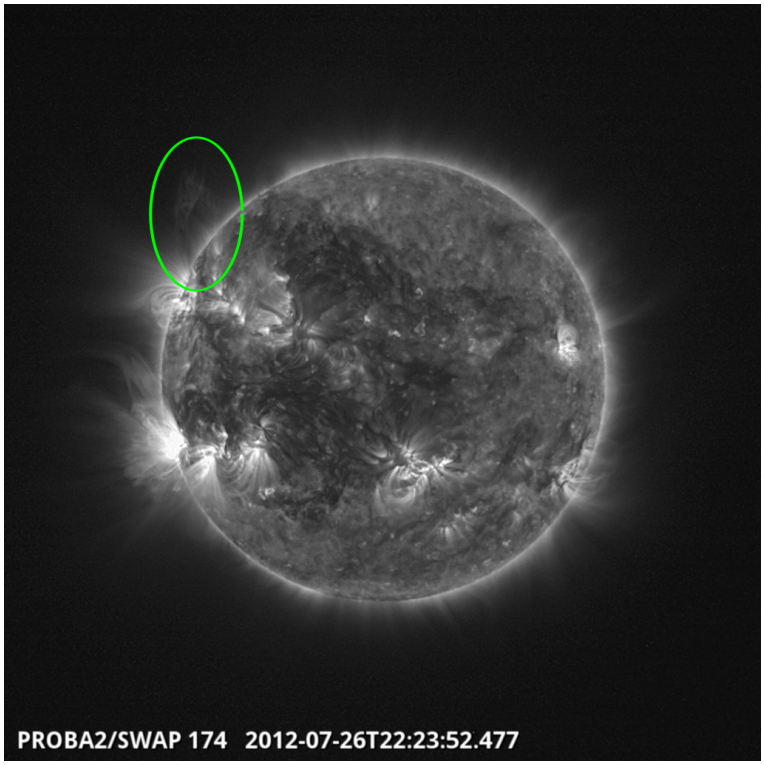
SWAP/SDO Image: CME on Monday 23/07; at 16:37



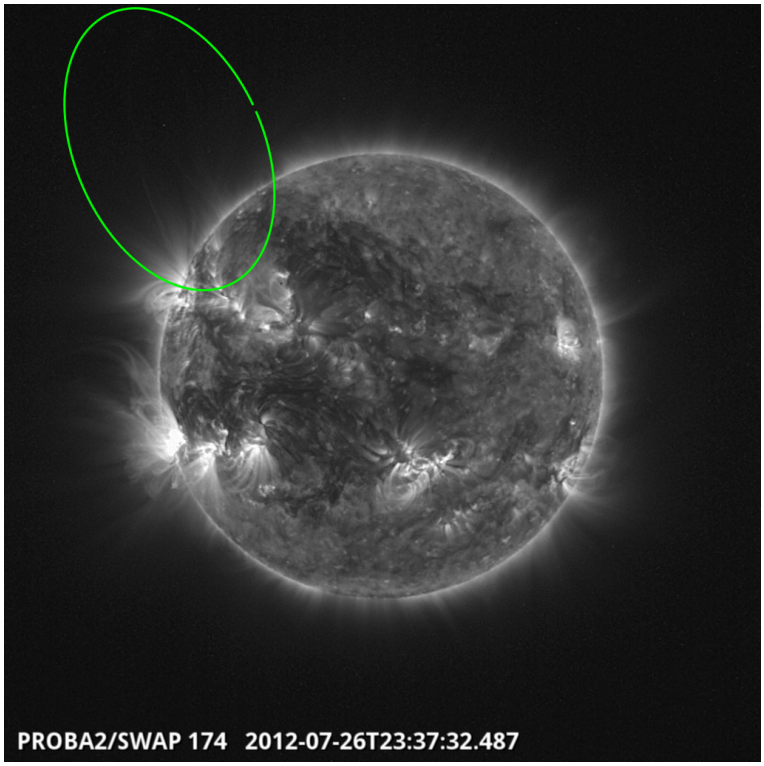
On Thursday 26th, an extended filament eruption occurred on the north east limb.
A movie, showing the phenomenon can be found here:
http://helioviewer.org/?movieId=mFp55
This movie was generated with HelioViewer, using (colored) SWAP (174, yellow) images. Right after the end of this eruption, another filament eruption occurred on the opposite side, i.e. on the north west limb, starting after midnight on July 27th.

Some (original, uncolored) SWAP pictures of this eruption are shown below:
1. Eruption in progress
2. Eruption at maximum extension

SWAP Image: Filament eruption on Thursday 26/07; at 22:24



SWAP Image: Filament eruption in maximum extension on Thursday 26/07; at 23:37

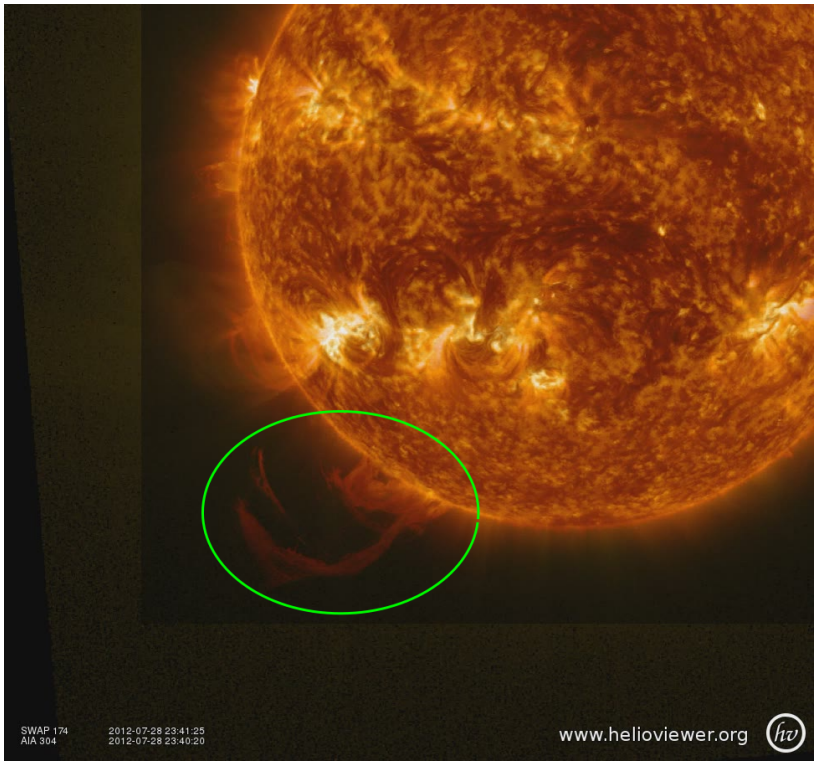


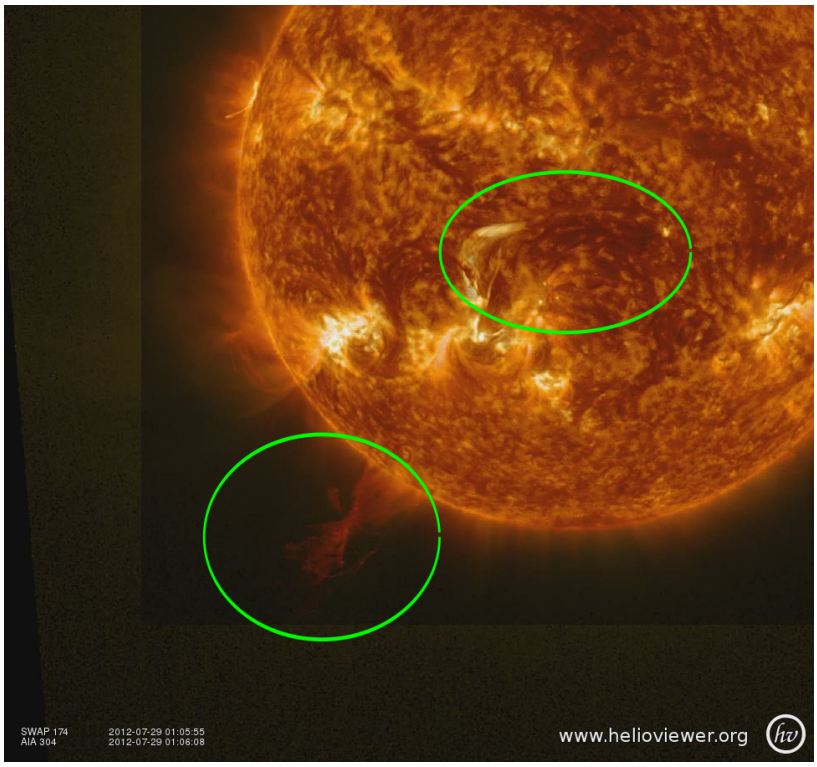
On Saturday 28th, several spectacular phenomena occurred.

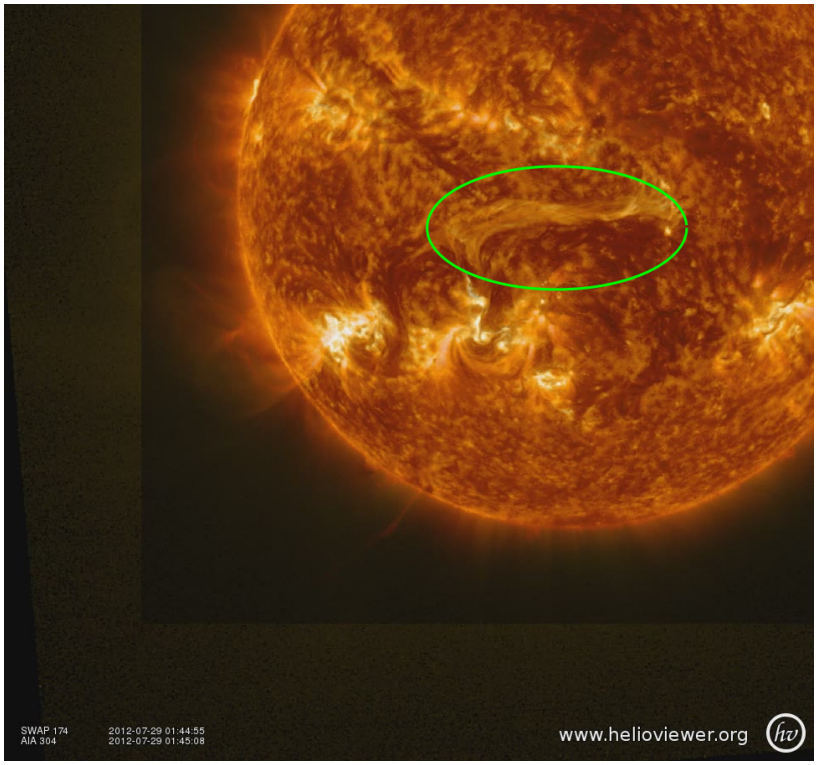
Filamenent/prominence activity could be followed from Saturday 28th around 15:00 until Sunday 29th 03:00, starting near the south east limb and evolving into on disk filament activation between AR 11530 (southern) and AR 11528 (northern). Also on July 27th such a (more reduced) filament brightening occurred.

Several SWAP (and SDO) movies about these phenomena can be found in the following directory: http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/2012_07_272829/

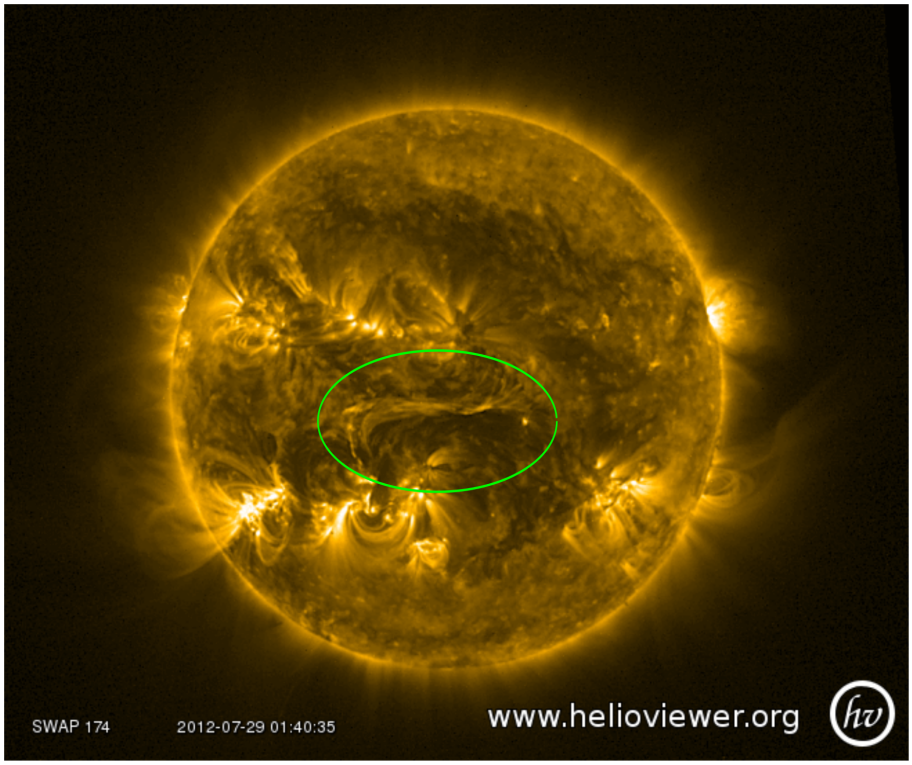
The following pictures (combined SWAP 174 in yellow and SDO 304 in orange) show the evolution of:
1. the swirling filament eruption having started near (or possibly behind?) the south east limb
2. the end of the eruption and the start of the filament brightening between ARs 11530 and 11528.
3. the filament brightening at its brightest

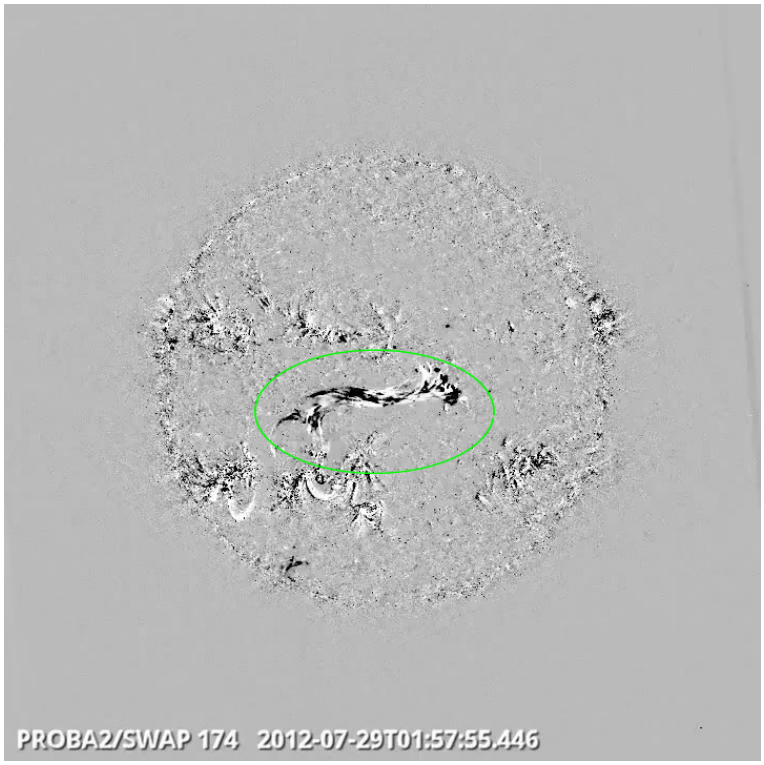






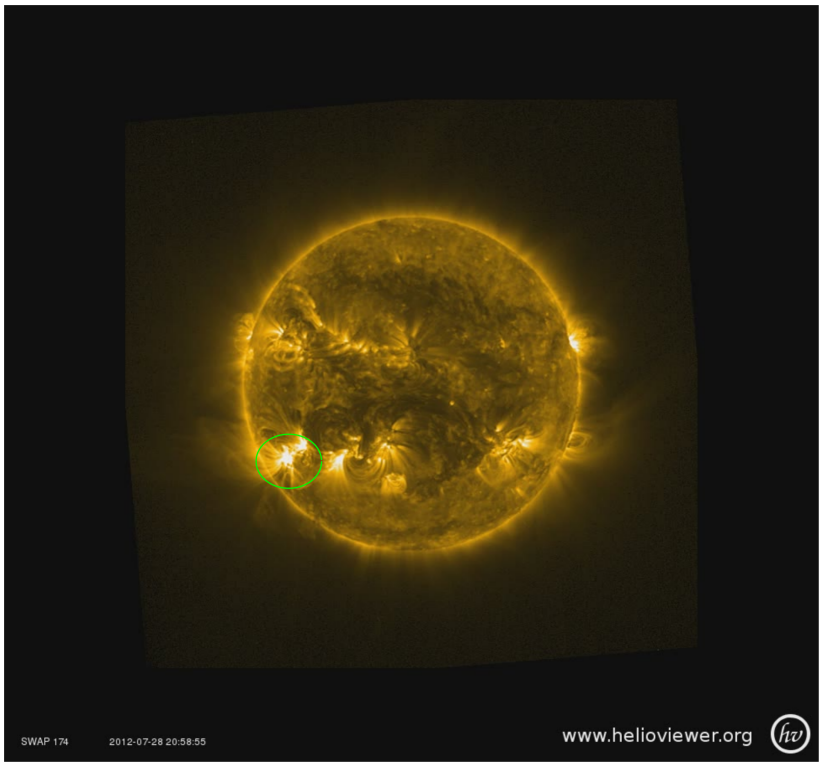
Below, a SWAP (normal and difference) image of the filament brightening:

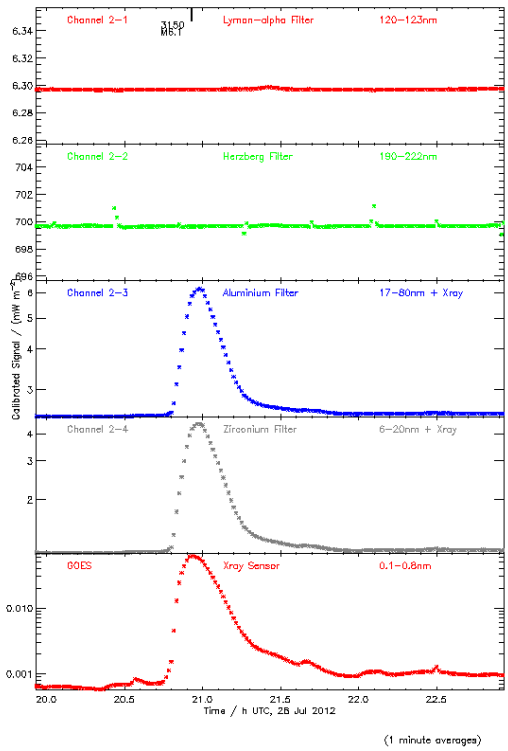




From Friday to Sunday, AR 11532 generated 1 M flare per day

An M6.1 flare occurred on Saturday. A SWAP picture around 21:00 and the associated LYRA/GOES curves are shown below:





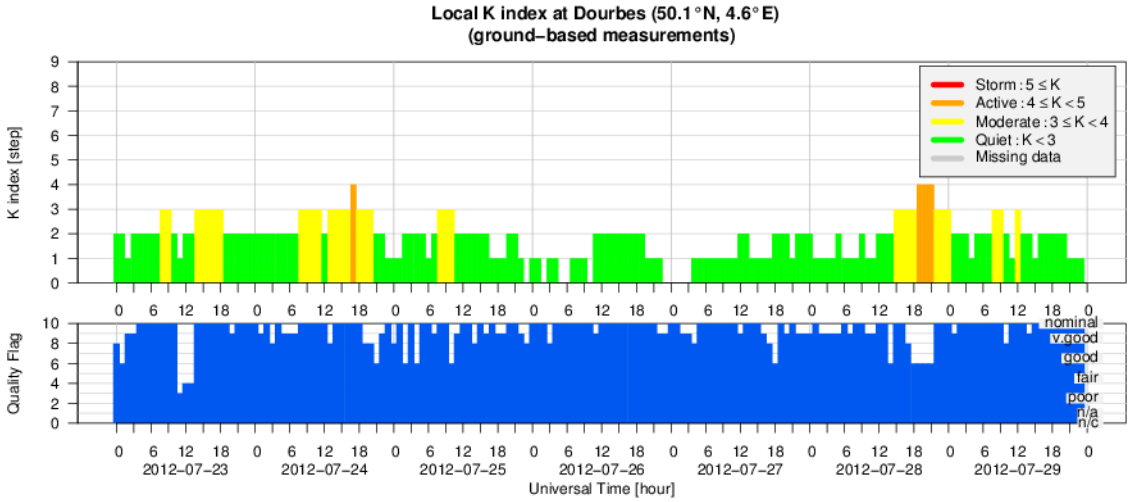
5. Noticeable Solar Events (23 Jul 2012 - 29 Jul 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
27	1717	1726	1732	S18E62	M2.7	SF	340	III/3 II/1	27	1532	CME
28	2044	2056	2104	S25E54	M6.1	2N	370	II/2 III/1 IV/2	27	1532	CME
29	0615	0622	0629	S22E49	M2.3	1N	110	IV/2	27	1532	

LOC: approximate heliographic location
XRAY: X-ray flare class
OP: optical flare class
10CM: peak 10 cm radio flux

TYPE: radio burst type
Cat: Catania sunspot group number
NOAA: NOAA active region number

6. Geomagnetic Observations at Dourbes (23 Jul 2012 - 29 Jul 2012)



7. Future Events

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

International Radiation Symposium in Berlin (Germany)

Start : 2012-08-06 - End : 2012-08-10
The IRC's International Radiation Symposium 2012 provides a forum for the scientific community to exchange recent results and evolving ideas relevant to many areas of atmospheric radiation. Quadrennially convened, the IRS assembles a global network of scientists and students engaged in studies pertaining to the Earth-atmosphere-Sun system, and encourages international cooperation in radiation research crucial to understanding and predicting Earth's dynamic climate and habitability. The IRC invites you to Berlin and welcomes your participation in this endeavor.
Website: http://irs2012.org/

Asia Oceania Geosciences Society (AOGS) Assembly in Singapore

Start : 2012-08-13 - End : 2012-08-17

An international body established since 2003, the Asia Oceania Geosciences Society (AOGS) aims to promote geosciences and advance its applications for the benefit of humanity in Asia and Oceania.
Sessions:
* Atmospheric Sciences
* Biogeosciences
* Hydrological Sciences
* Ocean Sciences
* Planetary Sciences
* Solar & Terrestrial Sciences
* Solid Earth Sciences
* Interdisciplinary Working Groups
Website:
http://www.asiaoceania.org/aogs2012/public.asp?page=home.htm

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

Start : 2012-08-13 - End : 2012-08-16
You will have a noticed the slight re-branding of these workshops from 'Image' to 'Information' processing. We think it is time to expand the attention of these workshops to discuss more generally how information about the Sun can be derived, stored, shared, transformed and analyzed using appropriate techniques from many other disciplines. We will still be covering image processing and computer vision techniques applied to solar physics, but we will also be including other topics such as machine learning, data mining and new computing strategies. The re-branding simply acknowledges and makes explicit what the community has been doing to determine the physics of the Sun.
Link: http://www.sipwork.org/

Hinode-6 in St. Andrews, UK

Start : 2012-08-14 - End : 2012-08-17
There will be 7 sessions, with 2 invited speakers per session. The following speakers have been invited to Hinode-6:
Website:
http://www-solar.mcs.st-and.ac.uk/~hinode6/Hinode-6/Welcome.html

XXVIII IAU General Assembly in Beijing, China

Start : 2012-08-20 - End : 2012-08-31
In August 2012 China will for the first time host the General Assembly of the International Astronomical Union in Beijing. This triennial gathering of astronomers from around the world to discuss and debate the most recent discoveries about the universe is an important part of the vitality of our science. Astrophysics remains one of the most exciting areas of human endeavor, and the venue of the Beijing GA will be equally impressive: the new China National Convention Center that is housed in the Olympic Park in a beautiful, spacious building and area that is full of amenities for conference participants and visitors.
The contributions of Chinese astronomy to human knowledge and our understanding of the cosmos have been of historical significance, from the earliest to modern times. GA participants will have an opportunity to experience the wide range of astronomical activities now taking place in China that include new projects, facilities, and institutes. They will also report on, and hear, the latest research results from every field of astronomy. An exciting scientific programme is being developed that will hold the interest of everyone. I am pleased to welcome all Union members and invited guests to join us in Beijing for what will be a memorable General Assembly.
Website:
http://www.astronomy2012.org

Fermi Solar Data Analysis Workshop in Greenbelt, MD (USA)

Start : 2012-08-22 - End : 2012-08-23

We are pleased to announce the Fermi Solar Data Analysis Workshop to be held at Goddard Space Flight Center on August 22-23, 2012. Although primarily an Astrophysics observatory, the Fermi Gamma-ray Space Telescope, and its Gamma-ray Burst Monitor (GBM) and Large Area Telescope (LAT), provide unique capabilities in the 8 keV - 300 GeV band to monitor and study both the quiescent and flaring Sun. Fermi has already made many observations of solar X-ray and gamma-ray emissions, and many more can be anticipated during the next few years with the peak in solar activity expected in 2013.
This workshop is meant to be informal and interactive. It will start with reviews of X-ray and gamma-ray solar studies to date, including results already obtained with the Fermi observatory. Extensive tutorials will be given on both GBM and LAT data analysis techniques, with time set aside for hands-on practice on your own laptop. We invite all of those interested in learning more about Fermi's Solar capabilities, and interested in interacting with experts in the field, to attend this 2-day workshop.
Website:
http://fermi.gsfc.nasa.gov/science/mtgs/workshops/da2012_solar/

SOLSPANET-1: First Solar and Space Weather Network of Excellence summer school and workshop in Tbilisi (Georgia)

Start : 2012-08-27 - End : 2012-09-21
The Solar and Space Weather Network of excellence will hold its first Summer School and Workshop in Tbilisi Georgia. The meeting will focus on the first results achieved within the network and is also open to the wider international scientific community involved in solar and space weather modeling, monitoring and forecasting activities.
The Summer school will be open to all early-stage researchers from the SOLSPANET member groups as well as to other young scientists from institutes active in solar and space weather studies.
The week of September 17-21 will be dedicated to the International SOLSPANET-1 workshop. The workshop is also devoted to the memory of the great Georgian scientists, professors Rolan Kiladze and Avtandil Pataraya.
Scientific topics will include:
* Monitoring of precursors for solar flares and CMEs- solar weather
* MHD waves in non-equilibrium medium
* Numerical and observational studies of CMEs
* CME manifestation in the decametre wavelength band
* Impact of space weather on terrestrial life and technological systems
* Advanced computational tools and knowledge base for better solar and spaceweather forecasting
Website:
http://www.solspanet.eu/solspanet

International School of Space Science on "Astrophysical and Space Plasmas" in L'Aquila, Italy

Start : 2012-09-02 - End : 2012-09-08
The International School of Space Science of the Consorzio Interuniversitario per la Fisica Spaziale organizes a Course on "Astrophysical and Space Plasmas", to be held in L'Aquila, Italy, September 02-08, 2012, and directed by A. Ferrari, M. Tavani, B. Coppi and R. Rosner.
The aim of the Course is to present a comprehensive discussion of the plasma processes relevant to the astrophsyical context, from low energy phenomena in planetary systems to the very high energy objects recently discovered through X and gamma ray observatories.
Introductory lectures will be dedicated to an analysis of observations available from ground and space observatories enlightening the thermal and non-thermal plasma processes necessary for their interpretation. At the same time the theoretical tools, analytical and numerical, necessary for their interpretation will be presented from an institutional point of view. Finally current models of the astrophysical objects and phenomena will be discussed with particular attention to the critical points with the objective of selecting new research lines.
Website:
http://www.cifs-isss.org/

Heliophysics Integrated Observatory Coordinated Data Analysis Workshop in Dublin, Ireland

Start : 2012-09-04 - End : 2012-09-07
The Fourth HELIO Coordinated Data Analysis Workshop (CDAW) will be held during September 2012 in the School of Physics of Trinity College Dublin.
The purpose of this CDAW is to provide an opportunity for the heliophysics community to learn about the capabilities of HELIO and discover how they can be used to address science use cases. Feedback from the CDAWs also help us determine how the HELIO infrastructure should be extended.
The goal of the workshop is to exercise the HELIO infrastructure based on a selection of use cases and verify of the functionality of the services and their level of integration.
The general objective is to exercise the infrastructure by studying use cases that require observations made at multiple points in the Solar System, as e.g. propagation studies of CMEs and SEPs from their solar source toward 1 AU and beyond.
One specific objective is to examine how well the propagation tools that we are developing actually help determine the timing of the required remote sensing and in-situ observations. This will help us identify what improvements and developments are required for this capability.
Website:
http://helio-vo.eu/helio-cdaw/HELIO_CDAW-4.html

TRANSMIT Summer School 2012 in Neustrelitz, Germany

Start : 2012-09-10 - End : 2012-09-14
The Summer school is part of the training program of the Marie Curie Initial Training Network TRANSMIT, funded by the European Commission. Young scientists involved in TRANSMIT shall be trained and educated for being aware and getting basic understanding of ionospheric threats in different fields of application. Awareness and knowledge of ionospheric threats is the starting point of subsequent work to reduce or mitigate them in practical applications.
Well recognized experts in their fields will give lectures to better understand/learn about:
* Physical nature of ionospheric perturbations at all scales
* Ionospheric impact on radio wave propagation
* Detection/Monitoring of ionospheric perturbations
* Estimation the degree of ionospheric perturbation
* Mitigation techniques for avoiding threats in technical systems
It is expected that lectures and discussions at the summer school will help in particular early stage researchers to improve their scientific work.
Website:
http://www.transmit-ionosphere.net/

Fifth Solar Orbiter Workshop in Brugge, Belgium

Start : 2012-09-10 - End : 2012-09-14
We are pleased to announce that the fifth Solar Orbiter Workshop will take place in Brugge, Belgium from Monday September 10 to Thursday September 13. Friday September 14 will be dedicated to a Science Working Team (SWT) meeting. The workshop will focus on the science questions addressed by this exciting and recently approved mission, which is a partnership between ESA and NASA . The scientific synergy of Solar Orbiter with Solar Probe Plus and other missions will also be highlighted.
Website:
http://www.stce.be/solarorbiter5/

International School of Astrophysics 'F. Lucchin' in Vulcano, Sicily (Italy)

Start : 2012-09-17 - End : 2012-09-22
The School of Astrophysics 'Francesco Lucchin' is addressed to PhD students in Astronomy and Physics, as well as to interested young researchers. The school aims at providing a comprehensive background in Astronomy and Astrophysics, from both a theoretical and an observational point of view.

The main purpose of the school is to provide common cultural ground on hot topics of research, both observational and theoretical, to young astronomers. This will reveal the potential links between the various projects in which the PhD students and young researchers are involved, and encourage collaborative research for the future.
The school is open to students and young researchers of all backgrounds (experimental, observational, theoretical).
The topics of the school are:
* The Sun: a Plasma Physics Laboratory (Chair: Francesca Zuccarello)
* Formation of the solar system: clues from exploration (Chair: Priscilla Cerroni)
Website:
http://www.iasf-roma.inaf.it/IAPS/AstroSchool/

International Space Weather Initiative (ISWI) School, in Bandung, Indonesia

Start : 2012-09-17 - End : 2012-09-26
The International Space Weather Initiative (ISWI) is a program of international cooperation to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data from the deployed instruments in conjunction with space data, and communicate the results to the public and students. ISWI is a follow-up activity to the successful IHY 2007, but focusing exclusively on space weather . The goal of the ISWI is to develop the scientific insight necessary to understand the science, and to reconstruct and forecast near-Earth space weather . This includes instrumentation, data analysis, modeling, education, training, and public outreach. ISWI has conducted many programs not only to popularise space science all over the world but also to create favorable conditions for joint research and training in some sort of global framework. In the framework of IHY and ISWI, some research groups have been established in several countries. In order to establish the strong space research group, particularly in Asia-Oceania countries, a training to the young students and researchers is necessary. In the framework of this program, the Space Science Center of National Institute of Aeronautics and Space (LAPAN) is honored to host the 2012 ISWI and MAGDAS School in Space Science, the school to young solar physicists and geophysicists, to be held on 17-26 September 2012 in Bandung Indonesia.
Website:
http://iswimagdas2012.dirgantara-lapan.or.id/

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

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

In-situ Heliospheric Science Symposium in Maryland, MD (USA)

Start : 2012-09-18 - End : 2012-09-20
In-situ observations by spacecraft provide [note in no particular order] the ground truth for comparison and constraining models, have transformed our ideas of the heliosphere , provide a natural laboratory for plasma physics, have challenged our pre-conceived ideas, and have discovered completely unexpected phenomena. This workshop will focus on in-situ observations of the heliosphere made

by the unprecedented suite of instruments currently returning observations, including the STEREO spacecraft, near-Earth spacecraft (ACE,WIND , SOHO) and the Voyager spacecraft that are probing the region approaching the heliopause. It is a follow on from the ACE/WIND /STEREO ... workshop held in Kennebunkport in June 2010. The program will include an overview of recent results from current missions, invited presentations, and splinter sessions with a heavy emphasis on discussion. These sessions will focus on the solar cycle variations, solar wind , solar energetic particles, suprathermal ions, coronal and interplanetary transients, and anomalous and galactic cosmic rays.
Website:
http://stereo.ssl.berkeley.edu/meetings/Sept.2012meeting/

International Meteor Conference in La Palma, Spain

Start : 2012-09-20 - End : 2012-09-23
Every year, the International Meteor Organization (IMO) organizes the International Meteor Conference (IMC). This conference deals with all aspects of meteor observation as well as the underlying physics and is aimed at both amateurs and professionals.
The International Meteor Organization (IMO) will hold the 31st annual International Meteor Conference (IMC) on La Palma, Canary Islands, Spain, from 20 till 23 September, 2012. The conference will be organized by the Astro Travels agency in collaboration with the Cabildo of La Palma island authority which will sponsor this event.
Website:
http://www.imo.net/imc2012/

RADECS 2012 in Biarritz, France

Start : 2012-09-24 - End : 2012-09-28
The 21st European Conference on RADIATION AND ITS EFFECTS ON COMPONENTS AND SYSTEMS will be held in Biarritz, France, on September 24-28, 2012.
The aim of RADECS conferences is to provide an annual European forum for the presentation and discussion of the latest advances in the field of radiation effects on electronic and photonic materials, devices, circuits, sensors, and systems. The scope of the conference encompasses technological processes and design techniques for producing radiation tolerant systems for space, aeronautical or terrestrial applications, as well as relevant methodologies for their characterization and qualification. The conference features a technical program, an Industrial Exhibit, and one day meeting on ground effects offered on September 24 (RADGROUND). The technical program includes oral and postersessions.
The areas of interest for contributions to be submitted to RADECS 2012 include, but are not limited to:
* Basic mechanisms of radiation effects in electronic and optical materials
* Space, atmospheric and terrestrial environments
* Radiation effects on electronic and photonic devices, circuits and systems
* Radiation effects on sensors and emerging devices
* Technology and design hardening
* Radiation hardness assurance
* Irradiation facilities and testing
Website: http://radecs2012.org

63rd International Astronautical Congress in Naples, Italy

Start : 2012-10-01 - End : 2012-10-05
At the forthcoming 63rd International Astronautical Congress in Naples a special session on the theme 'Effects of Space Weather on GEO Satellites' will be held as part of the 25th Symposium on Space Policy, Regulations and Economics.
This session will discuss case histories and mechanisms of effects of space weather on GEO satellites, models for prediction, and mitigation approaches. We would like to invite you to consider submitting abstracts for this session.
The call for papers can be found at The deadline for abstract submission is 29 February 2012.
http://www.iafastro.org/docs/2012/iac/IAC2012_CallForPapers.

Website: http://www.iac2012.org/

UN/Ecuador Workshop on the International Space Weather Initiative in Ecuador

Start : 2012-10-08 - End : 2012-10-12
Initiated in 1990, the United Nations Basic Space Science Initiative (UNBSSI) has contributed to the international and regional development of astronomy and space science through annual workshops organized under the umbrella of the United Nations, focusing specifically on the International Heliophysical Year 2007 (IHY, 2005-2009) and the International Space Weather Initiative (ISWI, 2010-2012). UNBSSI has led to the establishment of planetariums, astronomical telescope facilities, and IHY/ISWI instrument arrays worldwide, particularly in developing nations. ISWI is envisioned to continue the tradition of IHY in the worldwide deployment of space weather monitoring instrument arrays. To date, ISWI contributes to the observation of space weather through 18 instrument arrays with close to 1000 operating instruments in more than 100 nations supported by designated national ISWI coordinators.
The first workshop on ISWI was held in Helwan, Egypt and hosted by the Helwan University, Egypt, in 2010, particularly for the benefit of nations in Western Asia. In 2011 the United Nations/Nigeria Workshop on ISWI was hosted by the Centre for Basic Space Science of the University of Nigeria at Nsukka, Nigeria, particularly for the benefit of nations in Africa. The third ISWI workshop will be hosted by Ecuador in 2012 for the region of Latin America and the Caribbean.
Website:
http://iswiecuador.epn.edu.ec/

Space Weather and Challenges for Modern Society in Oslo, Norway

Start : 2012-10-22 - End : 2012-10-24
2012 - 2013 is expected to be years with high solar activity. This can trigger larger solar storms which can generate geomagnetic induced currents (GIC) on the earth. GIC can affect the normal operation of specific industrial operations and critical infrastructure (e.g power grids, telecom, navigation systems, etc).
During space weather events, like solar storms, electric currents in the magnetosphere and ionosphere experience large variations, which manifest also in the earth's magnetic field. These variations induce currents (GIC) in conductors operated on the surface of the earth. Electric transmission grids and buried pipelines are common examples of such conductor systems. GIC can cause problems, such as increased corrosion of pipeline steel and may disturb and possible damaged high-voltage power transformers and it can also have damaging effects on communication systems, navigation systems and oil and gas operations.
Vulnerable industries are the oil and gas industry, railways, telecommunication industry, navigation industry and not at least the society, which is very vulnerable concerning short or long term interruption of critical infrastructure.
The conference will focus on increasing the general knowledge of solar storms, space weather and GIC and the possible consequences for different industries and critical infrastructure, and look into reasonable means of protection, and consider possible early warning solutions.
Website:
http://www.tiems.info/about-tiems/oslo-conference-2012.html

Ninth European Space Weather Week in Brussels, Belgium

Start : 2012-11-05 - End : 2012-11-09
We are pleased to announce that the Ninth European Space Weather Week will take place at the AcadÃ©mie Royale de Belgique, Brussels, Belgium between 5 and 9 November 2012.
This meeting is being jointly organised by the Solar-Terrestrial Centre of Excellence (STCE), ESA , the SWWT and the COST ES0803 communities. The local organisation is done by the STCE. This event will continue to build on the advances made during the first eight European Space Weather Weeks held between 2004 and 2011.
Website:
http://www.sidc.be/esww9/

International Symposium on Solar-Terrestrial Physics in Pune, India

Start : 2012-11-06 - End : 2012-11-09
The International Symposium on Solar-Terrestrial Physics will be held during November 6 - 9, 2012 at the Indian Institute of Science, Education and Research, Pune, India. This meeting under the aegis of the SCOSTEP is expected to draw leading scientists from around the world in the increasingly important, interdisciplinary fields of Solar activity and its impact on geospace and life on the Earth. With major observational solar facilities being planned in India, this meeting is especially pertinent in the Indian context.
The meeting is expected to involve professional scientists as well as graduate students, and will have a mixture of invited and contributed talks and posters. There will also be a one-day tutorial for the benefit of young people beginning work in the field of solar-terrestrial physics.
Website:
http://www.iiserpune.ac.in/~isstp2012/

Eclipse on the Coral Sea: Cycle 24 Ascending in Palm Cove, Queensland (Australia)

Start : 2012-11-12 - End : 2012-11-16
As we emerge from one of the deepest and longest solar minima on record, with a new and powerful eye on the Sun -SDO- we invite all those with an interest is solar activity to gather in beautiful Palm Cove, Australia to review and assess our current knowledge and understanding of our magnetic star , and to experience the awe and wonder of a total solar eclipse on November 14, 2012.
Website:
http://moca.monash.edu/eclipse/

Total solar eclipse

Start : 2012-11-13 - End : 2012-11-13
For more information:
http://eclipse.gsfc.nasa.gov/OH/OH2012.html#SE2012Nov13T

EC Space Conference in Larnaca, Cyprus

Start : 2012-11-15 - End : 2012-11-16
The European Commission will organise the 'Let's embrace space - FP7 Space Conference 2012', in cooperation with the Cypriot EU Presidency, on 15 and 16 November 2012 in Larnaca, Cyprus.
This scientific conference will present the current status and results of the 3rd call of FP7 space research, and also discuss future options for European research in the space field. In doing so, the conference will aim at demonstrating the evolution and use of space tools for a sustainable economic and environmental development in a European and global context.
Website:
http://www.fp7-space.eu/news-119.phtm

Solar Physics with Radio Observations in Aichi, Japan

Start : 2012-11-20 - End : 2012-11-23
Nobeyama Radioheliograph (NoRH) has been observing the Sun since 1992. This year is the 20th year of science operation. Instruments are still in good shape and producing images of the Sun every day with the same quality as the beginning. Due to the nature of the instrument and long and uniform observations, data can be used for wide variety of solar physics and also for solar terrestrial physics. To mark the 20 years of operation, we will organize a symposium to summarize what has been done with NoRH and to discuss what we should do in the future. Papers to be presented in the meeting will be mainly concerned with the results from NoRH and future plans.
Website:
http://st4a.stelab.nagoya-u.ac.jp/SPRO2012/

Tracing the Connections in Solar Eruptive Events in Petaluma, CA, USA

Start : 2012-11-30 - End : 2012-12-05
The overarching objective of the conference is to examine the connections amongst the phenomena that lead to solar eruptive events. The current state of themes includes:
* Measuring the Coronal Magnetic Field;
* Connections to, and Reactions of, the Large-Scale Corona;
* Large-scale Magnetic Connectivity of Active Regions;
* Transfer of Energy to, and Storage of Energy in, the Corona;
* The High-Energy Particle - Flare - CME connection.
Working groups will address topics such as:
* Energy Transfer throughout a Solar Eruptive Event;
* Global Energetics of an Ensemble of Events;
* Coronal Influences to the Lower Atmosphere;
* CME Initiation and Type II Bursts;
* The Release of Energetic Particles in the Low Corona;
* Flows vs. Waves;
* Microflares/Nanoflares.
Website:
http://hessi.ssl.berkeley.edu/petaluma/index.shtml

Earth-Sun System Exploration 5 in Kona, Hawai'i USA

Start : 2013-01-13 - End : 2013-01-19
Information coming soon!
Website:
http://sd-www.jhuapl.edu/Aurora/ESSE/index.html

Chapman Conference on Fundamental Properties and Processes of Magnetotails in Reykjavik, Iceland

Start : 2013-03-10 - End : 2013-03-15
Spacecraft observations have established that all magnetized planets in our solar system interact strongly with the solar wind and possess well-developed magnetotails. Magnetotails are the site for many dynamic processes critical to the circulation of mass, energy and magnetic flux. The great differences in solar wind conditions, planetary rotation rates, ionospheric conductivity, and physical dimensions from Mercury's small magnetosphere to the giant magnetospheres of Jupiter and Saturn provide an outstanding opportunity to extend our understanding of the influence of these factors. Therefore, this Chapman conference will provide a forum in which various communities can come together and discuss recent achievements of observational, theoretical, and modeling studies with the objective to develop a deeper understanding of fundamental properties and processes of planetary magnetotails through a comparative examination.

Annular solar eclipse

Start : 2013-05-10 - End : 2013-05-10
For more information:
http://eclipse.gsfc.nasa.gov/SEplot/SEplot2001/SE2013May10A.GIF

IAU Symposium: Nature of prominences and their role in space weather in Paris, France

Start : 2013-06-10 - End : 2013-06-16
Topics:
* Prominences : formation, dynamics
* Prominence plasma properties, including prominence seismology
* Magnetic field : measurements, topology, support

* Large-scale patterns and cyclic evolution
* Prominence destabilization, CMEs, reconstruction in 3D
* ICMEs in the heliosphere, magnetic clouds; their impact on the Earth environment
* Stellar quiescent and eruptive prominences and stellar CME
* Requirements for future instrumentation and prospects for future missions
Website:
http://www.iau.org/science/meetings/future/symposia/1065/

Hybrid solar eclipse

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

8. New documents in the European Space Weather Portal Repository

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

In-flight evolution of EIT

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=223

Degradation of the PREMOS instrument onboard PICARD

Workshop On-orbit degradation of solar and space weather Instruments - Lessons learned
http://www.spaceweather.eu/en/repository/show?id=224

Degradation of LYRA on PROBA2 after two years in orbit

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=225

The calibration of SOHO CDS

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=226

Long-Term Stability of the Photometric Calibration of the STEREO HI-1 Heliospheric Imagers

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=227

Introduction to the Extreme Ultraviolet Imager (EUI) telescopes onboard Solar Orbiter

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=228

Measured degradation in solar EUV spectrometers SOHO-CELIAS-SEM and SDO-EVE

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=229

Ageing of the PICARD payload thermal control Impact on SODISM measurements

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned

http://www.spaceweather.eu/en/repository/show?id=230

DIARAD/VIRGO ageing correction on SOHO

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=231

Introduction to the space radiation environment and the EPT instrument

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=232

Cleanliness and Calibration Stability of UV instruments

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=233

SWAP at 2.5 years: a performance analysis

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=234

ESIO : an introduction

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=235

SOLSPEC measurement of the solar absolute spectral irradiance from 165 to 2900 nm onboard the ISS

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=236

Degradation of the Hinode EIS detectors after 5 years in orbit

Workshop On-orbit degradation of solar and space weather Instruments – Lesson learned
http://www.spaceweather.eu/en/repository/show?id=237

eHEROES - De Zon en het weer in de ruimte

A presentation given at the KULeuven (120 participants) and Kortrijk (80 participants) in the frame of the project Jr College. The presentation introduces the Sun and Space Weather.
http://www.spaceweather.eu/en/repository/show?id=238

eHEROES - PROBA2

A presentation given at the KULeuven (120 participants), Kortrijk (80 participants) in the frame of the project Jr College and Hoogstraten in the frame of PROBA@school. The presentation introduced the development, launch and exploitation of PROBA2 and PROBA2 as a satellite to monitor space weather.
http://www.spaceweather.eu/en/repository/show?id=239

eHEROES - Zonnewind: plasmawolken en coronale gaten

A workshop given in Hoogstraten, Belgium in the frame of the project PROBA2@school. Students of the last year of highschool were instructed to calculate the arrival time at Earth of the wind emanating from a coronal hole and the speed of a CME based on coronographic images of STEREO A and B.
http://www.spaceweather.eu/en/repository/show?id=240

eHEROES - De Zon en PROBA2

A presentation given for Urania, amateur astronomers (150 participants,Antwerpen) and for habitants of service flats (40 participants, Leuven), Belgium. The Sun as a dynamic star causing space weather was introduced. The facts of PROBA2 and its journey from launch to operations were presented.
http://www.spaceweather.eu/en/repository/show?id=241