



**The Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)
ANNUAL REPORT (1 JANUARY – 31 DECEMBER, 2019)**

Prepared by Patricia H. Doherty, SCOSTEP Scientific Secretary

The report that follows covers the period of 1 January to 31 December 2019. It reflects the activities carried out by the organization and its scientific programs. The year 2019 was a period of significant transition for SCOSTEP. During this year, new officers were elected; a new scientific secretary was appointed; and a new scientific program was launched.

This report provides details on these changes and reports on the workshops, schools and other capacity building activities carried out in 2019. All of these events were communicated to the SCOSTEP scientific community via the SCOSTEP Newsletters and public announcements on relevant scientific community mailing lists.

1. SCOSTEP EXECUTIVES AND BUREAU MEMBERS

The elections for the new SCOSTEP Executives took place during the IUGG assembly in Montreal, Canada on July 13, 2019. Dr. Kazuo Shiokawa, of Nagoya University in Japan, was elected President. Professor Daniel March, of the National Center for Atmospheric Research (USA) and the University of Leeds (UK) was elected Vice President. Dr. Nat Gopalswamy, who served SCOSTEP as President since 2011, will continue to serve as Past-President. Patricia Doherty, of Boston College, was appointed as the Scientific Secretary in July 2019.

SCOSTEP EXECUTIVES (2019-2022)



President
Kazuo Shiokawa (Japan)



Vice President
Daniel Marsh (USA, UK)



Past President
Natchimuthuk (Nat) Gopalswamy
(USA)



Scientific Secretary (ex officio)
Patricia Doherty (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. For the quadrennial beginning in July 2019, the bureau members representing their organizations include: Yoshizumi Miyoshi (COSPAR), Renata Lukianova

(IAGA/IUGG), Peter Pilewski (IAMAS), Kyung-Suk Cho (IAU), Prasad Subramanian (IUPAP), Annika Seppälä (SCAR), Jorge Chau (URSI) and Aude Chambodut (WDS).

BUREAU MEMBERS – REPRESENTATIVES OF PARTICIPATING ORGANIZATIONS



COSPAR
Yoshizumi Miyoshi
(Japan)



IAGA
Renata Lukianova
(Russia)



IAMAS
Peter Pilewski
(USA)



IAU
Kyung-Suk Cho
(South Korea)



IUPAP
Prasad Subramanian
(India)



SCAR
Annika Seppälä
(Finland)



URSI
Jorge L. Chau
(Germany)



WDS
Aude Chambodut
(France)

2. MESSAGE FROM THE NEWLY ELECTED PRESIDENT



Kazuo Shiokawa
SCOSTEP President
Institute for Space-Earth Environmental
Research (ISEE)
Nagoya University, Japan

It is really honorable for me to serve as the President of SCOSTEP. I will do my best to serve various SCOSTEP efforts to promote solar terrestrial physics (STP). The scientific field of solar-terrestrial physics is rapidly changing, mainly because of expansion of human activities into space and because of growing interest in Earth's climate change. The original scientific interest and knowledge are going to be applied to various applications, as represented by the terminologies of "space weather" (short-term variability) and "space climate" (long-term variability). In this sense, various efforts have been made in recent years (1) to understand the physical mechanisms that cause the observed phenomena and (2) to predict the phenomena that affects human life. For this understanding and prediction of the variability of the sun-earth system, the connection from the sun to the earth, and from the earth surface to the middle and upper atmosphere, and to geospace is of essential importance.

Under the International Science Council (ISC), SCOSTEP is the only organization to deal with this sun-earth connection. I will serve on this point to encourage more communication among

scientists in different disciplines and regions from the sun to the earth. I would like to encourage this communication by operating mailing lists, the website, and newsletters, as well as promoting interdisciplinary symposia, conferences and workshops under SCOSTEP. The participating bodies of SCOSTEP consist of COSPAR, IAU, IUGG (IAGA and IAMAS), IUPAP, SCAR, URSI, and WDS. This structure of SCOSTEP also allows coordination of the wide scientific area related to solar-terrestrial physics. I would like to stimulate collaboration with these participating bodies by promoting joint sessions and symposia.

The uniqueness of SCOSTEP is to launch international / interdisciplinary multi-year programs on the sun-earth relationship, such as CAWSES, CAWSES-II and VarSITI. This is very different from other participating bodies of SCOSTEP. Through this program, SCOSTEP can address the changing situation of the solar-terrestrial system, providing a timely platform for the community to work together. The VarSITI (Variability of the Sun and Its Terrestrial Impact, 2014-2018) focused on the decreasing trend of solar activities and its consequences on earth. The next program, PRESTO – PREDictability of variable Solar-Terrestrial cOupling, is a timely topic for our community due to the increasing interest on the effect of the variability on human activity in space and on earth's climate. This direction will also introduce new possibilities for collaboration with the community of space use and applications. I think SCOSTEP should encourage such collaboration, for example, with the International Space Weather Initiative (ISWI) of the United Nations (UN) Committee on the Peaceful Uses of Outer Space (COPUOS) and other bodies related to space use and climate change.

Through my past experiences of field measurements and school organizations in developing countries, I feel that governments in developing countries are gradually understanding the importance of space weather research. This is due to their increased use of satellite signals for communication and navigation applications with the awareness that ionospheric plasma bubbles can degrade these systems significantly. Under these circumstances, capacity building activities led by SCOSTEP are getting more important for young scientists in the developing countries. SCOSTEP will continue to encourage more capacity-building activities, by coordinating/supporting international schools, operating the SCOSTEP visiting scholar (SVS) programs for students and young scientists, and distributing a comic series on solar-terrestrial sciences.

Finally, I would like to point out the importance of database construction and open data policies in solar-terrestrial physics. Since solar-terrestrial physics deals with global-scale phenomena and relies significantly on remote-sensing and in-situ techniques; international collaboration and exchange of various different types of data are essentially important to understand the physical mechanisms of the phenomena. In that sense, we encourage development of user-friendly databases and data analysis tools as well as efforts of keeping long-term data quality in collaboration with the World Data System (WDS).

3. TRANSITION OF THE OFFICE OF THE SCIENTIFIC SECRETARY

In July 2019, Dr. Mariana Shepherd of York University stepped down as Scientific Secretary of SCOSTEP. Dr. Shepherd held this position from 2010 to July 2019. She did an outstanding job of supporting SCOSTEP's scientific programs, bureau activities, outreach programs, finances and so much more.

In the early half of 2019, Mariana worked closely with Patricia Doherty, the incoming Scientific Secretary, to transfer the secretariat's office from York University, Toronto, Canada to Boston College in the USA.

SCOSTEP is grateful for her unwavering support and service to our organization and we wish her well in her future endeavors.



Dr. Mariana Shepherd
SCOSTEP Scientific Secretary
(2010-2019)



Patricia Doherty
SCOSTEP Scientific Secretary
Beginning in July 2019

The newly appointed Scientific Secretary is Patricia Doherty, Director of the Institute for Scientific Research (ISR) at Boston College in Chestnut Hill, Massachusetts.

Patricia is honored to have been appointed as the Scientific Secretary of SCOSTEP. SCOSTEP's dedication to outreach and capacity building together with exceptional excellence in scientific programs such as CAWSES, CAWSES-II and VarSITI are activities that she has admired for quite some time. Having both a scientific background in space weather and considerable outreach and management experience, she looks forward to using her skills to support and advance SCOSTEP over the next quadrennial.

Patricia has worked closely with Marianna Shepherd to transfer the secretariat's office from York University in Toronto, Canada to Boston College in the USA. Dr. Shepherd has done an outstanding job of supporting SCOSTEP as Scientific Secretary from 2010 to mid-2019. She has guided the new scientific secretary and shared so much of her expertise in numerous meetings, phone calls and emails over the last year. Patricia thanks her personally for her gentle guidance during this transition.

In 2019, Patricia Doherty assumed the financial and administrative responsibilities of SCOSTEP. She has guided the development of mailing lists for various committees and SCOSTEP participants. She has also worked to establish a new website based at Boston College (www.bc.edu/scostep). Patricia has also opened a nonprofit corporation based in Massachusetts and has obtained non-

profit status for US federal tax purposes. Ms. Doherty has also reached out to our National Adherent Representatives and Participating bodies to assure that we are in good communication. Finally, Patricia hosted the first SCOSTEP Bureau meeting with the new leadership at Boston College in September 2019.

Patricia looks forward to working with all the participants of SCOSTEP. Please contact her at any time if you have any questions or suggestions. She can be reached at: Patricia.Doherty@bc.edu.

4. CAPACITY BUILDING AND OUTREACH ACTIVITIES

SCOSTEP is actively involved in the advancement of Capacity Building and scientific excellence through its scientific programs and partnership with the ISWI, ISC and URSI. Through its initiatives, e.g. Space Science Schools, SCOSTEP Visiting Fellowships (SVS), SCOSTEP facilitates the training, interaction and collaboration of young and early career scientists with the best of the STP scientific community.

4.1 WORKSHOPS AND SCHOOLS

A number of workshops and schools have been supported by SCOSTEP in 2019. The funds for these activities are primarily used to support travel and subsistence for participants in developing nations. The activities held in 2019 include:

- African Geophysical Society (AGS) Conference on Space Weather, Cairo Egypt, March 25-28, 2019
- International Space Weather Initiative Workshop, Trieste, Italy, May 20-24, 2019
- VarSITI Closing Symposium, Sofia, Bulgaria, June 10-16, 2019
- Towards Future Research on Space Weather: Concepts and Tools, San Juan, Argentina, July 2-7, 2019
- Seventh Space Climate Symposium, Quebec, Canada, July 8-11, 2019
- Beacon Satellite Symposium, Olsztyn, Poland, August 19-23, 2019
- IRI Workshop, Frederick University in Nicosia, Cyprus, September 2-13, 2019
- 4th Edition of the School of Space Weather IMAO (ICTP-Maghreb Afrique de L-Ouest), Senegal, Africa, October 15-25, 2019
- VarSITI Summarizing Workshop, Nagoya, Japan, November 11-15, 2019

Here are reports from just a few of these activities:



**African Geophysical Society (AGS) Conference on Space Weather, Cairo, Egypt
Report Submitted by Dr. Ayman Mahrous, Cairo Egypt**

The African Geophysical Society AGS formally established on 2012 during the first Chapman Conference on Space Weather in Africa, organized by the American Geophysical Union AGU at Addis Ababa, Ethiopia. This year it was held in Cairo, Egypt from 25-28 March 2019. The

workshop was attended by 80 participants: South Africa - 6, Japan - 1, Algeria - 1, Sudan - 2, USA - 2, France - 1, UK - 1, Kenya -1, Korea -1, Saudi Arabia -1, China -2, Norway -1, Egypt -60.

More than 180 applied for the workshop, 50 abstracts were accepted. After some cancellations, 36 oral and 8 posters were presented. A 20-min time slot was given for each oral talk. The following session themes were identified, being held in a sequence:

- Space Weather Capacity Building
- Ionospheric Irregularities and geomagnetic disturbances
- GNSS and communication systems
- Space Environment effects on satellite systems
- Solar Active phenomena and its impact on different aspects.

The meeting was supported by VarSITI, IAGA, ISWI, SANSA, SCOSTEP and COSPAR. A more detailed summary of the meeting including the program and abstracts can be found at <http://www.spaceweather.edu.eg/AGS2019.html>.



Group Photo of AGS Conference Participants



**The International Space Weather Initiative Workshop (ISWI)
Report provided by Dr. Bruno Nava, ICTP, Trieste, Italy**

ISWI, established in 2009, has proved to provide a framework for collaboration between teams of scientists, serving as an example of remarkable international work in instrument operation, data collection, analysis and publication of scientific results. ISWI has established a platform for bottom-up approach in order to produce space weather literate communities, particularly

developing nations, and to work together as a network sharing ideas, information and data, and to create joint projects.

The most recent workshop, held in May 2019 at the Abdus Salam International Centre for Theoretical Physics, included a rich and varied program with a kick-off talk provided by Dr. Dan Baker of the University of Colorado on Global Response to Space Weather. Technical sessions included presentations on (i) space weather instrumentation and data (ii) space weather modeling (iii) regional space weather studies; (iv) solar physics; (v) magnetosphere-ionosphere-thermosphere coupling; (vi) space weather effects; (vii) international agency space weather activities; (viii) outreach and education; and many more. Overall 62 oral presentations and 36 posters were presented.

A total of 115 scientists from 47 countries attended the workshop. Sponsors included ISWI, ICTP, Boston College, the International Committee on Global Navigation Satellite Systems (ICG), ESA, SCOSTEP, the IUGG and the National Space Research and Development AGENCY of Nigeria. SCOSTEP support provided travel and subsistence for two young scientists from developing countries.

The presentations made at this workshop can be accessed on the following link:

<http://indico.ictp.it/event/8682/>



International Space Weather Initiative Workshop

Trieste

20 - 24 May 2019





VarSITI Closing Symposium, Sofia, Bulgaria
Report provided by Dr. Katya Georgieva, Bulgarian Academy of Sciences

The VarSITI Completion General Symposium was held in Sofia, Bulgaria from 10 to 14 June 2019. It was attended by 98 participants from 24 countries.

94 presentations were given in the 8 plenary, 6 parallel and 2 poster sessions. They were on the following topics:

- Mechanisms of solar variability and its Earth-affecting manifestations
- Long-term solar variability and its impacts on the heliosphere and the terrestrial system including solar wind, geomagnetic field, and Earth's climate (Space climate)
- Short-term solar variability and Earth-affecting events, and the reaction of the terrestrial system to solar/heliospheric drivers (Space weather)
- Coupling between the Earth's atmosphere and space under quiet or active Sun
- Sun-Earth related data: definition, maintenance, archiving
- Predictability of the Variable Solar-Terrestrial Coupling (PreSTo): The science behind.

The symposium started with an overview of SCOSTEP presented by its president Dr. Nat Gopalswamy. The results of the four VarSITI projects and of the program as a whole were summarized in keynote talks given by the projects' co-leaders and the program's co-chairs. Another keynote talk presented SCOSTEP's next scientific program PRESTO.

All presentations are freely available online at the symposium's web site <http://newserver.stil.bas.bg/VarSITI2019/>, with the exception on the ones whose authors explicitly asked not to publish them at this moment.

During the symposium, a meeting of VarSITI's Steering Committee was held. The Steering Committee decided to publish the proceeding of VarSITI's Completion General Symposium in a special issue of a JASTP, together with the proceedings of STP-14 held in 2018 in Toronto, Canada. The special issue will be also open for contributions on new and interdisciplinary scientific results related to this 5-year VarSITI program. The submission deadline is November 30, 2019.

The following scientists were appointed as guest editors of the special issue:

- Kazuo Shiokawa (Institute for Space-Earth Environmental Research, Nagoya University, Japan)
- Rositsa Miteva (Space Research and Technology Institute, Bulgarian Academy of Sciences, Bulgaria)

- Sergio Dasso (Universidad de Buenos Aires, Instituto de Astronomiay Fisica del Espacio (IAFE), Buenos Aires, Argentina)
- Shunrong Zhang (MIT Haystack Observatory, USA)
- Duggirala Pallamraju (Physical Research Laboratory, Navrangpura, Ahmedabad, India.
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VarSITI Closing Symposium Group Photo



**International Beacon Satellite Symposium, Olsztyn, Poland
Report provided by Dr. Andrzej Krankowski, University of Olsztyn, Poland**

The 19th International Beacon Satellite Symposium (BSS2019) was held at the University of Warmia and Mazury in Olsztyn, Poland on 19-23 August, 2019. The BSS symposia are the primary event held triennially by the Beacon Satellite Group of the International Union of Radio Scientists (URSI) Commission G. The Beacon satellite group is interdisciplinary, servicing science, research, application and engineering interests. These interests include all aspects of satellite signals observed on the ground and by receivers on-board satellites. These meetings provide unique opportunities for ionospheric scientists from all over the world to meet and collaborate on the ionospheric effects on radio propagation and space weather.

This most recent BSS symposium was a great success with many sessions dedicated to space weather characteristics and effects; monitoring the ionosphere and space weather with ground and

space-based receivers, radio occultation techniques and measurements, advances in ionospheric modeling and much more.

The opening session included welcome remarks by local Olsztyn officials, Dr. Andrzej Krankowski (Chair of the LOC) and Patricia Doherty (URSI, Commission G Chair and Chair of the Beacon Satellite Studies Group). Session descriptions, abstracts and the program can be viewed at the symposium website: bss2019.uwm.edu.pl

A special section with papers presented in this symposium will be produced in the Radio Science Journal.

This event included over 140 scientists from 32 countries. Thanks to the generosity of our sponsors, including SCOSTEP, NSF, URSI, ICG, Boston College and the University of Warmia and Mazury, approximately 50 participants from developing countries received some level of scholarship to defray the cost of their participation in the prestigious event.



Group Photo – Beacon Satellite Symposium
Olsztyn, Poland



4th Edition of the School of Space Weather IMAO (ICTP-Maghreb Afrique de L-Ouest), Senegal, Africa
Report submitted by Dr. Idrissa Gaye (University of Thiès, Senegal and Dr. Christine Amory-Mazaudier (LPP, CNRS/Ecole Polytechnique/Sorbonne Université/Université Paris-Sud/Observatoire de Paris, Paris, France

The IMAO 2019 Space Weather School aimed to strengthen the capacities of young researchers, Master 2 students and PhD students from the Maghreb and West Africa in all the scientific disciplines concerned by ‘Space Weather’.

The courses were focused on the Physics of the Sun, the Magnetosphere and the Ionosphere, the Atmosphere / Ionosphere / Magnetosphere and Geomagnetism couplings, but also on Climate Modeling, Ocean Dynamics and the GNSS (Global Navigation Satellite System). The faculty team consisted of professors from the following countries: Algeria, Burkina Faso, Côte d’Ivoire, France, Morocco, Senegal, USA.

33 participants came from 13 countries from Maghreb, West Africa, Central and East Africa: Algeria, Benin, Burkina Faso, Cameroon, Côte d’Ivoire, France, Guinea Conakry, Morocco, Nigeria, RC, DRC, Rwanda and Senegal.



Group Photo from IMAO Workshop



VarSITI Summarizing Workshop

Report submitted by Kazuo Shiokawa (CCIR, ISEE, Nagoya University, Japan) and Katya Georgieva (Bulgarian Academy of Sciences, Bulgaria)

A VarSITI Summarizing Workshop was held as an ISEE/CICR international workshop in ISEE, Nagoya University on November 11-15, 2019. This workshop was designed to summarize the 5-year scientific achievements of the SCOSTEP's VarSITI (Variability of the Sun and Its Terrestrial Impact) program ([http:// www.varsiti.org/](http://www.varsiti.org/)) of 2014-2018. Ten scientists (project co-leaders and working group leaders of VarSITI) were joined from Bulgaria, Canada, China, Croatia, Japan, New Zealand, and USA, and draft of five review papers were written. These review papers will be submitted to Progress in Earth and Planetary Science (PEPS) for the special issue of VarSITI. During this workshop, Nat Gopalswamy, the former SCOSTEP President, presented glass plaques to Ms. Mai Asakura, Newsletter secretary of CICR/ISEE for recognition of 5-year editorial support of VarSITI Newsletter, and to Mr. Mitko Danov of SRTI, Bulgaria, for recognition of 5-year support of VarSITI website operation.



Participants of the VarSITI Summarizing Workshop

4.2 SCOSTEP VISITING SCHOLAR (SVS) PROGRAM

The SCOSTEP Visiting Scholar (SVS) program is thriving. In 2019, there were 10 SVS awards. Nine recipients, shown below, studied with their hosts at various participating institutions. One recipient was not able to accept the award due to other commitments. The SVS visiting scholars

have provided summaries of their experiences. They are featured in SCOSTEP Newsletter 23. Copies of the newsletters can be obtained on our website:

<https://www.bc.edu/content/bc-web/research/sites/institute-for-scientific-research/research/SCOSTEP/scostep-resources/newsletter-archive.html>

This is a very competitive program of SCOSTEP. As such, we invite worldwide laboratories to consider hosting students in the future. SCOSTEP provides the airfare for SVS awardees. The host laboratory is responsible for living expenses, visa fees, and other incidentals. For more information, contact Dr. Kazuo Shiokawa (shiokawa@nagoya-u.jp) or Patricia Doherty (Patricia.Doherty@bc.edu).

The full requirements together with the application procedure and list of host laboratories are available on the website: www.bc.edu/scostep/program/SVS/.



Ms Gilda Gonzalez
(Argentina, National University of Tucumán, Tucumán) Tenure: Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan



Ms Reetika Joshi (India, Kumaun University, Nainital) Tenure: University of Science and Technology of China, School of Earth and Space Sciences Anhui, China



Ms Edith Liliana Macotela (Finland, University of Oulu, Oulu) Tenure: Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan



Dr. Victor Nwankwo (Nigeria, Anchor University, Lagos) Tenure: Centro de Radio Astronomia e Astrofísica Mackenzie (CRAAM), São Paulo, Brazil



Ms Megha Pandya (India, Indian Institute of Geomagnetism, Navi Mumbai) Tenure: NASA – GSFC, USA



Mr Ritesh Patel (India, Indian Institute of Astrophysics, Bangalore) Tenure: NASA – GSFC, USA



Mr Ram Singh (India, Indian Institute of Geomagnetism, Navi Mumbai) Tenure: Institute for Space-Earth Environmental Research (ISEE), Nagoya University, Japan



Ms Ange Cynthia Umuhire (Rwanda, University of Rwanda – College of Education) Tenure: NASA – GSFC, USA



Mr Francisco Tapia Vazquez (Mexico, Universidad Nacional Autónoma de México) Tenure: Centro de Radio Astronomia e Astrofísica Mackenzie (CRAAM), São Paulo, Brazil

5. SCOSTEP's NEW SCIENTIFIC PROGRAM – PRESTO

As the VarSITI program ended in 2018, SCOSTEP spent 2019 initiating the new scientific program PRESTO (Predictability of the Variable Solar-Terrestrial Coupling).

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 interval will be 2020-2024.

The Sun is a variable star and its variability influences the Earth's space environment. Furthermore, changing solar magnetic fields, radiative and energetic particle fluxes force the Earth's atmosphere and climate. Transient energetic events such as flares, coronal mass ejections (CMEs), interplanetary shocks, stream interaction regions (SIRs), corotating interaction regions (CIRs) and energetic particles adversely impact critical technologies based in space and on Earth that our society is increasingly dependent upon. At the same time, the middle and upper atmosphere/ionosphere are impacted by processes originating at lower altitudes, e.g., by atmospheric gravity waves, tides and planetary waves and changes in radiatively active gases. Solar influence on climate is gaining increasing attention since variations in solar activity do not only impact middle atmosphere chemistry and physics, but have been shown to impact decadal variability at the Earth surface. This is in particular interesting and important for decadal climate predictions. With the enhanced understanding of causal connections in the Sun- Earth system maturing over the last several decades, fueled by both observations and theoretical modelling, we are in the position to transform this understanding to improved predictions of the Sun-Earth coupled system, which is of relevance to the society and the focus of the current PRESTO program. PRESTO is comprised of 3 pillars, 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. A detailed PRESTO presentation is available at: http://www.issibj.ac.cn/Publications/Forum_Reports/201404/W020190620592906717714.pdf.

The chairs of this new scientific program are: Dr. Ramon Lopez of the University of Texas at Arlington, TX and Dr. Jie Zhang of George Mason University in Fairfax, VA.

Please watch for more news about PRESTO in 2020.

6. SCOSTEP GENERAL COUNCIL AND BUREAU MEETINGS

SCOSTEP organizes and conducts international solar-terrestrial physics (STP) programs of finite duration in cooperation with other International Science Council (ISC) bodies. Results from these programs are shared with the community of SCOSTEP scientists by joining in conducting meetings, conferences, and workshops and by publishing newsletters, handbooks and special journal issues.

6.1 GENERAL COUNCIL MEETING

SCOSTEP hosts a General Council meeting to update the general council members on SCOSTEP activities. A General Council meeting was held in Montreal on July 13, 2019. This meeting

provided an update on all of the SCOSTEP activities since their last meeting and included the results of the election of the new SCOSTEP Executives.

During the General Council meeting, Dr. Nat Gopalswamy reviewed the SCOSTEP activities and achievements during his tenure as SCOSTEP President. He formally thanked the Bureau for supporting his agenda and the VarSITI Co-chairs and steering committee for an excellent program.

A full update of the Scientific Secretary activities was presented by Dr. Marianna Shepherd, outgoing Scientific Secretary. This included updates on the financial and capacity building activities together with the planned transition of her office to Patricia Doherty.

Dr. Kazuo Shiokawa, VarSITI co-chair, gave a summary on VarSITI with statistics on meetings and achievements. The VarSITI scientific program formally ended in 2018 but held a final symposium in 2019.

Awards were given to the chairs of the Awards and SVS Committees and to Andrey Osin for designing all SCOSTEP insignia. Awards were also presented to the outgoing Executives – Dr. Nat Gopalswamy and Dr. Franz-Josef Lübken.

Finally, the results of the election for the new President and Vice President were revealed with Dr. Annika Seppälä and Takuji Nakamura acting as Election Officers. There were 5 nominees for the executive offices. The final winners were Dr. Kazuo Shiokawa and Dr. Daniel Marsh as President and Vice President respectively.

6.2 SCOSTEP BUREAU MEETINGS

Two bureau meetings were also held in 2019. The first was held virtually on May 7, 2019. The purpose of this meeting was to prepare for the transition of SCOSTEP leadership and the scientific secretary. The second bureau meeting on September 11, 2019 was held as the first meeting with the new leadership and bureau.

SCOSTEP Bureau Meeting held via telecon on May 7, 2019.

Introductory remarks were made by the President, Dr. Nat Gopalswamy, summarizing the main SCOSTEP activities since the last Bureau meeting, held on April 13, 2018: SCOSTEP Visiting Scholarship (SVS), Distinguished Science and Distinguished Young Scientist Awards and to introduce the incoming Scientific Secretary. Additional topics included reports on VarSITI activities, plans for the closing VarSITI General Symposium and preparation for the new scientific program PRESTO. A financial and secretariat office update was also provided by Marianna Shepherd. Plans for the General Council meeting in July 2019, the election for new Executive Officers and the next STP15 meeting were also discussed.

SCOSTEP Bureau Meeting of September 11, 2019 at Boston College

This meeting was the first bureau meeting with the new executive officers, scientific secretary and bureau members. Attendees on-site included Kazuo Shiokawa (President), Daniel Marsh (Vice President), Patricia Doherty (Scientific Secretary), Nat Gopalswamy (Past President), Yoshizumi Miyoshi (COSPAR), and Kyung-suk Cho (IAU). Attendees via WebEx include Renata Lukianova (IAGA), Annika Seppälä (SCAR), Prasad Subramanian (IUPAP) and Peter Pilewski (IAMAS). Jorge Chau (URSI) and Aude Chabodut (WDS) were not able to participate due to prior commitments.

Action items from the last bureau meeting were reviewed and revised as necessary. The financial status and report were presented to the bureau. New committees members were defined and recommended for the Finance Committee, Awards Committee, and SVS Committee. Two new committees were set up to support SCOSTEP activities. They include:

- 1) Nominating Committee – with a mission to propose nominees for the Distinguished Scientist, Distinguished Young Scientist and Distinguished Service Awards
- 2) New Membership Committee for Adherents – with a mission to enhance SCOSTEP membership

Discussion also included the development of a new SCOSTEP website. This was primarily due to the transition of the scientific secretary’s office from York University to Boston College. A new website has been developed as: www.bc.edu/scostep. A future goal is develop an independent website as www.scostep.org.

Minutes of the Bureau and General Council meeting can be obtained on the website: <https://www.bc.edu/content/bc-web/research/sites/institute-for-scientific-research/research/SCOSTEP/scostep-resources/meeting-minutes.html>



On-site attendees at the SCOSTEP Bureau Meeting in September 2019. From left to right: Kyung-suk Cho, Daniel Marsh, Patricia Doherty, Kazuo Shiokawa, Nat Gopalswamy, Yoshizumi Miyoshi.

7. SCOSTEP’s 15th QUADRENNIAL SOLAR-TERRESTRIAL PHYSICS SYMPOSIUM (STP-15), ALIBAG, INDIA. FEBRUARY 21-25, 2022

Plans are in progress for SCOSTEP's 15th Quadrennial Solar-Terrestrial Physics Symposium (STP-15). The STP-15 will be held at Alibag, India, on February 21-25, 2022 with local organizing support by the Indian Institute of Geomagnetism.

The Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) organizes the Solar-Terrestrial Physics (STP) symposium once every four years. SCOSTEP is engaged in three major activities: long-term scientific programs, capacity building and public outreach. The scientific programs are of interdisciplinary in nature involving scientists from around the world. They are designed to advance our understanding of the solar-terrestrial relationship using space- and ground-based observations, cutting-edge models and theory. Under what ways the Sun affects the Earth and its environment over various time scales is the underlying theme of the scientific programs pursued under SCOSTEP. Having addressed the variability component during the recently concluded Variability of the Sun and its Terrestrial Impact (VarSITI) program, the new program of SCOSTEP, Predictability of the variable Solar-Terrestrial Coupling (PRESTO, 2020-2024), addresses the predictability component of those phenomena that have impact on the Sun-Earth system as a whole in various time scales.

The STP-15 will aim to gather eminent scientists from solar, magnetospheric, ionospheric and atmospheric physics communities to discuss and deliberate on the cutting-edge sciences pertaining to STP. STP-15 will address the predictability as a focus area in each of the traditional topics deliberated upon during the earlier STP meetings, namely, the mass and radiation chains and intra-atmospheric coupling.

The Scientific Organizing Committee (SOC) 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)

8. OTHER BUSINESS

8.1 NEW ADHERENT MEMBER - CROATIA

SCOSTEP is pleased to welcome Croatia as the newest SCOSTEP National Adherent. Croatia's membership was unanimously approved by the SCOSTEP bureau and General Council in late October 2019 by electronic vote. Dr. Dragan Rosa was appointed as the National Adherent Representative for Croatia.

8.2 AGU 2019 Awards

The American Geophysical Union awarded 2 prominent SCOSTEP members for awards at the AGU Award Ceremony in December 2019.

Dr. Sunanda Basu was awarded an Ambassador Award. The Ambassador Award is given annually in recognition of their outstanding contributions to one or more of the following areas: societal impact, service to the Earth and space community, scientific leadership, and promotion of talent/career pool. The Ambassador Award honors individuals whose achievements extend beyond those recognized by traditional scientific discipline awards.

Dr. Nat Gopalswamy was awarded the Space Physics & Aeronomy Carrington Award (SPARC) presented annually to a senior scientist for significant impact on the public’s understanding of space physics and aeronomy through their education or outreach activities. It is named for Richard Carrington, an English amateur astronomer who was the first person to observe a large solar flare in 1859. Recipients of the SPARC Award exhibit go above and beyond their job title in their education and outreach endeavors.

8.3 SCOSTEP AT STSC UN COPUOS, VIENNA

The President of SCOSTEP, Dr. Nat Gopalswamy attended the 56th Session of the STSC (Scientific and Technical Subcommittee) UN COPUOS and on February 12, 2019 made a technical presentation on SCOSTEP activities. The presentation was titled “The Next Scientific Program of SCOSTEP: 2019-2023.

8.2 NEWSLETTERS

SCOSTEP has also designed a revised Newsletter format that will cover both SCOSTEP and PRESTO topics. To access the newsletters, please visit the website:
<https://www.bc.edu/content/bc-web/research/sites/institute-for-scientific-research/research/SCOSTEP/scostep-resources/newsletter-archive.html>

9. SUMMARY

In summary, the Scientific Committee on Solar-Terrestrial Physics (SCOSTEP) had a busy year in 2019. The year included the election of new officers, the transition to a new scientific secretary, new bureau members, and the design for a new scientific program (PRESTO). This together with nine capacity building workshops and schools and nine SCOSTEP Visiting Scholars resulted in a very active and productive year.

SCOSTEP looks forward to continued success in 2020.