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Article 1:

SWATNet - Space Weather and Doctoral Degree in Marie Curie Network

E. Kilpua

E. Kilpua[1], T. Barata[2], R. Erdélyi[3], D. Del Moro[4], M. Georgoulis[5], M. Korsós[6], K. Murawski[7], A. Nindos[8], K. Petrovay[9], S. Patsourakos[8], S. Poedts[10], R. Vainio[11]
[1]University of Helsinki, Helsinki, Finland
[2]University of Coimbra, Coimbra, Portugal
[3]University of Sheffield, Sheffield, UK
[4]Università degli Studi di Roma Tor Vergata, Rome, Italy
[5]Academy of Athens, Athens, Greece
[6]Hungarian Solar Physics Foundation, Gyula, Hungary
[7]Maria Curie Skłodowska University, Lublin, Poland
[8]University of Ioannina, Ioannina, Greece
[9]Eötvös Loránd University, Budapest, Hungary
[10]KU Leuven, Leuvem, Belgium / UMCS, Lublin, Poland
[11]University of Turku, Turku, Finland

The Space Weather Awareness Training Network (SWATNet) is a European Union's Marie Skłodowska-Curie Innovative Training Network (ITN) project (https://swatnet.eu/). This 4-year project started in February 2021.

SWATNet trains 12 students towards a PhD in the field of heliophysics with a versatile set of skills. There are three main themes and students each have their own research project under a theme. Overall, the network aims to bring significant new knowledge to the field by making a step forward in our understanding of drives of space weather, including solar flares, coronal mass ejections and solar energetic particles. The work combines developing advanced modeling and data analysis tools as well as using the latest observations.

Among the various research activities, the students have explored precursors for solar eruptions and investigated acceleration and transport of charged

Figure 1. Top) First face-to-face training event organized in Coimbra (Workshop 4: Communication and Outreach, 20-22 June, 2022), Bottom) School 2: Sun - Earth Interactions organized in Athens 26-28, 2022.

particles in the corona and heliosphere. They applied interdisciplinary techniques such as Bayesian inference, image recognition and machine learning to characterize solar activity, identify flux ropes from coronal simulations and investigate propagation of eruptions through interplanetary medium.

Studying for a PhD in Marie Curie ITN differs from traditional doctoral training in many aspects. Firstly, students have to pursue double or joint degrees. In practice this means that each student must meet the consolidated criteria for their PhD thesis from two different academic institutions, they have supervisors from two places, take courses at the two universities and perform a 6-12 months visit to another SWATNet academic institution. Secondly, each SWATNet student is assigned a 1-3 month industrial secondment in one of our established space related partner companies, and a month of solar observatory training. Thirdly, all students participate in an ambitious training program organized by the network.

As the project started during the pandemic, training events during the first year were organized online but when the restrictions were lifted, we have had several face to face activities in the forms of workshops and summer schools. These in-person activities were organized in Coimbra, Athens, Sheffield, and Budapest. The topics ranged from solar and heliospheric physics, to space weather, outreach and developing skills needed in the industry world. These training activities consisted of lectures given by SWATNet supervisors, our partners and invited experts, and were supported by group work and hands-on activities. Examples of practices include rehearsals of being in front of the camera, making optimally flying paper planes, coming up with solid space weather themed business ideas and pitching them, writing outreach text on space weather as well as contemplating and solving together different types of space weather related problems.

Figure 2. Annual meeting 2 and Workshop 5: Mini-MBA organized in Sheffield 22-24 March, 2023, Bottom) School 3: Space Weather and our Technology-Based Society and Sun - Earth Interactions and Workshop 6: Entrepreneurship in Space Physics, organized in Budapest 12-17 June, 2023.

One of the interesting training provided by the SWATNet was the one-month observational training period at the Gyula Bay Zoltan Solar Observatory hosted by the SWATNet partner Hungarian Solar Physics Foundation. Students lived in pairs for one month at the 46-meter old water tower located at the center of the small town of Guyla, southeast of Hungary. There they learned how to operate a solar telescope mounted on the top of the tower, learned to design solar observations, writing logs and process the raw solar images they took.

Figure 3. SWATNet students at the Observatory training at the Gyula Bay Zoltan Solar Observatory hosted by the SWATNet partner Hungarian Solar Physics Foundation.

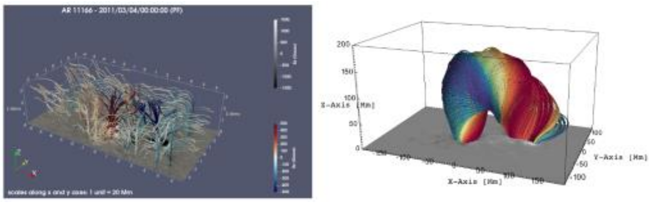

Figure 4. Sample of pictures from SWATNet science gallery (https://swatnet.eu/gallery/). Left) Visualisation of the vertical magnetic field in the lower solar atmosphere extrapolated from the maps of the magnetic field (Shreeyesh Biswal/Project 3), Right) Flux rope extracted from the data-driven lower coronal simulation using a developed flux rope tracking scheme (Andreas Wagner/Project 6) .

While the network has been intense both for the students and supervisors, it offers an excellent opportunity for carrying out a PhD in an international environment, experiencing research practices from two different places and acquiring a diverse set of transferable and research skills.

Space Weather Awareness Training Network (SWATNet) is a project funded by the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 955620.

Article 2:

Application of Machine Learning to the Prediction and Understanding of Space Weather

Jacob Bortnik
University of California, Los Angeles (UCLA), CA, USA

Jacob Bortnik

Space weather can be thought of as the collection of hazardous effects of the heliospheric environment on human health and technological systems [NRC report, 1995]. When geomagnetic activity increases, satellites can experience significant damage [e.g., Choi et al., 2011; Baker et al., 2017], communications can be disrupted including loss of positioning, and intense geomagnetically induced currents can disrupt or destroy major parts of the electric power grid [e.g., Baker and Lanzerotti, 2016]. The total economic impact of a large space weather event has been estimated to be ~\$0.6-\$2T in a recent insurance company report [Lloyd's, 2013] with recovery times ranging from years to over a decade. It is no surprise that numerous government agency reports and policy documents have been put forward over the past ~30 years, highlighting the importance of this problem and recommending better understanding, prediction, and mitigation of space weather impacts [Bonadonna et al., 2017].

Although physics-based numerical models of the space environment have made tremendous strides over the past few decades, such models are inherently limited due to the multi-scale nature of the environment, and incomplete understanding of all the physical processes involved. As an alternative approach, machine learning (ML) models directly infer the behavior of a given system, based on a large dataset of "examples" (called the training set). These examples train a mathematical function known as a ML model to

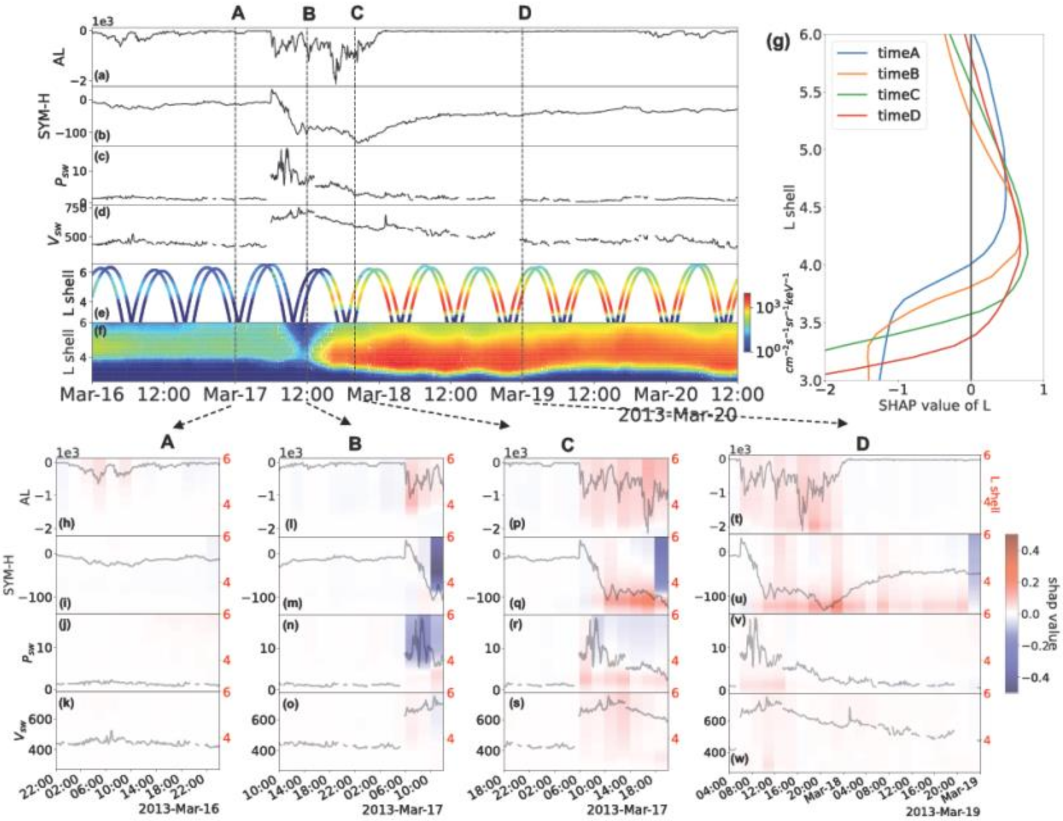

Figure 1 (Based on Ma et al. [2023a], Figure 2). ML model of 17 March 2013 storm. Input time series: (a) AL index, (b) SYM-H index, (c) Solar wind dynamic pressure, Psw (d) Solar wind speed, Vsw (e) Observed and (f) ML modeled 909 keV electron fluxes as a function of time and L-shell, (g) Feature importance based on L-shell, (h)-(k): Color-coded SHAP feature contributions for the model output at time A (2013-Mar-17-0:00) and the corresponding input in a one-day look-back window, (i)-(o): at time B (2013-Mar-17-12:00), (p)-(s): at time C (2013-Mar-17-20:00), (t)-(w): at time D (2013-Mar-19-0:00) but zoomed in a two-day look-back window.

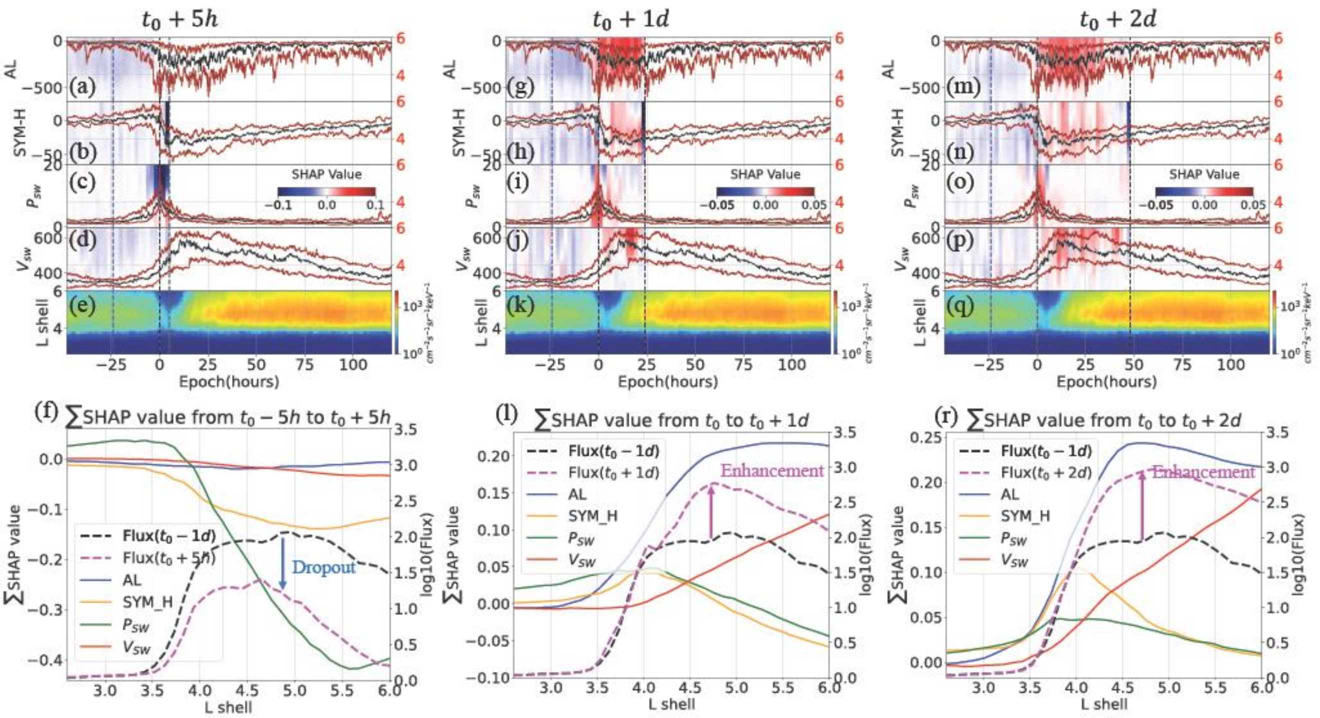

Figure 2 (Based on Ma et al. [2023b], Figure 2). Superposed epoch analysis with SHAP interpretation of geomagnetic indices and solar wind parameters for enhancement events at three different times. The vertical dashed line at $t_0 = 0$ is defined as the maximum of the solar wind pressure P_{sw}, the line at $t = t_0 - 24h$ (1*d*) is the initial flux and the lines at $t_0 + 5h$ (a-f), $t_0 + 24h$ (g-l) and $t_0 + 48h$ (m-r) are the times used to evaluate the corresponding SHAP values. (e, k and q) show the ML model output. The dashed lines in (f, l and r) show the initial flux (purple) and target flux (gold) at different L shells and times. The solid lines show the sum of median SHAP results of different indices: AL (blue), SYM-H (yellow), P_{sw} (green) and V_{sw} (red) indicating their overall event importance.

map a certain set of inputs to the desired outputs. For example, Bortnik et al. [2016] used ~1 million plasma density observations to train a neural network to predict the density at any location in the inner magnetosphere, based on a short (~5 hr) history of the sym-H index. This ML technique has been subsequently used to train a 3D model of plasma density [Chu et al., 2017a; 2017b], plasma waves [Bortnik et al., 2018], and energetic electrons ~50 keV-MeV [Chu et al., 2021; Ma et al., 2022]. ML techniques have also been applied to the long-range prediction of geomagnetic indices [Chandorkar and Camporeale, 2018], various problems in space weather [Camporeale, 2019] and the physical sciences [Bortnik and Camporeale, 2021].

While ML has been used predominantly in a "black box" fashion, a tantalizing new approach uses ML interpretability to uncover the physics that are "baked into" such ML models. Figure 1 shows a geomagnetic storm in March 2013, the solar wind and geomagnetic indices (a-d), the observed (e) and ML model reconstructed radiation belt fluxes (f). Applying SHAP interpretability [Lundberg and Lee, 2017] to the ML model results at 4 times (A-D), reveals the different effects that inputs have on the output of the model at different times and L-shells, pointing the way to new physical insights [Ma et al., 2023a]. This approach can be taken a step further, reinterpreting the traditional superposed epoch analysis of radiation belt dynamics [Katsavrias et al., 2019] using SHAP to show statistical behavior and dependencies [Ma et al., 2023b]. Such developments represent only the first steps in application of ML in prediction and understanding of space weather processes.

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Article 3:

Comprehensive Study of Plasma Wave Fluctuations in the Inner Heliosphere: Towards DUWI Database Establishment


Jiansen He


Xingyu Zhu

Jiansen He[1], Xingyu Zhu[1,2]
[1]School of Earth and Space Sciences, Peking University, Beijing, China
[2]Center for Space Plasma and Aeronomic Research (CSPAR), University of Alabama in Huntsville, AL, USA

In the inner heliosphere, a rich variety of plasma fluctuations creates a vibrant scenario for in-situ exploration by spacecraft. These plasma fluctuations hold a wealth of information about solar and heliospheric activity, including crucial physical processes such as energy transfer and conversion. Therefore, comprehensive research encompassing the detection, identification, and diagnosis of plasma fluctuations is of paramount importance. Fortunately, two major international missions dedicated to the sun and inner heliosphere, the Parker Solar Probe and Solar Orbiter, have recently been equipped with instruments designed for the detection of plasma waves (Fox et al. 2016; Muller et al. 2020). These instruments include electric and magnetic field measurement devices (FIELDS/PSP, MAG/SolO, RPW/SolO), which make it possible to detect, identify, and diagnose plasma waves. Our research is driven by the vision and goal of establishing a standardized workflow for the study of inner heliospheric wave fluctuations. We aim to create a pipeline based on this workflow, enabling the automatic identification and diagnosis of waves in the data stream from in-situ measurements while providing a corresponding diagnostic information database (DUWI: Database for Unambiguous identification of Waves in the Inner heliosphere).

We divide this project into two phases: the first phase focuses on the identification and diagnosis of quasi-parallel propagating fluctuations, while the second phase targets fluctuations with various propagation directions. In the first phase, we concentrate on quasi-parallel propagating fluctuations in the inner heliosphere, particularly electromagnetic transverse waves in the near-Sun solar wind. These waves exhibit electric field fluctuations that are oriented both perpendicular to the background magnetic field and predominantly perpendicular to the radial direction. They lie in the TN plane of the RTN coordinate system and can be detected by PSP's FIELDS and SolO's RPW instruments. In this phase, we introduce a novel approach to obtain the dis-

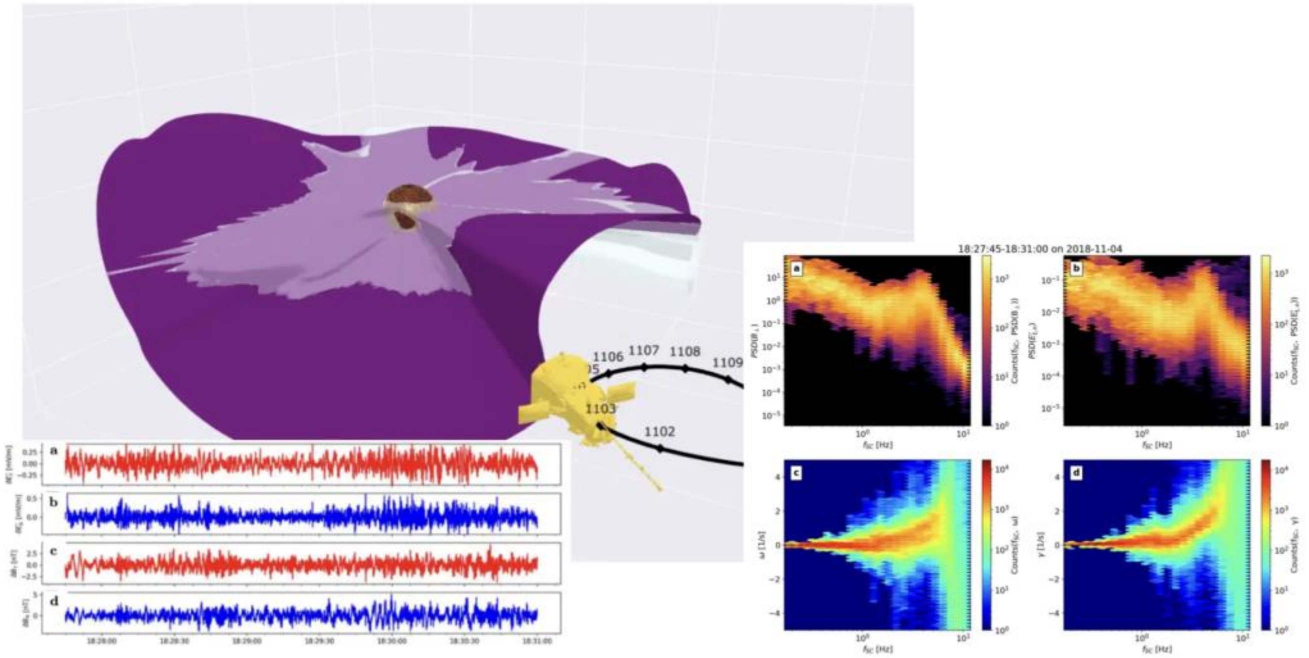

Figure 1. Identification and Diagnosis of a rapidly growing quasi-parallel propagating fast magnetosonic/whistler wave event during Parker Solar Probe's first close encounter. The top left panel shows the configuration of the heliospheric current sheet, the Parker Solar Probe's flight path, and attitude. The bottom left panel displays the detection of wave magnetic and electric fields. The bottom right panel presents the dispersion relation and growth rate of the identified fast magnetosonic/whistler wave event.

persion relations and growth/dissipation frequency spectra of these fluctuations. The primary results of this phase are presented in Figure 1, and the relevant work has been published in the Astrophysical Journal in 2022 (He et al. 2022). Next, we primarily focus on the second phase of our work. Figure 2 illustrates the procedural flowchart for the analysis steps in this second phase.

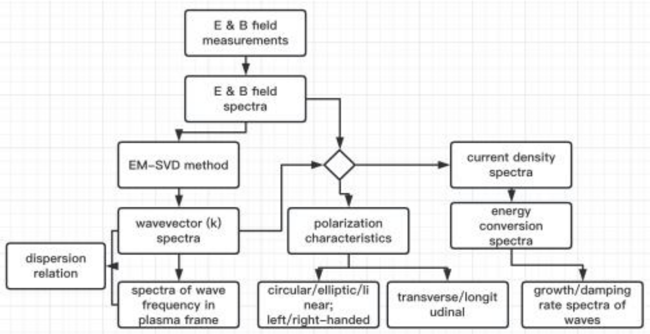

Figure 2. Flowchart of the analysis steps for the second phase of this work.

Based on the measurements of electric and magnetic fields by PSP and SolO, we employ the method of ElectroMagnetic-field-based Singular Value Decomposition (EM-SVD) to compute wavelet spectra of wave vectors in two-dimensional space (time and period). Furthermore, by considering the Doppler effect of wave frequencies in different reference frames, we transform the wavelet spectra of wave frequencies from the spacecraft frame to the solar wind plasma frame. Based on the calculated spectra of wave vectors and wave frequencies, we perform statistical analyses to derive the dispersion relations of the relevant plasma wave fluctuations. On the other hand, utilizing the spectra of wave vector components and the spectra of magnetic field perturbations, we compute the spectra of magnetic field fluctuations' polarization properties. This allows us to determine whether the waves exhibit circular polarization, elliptical polarization, or linear polarization, as well as whether they are left-handed or right-handed polarized. By conducting statistical analyses on the dispersion and polarization properties of the fluctuations, we can ascertain the inherent wave modes of the observed wave event.

To explore the energy conversion rates of waves, especially the energy conversion between fields and particles, we not only require information about the electric field but also data on electric currents. Measuring current density through precisely measuring the motion of electrons is a challenging task. Leveraging the favorable conditions provided by the spectra of wave vectors that we have already obtained, we apply the Fourier transform form of Ampère's law to derive the wavelet spectra of electric current densities.

Based on the wavelet spectra of electric current densities and electric fields, we construct wavelet spectra of the energy conversion rates between fields and particles. This allows us to diagnose whether the observed waves are in a state of growth (gaining energy from the free energy of solar wind particles) or dissipation (losing wave energy to energize solar wind particles). Utilizing the analysis framework established in the second phase, we analyzed the plasma wave observations made by PSP near the perihelion during its 11th orbit on February 25, 2022 (see Figure 3). By analyzing plasma waves as PSP crossed the current sheet, we observed a significant enhancement in current density spectra, a pronounced decrease in propagation phase velocity, and a notable increase in wave energy conversion rates near the current sheet. This case study instills our confidence in extending the application of this method to a broader range of observations in the inner heliosphere.

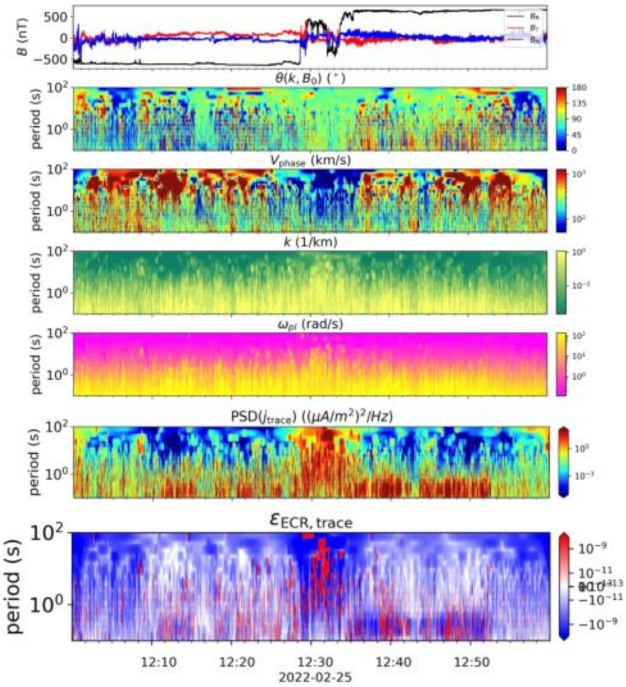

Figure 3. An example of plasma wave analysis near and around the current sheet detected by the Parker Solar Probe. From top to bottom, the panels show the three components of the interplanetary magnetic field, the wavelet spectra of propagation angles, the spectra of phase velocities, the spectra of wave numbers, the spectra of wave frequencies in the plasma frame of reference, the spectra of current density, and the spectra of energy conversion rates.

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Highlight on Young Scientists 1:

Latitudinal Movement of EIA Crest as seen in OI630.0nm Nightglow Emissions over Low-Latitudes

Sovan Saha

Sovan Saha
Physical Research Laboratory, Ahmedabad, India

Airglow emissions act as tracers to the altitudes of the upper atmosphere from where they originate. Measurements of OI630.0 nm nightglow (redline) emissions using High Throughput Imaging Echelle Spectrograph (HiTIES), having 54° field-of-view, oriented in the meridional direction enables to provide the intensity variations over a large spatial distance at Mt. Abu (24.6°N, 72.7°E, 19°N Mag), a low-latitude location in India.

The nighttime redline emissions over the low-latitudes show different variabilities, such as post-sunset enhancement in emissions (Saha et al., 2021; 2023), latitudinal gradient in emissions (Saha and Pallamraju, 2022), imprint of gravity wave scale-sizes in plasma bubbles (Saha et al., 2022), etc. The latitudinal movement of crest of the equatorial ionization anomaly (EIA) has been investigated using the redline emission measurement over a large spatial region at low-latitudes. The emissions towards north of Mt. Abu were found larger after sunset, and later in night, the locations of these enhanced emissions are seen to be shifting southwards (Figure 1), indicating the reversal in the movement of the EIA crest. The curl-free condition of the ionospheric electric field over the equatorial region during geomagnetic quiet times has been validated using simultaneous measurements of the daytime equatorial electrojet (EEJ) strength over Indian longitudes and nighttime incoherent scatter radar measured plasma vertical drifts over Jicamarca. The changes in the daytime EEJ strength over Jicamarca have been compared with the concurrent nighttime reversal speeds of the EIA over the Indian sector, which show a remarkable relationship with each other (Figure 2). This result showed indirect experimental evidence of the relation between the reversal speeds in EIA and the nighttime zonal electric field. It is hereby proposed that the nightglow emissions can serve as a proxy for the determination of nighttime equatorial electric field in that longitude, which is otherwise difficult to measure (Saha and Pallamraju, 2022).

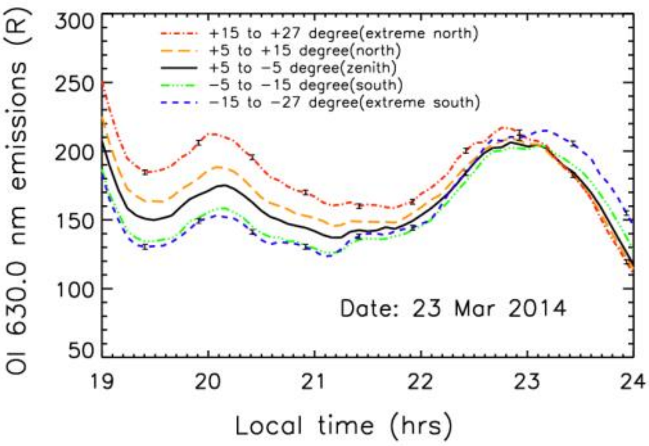

Figure 1. OI630.0 nm nightglow emission variation on a given night over Mt. Abu, a low-latitudinal location. The emissions from different direction over Mt. Abu are depicted in different colours. The uncertainties in emission measurements are shown for extreme north and south directions.

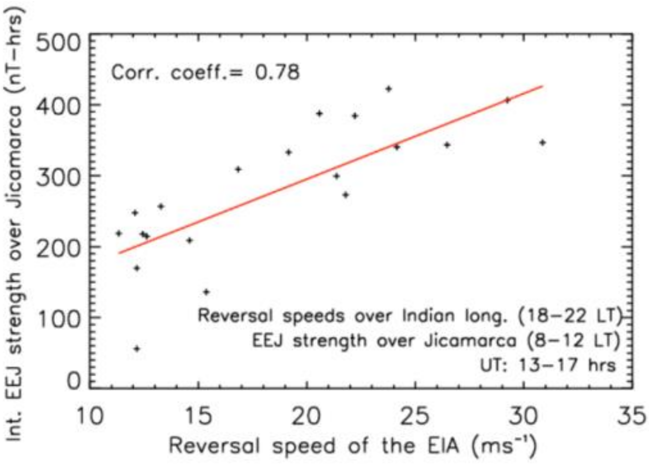

Figure 2: Integrated EEJ variation for the duration 8–12 LT over Jicamarca is compared with the reversal speed of EIA over Indian sector for the year 2014.

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Meeting Report 1:

16th Hellenic Astronomical Conference 26-28 June 2023, Athens, Greece

Vassilis Charmandaris
President of HelAS, Athens, Greece

Vassilis Charmandaris

The 16th Conference of the Hellenic Astronomical Society (HelAS) took place in Athens on June 26-28, 2023 (https://helas.gr/conf/2023/). A total of 160 participants from 21 countries presented their science in 108 oral and 46 poster contributions. The four plenary talks were given by Dr. Y. Zouganelis (ESA, Spain) on “Unlocking the Secrets of the Sun: Early Discoveries and Future Prospects of the Solar Orbiter Mission”, Dr. N.M. Forster Schreiber (MPE, Germany) on “Star-forming Galaxies at Cosmic Noon and Beyond”, Prof. Dr. M. Kramer (MPIfR, Germany) on “Radio pulsars as probes of fundamental physics” and Dr. J. Laskar (Obs. de Paris, France) on “Chaos in the Solar System”.

During the Conference a special session was devoted to the celebration of the 30 years since the foundation of the Society and several public outreach events were organized throughout the city of Athens.

Figure 1. A group photo of the participants of the 16th Hellenic Astronomical Conference.

Meeting Report 2:

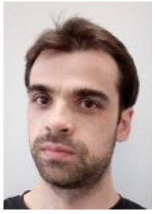
3rd Iberian Space Science Summer School (i4s)


Anna Morozova


Teresa Barata


Ricarde Gafeira


Consuelo CId


Manuel Flores


Antonio Guerrero

Anna Morozova[1,2], Teresa Barata[1,2], Ricardo Gafeira[1,2], Consuelo Cid[1,3], Manuel Flores[1,3], Antonio Guerrero[1,3]
[1]i4s LOC members
[2]University of Coimbra, Coimbra, Portugal
[3]University of Alcalá, Alcalá de Henares, Spain

The third edition of the i4s school was held in-person between 26th and 30th of June 2023 at the University of Coimbra in Portugal. The local organization was carried out by the IA-UC research centre (Portugal) and SWE-UAH research group (Spain) with the support from SCOSTEP. Eighteen students from 16 different countries from Africa, America, Europe, and Asia participated, attending lectures given by 11 scientists from all over the world covering all areas related of the Sun-Earth interaction. Grouped in four projects the students worked on specific space weather events studying event's development from solar sources to consequences for Earth's infrastructure. Students also presented their own research as oral and poster presentations. Travel and accommodation grants as well as organizational expenses were covered thanks to grants by SCOSTEP, ISWI, ISEE and E-SWAN. School participants had the opportunity to visit museums of the University of Coimbra, one of the oldest universities in Europe, and to visit the Geophysics and Astronomy Observatory of the University of Coimbra to have night observations of the sky.

Figure 1. A group photo of the participants of the 3rd Iberian Space Science Summer School (i4s) .

Meeting Report 3:

The AGATA Kick-off Meeting


Lucilla Alfonsi

Lucillla Alfonsi
Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy

The Antarctic Geospace and ATmospheric reseArch (AGATA) Programme Planning Group approved by SCAR at the end of 2022 was officially kicked off in Berlin as a side meeting of the IUGG General Assembly on 12 July 2023 and online. The meeting was very well attended, reaching about 80 participants! Thanks to the support of SCAR and SCOSTEP/PRESTO, the AGATA leading team provided financial support to six people, students and Early Career Researchers, to attend the KOM. The meeting was originally planned to last one hour and a half, but the enthusiast participation resulted in further discussion extending beyond the official close.

During the meeting the attendees provided interesting feedback to the AGATA team that is currently working hard on the proposal of a new SCAR Scientific Research Programme that will be soon evaluated by the SCAR Executive Committee.

To learn more on AGATA and join the initiative visit: https://scar.org/science/agata/about/.

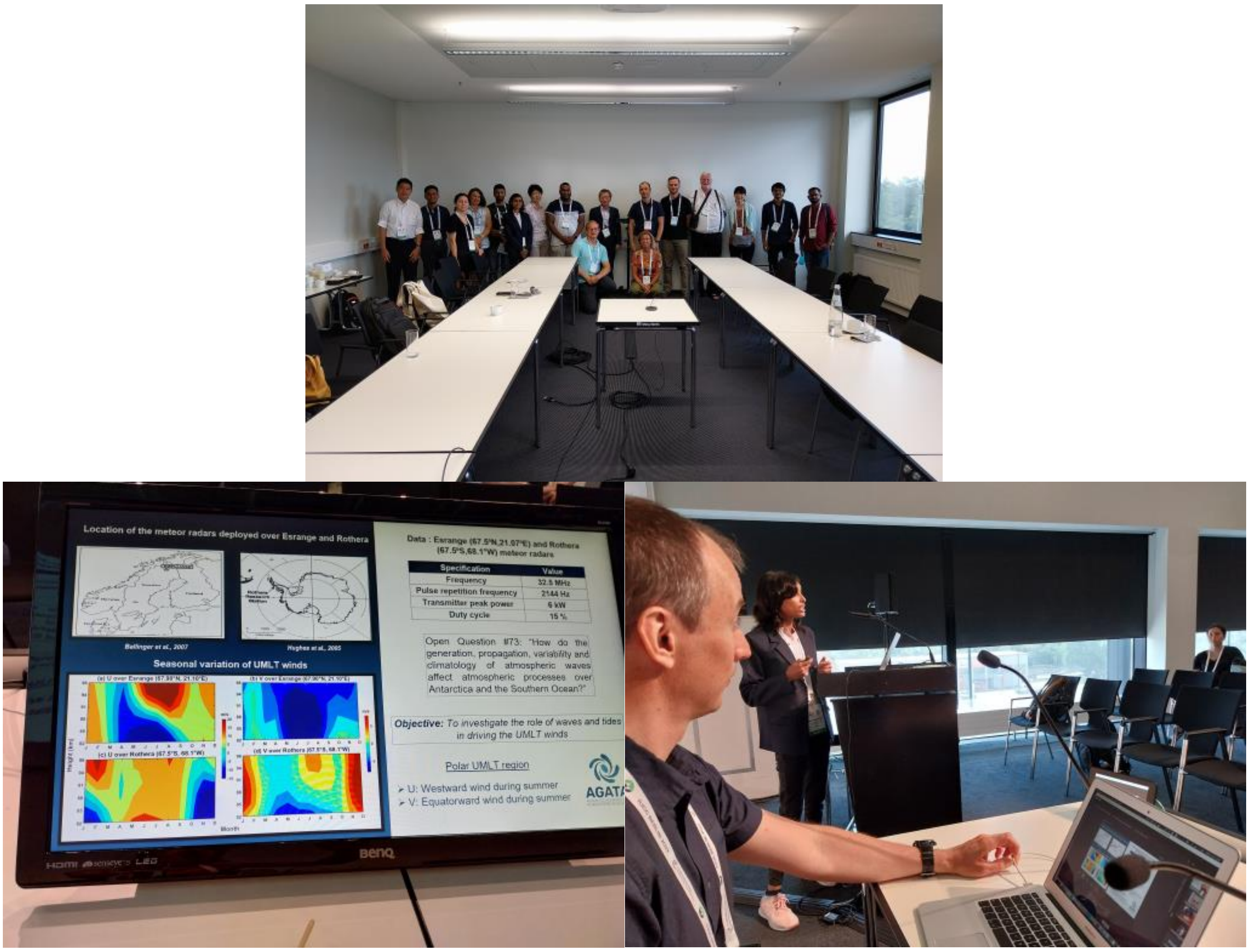


Figure 1. Photos of the AGATA Kick-off meeting.

Meeting Report 4:

International Colloquium on Equatorial and Low-Latitude Ionosphere (ICELLI)


Babatunde Rabiu

Babatunde Rabiu
United Nations African Regional Centre for Space Science and Technology Education- English, Obafemi Awolowo University Campus, Ile Ife, Nigeria

The International Colloquium on Equatorial and Low-Latitude Ionosphere (ICELLI), was held at University of Ilorin, Nigeria between 4th and 8th September 2023. At prime, 53 physical and 73 virtual participants from 21 countries participated in the Colloquium, which was jointly organized by United Nations African Regional Centre for Space Science and Technology Education in English; Network of Space-Earth Environmentalist; Scientific Committee on Solar Terrestrial Physics PRESTO/SCOSTEP; Boston College, USA; UN International Space Weather Initiative; Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan; University of Ilorin, Nigeria; University of Oslo, Norway; JSPS Program; Abdus Salam International Centre for Theoretical Physics, Italy; and African Geophysical Society. The 7th edition like others, featured lectures, tutorials and hand on sessions on topics geared towards understanding of the Sun and its impact on space weather; the dynamics of the equatorial ionosphere, and how space weather impact on space-dependent technologies. The participants visited the Space Environment Research Laboratory, Abuja, Digisonde facility and other observational facilities at the University of Ilorin, Space Museum of the UN-African Regional Space Science and Technology Education, Ile-Ife, and the NigerBEAR radar at Bowen University Iwo.

Figure 1. A set of participants at ICELLI 2023.

Meeting Report 5:

IMCP 2023 Space Weather School

Liwen Ren
IMCP Program Manager

Liwen Ren

The International Meridian Circle Program (IMCP) is dedicated to advancing the understanding of geospace and atmospheric coupling processes which may ultimately give rise to space weather consequences. IMCP successfully conducted its first Space Weather School from September 14 to 22, 2023 at its newly dedicated headquarters in Beijing, China. A total of 41 students from 14 countries participated in the school. Accompanying them were 25 esteemed lecturers and teaching assistants from 5 countries.

The school encompasses a comprehensive program comprising a series of geospace science and technical lectures, hands-on data analysis through mini research projects, technical visits, and instrument demonstrations. It emphasized close interaction between students and leading experts and recognized the pivotal role of collaboration among student team members as key components of the learning experience.

IMCP school was sponsored by SCOSTEP, the Chinese Academy of Sciences (NSSC, CAS), the Asia-Pacific Space Cooperation Organization (APSCO) and National Natural Science Foundation of China(NSFC).

Figure 1. IMCP 2023 Space Weather School Group Photo.

Upcoming meetings related to SCOSTEP

Conference	Date	Location	Contact Information
The European Space Weather Week (ESWW)	Nov. 20-24, 2023	Toulouse, France	http://esww2023.irap.omp.eu/
AGU Fall Meeting 2023	Dec. 11-15, 2023	San Francisco, CA, USA	https://www.agu.org/fall-meeting
XIV COLAGE - Conferencia Latinoamericana de Geofísica Espacial	Apr. 8-13, 2024	Monterrey, Nuevo León, Mexico	https://www.rice.unam.mx/colage2024/
IAU Symposium 388: Solar and Stellar Coronal Mass ejections	May 5-10, 2024	Krakow, Poland	https://iausymposium.zyrosite.com/
45th COSPAR Scientific Assembly	Jul. 13-21, 2024	Busan, South Korea	https://www.cospar2024.org/
XXXII IAU General Assembly	Aug. 5-16, 2024	Cape Town, South Africa	https://www.iau.org/science/meetings/future/symposia/
11th SCAR Open Science Conference	Aug. 19-23, 2024	Pucon, Chile	

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

Announcement 1:

In Memoriam

Joe Haskell Allen
(June 6, 1939 – March 4, 2023)

We are sad to announce the passing of Joe Haskell Allen, former SCOSTEP Scientific Secretary (1994 – 2006).

Joe Allen passed away on March 4, 2023, in Denton, Texas, at the age of 83. He was born on June 6, 1939, in Oklahoma City, Oklahoma, USA. He studied physics at the University of Oklahoma, and later earned his Master of Science in engineering from the University of California at Berkeley.

Joe Allen's service to space research and to SCOSTEP began when he commenced his scientific career in 1963 after joining what was to become the NOAA Geophysical Data Center. It coincided with the development of SCOSTEP, first as an ICSU Inter-Union Commission, then a Special Committee in 1972 and finally as a Scientific Committee on Solar-Terrestrial Physics in 1978. Joe Allen played a key role in the first SCOSTEP international science program, the *International Magnetospheric Study* (IMS) that began in 1976. He established and ran the Central Information Office (IMS CIE) (1976 – 1979) that helped coordinate the various activities and bodies involved in IMS. Joe Allen also established the IMS Newsletter and mailed it out regularly to a worldwide network of more than 4000 space scientists. In 1981, he became the chief of the Solar – Terrestrial Physics Division of the National Geophysical Data Center. As a service to the broader Solar -Terrestrial physics community Joe Allen developed a number of indices to delineate solar effects on the Earth's magnetic field, including the widely used AE index. Investigating the solar-induced magnetic field disturbances led him to the realisation through the 1970s of the links between short-term solar disturbances and satellite anomalies and thus to the broader understanding of short-term solar impacts on geospace, now called "space weather." In fact, Joe was the first to coin this phrase at a conference on Space Environment Effects on Satellites and Other Technology and Humans held in Boulder, Colorado in October 1985. The failure of the Galaxy-4 satellite in 1998 and Baker and Allen's subsequent investigations led SCOSTEP to declare April-May 1998 a "special study interval", outcomes from which were the focus of many papers at SCOSTEP meetings, especially at the STP Symposium in Sapporo, Japan, 2000.

Joe was also actively involvement in SCOSTEP workshops and the quadrennial international symposia on Solar-Terrestrial physics (STP) and served on scientific and local organizing committees (e.g., on STP-8, Sendai, June 1994, STP-10, Longmont, 2001, and STP-11, Rio de Janeiro, March 2006). He also served on many National Academy of Sciences working groups and panels, with similar service on panels for ICSU unions and associations e.g., COSPAR, IAGA. Joe Allen's dataset of spacecraft anomalies was likely the largest in the civilian community.

In 1994 Joe Allen became SCOSTEP's Scientific Secretary, a position that he held until 2006, making him one of the longest serving members in this position. It is difficult to overstate the importance of the Scientific Secretary to the successful running of SCOSTEP; the responsibilities are many and varied, ranging from administration to finances and public outreach. Joe excelled in the position. He was a prolific writer of letters, memoranda, and reports for various national and international organizations (e.g., NSF, IAGA, COSPAR, ICSU). He oversaw the planning and management of SCOSTEP scientific programs (e.g., STEP, S-RAMP, EPIC, PSMOS, ISCS, CAWSES). His extensive knowledge of US and international space programs and bureaucracies and his many contacts were invaluable.

In October 2013 Joe Haskell Allen was awarded the SCOSTEP Distinguished Service Award for his outstanding and selfless service in supporting SCOSTEP programs and the SCOSTEP community over nearly four decades.

Marianna Shepherd,
SCOSTEP Scientific Secretary 2010-2019

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

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

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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Editors:

Kazuo Shiokawa (shiokawa_at_nagoya-u.jp)
SCOSTEP President,
Center for International Collaborative Research (CICR),
Institute for Space-Earth Environmental Research (ISEE), Nagoya University,
Nagoya, Japan

Keith Groves (keith.groves_at_bc.edu)
SCOSTEP Scientific Secretary,
Boston College, Boston, MA, USA

Ramon Lopez (relopez_at_uta.edu)
PRESTO chair,
University of Texas at Arlington, TX, USA

Newsletter Secretary:

Miho Sugiyama (sugiyama.miho_at_isee.nagoya-u.ac.jp)
Center for International Collaborative Research (CICR),
Institute for Space-Earth Environmental Research (ISEE), Nagoya University,
Nagoya, Japan

PRESTO co-chairs and Pillar co-leaders: Odele Coddington (co-chair), Jie Zhang (co-chair), Allison Jaynes (Pillar 1 co-leader), Emilia Kilpua (Pillar 1 co-leader), Spiros Patsourakos (Pillar 1 co-leader), Loren Chang (Pillar 2 co-leader), Duggirala Pallamraju (Pillar 2 co-leader), Nick Pedatella (Pillar 2 co-leader), Jie Jiang (Pillar 3 co-leader), and Stergios Misios (Pillar 3 co-leader)

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website: https://scostep.org.