STCE Newsletter

2 Jul 2012 - 8 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.

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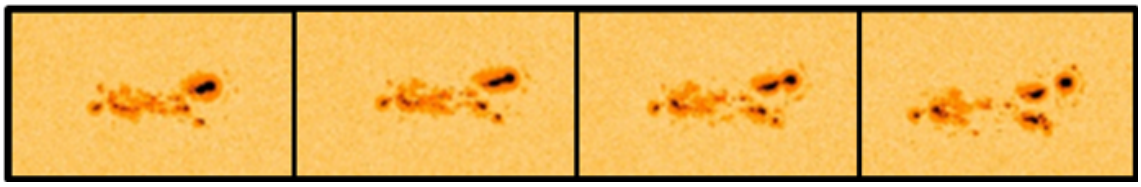
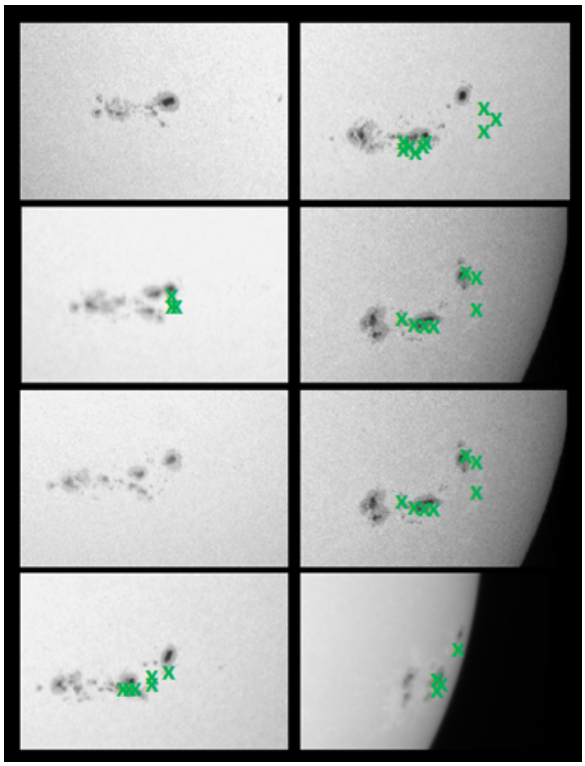
1. NOAA 1515 takes the center stage

NOAA 1515 appeared at the southeastern solar limb on June 27th. With a maximum sunspot area of only about 5 times the total surface of the Earth, it certainly did not become the biggest sunspot group so far this solar cycle.

Nonetheless, the group was quite complex and showed interesting dynamics. For example, the images underneath taken by SDO/HMI (http://sdo.gsfc.nasa.gov/) on 1 and 2 July show the splitting of the main spot in less than 24 hours! Cytokinesis of solar proportions!



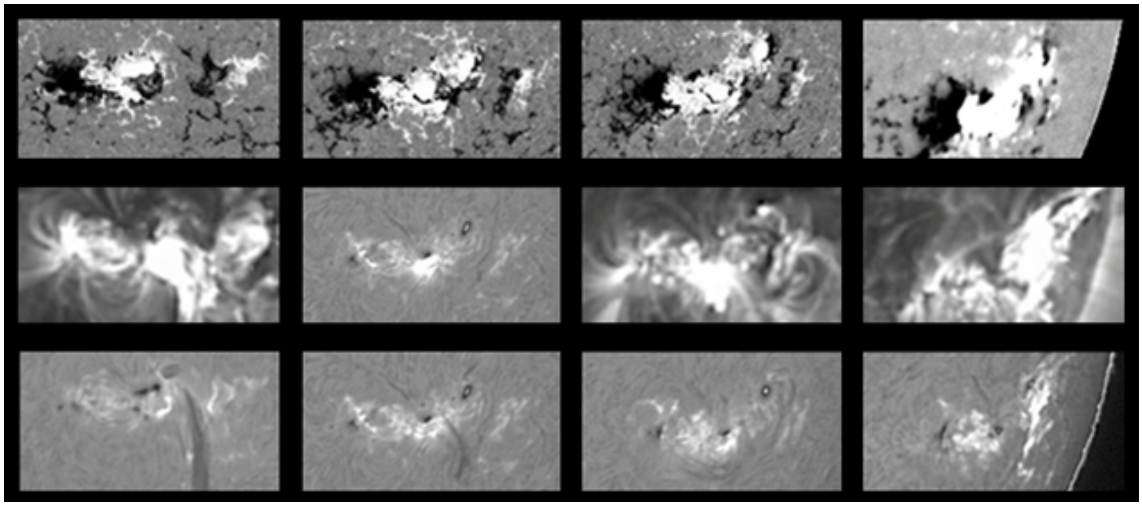
Over the next two days, the split-off sunspot moved towards and into the middle portion of the sunspot group. Crashing into these sunspots, this inevitably resulted in numerous medium class solar flares. The daily sunspot images underneath were taken on 1-8 July by the Uccle Equatorial Table (USET - http://www.sidc.oma.be/uset/index.php) in white light. Superimposed on these images are the locations of the 30 M-flares (and 1 X-flare) that were produced by NOAA 1515. Clearly, one can see two regions of flare activity. The first one is to the west and south of the main spot. This region was active during most of the group's transit. The second flare-active region is in the middle portion and only became active after the split-off sunspot bumped into the middle portion (4 July and later).



On July 5th, the Sun produced 10 M-flares: 9 from NOAA 1515, and 1 from NOAA 1519. Though this is quite a lot for one day, the figure pales compared to the record 16 M-flares that were produced on 11 July 1982. That's 2 medium flares every 3 hours!

Obviously, the week from 2 to 8 July 2012 was also very flare-active, with 34 M- and 1 X-flare. One has to go back to March 1991 to get comparable figures. Not surprisingly, the week record dates back from July 1982, when -according to NOAA statistics- from 8 to 14 July 65 M- and 3 X-flares were produced!

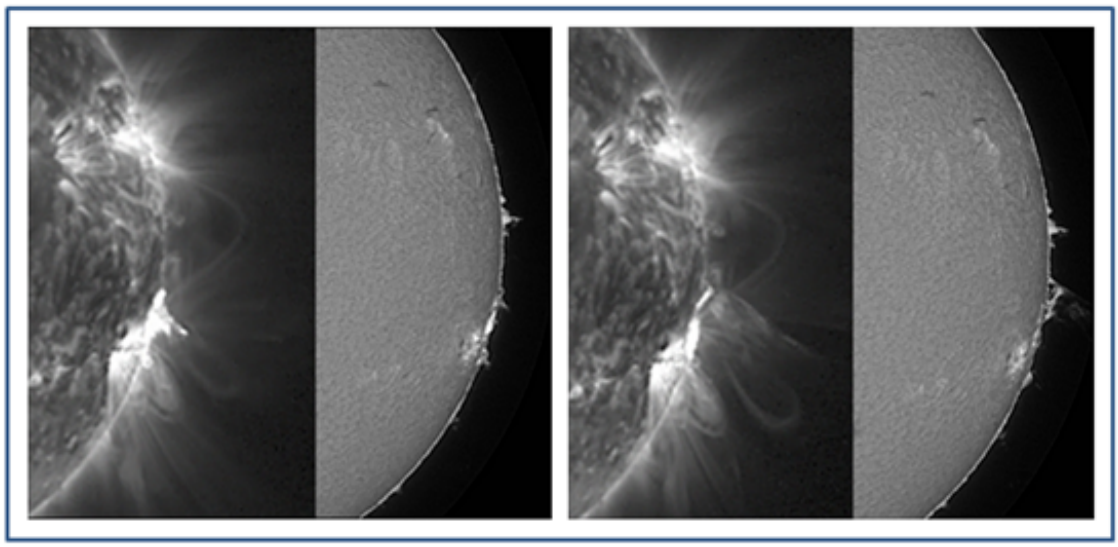
NOAA 1515 produced 5 high energetic flares (M5 or stronger) during its transit. Underneath images show 4 of these events: the M5.6 from 2 July, the M5.3 from 4 July, the M6.1 from 5 July, and the X1.1 from 6 July. For each event, the pre-flare magnetogram is shown (SDO/HMI and GONG), as well as the outlook during maximum flare intensity (PROBA2/SWAP and GONG), and in H-alpha 15 minutes after the flare's peak (GONG - http://halpha.nso.edu/). Event 1 and 4 took place near the group's main spot, while event 2 and 3 were located in the group's middle portion. The H-alpha images for the first 3 events also show dark ejected material over the solar disk. The fifth event, an M6.9 flare from 8 July, is discussed in a separate contribution.



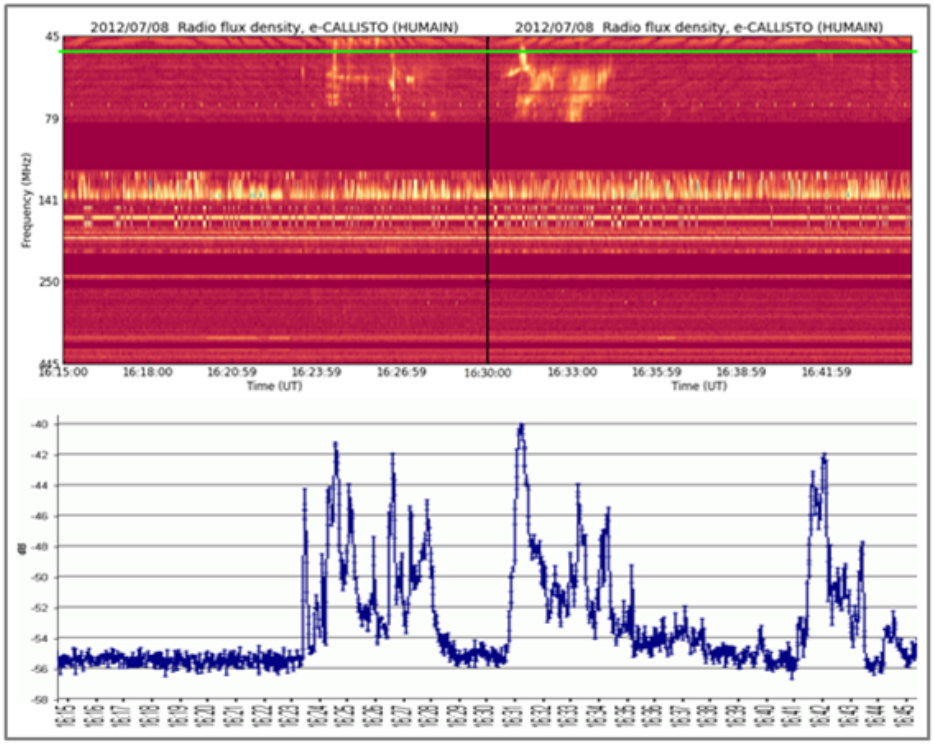
2. NOAA 1515: Some pictures of the M6.9 flare (8 July)

As noted in a previous comment, NOAA 1515 produced 5 high energetic events during its transit. The last of these events was an M6.9-flare on July 8th that occurred while NOAA 1515 was already close to the western solar limb.

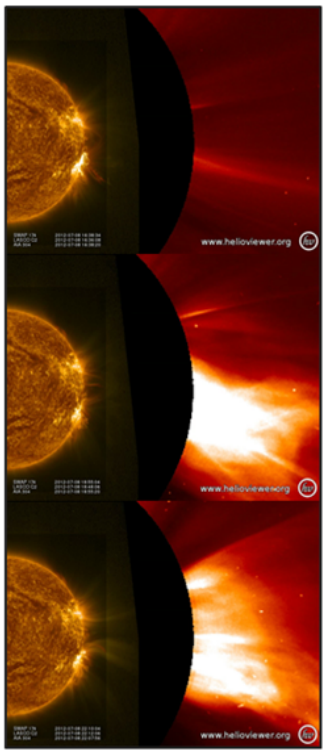
The flare started at 16:23UT and reached its maximum x-ray intensity at 16:32UT. The images underneath show the eruption as seen by PROBA2/SWAP (http://proba2.oma.be/) and in H-alpha (http://halpha.nso.edu/) during the flare's peak and at 16:54UT. One can clearly see that material is ejected from the blast site.



When the clouds of ejected particles are traveling through the Sun's hot atmosphere (the corona), radio wave disturbances are created that can be recorded with ground-based radio-telescopes. This is an observing branch to which both professional as non-professional observers contribute. The image underneath shows the radio spectrum from the Humain Radioastronomy Station (http://sidc.oma.be/humain/index.php) as it was recorded between 16:15 and 16:45UT. In a radiospectrum, the intensity of a series of frequencies (Humain: between 45 and 445 MHz) is quickly and continuously scanned for these disturbances.
Underneath the Humain recording is also a graph obtained by Felix Verbelen, leader of the Belgian Radioastronomy Section of the Vereniging Voor Sterrenkunde (http://www.vvs.be/werkgroepen/werkgroep-radioastronomie). Monitoring at only one frequency (49.9 MHz: the green line on the Humain's radiospectrum), this radio-telescope is a lot more sensitive than the one from Humain.
Nonetheless, both diagrams show the 3-stage-eruption very well: A type III radio-storm between 16:23 and 16:28UT, a type II storm between 16:30 and 16:36UT (at the peak of the solar flare), and a small disturbance around 16:42UT (barely visible in the Humain recording). It should be noted that the M6.9-flare occurred after the Humain station stopped tracking the Sun, and that at that time the antenna was put back at meridian (storage position).

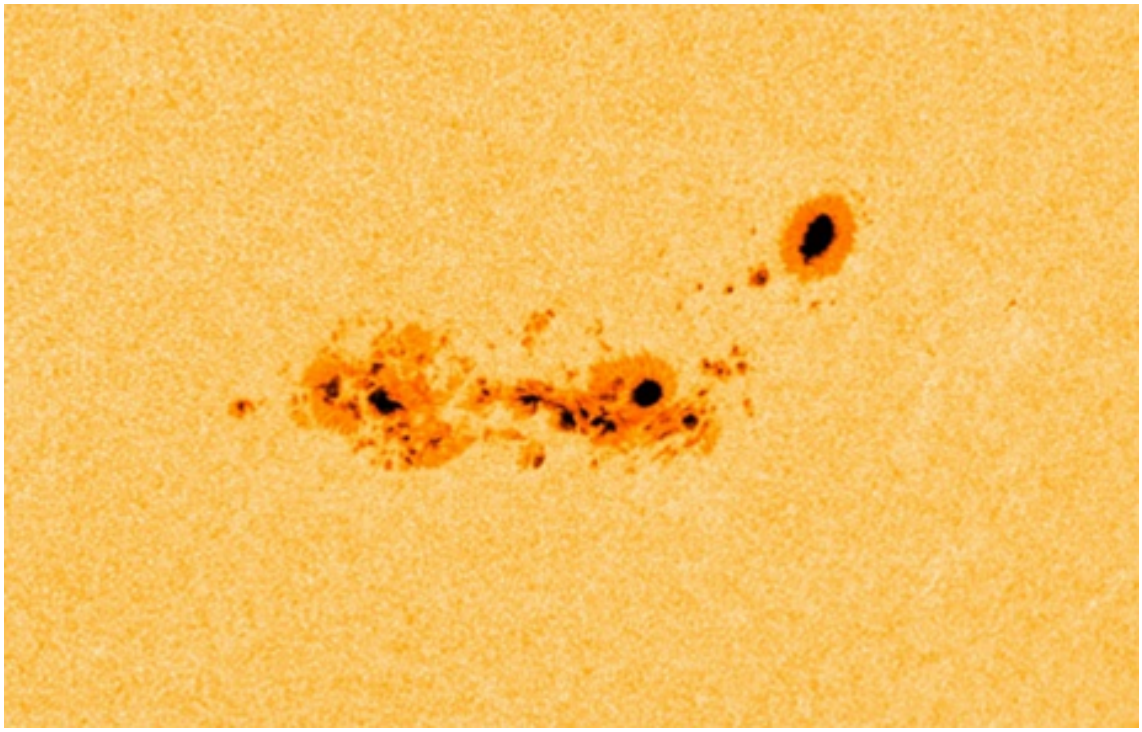


Finally, the PROBA2-team combined images from 3 satellites (PROBA2, SDO and SOHO: http://sohowww.nascom.nasa.gov/) into a movie showing the flare and the subsequent CME as it traveled through the Sun's corona. The movie can be seen at http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/2012_07_07_10_49_44_2012_07_09_10_22_20_SWAP_174__LASCO_C2__AIA_304-hq-1.mp4 Underneath are 3 stills from this clip. The first image shows the flare at 16:38UT, with material visibly leaving the solar surface. The second image was taken around 18:50UT, clearly showing how the solid CME from the flare is leaving the Sun. Interestingly, the third image taken around 22:10UT, shows that a second CME was hurled into space. The particle cloud originated from the eruption of the trans-equatorial coronal arch visible in the first two images. Amazingly, the arch would reshape itself a few hours later and remained visible for another two days!



3. Review of solar activity (2 Jul 2012 - 8 Jul 2012)

This week, the Sun's visible disk was dominated by a big and dynamic sunspot group: NOAA AR 1515. The image underneath was made by SDO/HMI and shows this region on July 5th.



Active flaring conditions were observed throughout the week. In total 34 M-flares (medium class) were observed, of which most (30 flares) originated in NOAA AR 1515 (Cat 99). NOAA AR 1513 (Cat 96) was the source region for 2 M-flares and both in NOAA AR 1519 (Cat 06) and NOAA AR 1520 (Cat 09-10) 1 M-flare occurred. The largest flare of the week, however, was an X1.1 flare (strongest class) occurring in NOAA AR 1515 (Cat 99) on July 6 with peak time 23:08 UT. STEREO-A/EUVI 195 and PROBA2/SWAP data showed an EUV wave associated to this event. A Coronal Mass Ejection (CME) mostly towards the southwest was seen in SOHO/LASCO images starting at 23:24 UT.

Many other CMEs have been observed during the past week. Most of them were associated with the high flaring activity in NOAA AR 1515 and were directed mostly towards the south. On July 4 an M1.8 flare peaked at 16:39 UT in NOAA AR 1513 which was associated with an earth-directed CME.

The X1.1 flare was associated with a minor proton event: the greater than 10 MeV proton flux exceeded the 10 pfu threshold at 04:00 UT on July 7 and decayed steadily during that day. The proton flux levels started to increase again on July 8th in response to a strong westward CME and crossed the event threshold once more early on July 9th.

4. Noticeable Solar Events (2 Jul 2012 - 8 Jul 2012)

DAY	BEGIN	MAX	END	LOC	XRAY	OP	10CM	TYPE	Cat	NOAA	NOTE
2	0026	0035	0040	S15E05	M1.1	1N	0	V/3 III/3	96	1513	
2	1043	1052	1057	S17E08	M5.6	2B	380	II/1	99	1515	
2	1959	2007	2013	S17W01	M3.8	2B	190	V/3	99	1515	
2	2349	2356	0003	S16W02	M2.0	SF	0	CTM/1 VI/1	99	1515	
4	0428	0437	0445	S17W18	M2.3	SN	150	III/3 IV/1	99	1515	
4	0947	0955	0957	S20W18	M5.3	2B	79		99	1515	

4	1207	1224	1232	S17W29	M2.3		78		99	1515	Location from Solar Monitor
4	1435	1440	1442	S18W18	M1.3	SN	0		99	1515	
4	1633	1639	1648	N14W34	M1.8	2N	200	III/3 V/2 II/1	96	1513	
4	2203	2209	2215	S16W24	M4.6		220	II/1 III/2	99	1515	Location from Solar Monitor
4	2347	2355	0002	S16W24	M1.2		0	IV/1	99	1515	Location from Solar Monitor
5	0105	0110	0115	S18W26	M2.4	3N	0		99	1515	
5	0235	0242	0247	S18W27	M2.2		0		99	1515	Location from Solarsoft
5	0325	0336	0339	S18W29	M4.7		0	III/1	99	1515	Location from solarsoft
5	0649	0658	0705	S18W39	M1.1	1F	0		99	1515	
5	0740	0745	0748	S18W30	M1.3		0		99	1519	
5	1044	1048	1050	S19W30	M1.8	SN	68		99	1515	
5	1139	1144	1149	S22E68	M6.1	SF	290		99	1515	
5	1305	1318	1332	S16W43	M1.2	2N	0		99	1515	
5	2009	2014	2028	S18W37	M1.6		150		99	1515	Location from SolarSoft
5	2137	2145	2151	S12W46	M1.6	1N	270	III/3	99	1515	
6	0137	0140	0142	S18W41	M2.9	SN	130		99	1515	
6	0244	0251	0258	S12W48	M1.0		0	III/1	99	1515	Location from SolarSoft
6	0817	0823	0827	S17W40	M1.5	SB	0		99	1515	
6	1024	1029	1032	S17W42	M1.8	1N	0		99	1515	
6	1326	1330	1332	S20W45	M1.2	SF	55	III/2	99	1515	
6	1848	1855	1905	S18W51	M1.3	SF	0		99	1515	
6	2301	2308	2314	S13W59	X1.1		520	V/3 III/2 II/3	99	1515	Location from SolarSoft
7	0310	0315	0323	S17W51	M1.2	SF	0		99	1515	
7	0818	0828	0839	S16E76	M1.0		0		09	1520	Location from Solarsoft
7	1057	1103	1107	S19W58	M2.6	SF	0		99	1515	
8	0541	0546	0552	S17W65	M1.3	SF	0			1515	
8	0944	0953	0957	S21W67	M1.1	1F	0	III/1		1515	
8	1206	1210	1213	S21W69	M1.4	1F	0			1515	
8	1623	1632	1642	S17W74	M6.9	1N	640	V/2 III/1 II/2		1515	

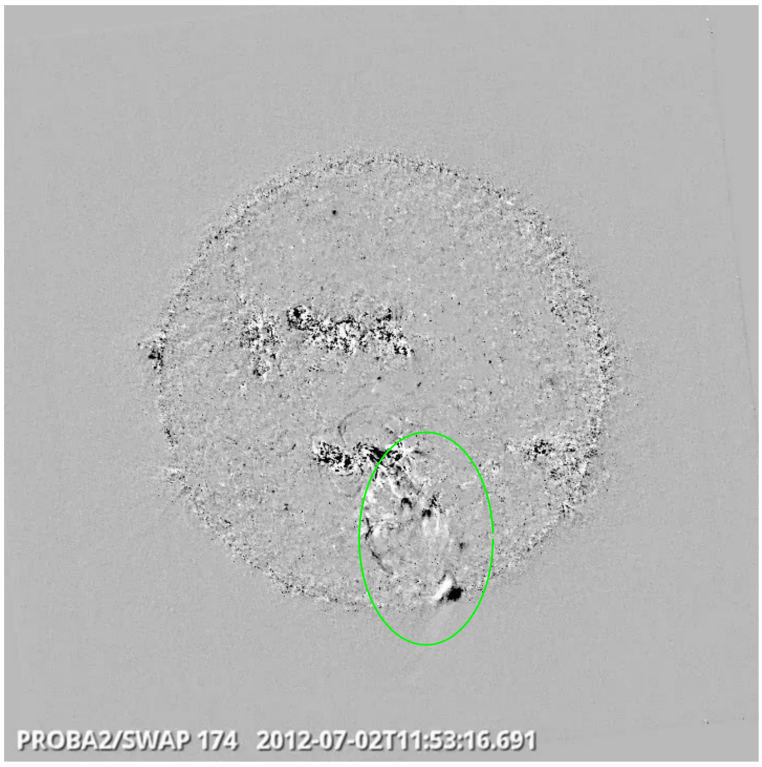
LOC: approximate heliographic location
XRAY: X-ray flare class
OP: optical flare class
10CM: peak 10 cm radio flux
TYPE: radio burst type
Cat: Catania sunspot group number
NOAA: NOAA active region number

5. PROBA2 Observations (2 Jul 2012 - 8 Jul 2012)

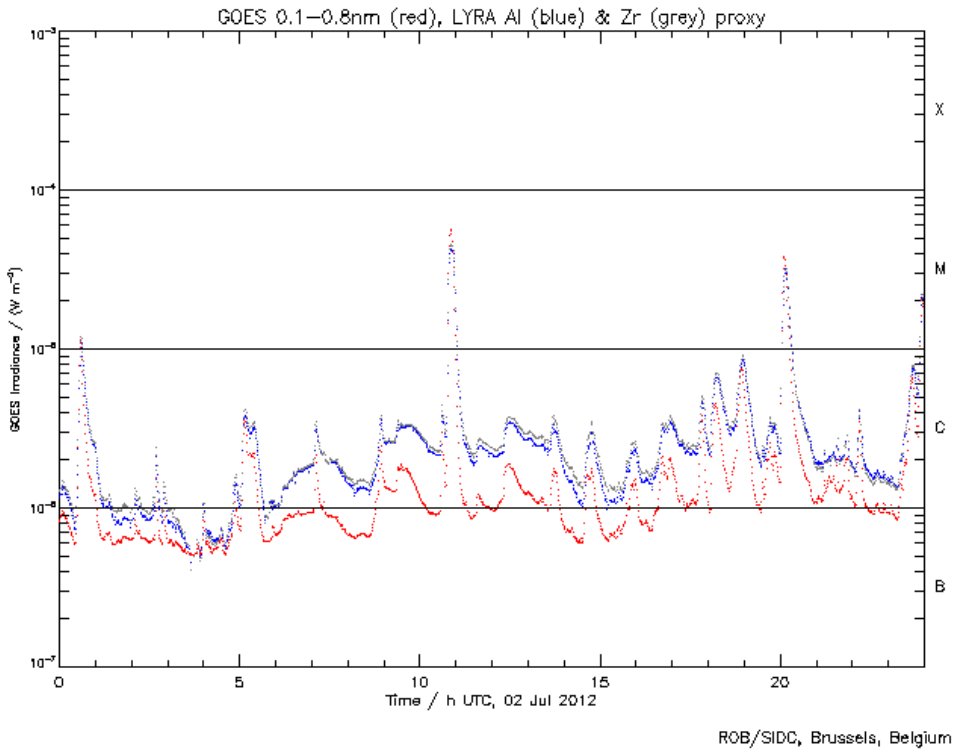
Solar Activity
This week, the Sun's activity level was mostly *Moderate*, on Tuesday being *low*, but at the verge of *moderate* (with a C9.9 flare) and on Friday being *high*, with an X1.1 flare.
In total, 34 M (and 1 X) -flares were recorded!
In order to view the activity of this week, we suggest to go to the following website from which all the daily (normal and difference) movies can be accessed: http://p2web.oma.be/ssa
This page also allows for accessing all the recorded flaring events.

Below are given a few examples of this week's solar activity:

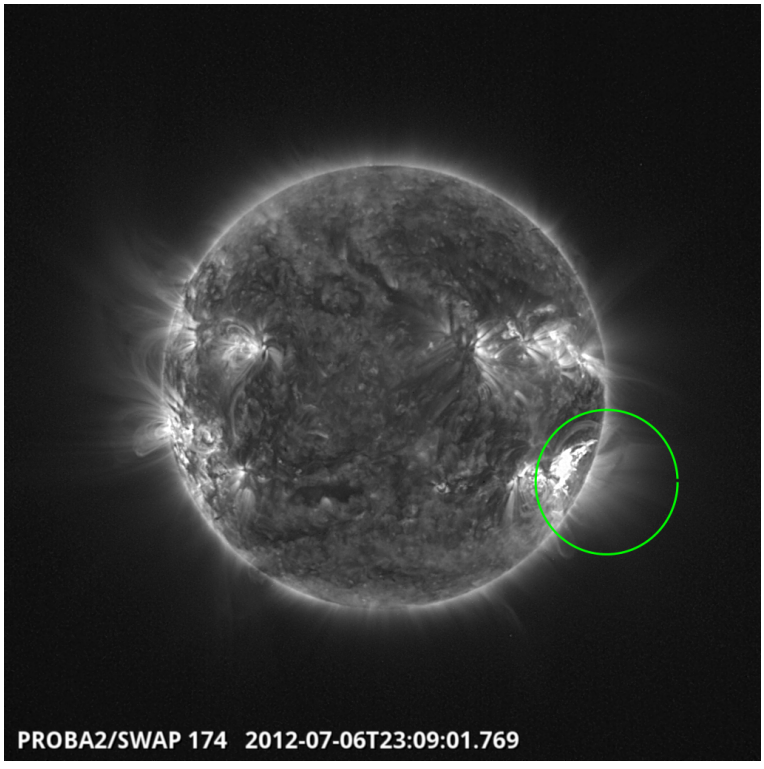
SWAP Difference Image - M5.6 flare on Monday 02/07; at 11:53



LYRA/GOES Curves - 4 M-flares on Monday 02/07

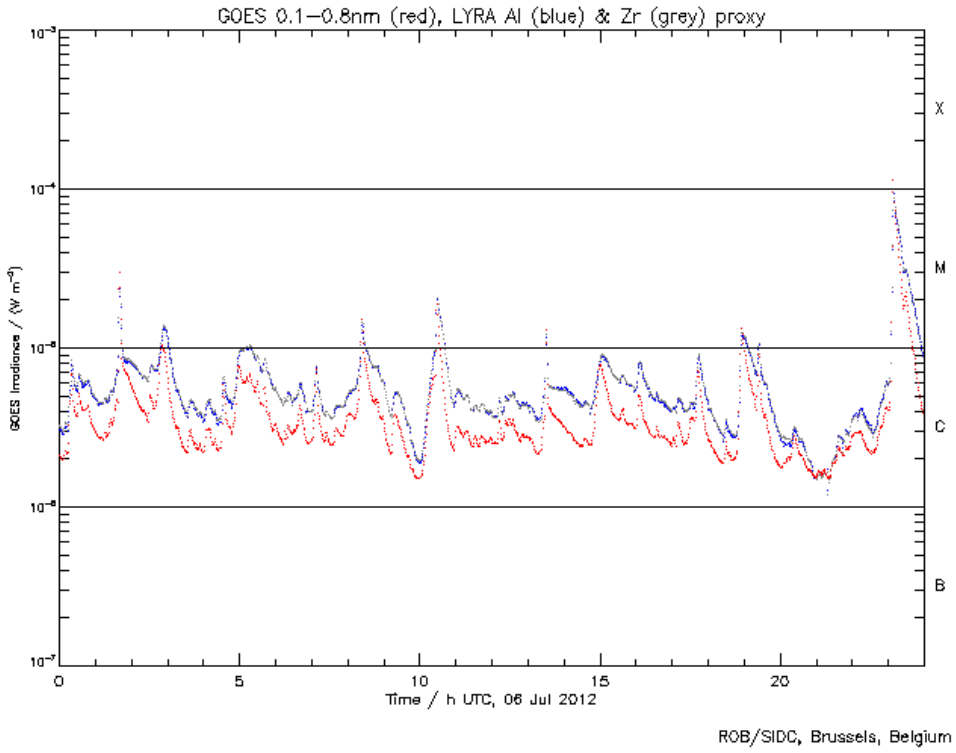


SWAP Image - X1.1 flare on Friday 06/07; at 23:06



A SWAP difference movie for this flare can be found http://proba2.oma.be/swap/data/mpg/movies/campaign_movies/20120706_SWAP_X11_DiffMov.mp4.
The shock wave can be seen to propagate over about 25% of the solar limb.

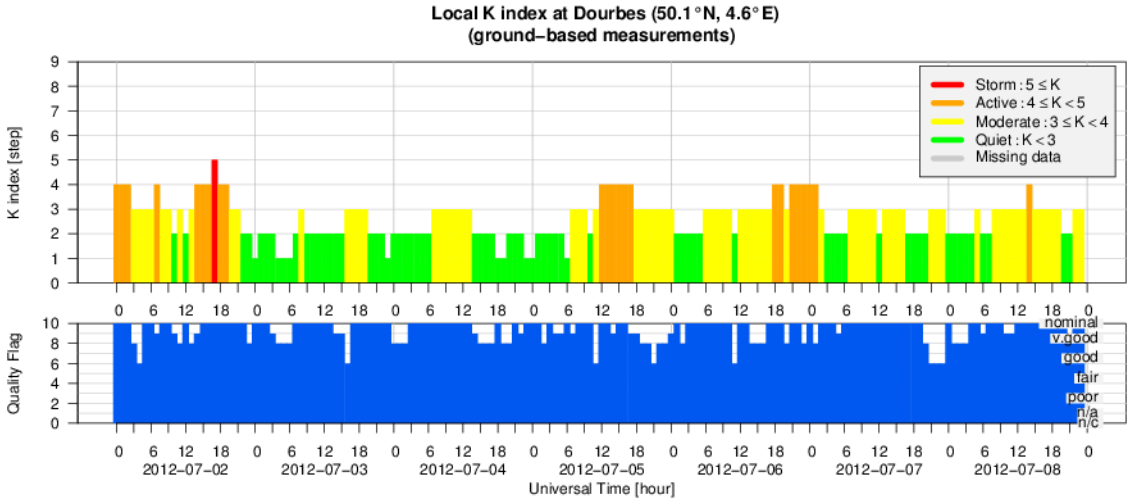
LYRA/GOES Curves - 7 M-flares and 1 X-flare on Friday 06/07



6. Review of geomagnetic activity (2 Jul 2012 - 8 Jul 2012)

In the beginning of the week, the solar wind was still dominated by a high speed wind stream from a large coronal hole. As a consequence, both local and interplanetary K-indices show moderate (K=3) to active (K=4) activity levels. As the effects of the coronal hole high speed wind stream subsided, geomagnetic conditions turned quiet (K max 3) in the following days. On July 5 and 6 some active periods (K=4) were observed in Dourbes, probably related to the numerous CMEs that were observed from region 1515 earlier in the week. The planetary Kp index went to minor storm level (Kp=5) during the last period of July 6, possibly related to the CME on July 4. On July 9th, Kp reached the minor storm level again as a consequence of a glancing blow from the CME associated to the X-flare on July 7.

7. Geomagnetic Observations at Dourbes (2 Jul 2012 - 8 Jul 2012)



8. New documents in the European Space Weather Portal Repository

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

STCE annual meeting 2012 - Highlights, opportunities and challenges

The 'Highlights, opportunities and challenges' presented during the STCE annual meeting 2012.
http://www.spaceweather.eu/en/repository/show?id=212

9. Future Events

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

39th COSPAR Scientific Assembly in Karnataka, India

Start : 2012-07-14 - End : 2012-07-22
The 39th COSPAR Scientific Assembly will be held at the Global Education Centre, 2 Infosys Training Centre Mysore, Karnataka India from 14 - 22 July 2012. This Assembly is open to all bona fide scientists.
Website:
http://www.cospar-assembly.org/

CISM Summer School in Boulder (USA)

Start : 2012-07-16 - End : 2012-07-27
The CISM Space Weather Summer School is a 2-week intensive program targeted to first-year graduate students but also attended by undergraduates and space weather professionals. The daily schedule includes morning lectures, followed by afternoon laboratory sessions where students further explore the day's topics using CISM model simulations, observational data, and sophisticated visualization tools. CISM is making the laboratory materials publicly available for use by others, for example to supplement lecture courses or for student independent study. The deadline for applications is May 1.
Website:
http://www.bu.edu/cism/SummerSchool/overview.html

IGS Workshop 2012 in Olsztyn, Poland

Start : 2012-07-23 - End : 2012-07-27
The Department of Astronomy and Geodynamics of the University of Warmia and Mazury (UWM) is hosting the 2012 IGS Workshop.
This workshop will be composed or plenary sessions with invited oral presentations, and afternoon sessions composed of poster sessions and IGS Working Group splinter meetings. For this workshop we are soliciting abstracts for the poster sessions.
The key dates for this workshop are as follows:
* Poster Abstract Submissions: March 25 - April 30, 2012.
* Registration: March 25- May 28, 2012.
* Hotel Reservations: March 25- May 28, 2012.
* Workshop: July 23 - July 27, 2012.
Website:
http://www.uwm.edu.pl/kaig/igs_workshop_2012/

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/

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/

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