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Article 1:

Aditya-L1: Solar & Heliospheric Observatory from India

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Aditya, Sanskrit name for the Sun, is an observatory class satellite from India which was launched on the 2nd September 2023 at 11:50 AM IST (06:20 UT) from Sriharikota using the Polar Satellite Launch Vehicle (PSLV-C57). The satellite currently is placed at the L1 orbit on 6th January 2024. Aditya-L1 is conceived with four remote sensing and three in-situ experiments to study the Sun and local environment at L1. The mission is expected to carry out its scientific observations after the payload verification phase operations.

The primary science objective of the mission is to study the chromospheric and coronal dynamics which are the

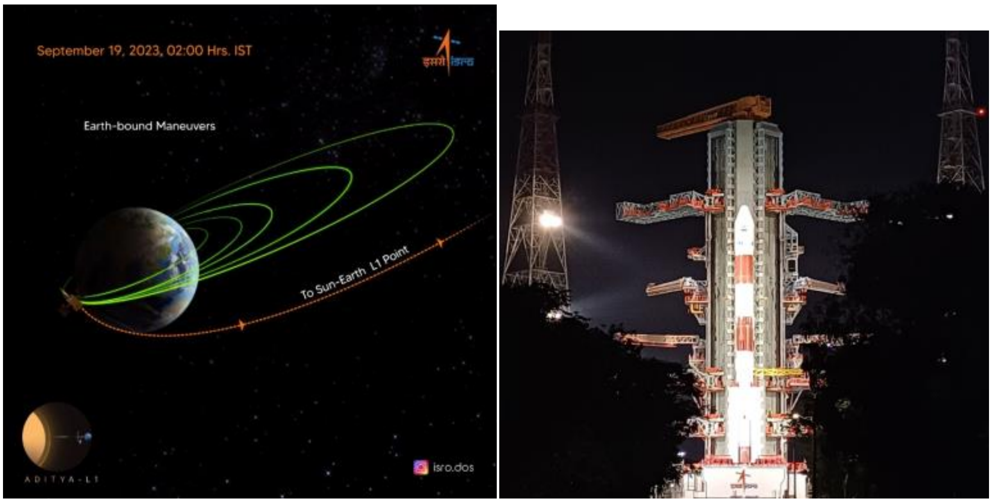

Figure 1. (left) Trans-Lagrangian L1 Insertion (TLI) carried out on 19th September early morning IST for Aditya-L1 spacecraft for cruising to L1 and (right) PSLC-C57 with Aditya-L1 satellite standing majestically the night before the launch date (Courtesy: ISRO).

Experiments on-board Aditya-L1

Remote sensing experiments: (i) Visible Emission Line Coronagraph (**VELC**), (ii) Solar Ultra-violet Imaging Telescope (**SUIT**), (iii) Solar Low-Energy X-ray Spectrometer (**SoLEXS**), and (iv) High Energy L1 Orbiting Spectrometer (**HEL1OS**)

In-situ experiments: (i) Plasma Analyser Package for Aditya-L1 (**PAPA**), (ii) Aditya Solarwind Particle EXperiment (**ASPEX**), and (iii) MAGnetometer (**MAG**).

major sources of interplanetary weather (or the space weather). This will be accomplished with four remote sensing and three in-situ experiments (refer box).

Aditya-L1 is unique as compared to other missions flown or being flown in the near future. In this aspect, combining observations from Aditya-L1 with other missions would provide additional science benefits which are not feasible with an individual mission alone. The uniqueness of Aditya-L1 includes:

- CME dynamics close to the disk (1.08 Rsun unvignetted inner field) providing information in the acceleration regime which is not observed consistently earlier.
- Coronal magnetic field and topology of active regions on the Sun
- Spatially resolved solar disk observations in the near UV providing information on the radiation output from different features on the Sun
- On-board intelligence to detect CMEs and flares for optimized observations and data volume
- All flares to be observed without any eclipse or sensitivity change (or low energy cut-off).
- Solar wind electrons, protons, and alpha particles fluxes with direction information
- Specific identified flags and count information through telemetry for early information on the space weather events

With carefully chosen payloads for Aditya-L1, the mission would provide unique datasets to study the solar dynamics and its effect on the heliosphere. With continuous observations from L1, Aditya-L1 mission would provide data to study the solar dynamics and the local environment, for a better understanding of the space weather and its physics. The data is expected to unravel answers to many long-standing questions about the Sun and its impact in the interplanetary medium and also in the solar system planets, especially Earth.

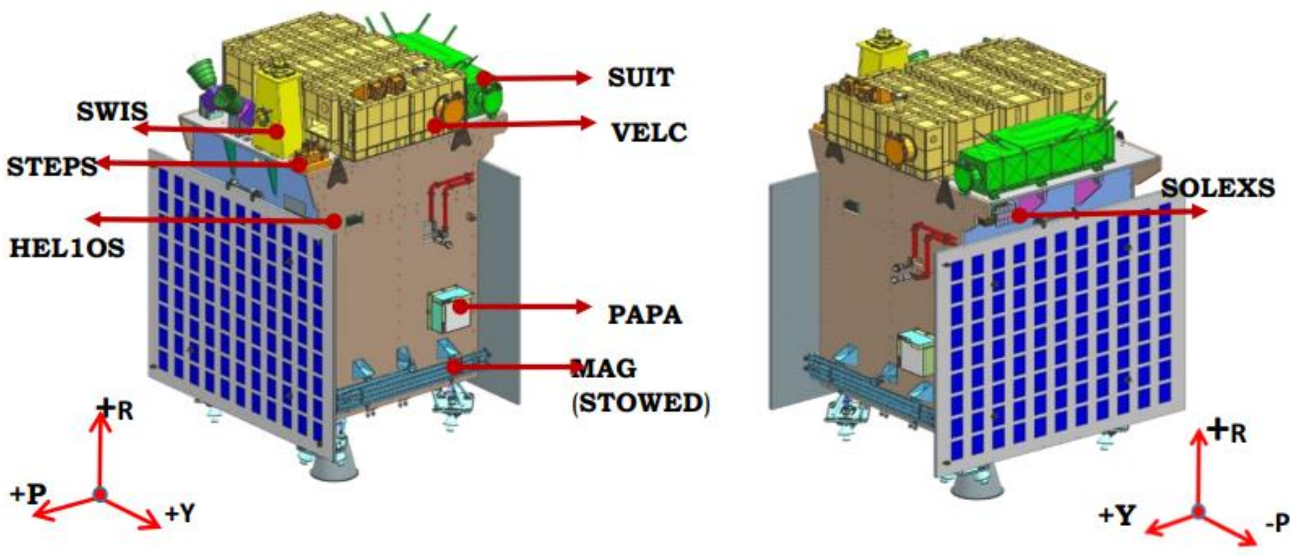

Figure 2. Stowed view of Aditya-L1 spacecraft. The primary and large volume payload in yellow colour on the top deck is VELC and SUIT is next to it and marked in green colour. Optical axis direction is in the +Y (+Yaw) axis. SoLEXS can be seen below SUIT and mounted in the -P (-Pitch) panel. HEL1OS is mounted inside the intermediate deck (Below VELC and SUIT panel) and its collimator is projecting outside. The in-situ payloads (PAPA, ASPEX consisting of SWIS and STEPS packages, and MAG) are also marked in the figure. PAPA and stowed MAG are on the +Y (+Yaw) panel while SWIS and STEPS of ASPEX are mounted on the top deck towards the +P (+Pitch) side of VELC (Courtesy: ISRO).

Article 2:

Report on Database for Solar Soft X-ray (Hinode/XRT) and (E)UV (SDO/AIA & PROBA2/SWAP) Irradiance Variability at ISEE, Nagoya University

H. N. Adithya

R. Kariyappa

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During the solar cycle, a significant variation in solar irradiance is observed in EUV, UV and X-ray wavelength regions. To understand this variation, the segmentation of solar soft X-ray and E(UV) full-disk images for a longer period is necessary. We started with Hinode/XRT data of full-disk soft X-ray images of the solar corona and segmented it into its different features: Active Regions (ARs), Coronal Holes (CHs), Background (BGs), X-ray Bright Points (XBPs) and Limb for the period from February 01, 2008 to June 17, 2023. The data period covers the complete Solar Cycle 24 and the ascending phase of Solar Cycle 25. Out of 8 filters in XRT instrument, we chose the Al-mesh filter for the study since it has good images available for the whole observational period and provides a good signal-to-noise ratio throughout the solar cycle. To segment the features, we used the intensity and area thresholding method. Threshold values were decided by trial and error method. After developing the sophisticated algorithm in Python for segmentation, the mean intensity values of the full-disk and of all the features were calculated. We observed that the intensities of all the features are in phase with the solar cycle, but the number of XBPs is anti-correlated to sunspot number (Adithya, Kariyappa, et al. 2021). A more detailed paper on XBPs' number variability is under preparation.

Since XRT has the unique feature that it allows us to calculate the temperature of the solar corona by filter ratio method. We use filter pairs Al-mesh -Ti-poly (2008-2012) and Al-mesh -Al-poly pairs (2012-2023) to generate temperature maps using the filter ratio meth-

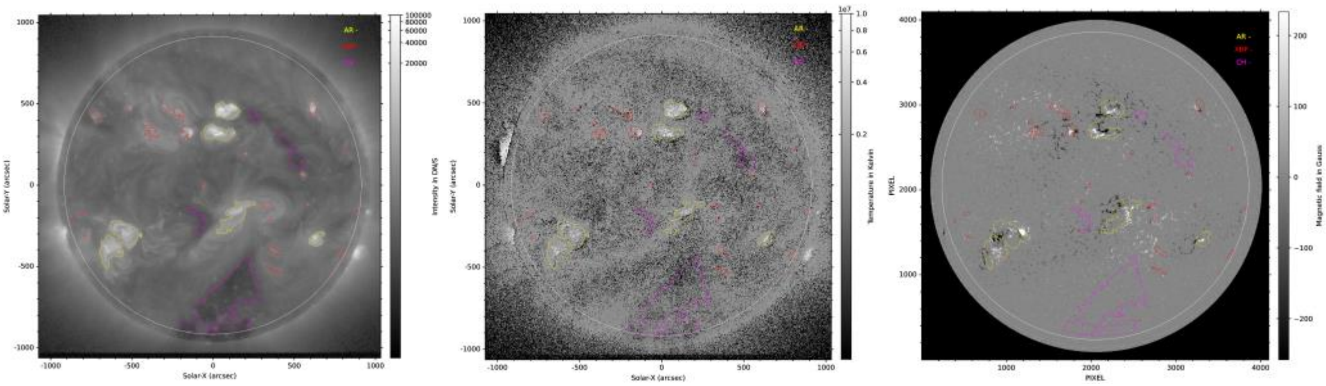

Figure 1. A sample of composite intensity image (left panel), temperature (middle panel, showing black pixels due to thresholding and log scale used here) and magnetic field (right panel) maps observed on March 27, 2012. Maps showing all the features (ARs – Yellow, CHs – Magenta, XBPs – Red and BGs – remaining disk). The white circle on the image is 95% of the radius considered for analysis.

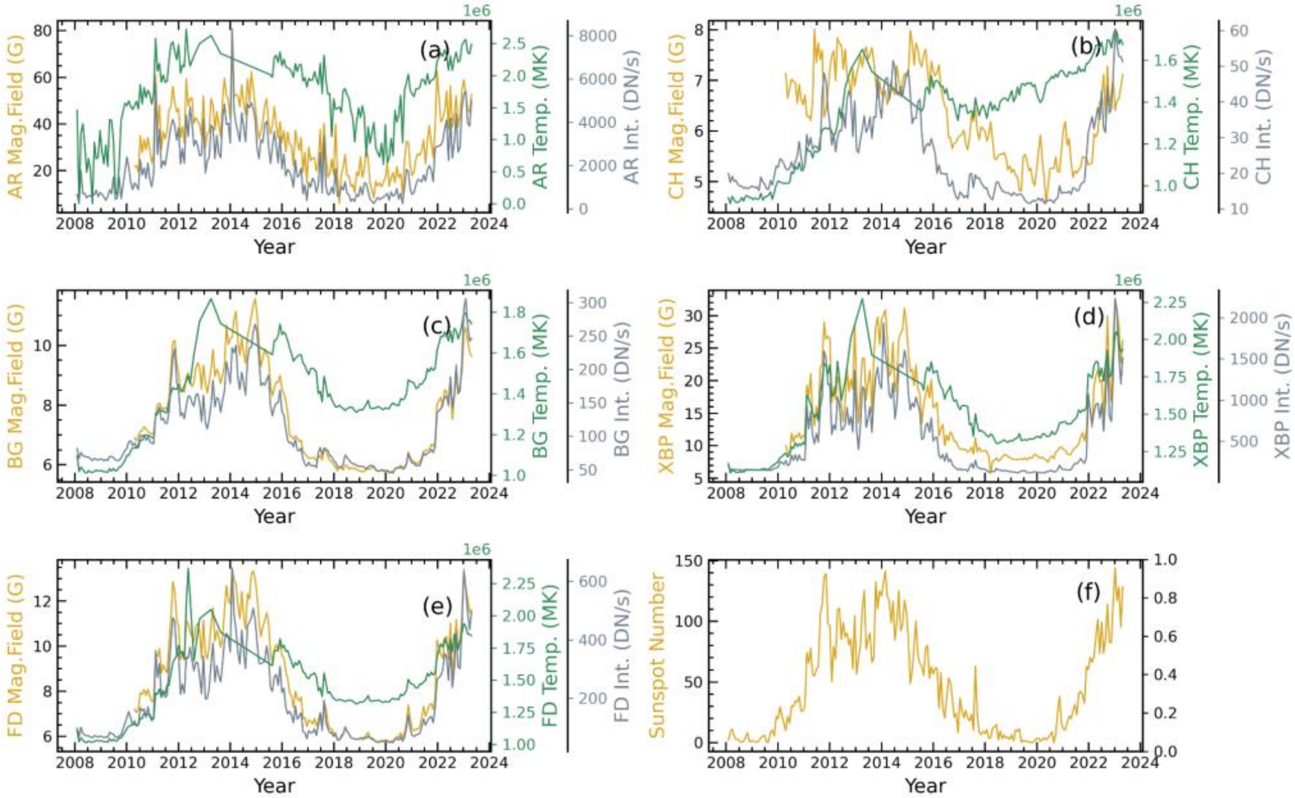

Figure 2. Variation of Intensity (grey), Temperature (green) and Magnetic field (yellow) of coronal features over the Solar Cycle 24 and raising part of the Solar Cycle 25

od. The segmentation maps obtained from our irradiance study overlay the temperature image to get the temperature for different coronal features (Adithya, Kariyappa, et al. 2023).

To study the role of the underlying photospheric magnetic field on X-ray irradiance variability, we compared XRT images with magnetograms by overlaying segmentation maps on magnetograms. We used the 720-second integrated Line of Sight (LOS) magnetograms obtained from HMI on board SDO. With the help of segmentation maps underlying unsigned magnetic fields were extracted (Kariyappa, Adithya, et al. 2023 – under revision).

The segmentation map of XRT images, temperature image (along with the error and photon noise fits file), and time series data of coronal features' intensity, temperature, and magnetic field are made available to the scientific community.

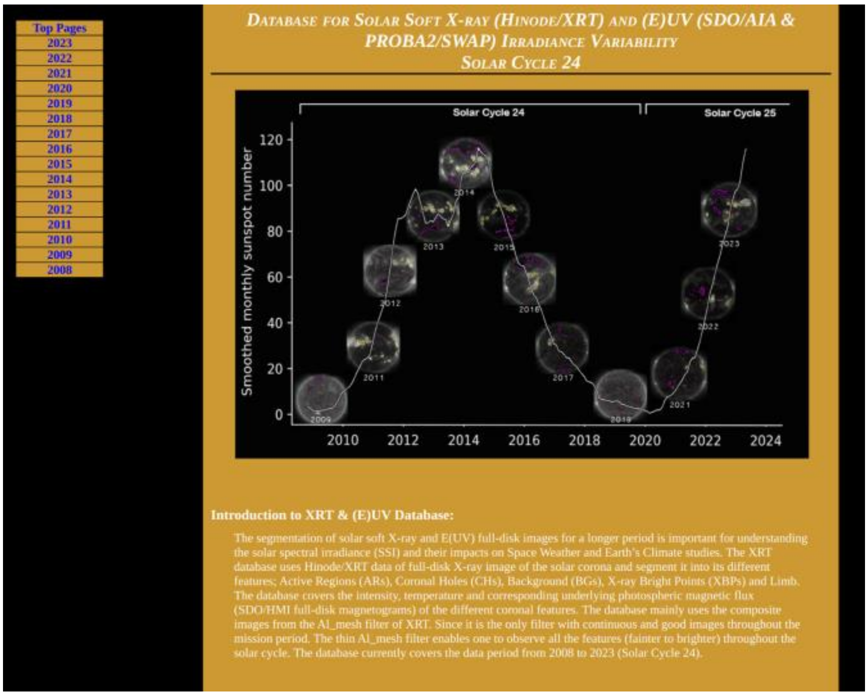

Figure 3. Home page of the database website

A similar work was done on (E)UV full-disk images observed from SDO/AIA, PROBA2/SWAP and SDO/HMI by Joe Zender, R. Kariyappa and others (Zender, Kariyappa, et al. 2017, Zender et al. 2020, Zwaard,2021, Giano, Zender, Kariyappa et al. 2021, Kumara, Kariyappa et al. 2014). The time series data of E(UV) coronal features was also made available through this portal.

The EUV, UV and X-ray data set helps for understanding, modelling and in the reconstruction of the solar spectral irradiance (SSI) variability and to determine their impacts on Space Weather and Earth's Climate and solar-terrestrial related studies.

The database project was funded and supported by the SCOSTEP/PRESTO Database Program and the Institute for Space-Earth Environmental Research (ISEE)/Nagoya University's International Joint Research Program. The link to the database: https://hinode.isee.nagoya-u.ac.jp/xrt_seg/

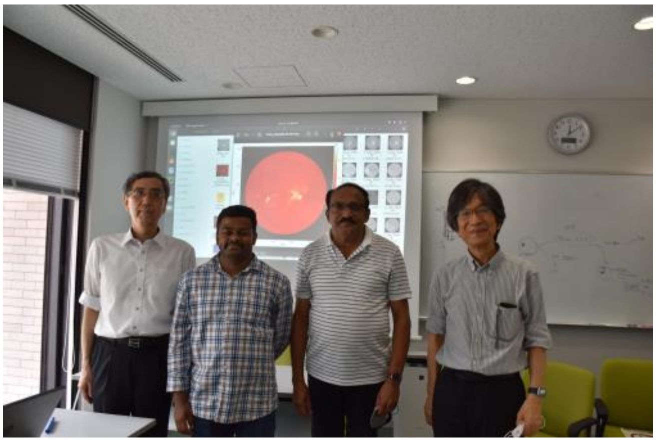

Figure 4. ISEE/Nagoya University from April 15 to July 15, 2022 (from left: Masuda, Adithya, Kariyappa & Kusano)

List of Publications & Related References:

H. N. Adithya, R. Kariyappa, Shinsuke Imada, Kanya Kusano, J. J. Zender, L. Dam, G. Giono, Mark Weber and E. E. DeLuca, 2021, Solar Soft X-ray Irradiance Variability, I: Segmentation of Hinode/XRT Full-Disk Images & Comparison with GOES (1-8) X-ray Flux, Sol. Phys. 296, 71. (doi:10.1007/s11207-021-01785-6).

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R. van der Zwaard, M. Bergmann, J. J. Zender, R. Kariyappa, G. Giono, and L. Dame, 2021, Segmentation of coronal features to understand the solar EUV and UV irradiance variability III. Inclusion and Analysis of Bright points, Sol. Phys. 296, 138. (doi:10.1007/s11207-021-01863-9).

Meetings/Conferences Attended:

"Solar X-ray Irradiance and Features Variability from Spatially Resolved Full-Disk Images from Hinode/XRT and comparing with GOES (1-8A) X-ray Flux", IIA 50th Solar Physics Conference, March 2021 at IIA, Bengaluru, India.

"Temperature variability of coronal features from spatially resolved images of Hinode/XRT", Hinode-14/IRIS-11 joint meeting, held in October 2021 in the USA.

Number Variation of XBPs, Hinode15/IRIS-12, September 2022, Prague, Czech Republic.

"Comparison of the Solar Soft X-ray Images from Hinode/XRT with SOHO/MDI & SDO/HMI Magnetograms", 5th ISEE Symposium, held in November 2022 at ISEE, Nagoya University, Japan .

ISEE Seminar on "Solar X-ray Irradiance and Features Variability from Spatially Resolved Full-Disk Images from Hinode/XRT and comparing with GOES (1-8A) X-ray Flux", in April 2022 at ISEE, Nagoya University, Japan.

"Solar X-ray irradiance variability from Spatially resolved images of the Sun observed with Hinode/XRT" Group committee scientific meeting at IIA Bangalore, in November 2021.

Visits:

Visited ISEE, Nagoya University, Japan several times by the members (R. Kariyappa, H.N. Adithya & Joe Zender) on the Database Program and ISEE International Joint Research Program.

Article · Highlight on Young Scientists · Meeting Report · Upcoming Meetings · Announcement

Article 3:

Message from the Newly Elected SCOSTEP Vice President

Bernd Funke
Instituto de Astrofísica de Andalucía (IAA),
Consejo Superior de Investigaciones Científicas (CSIC), Granada, Spain

Bernd Funke

It was a great honour to be elected as the Vice President of SCOSTEP for the term 2023-2027.

My research has been driven by the need to better understand the role of the Earth's middle atmosphere in mediating the influence of solar variability on climate, as well as the upward coupling of lower atmospheric variability to the upper atmosphere and the near-space environment. This research requires for multidisciplinary approaches and international collaboration. In this context, I have served during the last decade as President of the International Commission of the Middle Atmosphere (ICMA), embedded in the International Association of Meteorology and Atmospheric Science (IAMAS), as Co-chair of the ROSMIC working group "Solar impact on climate" of SCOSTEP's previous research program VarSITI, and as Co-Chair of the SPARC/WCRP activity "Solar Influences on Climate SOLARIS-HEPPA". I also coordinate the development of solar forcing recommendations for climate model experiments within the Coupled Model Intercomparison Project (CMIP) in support of IPCC assessments.

SCOSTEP's current research program PRESTO focuses on the predictability of solar-terrestrial coupling. Prediction of the dynamic Sun-Earth interaction requires coordinated multidisciplinary efforts in order to generate integrated knowledge of the entire system. This demands the synergistic use of existing and future observational capabilities that provide continuous of the Earth System, the Sun, and the space environment, together with the continuous development of novel data assimilation and models. However, these scientifically and technologically complex challenges also offer clear opportunities: to develop scientific capacities and collaboration across the globe, to promote exciting observational and computational technologies, to improve the cost-effectiveness of future technology investments, and to refine projections in support of strategies for better resilience and preparedness, mitigation and adaptation.

I look forward to an exciting four-year term, which will include important milestones such as the definition of a new SCOSTEP science program. I am enthusiastic about helping to foster international collaboration and capacity building in order to prepare the next generation of Sun-Earth system scientists around the world, as well as fostering the engagement between scientists and end-users to promote the co-design of sector-oriented services and increase public awareness.

Highlight on Young Scientists 1:

A New Look at the Theta Aurora Mystery

Shannon Hill

Shannon Hill
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Auroras typically occur along an oval enclosing the polar cap void of emissions, driven by southward interplanetary magnetic field. Theta auroras occur predominantly during northward IMF, forming an unusual bar of auroral light stretching across the dark polar cap from dayside to nightside in a shape resembling the Greek letter theta (Figure 1a) [1]. Though northward IMF is assumed to lead to quiet magnetospheric conditions, the existence of theta aurora indicates transfer of solar wind energy into the magnetosphere, with magnetic topology more complicated than previously assumed.

We use the Space Weather Modeling Framework (SWMF) to simulate a theta aurora event [2]. We identify the theta aurora in the simulation using Joule heating as a measure of energy input into the ionosphere (Figure 1b). The nightside portion of the Joule heating co-located with the theta aurora is primarily on closed field lines, with its poleward most tip intersecting the open-closed field line boundary.

Mapping of the magnetic field from the nightside arc into the magnetosphere (Figure 2) shows that the nightside arc field lines twist around a current reversal region in the tail, with the poleward most field lines intersecting with tail reconnection regions.

Our results showcase the tail complexity during northward IMF, and the importance of space-based imaging of the entire auroral oval for understanding magnetospheric dynamics. Our future simulations will focus on detailing the consequences of northward IMF solar wind driving.

Acknowledgments:

S. Hill thanks the NASA FINESST research grant and the University of Michigan Rackham Merit Fellowship for funding of this project, as well as T.I. Pulkkinen for advisement.

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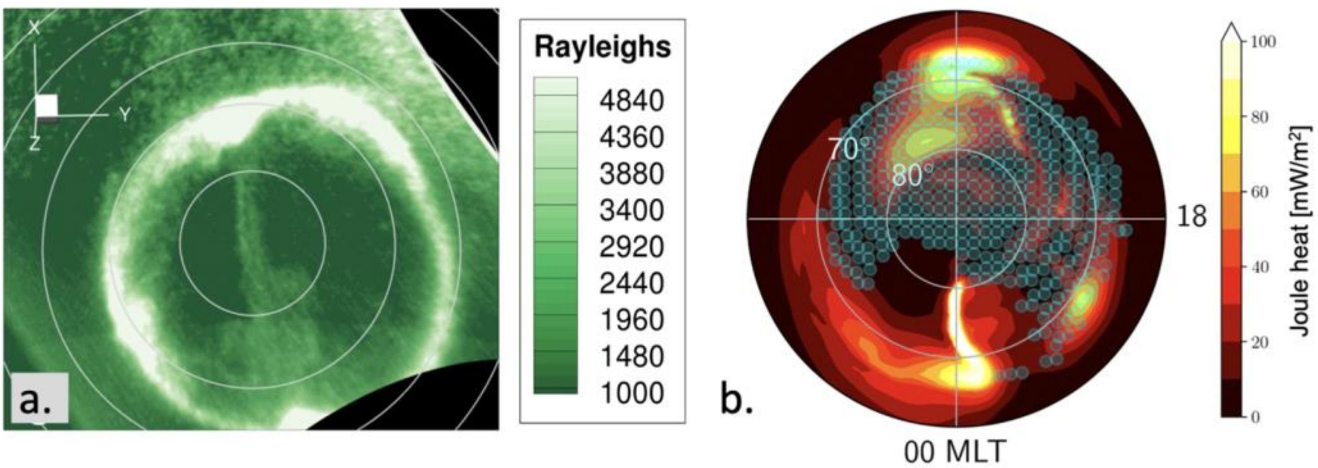

Figure 1. (left) IMAGE spacecraft observations of theta aurora on 15 May 2005, courtesy of Harald Frey. (right) Simulation energy deposition by Joule heating; the blue circles indicate open field line region.

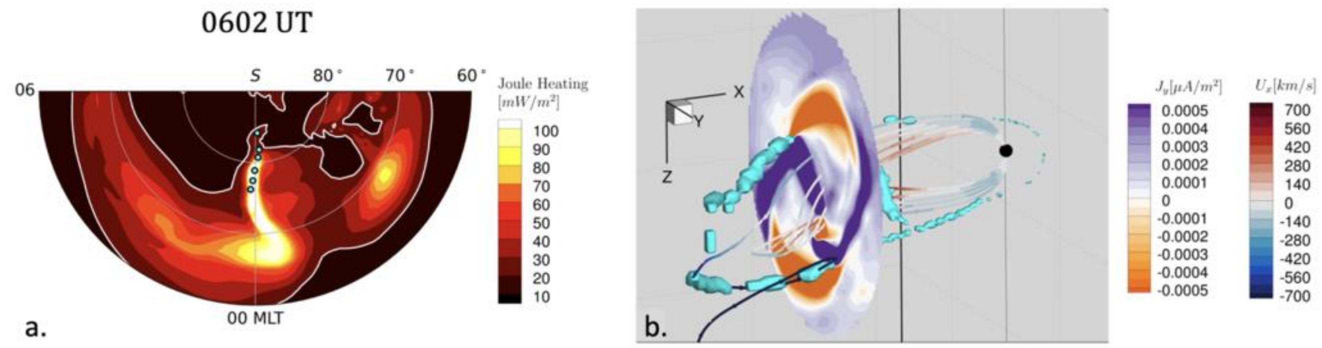

Figure 2. Magnetic mapping to the magnetotail from footpoints along the nightside arc (left) to the magnetotail (right). Potential reconnection regions are shown in cyan, and the cross-tail current is shown in the X=-31 RE plane. The magnetic field lines are color-contoured with the x-component of the bulk flow velocity.

Highlight on Young Scientists 2:

Prominence Eruptions and Coronal Mass Ejections

Pooja Devi

Pooja Devi
Department of Physics, DSB Campus, Kumaun University, Nainital, India

Solar prominences are the large, bright, arc-like features viewed on the solar limb. They can be found in active regions as well as outside (called quiescent prominences). After losing their stable equilibrium, prominences often erupt and become the interior part of coronal mass ejections (CMEs) (Gopalswamy et al. 2003, Labrosse et al. 2010, Parenti 2014). In the three-part spatial structure of CMEs the eruptive prominence

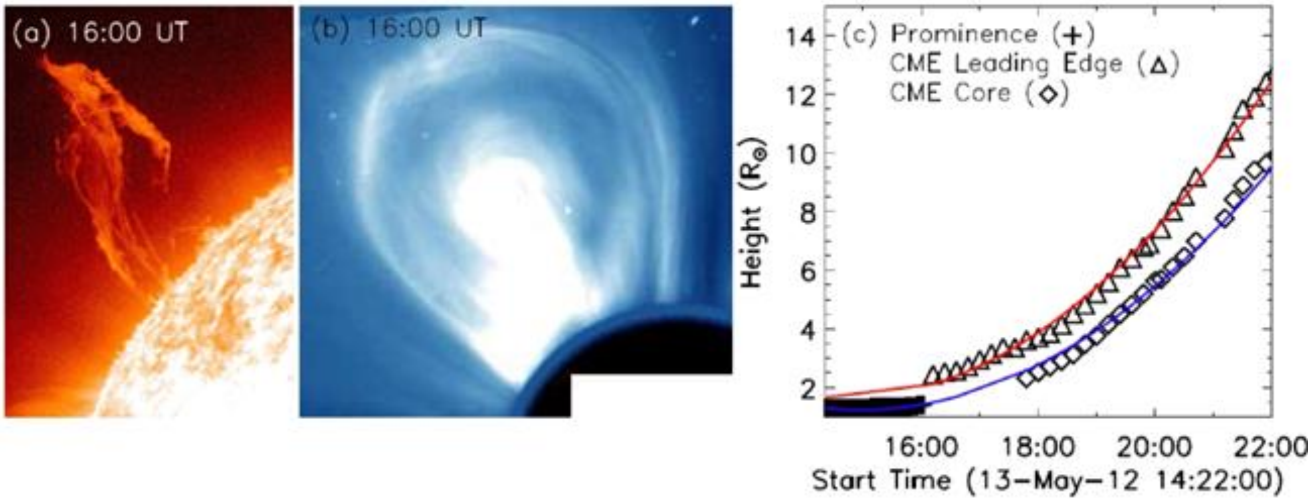

Figure 1. An example PE that occurred on 13 May 2012. (a) the erupting prominence at 16:00 UT in an AIA 304 Å image. (b) the associated CME with a clear leading edge, cavity, and core. (c) height-time measurements and a second order polynomial fits to the measurements of the CME core (blue), and leading edge (red). The heighttime data points of the CME core and PE can be fit by a single curve (red). This illustrates that the prominence and the CME core are same structure at different heights.

[1] https://cdaw.gsfc.nasa.gov/CME_list/autope/

forms the core, underlying the coronal cavity and leading edge.

We studied the relation between the prominence eruptions (PEs) and CMEs during solar cycle 24 (May 2010 – December 2019) by analyzing EUV and coronagraph images from the Atmospheric Imaging Assembly (AIA; Lemen et al. 2012) onboard Solar Dynamics Observatory (SDO, Pesnell et al. 2012) and the Large Angle and Spectrometeric Coronagraph (LASCO; Bruckner et al. 1995) onboard Solar and Heliospheric Observatory (SOHO; Domingo et al. 1995), respectively. We used the list of PEs identified by an automatic detection program[11] (Yashiro et al. 2020). The program detects a prominence and considers it to be eruptive when its height is found to be continuously increasing for 10 mins. To exclude small-scale transients such as jets/surges from our list, we selected only those PEs that have a width >15 degrees. The selection process resulted in a list of 1225 PEs. Based on their trajectories, the PEs were classified as radial (67%), transverse (32%), and failed (1%) cases. The average heights of all, radial, and transverse PEs are 1.31, 1.36, and 1.21 $R_\odot$, respectively, and their average speeds are ~38, 53, and 9 km s^{-1}, respectively.

After a careful examination of the of the movies available in the PE catalog, we checked the association between these prominences and the CMEs. We set a confidence level (CL) from 0 to 5 for this association. The CLs are based on the quality of the association: 0 for no association and 5 for clear association. Out of the 1225 PEs, 662 (54 %) are associated with CMEs for CL 1–5. For clarity, we consider only CL5 events and found that 78 % of the associated CMEs shows clear bright core. The average speed of prominences associated with CMEs, CME core, and CME leading edge are found to be 62, 390, and 525 km s^{-1}, respectively. The highest speed of CME leading edge is be explained using Maričić et al. (2009) when they demonstrated that the rate of acceleration for the leading edge of CME is approximately twice of PEs. Morphological and height time analysis of prominences and CME cores reveals that the prominence material at greater height becomes the CME core (Figure 1).

The temporal and spatial relationship between PEs and CMEs is solar cycle dependent (Gopalswamy et al. 2012). The temporal offset is large during solar

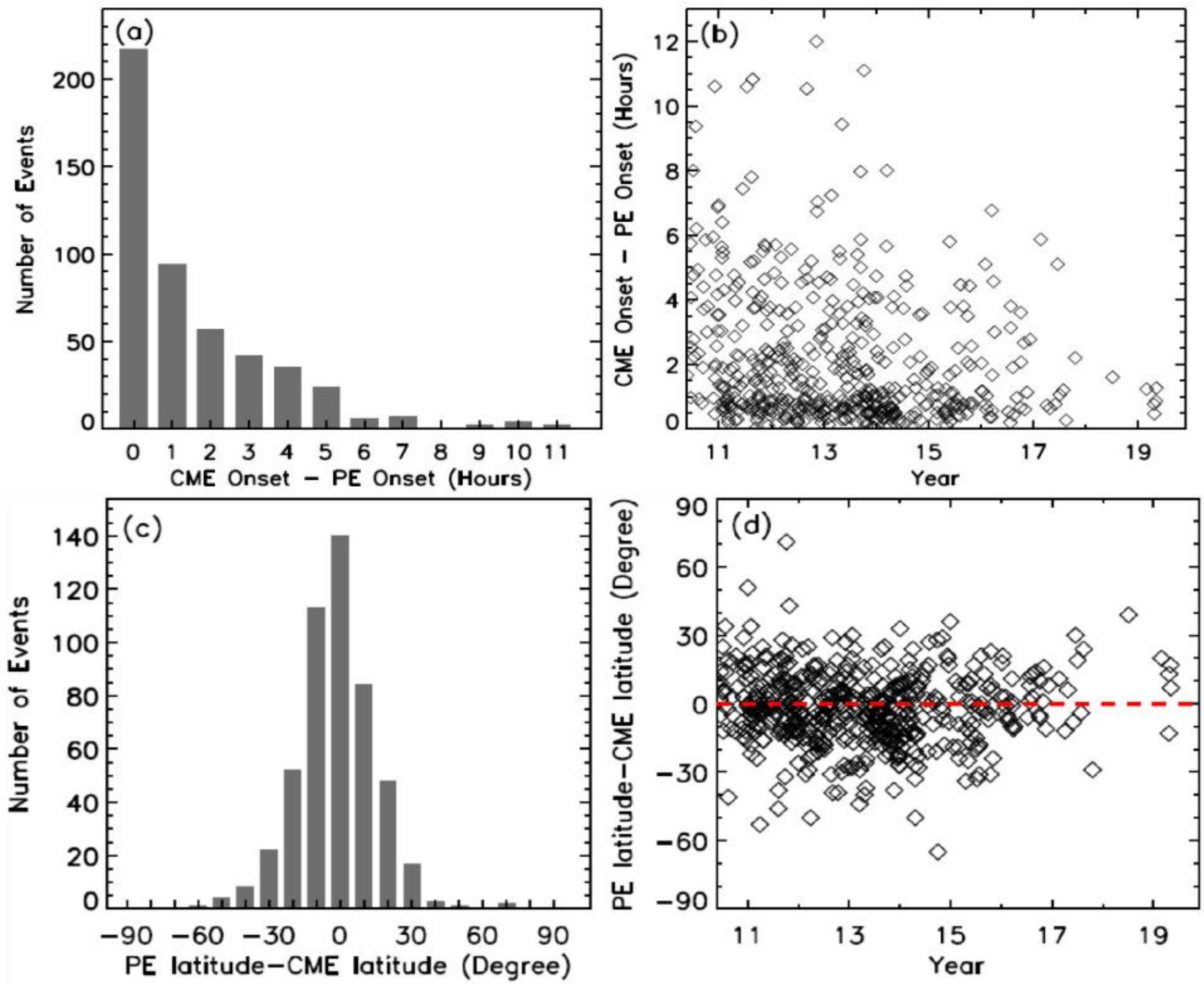

Figure 2. (a) Temporal offset of the PEs from the associated CMEs and (b) its variation during the solar cycle. (c) Latitudinal offset of the PEs from the associated CMEs and (d) its solar cycle variation. The red line in panel (d) corresponds to the 0-degree latitudinal offset.

maxima and small during minima (Figure 2). In the case of spatial relationship, it is found that during solar minima, the central position angle (CPA) of CMEs is closer to the equator than that of the PEs. This behaviour has been attributed to a strong polar field during solar minimum that deflect the CMEs toward the equator (Gopalswamy et al. 2000; Filippov et al. 2001; Gopalswamy et al. 2003).

I thank the SCOSTEP Visiting Scholar Program for giving me the opportunity to work with Dr. Nat Gopalswamy and his team at NASA/GSFC.

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Meeting Report 1:

Space Weather and Upper Atmospheric data analysis training workshop for East African Community

Patrick Mungufeni

Patrick Mungufeni
Muni University, Arua, Uganda

The titled workshop was held during 25 – 29th September 2023 at Muni University, Arua, Uganda. Whereas the Scientific Committee on Solar-Terrestrial Physics under the program, Predictability of the Solar-Terrestrial Coupling provided USD 5000 to fund the workshop, Muni University as the host provided conference hall and internet access. The organizing chairperson was Dr. Patrick Mungufeni. Other members in the organization were, Dr. George Omondi, Dr. Geoffrey Andima, Dr. Sharan Aol, Dr. Valence Habyarimana and Ms. Daphine Ayebare.

Based on the consensus during the preparation meetings, the organizing committee selected 12 lecturers and 14 participants, totaling 26 people (7 females and 19 males). The composition by nationality stands as; Rwanda 02, Kenya 03, Uganda 18, Italy 01, Argentina 02, Sweden 01. Out of the 26 people, 19 were in-person and 7 online. The group photo of the in-person participants is shown below.

All the presentation materials of the workshop can be accessed via the link: http://dir.muni.ac.ug/handle/20.500.12260/576. At the same link, the full report of the workshop shall be available to the public. The full report contains the list of the participants, implemented workshop program and the topics of the technical presentations, opening remarks by Muni University management and the workshop evaluation by the participants.

Figure 1. In-person participants and lectures at the workshop

Meeting Report 2:

The 18th Sun-Climate Symposium, Flagstaff, AZ, 16 – 20 October 2023


Odele Coddington

Odele Coddington
Laboratory for Atmospheric and Space Physics, University of Colorado Boulder, CO, USA

The 2023 Sun-Climate Symposium, sponsored by the Sun-Climate Research Center, a joint venture between NASA Goddard Space Flight Center and the Laboratory for Atmospheric and Space Physics at the University of Colorado, was held as an in-person meeting from October 16-20, 2023 in Flagstaff, Arizona, USA. The Sun-Climate Symposium was formerly known as the NASA SORCE Science Team Meeting.

The topic of this year's symposium was Solar and Stellar Variability and its Impacts on Earth and Exoplanets. Over the course of 3.5 days, 80 presenters from diverse research institutes around the world gave keynote, invited and contributed oral and poster presentations in the following five themed sessions:

- Solar and Stellar Activity Cycles
- Impacts of Stellar Activity on Planetary Atmospheres
- Evidence of Centennial and Longer-term Variability in Climate Change
- Evidence of Short-Term Variability in Climate Change
- Trending of Solar Variability and Climate Change in Solar Cycle 25 (2019-present)

The SCOSTEP/PRESTO program partially supported 8 scientists to travel to the Sun-Climate Symposium and present their research and participate in the discussions. The final program can be viewed at the Symposium website: https://lasp.colorado.edu/meetings/2023-sun-climate-symposium/2023-scs-agenda/.

Figure 1. Group photo

Meeting Report 3:

Report from the International Space Weather Coordination Forum (ISWCF)


Kazuo Shiokawa

Kazuo Shiokawa
SCOSTEP President

On 17 November 2023, the International Space Weather Coordination Forum (ISWCF) was held at the World Meteorological Organization (WMO), Geneva, Switzerland, and I joined as the representative of SCOSTEP. This in-person invitation meeting was held by a joint initiative of the WMO, the International Space Environment Service (ISES) and the Committee on Space Research (COSPAR), intending to shape the future of international collaboration on Space Weather with the aim of increasing the community's ability to mitigate Space Weather threats. These three organizations (WMO, ISES, and COSPAR) are taking initiatives in this respect in response to the recommendation in the final report (A/AC.105/C.1/L.401) of the Space Weather Expert Group of the United Nations Committee on the Peaceful Uses of Outer Space (UN-COPUOS). UN-COPUOS called upon WMO, ISES and COSPAR to lead efforts to improve the global coordination of space weather activities in consultation and collaboration with other relevant actors and international organizations. The international organizations joined in this forum were UNOOSA, UN COPUOS, URSI, ISWI, UN ARCSSTE, SCOSTEP, IUGG/IAGA, IGS, IAU, SCAR, IHDEA, ISO, E-SWAN, APSCO, AOSWA, and ALAGE. The space agencies were ESA, NASA, JAXA, CSA, INPE, EUMETSAT, and CGMS. The ground-based instrumentation teams were EISCAT, SuperMAG, INTERMAGNET, SuperDARN, WIPPS, eCallisto, WDC-SILSO, NMDB, and NSF. Below are the acronyms of the participated organizations, indicating that so many organizations are related to the space weather and its connection with users.

"Statement of Intent" and "Top Level Meeting Summary" from this forum are available at https://community.wmo.int/en/meetings/international-space-weather-coordination-forum.

Table 1. Acronyms related to the ISWCF

ALAGE	Asociación Latinoamericana de Geofísica Espacial
AOSWA	Asia Oceania Space Weather Alliance
APSCO	Asia-Pacific Space Cooperation Organization
ARCSSTE	African Regional Centre for Space Science and Technology Education
Callisto	Compound astronomical low frequency low cost instrument for spectroscopy and transportable
CGMS	Coordination Group for Meteorological Satellites
COPUOS	Committee on the Peaceful Uses of Outer Space
COSPAR	Committee on Space Research
CSA	Canadian Space Agency
EISCAT	European Incoherent Scatter
ESA	European Space Agency
E-SWAN	European Space Weather and Space Climate Association
ET-SWx	Expert Team on Space Weather
EUMETSAT	European Organisation for the Exploitation of Meteorological Satellites
IAGA	International Association of Geomagnetism and Aeronomy

IAU	International Astronomical Union
IGS	International GNSS Service
IHDEA	International Heliophysics Data Environment Alliance
INAG	Ionosonde Network Advisory Group
INPE	National Institute for Space Research
INTERMAGNET	International Real-time Magnetic Observatory Network
ISES	International Space Environment Service
ISO	International Organization for Standardization
ISWAT	International Space Weather Action Teams
ISWCF	International Space Weather Coordination Forum
ISWI	International Space Weather Initiative
IUGG	International Union of Geodesy and Geophysics
JAXA	Japan Aerospace Exploration Agency
NASA	National Aeronautics and Space Administration
NMDB	Neutron Monitor DataBase
NSF	National Science Foundation
PRESTO	Predictability of the variable Solar-Terrestrial Coupling
PSW	Panel on Space Weather
SCAR	Scientific Committee on Antarctic Research
SCOSTEP	Scientific Committee on Solar-Terrestrial Physics
SuperDARN	Super Dual Auroral Radar Network
SuperMAG	Global collection of geomagnetic ground station data
SWEG	Space Weather Expert Group (of UN COPUOS)
UN	United Nations
UNOOSA	United Nations Office for Outer Space Affairs
UNCOPUOS	United Nations Committee for the Peaceful Uses of Outer Space
URSI	International Union of Radio Science
WDC-SILSO	World Data Center - Sunspot Index and Long-term Solar Observations
WICCT	WMO-ISES-COSPAR Coordination Team
WIPPS	Worldwide Interplanetary Scintillation (IPS) Stations
WMO	World Meteorological Organization

Meeting Report 4:

Workshop on Space Weather Science and Opportunities (17 – 18 Oct 2023) and 2nd Indian Space Weather Conference, ISWC-2, (19 – 20 Oct 2023) were organized at the Physical Research Laboratory (PRL), Ahmedabad, India

Duggirala Pallamraju

Duggirala Pallamraju
Chair, Workshop Organizing Committee and Scientific Organizing Committee of ISWC-2
Co-Leader, Pillar-2, PRESTO

Aimed at bringing awareness on space weather to the masters students of science and engineering in India a "Workshop on Space Weather Science and Opportunities" was organized by PRL during 17 – 18 October. Over 340 students (hybrid attendance) that signed up from 127 universities and 25 states across India were taught by the PRL faculty on the topics of the sun, the intervening medium, the earth's upper atmosphere and how the adverse space weather effects affect the satellite orbits, communication, navigational and GPS applications, electric grids on the ground, enhanced radiation for aviation travelers, among others. Laboratory visits were also conducted with demonstrations on the wide spectrum of ground- and satellite-based experiments developed in-house in PRL. This Workshop was followed by the "2nd Indian Space Weather Conference (ISWC-2)" (19-20 October 2023). In addition to science results, presentations on payloads of Aditya-L1 and future aeronomy missions were made in the ISWC-2.

Figure 1. Group photo

Meeting Report 5:

European Space Weather Week, Toulouse (France), 20 – 24 November 2023

Frédéric Pitout

Frédéric Pitout
Institut de Recherche en Astrophysique et Planétologie (IRAP), Toulouse, France

The 19th edition of the European Space Weather Week was held in Toulouse, France, in November 2023 (eswww2023.org). The spirit of this series of conference is to gather all the actors of space weather, from research labs to private companies and operational centres. About 700 registered participants (including about 100 online attendees) took part in classical plenary sessions as well as splinter sessions, either scheduled by the program committee or suggested by the community.

The conference was preceded by satellite events such as a training school for young scientists, ISWAT working sessions and a sustainability workshop. To make the most of the opportunity, a number of public and school outreach initiatives were carried out, such as a space weather village, public lectures and other activities. The European Space Weather Week in Toulouse was sponsored by the SCOSTEP/PRESTO programme.

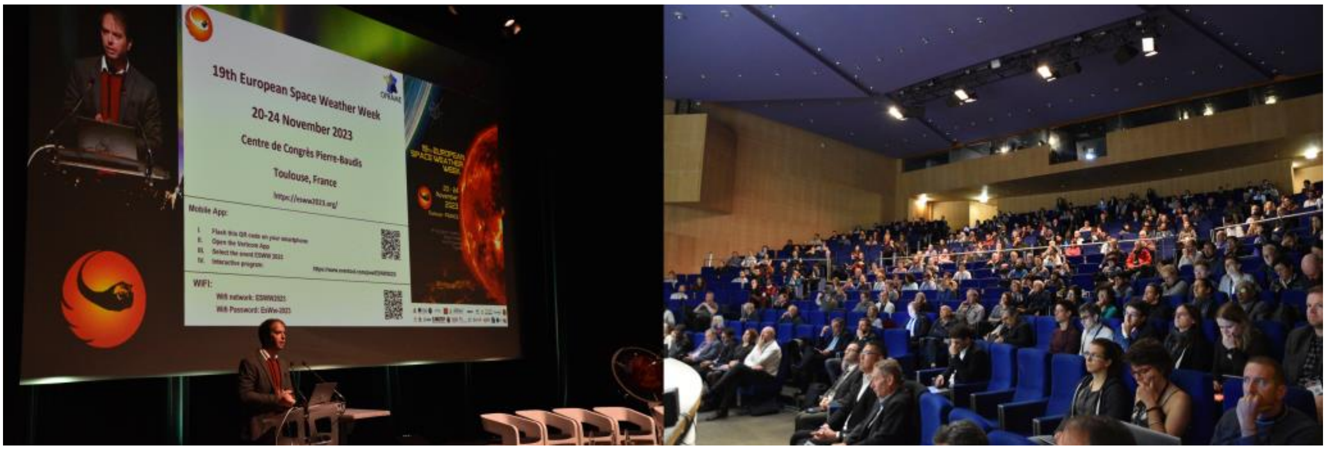

Figure 1. Dr. Alexis Rouillard addressing participants at the opening ceremony of the European Space Weather Week in Toulouse.

Upcoming meetings related to SCOSTEP

Conference	Date	Location	Contact Information
Geomagnetic influence on climate at the Earth	Mar. 5-7, 2024	Helsinki, Finland	https://cosmicrays.oulu.fi/geraclis2024/
XIV COLAGE - Conferencia Latinoamericana de Geofisica Espacial	Apr. 8-13, 2024	Monterrey, Nuevo León, Mexico	https://www.rice.unam.mx/colage2024/
1st European solar physics division (ESPD) summerschool: Energisation and heating in the solar plasma	Apr. 29 - May 3, 2024	Dubrovnik, Croatia	https://oh.geof.unizg.hr/index.php/en/meetings/espd-school-2024

IAU Symposium 388: Solar and Stellar Coronal Mass ejections	May 5-10, 2024	Krakow, Poland	https://iausymposium.zyrosite.com/
12th International Workshop on Long-Term Changes and Trends in the Atmosphere	May 6-10, 2024	Galicia, Spain	https://trends2024.uvigo.es/
The Combined VCAIS/ANGWIN Meeting	Jun. 2-7, 2024	New Brunswick, Canada	
16th yearly Workshop "Solar Influences on the Magnetosphere, Ionosphere, and Atmosphere"	Jun. 3-7, 2024	Primorsko, Bulgaria	https://www.spaceclimate.bas.bg/ws-sozopol/
Space Weather and Upper Atmospheric Data analysis Training Workshop for East African Community	Jun. 10-14, 2024	Maseno, Kenya	
United Nations / Germany Workshop on the International Space Weather Initiative (ISWI)	Jun. 10-14, 2024	Neustrelitz, Germany	https://www.unoosa.org/oosa/en/ourwork/psa/schedule/2024/2024-iswi-workshop.html
45th COSPAR Scientific Assembly	Jul. 13-21, 2024	Busan, South Korea	https://www.cospar2024.org/
XXXII IAU General Assembly	Aug. 6-15, 2024	Cape Town, South Africa	https://astronomy2024.org/
11th SCAR Open Science Conference	Aug. 19-23, 2024	Pucón, Chile	https://scar.org/scar-news/osc2024-draft-list
A COSPAR CAPACITY BUILDING WORKSHOP	Aug. 26- Sep.6, 2024	Samarkand, Uzbekistan	
THE ORGANISATION OF A SCIENTIFIC CONFERENCE: Second Solar MHD conference: Informing MHD simulations from observations	Aug or Sep, 2024	Spain	
International Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI) 2024	Sep. 2-6, 2024	Ile-Ife, Nigeria	
2024 ISWI International School	Sep. 15-21, 2024	Lalitpur, Nepal	https://nps.org.np/
16th International Workshop on Technical and Scientific Aspects of iMST Radar and Lidar (MST16/iMST3)	Sep. 9-13, 2024	Kühlungsborn, Rostock, Germany	https://www.iap-kborn.de/en/news/events/mst16/
ESPM-17	Sep. 9-13, 2024	Turin, Italy	https://indico.ict.inaf.it/event/2553/
11th VERSIM Workshop	Sep. 30 - Oct. 4, 2024	Breckenridge, Colorado, USA	https://aurora.troja.mff.cuni.cz/versim/index_sgo.html#info
Organization of the Ninth International Space Climate Symposium (SC9)	Oct. 1-4, 2024	Nagoya, Japan	
Solar cycle variability: From understanding to making prediction	Oct. 14-18, 2024	Nainital, India	
European Space Weather Week	Nov. 4-8, 2024	Coimbra, Portugal	https://esww2024.org/

Please send the information of upcoming meetings to the newsletter editors.

Announcement 1:

Citation of SCOSTEP Fellow 2023

Dr. Natchimuthuk Gopalswamy

NASA Goddard Space Flight Center, Greenbelt, MD, USA

Natchimuthuk Gopalswamy

Citation: For outstanding contributions to the scientific understanding of solar coronal mass ejections and their space weather consequences, as well as other areas of solar-terrestrial physics, and excellence in promoting international scientific collaboration.

Dr. Nat Gopalswamy is an eminent scientist who has made outstanding contributions to the scientific understanding of solar coronal mass ejections and their space weather consequences, as well as other areas of solar-terrestrial relations, and who contributed much to international scientific collaboration. Coronal mass ejections affect the whole interplanetary space and are responsible for the strongest geomagnetic storms, impacting not only geospace but also space-based and some ground-based human technologies. His work is well demonstrated by the publication of more than 400 papers in refereed journals. He has served as a Principal Investigator, Co-Investigator and Team Member on various space-based experiments. Dr. Gopalswamy received more than twenty different scientific awards, reflecting the high level of his scientific activities. He has served as an associate editor of both the Journal of Geophysical Research and Geophysical Research Letters; since 2006 he has been scientific editor of Sun and Geosphere. He was organizer and/or co-organizer of many symposia, workshops and sections at prominent international meetings, and he directed several International Space Science Schools for graduate students and postdocs. As for Dr. Gopalswamy's SCOSTEP-related activities, the most important one was his presidency of SCOSTEP during the period 2011-2019.

Dr. Gopalswamy received his BSc (1975) and MSc (1977) from the University of Madras and PhD from the Indian Institute in Science (1982). Following graduation he worked for the Indian Institute of Astrophysics and the Kodaikanal Observatory. In 1985 Dr. Gopalswamy moved to the United States where he worked for the University of Maryland, the Catholic University of America and, since 2002, for the NASA Goddard Space Flight Center.

Citation of SCOSTEP Fellow 2023

Dr. Eugene Rozanov

Physikalisch-Meteorologisches Observatorium Davos,
World Radiation Center (PMOD/WRC), Davos, Switzerland

Eugene Rozanov

Citation: For outstanding scientific contributions to our understanding of solar-terrestrial interactions, via both direct and indirect mechanisms, including the role of energetic particle precipitation, ozone variability and solar irradiance variations.

Dr. Eugene Rozanov is an excellent and internationally highly respected scientist working in the field of solar-terrestrial physics with focus on space weather and space climate effects on the middle atmosphere. His outstanding scientific contributions to our understanding of solar-terrestrial relations, via both direct and indirect mechanisms, including the role of energetic particle precipitation, ozone variability, solar irradiance variations, etc. are very significant. He was active in SCOSTEP for years, serving as co-chair of the SCOSTEP PRESTO project from 2021-2022. He has an impressive publication record with more than 270 publications which were cited more than 5000 times, and an h index of 53 (Web of Science). He is the primary author of the dynamical chemistry-climate model, SOCOL. Dr. Rozanov was also very active in organizing scientific conferences, symposia, meetings and schools. He served as an associate editor of Frontiers in Earth Sciences from 2013-2019. He reviewed many papers and scientific projects, as well as the IPCC report. He received at least two significant professional awards.

Dr. Rozanov received a MSc degree (1979) from Leningrad State University and a PhD (1986) from the Main Geophysical Observatory, Leningrad/St. Petersburg (Russia), where he worked from 1979-1997. In 1997 he moved to the University of Illinois, USA, where he remained for three years before moving to Switzerland, working at the PMOD/WRC Davos and partly the ETH Zurich. Dr. Rozanov retired at the end of 2022.

The purpose of the SCOSTEP/PRESTO newsletter is to promote communication among scientists related to solar-terrestrial physics and the SCOSTEP's PRESTO program.

<u>The editors would like to ask you to submit the following articles to the SCOSTEP/PRESTO newsletter.</u>

Our newsletter has five categories of the articles:

1. Articles— Each article has a maximum of 500 words length and four figures/photos (at least two figures/photos). With the writer's approval, the small face photo will be also added. On campaign, ground observations, satellite observations, modeling, etc.
2. Meeting reports—Each meeting report has a maximum of 150 words length and one photo from the meeting. With the writer's approval, the small face photo will be also added. On workshop/conference/ symposium report related to SCOSTEP/PRESTO
3. Highlights on young scientists— Each highlight has a maximum of 300 words length and two figures. With the writer's approval, the small face photo will be also added. On the young scientist's own work related to SCOSTEP/PRESTO
4. Announcement— Each announcement has a maximum of 200 words length. Announcements of campaign, workshop, etc.
5. Meeting schedule

Category 3 (Highlights on young scientists) helps both young scientists and SCOSTEP/PRESTO members to know each other. Please contact the editors if you know any recommended young scientists who are willing to write an article on this category.

TO SUBMIT AN ARTICLE

Articles/figures/photos can be emailed to the Newsletter Secretary, Ms. Miho Sugiyama (sugiyama.miho_at_isee.nagoya-u.ac.jp). If you have any questions or problem, please do not hesitate to ask us.

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