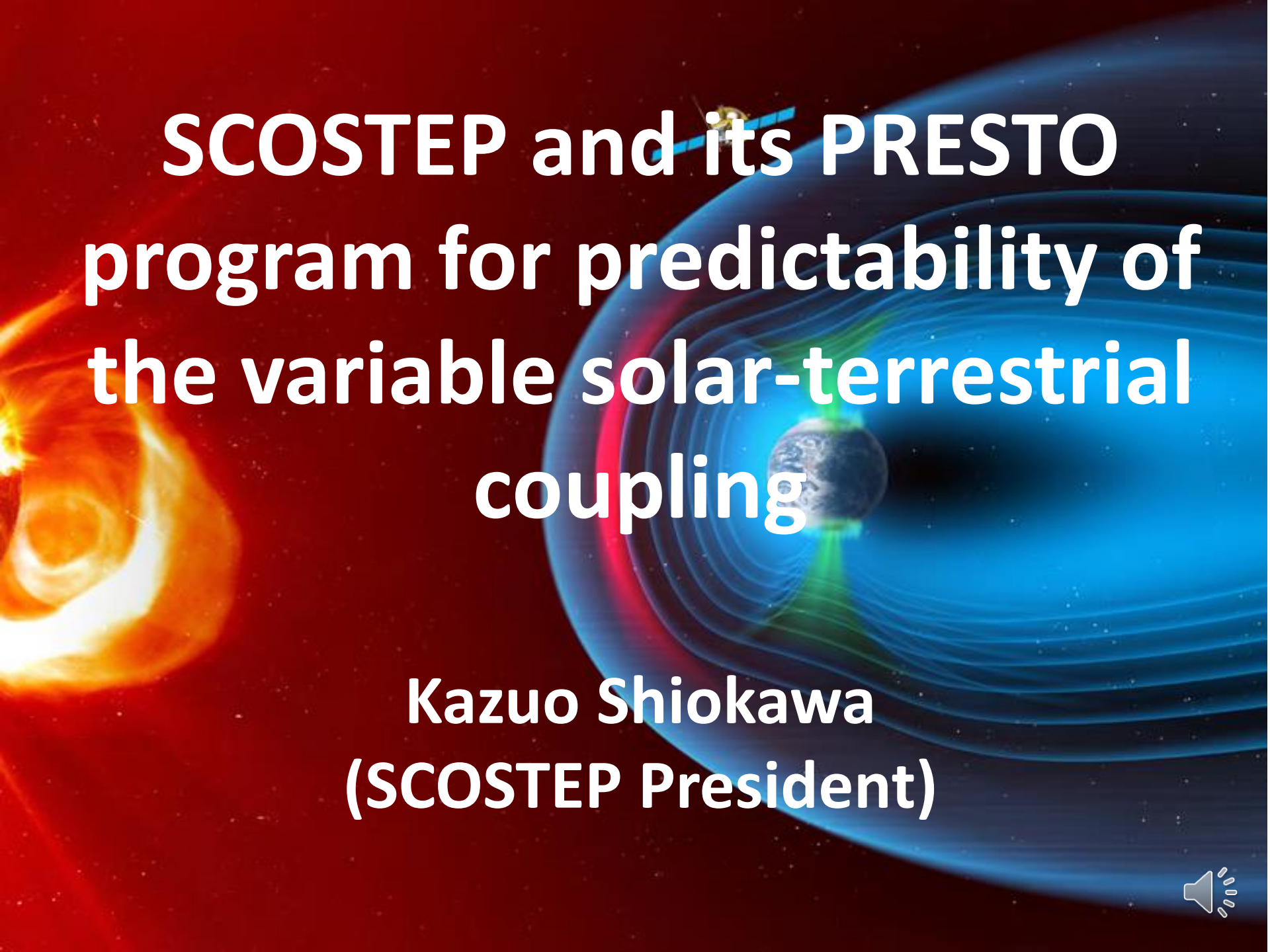


SCOSTEP and its PRESTO program for predictability of the variable solar-terrestrial coupling

Kazuo Shiokawa
(SCOSTEP President)

SCOSTEP
Scientific Committee on Solar-Terrestrial Physics

SCOSTEP
Scientific Committee on Solar-Terrestrial Physics

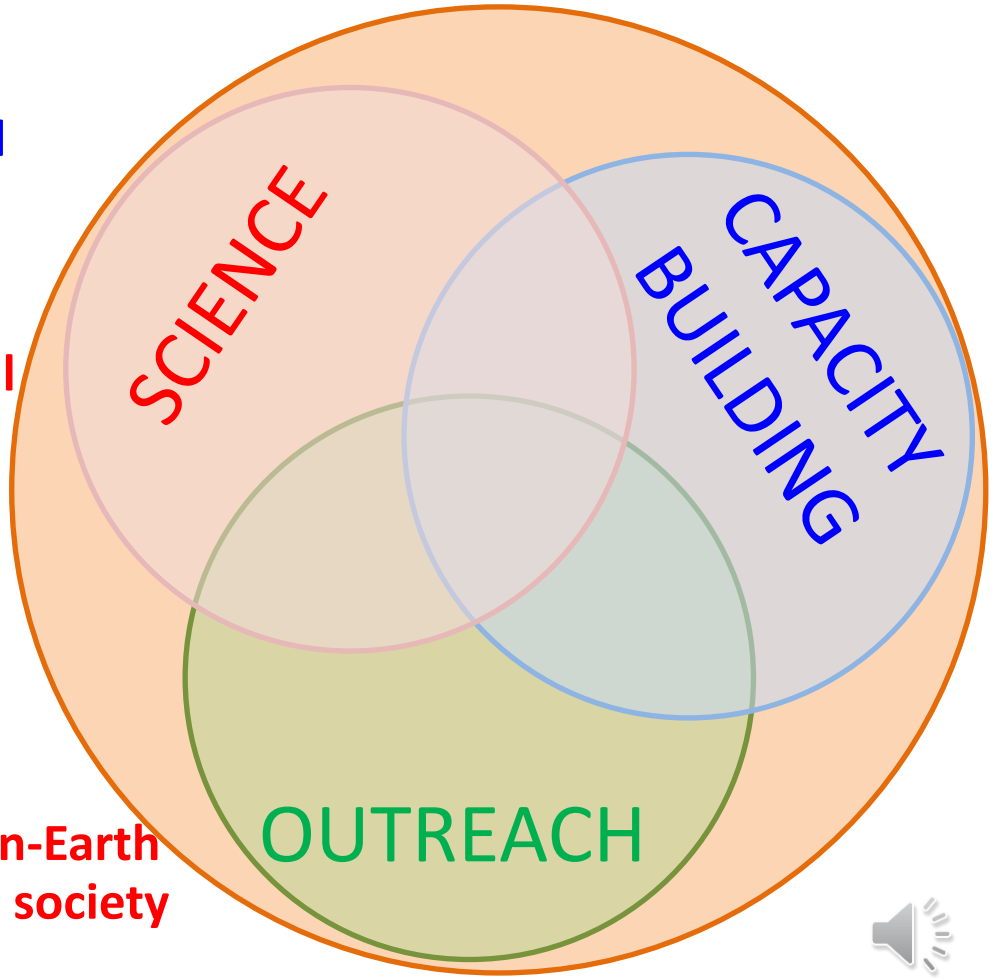
A thematic organization of the International Science Council (ISC) and a permanent observer at UNCOPUOS.

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 how the Sun affects life and society as outreach activities



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Current Member Countries of SCOSTEP

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New Zealand
Nigeria
Norway
Poland
Russia
South Korea
Slovakia
South Africa
Switzerland
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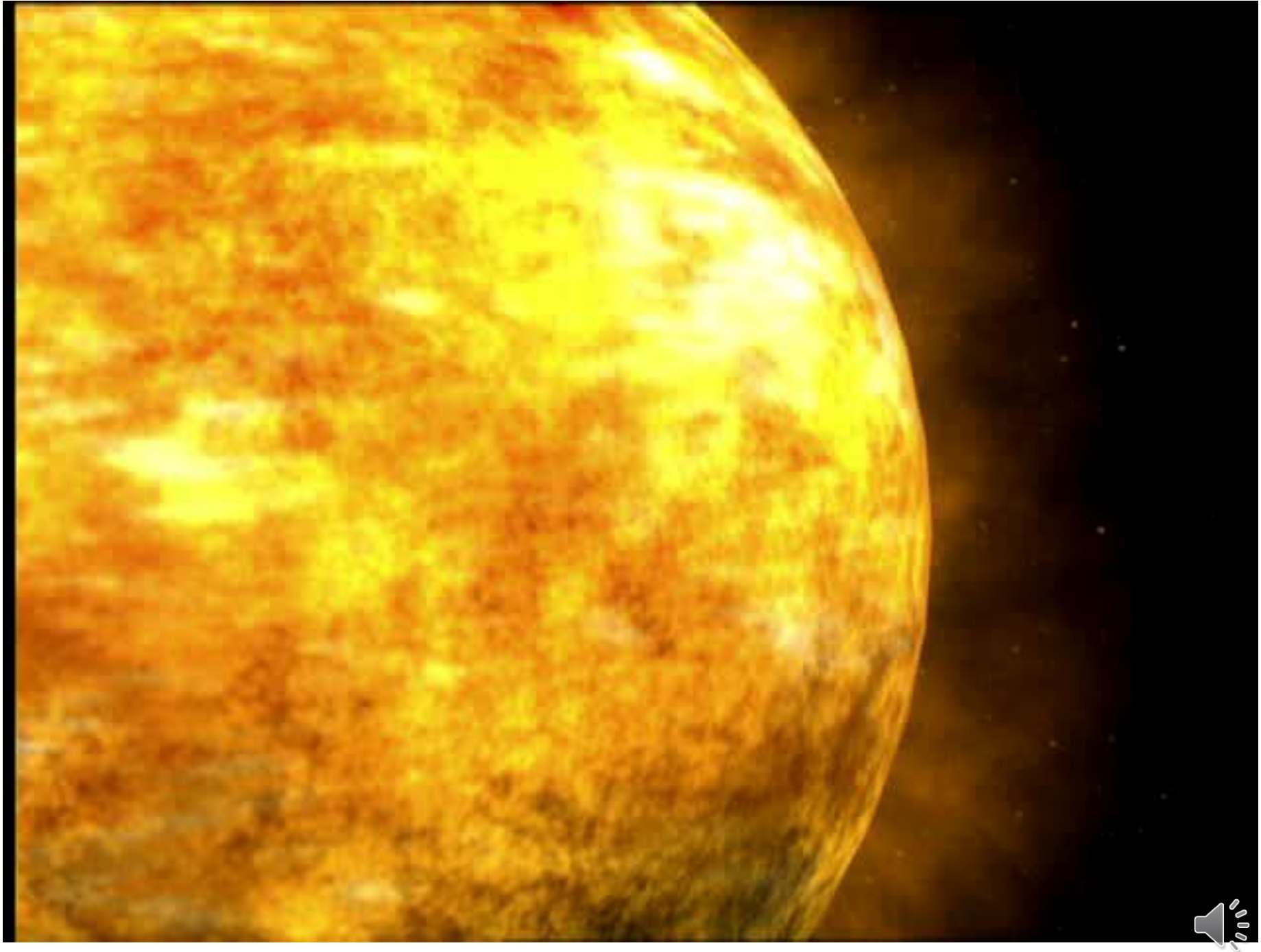
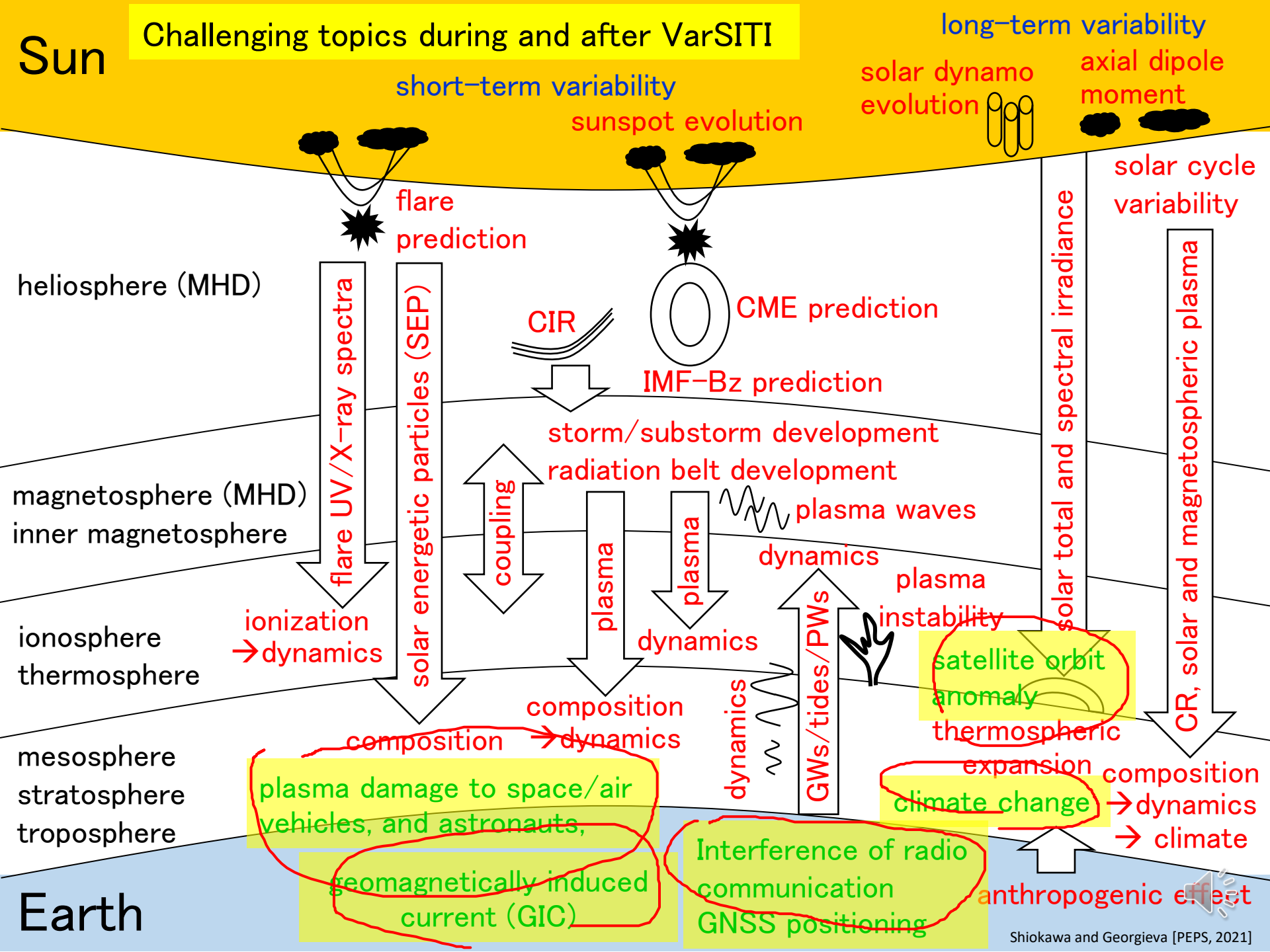
USA



NASA schematic images


Sun
Challenging topics during and after VarSITI
long-term variability
solar dynamo evolution
axial dipole moment
short-term variability
sunspot evolution
solar cycle variability
flare prediction
heliosphere (MHD)
flare UV/X-ray spectra
solar energetic particles (SEP)
CIR
CME prediction
IMF-Bz prediction
solar total and spectral irradiance
CR, solar and magnetospheric plasma
storm/substorm development
radiation belt development
magnetosphere (MHD)
inner magnetosphere
coupling
plasma
plasma
plasma waves
dynamics
plasma instability
ionization →dynamics
dynamics
ionosphere
thermosphere
satellite orbit anomaly
thermospheric expansion
composition →dynamics
composition →dynamics
dynamics
GWs/tides/PWs
mesosphere
stratosphere
troposphere
plasma damage to space/air vehicles, and astronauts,
climate change
composition →dynamics → climate
geomagnetically induced current (GIC)
Interference of radio communication GNSS positioning
anthropogenic effect
Earth
Shiokawa and Georgieva [PEPS, 2021]

SCOSTEP
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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)

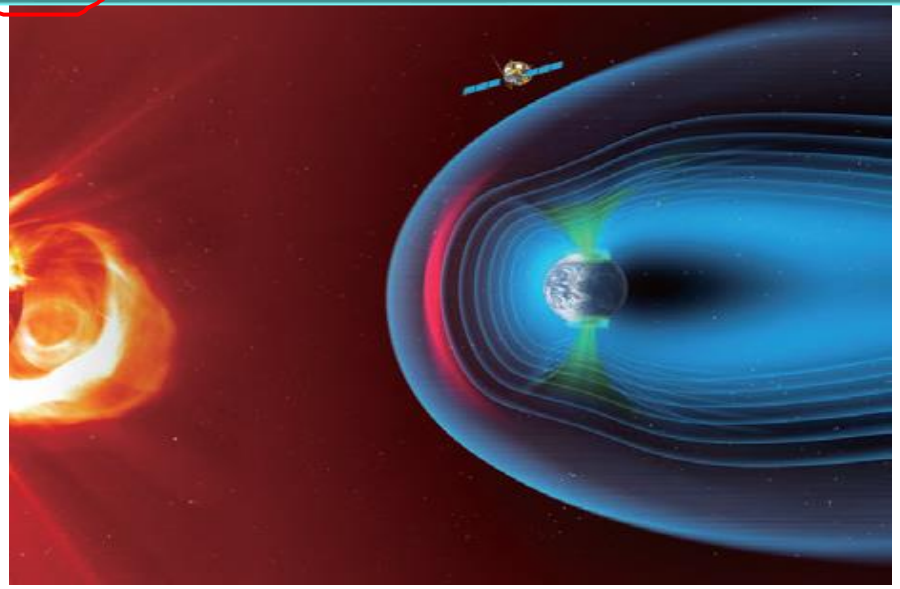
SCOSTEP
Scientific Committee on Solar-Terrestrial Physics

SCOSTEP's international program in 2020-2024

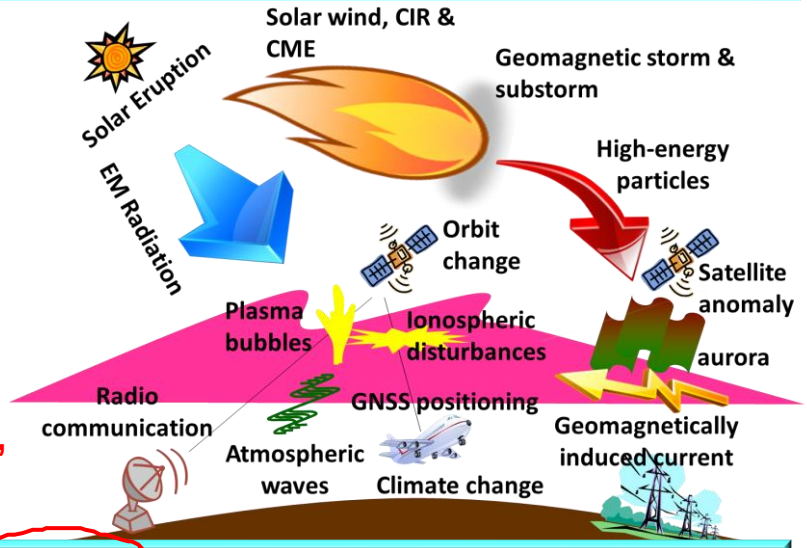
PRESTO: Predictability of the variable Solar-Terrestrial Coupling

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

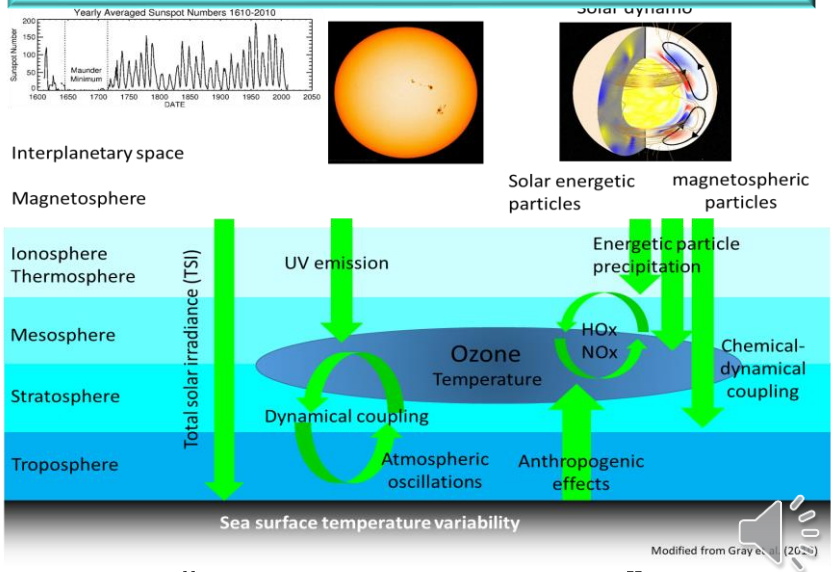
Pillar 1: Sun, interplanetary space and geospace



Pillar 2: Space weather and the Earth's atmosphere



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

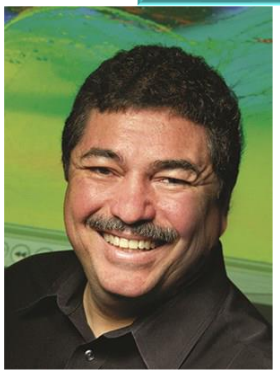


For subscription on the SCOSTEP-all mailing list, send e-mail to "scosteprequest@bc.edu".

SCOSTEP's international program in 2020-2024

PRESTO: Predictability of the variable Solar-Terrestrial Coupling

PRESTO chair and co-chairs



Chair
Ramon E. Lopez
USA

Co-chair
Eugene Rozanov
Switzerland

Co-chair
Jie Zhang
USA

Pillar 1: Sun, interplanetary space and geospace

Allison
Jaynes
(USA)

Emilia
Kilpua
(Finland)

Spiros
Patsourakos
(Greece)

Pillar 2: Space weather and the Earth's atmosphere

Loren C. Chang
(Taiwan)

Duggirala
Pallamraju
(India)

Nick M. Pedatella
(USA)

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

Odele Coddington
(USA)

Jie Jiang
(China)

Stergios Misios
(Greece)

PRESTO Website at Boston College: https://scostep.org/

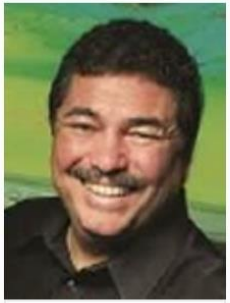
SCOSTEP
Scientific Committee on Solar-Terrestrial Physics

ABOUT US | SCIENTIFIC PROGRAMS | CAPACITY BUILDING | AWARDS | EVENTS | RESOURCES | CONTACT US | SEARCH

SCOSTEP/PRESTO

Predictability of the **S**olar-**T**errestrial C**o**upling

PRESTO is a science program that seeks to improve the predictability of energy flow in the integrated Sun-Earth system on times scales from a few hours to centuries through promoting international collaborative efforts. PRESTO is sponsored by SCOSTEP, the Scientific Committee on Solar Terrestrial Physics.



Chair:
Ramon E. Lopez

For subscription on the SCOSTEP-all mailing list:
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15th Quadrennial Solar-Terrestrial Physics Symposium

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"

https://stp15.in

abstract deadline: September 15, 2021

SCOSTEP/PRESTO Funding Opportunities

- SCOSTEP/PRESTO provides financial support for organizing international campaigns and meetings every year.

- SCOSTEP also provides financial support for capacity building activities.

SCOSTEP-PRESTO ONLINE SEMINAR SERIES

1. A challenge to Physics-based Prediction of Giant Solar Flares
Author: Kanya Kusano (Institute for Space-Earth Environmental Research, Nagoya University, Japan)
Date/time: May 26 (Tue), 2020, 12:00-13:00 UT

2. Extreme solar events: A new paradigm
Author: Ilya Usoskin (University of Oulu, Finland) Date/time: July 20 (Mon), 2020, 12:00-13:00 UT

3. Developing a Highliy Predictable Geomagnetic Index to Gauge Magnetospheric Activity and Space Weather
Author: Joe Borovsky (Space Science Institute, USA) Date: September 10, 2020, 22:00-23:00 UT

4. The Ionospheric Connection Explorer - Results from the first year on orbit
Author: Thomas Immel (University of California Berkeley, USA)
Date: November 17, 2020, 23:00-24:00 UT

5. Magnetospheric Response to Interplanetary Shocks: ULF Wave-Particle Interaction Perspective
Author: Q.-G. Zong (Peking University, China) Date and Time: Jan 14 (Thu), 2021, 00:00-01:00 UT

6. Utilizing galactic cosmic rays as signatures of interplanetary transients
Author: Mateja Dumbović (University of Zagreb, Croatia)
Date and Time: Jan 19 (Tue), 2021, 12:00-13:00 UT

7. Physics at the edge between Earth's atmosphere and space
Author: Franz-Josef Lübken (Leibniz-Institute of Atmospheric Physics, Germany)
Date and Time: May 21 (Fri), 2021, 12:00-13:00 UT

8. The Sun making history. The mechanism behind the varying amplitude of the solar cycle
Author: Kristof Petrovay (ELTE Eotvos Lorand University, Department of Astronomy, Hungary)
Date/time: June 8 (Tue), 2021, 13:00-14:00 UT

9. Space Weather in the Thermosphere-Ionosphere System - observations and Insights from the GOLD* Mission (*Global-scale Observations of the Limb and Disk)
Author: Richard Eastes (University of Colorado Boulder, USA)
Date/time: September 23 (Thu), 2021, 14:00-15:00 UT

SCOSTEP ONLINE CAPACITY BUILDING LECTURE SERIES

1. Speaker: David G. Sibeck, NASA Goddard Space Flight Center, USA
   Date and Time: Jan 22 (Fri), 2021, 01:00-02:00 UT
   Topic: "Motivation for soft X-ray imaging and plans for the STORM global imaging mission"
2. Speaker: Ulrich Taubenschuss, Institute of Atmospheric Physics AS CR, Czechia
   Date and Time: Mar 5 (Fri), 2021, 11:00-12:00 UTC
   Topic: "Processing of electric and magnetic signals onboard the THEMIS spacecraft and applications of polarization analysis"
3. Speaker: Jacob Bortnik, UCLA, USA
   Date and Time: Mar 29 (Mon), 2021, 23:00-00:00 UTC
   Topic: "Machine-learning based reconstruction of the inner magnetosphere"
4. Speaker: Alphonse C. Sterling, NASA Marshall Space Flight Center, USA
   Date and Time: Apr 29 (Thu), 2021, 00:30-01:30 UTC
   Topic: "An Overview of the Sun's Structure, and a Closer Look at Solar Magnetism and Activity"
5. Speaker: Esa Turunen, Sodankylä Geophysical Observatory, Finland
   Date and Time: May 31 (Mon), 2021, 10:30-11:30 UTC
   Topic: "The variable geospace environment and our radio wave based modern society: basic concepts of ionosphere and recent research problems at high latitudes"
6. Speaker: Keisuke Hosokawa, University of Electro-Communications, Japan
   Date and Time: Jun 28 (Mon), 2021, 10:30-12:00 UTC
   Topic: "Aurora as a manifestation of electromagnetic waves in space"
7. Speaker: Craig Rodger, University of Otago, New Zealand
   Date and Time: Aug 19 (Thu), 2021, 00:30-01:30 UTC
   Topic: "Energetic Electron Precipitation from the Radiation Belts: How plasma waves in space kill atmospheric ozone"

SCOSTEP/PRESTO Newsletter vol.21-28

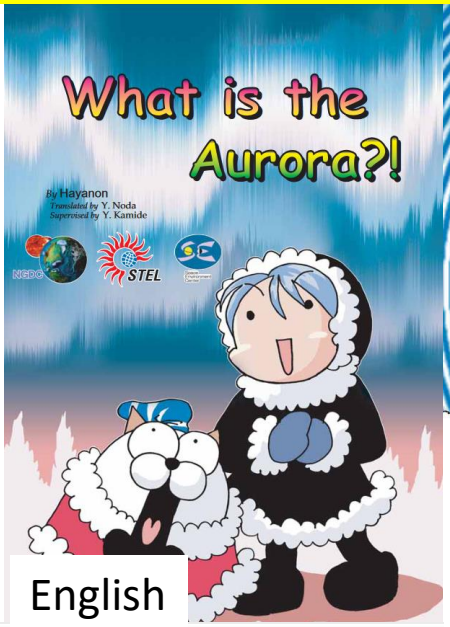
Articles, Highlight of young scientists, Meeting reports, and Short news

Capacity Building schools

In 2021:

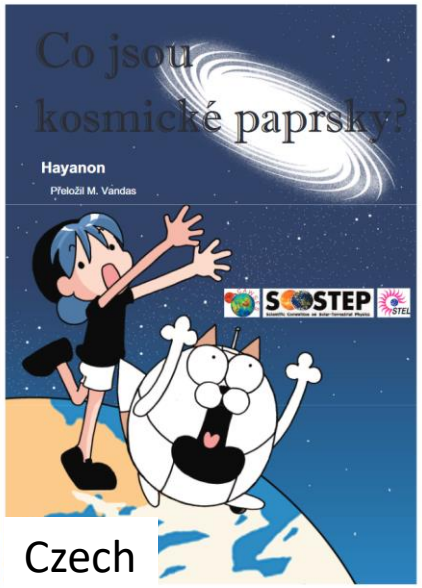
- The 44th Annual Scientific Seminar on Physics of Auroral Phenomena, 15-19 March 2021, Apatity, Russia
- The first summer school on space research, technology and application in Bulgaria, 5-11 July 2021, National Observatory Rozhen, Bulgaria
- ISWI/SCOSTEP Iberian Space Weather School, July 21-25, 2021, University of Coimbra, Portugal
- Describing and Analyzing Solar Data for a better prediction of Space Weather, TBD, 2021, Kigali, Rwanda

SCOSTEP - Science Comic Books



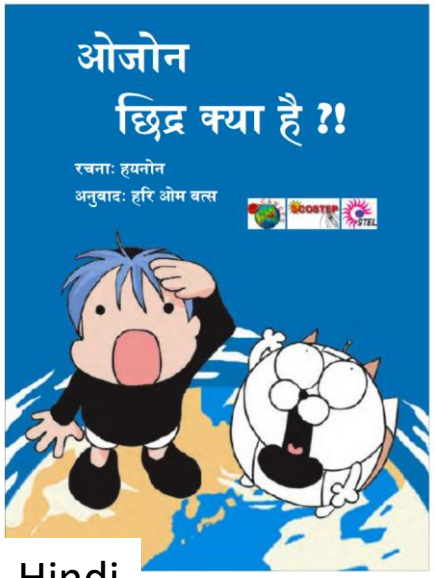
English

French



Czech

German



Hindi

Italic

Japanese

Urdu

https://scostep.org/

Korean, Russian, Spanish, and Tamil are also available.

Summary

- **PRESTO is the new SCOSTEP scientific program to run during 2020-2024 to understand Predictability of the variable Solar-Terrestrial Coupling**
- **Scientists from all over the world participate in the PRESTO program to understand predictability of space weather and solar effect on climate.**
- **Solar terrestrial science will reach as many developing countries as possible via SCOSTEP's capacity building and outreach activities**

PRESTO: Predictability of the variable Solar-Terrestrial Coupling
SCOSTEP: Scientific Committee on Solar-Terrestrial Physics