



The Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

ANNUAL REPORT (1 JANUARY – 31 DECEMBER 2021)

Prepared by Kazuo Shiokawa, SCOSTEP President

This report covers the SCOSTEP activities for the period of 1 January to 31 December 2021. It reflects the activities carried out by the organization and its scientific program. SCOSTEP is a thematic body of the International Science Council (ISC). Its long-term objectives include promoting international interdisciplinary programs of finite duration in solar-terrestrial physics, specifically to:

- Develop and sustain student interest in Sun-Earth connections,
- Promote efficient exchange of data and information between solar and terrestrial scientists in all countries,
- Seek projects and programs that cross over transitional boundaries of physical regions and focused scientific disciplines.

SCOSTEP is engaged in science, capacity building and public outreach to achieve these objectives in cooperation with other scientific organizations and scientific unions of the ISC. These other organizations are the Participating Bodies of SCOSTEP. These include COSPAR, IAGA/IUGG, IAMAS/IUGG, IAU, IUPAP, SCAR, URSI and WDS. The SCOSTEP Bureau consists of representatives of all of these scientific bodies, making it a truly interdisciplinary body.

The year 2021 was a challenging period for SCOSTEP during the worldwide COVID-19 pandemic. However, SCOSTEP continued to reach out to the solar-terrestrial physics community by participating in and hosting virtual programs; the launch of a series of online seminars; and the SCOSTEP Visiting Scholar program. SCOSTEP also held its annual awards program for Distinguished Service award.

This report provides details on activities carried out in the year 2021. All these events and opportunities were communicated to the SCOSTEP scientific community via the SCOSTEP/PRESTO Newsletters and public announcements on relevant scientific community mailing lists.

1. SCOSTEP EXECUTIVES AND BUREAU MEMBERS

The SCOSTEP Executives for the period 2019-2023 include:

President: Dr. Kazuo Shiokawa, Nagoya University, Japan

Vice President: Dr. Daniel Marsh, NCAR (USA) and University of Leeds (UK)

Past President: Dr. Nat Gopalswamy, NASA, USA
Scientific Secretary, Patricia Doherty, Boston College, USA

The SCOSTEP Bureau is comprised of the Executives named above together with representatives of SCOSTEP participating organizations. The representatives are appointed by the Secretary General of their organizations. In 2021, the Bureau members representing their organizations include: Yoshizumi Miyoshi (COSPAR), Renata Lukianova (IAGA/IUGG), Peter Pilewskie (IAMAS), Kyung-Suk Cho (IAU), Prasad Subramanian (IUPAP), Annika Seppälä (SCAR), Jorge Chau (URSI) and Aude Chambodut (before August 2021) and Mamoru Ishii (after September 2021) (WDS).

The SCOSTEP Bureau directs the scientific, administrative, and financial activities of SCOSTEP. The Bureau meets at least once annually. In 2021, the SCOSTEP Bureau met two times virtually on 10 and 12 May 2021 and 2 December 2021. Each Bureau meeting was held twice to cover different local times of the Bureau members. The President and Scientific Secretary joined both meetings.

2. CAPACITY BUILDING AND OUTREACH ACTIVITIES

SCOSTEP is actively involved in the advancement of capacity building through its scientific program and partnerships with the ISWI, ISC, and URSI. Through its initiatives, e.g., Space Science Schools, SCOSTEP Visiting Scholarships (SVS), and online capacity building lectures, SCOSTEP facilitates the training, interaction, and collaboration of students and early career scientists with prominent members of the STP scientific community.

2.1 WORKSHOPS AND SCHOOLS

Each year, SCOSTEP supports several workshops and schools. SCOSTEP provides financial support for travel and subsistence for participants from developing countries. In 2021, SCOSTEP supported the following two online schools in Spain and Bulgaria. Detailed reports of these schools are shown in the SCOSTEP/PRESTO Newsletters (<https://scostep.org/newsletter-archive>) and the websites of each school.

(1) The ISWI/SCOSTEP Iberian Space Weather School was held on July 21-25, 2021 at University of Coimbra, Portugal (<https://www.i4s-iberian-space-science-summer-school.com/>) via on-line due to the COVID19 pandemic. The students of the i4s were almost equally distributed between the eastern (China, India, and Middle Asia), Euro-African and western (N. and S. Americas). Nine lectures covered different space weather topics: The Sun; Solar wind and interplanetary medium; Magnetosphere; Ionosphere and Upper Atmosphere; Lower atmosphere and ground effects; Climate Change. The school was organized with the support of ISWI and SCOSTEP, being in line with their aims in providing training in the domain of Space Science.

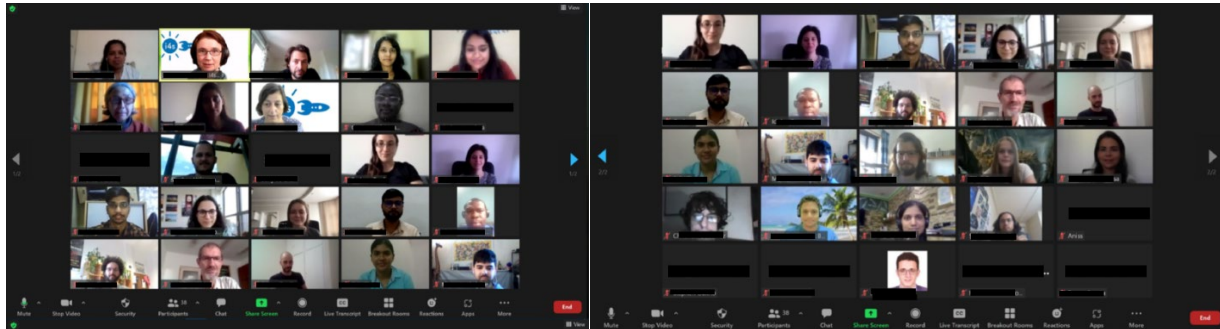


Photo of the participants of the Iberian Space Weather School

(2) The first summer school on space research, technology, and application was held in a hybrid mode on 5-11 July 2021 at National Observatory Rozhen, Bulgaria (<https://bulgarianspace.online/space-schoolbg-2021/>). Over 42 (14 on-site and 28 online) participants from 20 different countries attended the school.



The first summer school on space research, technology, and application

2.2 SCOSTEP VISITING SCHOLAR (SVS) PROGRAM

The SVS program provides training to graduate students in established laboratories of solar-terrestrial physics for periods of 1 to 3 months. The SVS program is open to applicants from all countries but encourages and prioritizes applicants from developing countries. The program is open to Masters and PhD students with the requirement that the recipient has not received a PhD at the time of application to the program. SCOSTEP supports round-trip airfare for the students and the host institutions supports the cost of stay for 1-3 months for these students.

The following five were awarded SCOSTEP Visiting Scholarships for the year 2021. Due to travel restrictions of COVID-19, the 2020 and 2021 recipients of the SVS Program had until the end of 2021 and 2022, respectively, to complete their award, with the agreement of the host institutions.

2021 SVS recipient name (home institute):	SVS host institute
Shipra Sinha (India, IIG, Mumbai):	NASA, GSFC, USA
H. N. Adithya (Indian Institute for Astrophysics, India):	ISEE, Nagoya U., Japan
Aleksandr Rubtsov (Russia, Inst. of Solar-Terrestrial Physics):	ISEE, Nagoya U., Japan
Dejene Ambisa Terefe (Ethiopia, Bahir Dar University):	SANSA, South Africa
Bantayehu Aderaw Kebede (Ethiopia, Bahir Dar Univ):	Mackenzie Univ., Brazil

2020 recipients who have completed their SVS program are as follows:

- Dibyendu Sur – worked remotely with NASA, GSFC, USA
- Ishita Gulati – worked remotely with IIG, Mumbai, India
- George Ochieng – traveled to NASRDA, Nigeria
- Habtamu Marew – traveled to SANSA, South Africa

2021 recipients who have completed their SVS program are as follows.

- Aleksandr Rubtsov (Russia, Inst. of Solar-Terrestrial Physics): traveled to ISEE, Nagoya, Japan
- H. N. Adithya (Indian Institute for Astrophysics, India): traveled to ISEE, Nagoya U., Japan

The full requirements together with the application procedure and current list of host laboratories are available on the website: <https://scostep.org/svs/>

2.3 SCOSTEP ONLINE CAPACITY BUILDING LECTURES

From January 2021 SCOSTEP began holding online capacity building lectures for students and early-career scientists in response to the COVID-19 situation. Dr. Claudia Martinez-Calderon of the Institute for Space-Earth Environmental Research, Nagoya University, has been working as the coordinator of this lecture series. These lectures provide both basic background and an introduction to the latest scientific topics of solar-terrestrial physics to students and young scientists of all countries. Their duration is one hour and presented by one speaker. The first half will be a tutorial-like session gives basic background on a topic, mostly oriented at students. After a short break, the tutorial continues with the latest research or hot topic in the same subject accessible to younger and senior scientists.

There were ten online capacity-building lectures (1th-10th) in 2021 as follows. The numbers at the end show the numbers of real-time participants/registration. The recorded video of the lectures is available from the SCOSTEP website at <https://scostep.org/capacity-building-lectures/>.

#1 Topic: "Motivation for soft X-ray imaging and plans for the STORM global imaging mission"
 Speaker: David G. Sibeck, NASA Goddard Space Flight Center, USA
 Date and Time: Jan 22 (Fri), 2021, 01:00-02:00 UT (39/145)

#2 Topic: "Processing of electric and magnetic signals onboard the THEMIS spacecraft and applications of polarization analysis"

Speaker: Ulrich Taubenschuss, Institute of Atmospheric Physics AS CR, Czechia

Date and Time: Mar 5 (Fri), 2021, 11:00-12:00 UTC (46/99)

#3 Topic: "Machine-learning based reconstruction of the inner magnetosphere"

Speaker: Jacob Bortnik, UCLA, USA

Date and Time: Mar 29 (Mon), 2021, 23:00-00:00 UTC (49/128)

#4 Topic: "An Overview of the Sun's Structure, and a Closer Look at Solar Magnetism and Activity"

Speaker: Alphonse C. Sterling, NASA Marshall Space Flight Center, USA

Date and Time: Apr 29 (Thu), 2021, 00:30-01:30 UTC (52/179)

#5 Topic: The variable geospace environment and our radio wave based modern society: basic concepts of ionosphere and recent research problems at high latitudes

Speaker: Esa Turunen (Sodankylä Geophysical Observatory, Finland)

Date/time: May 31 (Mon), 2021, 10:30-11:30 UTC (106/194)

#6 Topic: Aurora as a manifestation of electromagnetic waves in space

Speaker: Keisuke Hosokawa (University of Electro-Communications, Japan)

Date/time: June 28 (Mon), 2021, 10:30-12:00 UTC (113/191)

#7 Topic: Energetic Electron Precipitation from the Radiation Belts: How plasma waves in space kill atmospheric ozone

Speaker: Craig Rodger (Dept. of Physics, University of Otago, New Zealand)

Date/time: August 19 (Thu), 2021, 00:30-01:30 UTC (47/157)

#8 Topic: Solar Magnetic Fields: Their Origin and Predictability

Speaker: Dibyendu Nandi (Indian Institute of Science Education and Research, Kolkata, India)

Date/time: Sept. 14 (Tue), 2021, 10:30-11:30 UTC (88/202)

#9 Topic: Whole Heliosphere and Planetary Interactions (WHPI): Connecting Sun to solar wind to planets during "quiet" times of the solar cycle

Speaker: Sarah Gibson (High Altitude Observatory at NCAR, Colorado, USA)

Date/time: October 21 (Thu), 2021, 00:30-01:30 UTC (38/173)

#10 Topic: F10.7 and solar spectral irradiance: drivers of ionosphere models

Speaker: Samuel Schonfeld (Boston College, Massachusetts, USA)

Date/time: November 16 (Tue), 2021, 01:00-02:00 UTC (33/147)

3. SCOSTEP’s NEW SCIENTIFIC PROGRAM – PRESTO

The SCOSTEP’s scientific program PRESTO (Predictability of the Variable Solar-Terrestrial Coupling) was initiated in 2020 for the five years of 2020-2024. 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. SCOSTEP is the only organization dealing with the coupled solar-terrestrial system under the umbrella of the International Science Council (ISC). PRESTO is the latest program of SCOSTEP in the modern space era, following a number of programs such as CAWSES (2004-2008), CAWSES-II (2009-2013) and VarSITI (2014-2018).

The PRESTO program organizes/supports campaigns, meetings, and database developments. SCOSTEP/PRESTO Newsletters are distributed every three months. Due to COVID-19 pandemic, SCOSTEP/PRESTO online seminar is also organized to deliver the latest scientific topics and/or instructive review presentations of solar-terrestrial physics that are related to the PRESTO Program.

3.1 PRESTO MEETINGS AND CAMPAIGNS

Meetings supported by the SCOSTEP’s PRESTO funding were strictly limited due to the COVID-19 pandemic in 2021. The following three meetings were held in association with the PRESTO program. In addition, the STP-15 symposium was planned in 21-25 February 2022 via online where the PRESTO program is the main topic of the symposium.

Meeting title	location	country	Date
44th Annual Seminar on Physics of Auroral Phenomena	Polar Geophysical Institute, Apatity, Murmansk, Russia	Russia	March 15-19, 2021
Hinode-14/IRIS-11 Joint Science Meeting	George Mason University	USA	October 25-28, 2021
XIII Latin America Giant Observatory (LAGO) Meeting	FACET - University of Tucuman	Argentina	February 21-26, 2022

In addition to these isolated meetings, several sessions related to the PRESTO program were organized in 2021 in the conferences of participating bodies of SCOSTEP, such as at IAGA-IASPEI 2021 (<http://iaga-iaspei-india2021.in/symposia-details.html>) on Division IV, Session 4.1 Advances and Upcoming Development in Solar and Heliospheric Physics, and at URSI2021 (<https://www.ursi2021.org/>) on Session G15 PRESTO The new SCOSTEP space weather and space climate program. During the AGU Fall Meeting 2021, PRESTO Townhall meeting was held.

PRESTO also supported one campaign observation organized by Stergios Misios, a Pillar 3 co-leader for atmospheric electricity measurements at the Villum Research Station in Greenland.

3.2 PRESTO DATABASE CONSTRUCTIONS

The following six databases constructions were supported in association with the PRESTO program. SCOSTEP financially supported these database constructions.

Database Title	Data Set	Country
STEVE Database	Inter-operable database advances enabling citizen science observations and analysis of STEVE	Germany
Amplitude and Phase of very low frequency (VLF) radio data	Database from VLF receivers	Nigeria
All Solar Data collected at th Geophysical and Astronomical Obeservatory at Univ. Coimbra	Solar spectroheliograph data Ca II K1 and K3, H-Alpha, Call K and H-alpha	Portugal
COIMAG-BASE: Coimbra historical magnetograms' database	Digital images of analog magnetograms	Portugal
Database Creation of Solar Soft X-ray Irradiance	Solar soft X-ray irradiance, coronal feature's intensity, temperature and magnetic field variabilities using Hinode/XRT SOHO/MDI & SDO/HMI observations	India and Japan
Virtual Observatory for Operative Monitoring Sun-Earth Connection	Database with conditions on the Sun, the interplanetary medium, the magnetosphere, ionosphere and ground level flux of cosmic rays.	Argentina

3.3 SCOSTEP/PRESTO NEWSLETTERS

SCOSTEP distributed SCOSTEP/PRESTO Newsletters every three months in January, April, July, and October 2021. To access the newsletters, please visit the website: <https://scostep.org/newsletter-archive/>.

3.4 SCOSTEP/PRESTO ONLINE SEMINARS

The PRESTO program initiated a series of online seminars in May 2020. This seminar series is partly in response to the current difficulties of hosting meetings in person. This seminar series deliver the latest scientific topics and/or instructive review presentations of solar-terrestrial physics that are related to SCOSTEP's PRESTO Program. The seminars are open to scientists and students in all countries. The seminars are announced through the SCOSTEP-all and other mailing lists and on the SCOSTEP website at <https://scostep.org>.

The seminar speakers are invited by the PRESTO Steering Committee. The length of the seminars are 60 minutes (maximum) including 15-minute question/discussion time using the Zoom meeting system. The seminars are only for scientific purposes and are not for commercial use. With the consent of the speaker, the seminars have been recorded and made available on the SCOSTEP website.

The speakers featured in 2021 include the following. The numbers at the end shows the numbers of real-time participants/registration. The recorded video of the seminars is available from the SCOSTEP website at <https://scostep.org/online-seminar-series/>.

#5 Title: Magnetospheric Response to Interplanetary Shocks: ULF Wave-Particle Interaction Perspective

Speaker: Q.-G. Zong (Peking University, China) – SCOSTEP 2020 Distinguished Scientist Award Lecture

Date and Time: Jan 14 (Thu), 2021, 00:00-01:00 UT (105/193)

#6 Title: Utilizing galactic cosmic rays as signatures of interplanetary transients

Speaker: Mateja Dumbović (University of Zagreb, Croatia) – SCOSTEP 2020 Distinguished Young Scientist Award Winner

Date and Time: Jan 19 (Tue), 2021, 12:00-13:00 UT (67/130)

#7 Title: Physics at the edge between Earth's atmosphere and space

Speaker: Franz-Josef Lübken (Leibniz-Institute of Atmospheric Physics, Germany) – SCOSTEP 2021 Distinguished Service Award Winner

Date and Time: May 21 (Fri), 2021, 12:00-13:00 UT (114/222)

#8 Title: The Sun making history. The mechanism behind the varying amplitude of the solar cycle

Speaker: Prof. Dr. Kristof Petrovay (ELTE Eotvos Lorand University, Department of Astronomy, Hungary)

Date/time: June 8 (Tue), 2021, 13:00-14:00 UT (159/263)

#9 Title: Space Weather in the Thermosphere-Ionosphere System - observations and Insights from the GOLD* Mission (*Global-scale Observations of the Limb and Disk)

Speaker: Dr. Richard Eastes (Laboratory for Atmospheric and Space Physics, University of Colorado Boulder, USA)

Date/time: September 23, 2021, 14:00-15:00 UT (121/258)

#10 Title: Understanding and Modeling Solar Eruptions: Where Do We Stand?

Speaker: Dr. Tibor Török (Predictive Science Inc., USA)

Date/time: November 30, 2021, 23:00-24:00 UT (83/239)

Please watch for more news about PRESTO in 2022.

4. SCOSTEP's 15th QUADRENNIAL SOLAR-TERRESTRIAL PHYSICS SYMPOSIUM (STP-15)

SCOSTEP organizes the Solar-Terrestrial Physics (STP) symposia once every four years. This time the Indian Institute of Geomagnetism (IIG) is hosting the SCOSTEP's 15th Solar-Terrestrial Physics Symposium (STP-15) during 21-25 February 2022 (<https://stp15.in>). Considering the regulations imposed by COVID-19 pandemic, STP-15 will be conducted in a completely virtual mode. The aim of the STP-15 is to bring together experts, young scientists and young research students from solar, magnetospheric, ionospheric and atmospheric physics communities to discuss and deliberate on the frontline and up-to-date sciences pertaining to STP. The following 8 sessions will be held during the symposium:

Session 1. Overarching topics in Sun-Earth connection

Session 2. PRESTO Pillar 1: Sun, Planetary Space, and Geospace

Session 3. PRESTO Pillar 2: Space Weather and Earth's Atmosphere

Session 4. PRESTO Pillar 3: Solar Activity and its Influence On Climate

Session 5. Space Weather Prediction and Implementation

Session 6. Modeling, Database and Data Analysis Tools for Solar-Terrestrial Physics

Session 7. New ground- and space-based initiatives for Solar-Terrestrial Physics

Session

In addition to these sessions, a 2-day student workshop on Solar-Terrestrial Physics for Students and Young Scientists (STEPSYS) is planned during 19-20 February 2022 for the benefit of students and young re-searchers by arranging tutorials/lectures by eminent scientists.

The Scientific Organizing Committee (SOC) of STP-15 includes:

Kazuo Shiokawa, (Japan, Chair), Daniel Marsh (USA), Nat Gopalswamy (USA), Aude Chambodut (France), Jorge Chau (Germany), Kyung-Suk Cho (South Korea), Yoshizumi Miyoshi (Japan), Renata Lukianova (Russia), Annika Seppälä (Finland), Prasad Subramanian (India), Peter Pilewskie (USA), Ramon Lopez (USA), Katja Matthes (Germany), Jie Zhang (USA), Allison Jaynes (USA), Emilia Kilpua (Finland), Spiros Patsourakos (Greece), Loren Chang (Taiwan), Duggirala Pallamraju (India), Nick Pedatella (USA), Odele Coddington (USA), Jie Jiang (China), Eugene Rozanov (Switzerland) and Subramanian Gurubaran (LOC chair, India)

5. SCOSTEP BUREAU AND GENERAL COUNCIL MEETINGS

5.1 SCOSTEP BUREAU MEETING

In 2021, the SCOSTEP Bureau met two times virtually on 10 and 12 May 2021 and 2 December 2021. Each Bureau meeting was held twice to cover different local times of the Bureau members. The President and Scientific Secretary joined both meetings. The meeting was via a Zoom video conferencing. The following items were discussed during these meetings. Detailed report of the Bureau meeting will be shown in the SCOSTEP website at <https://scostep.org/meeting-minutes-archive/>.

Agenda of the Bureau meeting on 10 and 12 May 2021:

- 1) Approval of the minutes of the last Bureau meeting
- 2) Updates of action items from the last Bureau meeting
- 3) SDR bylaws
- 4) Committee bylaws (Award Nomination/Selection, SVS Selection, Membership, Finance)
- 5) Honorary Members
- 6) Budget
- 7) Scientific Secretary (SS) Office Updates
- 8) Conflict of Interest Policy and Reminder
- 9) Reports from participating bodies (COSPAR, IAGA, IAMAS, IAU, IUPAP, SCAR, URSI, WDS)
- 10) UN_STSC, UN_ISWI, ISC updates
- 11) PRESTO updates
- 12) STP-15 planning updates
- 13) Next General Council meeting plan
- 14) Postpone of PRESTO workshop and school in ICTP to 2022
- 15) School activities
- 16) SCOSTEP online capacity building lectures
- 17) SCOSTEP Distinguished Service Award 2021
- 18) Membership Committee report
- 19) SVS2021 updates
- 20) SCOSTEP comic book updates

Agenda of the Bureau meeting on 2 December 2021:

- 1) Approval of the minutes of the last Bureau meeting
- 2) Updates of action items from the last Bureau meeting
- 3) Budget

- 4) Constitution Amendment
- 5) Committee Bylaws (Award Nomination/Selection, SVS Selection, Membership, Finance)
- 6) Agenda of the next General Council during STP-15
- 7) SCOSTEP Fellow / Honorary Members
- 8) Scientific Secretary (SS) Office Updates
- 9) Conflict of Interest Policy and Reminder
- 10) Reports from participating bodies (COSPAR, IAGA, IAMAS, IAU, IUPAP, SCAR, URSI, WDS)
- 11) Updates of ISC, UN_STSC, UN_COPUOS, and ISWI activities
- 12) PRESTO updates
- 13) STP-15 updates
- 14) School activities supported by SCOSTEP
- 15) SCOSTEP online capacity building lectures
- 16) Announcement of SCOSTEP Distinguished Science and Young Scientist Awards 2022
- 17) Membership Committee report
- 18) SCOSTEP Visiting Scholar (SVS) updates
- 19) SCOSTEP comic book updates

5.2 GENERAL COUNCIL MEETING

The SCOSTEP General Council Meeting is held every two years, mostly during the IUGG General Assembly (every 4 years) and the STP symposium (another every 4 years). Initially the STP-15 symposium was planned in 2021. Due to the COVID-19 pandemic, the STP-15 was shifted to 21-25 February 2022. Thus, the next SCOSTEP General Council meeting is planned on 25 February 2022 via online during the STP-15 symposium.

6. 2021 SCOSTEP Awards

SCOSTEP was pleased to host a very successful awards program in 2021. These included the Distinguished Service Award for 2021. This award is to recognize unique contributions to SCOSTEP-related activities, to realization of its programs and events. Award nomination packages (nomination letters and nominee's curriculum vitae) were received for a number of nominees. After careful consideration, the SCOSTEP Awards Committee selected the following finalists:

SCOSTEP Distinguished Service Award: Dr. Franz-Josef Lübken, Director of Leibniz Institute for Atmospheric Physics (IAP) and Professor of University of Rostock, Germany

for his unique and meritorious service to SCOSTEP activities and interests at an international level, which have visibly influenced outreach and high-level research in solar-terrestrial physics.

Information about the awardees is included in the SCOSTEP/PRESTO Newsletter, Volume 27, April 2021. This is available on the website: <https://scostep.org/newsletter-archive/>.

Congratulations to Prof. Lübken!

7. OTHER BUSINESS

7.1 SCOSTEP AT UN-RELATED ACTIVITIES

The President of SCOSTEP, Dr. Kazuo Shiokawa, provided two reports at the 58th Session of the STSC (Scientific and Technical Subcommittee) of the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS) on 26 April 2021 and at the 64th Session of UN COPUOS on 1 September 2021 via online. These presentations were about the current status of SCOSTEP's PRESTO program for predictability of the variable solar-terrestrial coupling. The President also joined COP 26 Science Engagement and ISC Science Community on 21 October 2021 to discuss opportunities for targeted science messaging for COP 26 and possibilities of post COP science collaboration.

SCOSTEP officers also supported organization of the International Space Weather Initiative Workshop on Space Weather: Science and Applications which was held on 2 - 3 November 2021 via online. This activity was jointly organized by the United Nations Office for Outer Space Affairs and the Vikram Sarabhai Space Centre of the Indian Space Research Organization, India. The President (Dr. Kazuo Shiokawa), Past President (Dr. Nat Gopalswamy), and Scientific Secretary (Ms. Patricia Doherty) made lectures on this workshop.

7.2 SCOSTEP COMIC BOOK UPDATES

The comic book series on various topics of solar-terrestrial physics has been translated into many languages (<https://scostep.org/space-science-comic-books/>). Translations of the comic book to various languages are still going on by volunteer scientists.

8. SUMMARY

In summary, the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) had a difficult year in 2021 under the pandemic situation of COVID-19. However, various online activities were carried out including PRESTO advancements and a highly popular series of online seminars. These activities together with grant opportunities for meetings and database development; and the Distinguished Service Award resulted in an active and productive year.

SCOSTEP looks forward to continued success in 2022.