

1994 Annual Report

Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)

J. H. Allen, Scientific Secretary

Introduction:

In 1978, by virtue of an action of the 17th ICSU General Assembly, SCOSTEP (previously an Inter-Union Commission in 1966-72, and a Special Committee in 1972-1978) became a Scientific Committee of ICSU with the following principal tasks:

- To promote international interdisciplinary programmes in Solar-Terrestrial physics, and to organize and coordinate such programmes of interest to and approved by at least two of the Participating Bodies.
- To define the data relating to these programmes that should be exchanged through the World Data Centres.
- To provide such advice as may be required by the ICSU bodies and World Data Centres concerned with these programmes. And,
- To work with other ICSU bodies in the coordination of symposia in Solar-Terrestrial physics, especially on topics related to SCOSTEP's programmes.

Membership

SCOSTEP's Bureau consists of a President, Vice President, Scientific Secretary, and one representative each from the Participating Bodies (COSPAR, IAMAP, IAGA, IAU, IUPAP, SCAR, and URSI). New officers were elected in June 1994; they are: C.H. Liu (President), H. Oya (Vice-President), and J.H. Allen (Scientific Secretary). Participating body IAU selected B. Schmieder as their representative. The Council consists of representatives from 29 Adherents. Scientific Discipline Representatives are chosen for expertise in the various disciplines related to Solar-Terrestrial physics and involving scientists from differing geographical locations (22 countries are represented). Other members are Steering Committee, Working Group, and Panel Chairmen, as well as members of the Finance and Awards Committees. In addition, there are Representatives of the three World Data Centres for STP; Representatives of Affiliates (IUWDS and WMO); and an ICSU Representative plus Correspondents from 12 countries.

Vital Statistics

Number of Members: Bureau Members: 10; Scientific Discipline Representatives: 47; Adherent countries: 29; Representatives from Affiliates: 2; World Data Centres: 3; ICSU: 1; Finance

Committee: 2; Awards Committee: 4; Steering Committee, Working Group and Panel Chairmen: 15; Honorary Members: 5; Correspondents: 12. (Some persons hold more than one position.)

Organizational Matters

Meetings: The Bureau, Council, and other participants met from 3-13 June 1994, in Sendai, Japan during the 8th Quadrennial STP Symposium sponsored by SCOSTEP. Previous symposia were held jointly with COSPAR; however, the 8th was held independently; and the 9th is scheduled to be held jointly with IAGA in 1997.

Finances: The financial records of SCOSTEP are reviewed annually. When the Secretariat was located in Urbana, Illinois, the CPA firm of McNamara and Associates audited these records. Now that the Secretariat is relocated to Boulder, Colorado, Mr. James Menghi (CPA, CFE) is providing this service. The financial report is reviewed by the SCOSTEP finance committee and is provided to ICSU and to SCOSTEP members.

Secretariat: The SCOSTEP Secretariat consists of Mr. Joe H. Allen, Scientific Secretary, and Ms. Nancy Alkire, Administrative Secretary, and is located in offices provided by the US National Oceanic & Atmospheric Administration, National Geophysical Data Center. The mailing address is J. H. Allen, SCOSTEP, c/o NOAA-NGDC, 325 Broadway, Boulder, CO 80303, USA. The telephone number is (1)-(303)-497-7284. FAX may be sent to: (1)-(303)-497-6513. For most timely responses, we recommend e-mail via INTERNET to: JALLEN@NGDC.NOAA.GOV.

A major undertaking for the Secretariat in 1994, following after the Quadrennial STP Symposium in Sendai, Japan, was the consolidation of Secretariat files at the old office in Urbana, Illinois and their transfer to the new office in Boulder, Colorado. The Secretariat operated very successfully in Urbana for some 13 years, with extensive local support from the University of Illinois, Department of Electrical and Computer Engineering. During those years, Prof. C.H. Liu (now new SCOSTEP President) was the Scientific Secretary and Mrs. Belva Edwards was the Administrative Secretary.

Activities Undertaken During 1994

The "8th Quadrennial Symposium of SCOSTEP -- The 8th International Symposium on Solar-Terrestrial Physics" was held from June 5-10, 1994, in Sendai, Japan. It was organized by SCOSTEP and the National STEP Committee of the Science Council of Japan, and Tohoku University. Symposium co-sponsors were: IAGA, IAMAS, URSI, COSPAR, IUPAP, and SGEPPS. Chairman of the Local Organizing Committee was Prof. H. Oya (Tohoku University). Some 310 scientists registered as participants and gave some 470 papers. These participants came from 29 different countries. The program is summarized in the "STP NEWSLETTER 94-1". A book of extended abstracts was published and distributed with registration materials, and a volume of proceedings is in preparation.

During the STP Symposium and on days surrounding it, there were meetings of the SCOSTEP Bureau, the STEP Steering Committee, and ad hoc meetings of STEP Working Groups, Panels, and a special meeting convened by the ICSU Panel on World Data Centers to review operations by WDCs for STP and their prospects for the future. Other special sessions considered how best to extract the maximum benefit from results of the STEP projects, and successor programs to follow after STEP has ended.

In addition to the scientific results emerging from STEP projects, issues of special concern were: (1) The decline in observational monitoring facilities and data processing infrastructure previously available to support STP science; (2) Results of the ICSU Review Panel for SCOSTEP in re accomplishments and long-term prospects; (3) Future SCOSTEP projects after conclusion of STEP in 1997 (discussed in a special "Brainstorming" Session); and (4) Current national trends toward the copyright and charging for data and information having international significance. SCOSTEP adopted a resolution encouraging free and open exchange among nations of scientific data and information and submitted this to ICSU.

SCOSTEP participants at Sendai voted to ask the Bureau to coordinate implementation of a program to be the first Post-STEP effort. It was given the title "S-RAMP; STEP Results, Applications, and Modeling Program". The Bureau appointed a committee to develop a proposal for implementation of S-RAMP to be submitted for approval at the next meeting in July 1995, in Boulder, Colorado, during the IUGG. Other Post-STEP programs were discussed at Sendai; some in great detail and others as general concepts for which details would be worked out. A committee was established to solicit proposals for Post-STEP programs and projects which will be evaluated early in 1995 and discussed at the meeting in July.

The Bureau designated \$40,000 of accumulated funds to be made available for support of supplemental STEP project proposals in 1995. Information about this fund was distributed widely via publications (e.g., "STEP International Newsletter") and over a number of electronic bulletin boards. Emphasis was suggested on project proposals, including possible workshops, that would seek to bridge between the different research areas of the several STEP Working Groups. Awards of up to \$10,000 per proposal will be made following the Bureau meeting in July 1995.

Details of the scientific sessions at Sendai, results of meetings of the STEP Steering Committee, national reports on STP accomplishments, and results from projects of STEP Working Groups and Panels are given in the "STP NL 94-1". Copies are available from the SCOSTEP Secretariat.

The International STEP Coordinator, Prof. Juan G. Roederer, continued his "ambassadorial" role in 1994, promoting the integration of individual countries' efforts into a coherent international program, briefing government agencies in participating countries on the progress of STEP and the significance of their scientists' contributions, and proposing specific actions to the STEP Steering Committee. During 1994 of particular importance were Prof. Roederer's visits to Taiwan and Russia, to several US agencies (NSF, NASA, NAS) and observatories (e.g. Arecibo, Puerto

Rico), as well as his invited presentations to the COSPAR Symposium on Developing Countries and also to the Conference on World Affairs held in Boulder, Colorado.

The STEP Simulation Symposium in Japan '94 was held on 7-8 March 1994 in Kyoto. About 40 participants attended and presented papers (see May 1994 "SIMPO Newsletter," copy enclosed).

From 13-17 June 1994, the 2nd SOLTIP (Solar Traveling Interplanetary Phenomena) Symposium was held at Nakaminato, Japan. Abstracts of papers to be presented there were published in the May 1994 "STEP GBRSC News", one of the specialized discipline newsletters for STEP projects.

Education/Training Activities

SCOSTEP contributed financial and tutorial support for the international School on Atmospheric Interactions by Remote Sensing, February 1994, Trieste, Italy. Participants of this school include many scientists from developing countries.

Students attending the STP Symposium in Sendai were supported by special registration and other subsidized fees and partial support was available through the Local Organizing Committee for scientists from developing countries. Many students from Tohoku University provided excellent support as they worked on the local staff for the Symposium and had opportunity to listen to papers, review posters, and talk with scientist participants. In the Symposium, the Program Committee made special effort to assure that well-qualified senior research scientists presented tutorial reviews in their specialty at times when no competing presentations were scheduled in order to optimize the opportunity for student participation.

Activities Involving Developing Countries

Scientists from developing countries participate in STEP projects and are active within the different Working Groups. They receive copies of STEP and SCOSTEP publications without charge and financial aid is available to support their participation at meetings. SCOSTEP joins other groups in providing support for STP meetings and workshops held in developing countries. Special care is taken in selecting members of the Working Groups and Panels of STEP to assure that scientists from developing countries are full and equal participants.

Publications

"STP NEWSLETTER 94-1" (copy enclosed, 81 pages) was printed and distributed for SCOSTEP by WDC-A for STP to some 3,400 scientists worldwide by direct postal service. Additional copies are available from the Secretariat.

Two STEP Newsletters are published and distributed regularly: a monthly "STEP International" newsletter and the seasonal "STEP Simulation Promotion Office" (SIMPO) newsletter; copies of both are enclosed. In addition to their timely monthly coverage of science projects and policy

matters, the US STEP Coordination Office (USSCO) published an updated supplement in August 1994 that gives almost 2,000 e-mail addresses for about 1,400 scientists participating in STEP or SCOSTEP. Timely and important contacts now are maintained worldwide over the INTERNET and related networks, often using information from this important Directory.

Another volume in the STEP series of books was published in May 1994: "STEP - Proceedings of the Sixth Workshop on Technical and Scientific Aspects of MST Radar." Copies of this 450 page book were mailed to workshop participants. A limited number of duplicates are available from the Secretariat.

Some STEP Working Groups publish specialized newsletters which are sent to members interested in their particular topics.

Special Projects

SCOSTEP's only current major scientific project is the Solar-Terrestrial Energy Program (STEP). It has a Steering Committee chaired by Prof. Gordon Rostoker (Canada). Also, there is an International STEP Coordinator (Prof. Juan G. Roederer, USA).

Projects and services within STEP are the responsibility of six Working Groups and three Panels, listed below:

Working Groups:

The Sun as a Source of Energy and Disturbance.

Energy and Mass Transfer Through the Interplanetary Medium and the Magnetosphere-Ionosphere System;

Ionosphere-Thermosphere Coupling and Response to Energy and Momentum Inputs.

Middle Atmosphere Response to Forcing from Above and Below;

Solar Variability Effects in the Human Environment; and
Informatics.

The Working Groups appoint chairpersons and are divided into Projects according to the various aspects of the field of interest. A Leader is appointed for each Project.

Panels:

Long-Term Data Bases; Experimental Techniques; and Simulation and Modeling.

Chairs are appointed for each Panel and they work in conjunction with the Working Groups.

A listing of projects and members of Working Groups was published in "STEP International -- Supplement C", August 1994. It is available on-line in the STEP Bulletin Board maintained for

SCOSTEP/STEP by the US National Space Science Data Center (NSSDC). It can be accessed at the address: NSSDCA.GSFC.NASA.GOV (numerical equivalent 128.183.36.23).

STEP On-Line Data on the World Wide Web and CD-ROM:

Under STEP Working Group 6, Informatics, Project 6.4 -- Magnetometers, chaired by Michael Teague, made a special effort to collect 1-minute resolution digital magnetometer data from a global array of key sites for the first two years of STEP, 1990-1991. These values were quality controlled and placed on-line under the "home page" of the Solar-Terrestrial Physics Division of the US National Geophysical Data Center (NGDC) and WDC-A for STP. Users who are familiar with terminology of the "World Wide Web" will recognize the following addresses. For 1990-91 data, use: http://web.ngdc.noaa.gov/stp/step/step6_4.html. This home page is only one of many for STP disciplines under: <http://www.ngdc.noaa.gov/stp/stp.html>. Cross references are given to other sources of STP data and information. In order to provide access to users who cannot reach WWW addresses, or for whom costs to transfer large amounts of on-line data are excessive, NGDC created a 2-CD set of compact discs with access and display software. Contact the Secretariat for further information.

Brief Report of Use of 1994 ICSU Grant and UNESCO Subvention

Funds from UNESCO (\$5,000) were used to help defray expenses involved in publishing STEP International. This newsletter is distributed to over 4,000 scientists in more than 80 countries. The Newsletter contains articles furnished by the STEP Steering Committee Chairman, the STEP International Coordinator, Working Group Chairs and Panel Leaders, various news notes, and brief papers on experiments and results of interest to STEP scientists. News about satellite, rocket, balloon, ground-based and ocean experiments are given. Special emphasis on planned campaign dates and goals is provided in order to encourage voluntary coordination among separate programs and to provide a means for learning about the opportunity to increase the scope of an observing program by effective scheduling.

Funds from ICSU (\$4,600) were used to help support the office of the International STEP Coordinator, Prof. J. G. Roederer. Prof. Roederer attended international meetings and gave talks on STEP-related topics. On request, he provided input about STEP projects to national academies and agencies concerned with how their national programs integrate with those of other countries in gaining the largest possible research return from funds expended on Solar-Terrestrial research. Details about some of his more important activities are provided above in the Activities Undertaken in 1994 section of this report.

Conclusions and Future Plans

SCOSTEP will continue to coordinate the activities of the six Working Groups and three Panels of STEP, including the planning of symposia and workshops as appropriate, and the publication of proceedings and reports resulting from them.

The next SCOSTEP Bureau and General Meeting will take place in July 1995 in Boulder, Colorado during the IUGG General Assembly. The STEP Steering Committee also will meet at that time.

The Bureau will act on ideas presented to organize the S-RAMP as the first major program to follow after the end of STEP. It will review proposals for Supplemental STEP Grants to provide small grants for research work, observations, analysis, workshops, or other projects that will bridge between different STEP discipline and Working Group areas and will fund up to \$40,000 of selected projects. Finally, the Bureau will discuss submitted proposals for the next major program of research in STP to meet the needs expressed by Unions and other parts of ICSU.