STCE Newsletter

27 Apr 2015 - 3 May 2015

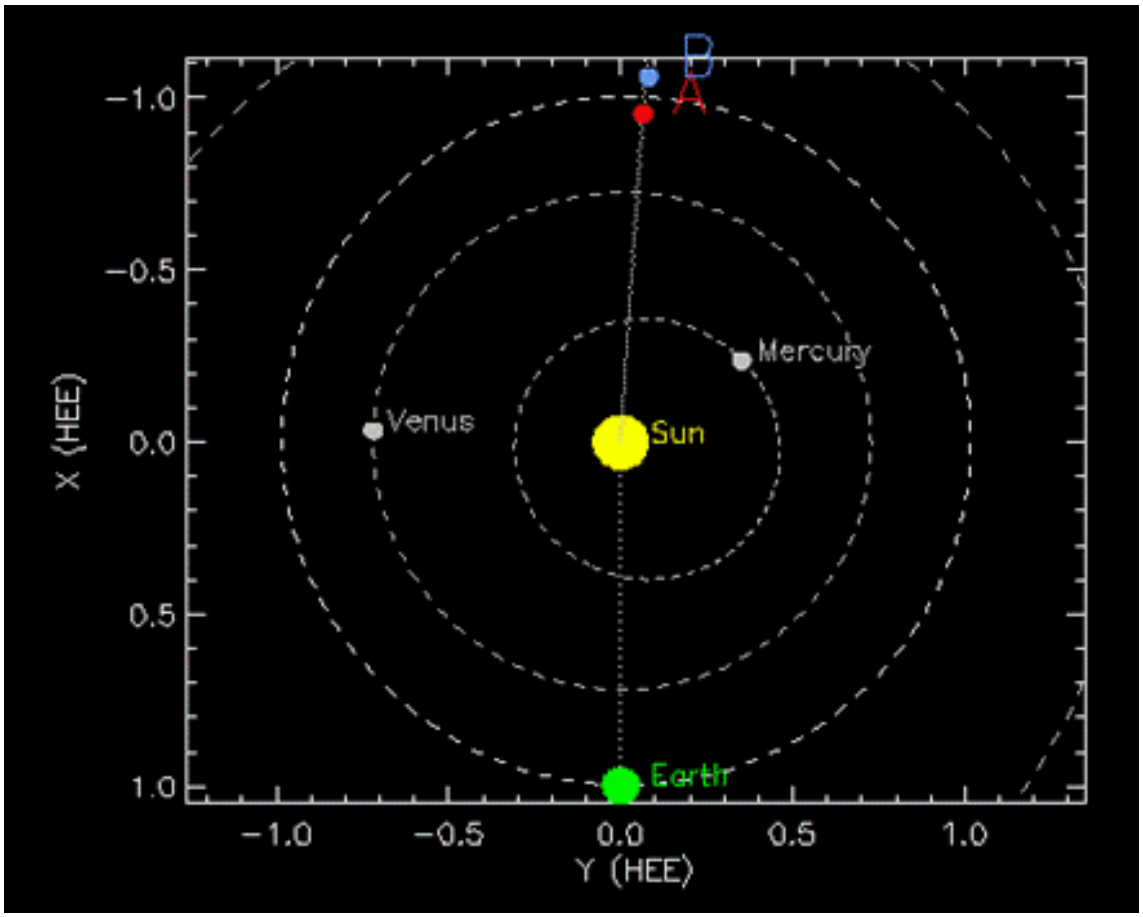
Published by the STCE - this issue : 7 May 2015. Available online at http://www.stce.be/newsletter/ .

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

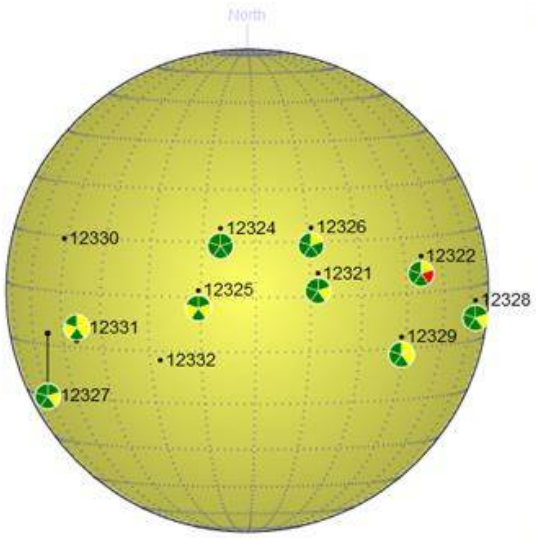
Final Editor : Petra Vanlommel
Contact : R. Van der Linden, General Coordinator STCE,
Ringlaan - 3 - Avenue Circulaire, 1180 Brussels,
Belgium

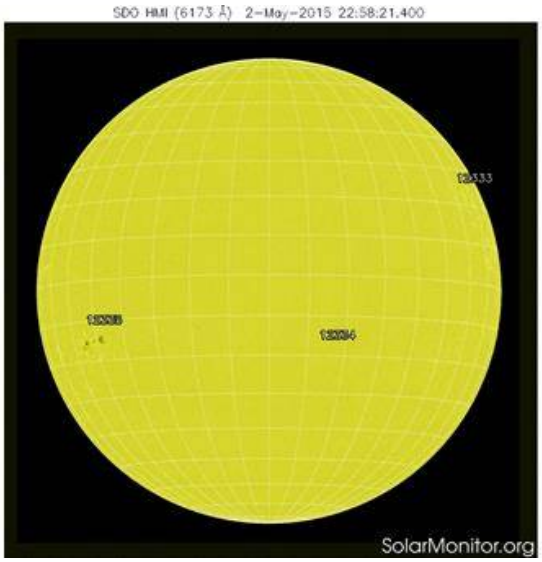
1. A stethoscope for the Sun

The STEREO spacecraft are still in safe mode as they go through their superior conjunction, passing behind the Sun as seen from Earth. This means that for an extended period of time, we cannot receive any imagery from the far-side of the Sun due to radio interference from the Sun. See http://stereo-ssc.nascom.nasa.gov/beacon/beacon_secchi.shtml for up-to-date information.

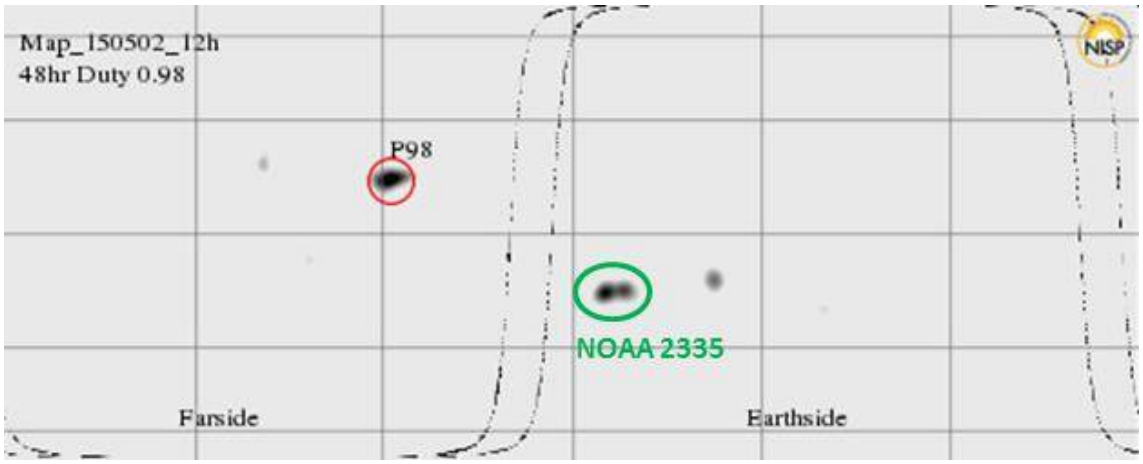


For sure, nothing can replace the backside imagery that STEREO has provided. Worse, this situation will persist till at least July this year, with normal operations expected to resume only in January 2016. In order to get a small idea on what is happening on the Sun's backside, space weather forecasters fall back on tools that existed before the start of the STEREO era. For example, there exist maps with the location of known active regions that are currently doing their far-side transit (see e.g. https://www.raben.com/maps). From the far-side example of 02 May underneath to the left, one can see that old group NOAA 2322 (moving to the "right") will round the "east" limb within about 3-4 days and thus become visible from Earth. NOAA 2322 was an M-class flare producing sunspot group when it rounded the west limb on 20 April. On the right is the white light picture of the earth-facing solar hemisphere for that day.





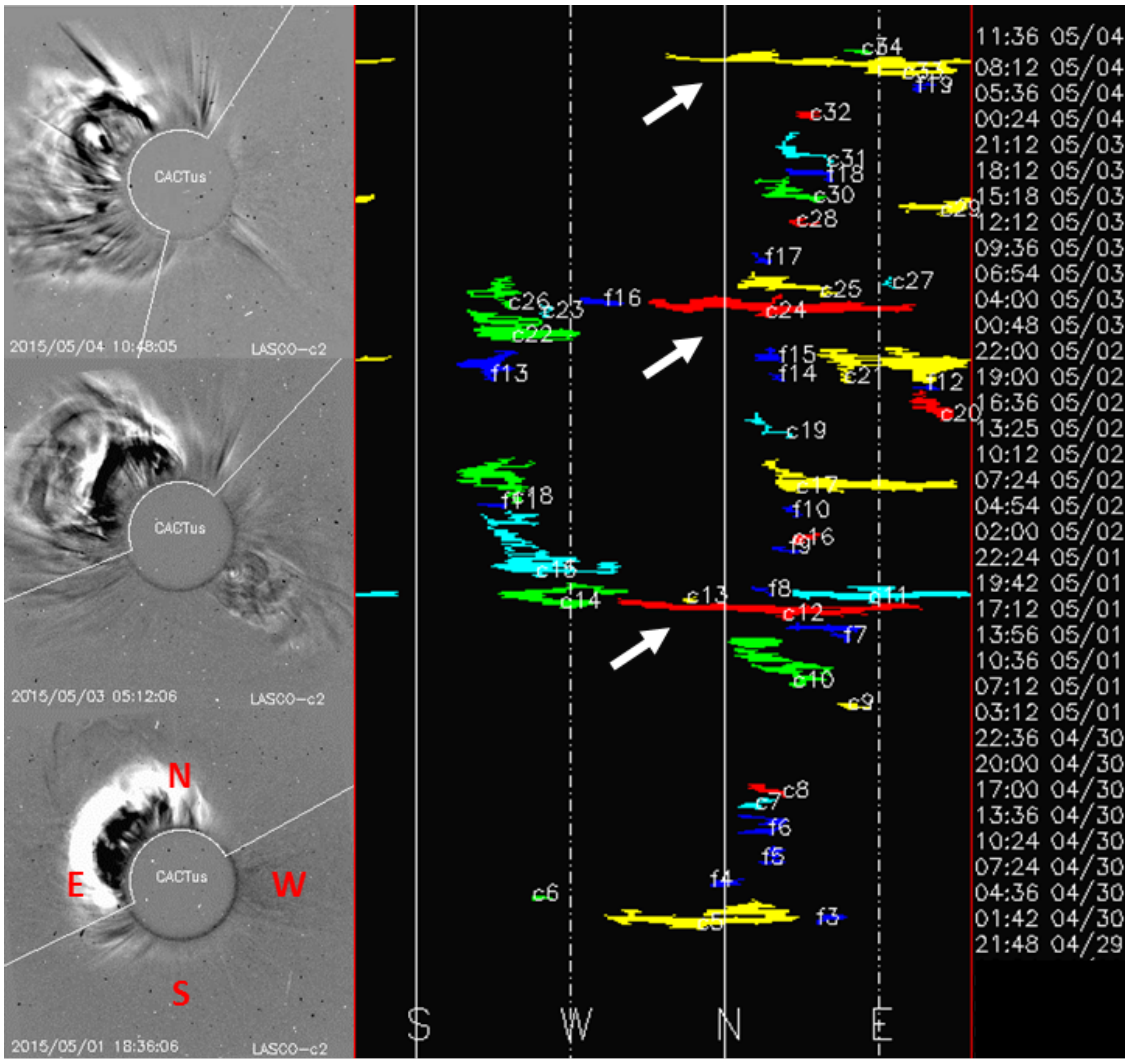
Unfortunately, the above far-side maps do not provide any information on the further evolution of existing sunspot groups or the development of any new active regions. Enter helioseismology. This branch of solar research is very similar to seismology on Earth, where by studying the waves induced by earthquakes, scientists get an idea on the earth's interior. Indeed, by carefully listening to the up and down movements all over the solar surface, helioseismologists get a pretty good idea on the specifics of the solar interior. Moreover, by studying the related acoustic waves that are traveling through the solar interior, forecasters can virtually "see" any rather big, active region that may be present on the farside. This branch of solar research is called "helioseismic holography" and was developed by Charles Lindsey and Doug Braun back in the late 1990's (see http://farside.nso.edu/ for more info and recent images).



The maps produced by this technique show sound wave travel time variations, with locations of shorter travel times appearing darker. These darker regions indicate locations where there is an accumulation of magnetic field on the surface. Data necessary for the production of these maps are obtained through the Global Oscillation Network Group or "GONG" (see http://nisp.nso.edu/aboutgong). The image above shows a map dated 02 May with the Earth side and the far-side of the solar surface indicated. The "P98" marks a potential active region on the far-side, possibly corresponding to old region NOAA 2322. For reference, also NOAA 2335 on the Earth facing side has been indicated.

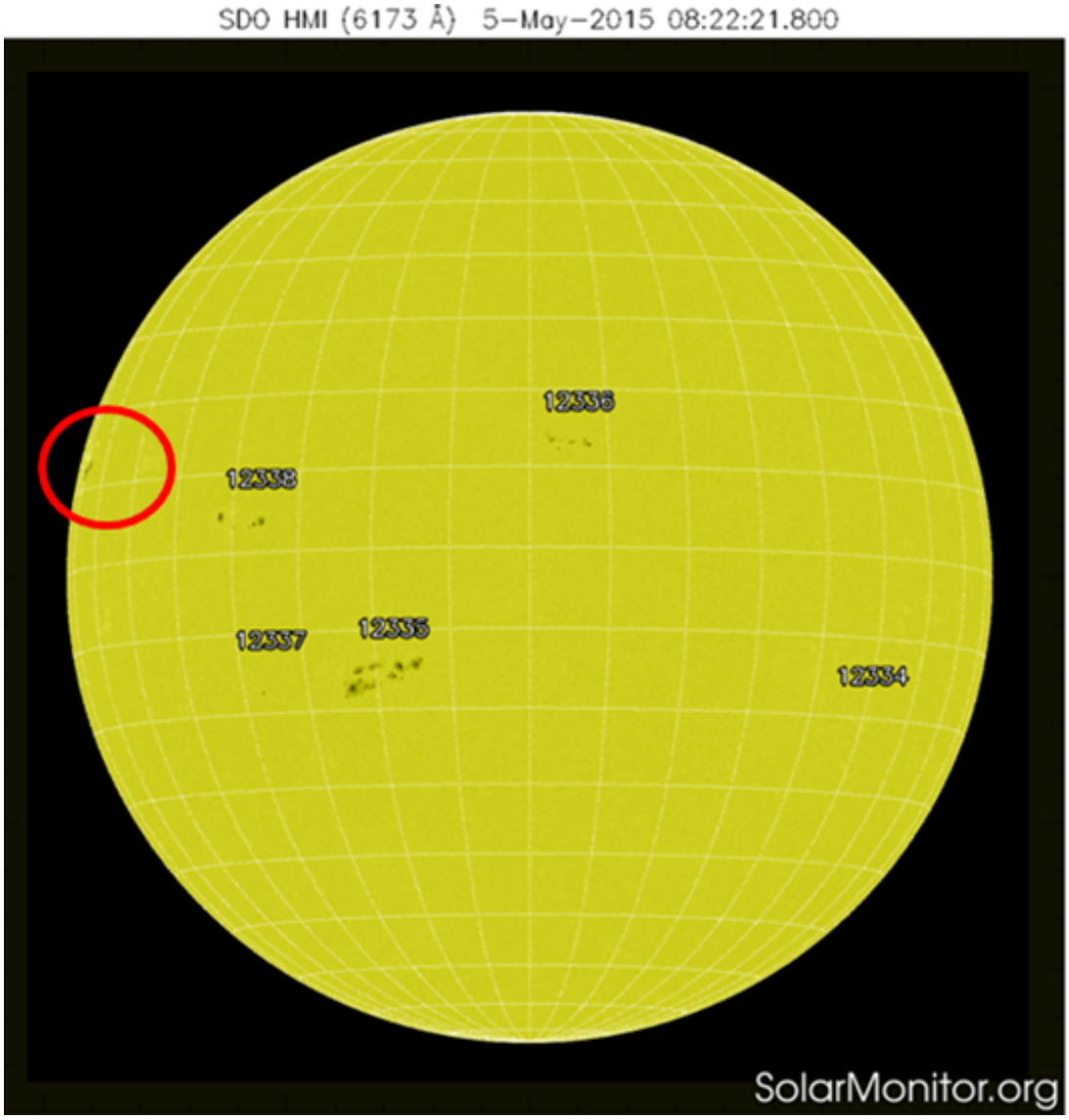
There's of course a bit of noise in these helioseismic data, and it occasionally happens that apparently active regions on the far-side turn out to be just large facular fields with no or only very small spots. So, prediction of the appearance of a new active group can sometimes be somewhat disappointing. In this

case though, it seems that region "P98" really had some punch. Indeed, from or at least close to the area indicated on the helioseismic far-side map, several strong coronal mass ejections (CME) have billowed away on 1, 3 and 4 May. These have been indicated with white arrows on the map underneath. They probably originate from the same active region. Note how, as this active region is transiting the far-side, the main direction of the CME gradually co-moves to the Sun's east limb as seen from Earth.



LASCO/C2 *Direction along the solar limb*

Interestingly, an SDO-image of the earth-facing solar hemisphere on 5 May shows that an active sunspot region has indeed rounded the northeast limb on 5 May. This region, numbered as NOAA 2339, immediately produced an M1.9 class flare followed later on 5 May at 22:11UT by a strong X2 flare (see http://stce.be/news/306/welcome.html). Recent imagery indicates this is a complex and rather large sunspot region.



2. Don't forget

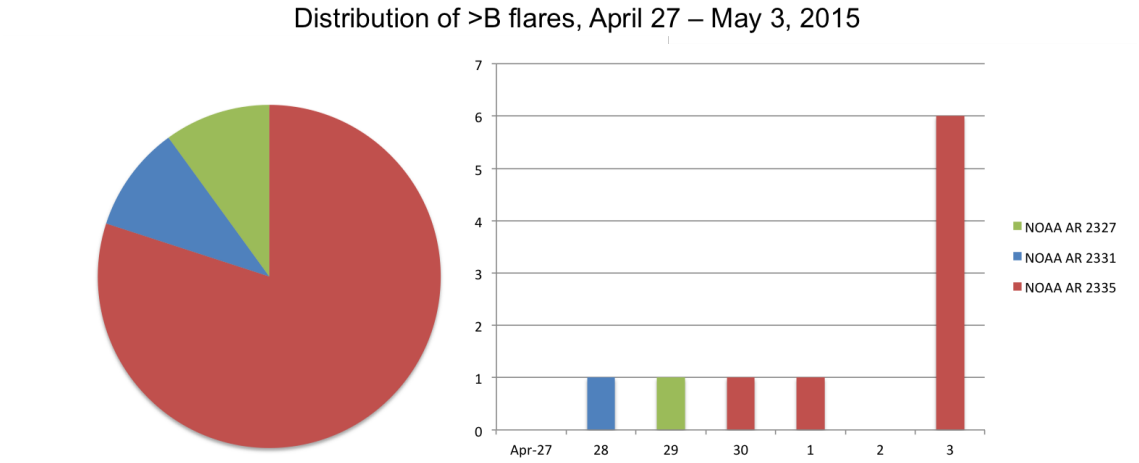
We need your input for ESWW12 - don't forget to submit an abstract to a session or ask for a working meeting. The deadline - May 13 is coming nearrrr.

http://www.stce.be/esww12/index.php

Happy submission!

3. Review of solar activity

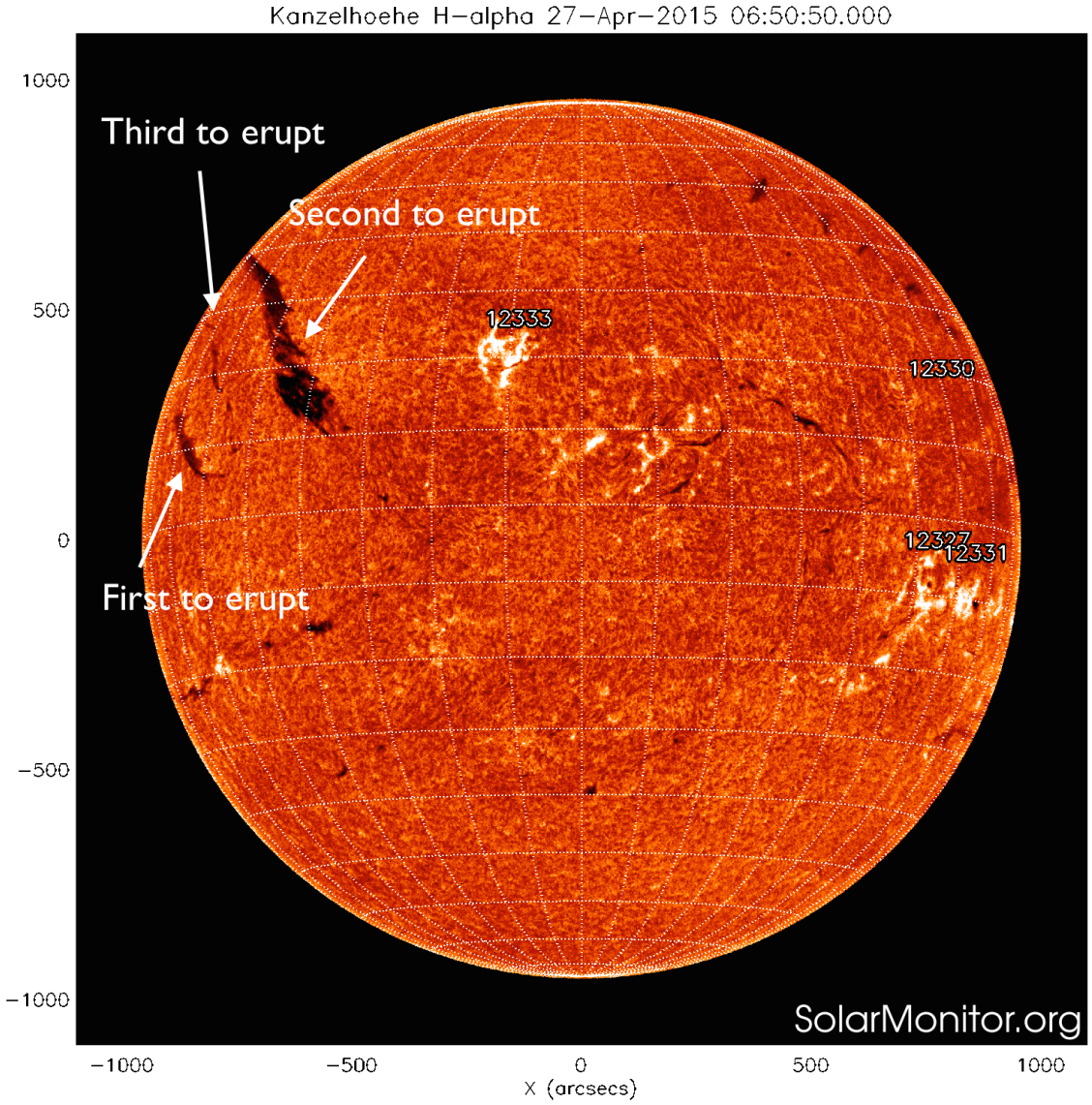
Solar activity was low to very low during the whole week.
The background of the GOES Xray curve was at B-level. Only ten C-class flares were noted, with a maximum of C2.3. On the first two days NOAA active regions (AR) 2327 and 2331 produced a few flares on their rotation towards the West limb. NOAA AR 2335 produced several low C-class flares during the remainder of the week. In addition, a region that is currently rounding the East limb contributed to the flaring activity as observed from Earth.



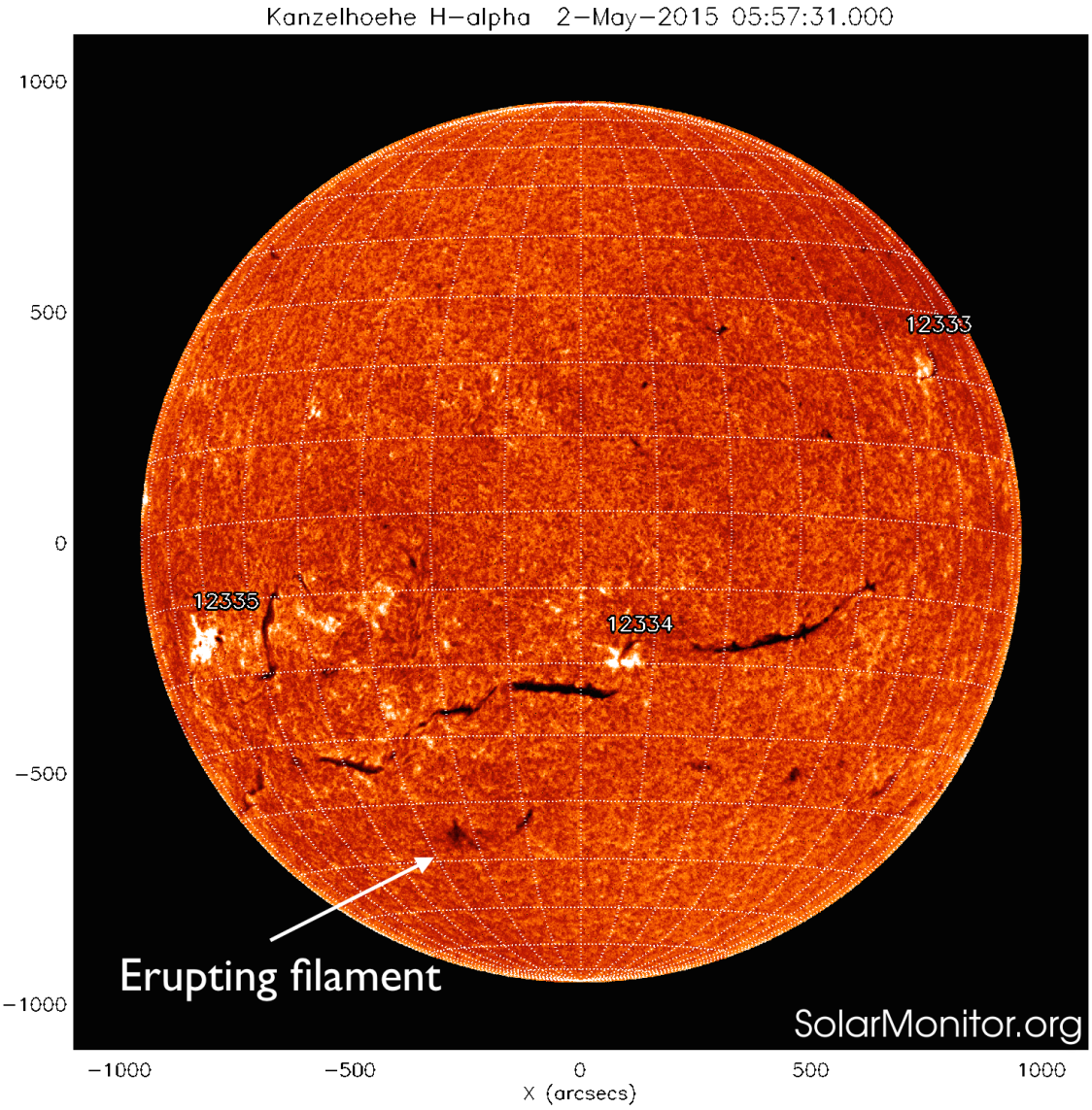
The left chart gives an overview of the total number of flares per NOAA AR region for the indicated week. The right chart gives an overview of the flaring activity per NOAA AR per day.

A few filament eruptions were the most spectacular events of the week.

On April 28, some filaments erupted in the Eastern hemisphere; first a filament located near N10E50 at 2:55 UT, followed by the eruption of a large filament located more to the North starting to lift at 11:00 UT and at the end of the UT day a filament located in between erupted. None of these plasma eruptions had an Earth directed component.

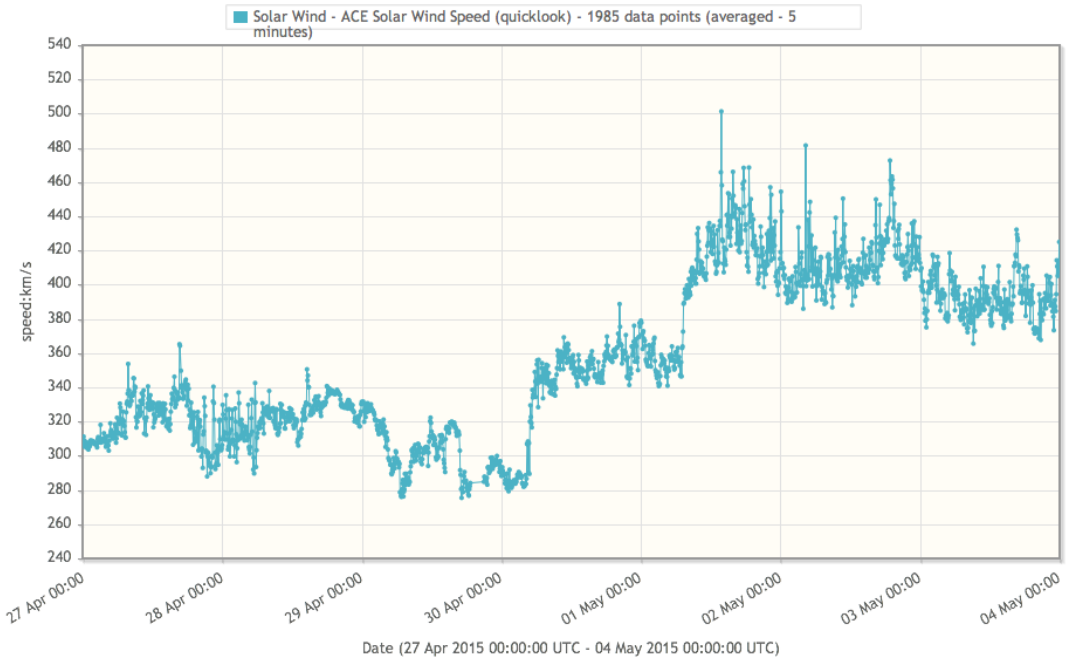


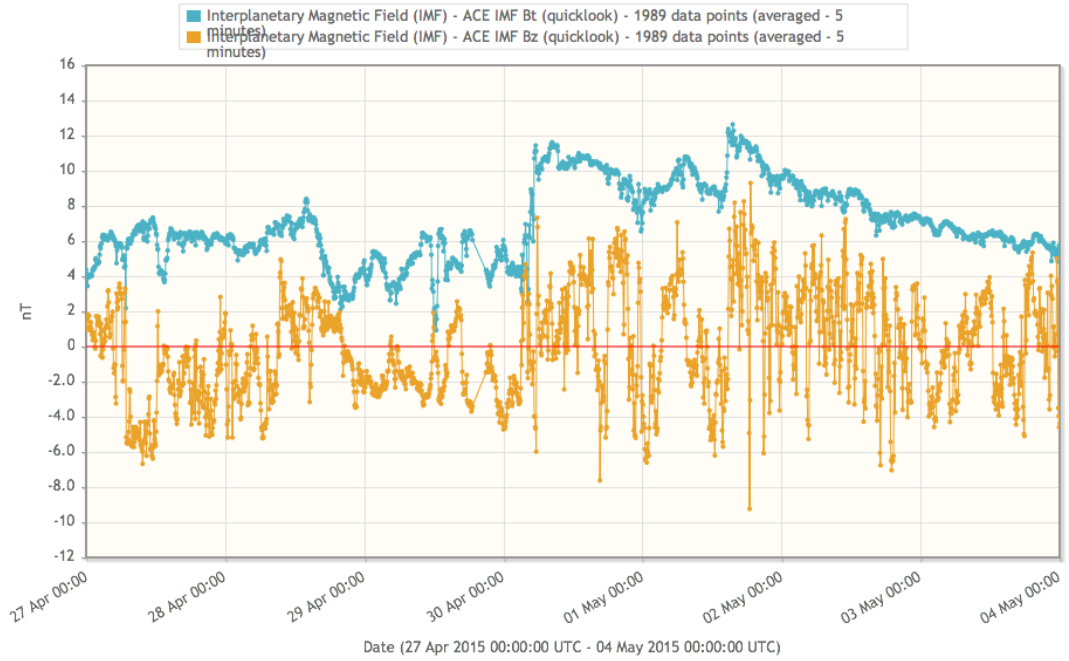
On May 2, a filament eruption occurred in the Southern hemisphere. Material was going from East to West and a faint CME was propagating to the South and visually merged with a backsided CME with a large Eastward component.



4. Review of geomagnetic activity

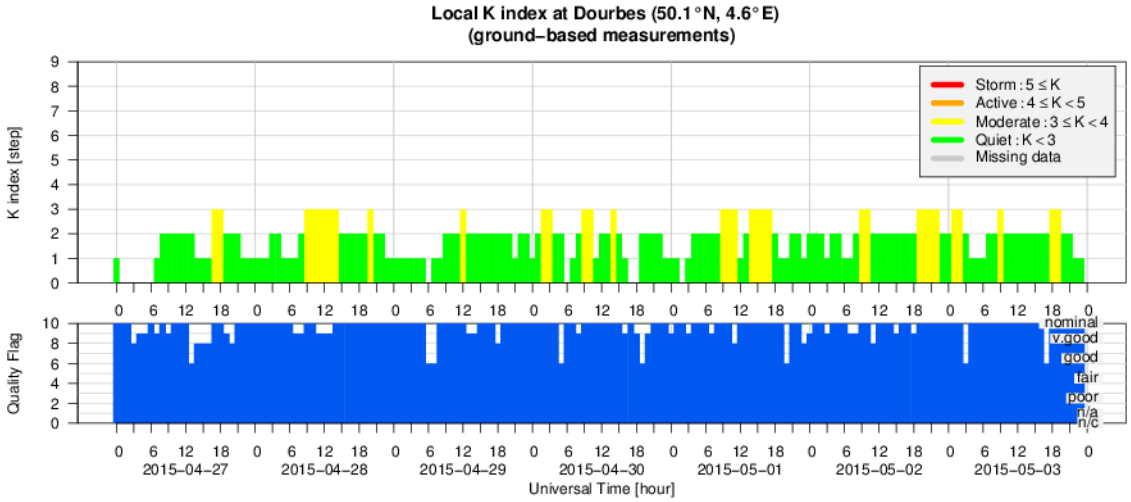
The solar wind speed was low, starting at 400 km/s, gradually declining to 300 km/s and increasing again abruptly on April 30 to 360 km/s and later on to 450 km/s. Similarly, the magnitude of the Interplanetary Magnetic Field (IMF) measured in situ by ACE at the L1 point became more variable on April 30 and increased to 13 nT.



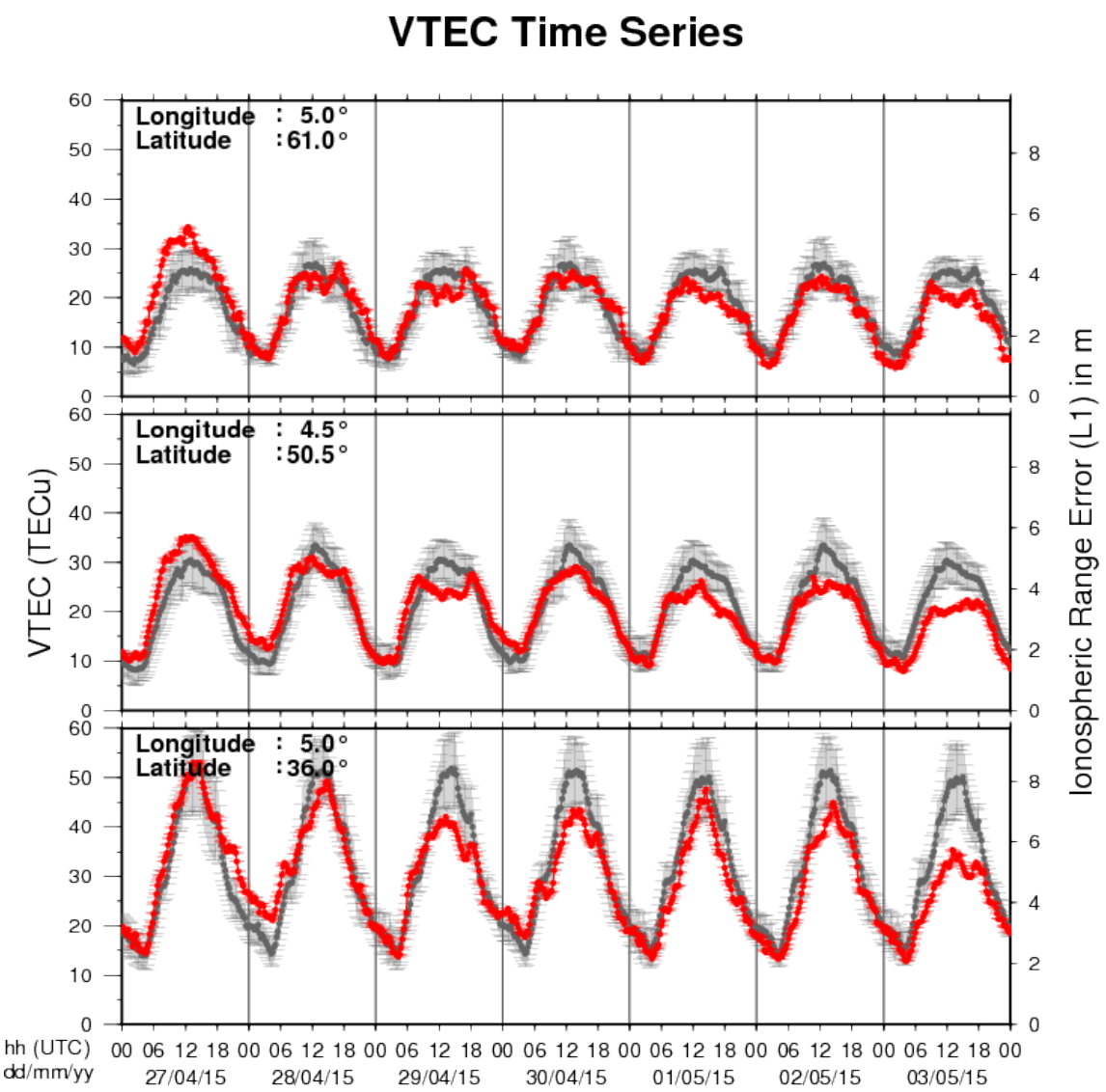


Geomagnetic conditions were quiet to unsettled during the full week.

5. Geomagnetic Observations at Dourbes (27 Apr 2015 - 3 May 2015)



6. Review of ionospheric activity (27 Apr 2015 - 3 May 2015)



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

7. Future Events

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

Science from an Operational Mission: An L5 Consortium Meeting, in London, UK

Start : 2015-05-11 - End : 2015-05-14
Objectives for the meeting include:
* Agreeing the continuing need for an operational mission to L5
* Confirm good science can be achieved from an operational mission
* Discuss the instrumentation to be included within the spacecraft
* Demonstrate to key stakeholders that there is a global interest and need for an Operational Mission to L5
Website:
http://www.metoffice.gov.uk/conference/L5-Consortium-workshop

UKMHD 2015 in Newcastle upon Tyne, UK

Start : 2015-05-14 - End : 2015-05-15
The annual UKMHD meetings are the premier gathering of the magnetohydrodynamics (MHD) community in the UK, held since 1978. The 2015 meeting will be hosted by the Solar Group in the Department of Mathematics and Information Sciences at Northumbria University.
The meeting brings together astrophysical, laboratory and industrial MHD research communities in the UK. It is the forum where recent progress is reported and future directions in the various aspects of MHD are discussed through invited and contributed talks, poster presentations and scheduled discussion sessions.
Invited speakers are drawn from different areas of MHD to celebrate the breadth of applications in the UK, and this year include Professor Alan Hood (University of St Andrews), Dr Andrew Hillier (DAMTP, Cambridge University), Dr Joanne Mason (Exeter University) and Dr Ken McClements (UK Atomic Energy Authority, Culham).
Website:
https://sites.google.com/site/ukmhd2015/home

URSI AT-RASC 2015 in Gran Canaria, Spain

Start : 2015-05-18 - End : 2015-05-22
URSI AT-RASC 2015 will be the first edition of the newly established triennial URSI Atlantic Radio Science Conference as one of the URSI Flagship Conferences. AT-RASC 2015 will have an open scientific program composed of submitted papers within the domains covered by all ten Commissions of URSI.
Website: http://www.at-rasc.com/

Heliospheric Imaging - A new era of space science and space weather observations in GÃ¶ttingen, Germany

Start : 2015-05-19 - End : 2015-05-22
The HELCATS project (see http://www.helcats-fp7.eu/) is providing revolutionary new insights into solar wind structure through combining the comprehensive analysis of heliospheric imaging observations from the NASA STEREO spacecraft, in concert with associated remote-sensing and in-situ measurements, with a thorough assessment of appropriate techniques and models. The project recognises that the advent of wide-angle imaging of the inner heliosphere has revolutionised the study of transient and quasi-stationary structures in the solar wind, in particular Coronal Mass Ejections (CMEs) and Co-rotating

Interaction Regions (CIRs). Prior to the development of wide-angle imaging of the inner heliosphere, signatures of such solar wind features could only be observed within a few solar radii of the Sun, and in the vicinity of a few near-Earth and interplanetary probes making in-situ measurements of the solar wind. Heliospheric imaging has, for the first time, filled that vast and crucial observational gap.
We will debate, in particular, the emotive issue of how we associate CMEs with related phenomena observed, for example, on the Sun or in-situ. How do we define (without bias and the need for assumptions such as the relationship between flares and CMEs), a standard set of 'rules', both temporal and spatial, for making such associations? Such standards are crucial when forward and backward-projecting data.
Website:
http://www.affects-fp7.eu/helcats-meeting/

MHD waves and instabilities in the solar atmosphere in Budapest, Hungary

Start : 2015-05-25 - End : 2015-05-29
25-27 May 2015: BUKS 2015 - MHD waves: Observational aspects from ground to space - MHD waves: Theory - where are we? - MHD instabilities
27-28 May 2015: Ruderman Honorary meeting - Theory of linear MHD waves - MHD waves instabilities - Non-linear waves in plasmas
29 May 2015: Joint BUKS/Ruderman's conferences excursion - Boat excursion to Szentendre, Visegrad and Esztergom
Website:
http://swat.group.shef.ac.uk/Conferences/BUKS_2015/index.html

Solar Influences on the Magnetosphere, Ionosphere and Atmosphere in Sunny Beach, Bulgaria

Start : 2015-06-01 - End : 2015-06-05
Check the website for more information.
Website:
http://ws-sozopol.stil.bas.bg/

Los Alamos Space Weather Summer School, in Los Alamos, NM, USA

Start : 2015-06-01 - End : 2015-07-24
The Space Weather Summer School at Los Alamos National Laboratory, established in 2011 under the founding Director Josef Koller, is dedicated to space weather, space science and applications. Every year we solicit applications for the Los Alamos Space Weather Summer School. This summer school is sponsored and supported by a number or organizations at LANL. This year our top sponsors include the Los Alamos Institute of Geophysics, Planetary Physics and Signatures (IGPPS) and the Laboratory Directed Research and Development Office (LDRD). The summer school brings together top space science students with internationally recognized researchers at LANL in an educational and collaborative atmosphere.
Website:
http://www.swx-school.lanl.gov/

RadioSun4 Workshop & Summer School in Irkutsk, Russia

Start : 2015-06-08 - End : 2015-06-12
The RadioSun Workshop and Summer School 2015 is the fourth international academic seminar supported by the International Research Staff Exchange Scheme of the Seventh Fromework Programme of the European Union (FP7-IRSES-295272-RADIOSUN). The aims of this project are to establish close research interaction and collaboration between the key EU and non-EU research groups involved in the research of the Sun in the radio band; qualitatively advance our knowledge of the physical processes operating in the solar atmosphere, the basic mechanisms responsible for its evolution and dynamics and its effect on the Earth; and provide younger researchers with extensive training in relevant research techniques and with universal transfer.

Website:
http://www2.warwick.ac.uk/fac/sci/physics/staff/research/davidpascoe/radiosun

Solar dynamo frontier workshop in Boulder, CO (USA)

Start : 2015-06-09 - End : 2015-06-12
The last five years have seen substantial progress in our understanding of the solar dynamo, fueled by continuing advances in observations and modeling. With the launch of NASA's Solar Dynamics Observatory (SDO) in 2010 came an unprecedented window on the evolving magnetic topology of the Sun, highlighting its intricate 3D structure and global connectivity. The Helioseismic Magnetic Imager (HMI) instrument on SDO in particular has provided potentially transformative yet enigmatic insights into the internal dynamics of the solar convection zone that underlie the dynamo. Attempts to detect subsurface convective motions from helioseismic inversions have yielded only upper limits on the large-scale convective amplitude, challenging our understanding of global solar convection. Yet, potential signatures of giant cells have been detected in photospheric Dopplergrams. Estimates of the meridional flow from HMI and complementary instruments (SOHO/MDI and GONG) have been equally tantalizing and enigmatic. Several disparate techniques, including local and global helioseismic inversions and correlation tracking of surface features, have yielded evidence of a multi-cellular meridional flow but they differ on the detailed flow structure and amplitude. This multi-cellular meridional flow has potentially profound implications for flux-transport dynamo models that previously assumed a very different structure with a single circulation cell per hemisphere.
Website:
https://www2.hao.ucar.edu/Workshop/Solar-Dynamo-Frontiers

National Astronomy Meeting 2015 in Llandudno, UK

Start : 2015-07-05 - End : 2015-07-09
We would like to invite you to submit contributed abstracts to the parallel session "The science of space weather: progressing our understanding" at the 2015 UK National Astronomy Meeting from 5-9 July (http://nam2015.org). The abstract-submission deadline is 1 April 2015. Observers, modellers, and theoreticians are all welcome. We also welcome participation from end users interested in how the science of space weather is advancing.
The science of space weather: progressing our understanding
The goal of this session is to provide an opportunity to discuss the scientific research that underpins space weather and how a new generation of operational space weather measurements could best be utilised to further progress our understanding. Specific topics are likely to include 1) gaps in our understanding of space weather and how to resolve them, 2) new space and ground-based data that are needed, 3) new science that can be carried out with the operational space weather measurements being planned today.
This session is motivated by the fact that the UK has a strong heritage in the science of the coupled Sun-Earth system, from both an observational and theoretical perspective. This research is increasingly being applied to the area of space weather monitoring and forecasting, a topic that is now nationally recognised as an important natural hazard for the UK (highly ranked in the National Risk Register) and the subsequent opening of the Met Office Space Weather Operations Centre in 2014.
Up until now, both the research and the space weather monitoring and forecasting have utilised mainly data from instrumentation (both space- and ground-based) designed to answer pertinent scientific questions, though some operational instruments (e.g. the X-ray and particle detectors on NOAA's GOES spacecraft) are also widely exploited for scientific use. However, there is now growing interest in deploying more instruments, in space and on the ground, designed to support operational space weather services. Such operational measurements can facilitate new science, as demonstrated by the extensive research use of GOES data, but it is important that the limitations imposed by operational needs are discussed.
Website: http://nam2015.org/

CISM Space Weather Summer School in Boulder, CO, USA

Start : 2015-07-13 - End : 2015-07-24
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/Events/2015-CISM-Summer-School

Loops7: Heating of the Magnetically Closed Corona in Cambridge, UK

Start : 2015-07-21 - End : 2015-07-23
The conference will review past and recent achievements, as well as future challenges in the field of solar coronal loop physics.
Website:
http://www.damtp.cam.ac.uk/user/astro/cl7/index.html

Heliophysics Summer Schoool 2015: Seasons in Space: Cycles of variability of Sun-Planet systems, in Boulder, CO, USA

Start : 2015-07-28 - End : 2015-08-04
Heliophysics is all of the science common to the field of the Sun-Earth connections. This fast-developing field of research covers many traditional sub-disciplines of space physics, astrophysics, and climate studies. The NASA Living with a Star program, with its focus on the basic science underlying all aspects of space weather, acts as a catalyst to bring the many research disciplines together to deepen our understanding of the system of systems formed by the Sun-Earth connection.
Website:
http://www.heliophysics.ucar.edu/

34th International Cosmic Ray Conference (ICRC) in The Hague, The Netherlands

Start : 2015-07-30 - End : 2015-08-06
The 34th International Cosmic Ray Conference (ICRC) will be held from July 30 to August 6, 2015, in The Hague, The Netherlands. It is an important and large conference in the field of Astroparticle Physics. The ICRC covers: cosmic-ray physics, solar and heliospheric physics, gamma-ray astronomy, neutrino astronomy, and dark matter physics.
Website: http://icrc2015.nl

SOLARNET III / HELAS VII: The Sun, the stars, and solar-stellar relations, in Freiburg (Germany)

Start : 2015-08-31 - End : 2015-09-04
The purpose of this conference is to discuss the latest questions and results in solar and stellar physics. Solar and stellar seismology will be one particular focus but contributions on all aspects of solar-stellar relations will be welcome. We aim to establish links and synergies between the day- and night-time fields of astrophysics.
Website:
http://www.iac.es/congreso/solarnet-3meeting/

1st Joint Solar Probe Plus-Solar Orbiter Workshop, in Florence (Italy)

Start : 2015-09-02 - End : 2015-09-04
The Workshop will address how the joint exploration of the corona and inner heliosphere will lead to advances in our understanding of coronal heating and solar wind acceleration, the magnetic and plasma structure of the heliosphere, and the acceleration of energetic particles at shocks and flares. The workshop will inspire research that will make use of SO and SPP observations within the context of the NASA Heliophysics Observatory System and identify key areas for preparatory research. Synergistic observations from other ground based and space based assets will also be addressed.
Website:
http://www.solarprobeplus.org/2015/

International Workshop and School on Solar System plasma in Mamaia, Romania

Start : 2015-09-06 - End : 2015-09-13
The International Workshop and School on solar system plasma turbulence, intermittency and multifractals (STORM 2015) focus on the quantitative experimental, theoretical and numerical investigation of turbulence, intermittency, fractal/multifractal features, waves and coherent structures interaction, criticality and non-linear cross-scale coupling. As widely documented by in-situ satellite measurements and remote or ground-based observations, turbulence, intermittency and dynamical complexity are quite ubiquitous processes observed in the dynamics of solar, planetary and interplanetary plasmas, as well as in the dynamical evolution of proxies linked to magnetospheric and ionospheric variability.
Unfolding the spatio-temporal structure of magnetic field and plasma fluctuations from experimental observations and numerical simulations provides further insight on the structure of plasma turbulence and intermittency. On the theoretical side, the understanding of such complex dynamical behavior cannot be simply surmised from the basic fluid/kinetic equations, but instead requires novel theoretical, experimental and data analysis approaches. The workshop is a forum to present and discuss latest results in these fields. The purpose of the school is to give to a young audience of Graduate, Ph.D. students, and postdoc scientists, which ideally represents the next generation of scholars in the physics of space plasmas, an overall view of both theoretical and data analysis tools apt to fully exploit unique and unprecedented observations that will be provided by future upcoming mission like Solar Orbiter and Solar Probe Plus.
Website:
http://www.spacescience.ro/conferences/storm2015/

3rd UK-Ukraine-Spain meeting on solar physics and space science in Lviv, Ukraine

Start : 2015-09-07 - End : 2015-09-11
The meeting will cover various aspects of solar physics and space weather related processes. The special emphasis will be paid to progress in data-driven simulations and high-resolution spectro-polarimetry as powerful diagnostic techniques to unravel information about magnetic fields in the photosphere and chromosphere of the Sun.
Website:
http://ssg.group.shef.ac.uk/Conferences/Ukraine_UK_2015/index.html

RADECS-2015 in Moscow, Russia

Start : 2015-09-14 - End : 2015-09-18
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 Exhibition, and one day tutorial or "short course" on radiation effects. The technical program includes oral and poster sessions and round tables.
Website:
http://www.radecs2015.org/

Heliospheric physical processes for understanding Solar-Terrestrial Relations in L'Aquila, Italie

Start : 2015-09-21 - End : 2015-09-26
A good understanding of solar-terrestrial processes is fundamental to modelling the influence of solar variability on the Earth's environment and climate. To capture all the physical aspects of the solar wind-magnetosphere-ionosphere-atmosphere interaction, and also the impact of solar variability on climate, the Sun-Earth system has to be studied as a whole. The main purpose of this school is to provide graduate, PhD students and also young post-doc researchers with a global view of the main physical processes by which solar variability affects the Earth's environment. In addition, an overview of different data analysis and methods for describing solar-terrestrial relations will be given. The school will provide a mix of lectures and activities requiring students participation.
Website:
http://www.cifs-isss.org/

Ground-based Solar Observations in the Space Instrumentation Era in Coimbra, Portugal

Start : 2015-10-05 - End : 2015-10-09
This CSPM-2015 scientific meeting will cover various aspects of solar dynamic and magnetic phenomena which are observed over the entire electromagnetic spectrum: white-light, Hα, Ca II, and radio from ground and in a variety of other wavelengths (white light, UV and EUV, and X-rays) from space. Emphasis will also be placed on instrumentation, observing techniques, and solar image processing techniques, as well as theory and modelling through detailed radiative transfer in increasingly realistic MHD models. The long-term (cyclic) evolution of solar magnetism and its consequence for the solar atmosphere, eruptive phenomena, solar irradiation variations, and space weather, will be in focus. Here, special attention will be devoted to the long-term observations made in Coimbra and also to the results of the SPRING / SOLARNET and SCOSTEP VarSITI studies. In particular, the weak solar activity during the current solar maximum will be discussed. Finally, since this meeting is organised around the 90th anniversary of performing the first spectroheliographic observations in Coimbra, a session will be specially dedicated to new solar instruments (both ground-based and space-borne) that will give access to unexplored solar atmospheric features and dynamic phenomena over the coming years.
Website:
http://www.mat.uc.pt/~cspm2015/

Third Remote Sensing of the Inner Heliosphere and Space Weather Applications Workshop in Morelai, Michoacan (Mexico)

Start : 2015-10-19 - End : 2015-10-23
The workshop aims to gather experts from the various fields of remoteÂ sensing observations of the inner heliosphere, including whiteÂ light, EUV, and radio observation, together with modellers in order to tackle key outstanding science and spaceÂ weather operational issues, establish closer working relations, and devise the best ways to move the field forward as a whole. In addition, the science learned from remote Âsensing observations is critical to improving our capabilities of spaceÂ weather forecasting. The workshop aims to look at ways in which we can more easily and efficiently share and access the various types of data between individual groups and subÂcommunities and to officially launch the IPS Common Data Format v1.0 (IPSCDFv1.0) now in use. It also aims to allow investigations into ways in which we model the inner heliosphere looking at the advantages and disadvantages of the available modelling, updates on present and future remoteÂsensing capabilities, and investigating further the ways in which these data sets all complement each other and are necessary to gain knowledge and understanding of

the fundamental physical processes that occur within the inner heliosphere. These are critical processes that are key to both Heliophysics science as well as to spaceÂweather operations and forecasting.
Website:
http://www.sciesmex.unam.mx/workshop2015/

12th Potsdam Thinkshop in Potsdam, Germany

Start : 2015-10-26 - End : 2015-10-29
In the tradition of the series of Â»Potsdam ThinkshopsÂ«, we invite instrument specialists, observers, modellers, and theorists to exchange ideas, to stimulate discussion, to initiate future collaborations among participants, and to attract new users of instruments by showcasing the capabilities. The aim is to make progress towards a comprehensive description of solar eruptive events effectively aggregating their global properties as well as their highly dynamic fine structure.
Website:
https://thinkshop.aip.de/12/cms/

SEST/MiniMax Workshop in Mexico City, Mexico

Start : 2015-10-26 - End : 2015-10-30
The workshop is to improve the scientific understanding of the origin and propagation of solar transients, and develop the prediction capacity of these transients' arrival and potential impact on the Earth. The workshop engages coordinated international activities in observation, theory and modeling, and involves scientists in both developed and developing countries, and provides an online platform for educational opportunities for students.
Website:
http://cintli.geofisica.unam.mx/congreso/

2015 Sun-Climate Symposium in Savannah, Georgia, USA

Start : 2015-11-10 - End : 2015-11-13
Observations of the Sun and Earth from space have revolutionized our view and understanding about impacts of solar variability and anthropogenic forcing on Earth climate. For more than three solar cycles since 1978, the total and spectral solar irradiance (TSI and SSI) and global terrestrial atmosphere/surface have been observed continuously, enabling unprecedented quality data for Sun-climate studies. The primary objective of this symposium is to convene climate scientists, solar physicists, and experimentalists together for a better understanding how Earth climate system changes and responds to solar variability.
Website: http://lasp.colorado.edu/home/sorce/news-events/meetings/2015-sun-climate-symposium/

European Space Weather Week in Belgium

Start : 2015-11-23 - End : 2015-11-27
The European Space Weather Week (ESWW) is the European forum for Space Weather users, forecasters, scientists and the involved industries, as proven by the high attendance to the ESWW 11 in November 2014.
The ESWW 12 will be held in Belgium in November, 23-27, 2015 and its organisation has already started and is benefiting from the experience and inputs from the past editions.
Website: http://stce.be/esww12/

41st COSPAR Scientific Assembly in Istanbul, Turkey

Start : 2016-07-30 - End : 2016-08-07
The 41st COSPAR Scientific Assembly will be held in Istanbul, Turkey from 30 July - 7 August 2016. This Assembly is open to all bona fide scientists.
Website:
https://www.cospar-assembly.org/