

NEWSLETTER

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1. Message from the President

It is already three quarters of a year since I took over as president of SCOSTEP. I am excited to see lots of activity planned already to bring out the best in our scientists in developing world-class knowledge base that is beneficial to the humanity. The STP scientists are attacking problems that are of crucial importance to the society and for the development of fundamental science.

SCOSTEP has started the electronic Newsletter. You might have already seen the first issue sent out a couple of months ago. Please feel free to send your comments and any news nuggets that you may want the rest of the STP community know about. The newsletter could serve as an important source of information on the happenings in the STP community.

Since the Sun affects life on Earth in a multitude of ways from supporting life to influencing Earth's climate and space weather, it is easy to recognize the societal relevance of STP research. The recent press coverage on solar storms and how they affect satellites that hover around Earth is a testimony that what we are doing has important consequences to daily life on Earth. I am excited that SCOSTEP can play a bigger role in understanding the solar variability and how it affects geospace. Along these lines, I have taken the initiative to make SCOSTEP as a permanent observer to the United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS), which is heavily involved in sustainable growth and space weather. Application has been submitted to UNCOUOS, which is being processed. I made a presentation to the Science and

technology Subcommittee of UNCOUOS explaining the need for synergy between UNCOUOS and SCOSTEP because we have heavy overlap in the countries that are members of both the organizations.

Preparations for three major SCOSTEP meetings are underway in India (2012), Japan (2013), and China (2014). The first two meetings are more focused on the current SCOSTEP scientific program, viz., CAWSES while the 2014 meeting is SCOSTEP's quadrennial symposium that takes stock of the developments and consolidates the knowledge base acquired during the few years preceding the symposium. I recently attended the conveners meeting in Nagoya and found that the 2013 organization is on a solid footing. The scientific organizing committee of the International Symposium on Solar Terrestrial Physics (ISSTP) (November 6 - 9, 2012, Pune, India) is currently working on the final list of invited speakers and the schedule of scientific sessions. The symposium will cover research topics in Solar Interior, Solar Atmosphere, Solar Wind, Interplanetary Medium, Magnetosphere-Ionosphere-Thermosphere Coupling Processes, Atmospheric Coupling Processes, Space Weather, and Sun-Climate connection. On November 5, 2012, the day before the symposium proper, a set of tutorial talks is being arranged for the benefit of young STP researchers and students that might help grasp the symposium deliberations better. The pre-registration is already open and 50 people have already expressed interest in attending. I suggest that you visit the web site (<http://www.iiserpune.ac.in/~isstp2012/index.html>) to learn more about the symposium and pre-register.

The most important challenge ahead of us is to define the next scientific program after CAWSES-II, which ends in 2013. There have been informal discussions over the past few months, but we need to accelerate the discussions to solidify the ideas by the end of the year. I suggest that we have a session devoted to this issue during the ISSTP 2012 meeting, so formal papers outlining potential programs can be presented and a subcommittee compiles the ideas and makes a final recommendation. As one of the interdisciplinary body of the International Council for Science (ICSU), we need to run the scientific programs that advance out scientific discipline in a

way that benefits the society. In this connection, I would like to challenge you to come up with ways that will help SCOSTEP promote excellence in solar terrestrial science that will result in measurable benefit to the humankind.

Nat Gopalswamy, SCOSTEP President

2. Germany's Priority Program and CAWSES

In July 2004 the German science foundation (Deutsche Forschungsgemeinschaft, DFG) announced a Priority program for CAWSES. Most topics of the international CAWSES-I program (<http://www.bu.edu/cawses/>) were covered. Several institutions submitted proposals in the framework of this program and 24 proposals were accepted. A total of 18 different institutions all over Germany were originally involved in CAWSES related projects. By the end of the program the number of participating scientific institutions was about 30. Approximately 3 Million Euros per year were available for research and support of post doctoral fellows and graduate students. In the first round the projects ran for 2 years and two more successive periods with 2 years each were planned, i.e., the program ran for 6 years from 2005 to 2011. Although the German Priority program on CAWSES funded activities at German institutions only, international collaboration were strongly encouraged. An important advantage of this concerted scientific action of the German Research Foundation was that various groups with different expertise worked together on a common research topic. Indeed, basically all groups involved in the CAWSES-SPP had collaborations with other groups thus creating substantial synergy effects.

The aim of CAWSES has been a better understanding of the influence of the Sun on the terrestrial atmosphere on time scales from hours to centuries. The focus of the CAWSES-SPP was on scientific problems dealing with important aspects of the solar-terrestrial system. The following topics were investigated in the scope of this Priority program: 1) Characterization of the variability of solar forcing by electromagnetic radiation and by impact of particles; 2) Analysis of solar forcing on the thermal, dynamical, electro-dynamical, and compositional structure of the atmosphere in the height range from the upper troposphere to the lower thermosphere and on time scales from hours to centuries. This includes an

investigation of neutral gas, plasma, and aerosols. Investigation of the coupling mechanisms in the atmosphere, including transport of trace gases, generation, propagation and destruction of waves (e. g., planetary waves, gravity waves, tides, turbulence). 3) Identification and understanding of solar signals in atmospheric parameters which are not directly influenced by the Sun, including a study of the relevant physical and photochemical processes.

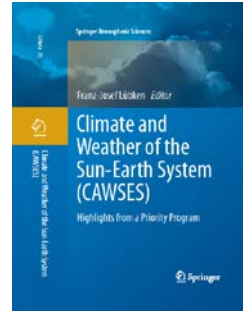


Figure 1: Front cover of the book highlighting the results of the German Priority program and CAWSES

The results from the 6-year German Priority program were highlighted in a compendium of 32 chapters, 600 pages and 120 authors from 30 scientific institutions with Editor Prof. Dr. Franz-Josef Lübken (Figure 1). The book summarizes the most important results from this program covering some important research topics from the Sun to climate. Solar related processes are studied including the evolution of solar radiation with relevance to climate. Results regarding the influence of the Sun on the terrestrial atmosphere from the troposphere to the thermosphere are presented including stratospheric ozone, mesospheric ice clouds, geomagnetic effects, and their relevance to climate. Several chapters highlight the importance of coupling mechanisms within the atmosphere, covering transport mechanisms of photochemically active species, dynamical processes such as gravity waves, tides, and planetary waves, and feedback mechanisms between the thermal and dynamical structure of the atmosphere. Special attention is paid to climate signals in the middle and upper atmosphere and their significance relative to natural variability.

(<http://www.springer.com/earth+sciences+and+geography/atmospheric+sciences/book/978-94-007-4347-2>)

(On behalf of F.-J. Lübken)

3. CAWSES

In January 2012 Prof. Dr. Katja Matthes was appointed co-leader for the CAWSES II TG1, together with Dr. Annika Seppälä.

4. Reports on Meetings

4.1 *The 13th International Symposium on Equatorial Aeronomy, March 12-16, 2012*

The 13th International Symposium on Equatorial Aeronomy (ISEA13) was held on March 12-16, 2012, in Paracas, Peru. ISEA meet every three to four years. The meeting is a major gathering of scientists around the world interested in the low-latitude atmosphere and ionosphere and their coupling to other latitudes and altitudes. Each ISEA meeting represents an opportunity for researchers to share their most recent results and discuss possibilities for future campaigns and experiments. The objective of the symposium is to bring together the leaders in the field of equatorial, low-latitude and mid-latitude aeronomy to advance our knowledge of these regions of the Earth's atmosphere. Topics for the workshops cover a wide range of research areas, reflecting the need to study the Earth's ionosphere/atmosphere system in a coupled sense.



Figure 2: Group-photo of the participants in the ISEA13 and the celebration of the JRO 50th anniversary.

The ISEA13 participants joined the celebration of two important events: the 50th Anniversary of the Jicamarca Radio Observatory (JRO) and the 1st ISEA meeting, ISEA1, which took place in Huaychulo, Peru,

in 1962. The celebration day for JRO's 50th anniversary was held on March 17th, 2012 on the observatory grounds. The celebration programme included a detailed tour of the facilities with the Jicamarca scientists and technicians and frequent users participating as "tour guides". The celebration program was attended by approximately 150 guests, partially overlapping the 150 participants of the ISEA13 conference.

The participants in ISEA13 included 25 students and representatives from 23 countries. 120 oral presentations were given, as well as 95 posters displayed during two poster sessions. The oral and poster presentations were given in eight topical sessions: 1) Irregularity Physics, 2) E and F region coupling (low and mid latitude coupling; 3) Wave propagation between low/middle atmosphere and ionosphere; 4) Plasma- neutral coupling; 5) Low and mid latitude Aeronomy and Electrodynamics; 6) Ionospheric storms and Space weather effects at low and mid latitudes; 7) New techniques, experiments, campaigns and results, and 8) Future trends and challenges. More information about the meeting, including access to the program and the abstract book can be found at <http://jro.igp.gob.pe/isea13>. The results from the workshop will be published in a special issue of the Journal of Atmospheric and Solar-Terrestrial Physics. The deadline for submission of papers is July 31, 2012. Ethiopia was chosen as the site of the next ISEA meeting to be held in 2015/2016 time window.

Jorge L. Chau

4.2 *The MST13 Workshop, Kühlungsborn, March 19-23, 2012*

The 13th International Workshop on Scientific and Technical Aspects of MST Radar (MST13) was held in Kühlungsborn, Germany on March 19 – 23, 2012. The MST radar workshop debuted in Germany after its first organizing in May 1983 at the University of Illinois in the USA 29 years ago.

The MST workshop series is special in that it encompasses scientist, engineers, technical experts, theoreticians, and students. These all are united in one forum for radar studies of the troposphere, stratosphere, and mesosphere. The contributions to all of the workshops proved the comprehensive development of the technical, scientific, operational, and educational directions of the MST radar

community throughout the years. The contributions to the workshops as well as the discussions during the workshops will be helpful to scientists who use radar results, so that they may understand the capabilities and limitations of the technique and also to engineers and scientists who may be interested in designing and constructing their own radar.

The scientific program has been developed by the International Steering Committee in close cooperation with the Local Organizing Committee of the MST₁₃ workshop formed by Prof. Markus Rapp, Dr. Ralph Latteck, and Dr. Gunter Stober. The ISC consists of Prof. Philipp Chilson (USA), Prof. Wayne Hocking (Canada), Dr. David Hooper (UK), Prof. Erhan Kudeki (USA), Prof. Iain Reid (Australia), Prof. Toshitaka Tsuda (Japan), and Dr. Werner Singer. The response to our call for papers was substantial. We received more than 160 contributions from 17 different countries which are finally furnished in 98 oral presentations and 51 posters. 89 scientists and 29 students participated in the meeting.



Figure 3: Participants in the MST₁₃ Workshop, held in Kühlungsborn, Germany on March 19 – 23, 2012.

The contributions to the workshop were grouped into six sessions: Scattering and calibration, New instruments and signal processing, Meteors studied with MST radar, Plasma irregularities, Meteorology and forecasting, and Middle Atmosphere Dynamics and Structure. Here, 24 invited talks encompassing all sessions were arranged by the International Program Committee. In addition, we were able to arrange two tutorial lectures which dealt with “Radar Atmospheric Imaging Techniques” by Philipp Chilson and “Atmospheric processes and variability up to the

lower thermosphere – numerical studies with HAMMONIA” given by Hauke Schmidt.

MST₁₃ was supported by the Leibniz-Institute of Atmospheric Physics (IAP) at the Rostock University, the German Research Foundation (DFG), and the Scientific Committee On Solar-Terrestrial Physics (SCOSTEP). With this funding we were able to provide travel support for eleven scientists and twelve students. The SCOSTEP contribution allowed us to support three of the twelve students.

Werner Singer and Markus Rapp

5. SCOSTEP News

5.1 *The President at the United Nations, Vienna*

On February 13, 2012, the SCOSTEP President made a statement to the Science and Technology Subcommittee (STSC) of the United Nations Committee on Peaceful Uses of Outer Space (UNCOPUOS) in connection with the application to the status of Permanent observer with UNCOUOS and its subcommittees. He pointed out the huge overlap in the national membership of SCOSTEP and UNCOUOS and hence it is beneficial to the member countries to have UNCOUOS and SCOSTEP. The interaction between SCOSTEP and UNCOUOS is also highly relevant because of the SRSC focus on Space Weather. Space Weather and Climate are important focus areas for SCOSTEP and hence is in a position to contribute to the deliberations of UNCOUOS/STSC. SCOSTEP has been invited to attend the UNCOUOS meeting during June 6-12, 2012 for further actions on this matter.

5.2 *Tenth Anniversary of SERC, Kyushu University*

On March 14, 2012, the Space Environment Research Center (SERC) of the Kyushu University celebrated its tenth anniversary in Fukuoka, Japan. The SCOSTEP President was invited as the Guest of Honor to speak at the tenth anniversary function. He spoke on the contributions of SERC to the field of solar terrestrial physics via science, capacity building, and donation of Space Science instruments to many countries.

5.3 *ICSU Grant to SCOSTEP*

On April 10, 2012 ICSU announced that SCOSTEP has been awarded a grant of € 30,000 for the proposal

entitled “Capacity Building and Science Education Activities in Solar Terrestrial Physics: Focusing on Southeast Asia, Africa, and South America” submitted by the SCOSTEP President, Dr. Nat Gopalswamy. The award also supported by URSI is for the period of 2012-2014, inclusive and is one of seven ICSU awards for 2012.

The proposal responds to the “capacity building and science education” strategic priority of ICSU. It involves organizing space weather schools. The target audiences are graduate students and school teachers. The focus on space weather brings together two ICSU areas: science education and frontiers of science.

Expected results are a greater number of young scientists who are knowledgeable on the Sun-Earth connected system and an enhanced use of global cooperation and synergistic activities in the field of space science instrument networks. Three Space Weather Schools are planned, one in Africa, Southeast Asia and South America where ICSU has regional offices. The teachers participating in these schools will have the opportunity to incorporate space weather into their curricula after consultation with the relevant education departments or education agencies

5.4 SCOSTEP Bureau Meeting and CAWSES Business Meeting, April 22, 2012 - Vienna

On April 22, 2012 the SCOSTEP Bureau held a meeting in Vienna prior to the EGU General assembly. The meeting was in conjunction with the CAWSES II Business meeting. The Bureau approved the SCOSTEP Annual Report for 2011 and the Minutes from the Bureau meeting in Greenbelt, USA on October 9-10, 2011. Both documents can be found in the Archives at http://www.yorku.ca/scostep/?page_id=40. Further information on the meetings in Vienna will be made available on the SCOSTEP Website.

6. Upcoming Events

Second CAWSES-2 Task 2 Workshop: Modeling Polar Mesospheric Cloud Trends, National Center for Atmospheric Research (NCAR), Boulder, Colorado, USA, May 3 - 4, 2012
(http://www.cawses.org/wiki/index.php/Task_2)

Japan Geoscience Union Meeting, Makuhari Messe, Chiba prefecture, Japan, May 20 - 25, 2012
<http://www.jpgu.org/index-e.html>

XXXII SCAR Open Science Conference (July 16 - 19) and XXIV COMNAR AGM, Portland, Oregon, USA, July 13 - 25, 2012

http://www.scar.org/conferences/Portland/32SCAR24COMNAP_1stCircular.pdf

COSPAR Scientific Assembly, Mysore, India, July 14 - 22, 2012 <http://www.cospar-assembly.org/>

CAWSES TG4 Business meeting in Mysore, India, July 20, 2012

Task Group 4 of CAWSES-II will held a Business Meeting at the next COSPAR meeting in Mysore, India, on 20 July from 19:00-20:30, Room G071, right after the end of Session C2.2 (same room). The meeting is open to all participants. The purpose of the Business Meeting to give an update of recent CAWSES-II activities in general and TG4 in particular, including status reports of campaign activities and future plans. An open discussion about the plans until the end of CAWSES-II in 2013 is encouraged. The Business Meeting will be chaired by the two TG4 co-leaders, Jens Oberheide of Clemson University and Kazuo Shiokawa of Nagoya University.

10th International Conference on Permafrost (TICOP), Tyumen, Russia, July 25 - 29, 2012
<http://www.scar.org/events/#2012>

AOGS - AGU (WPGM) Joint Assembly, Singapore, August 13 - 17, 2012
<http://www.asiaoceania.org/aogs2012/public.asp?page=home.htm>
XXVIII IAU General Assembly, Beijing (China Nanjing), August 20 - 31, 2012
http://www.iau.org/science/meetings/future/general_assemblies/812/

7. General Information

GEOPHYSICAL YEAR—Searchable database of scientific meetings
<http://www.agu.org/cgi-bin/gycal>

8. General Information about SCOSTEP

8.1 COSTEP Web

Information on SCOSTEP can be found at:
<http://www.yorku.ca/scostep/>

8.2 SCOSTEP Contact

The Scientific Secretary is the main point of contact for all matters concerning SCOSTEP.

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