

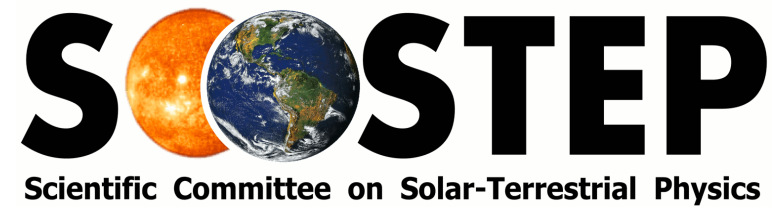
The background of the slide is a composite space-themed image. On the left, there is a bright, fiery orange and yellow solar flare or coronal mass ejection. In the center, a small satellite with a gold body and blue solar panels is shown in orbit. To the right of the satellite, the Earth is depicted, surrounded by concentric, glowing blue and green lines representing its magnetic field. The entire scene is set against a deep red and black space background with scattered white stars.

An update of SCOSTEP's recent activities

**Nat Gopalswamy
(SCOSTEP Past President)**

SCOSTEP

Scientific Committee on Solar-Terrestrial Physics



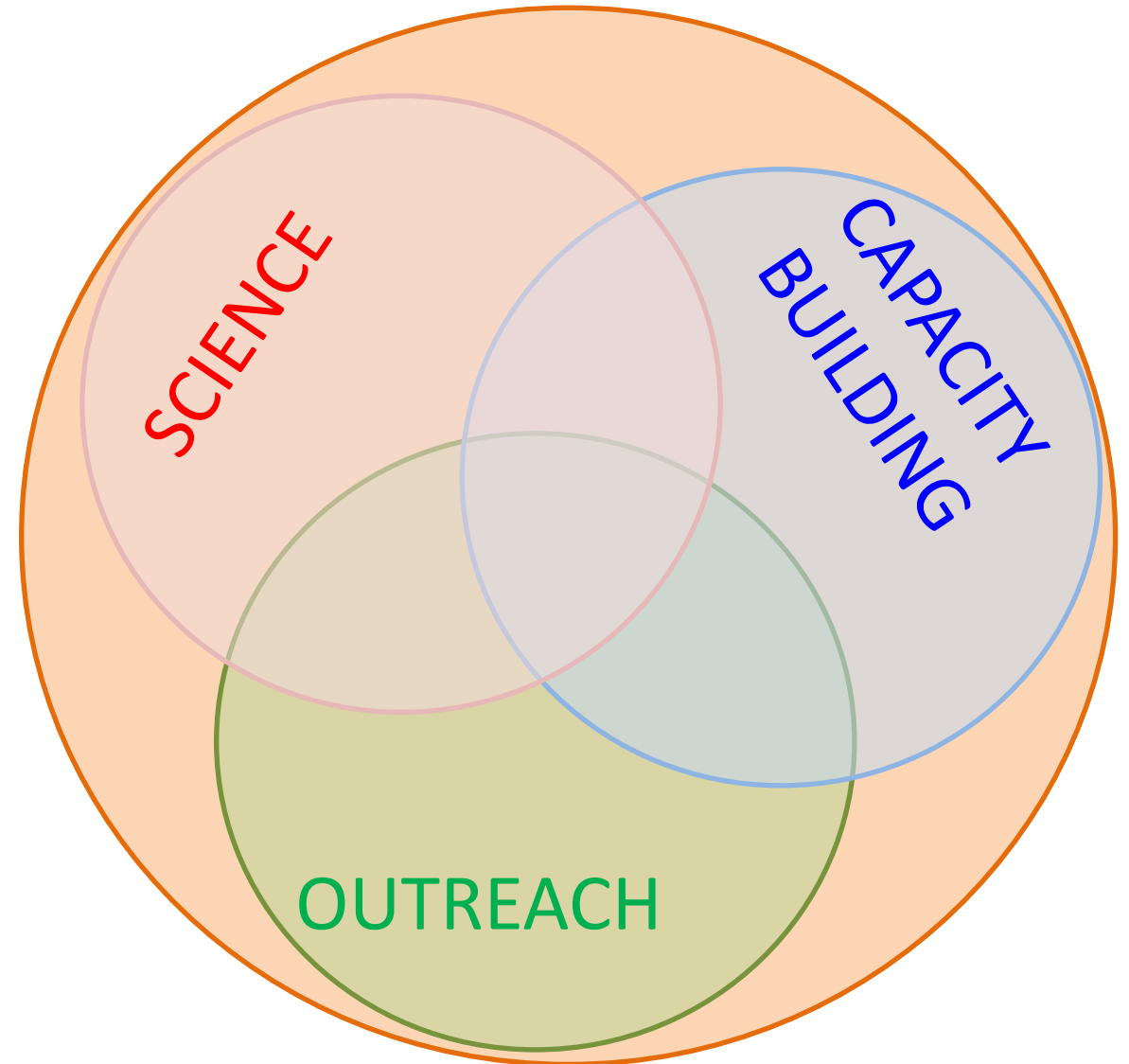
A thematic organization of the International Science Council (ISC).

Runs long-term (4-5 years) international interdisciplinary scientific programs of solar terrestrial physics since 1966

Interacts with national and international programs involving solar terrestrial physics elements

Engages in Capacity Building activities such as the Space Science Schools with UNOOSA/ISWI.

Disseminates new knowledge on the Sun-Earth System and the Sun's impact on life and society





International interdisciplinary programs in solar-terrestrial physics operated by SCOSTEP

1976-1979: **IMS** (International Magnetosphere Study)

1979-1981: **SMY** (Solar Maximum Year)

1982-1985: **MAP** (Middle Atmosphere Program)

1990-1997: **STEP** (Solar-Terrestrial Energy Program)

1998-2002: **Post-STEP** (S-RAMP, PSMOS, EPIC, and ISCS)

2004-2008: **CAWSES** (Climate and Weather of the Sun-Earth System)

2009-2013: **CAWSES-II** (Climate and Weather of the Sun-Earth System-II)

2014-2018: **VarSITI** (Variability of the Sun and Its Terrestrial Impact)

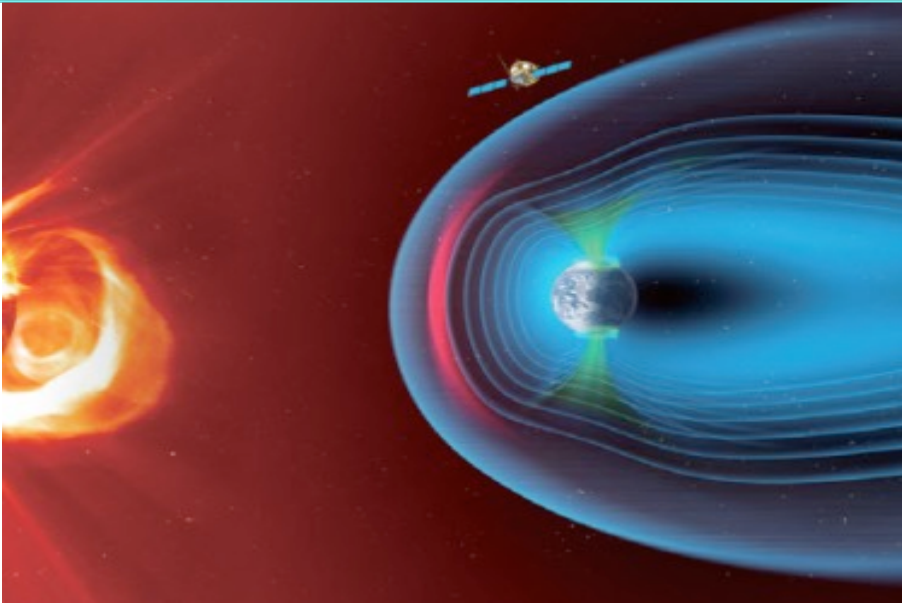
2020-2024: PRESTO (Predictability of the variable Solar-Terrestrial Coupling)



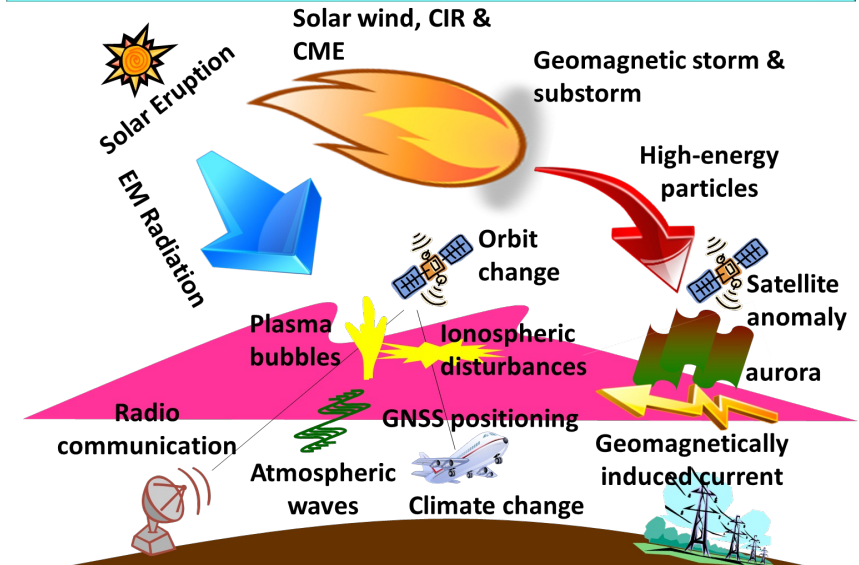
SCOSTEP's international program in 2020-2024
PRESTO: Predictability of the variable Solar-Terrestrial Coupling

PRESTO identifies **predictability** of the variable solar-terrestrial coupling performance metrics through **modeling, measurements, and data analysis** and to strengthen the **communication between scientists and users**

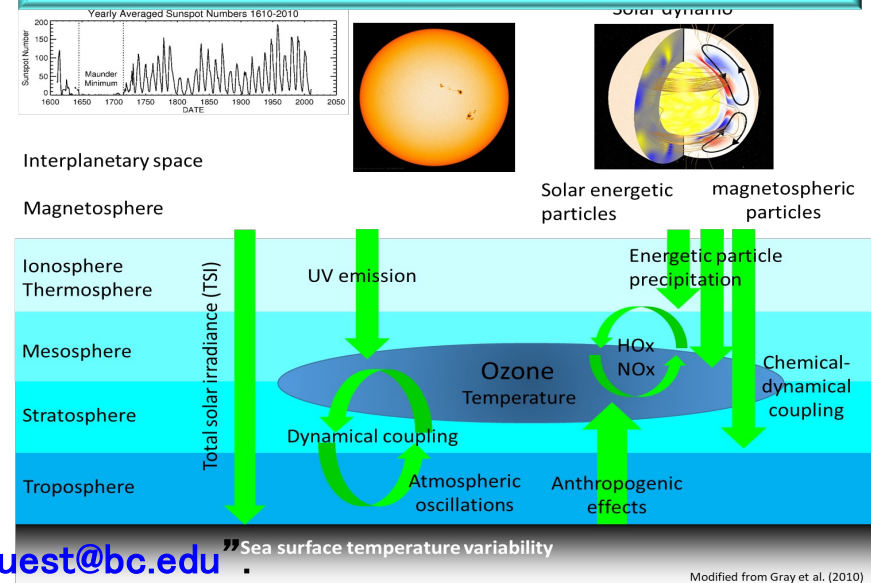
Pillar 1: Sun, interplanetary space and geospace



Pillar 2: Space weather and the Earth's atmosphere



Pillar 3: Solar activity and its influence on the climate of the Earth System



Funding & Learning Opportunities

- SCOSTEP/PRESTO provides financial support for organizing international **campaigns** and **meetings** every year.
- SCOSTEP also provides financial support for **capacity building** activities.
- Monthly online seminars on solar terrestrial science. The recorded talks are available on SCOSTEP Website

15th Quadrennial Solar-Terrestrial Physics Symposium

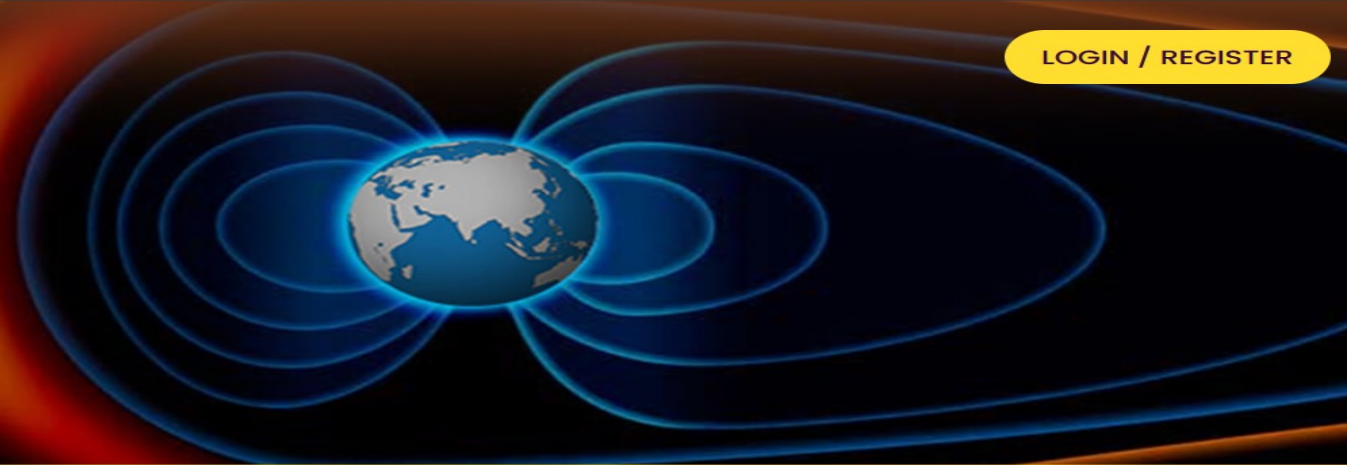
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15TH QUADRENNIAL SOLAR-TERRESTRIAL PHYSICS SYMPOSIUM (STP-15)



21 – 25 February 2022

Alibag, India (Hybrid or Fully Virtual)

Hosted by Indian Institute of Geomagnetism (IIG)

Event will start in

06	02	14	55	04
MONTHS	DAYS	HOURS	MINUTES	SECONDS

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S1 - Overarching Topics in the Sun-Earth Connection

S2 - PRESTO Pillar 1: Sun, Planetary Space, and Geospace

S3 - PRESTO Pillar 2: Space Weather and Earth's Atmosphere

S4 - PRESTO Pillar 3: Solar Activity and its Influence On Climate

S5 - Space Weather Prediction and Implementation

S6 - Modelling, Database and Data Analysis Tools for Solar-Terrestrial Physics

S7 - New ground- and space-based initiatives for Solar-Terrestrial Physics

S8 - Special Session on "Geomagnetism-The Connecting Link between Sun and Earth"

~400 participants from 40 countries

<https://stp15.in>

35 papers were submitted
to the special issue in
JASTP so far.

SCOSTEP/PRESTO Newsletter vol.23-34

Every 3 months: Articles, Highlight of young scientists, Meeting reports, and Short news

SCOUTEP

SCOUTEPRESTO NEWSLETTER

Vol. 23, April 2020

This is a special issue containing 9 reports of SCOUTEP Young Scientists (YSs) as "Highlight on Young Scientists."

Inside this issue

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Article 1

Characterization of Coronal Mass Ejections with High Frequency type II Solar Radio Bursts

Angie Cynthia Limbale

University of Navarra, Spain, Granada

Host Institute: NASA – GSFC, Greenbelt, MD, USA

Angie Cynthia Limbale

Introduction

The SCOUTEP Young Scholar (SYS) program is a capacity building activity of SCOUTEP. The SYS program complements the current cosmic program, PRESTO and SCOUTEP's public outreach activities. One of the objectives of this program includes to give young graduate students an opportunity to learn from experienced plasma physicists and continue, the periods of between one

and three months. I was one of 2019 SCOUTEP visiting scholar (NASA Administrators and Space Administration Graduate Space Flight Course (NSA-GSFC).

Summary of results obtained during my visit at NASA-GSFC:
Sockets appearing shell of Coronal Mass Ejections (CMEs) in the solar

Figure 1: The left side of the 11 January 2019 type II radio burst observed by Learning Explorer spacecraft. A shell of type II radio burst is observed at 11:00 UT. The frequency of the type II radio burst, which followed a type II radio burst. The frequency of the type II radio burst is 10 MHz. Figure 2: The right side shows the CME shock associated with the January 11, 2019 burst. It was observed two minutes after the appearance of type II.



SCOPE/PRESTO NEWSLETTER

Vol. 25, October 2020



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Announcement 7: SCOPE/PRESTO Grants for Year 2021

Article 2:

Croatian Activities in Solar-Terrestrial Physics

Dragan Rišić¹ and Melisa Dumbović²

¹Laboratory Zagreb Astrophysical Observatory,
Zagreb, Croatia

²Rice Observatory, Faculty of Geodesy, University
of Zagreb, Zagreb, Croatia



Dragan
Rišić



Melisa
Dumbović

The solar-terrestrial research in Croatia covers the full Sun-to-Earth chain and encompasses both long-term and short-term effects, i.e. space climate and space weatherable side.

Regional solar observations are performed in *Real Observations* or *what*

light and H-alpha using a double-solar telescope (Figure 1). Studies of phenomena in the lower solar atmosphere and the long-term solar activity as well as explosion-based solar cycle prediction are performed in a close collaboration with the Department of Solar Science at www.solaris.unh.edu.



Figure 1. Double solar (white light and H-alpha) telescopes of the Rišić Observatory.

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SCS+STEP/PRESTO NEWSLETTER

Vol. 29, October 2021

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SCOSTEP/PRESTO NEWSLETTER

Vol. 33, October 2022



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Article 1:

A new journey of the Arase satellite to the 25th solar cycle

Yoshimasa Miyoshi¹ and Hiro Shimodaira²
¹Institute for Space-Earth Environmental Research, Nagoya University, Nagoya, Japan
²Space and Planetary Research Group, ISAS, JAXA, Sagamihara, Japan



Yoshimasa
Miyoshi



Hiro Shimodaira

The geospace exploration satellite ARASE (ARase Satellite) was launched in December 2018 and has observed near-Mars space since March 2019 [1]. (Figure 1). The five

years of observations covered the transition period from the declining phase of the 24th solar cycle to the maximum phase of the 25th solar cycle (Figure 2).



Figure 1. Conceptual image of Arase (ARASE) satellite in the inner magnetosphere (copyright: ERG Science Team).



STOPESTPRESTO NEWSLETTER

Vol. 24, July 2020

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Article 1:

An Overview of the Total and Spectral Solar Irradiance Sensor (TSIS-1) Mission

Ottlie M. Coddington and Thomas N. Woods

Laboratory of Atmospheres and Space Physics,
University of Colorado Boulder, Boulder, CO, USA



Ottlie M. Coddington



Thomas N. Woods

The Total and Spectral Solar Irradiance Sensor (TSIS-1) launched on the International Space Station (ISS) in December 2017 and has been making daily measurements of solar irradiance since early 2018 (Part 1). The solar cycle observations and model calculations (Part 2) are presented.

The Total and Spectral Solar Irradiance Sensor (TSIS-1) mission was launched on February, 2018 as part of NASA's Solar Radiation and Global Environment (SOLAR) mission. The TSIS-1 mission was launched on February, 2018 as part of NASA's Solar Radiation and Global Environment (SOLAR) mission. The TSIS-1 mission was launched on February, 2018 as part of NASA's Solar Radiation and Global Environment (SOLAR) mission.



Figure 1. The TSIS-1 instrument on the International Space Station.



SCOSTEP/PRESTO NEWSLETTER

Vol. 10, January 2021



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Article 1

How Small-scale Current Sheets and Magnetic Islands in the Solar Wind are Studying the Nature of Large-scale Processes Behind Solar Weather

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Young Scientists

Naoaki Tsubouchi

Japan

Highlight on

Young Scientists

Xiuxian Jia

USA / China

Upcoming Meetings

Announcement 1

Complete Institutions of the Sun Transition to High Activity mode

Announcement 2

PRESTO Town Hall at AGU Fall Meeting

Announcement 3

Memorandum of Understanding between SCOSTEP and IGE, Nagoya University

Article 1:

How Small-Scale Current Sheets and Magnetic Islands in the Solar Wind Help Understanding the Nature of Large-Scale Processes Behind Solar Weather

Naoaki Tsubouchi¹

¹Public Institute of Terrestrial Magnetism, Ionosphere and Radio Wave Propagation of the Russian Academy of Sciences (IZMIRAN), Troitsk, Moscow 108840, Russia; tsubouchi@izmiran.ru
²Space Research Institute of the Russian Academy of Sciences (IRI), Moscow 117979, Russia



Naoaki Tsubouchi

Current sheets (CSs) exist in the solar wind and contribute to the formation of magnetic islands in the solar wind. In this paper, we study the nature of the solar wind by using the data of the solar wind from the Parker Solar Probe (PSP) and the Solar Wind Structured Mission (SWISIM) in the case of the quiet solar minimum. Current sheet

(CSs) and magnetic islands help speed downflows, to convert plasma conditions to the state of CSs and magnetic islands. The results of CSs about several minutes could independently be taken origin, therefore, in this letter, CSs are very small-scale structures.

Figure 1. Magnetic excitations in which magnetic islands and CSs are intensively formed in the interplanetary space. (a) CSs inside the RCS appear to be concentrated by an oscillating magnetic field. (b) CSs directed to an approximately 2500 km/s flow. (c) CSs inside the RCS appear to be concentrated by an oscillating magnetic field. (d) CSs inside the RCS appear to be concentrated by an oscillating magnetic field. (e) CSs inside the RCS appear to be concentrated by an oscillating magnetic field. (f) CSs inside the RCS appear to be concentrated by an oscillating magnetic field. (g) CSs inside the RCS appear to be concentrated by an oscillating magnetic field.

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SCOSTEP

SCOSTEP/PRESTO NEWSLETTER

Vol. 30, January 2022

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The Dimmest State of the Sun

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Orbographic Equatorial Conformation in Southern Obed over Kinshasa (DRC)

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The Hiroko-14 IRD-1.1 Joint Science Meeting

Meeting Report 2:

The International Science Weather Initiative (ISWI) Workshop

Upcoming Meeting 9

Article 1:

The Dimmest State of the Sun

Rick Lang Vest

Max-Planck Institute for Solar System Research,
Göttingen, Germany

Rick Lang Vest

For the report of several observations, substantial time is an important consideration in the climate change assessment in terms of Earth's climate system. Irradiance (TSI), varied across pre-

Figure 1 consists of three vertically stacked panels, A, B, and C, sharing a common x-axis representing years from 1851 to 2019. Panel A, titled 'TSI reconstructions', shows multiple red lines representing different TSI reconstructions, with a black line for the 'Original' data. Panel B, titled 'Temperature anomalies', shows several lines representing different temperature anomaly datasets, including 'Hiroko-14 IRD-1.1' and 'ISWI-1.1'. Panel C, titled 'Difference', shows the difference between the TSI reconstructions and the temperature anomalies, with a shaded region indicating the uncertainty. The y-axis for all panels is labeled 'W m⁻²'.

Figure 1. (A) Solar activity from the historical minimum as indicated by the group number (black), Hart and Leskeinen 1998, and Irigoin and Leblond 1994. (B) Temperature anomalies from 1851 over the time period from the SATV7.5 (De et al., 2018), NOAA (Caldwell et al., 2014), Had and CRUTEM3 (Morris et al., 2018), and (C) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from SOURCE-TSI (Kopp et al., 2016), and (D) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from SOURCE-TSI (Kopp et al., 2016), and (E) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from SOURCE-TSI (Kopp et al., 2016), and (F) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from SOURCE-TSI (Kopp et al., 2016), and (G) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from SOURCE-TSI (Kopp et al., 2016), and (H) The reconstruction of TSI over the time from the SATV7.5 (De et al., 2018), and the reconstruction from 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SCOPE2025 NEWSLETTER

Vol. 32, July 2022

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- Highlight on **Young Scientists 1:** **Camilla Scollari / IISA**
- Highlight on **Young Scientists 2:** **Makiko Fukuzawa / IISA**
- Meeting Report 7: **Workshop on Extreme Summer School (4a)**
- Meeting Report 7: **Workshop on Extreme Solar Events**
- Meeting Report 8: **The 2nd Summer School on Space Research, Technology, and Applications for young scientists and PhD students**
- Announcement 1: **In Memoriam (Patricia Doherty)**
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Article 1:

The SafeSpace Project

Isabella A. Daglioglu¹ and Gertraud Belzoglou²

¹Helmholtz and Expeditional University of Athens, Athens, Greece
²National Space Center, Athens, Greece
 Hellenic Institute for Astronomy, Astrophysics, Space Applications and Remote Sensing, National Observatory of Athens, Athens, Greece



Isabella A. Daglioglu



Gertraud Belzoglou

The “Radiation Belt Safety of Space Assets” SafeSpace project was launched in January 2020 with a duration of 36 months (<https://www.safespace.eu/>). This contemporary space-based mission has been funded by the European Union as the framework of the Horizon 2020 research and innovation funding programme. The objectives of SafeSpace are relevant and fully aligned with the SCOPE2025 program and in particular with its first pillar of research (GN, interplanetary space and geospace).

SafeSpace aims at adequately space weather forecasting and forecasting capabilities and, consequently, its contribution to the safety of space assets through

the provision of powerful tools to assist in response to operations (G20). To ensure an efficient and strong synergy with science to applications, SafeSpace includes advancement of the ongoing research and collaboration of academics (National and International Universities of Athens – NCUA, Ohio National of Toledo at the Earthcenter Atmospheric – OREA, Fachhochschule Universität Linz – FZU, LUTHER, Institute of Atmospheric Physics University of Innsbruck – IIAU, IIAU – 1407 Institut für Weltraumforschung at Salzburg RWL – BEZ-BAH, Center of Space and Earth Science – COSMES, Institute of Space and Astronautical Sciences – ISAS), a major European project (ESA) Cluster and Atmosphere Sciences (CLAS) and Atmosphere Space (Space Applications & Research



Figure 1. The overall project logic across the complete box – interplanetary space – magnetosphere belts of space weather.



SCOSTEP/PRESTO NEWSLETTER

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Article 1:

Interoperable Database for Citizen Science Observations of STEVE



Michael Hummelshausen

Michael Hummelshausen
Independent Scientist, Germany

STEVE (Strong Thermal Emission Velocity Enhancement) is a subsonic, narrow-lane phenomenon that is related to supersonic high temperatures and ion drift velocities in SAE (Subauroral Ion Drift). Citizen Scientists recog-

nized the peculiarity of this phenomenon and brought it to the attention of the scientific community. Figures 1 and 2 show photographs from two STEVE observations in Canada. McDonald et al. [1] reported for the first time on the obser-



Figure 1: Steve observed on April 10-2019 in Alberta, Canada. Credit: Adam Cheshoff.

Capacity Building Schools

Schools in 2022

- Iberian Space Weather School, June 6-10, 2022, University of Alcalá, **Spain**
- The 2nd summer school on Space research, technology and application, 3-10 July 2022, National Astronomical Observatory (NAO) – Rozhen, **Bulgaria**
- 5th edition of the ISWI Maghreb Afrique de l'Ouest (IMAO) school, Houphouët Boigny University, Abidjan, 17-28 October, 2022, **Côte d'Ivoire**
- “The International Workshop on Machine Learning for Space Weather: Fundamentals, Tools and Future Prospects”, 7-11 November 2022 in **Argentina** (<http://indico.ictp.it/event/9840/>)



Iberian Space Weather School



5th edition of the ISWI Maghreb Afrique de l'Ouest (IMAO) school



Workshop on Machine Learning for Space Weather group photo.

SCOSTEP 2022 Distinguished Scientist Award



David J.
McComas

For original research, technical leadership and wide-ranging discoveries on the solar wind and interstellar medium.



Theodosios
Chatzistergos

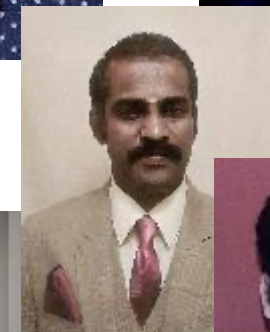
For his outstanding contribution to reconstructions of past solar variability, a crucial input to climate models.

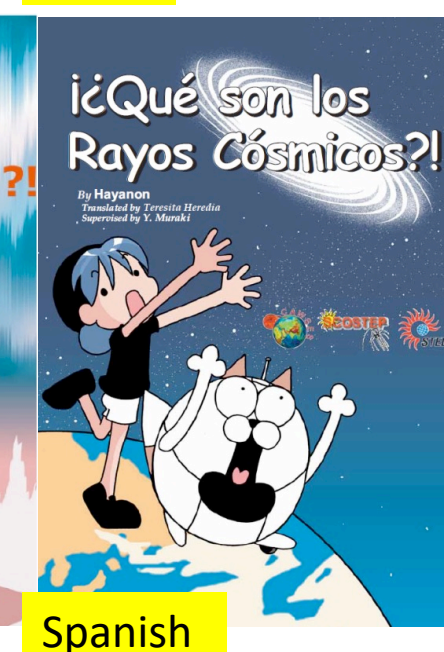
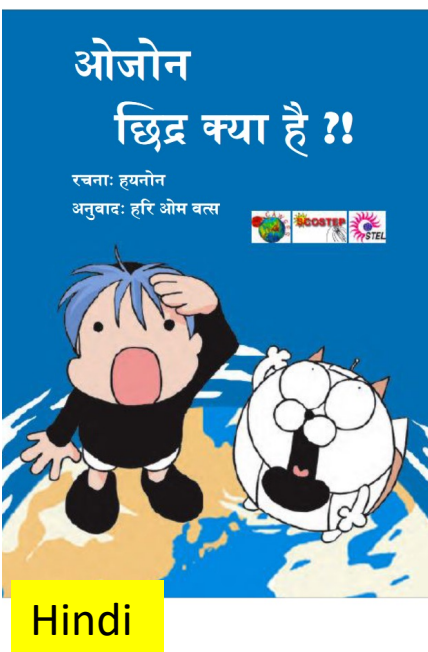
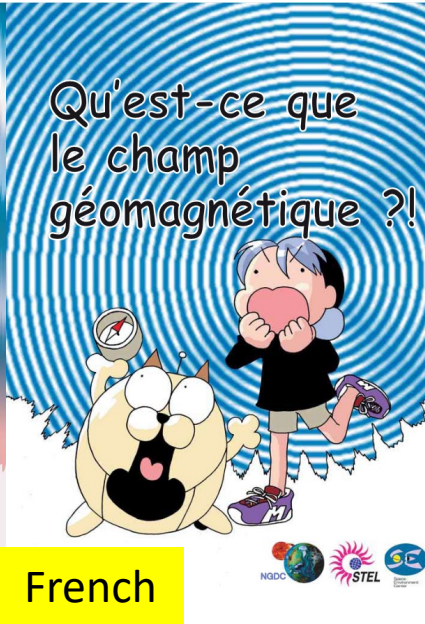
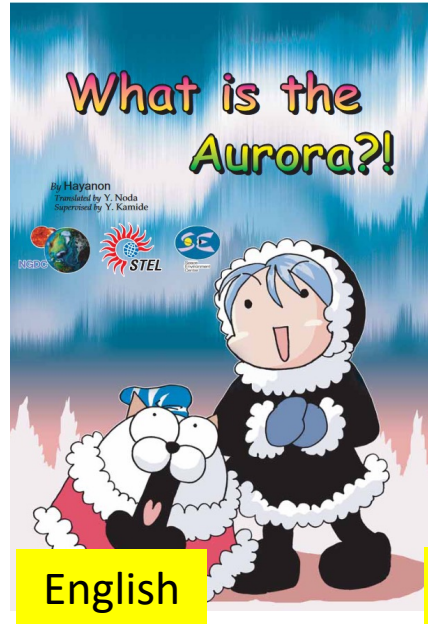


SCOSTEP Visiting Scholar (SVS) Program

In 2022, 20 proposals were approved.

	Name	Home Institute	Host Institute
1	Aderonke Adekemi Obafaye-Nee Akerele	Bowen University, Iwo, Osun State, Nigeria (and NASRDA)	South African National Space Agency Space Science at Hermanus
2	Adithya H.N.	Young innovators, Educational Services Pvt. Ltd.	ISEE, Nagoya Univ.
3	Oscar Batalla	National and Autonomous University of Mexico (UNAM)	University of Oulu, Finland
4	Nilam Yashwant Bhosale	IIG, India	NASA Goddard Space Flight Center (GSFC)
5	Nilesh Chauhan	IIG, India	ISEE, Nagoya Univ.
6	Anoruo Chukwuma Moses	Univ. of Nigeria	ISEE, Nagoya Univ.
7	Gourav Mitra	Physical Research Laboratory, Ahmedabad, India	Leibniz Inst. For Atmospheric Physics
8	Hagar Mohamed Salah Hussein	Helwan University, Egypt	NASRDA, Nigeria
9	Maheswaran Veera Kumar	Sastra University, Thanjavur, India	ISEE, Nagoya Univ.
10	Onyinye Gift Nwankwo	University of Michigan, MI, USA	ISEE, Nagoya Univ.
11	Stephan Owino Omondi	Egypt Japan Univ. of Science and Technology	Kyushu University
12	Taiwo Olusayo Osanyin	INPE, Brazil	SANSA
13	Pankaj K Soni	Indian Institute of Geomagnetism, Navi Mumbai, India	ISEE, Nagoya Univ.
14	Pooja Devi	Kumaun University, Nainital, India	NASA/GSFC
15	Rahul Rathi	Indian Institute of Technology. Uttarakhand, India	ISEE, Nagoya Univ.
16	Srikar Paavan Tadepalli	IIG, India, Indian Institute of Technology	NASA Goddard Space Flight Center (GSFC)
17	Sunil Kumar	PRL, India	Leibniz Inst. For Atmospheric Physics
18	Theogene Ndacyayisenga	University of Rwanda	NASRDA, Nigeria
19	Rukundo Wellen	Egypt Japan University of Science and Technology (E-JUST).	ISEE, Nagoya Univ.
20	Mr Yogesh	Physical Research Laboratory, Ahmedabad, India	NASA Goddard Space Flight Center (GSFC)





Summary

- **PRESTO** is the current **SCOSTEP** scientific program for 2020-2024 with the goal of understand **Predictability of the variable Solar-Terrestrial Coupling**
- Scientists from all over the world participate in the PRESTO program focusing on the **predictability of space weather and solar effect on climate.**
- SCOSTEP's **capacity building and outreach activities** are taking Solar terrestrial science to as many **developing countries** as possible

PRESTO: Predictability of the variable Solar-Terrestrial Coupling

SCOSTEP: Scientific Committee on Solar-Terrestrial Physics