SCOSTEP/PRESTO report

Kazuo Shiokawa (SCOSTEP President)

SCOSTEP Scientific Committee on Solar-Terrestrial Physics

An Affiliated Body of the International Science Council (ISC) and a permanent observer at UNCOPUOS.

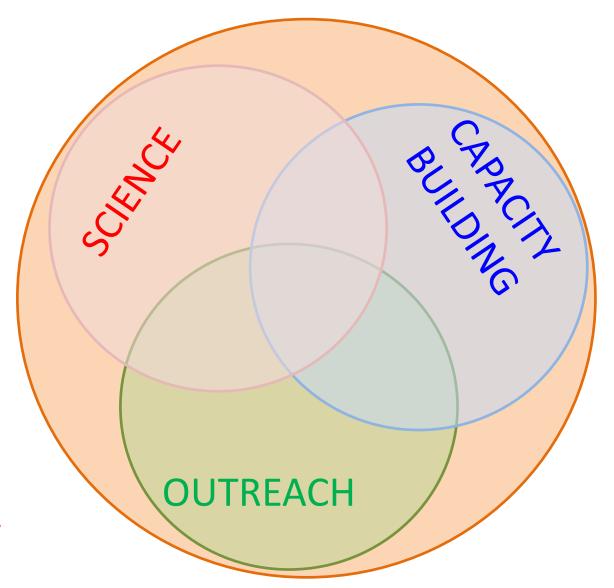
Runs long-term (4-5 years) international interdisciplinary scientific programs of solar terrestrial physics

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







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)



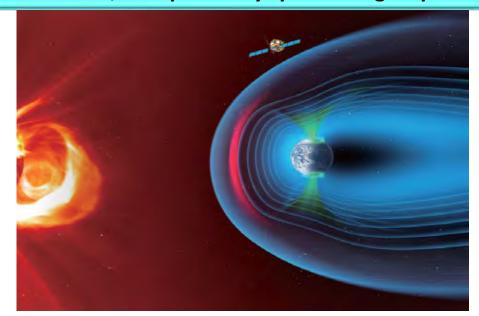


SCOSTEP's international program in 2020-2024

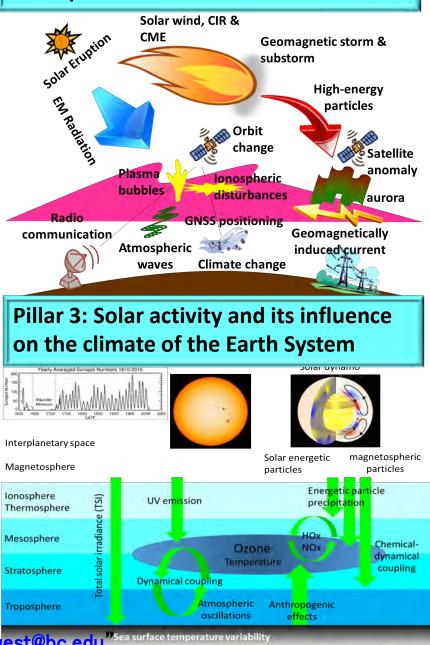
PRESTO: Predictability of the variable Solar-Terrestrial Coupling

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



Modified from Gray et al. (2010)

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

SCOSTEP's international program in 2020-2024

PRESTO: Predictability of the variable Solar-Terrestrial Coupling

PRESTO chair and co-chairs







Chair Odele Coddington Ramon E. Lopez (USA) USA

Co-chair Jie Zhang USA

Pillar 2: Space weather and the Earth's atmosphere







Duggirala Pallamraju (India)



Nick M. Pedatella (USA)

Pillar 1: Sun, interplanetary space and geospace



Allison Jaynes (USA)



Emilia Kilpua (Finland)



Spiros
Patsourakos
(Greece)

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



Jie Jiang (China)



Stergios Misios (Greece)





SCOSTEP/PRESTO Funding Opportunities

 SCOSTEP/PRESTO provides financial support for organizing international campaigns, meetings, and database constructions.

2023: 7 meetings and 2 database

2024: 19 meetings and 4 database

 SCOSTEP also provides financial support for capacity building activities.

ICTP-SCOSTEP-ISWI Workshop on the **Predictability of the Solar-Terrestrial Coupling -PRESTO**

Directors:

S. GADIMOVA, ICG/UNOOSA, Austria

N. GOPALSWAMY, NASA, USA

K.M. GROVES, Boston College, USA

R. LOPEZ, University of Texas at Arlington, USA

B. NAVA, ICTP, Italy

K. SHIOKAWA, SCOSTEP/Nagoya University, Japan

Local Organizer:

B. NAVA, ICTP, Italy









Joint with

ISWI







ICTP-SCOSTEP-ISWI Workshop on the Predictability of the Solar-Terrestrial Coupling - PRESTO | (smr 3898)



30 May - 2 June 2023 **An ICTP Meeting** Trieste, Italy

PRESTO (PREdictability of the variable Solar-Terrestrial cOupling) is an international science program that seeks to improve the predictability of energy flow in the integrated Sun-Earth system on various times scales from milliseconds to centuries by promoting international collaborative efforts.

PRESTO is the primary science program of SCOSTEP, the Scientific Committee on Solar-Terrestrial Physics. This workshop will aim to gather eminent scientists from solar, magnetospheric, ionospheric and atmospheric physics communities to discuss and deliberate on the cutting-edge sciences related to the PRESTO program.

Topics:

- Observations and modelling of solar eruptions, solar wind and SEPs from Sun through interplanetary space
- Prediction of solar transients, streams/SIRs and SEP from Sun to
- Effect of space weather on the Earth's ionosphere, thermosphere,
- Influence of the lower atmosphere on the mesosphere, thermo-
- Solar forcing specification and impacts on the atmosphere and
- Precipitating energetic particles and their effects on atmosphere
- Predictability of the solar cycle

How to apply:

Grants:

There is no registration fee















S. GADIMOVA. ICG/UNOOSA. Austria

N. GOPALSWAMY, NASA, USA

K.M. GROVES, Boston College, USA R. LOPEZ, University of Texas at Arlington, USA B. NAVA, ICTP, Italy

K. SHIOKAWA, Nagoya University, Japa

Local Organiser:

B. NAVA, ICTP, Italy

Keynote Speakers:

I. DAGUS, University of Albens, Greece

H. LIU, Kyushu University, Japan

D. PESNELL, NASA Goddard Space Flight Center, USA

E. ROZANOV. PMOD/WRC. Switzerlar

Invited Speakers:

T. AMERSTORFER, Space Research Institute, Aust Academy of Sciences, Austria

ASIKAINEN, University of Oulu, Finland

A. BEMPORAD, INAF, Italy

P. BHOWMIK, Durham University, UK T. CHATZISTERGOS, Max Planck Institute for Solar

System Research, Germany

O. CODDINGTON, LASP, Univ. of Colorado Boulde

D. DEL MORO, Universita' di Roma "Tor Vergata", II B. FUNKE, CSIC, Spain

N. KRIVOVA, MPS. Gern

X. LU, Clemson University, USA

J. MCARTHUR, Naval Research Laboratory, USA

H. NESSE, University of Bergen, Norwa

Y. YAMAZAKI, Leibniz Institute for Almospheric Physics

X. ZHOU, Institute of Geology and Geophysics, Chinese Academy of Sciences, China

Deadline:

4 March 2023



PRESTO-related meetings supported in 2023

Number	Title	Location of the Event	Country	Date	Relevance to PRESTO	website
1	Space Weather and Upper Atmospheric Data analysis Training Workshop for East African Community.	Muni University	Uganda	Oct.2-6, 2023	Pillar 2	https://muni.ac.ug/
2	The European Space Weather Week (ESWW)	Pierre Baudis Congress Centre	France	November 20- 24, 2023	All Pillars	http://esww2023.irap.om p.eu/
3	The 2023 Sun-Climate Symposium	Lowell Observatory	USA	October 16-20, 2023	Pillar 3	2022 symposium: https://lasp.colorado.ed u/home/meetings/2022- sun-climatesymposium/
4	The AGATA Kick-off meeting	IUGG General Assembly	Germany	12-Jul-23	Pillar 2 and 3	www.scar.org/science/aga ta/home
5	The 16th Hellenic Astronomical Conference	The University of Athens	Greece	June 25-28, 2023	Pillar 1	https://helas.gr/conf/202 3/
6	International Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI 2023)	The University of Ilorin	Nigeria	18-22 September,202 3	Joint with ISWI	
7	"6th African Geophysical Society (AGS) International Conference on "Advancing Science & Technology in Developing Nations"	Grand Palace Hotel, Lusaka	Zambia	October 2-4, 2023	Joint with ISWI	https://afgps.org/confere nce

PRESTO-related meetings supported in 2024

#	Title	Location of the Event	Country	Date	Relevance to PRESTO	Web site
1	XIV COLAGE 2024	Autonomous University of Nuevo León (UANL)	Mexico	April 8-13, 2024	All Pillars	https://www.rice.unam.mx/colage 2024/
2	IAU Symposium 388: Solar and Stellar Coronal Mass Ejections	Jagiellonian University, Krakow, (Astronomical Observatory)	Poland	May 5-10, 2024	Joint with I	SWI TBD
3	Geomagnetic influence on climate at the Earth	Helsinki	Finland	March 5-7, 2024 (3 working days)	Pillar3	https://cosmicrays.oulu.fi/geraclis 2024/
4	1st European solar physics division (ESPD) summerschool: Energisation and heating in the solar plasma	Dubrovnik	Croatia	April 29 - May 3, 2024	All Pillars	https://oh.geof.unizg.hr/index.php /en/meetings/espd-school-2024
5	11th VERSIM Workshop	Village at Breckenridge, Colorado (a resort and conference center)	USA	September 30 - October 4, 2024	Pillar1	http://www.iugg.org/IAGA/iaga_u rsi/versim/index.html
6	12th International Workshop on Long-Term Changes and Trends in the Atmosphere	Universidade de Vigo, Ourense, Galicia	Spain	May 6-10, 2024	All Pillars	https://trends2024.uvigo.es/
7	Space Weather and Upper Atmospheric Data analysis Training Workshop for East African Community	Maseno University	Kenya	June 10-14, 2024	Pillar 2	-
8	16th International Workshop on Technical and Scientific Aspects of iMST Radar and Lidar(MST16/iMST3)	University of Rostock	Germany	September 9-13, 2024	Pillar 2	https://www.iap-kborn.de/mst16/
9	THE ORGANISATION OF A SCIENTIFIC CONFERENCE: Second Solar MHD conference: Informing MHD simulations from observations	University of La Laguna	Spain	August 25-29 or September 1- 5, 2024	All Pillars	-
10	United Nations / Germany Workshop on the International Space Weather Initiative(ISWI)	German Aerospace Center e.V. (DLR), Institute for Solar-Terrestrial Physics	Germany	June 10-14, 2024	Joint with I	//www.unoosa.org/oosa/enrwork/psa/bssi/iswi.html
11	Organization of the Ninth International Space Climate Symposium (SC9)	Nagoya University	Japan	October 1-4, 2024	All Pillars	https://www.isee.nagoya- u.ac.jp/~spaceclimate9
12	Solar cycle variability: From understanding to making prediction	ARIES Nainital	India	Ocober 14-18, 2024	All Pillars	-
13	16th yearly Workshop "Solar Influences on the Magnetosphere, lonosphere, and Atmosphere"	Primorsko	Bulgaria	June 3-7, 2024	All Pillars	https://www.spaceclimate.bas.bg/ ws-sozopol/
14	2024 ISWI International School	Nepal Academy of Science and Technology (NAST)	Nepal	September 15-21, 2024	Joint with I	https://nps.org.np/
15	A COSPAR CAPACITY BUILDING WORKSHOP	Samarkand State University, Samarkand City	Uzbekistan	August 26 - September 6, 2024	Joint with I	SWI TBD
16	The Combined VCAIS/ANGWIN Meeting	University of New Brunswick, Fredericton, New Brunswick	Canada	June 2-7, 2024	Pillar 2	nttps.//vcaisangwin2024.flywheel sites.com/
17	European Space Weather Week	São Francisco Congress Centre, Coimbra	Portugal	November 4-8, 2024	All Pillars	https://esww2024.org/
18	nternational Colloquium on Equatorial and Low Latitude Ionosphere (ICELLI) 2024	United Nations African Regional Centre for Space Science and Technology Education (UNARCSSTEE), Obafemi Awolowo University, Ile-Ife	Nigeria	September 2-6, 2024	All Pillars	-
19	ESPM-17	Turin	Italy	September 9-13, 2024	All Pillars	https://indico.ict.inaf.it/event/255 3/

PRESTO-related database constructions supported in 2023

#	Title	Location of the Event	Country	Relevance to PRESTO
1	Install the first Solar Dynamics Observatory (SDO) database in the Southern Hemisphere	Optical Data Centre https://astronomyaustralia.org.au/blog/p ortfolio/odc/	Australia	Piller1
2	An Investigation of Properties of the Coronal Holes Producing HSSs InProCH	The Astronomical Institute of the Romanian Academy	Romania	Piller1

PRESTO-related database constructions supported in 2024

#	Title	Location of the Event	Country	Relevance to PRESTO
1	Creation of an open database of original and annotated sunspot drawings of the seventeenth and eighteenth centuries, accompanied by a catalog of sunspot data extracted from these historical observations	Saint-Petersburg State University	Russia	All Pillars
2	Upgrade of the international GLE database by including records from non-standard detectors	University of Oulu	Finland	All Pillars
3	InnerShock: A comprehensive database of shock waves observed in the inner heliosphere	University of Helsinki	Finland	Pillar 1
4	An Active Region Database for Solar Cycle Variability and Prediction	Beihang University	China	All Pillars

Capacity Building Schools

Schools in 2023

- 1. 2nd Iberian Space Science Summer School, SWE, University of Alcala (UAH), Spain, June 26-30, 2023

 Joint with ISWI
- 2. International Colloquium on Equatorial and Low-Latitude Ionosphere (ICELLI), University of Ilorin, Nigeria, September 4-8, 2023 Joint with ISWI
- 3. The 2023 IMCP Space Weather School, National Space Science Center, Chinese Academy of Sciences, Beijing, China, September 14-23, 2023
- 4. The International Space Weather Initiative School, Grand Palace Hotel in the city of Lusaka, Zambia, 26-20 September 2023 Joint with ISWI
- 5. COSPAR CAPACITY BUILDING WORKSHOP: Solar-Terrestrial Coupling Processes and Space Weather, University of Lagos, Nigeria, 9–20 October 2023



Capacity Building Schools

Schools in 2024

Title	location	Country	date	<u>website</u>
6th IMAOC school (ISWI Maghreb Africa West and Central): Space Weather Summer School – Physics and use of tools	National Meteorological Agency at Conakry in Guinea	Guinea	14-25 October 2024	Joint with ISWI
School on Technical and Scien3fic Aspects of iMST Radar and Lidar	Leibniz Institute of Atmospheric Physics (IAP) in Kühlungsborn, Germany	Germany	6-8 September 2024	
1st European solar physics division (ESPD) summer school: Energisation and heating in the solar plasma	Dubrovnik, Croatia	Croatia	April 29 – May 3, 2024	https://oh.geof.unizg.hr/inde x.php/en/meetings/espd- school-2024
Space Weather and Upper Atmospheric Data analysis Training Workshop for East African Community	Maseno University, Kenya	Kenya	June 10-14, 2024	-
United Nations / Germany Workshop on the International Space Weather Initiative (ISWI)	German Aerospace Center e.V. (DLR), Institute for Solar-Terrestrial Physics, Germany	Germany	June 10-14, 2024	https://www.unoosa.org/oos Joint with ISWI sa/bssi/iswi. html
2024 ISWI International School	Nepal Academy of Science and Technology (NAST), Nepal	Nepal	September 15-21, 2024	Joint with ISWI .org.np/
A COSPAR CAPACITY BUILDING WORKSHOP	Samarkand State University, Samarkand City, Uzbekistan	Uzbekistan	August 26 - September 6, 2024	Joint with ISWI
COSPAR CAPACITY BUILDING WORKSHOP EVENT IN KENYA Modeling the ionosphere over Africa and improvements of the International Reference Ionosphere	Pwani University, Kilifi	Kenya	September 1–13, 2024	https://iri2024.pu.ac.ke/sour ces/index.php

SCOSTEP-PRESTO ONLINE SEMINAR SERIES

real-time participants / number of registration

#19 Title: Climate implications of solar irradiance and energetic particles: my way in science

Author: Dr. Eugene Rozanov (PMOD/WRC, Davos, Switzerland)

Date and Time: January 23, 2024, 13:00-14:00 UT 86/168

#18 Title: Geo-effectiveness of interplanetary coronal mass ejections: How much can be affected due to their evolution in the heliosphere?

Author: Dr. Sergio Dasso (LAMP at Instituto de Astronomía y Física del Espacio, UBA-CONICET, Buenos

Aires, Argentina)

Date and Time: October 26, 2023, 12:00-13:00 UT 68/144

#17 Title: From Earth to the Edge of Space: How Data Assimilation Advances the Science and Engineering of Forecasting Near Earth Space Environments

Author: Dr. Tomoko Matsuo (University of Colorado at Boulder, USA)

Date and Time: August 24, 2023, 13:00-14:00 UT 49/126

#16 Title: Atmospheric response to solar activity

Author: Dr. Annika Seppala (University of Otago, New Zealand)

Date/Time: April 19, 2023, 08:00-09:00UT 105/214

#15 Title: Forecasting the Extreme End of Solar Weather: Flares, Coronal Mass Ejections and SEP Event Complexes

Author: Dr. Manolis K. Georgoulis (RCAAM of the Academy of Athens, Greece)

Date/time: September 23, 2022, 10:00-11:00 UT 61/214

SCOSTEP ONLINE CAPACITY BUILDING LECTURE SERIES

real-time participants / number of registration

#19 Topic: Unveiling the Nature of Solar Plumes: Insights from Ground and Space Observations

Speaker: Kyung-Suk Cho (Korea Astronomy and Space Science Institute, Daejeon, South, Korea

Date/time: September 21 (Thu), 2023, 09:00-10:00 UTC 42/98

#18 Topic: Solar magnetic field and cycle: from understanding to making prediction

Speaker: Bidya Binay Karak, Indian Institute of Technology (BHU), Varanasi, India

Date and Time: July 24 (Mon), 2023, 08:00-09:00 UTC 61/122

#17 Topic: Geospace Exploration Project: ERG/Arase: Recent highlights

Speaker: Yoshizumi Miyoshi, ISEE, Nagoya University, Japan

Date and Time: June 30 (Fri), 2023, 08:30-09:30 UTC 27/92

#16 Topic: Response of the Earth's middle atmosphere to solar particle forcing

Speaker: Pekka Verronen, FMI/SGO, University of Oulu, Finland

Date and Time: Oct 25 (Tue), 2022, 08:00-09:00 UTC 66/156

Lecture coordinators



Claudia Martinez-Calderon

#15 Topic: Global properties of solar flares and some recent sun-as-a-star discoveries

Speaker: Hugh Hudson (Affiliation: University of Glasgow, Glasgow, UK)

Date/Time: September 08 (Thu), 2022, 09:00-10:00 UTC 99/194

#14 Topic: Space weather ionospheric effects at high latitude

Speaker: Lucilla Alfonsi (Istituto Nazionale di Geofisica e Vulcanologia, Italy)

Date/time: July 12 (Tue), 2022, 09:00-10:00 UTC

59/152



Ishita Gulati

SCOSTEP/PRESTO Newsletter vol.27-38

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



SCOSTEP Visiting Scholar (SVS) Program

In 2023, 15 proposals were approved.

	Name	Home Institute	Host Institute
1	George Ochieng Ondede		Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
2	Chandan Kapil	Indian Institute of Geomagnetism, Navi Mumbai, <mark>India</mark>	Leibniz Institute of Atmospheric Physics, Germany
3	Akshay Shivaji Patil	Sanjay Ghodawat, University, Kolhapur, <mark>India</mark>	Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
4	Ashish P. Jadhav	Indian Institute of Geomagnetism, Navi Mumbai, <mark>India</mark>	Leibniz Institute of Atmospheric Physics, Germany
5	Kshitiz Upadhyay		Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
6	Lalitha G Krishnan	<u> </u>	Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
7	Yoshita Baruah	Indian Institute of Science Education and Research (IISER), Kolkata, India	NASA Goddard Space Flight Center (NASA/GSFC), USA
8	Akash Biswas	Indian Institute of Technology (BHU, India	NASA Goddard Space Flight Center (NASA/GSFC), USA
9	Manu Varghese		Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
10	TRAORE Ibrahim	University Norbert Zongo in	Institute for Research in Astrophysics and Planetology (IRAP), Toulouse, France
11	Oluwaseun Victoria Fatoye	Anchor University Centre for Space Research (CESPAR), Nigeria	South Africa National Space Agency (SANSA), South Africa
12	Ardra Kozhikottuparambi		Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
13	Rajesh Kumar Barad	Indian Institute of Geomagnetism, India	Institute for Space-Earth Environmental Research (ISEE), Nagoya University, <mark>Japan</mark>
14	Florian Günzkofer	German Aerospace Center (DLR), Germany	Kyushu University, <mark>Japan</mark>
15	Prateek Mayank	Indian Institute of Technology Indore, <mark>India</mark>	South African National Space Agency (SANSA), South Africa













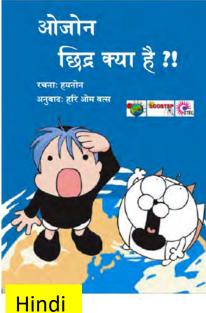


Applications for 2024 are on-going with the deadline of February 15, 2024.

SCOSTEP - Science Comic Books

https://scostep.org/













The SCOSTEP Fellow Program



Definition

The SCOSTEP Fellows Program was established in 2021 to honor notable members of the Solar-Terrestrial Physics community who have made sustained and/or high-impact contributions to the science of solar-terrestrial physics and/or to SCOSTEP and its scientific programs. The award is a lifetime honor.

Eligibility

- All members of the solar-terrestrial physics community are eligible for the SCOSTEP Fellow award.
- The winners of the biennial SCOSTEP Distinguished Science and Service awards will also be awarded the SCOSTEP Fellow Award.
- Former awards titled as Honorary Members of SCOSTEP will also be recognized as SCOSTEP Fellows.

Nominations

- Nominations may be submitted at any time to the SCOSTEP President or Scientific Secretary by SCOSTEP national adherents, SCOSTEP scientific discipline representatives and the SCOSTEP bureau members.
- Nominations should include a description of the contribution of the candidate to SCOSTEP and/or their scientific contributions to solar-terrestrial physics. A list of publications and/or other documents may be included in the nomination package.

Selection

The SCOSTEP Award Selection Committee will consider all nominations during their biannual meetings. The final determination of the Fellow award will be based on the candidate's dedication and contributions to solar-terrestrial physics.

In addition to the biennial awards made to the Distinguished Science and Service awards, two additional Fellow Awards may be made annually.

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.

Citation of SCOSTEP Fellow 2023

Dr. Natchimuthuk Gopalswamy

NASA Goddard Space Flight Center, Greenbelt, MD, USA



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.

Summary

- PRESTO is the current SCOSTEP scientific program to run during 2020-2024 to understand Predictability of the variable Solar-Terrestrial Coupling
- Scientists from more than 70 countries & regions 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 in collaboration with ISWI.

PRESTO: Predictability of the variable Solar-Terrestrial Coupling

SCOSTEP: Scientific Committee on Solar-Terrestrial Physics