STCE Newsletter

22 Oct 2012 - 28 Oct 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. Press release: the 9th European Space Weather Week (22 Oct 2012 - 28 Oct 2012)

Because of the 9th European Space Weather Week, the STCE has sent the attached message to the press.
Naar aanleiding van de 9de European Space Weather Week heeft het STCE bijgevoegd bericht naar de pers verstuurd.
Suite à la Semaine européenne de météorologie spatiale , le STCE a envoyé le note ci-joint à la presse.

Website and Twitter

www.stce.be/esww9, November 5 – 9, 2012, Brussels
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The European Space Weather Week, ESWW is THE annual event for researchers, users and others interested in Space Weather. The conference brings everybody concerned in contact with all possible aspect of space weather: from fundamental research to practical applications, from researcher to user. 300 participants worldwide chair their expertise and ideas. The conference is followed by politics, ESA, NASA and the public opinion.

Belgium and Europe, do attach importance to space weather. Our high technological society becomes even more vulnerable for the effects of space weather. Belgium provides one of the highest funds for the space weahter program of ESA.

Ronald Van der Linden, director of the Royal Observatory of Belgium and coordinator of the STCE is looking forward to the conference: “The ESWW guarantees a perfect and inspiring cocktail of science, products, information, formal and informal contacts. I’m proud on the fact that the STCE has a key role in the organisation and the success of this conference. It put Belgium on the space weather world map.”

Besides the actual conference and the focused workgroups, the ESWW offers a tutorial ‘Tour of Space’, a debate about space debris, the keynote lecture by Susan Jocelyn Bell Burnell, ... a juiced conference!

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De European Space Weather Week (ESWW) is de jaarlijkse hoogmis voor onderzoekers, gebruikers en geïnteresseerden in ruimteweer. De conferentie brengt alle partijen betrokken bij het ruimteweer in contact metalle mogelijke aspecten ervan: van puur onderzoek tot praktische toepassingen, van wetenschapper tot gebruiker. Onder het toeziend oog van de politiek, ESA, NASA en de publieke opinie, wisselen 300 deelnemers van over de hele wereld hun expertise en ideeën uit.

België en Europa hechten zeer veel belang aan ruimteweer, omdat onze snel evoluerende hoogtechnologische maatschappij steeds kwetsbaarder wordt voor de effecten ervan. België is dan ook één van de belangrijkste geldschieters van het ruimteweerprogramma van ESA.

Ronald Van der Linden, directeur van de Koninklijke Sterrenwacht van België en coördinator van het STCE, kijkt enorm uit naar de European Space Weather Week: “De ESWW staat garant voor een perfecte en inspirerende cocktail van wetenschap, produkten, informatie, informele en formele contacten.Ik ben dan ook fier op het feit dat het STCE een sleutelrol vervult in de organisatie en het succes van deze conferentie. Het heeft België verankerd op de ruimteweerkaart.”

Naast de eigenlijke conferentie en de specifieke werkgroepen voorziet het programma een tutorial ‘Tour of Space’, een debat over ruimteafval, een ‘keynote lecture’ door Susan Jocelyn Bell Burnell, ... Er valt dus zeer veel te beleven!

Le Solar-Terrestrial Centre of Excellence (STCE) organise une conférence de stature mondiale sur la météorologie spatiale.

L’ European Space Weather Week (ESWW) est la grand-messe annuelle pour tous les scientifiques, les utilisateurs et les personnes intéressés par la météorologie spatiale. La conférence met en contact tous les acteurs et les différentes facettes de la la météorologie spatiale: du scientifique à l’utilisateur, de la recherche pure aux applications pratiques. Sous le regard du monde politique, de l’opinion publique et de l’ESA et de la NASA, 300 intervenants du monde entier sont attendus pour débattre et échanger leurs idées.

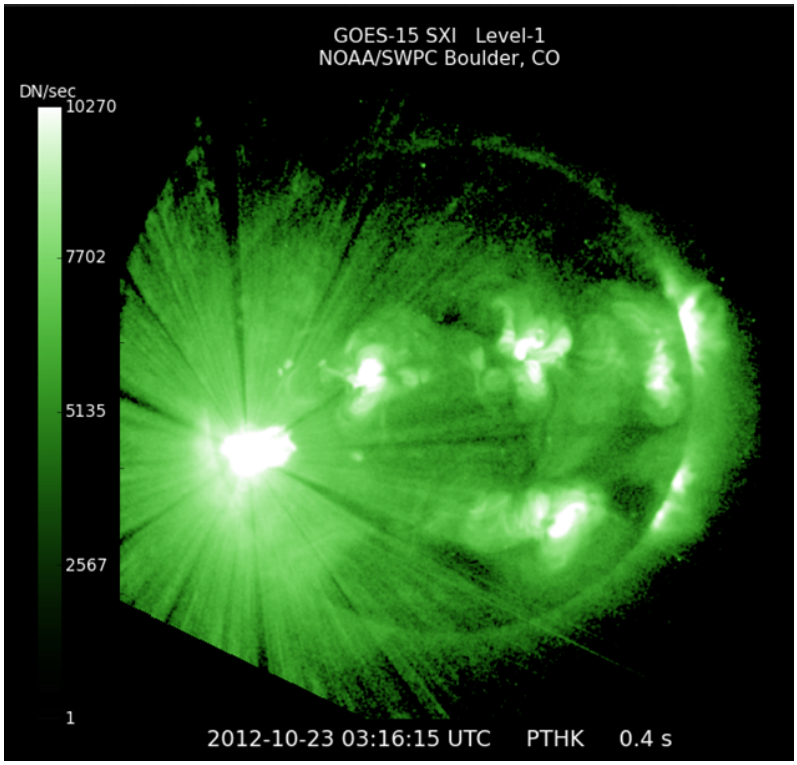
La Belgique et l’Europe attachent beaucoup d’importance à la météorologie spatiale, parce que notre société de haute technologie est de plus en plus vulnérable à ses effets. Ainsi, la Belgique est l’un des plus importants contributeurs financiers au programme de météorologie spatiale de l’ESA.

Ronald Van der Linden, directeur de l’Observatoire royal de Belgique et coordinateur du STCE, attend l’ European Space Weather Week avec impatience: « L’ESWW garantit un cocktail parfait de science, d’information, de produits, et de contacts formels et informels. Je suis fier que le STCE remplisse un rôle clé dans l’organisation et le succès de cette conférence. Cet événement annuel a ancré la Belgique sur la carte mondiale de la météorologie spatiale. »

En plus de la conférence et des groupes de travail spécifiques, le programme prévoit un tutoriel « Tour of Space », un débat sur les débris spatiaux, et un exposé inaugural par Susan Jocelyn Bell Burnell,... Cela ne manquera pas d’animation!

2. 15 X-flares for SC24 (22 Oct 2012 - 28 Oct 2012)

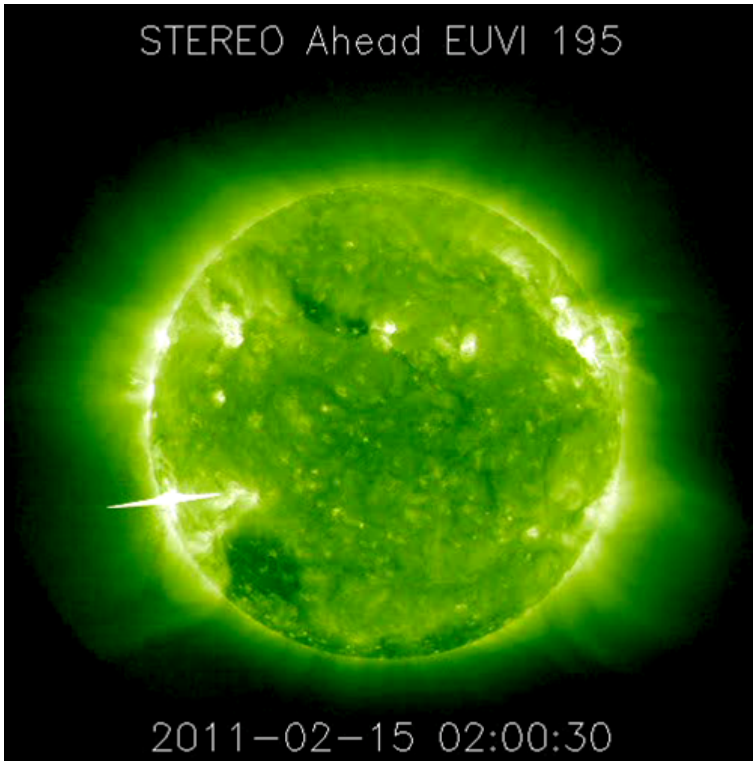
On October 23, active region NOAA1598 produced the 15th X-class flare of the current solar cycle (SC). The X1.8 was of short duration, lasting only 8 minutes. It did not produce an energetic particle event (proton event), and there was no obvious indication of an ejected plasma cloud.



So far this solar cycle, GOES-data (http://www.swpc.noaa.gov/today.html) indicate there have been only 15 flares of the eXtreme class (X-type). Table underneath provides an overview of these flares, with a few characteristics such as in which sunspot group the flare took place, on which hemisphere, if there was a proton event associated with it, and if there was any geomagnetic effect from the ejected plasma cloud (See the NOAA data page at http://www.swpc.noaa.gov/Data/index.html for additional explanations). As one can see from this list, their influence has varied widely: from no impact at all, to a strong particle radiation event followed by severe geomagnetic storming. The difference in effects from these flares has various causes, such as the position of the source region on the solar disk, the orientation of the magnetic field of the ejected plasma cloud,...

Number	Year	Month	Day	NOAA	Hem	Class	Proton	Kp
1	2011	8	9	11263	N	X 6.9	26	No
2	2012	3	7	11429	N	X 5.4	6530	7
3	2011	2	15	11158	S	X 2.2	Enhanced	5
4	2011	9	6	11283	N	X 2.1	Enhanced	7
5	2011	9	24	11302	N	X 1.9	In progress	8*
6	2011	11	3	11339	N	X 1.9	Enhanced	No
7	2011	9	7	11283	N	X 1.8	No	7
8	2012	10	23	11598	S	X 1.8	No	No
9	2012	1	27	11402	N	X 1.7	796	3
10	2011	3	9	11166	N	X 1.5	In progress	No
11	2012	7	12	11520	S	X 1.4	96	7
12	2011	9	22	11302	N	X 1.4	35	No
13	2012	3	7	11430	N	X 1.3	In progress	7*
14	2012	7	6	11515	S	X 1.1	25	5*
15	2012	3	5	11429	N	X 1.1	Enhanced	6

The minimum of SC23-24 was in December 2008 when you take the monthly smoothed sunspot number as a reference (http://www.sidc.be/sunspot-data/). Solar cycle 24 is now 46 months old. Compared to previous cycles, the harvest of X-flares has been very meager. Indeed, over the same period, SC21 and 22 produced more than 3 resp. 5 times as many X-class solar flares. Even the much less active SC23 had nearly twice as many flares. But all three solar cycles produced at least half of their strong flares after solar cycle maximum. This would mean that most of SC24's firework is still to come!



3. Review of solar activity (22 Oct 2012 - 28 Oct 2012)

Flares

NOAA Active Region 1598 produced an M5.0 flare on Oct 22, peaking at 18:51UT and an X1.8 flare on Oct 23, peaking at 03:17UT. There was no coronographic evidence for an associated plasma eruption. The proton fluxes did not increase.
Further nothing new under the Sun: only a few C-flares.

CME alerts

Cactus sent out two halo CME-alerts. The first one concerned a filament eruption on Oct 26, around 10:00UT in the South-East part of the solar disk. The CME was not Earth directed. The second one concerned an event of Oct 27. The CME came into the field of view of SOHO/LASCO at 16:00UT. SDO/AIA 192 shows a coronal dimming in the neighborhood from NOAA AR 1600. No flare was associated with the event. The estimateded speed of the CME was only 288 km/s. The CME was first accelerated as seen from STEREO/COR2 speed calculator tool at http://www.sidc.be/cactus.

4. Review of geomagnetic activity (22 Oct 2012 - 28 Oct 2012)

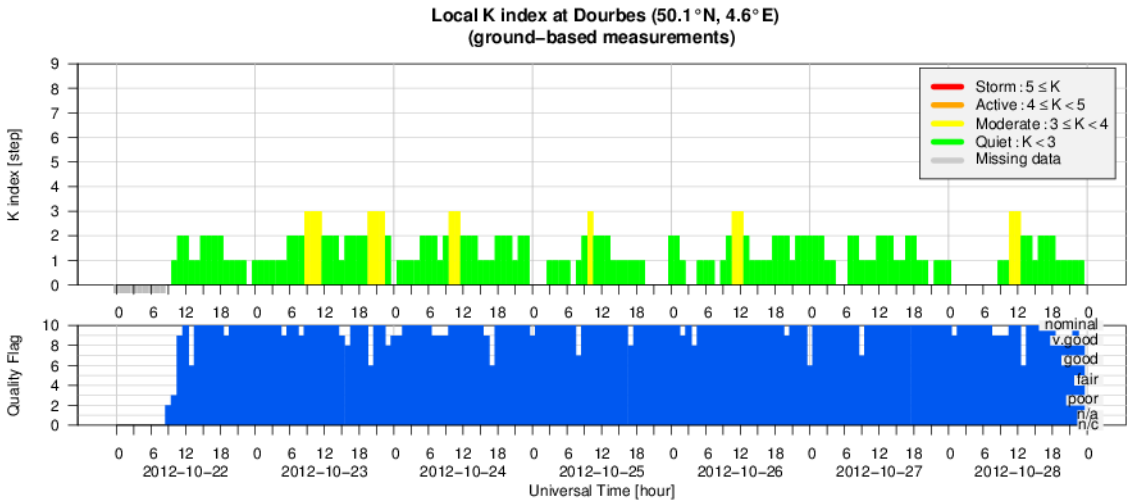
Geomagnetic conditions were quiet the whole week: the solar wind speed stayed well below 400 km/s and a total interplanetary magnetic field below 5nT. A coronal hole present in the northern hemisphere reached the central meridian on Oct 24. The solar wind emanating from this hole didn't reach the Earth.

5. Noticeable Solar Events (22 Oct 2012 - 28 Oct 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
22	1838	1851	1901	S12E61	M5.0	1F	0		2	1598	
23	0313	0317	0321	S13E58	X1.8		620	III/1 II/1	2	1598	

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 (22 Oct 2012 - 28 Oct 2012)



7. New documents in the European Space Weather Portal Repository

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

eHEROES - Propagation of CMEs in IP Space

The propagation behavior of coronal mass ejections (CMEs) in interplanetary (IP) space is mainly influenced by the ambient solar wind flow. The interaction of CMEs with the solar wind can be expressed as drag force and manifests itself to decelerate CMEs that are faster than the ambient solar wind, whereas slower ones are accelerated until the CME speed is finally adjusted to the solar wind speed. With the SECCHI instrument suite aboard STEREO, CMEs can be observed during their entire propagation way from Sun to 1AU. The derived kinematical profile and its changes may be interpreted as interaction with high speed solar wind streams as well as other coronal mass ejections.
http://www.spaceweather.eu/en/repository/show?id=296

eHEROES - CME-CME interaction event February 15, 2011

http://www.spaceweather.eu/en/repository/show?id=297

Solar Orbiter 5 Workshop - Session 3 - Part III: Influence Interplanetary Shock on Heliocentrical Radial Var. of Gradual SEP

Talk in the session Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=281

SWWT Topical Working Groups 2011 Annual Report

http://www.spaceweather.eu/en/repository/show?id=298

Solar Orbiter 5 Workshop - Poster S1: Synthetic SO/PHI data for Helioseismology

Poster for the Session 1: Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=299

Solar Orbiter 5 Workshop - Poster S1: SIGMA - a project of a new space mission to measure the magnetic field in the solar corona

Poster for the Session 1: Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=300

Solar Orbiter 5 Workshop - Poster S1: Software simulator for SO/PHI: SOPHISM

Poster for the Session 1: Solar Magnetism and the Solar Cycle
http://www.spaceweather.eu/en/repository/show?id=301

Solar Orbiter 5 Workshop - Poster S2: SPICE EUV Spectrometer for the Solar Orbiter

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=302

Solar Orbiter 5 Workshop - Poster S2: Comparison between UV Observations and Numerical Modeling of Quiescent Streamers

http://www.spaceweather.eu/en/repository/show?id=303

Solar Orbiter 5 Workshop - Poster S2: What variability of the solar irradiance would Solar Orbiter observe?

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=304

Solar Orbiter 5 Workshop - Poster S2: Case study of frequency cut-off related to solar interplanetary Type III bursts

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=305

Solar Orbiter 5 Workshop - Poster S2: H and He lines emitted by cool coronal loops and prominences

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=306

Solar Orbiter 5 Workshop - Poster S2: Proton energetics in the solar wind: Helios reloaded

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=307

Solar Orbiter 5 Workshop - Poster S2: Solar wind manifestations in the variations of Jovian auroral emissions

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=308

Solar Orbiter 5 Workshop - Poster S2: Properties of Coronal Helium: Results from the HECOR Coronagraph onboard Herschel

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere
http://www.spaceweather.eu/en/repository/show?id=309

Solar Orbiter 5 Workshop - Poster S2: Coronal He: Probing capabilities of METIS Coronal Spectrograph

Poster for the Session 2: Processes of slow/steady energy release in the solar atmosphere

http://www.spaceweather.eu/en/repository/show?id=310

Solar Orbiter 5 Workshop - Poster S3: Broad angular spread of energetic particles during the November 3, 2011 SEP event

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=311

Solar Orbiter 5 Workshop - Poster S3: SoFAST: Automated Flare Detection with the PROBA2/SWAP EUV Imager

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=312

Solar Orbiter 5 Workshop - Poster S3: EPT/HET for Solar Orbiter

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=313

Solar Orbiter 5 Workshop - Poster S3: 3D reconstruction of a CME based on spectroscopic and coronagraphic data

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=314

Solar Orbiter 5 Workshop - Poster S3: Type III radio bursts and the X-ray connection

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=315

Solar Orbiter 5 Workshop - Poster S3: Estimating flare acceleration region characteristics from simultaneous X-ray and Radio obs

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=316

Solar Orbiter 5 Workshop - Poster S3: Suprathermal electron production during magnetic reconnection in situ observations

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=317

Solar Orbiter 5 Workshop - Poster S3: Electron acceleration during a failed eruption of a filament

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=318

Solar Orbiter 5 Workshop - Poster S3: Alternating twist in an erupting prominence

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=319

Solar Orbiter 5 Workshop - Poster S3: Spatially resolved polarization of hard X-rays from solar flares

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=320

Solar Orbiter 5 Workshop - Poster S3: The SWA-EAS electron spectrometer

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=321

Solar Orbiter 5 Workshop - Poster S3: Measurements of the magnetic drag force acting on small scale plasma blobs

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=322

Solar Orbiter 5 Workshop - Poster S3: The suprathermal ion spectrograph for the solar orbiter spacecraft

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=323

Solar Orbiter 5 Workshop - Poster S3: Wave amplitudes in the solar wind at 1AU - Implcations for energetic particle transport

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=324

Solar Orbiter 5 Workshop - Poster S3: Multi-spacecraft analysis and modeling of a solar eruption on August 14, 2010

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=325

Solar Orbiter 5 Workshop - Poster S3: The source regions of SEP events detected by widely spaced spacecraft

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=326

Solar Orbiter 5 Workshop - Poster S3: Solar energetic particle 3He-rich events observed by Stereo-A

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere

http://www.spaceweather.eu/en/repository/show?id=327

Solar Orbiter 5 Workshop - Poster S3: The origins and heliospheric evolution of CMEs on 7 and 14 August 2010 from same source

Poster for the Session 3: Eruptive processes in the solar atmosphere and their manifestations in the heliosphere
http://www.spaceweather.eu/en/repository/show?id=328

Solar Orbiter 5 Workshop - Poster S4: Predicted SPICE spectra of representative solar features

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=329

Solar Orbiter 5 Workshop - Poster S4: The CDPP in the Solar Orbiter era: data dissemination, analysis software, connection MEDOC

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=330

Solar Orbiter 5 Workshop - Poster S4: Instrument Control Unit for EPD

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=331

Solar Orbiter 5 Workshop - Poster S4: Langmuir waves in the heliosphere - Solar Orbiter RPW-TDS instrument

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=332

Solar Orbiter 5 Workshop - Poster S4: Quenching in BGO scintillating crystal of the Solar Orbiter High-Energy Telescope

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=333

Solar Orbiter 5 Workshop - Poster S4: Compatibilityof AC and DC magnetic field measurements in preparation for SO and SP+: LL

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=334

Solar Orbiter 5 Workshop - Poster S4: Solar physics data analysis using SunPy: A walk through eCallisto dynamic radio spectra

Poster for the Session 4: Data assimilation, visualization and analysis
http://www.spaceweather.eu/en/repository/show?id=335

ESWW8 - Advances in GIC Research and Effects Mitigation: A Report from a Workshop at European Space Weather Week 2011

A one-day session and workshop was held on the subject of Geomagnetically Induced Currents (GIC) in electrical power networks at the 8th European Space Weather Week, in Namur, Belgium, on 30th November 2011. We describe the questions that were posed at the workshop and summarise the outcomes of the discussions. Among the conclusions reached were the need for improved Sun to Earth numerical models and the need for continued national and international support for space weather monitoring missions and ground networks of instruments. It was also concluded that there was much scope for improved national and international responses to space weather warnings and the need for collaboration between scientists, industry and governments to achieve this. 1.

http://www.spaceweather.eu/en/repository/show?id=336

8. Future Events

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

Solar ALMA workshop in Glasgow (UK)

Start : 2013-01-14 - End : 2013-01-17
The Atacama Large Millimeter/submillimeter Array (ALMA), an international partnership of Europe, North America and East Asia in cooperation with the Republic of Chile, is the largest astronomical project in existence.
The workshop aims to bring together the ALMA-minded solar community to discuss solar observational issues with ALMA, solar science and planned observations with ALMA, and the planning of solar ALMA observations.
Th workshop is hosted by Astronomy & Astrophysics Group, and will take place in School of Physics and Astronomy, University of Glasgow, Room 323, Kelvin Building.
Website:
http://www.astro.gla.ac.uk/~eduard/solarALMA/

Understanding the Dynamics of the Sun using Helioseismology and MHD Simulations in NASA Ames Research Center, CA (USA)

Start : 2013-02-04 - End : 2013-02-08
Helioseismology provides tools for imaging structures and mass flows below the solar surface, and is becoming an essential technique for understanding the dynamics of solar activities and developing physics-based forecasts of the solar cycle, emerging active regions and energy release events. A better understanding is needed to unravel the effects of the complex interactions of solar oscillations with the turbulent magnetized plasma on global and local helioseismology diagnostics. These effects are particularly challenging in regions of strong magnetic fields. Numerical simulations of solar MHD waves and turbulent dynamics give important insights into the complicated wave and turbulence physics, and provide synthetic data for verification and validation of helioseismology methods and results.
The goals of this workshop are to discuss and stimulate further development of helioseismology methods, solar interior models, and realistic numerical simulations. These goals are particularly important for analysis of the continuous data flow from the Solar Dynamics Observatory, development and verification of helioseismology methods, and for theoretical interpretation of observations and inversion results.
Website:
http://sun.stanford.edu/LWS2013/

Causes and Consequences of the Extended Solar Minimum Between Solar Cycles 23 and 24 (4CESM) in Key Largo, FL (USA)

Start : 2013-04-08 - End : 2013-04-12
The most recent solar minimum, solar cycle 23-24 minimum, was unusually long (266 spotless days in 2008, the most since 1913), and the magnetic field at the solar poles was approximately 40% weaker than the last cycle; and unusually complex (the solar wind was characterized by a warped heliospheric current sheet, HCS, and fast-wind streams at low latitudes: the fast-wind threads the ecliptic more commonly in 2008 than 1996.) This complexity resulted in many effects observed from Sun to Earth, with many observations indicating unusual conditions on the Sun, in the heliosphere , and in the magnetosphere , ionosphere , and upper atmosphere of the Earth.
This remarkable set of conditions provide the scientific community with an exceptional opportunity to assess the nature and structure of a very quiet Sun, and an upper atmosphere relatively devoid of solar influences, helping to provide a better understanding of the relative roles of solar activity and internal variability in the dynamics of the Earth's upper atmosphere and ionosphere . Such an understanding requires a multidisciplinary approach.

The main goal of the conference is to bring together the solar, heliospheric, magnetospheric, upper atmosphere, and ionospheric communities to debate and discuss interdisciplinary work and reach a better understanding of the nature and structure of a very quiet Sun, and of an upper atmosphere relatively devoid of solar influences, and in doing so, to help clarify the role of solar activity in the dynamics and variability of the Earth's upper atmosphere and ionosphere relative to the internal variations.
Website:
http://chapman.agu.org/solarminimum/

NSO Workshop #27: 50 Years of the Seismology of the Sun and Stars in Sunspot, NM (USA)

Start : 2013-05-06 - End : 2013-05-10
In the last 50 years, helioseismology has made significant contributions to the knowledge of the Sun's interior physics and has led the way to asteroseismology. We have now reached an era where more sophisticated questions are being asked to understand the subtle properties of the Sun and other stars due to the synoptic and high-resolution observations available from BISON, GONG and space missions such as SOHO , SDO, CoRot and Kepler.
On this occasion, a workshop on the theme of '50 years of the seismology of the Sun and stars' is being organized to reflect the progress that has been made as well as to focus on future goals. We plan to bring together helio- and asteroseismologists, theorists and observers in a journey that will take us from the interior of the Sun and its magnetism towards the structure of distant stars and activity cycles.
Website:
http://www.nso.edu/workshops/2013

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/

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/