STCE Newsletter

1 Jul 2013 - 7 Jul 2013

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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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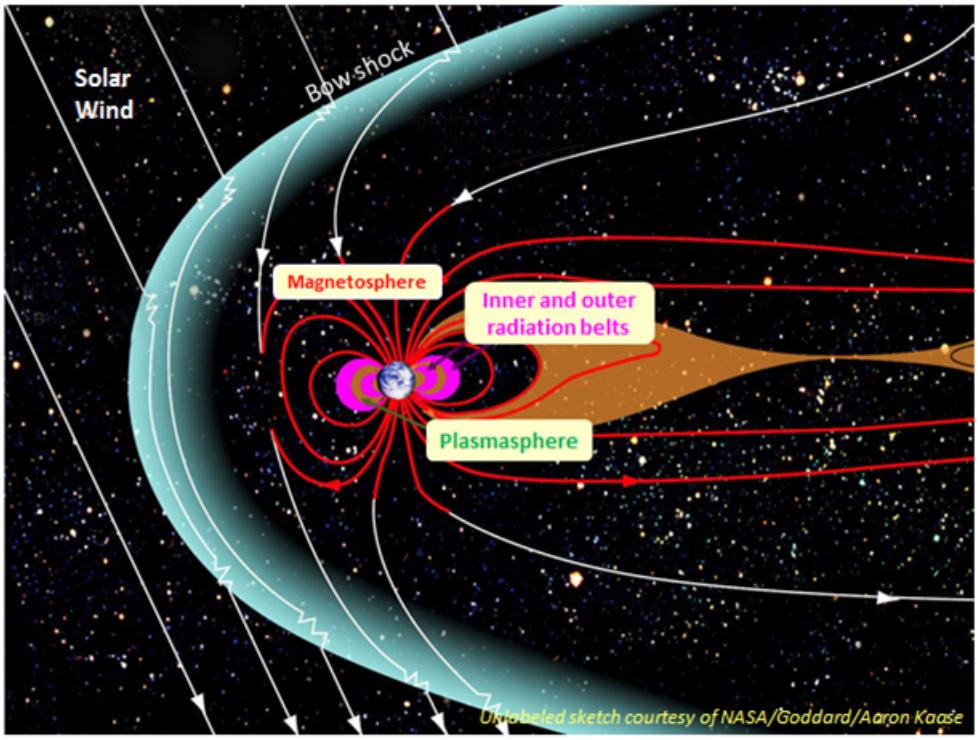
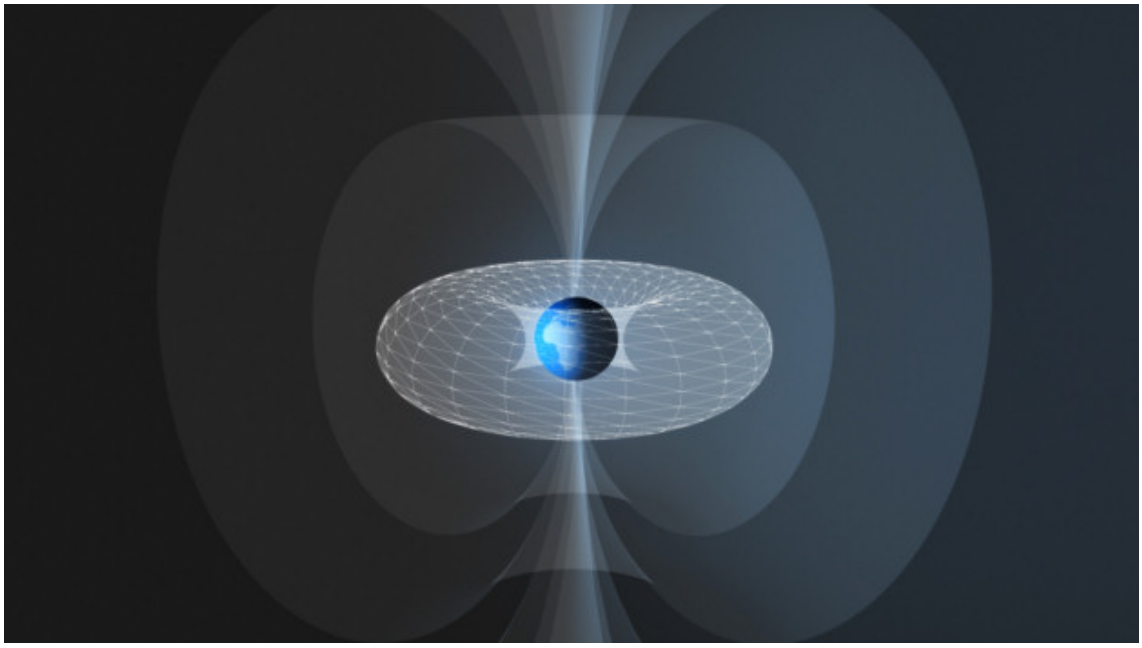
1. Where's my donut? (1 Jul 2013 - 7 Jul 2013)

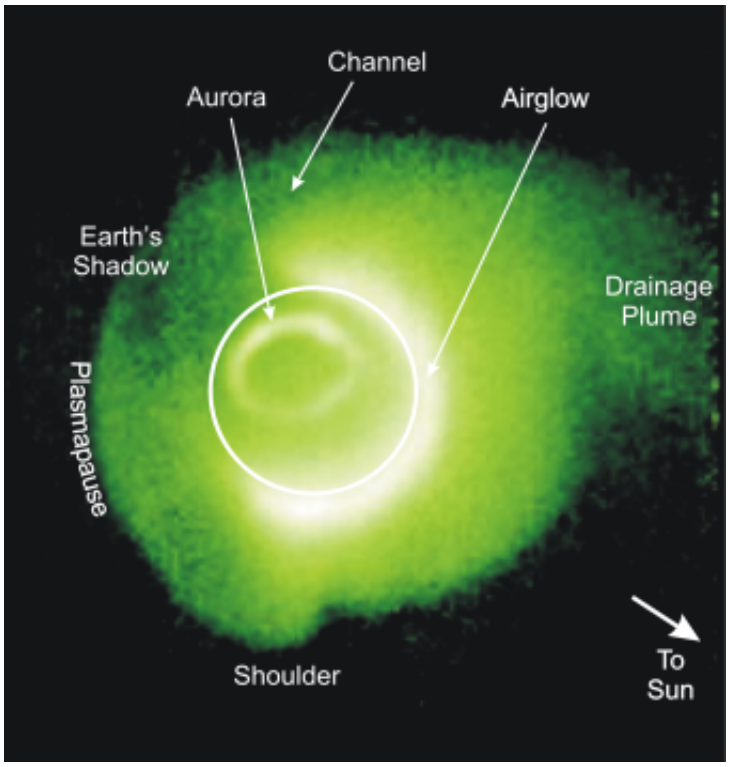
The plasmasphere is a region of "cold" (low-energetic) particles that extends from about 1600 km to over 30000 km above Earth's surface. It is an extension of the ionosphere, and overlaps the inner Van Allen radiation belt and a good part of the outer one. The difference between the plasmasphere and the Van Allen belts is that the latter contain "hot" (high-energetic) particles that behave according to a whole different set of rules.



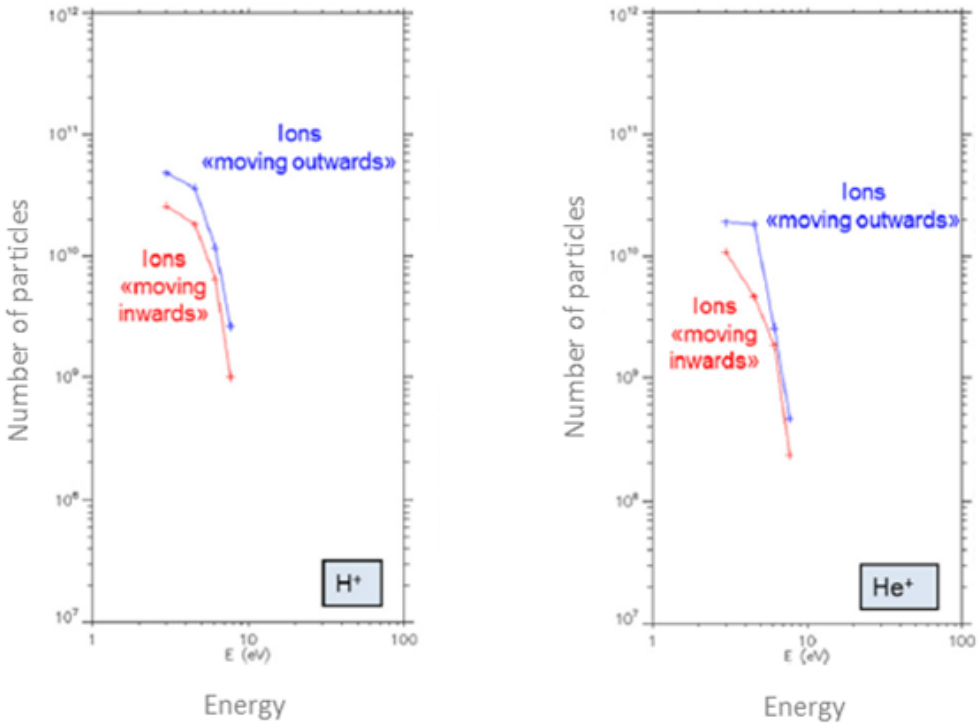
The plasmasphere has the shape of an asymmetric torus (donut). It was a surprise when scientists discovered in the early 60's that the outer boundary of the plasmasphere had a sharp edge, where the density of the particles drops a ten- to hundredfold. This is called the plasmapause. The extent and density of the plasmasphere varies a lot more than the Van Allen radiation belts, and thus is also highly sensitive to geomagnetic disturbances.



In the next years, it was found that during strong geomagnetic storms, the plasmasphere loses particles to the Earth's magnetosphere. This process is also associated to the formation of "plumes" (see EUV-image by the Image satellite underneath). Additionally, in 1992, Joseph Lemaire from the Belgian Institute of Space Aeronomy (BISA) and his collaborators theorized there should also be a steady transport of cold plasmaspheric particles outwards across the geomagnetic field lines, even during prolonged periods of quiet geomagnetic conditions. This plasmaspheric wind is the result of an imbalance between gravitational, centrifugal and pressure gradient forces driving particles away from the plasmasphere.



This "space wind" is very subtle, and thus difficult to measure. However, recent analysis of measurements by the Cluster spacecraft indicated an imbalance between particles moving outwards and particles moving inwards (blue resp. red in simplified figure underneath). These observations were made during (magnetic) equatorial crossings of the outer plasmasphere during quiet geomagnetic conditions, and were recorded for all energy levels of particles. Calculations by Iannis Dandouras (IRAP) indicate that the plasmasphere loses about 1 kg of particles every second to Earth's outer magnetosphere, thus directly confirming Lemaire's initial predictions. Though 90 tons a day seems like a lot of matter, it is continuously being replenished by the ionosphere and constitutes only a fraction of the total mass of the Earth's atmosphere. Hence, the plasmaspheric donut will not be depleted anytime soon.



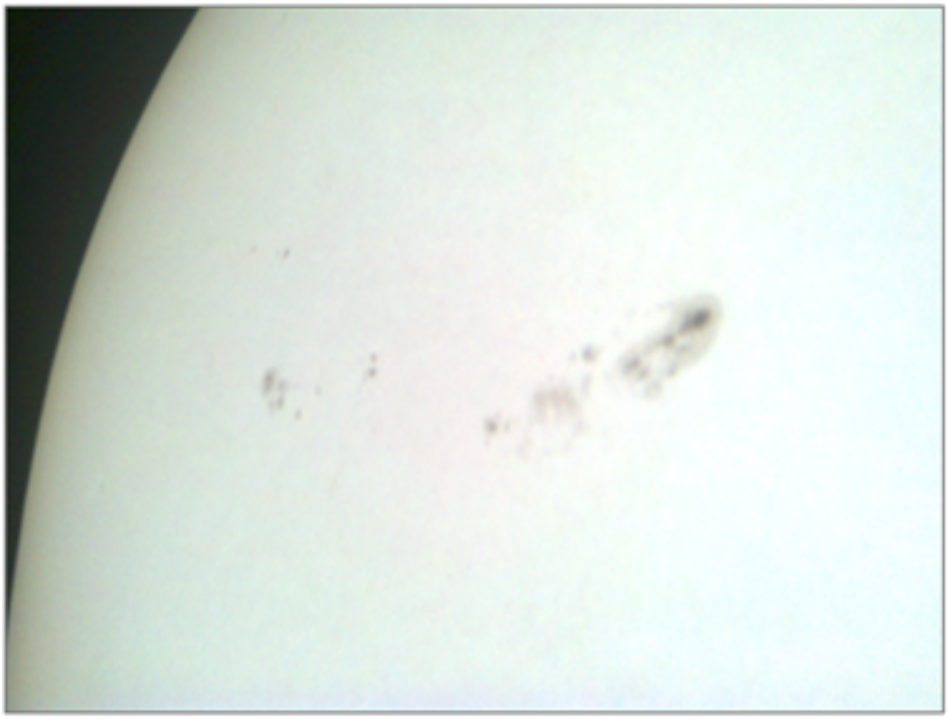
Because of the low energies, particles in the plasmasphere pose no hazard to spaceflight. However, they do play a role in GPS as they add delays to the GPS signals travelling through the plasmasphere. More importantly, this plasma reservoir plays a crucial role in the dynamics of the Earth's radiation belts that in turn do pose a radiation risk to satellites and astronauts travelling through it. The confirmation of Lemaire's theory will now have to be taken into account in any future model of the Earth's magnetosphere.

Credits and further reading: Information and images were taken from the following websites:
- Cluster discovers steady leak in Earth's plasmasphere, ESA press release, http://sci.esa.int/cluster/51988-cluster-discovers-steady-leak-in-earth-plasmasphere/
- Cluster spacecraft detects elusive space wind, EGU press release, http://www.egu.eu/news/66/cluster-spacecraft-detects-elusive-space-wind/
- Detection of a plasmaspheric wind in the Earth's magnetosphere by the Cluster spacecraft, I. Dandouras, http://www.ann-geophys.net/31/1143/2013/angeo-31-1143-2013.html
- Plasmasphere and radiation belts, BISA, http://www.aeronomie.be/en/topics/solarsystem/radiationbelts.htm
- Image EUV, University of Arizona, http://euv.lpl.arizona.edu/euv/
- Cluster, ESA, http://www.esa.int/Our_Activities/Space_Science/Cluster_overview2

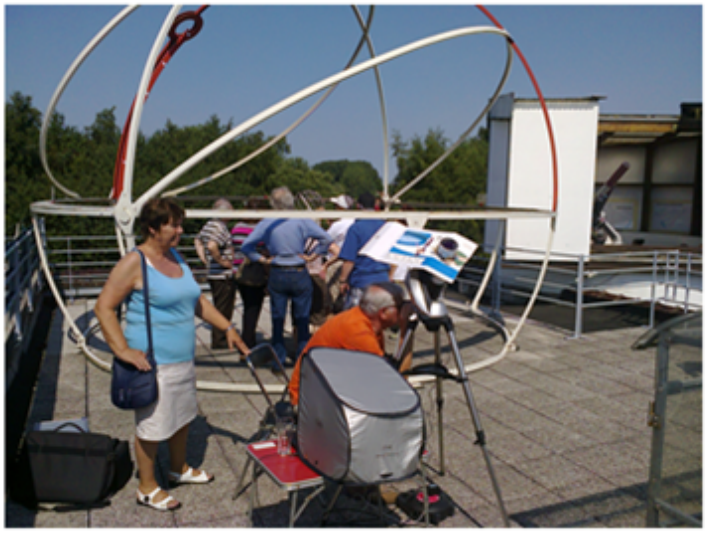
2. Sungazing Day! (1 Jul 2013 - 7 Jul 2013)

Last Sunday, 7 July, the Belgian Association for Astronomy (VVS; http://www.vvs.be/) organized its first Sungazing Day, similar to the very popular annual National Stargazing Days. It took place in the Flemish part of the country, and was put into practice by dozens of volunteers of the public observatories and local astronomy clubs. Also a few members of the STCE participated. The event was well covered by the media.

The main purpose of the Sungazing Day is to let the general public familiarize itself with the Sun by doing observations of our star through a variety of solar telescopes. Hence, the Sun was mostly observed in white light (photosphere) and in H-alpha (chromosphere). In some locations, there were also pocket spectroscopes with which some of the dark absorption lines of the solar spectrum could be seen. Visitors could also try out various observing methods, and ask questions on solar activity and its influence on the Earth.



Locations were strategically chosen near the cross-roads of hike-and-bike trails, near breweries, and so on. The Sun fully cooperated by shining all day in a cloudless sky, and by displaying a prominent sunspot group and various prominences. So, despite severe competition from the sea and the Tour de France, most locations could welcome between 150 and 250 sungazers: a great result!

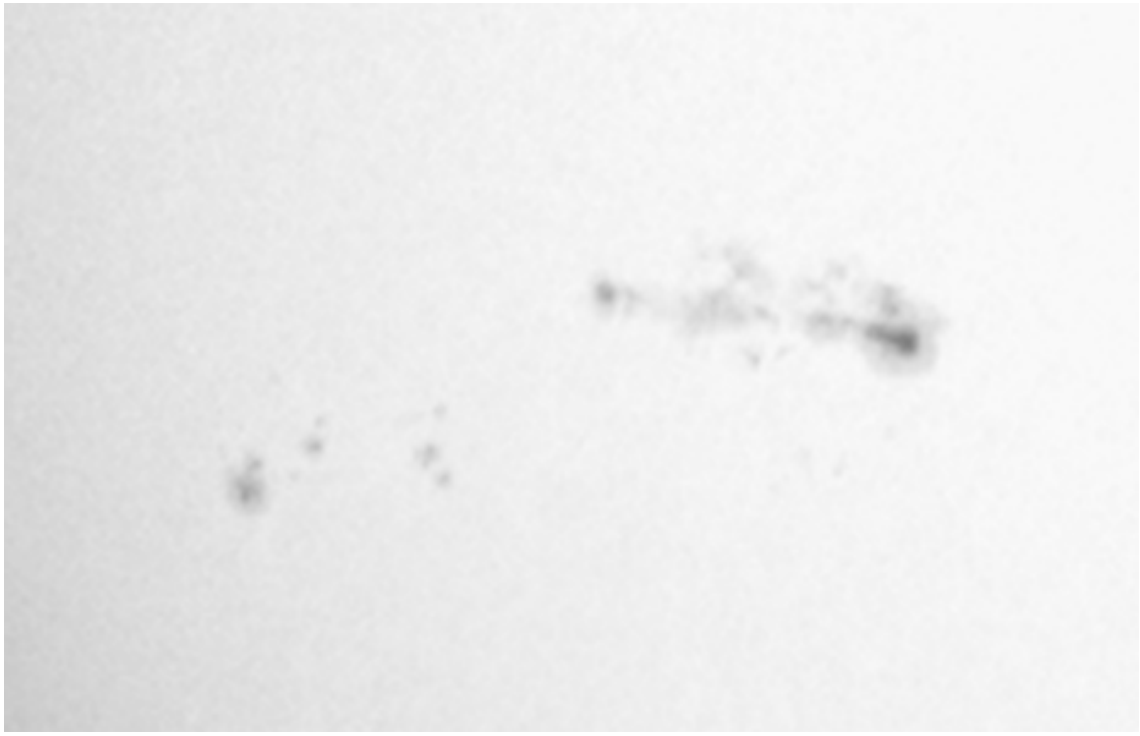


For quite a few, observing the Sun was a first time experience, and -as usual- quite an impressive one. The influence of the media on the general public is enormous. For example, many commented on the solar corona while they were watching a green image of the Sun (green ocular filter), as they confused with the false color EUV images from the Sun as taken by SOHO and SDO. Some were also complaining that those little pink arches did not move, again confusing with the TV and internet clips

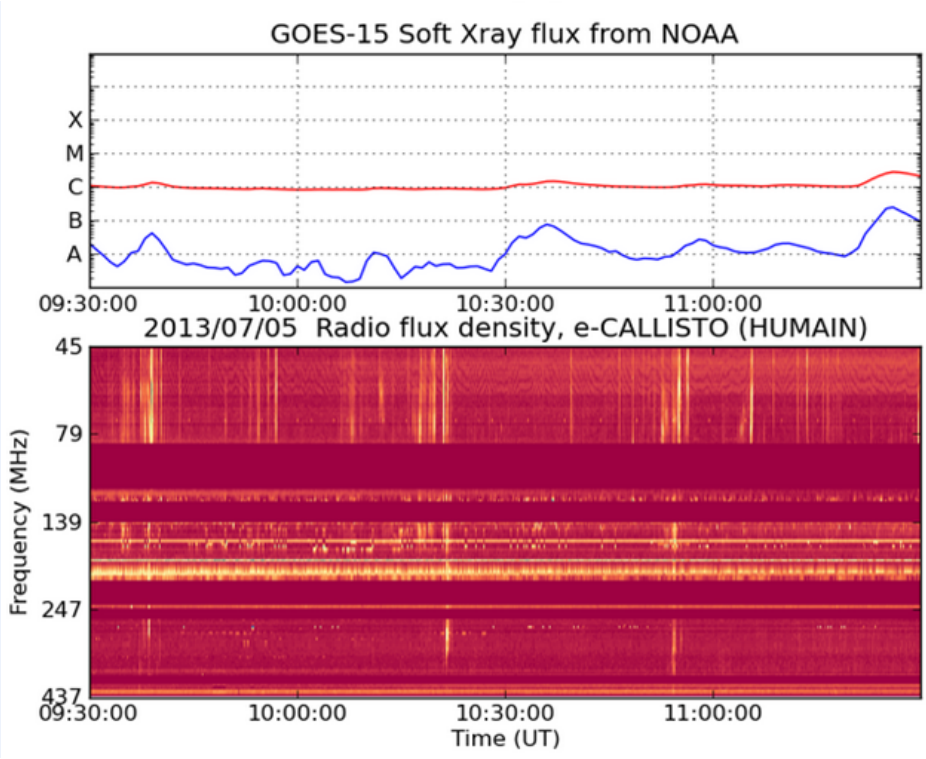
where several hours of prominence observations were cramped into just a few seconds. Clearly, the public observatories, local astronomy clubs and public outreach sections from the various institutes will not be done anytime soon with keeping all these interested on the right track!

3. Review of solar activity (1 Jul 2013 - 7 Jul 2013)

The week started with active regions NOAA 1778 and 1780 turning over the west limb while producing C-flares. From then onwards, the flaring activity was dominated by big sunspot group NOAA 1785, and immediately followed by NOAA 1787, appearing over the east limb. Image underneath shows both regions photographed by the white light telescope of USET (Uccle Solar Equatorial Table) on 6 July.



Both regions produced a large number of radio bursts (Type II and in particular Type III). The biggest flare of the period was an M1.5 flare peaking on 3 July at 07:00UT. Images underneath show a 2-hour period on 5 July displaying several Type III bursts (bottom image by Humain radio-telescope; numerous vertical threads) without much of a corresponding x-ray signature (top image by GOES-15). Type III radio bursts are the result of very fast electrons traveling through the hot solar corona and away from the Sun.



4. Noticeable Solar Events (1 Jul 2013 - 7 Jul 2013)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA
03	0700	0708	0718	S11E82	M1.5	SF	58	II/2VI/2		1787

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

5. PROBA2 Observations (1 Jul 2013 - 7 Jul 2013)

Solar Activity

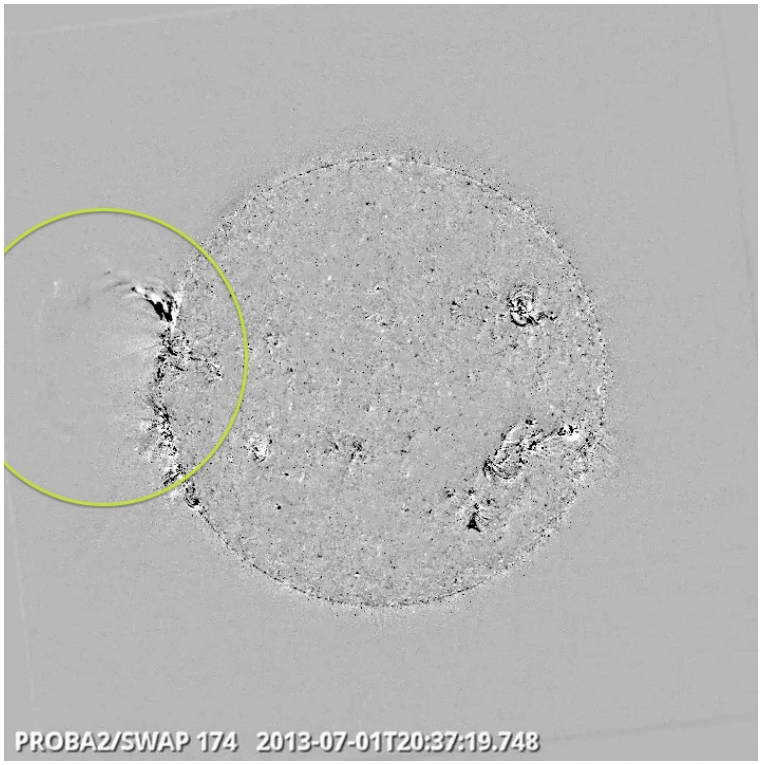
Solar (flaring) activity was low to moderate this week. A new cluster of sunspot groups emerged from behind the East limb, and was relatively active with many small flares and frequent localized flows. Several CMEs originated from these active regions. Most of the larger-scale activity, such as the one M-class flare (M1.5 at 07:08UT on Wednesday 3 July from active region NOAA 1787) occurred around the middle of the week.

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.

A weekly overview movie can be found here (SWAP174/AIA304 combination; HelioViewer.org).

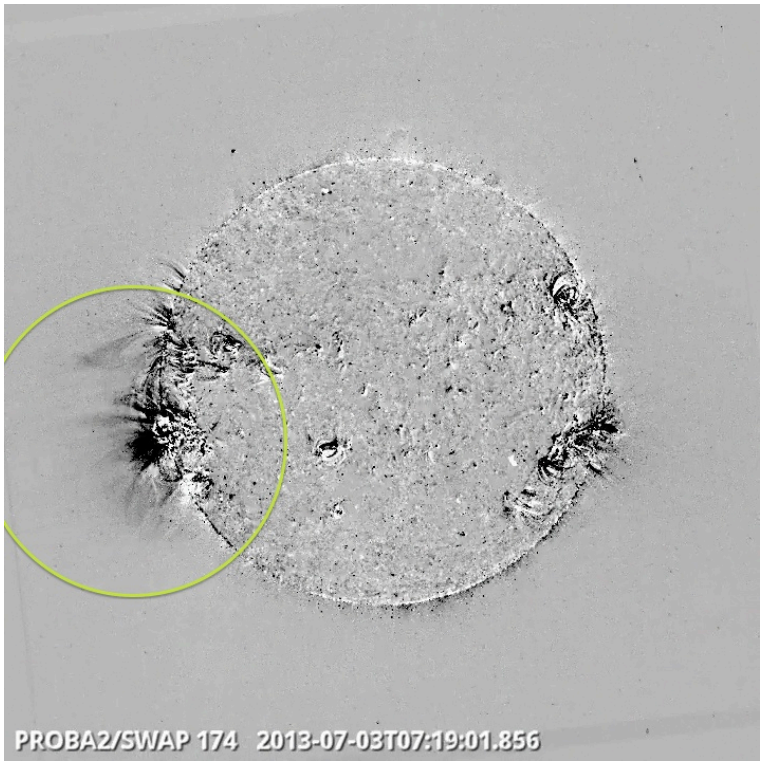
Details about some of this week's events, can be found further below.
Monday 1 July:

There was a very nice prominence eruption from the East limb that could be seen out to the edge of the SWAP field-of-view. A clear partial halo CME was seen in LASCO data from this event.



Prominence Eruption East limb at 20:37 - SWAP difference image

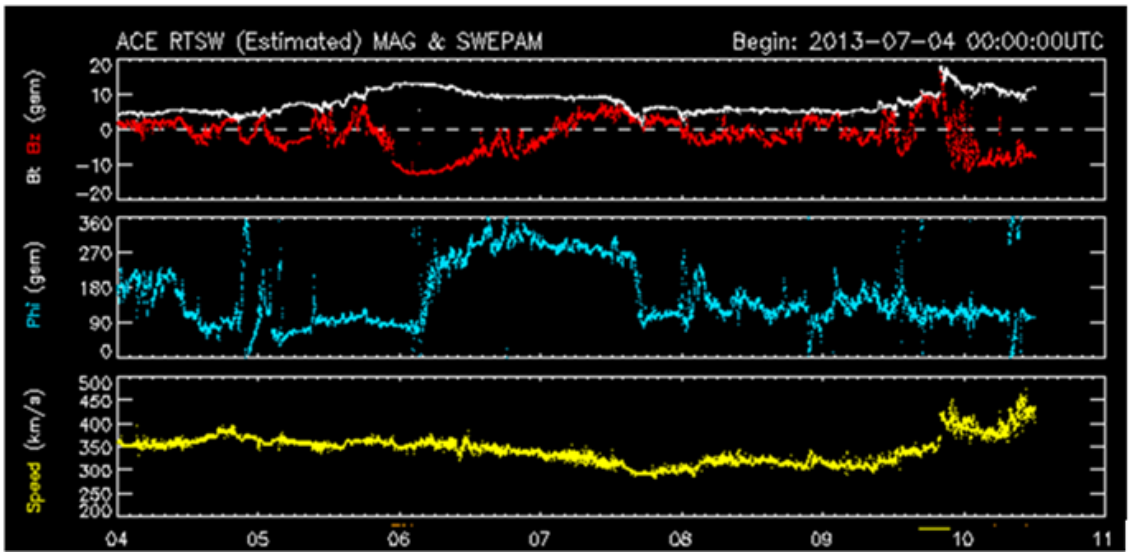
Wednesday 3 July:



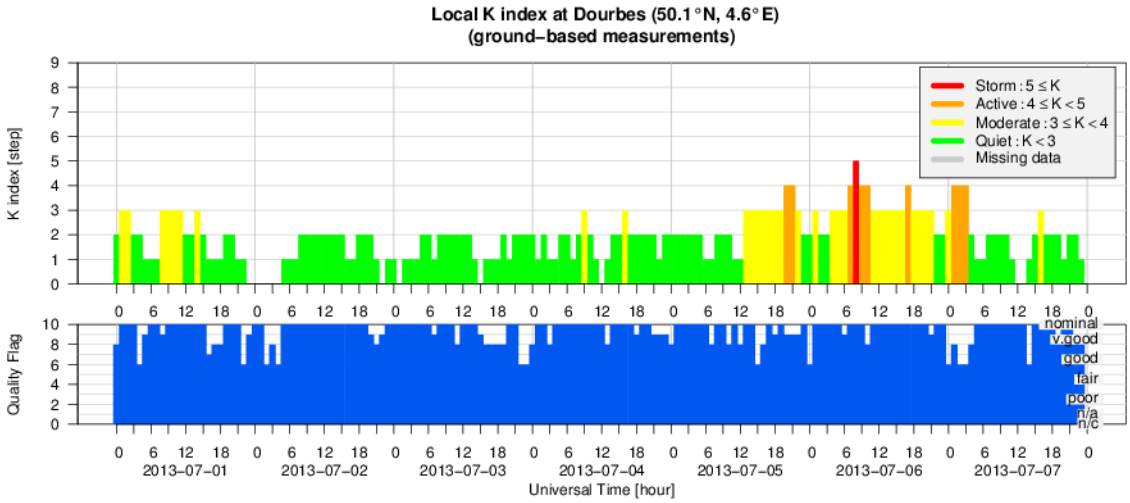
M1.5 flare and eruption East limb at 07:19 - SWAP difference image

6. Review of geomagnetic activity (1 Jul 2013 - 7 Jul 2013)

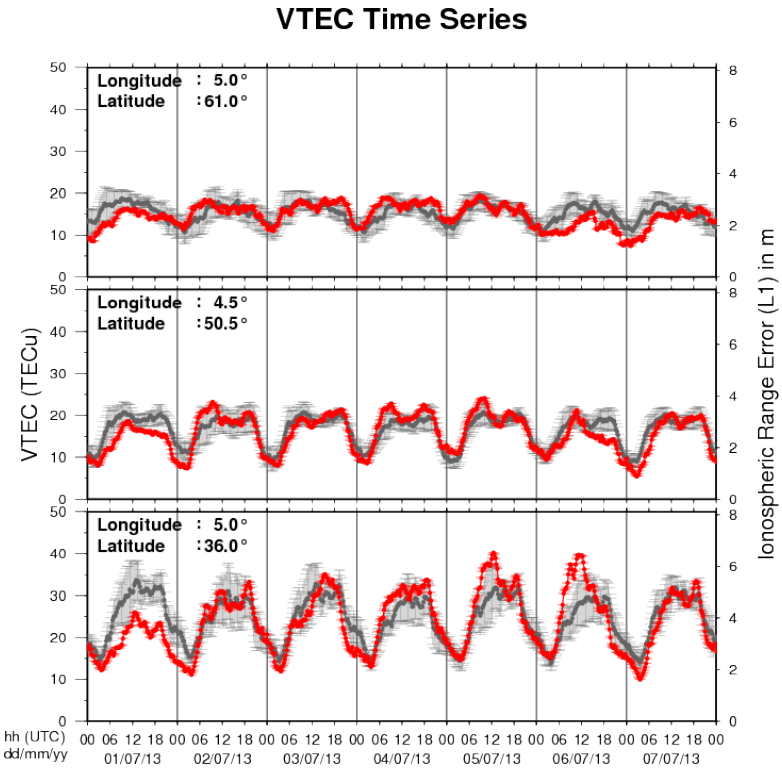
The solar wind speed was below 400 km/s throughout the whole period. Nevertheless, the arrival of an interplanetary coronal mass ejection (ICME) was noticed in the magnetic solar wind data (red and blue curve in ACE-graph underneath), however without much of a signature in the solar wind speed (no shock; see yellow curve). The ICME's passage started late on 5 July and lasted till early 7 July. Its source on the Sun is ambiguous. The interplanetary magnetic field (IMF) turned southward to 12-13 nT. The low speed did not result in a global geomagnetic storm (active conditions for a major part of 6 July), but locally some brief geomagnetic storm episodes were recorded (e.g. Humain). Strikingly, it did produce a relatively strong signature in the "Disturbance Storm-Time"-index (Dst), which is measured by low-latitude stations and based on the magnetic field created by the Earth's ring current.



7. Geomagnetic Observations at Dourbes (1 Jul 2013 - 7 Jul 2013)



8. Review of ionospheric activity (1 Jul 2013 - 7 Jul 2013)



The figure shows the time evolution of the Vertical Total Electron Content (VTEC) (in red) during the last week at three locations:
a) in the northern part of Europe(N61°, 5°E)
b) above Brussels(N50.5°, 4.5°E)
c) in the southern part of Europe(N36°, 5°E)
This figure also shows (in grey) the normal ionospheric behaviour expected based on the median VTEC from the 15 previous days.

The VTEC is expressed in TECu (with TECu=10^16 electrons per square meter) and is directly related to the signal propagation delay due to the ionosphere (in figure: delay on GPS L1 frequency).
The Sun's radiation ionizes the Earth's upper atmosphere, the ionosphere, located from about 60km to 1000km above the Earth's surface.The ionization process in the ionosphere produces ions and free electrons. These electrons perturb the propagation of the GNSS (Global Navigation Satellite System) signals by inducing a so-called ionospheric delay.

See http://stce.be/newsletter/GNSS_final.pdf for some more explanations ; for detailed information, see http://gnss.be/ionosphere_tutorial.php

9. New documents in the European Space Weather Portal Repository

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

eHEROES - Zonnewaarnemingen

This lecture was given at MIRA Public Observatory on 5 June. It is an introduction to solar observations both in white light as in H-alpha. It gives a general overview on telescopes and filters to be used,

observation methods, know-how of a solar observation, solar features to be monitored, data exploitation, internet links,... (15 attendees; in Dutch).
http://www.spaceweather.eu/en/repository/show?id=473

10. Future Events

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

2013 Heliophysics Summer School in Boulder, Colorado (USA)

Start : 2013-07-12 - End : 2013-07-19
Applications are invited for the 2013 Heliophysics Summer School, which will be held in beautiful Boulder, Colorado. We are seeking students and undergraduate level teachers and instructors to join us this coming summer for a unique professional experience. Students and teachers will learn about the exciting science of heliophysics as a broad, coherent discipline that reaches in space from the Earth's troposphere to the depths of the Sun, and in time from the formation of the solar system to the distant future. At the same time, a goal of the Summer School is for the group of instructors to develop materials from Heliophysics that can be applied in their classes.
The Heliophysics Summer School focuses on the physics of space weather events that start at the Sun and influence atmospheres, ionospheres and magnetospheres throughout the solar system. The solar system offers a wide variety of conditions under which the interaction of bodies with a plasma environment can be studied: there are planets with and without large-scale magnetic fields and associated magnetospheres; planetary atmospheres display a variety of thicknesses and compositions; satellites of the giant planets reveal how interactions occur with subsonic and sub-Alfvenic flows whereas the solar wind interacts with supersonic and super-Alfvenic impacts.
Encompassed under a general title of comparative magnetospheres are processes occurring on a range of scales from the solar wind interacting with comets to the interstellar medium interacting with the heliosphere. The school will address not only the physics of all these various environments but will also go into the technologies by which these various environments are being observed. The program is complemented with considerations of the societal impacts of space weather that affects satellites near Earth and elsewhere in the solar system.
The school will be based on lectures, laboratories, and recitations from world experts, and will draw material from the three textbooks Heliophysics I-III, published by Cambridge University Press.
Several teachers along with about 35 students will be selected through a competitive process organized by the UCAR Visiting Scientist Programs. The school lasts for eight days, and each participant receives full travel support for airline tickets, lodging and per diem costs.
Website:
http://www.vsp.ucar.edu/Heliophysics/

Space weather summer school in Alpbach, Austria

Start : 2013-07-16 - End : 2013-07-25
The Summer School Alpbach enjoys 36 years of tradition in providing in-depth teaching on different topics of space science & technology, featuring lectures and concentrated working sessions on mission studies in self-organised working groups. 60 young highly qualified European science and engineering students converge annually for stimulating 10 days of work in the Austrian Alps. 4 teams compete to design a space mission judged by a jury of experts. Students learn how to approach the design of a satellite mission and explore new and startling ideas supported by experts. The Summer School 2013 will focus on Space Weather .
The purpose of the Summer School is to foster the practical application of knowledge derived from lectures, to develop organisational and team-work skills and to encourage creativity. Teams will compete to design the best project, judged by an independent jury. The teams themselves are responsible for the selection of the subject of the project and for the team structure and working methods.
Website:
http://www.summerschoolalpbach.at/

2013 CISM Summer School, in Boulder, Colorado, USA

Start : 2013-07-22 - End : 2013-08-02
The CISM Summer School is intended to give students a comprehensive immersion in the subject of space weather: what it is, what it does, and what can be done about it. Space weather is many things: beautiful when seen through the eyes of a sun-viewing telescope, fascinating when studied for its alien worlds of magnetic structures and phenomena, awesome when witnessed as a solar eruption or auroral storm, and devastating to the users of services it disrupts. Space weather links the Sun, the Earth, and the space in between in a branching chain of consequences. Weather systems on the Sun can spawn interplanetary storms of colossal size and energy that envelop the whole planet in electrical hurricanes. Such storms attack high-tech, complex, and expensive technological systems that provide much of the infrastructure that allows modern society to function.
Website:
https://www2.hao.ucar.edu/docs/2013-cism-summer-school

1st SOLARNET - 3rd EAST/ATST meeting in Oslo, Norway

Start : 2013-08-05 - End : 2013-08-08
The goal of this workshop is to foster collaborations between ground and space solar projects. This workshop is expected
* to provide a forum to discuss the use of current and future observational solar facilities, and how to optimise their scientific returns;
* to identify the potentially paradigm-shifting observations that will become possible with the next generation ground- and space-based solar telescopes and their advanced instrumentation;
* to foster collaborations between researchers working at the development of ground- and space-based projects and creation of synergies between research programs at different wavelength bands.
Website:
http://folk.uio.no/matsc/oslo-13/info.html

1st SOLARNET Workshop, 3rd EAST/ATST meeting: 'Synergies between ground- and space-based solar research', in Oslo, Norway

Start : 2013-08-05 - End : 2013-08-08
The goal of this workshop is to foster collaborations between ground and space solar projects. This workshop is expected 1) to provide a forum to discuss the use of current and future observational solar facilities, and how to optimise their scientific returns; 2) to identify the potentially paradigm-shifting observations that will become possible with the next generation ground- and space-based solar telescopes and their advanced instrumentation; 3) to foster collaborations between researchers working at the development of ground- and space-based projects and creation of synergies between research programs at different wavelength bands.
A workshop webpage and more information will follow shortly - the purpose of this pre-announcement is to enable early bookings in your calendar.

XIIth IAGA Scientific Assembly in Merida, Yucatan, Mexico

Start : 2013-08-16 - End : 2013-08-31
The Local Organising Committee and the Mexico National Committee of IUGG have the great pleasure to welcome you to the 11th Scientific Assembly of the International Association of Geomagnetism and Aeronomy (IAGA) which is held in MÃ©rida YucatÃ¡n, Mexico from 26 to 31 August 2013 with the motto: "Living on a Magnetic Planet". Our Magnetic Planet Capricious (Changeable or Unpredictable) Field.
In order to increase the visibility and attractiveness of IAGA to young researchers, to motivate them to play active role within IAGA and to create (and enhance) their awareness of IAGA and sense of belonging to IAGA, the first IAGA Summer School will be organized just prior the Assembly. The summer school will provide overview of the activities carried out within all the IAGA divisions, with subjects from paleomagnetism and magnetic anisotropy through observatories and geomagnetic field modeling to ionospheric and aeronomic research. At least 20 young scientists from all around the world will be invited

based on the nominations from Working Groups and Divisions. Special call and more information will be published before the end of 2012.
Website: http://iaga2013.org.mx/

Solar Physics and Space Weather Instrumentation V in San Diego, CA (USA)

Start : 2013-08-25 - End : 2013-08-29
This conference will focus on instrumentation, observatories, space missions, and programs for observations from the Sun to Earth's upper atmosphere and space environment. The aim is to bring together diverse communities working on all elements of solar physics and space weather instrumentation.
Studying solar phenomena and monitoring space weather requires observations using both space- and ground-based instrumentations covering the different regions of the Sun-Earth system, the Sun, interplanetary medium, magnetosphere, ionosphere, and thermosphere. Papers are solicited concerning all instrumentation-supporting solar physics and space weather. This includes, but is not limited to, concepts, designs, fabrication processes, calibration, data trending, information technologies, solar data mining, instrument modeling, and satellite lifetime prediction modeling. We are also interested in all past, current, and future solar space missions and satellite and ground constellations of space weather instrumentation with a strong focus on Space Situational Awareness.
This conference is intended to provide the solar physics community and that of Earth's space environment with a forum for discussing the latest updates on instrumentation, observation techniques, and programs in their respective fields, and for proposing innovative ideas for future Sun-Earth coordinated observations.
Website: http://spie.org/op423

2013 Meeting of the Italian Community in Solar and Heliospheric Physics in Catania, Italy

Start : 2013-09-04 - End : 2013-09-06
The purpose of the meeting is to provide a forum for the italian scientists in the field (some of which are abroad) to consolidate on-going collaborations and establish new ones, for example in future projects such as Solar Orbiter and EST, where several of us are involved.
The meeting is obviously open to scientists from all the countries!
Website:
http://www.oact.inaf.it/weboac/SoHe2013/

14th European Solar Physics Meeting in Dublin, Ireland.

Start : 2013-09-08 - End : 2013-09-12
The European Solar Physics Meetings aim to highlight all aspects of modern solar physics, including observation and theory that span from the interior of the Sun out into the wider heliosphere. These meetings provide a broad, yet stimulating, environment for European and international scientists to share their research in solar physics.
The meeting will mostly comprise of contributed talks and poster presentations, with several invited review talks (typically one per session). Posters will be on display for the whole meeting in close proximity to the lecture theatre. Refreshments will be served in the poster viewing area during two dedicated coffee/poster breaks on each full day.
Website: http://www.espm14.ie/

7th International Workshop on Solar Polarization in Kunming, China

Start : 2013-09-09 - End : 2013-09-14
We gain information about the universe through analysis of the spectra from celestial objects. However, while the intensity spectrum represents a scalar quantity but electromagnetic radiation occurs in the form of transverse waves, the polarized spectrum provides us with a 4-vector, the Stokes vector. The increased amount of information space opens new windows to the universe, in particular for the exploration of magnetic fields. It is well recognized that the magnetic field is a primary agent responsible

for structuring and the source of all variability on intermediate time scales, which manifests itself in all forms of solar and stellar activity.
It is therefore not surprising that every year there are many scientific meetings organized with the objective of studying the role of magnetic fields in cosmic objects. What is largely missing in these meetings is however an in-depth investigation of the fundamental aspects of how magnetic fields can be determined by the means of spectro-polarimetry, our main gateway to cosmic magnetism. The primary aim of our series of Workshops is to address these fundamental aspects, with less emphasis on the morphological and physical properties of cosmic magnetic fields.
Website: http://spw7.ynao.ac.cn/

2nd UK-Ukraine meeting on Solar Physics and Space Science (UKU SPSS) in Kiev, Ukraine

Start : 2013-09-16 - End : 2013-09-20
The meeting will cover a broad range of aspects of solar physics, space science and solar-terrestrial relations. We aim to include every side of solar and space research, including observations, theory, and numerical modelling. The main idea behind the meeting is to treat the entire solar-terrestrial domain as one system, rather than each region independently.
The topics to be covered are:
* advanced solar observations
* waves and flows in the Solar atmosphere
* structure and dynamics of solar magnetic fields
* connecting analytical theory and modern numerical simulations to observations
* new physics in numerical modelling
* linking solar interior with heliosphere
* particle acceleration in the Sun and heliosphere
* non-linear phenomena in space plasmas
* physics of magnetosphere and ionosphere
Website:
http://swat.group.shef.ac.uk/Conferences/Ukraine_UK_2013/index.html

Space science training week: data driven modeling and forecasting in Leuven, Belgium

Start : 2013-09-16 - End : 2013-09-19
This summer school targets to introduce a generation of young researchers (advanced master students, PhDs, and junior postdoctoral researchers) to the diverse aspects of space weather related research.
It will introduce theoretical approaches to space weather and its drivers, present modern solar data analysis tools, and cover state-of-the-art solar and space science simulations. Participants will learn about forecasting aspects and their quality control for space weather events, but also experience hands-on training in scientific proposal writing and receive do-and-don't tips for scientific presentations.
The scientific program is enriched by a public evening lecture on the solar influence on our climate, and the lecturers are invariably expert scientists with international standing.
The school is open to a maximum of 40 participants, and can benefit from its embedding within two international research network activities: an Interuniversity Attraction Pole P7/08 CHARM connecting heliospheric to astrophysical communities with 7 partner institutes, and a European FP7 Project eHeroes with 15 different partner institutes. Participation from outside both network activities is strongly encouraged. Within Belgium, the school links up expertise from universities (KU Leuven, ULB, Gent University) to federal research institutes (the Solar-Terrestrial Centre of Excellence, the Royal Observatory of Belgium and the Belgian Institute for Space Aeronomy).
Website:
http://wis.kuleuven.be/CHARM/events/school/SSTW2013/

STEREO/WAVES & WIND/WAVES workshop on Solar Radio Emissions on Santorini, Greece

Start : 2013-10-07 - End : 2013-10-11
The aim of the workshop is to review the "state of the art" theories about generation and propagation of Solar radio burst and discuss the observational constrains and results that have been provided in this area by the WIND & STEREO missions during the last 20 years. Furthermore the STEREO & WIND observations will be put in the context of other missions such as RHESSI and ground based observatories. Finally, the preparation for the future explorations foreseen with Solar Orbiter and Solar Probe Plus will be discussed.
Website:
http://type3stereo.sciencesconf.org/

2nd Asian-Pacific Solar Physics Meeting, in Hangzhou, China

Start : 2013-10-24 - End : 2013-10-26
Initiated by Profs. Fang and Choudhury, the first Asian-Pacific Solar Physics Meeting (APSPM) was held in Bangalore two years ago. During the meeting, a consensus was achieved that it might be a good idea to have the APSPM every three years. Somehow the second APSPM was proposed to be held by mainland China in 2013. APSPM is aimed to exchange the recent research results in solar physics in the emerging asian-pacific region.
Asian-pacific regions are getting more and more active in solar physics, as signified by the construction of big facilities, including the Hinode satellite (Japan), SOXS (India), Chinese Solar Radio Heliogragh, and Optical & Near-Infrared Solar Eruption Tracer (ONSET). Therefore, colleagues have agreed to hold regional solar physics meetings regularly. The first Asian-Pacific Solar Physics Meeting (APSPM) was held in Bangalore during March 22-24 2011. During the meeting, a consensus was achieved that it might be a good idea to have the APSPM every three years. Somehow the second APSPM was proposed to be held by mainland China in 2013. APSPM is aimed to exchange the recent research results in solar physics in the emerging asian-pacific region.
Website:
http://sdac.nju.edu.cn/~solar/

Helicity Thinkshop on Solar Physics in Beijing, China

Start : 2013-10-27 - End : 2013-10-31
Magnetic helicity has been intensively studied from observational, theoretical, and many other aspects of solar physics. For this meeting we would like to invite solar physicists who are interested in the observational and theoretical studies of the helicity, to encourage thorough discussions on the relevant hot issues. The 1st Helicity Thinkshop was held successfully in 2009, and now the 2nd one will be held on October 27-31, 2013 in Beijing, China.
Website:
http://sun.bao.ac.cn/meetings/HT2013/

25th Winter School of Astrophysics: Cosmic Magnetic Fields, in La Laguna, Tenerife, Spain.

Start : 2013-11-11 - End : 2013-11-22
Magnetic fields play an important role in many astrophysical processes. But magnetic are difficult to detect and to model or understand, since the fundamental equations describing the behavior of magnetized plasmas are highly non-linear. Hence, magnetic fields are often an inconvenient subject which is overlooked or simply neglected. Such difficulty burdens the research on magnetic fields, which has evolved to become a very technical subject, with many small disconnected communities studying specific aspects and details.
The school tries to amend the situation by providing a unifying view of the subject. The students would have a chance to understand the behavior of magnetic fields in all astrophysical contexts, from cosmology to the Sun. From star-bursting regions to AGNs in galaxies. The school will present a

balanced yet complete review of our knowledge. Extensions into the unknown are also important to indicate present and future lines of research.
The Winter School will bring together in a relaxed working atmosphere a number of the leading scientists in this field, PhD students and recent postdocs. The conditions for a successful interaction will be granted, including two special sessions for those students that want to present their own work.
Website:
http://www.iac.es/winterschool/2013/

7th Hinode science meeting in Takayama, Japan

Start : 2013-11-12 - End : 2013-11-15
Since its launch in Sep-2006, more than 600 refereed papers have been published based on Hinode observations, presenting many new and important findings to the scientific community. However, due to the unexpectedly low levels of solar activity, until now the focus has mainly been on the more quiescent aspects of the solar cycle. With the solar maximum expected this year, through cooperative observations with SDO, IRIS, and ground based observatories, Hinode observations should lead to our understanding of active Sun phenomena, such as solar flares and CMEs, to be greatly improved. Making Hinode-7 an excellent opportunity to discuss solar activity in the current solar cycle and the related science through the use Hinode data, as well as other solar/space weather data. It will also be interesting to use this meeting to broaden our focus to include the solar-stellar connection as a means to deepen our understanding of solar activity.
Momentum is also gaining for Solar-C, which is being developed as an international collaboration between Japan, US and Europe. To further discuss this mission, the Solar-C science meeting will be held on 11-Nov.
Website:
http://www.kwasan.kyoto-u.ac.jp/hinode-7/

International CAWSES-II Symposium in Nagoya, Japan

Start : 2013-11-18 - End : 2013-11-22
This International CAWSES-II Symposium hosted by SCOSTEP (Scientific Committee on Solar-Terrestrial Physics) will provide an excellent opportunity to discuss the scientific accomplishments of CAWSES-II and look forward to SCOSTEP's future programs at a moment toward the end of its five-year period. The symposium will cover the six major themes of CAWSES-II tasks: 1) What are the solar influences on the Earth's climate?, 2) How will geospace respond to an altered climate?, 3) How does short-term solar variability affect the geospace environment?, 4) What is the geospace response to variable inputs from the lower atmosphere?, 5) Capacity Building, 6) Informatics and eScience. The main functions of CAWSES-II are to help coordinate international activities in observations, modeling, and applications crucial to achieving this understanding, to involve scientists in both developed and developing countries, and to provide educational opportunities for students of all levels. The symposium offers keynotes/lectures that will be interesting for all participants every morning and more specific sessions of presentations in the afternoon. We welcome all those who are involved and/or interested in CAWSES-II to Nagoya in the autumn when we will have the pleasure of being surrounded by beautiful colorful leaves of this season.
Website:
http://www.cawses.org/CAWSES/leaflet_CAWSES-II_120229.pdf

European Space Weather Week in Belgium

Start : 2013-11-18 - End : 2013-11-22
The 10th Edition of the European Space Weather Week will take place on 18-22nd November 2013 in Belgium. The venue will be confirmed early next year, but mark your calendars now for the 10th Anniversary of this growing European event.
The ESWW will again adopt the central aim of bringing together the diverse groups in Europe working on different aspects of Space Weather . This includes but isn't limited to the scientific community, the engineering community, applications developers, service providers and service end users. The meeting

organisation will again be coordinated by the Belgian Solar-Terrestrial Centre of Excellence (STCE), ESA and the Space Weather Working Team. The local organisation will be done by the STCE.
Website:
http://www.stce.be/esww10/

40th COSPAR Scientific Assembly in Moscow, Russia

Start : 2014-08-02 - End : 2014-08-10
The 40th COSPAR Scientific Assembly will be held in Moscow, Russia from 2 - 10 August 2014. This Assembly is open to all bona fide scientists.
Website:
http://www.cospar-assembly.org/