

Report to the 2005 IUPAP General Assembly

Mandate

The Committee on Space Research (COSPAR) was established by the International Council for Science in 1958, at the beginning of the space age, as an interdisciplinary scientific organization, with the focus on the progress of all kinds of research carried out with the use of space means (including balloons).

COSPAR's objectives are to promote on an international level scientific research in space, with emphasis on the exchange of results, information and opinions, and to provide a forum, open to all scientists, for the discussion of problems that may affect scientific space research. These objectives are achieved through the organization of biennial Scientific Assemblies, publications and other means.

COSPAR has 45 national institution members and 13 Scientific Union members. From the point of view of IUPAP, COSPAR is a highly physics based organization. Most of the scientists present have a background in the discipline either as Physicists or Applied Physicists. Sensor technology and indeed spacecraft performance (pointing, positioning, thermal response, stability etc.) all rely heavily on physics as an underlying discipline. Much of the physics addressed by COSPAR is Earth sciences (including effectively all the disciplines of geophysics undertaken by remote means), astrophysics, planetary physics, space plasma physics as well as life, material and fundamental science in space. For more details see COSPAR's web site: <http://www.cosparhq.org/>

Scientific Assemblies

COSPAR held its most recent Scientific Assembly in Paris, France in July 2004. More than 2859 participants registered, the highest attendance at a COSPAR Assembly ever. 94 scientific events, covering all branches of space research, were scheduled, with public interdisciplinary lectures and panel events interspersed. There was also a specific student program. The COSPAR Space Science Award went to J.E. Blamont and V.E. Moroz. A number of other awards, some other joint with Academies of Sciences or space agencies, were also bestowed.

The next Scientific Assembly will be held in Beijing in July 2006. The scientific program will again be structured in oral and dedicated poster sessions. The successful morning interdisciplinary lectures will be continued, and business meetings held in the evenings to meet the demands for more discussion time. Efforts to better involve young scientists in the Assemblies will be made.

The 2008 Assembly will take place in Montreal, Canada and include a celebration of Committee's 50th anniversary. The objective will be to highlight the importance of space research and international cooperation over the past fifty years and how they will continue to inspire challenging and beneficial science activities for the future of humanity.

Recent activities

COSPAR is in a process of '*Reflection on its Future*'. This self-examination is carried out as a means of exploring what COSPAR has done well in the past and where COSPAR should be going in the future at a moment when major changes on the international space science scene are occurring or are expected. Following an initial brainstorming meeting in July 2004, task groups developed recommendations which were then reviewed, and in many cases adopted, by the COSPAR Bureau in March 2005.

COSPAR's vision or mission in the next years should be to '*expand the knowledge frontier of space for the benefit of humankind*'. A COSPAR Scientific Advisory Committee (CSAC) is to be formed to pursue this broad vision and to monitor progress. The scope of the CSAC should be broad, focusing on essential issues of space science and society. CSAC will report to the Bureau. Its mandate, loosely defined, will be:

- to review the evolution of space research and the international context over the time frame of twenty years,
- to compile the visions of the main space organizations,

- to review how COSPAR could better fulfill its mission and respond to the needs of the science community and of society,
- to analyze and suggest new approaches to international cooperation, and
- to analyze the way COSPAR executes its vision and suggest improvements /modifications to its structure and the possible setting-up of new tools.

The CSAC membership will include Scientific Commission (SC) Chairs, the COSPAR President and Vice-Chairs, a representative from ICSU, and a few high level outsiders from the space community who will bring an independent view. The presence of the SC chairs recognizes the preeminence of science in COSPAR and responds to the need, identified at the reflection meeting, to improve communication between Commissions and the Bureau. ICSU participation will, it is hoped, help to improve understanding between COSPAR and its parent body. The ICSU appointed member may also be seen as representing many of the organizations with which COSPAR deals, not least of which are the Committee's Scientific Union members.

Space agencies represent the 'executive arm' of space research. Therefore, it is essential that agencies are interested in COSPAR activities. Agencies also benefit from COSPAR, e.g. planetary protection guidelines, models, standards, etc. The process of reviewing the common interests between COSPAR and space agencies will be reinforced by the organization at the Beijing Assembly of a plenary session at which agencies will be invited to present their strategies and plans.

In recent years, COSPAR's program of Capacity Building has been considerably extended. A series of regional workshops were organized in Brazil (astronomy), India (astronomy), China (magnetospheric physics), South Africa (astronomy) and Morocco (space oceanography) in 2001 to 2005. All Workshops were co-sponsored and financially supported by member Scientific Unions. Encouraging results came out of a questionnaire, sent to participants two years after the Brazil workshop, to evaluate the long-term benefits of participation to students and, indeed, society. Amongst those responding (50%), all regarded the workshop as having been valuable for their careers.

The Capacity Building program is planned to continued and, if financially feasible, expanded. There is a healthy competition for the currently envisaged program of one workshop in 2006 and two in 2007. A proposal has also been received from Malaysia for 2008. One of the goals of the Committee's Panel on Capacity Building (PCB) is to develop workshops that can be held in several areas of the world in order to extract the most benefit from them. To date International Scientific Union partners include the IAU, URSI, IUGG/IAGA, and ISPRS. COSPAR is open to considering other partners and topics in an effort to cover all disciplines represented in COSPAR. The PCB will also make efforts to build relationships with United Nations Office of Outer Space Affairs (UNOOSA), United Nations Educational, Scientific and Cultural Organization (UNESCO), the Academy of Sciences for the Developing World (TWAS) and other organizations that benefit space scientists from developing countries. In addition, the PCB will be charged with addressing more broadly relevant North-South issues and thought will be given to how to ensure participation by developing country scientists in the Assemblies.

Possible ways for IUPAP involvement in COSPAR activities in the near-term future are: award nominations (next round due 30 October 2005), nomination of officers to be elected in 2006 (due 17 February 2006), proposal or co-sponsorship of future capacity building workshop, co-sponsorship of the Scientific Assembly 2006 with a modest contribution to the grants program which provides partial support to young and developing country scientists.

Publications

COSPAR maintains various means of communication with the scientific community and its wider membership. Besides the web (see above), it publishes papers presented at its Assemblies and from other selected meetings, including the Committee's Colloquia series, in the refereed journal *Advances in Space Research* (ASR page) and issues an information bulletin *Space Research Today* three times a year.

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