

GeoReach

Newsletter from the
SCAR Geoscience Standing Scientific Group



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From the CO's Desk

GeoReach is "on the road again". Communication and Outreach is one of the principal goals of GSSG and we think that a good realization of the electronic newspaper GeoReach is a pilaster of communication within the Antarctic Geoscience community.

The XXIX SCAR meeting in Hobart was a great success and it seems that SCAR renewal is showing appreciable results. The GSSG Action and Expert Groups presented interesting results of the past two years activity. A continuation of previous activity and new research proposals have been planned for 2007-08

period, without forgetting the Research Programs plans.

We would like to thank Phil O'Brien, who was CO in charge when we published our last addition of GeoReach and Glenn Johnstone, the past chair of the Communication and Outreach Action group, who instigated the GeoReach series. In the mean time, we would like to welcome Bryan Storey who has taken on the responsibility for future editions of our e-newspaper. Please make his life easy by sending us information, news and comments, so with the contribution of all Antarctic Geoscientists it will be possible to guarantee good quality and efficient production of GeoReach in the future.

Alessandro Capra
10 October 2006
GSSG Chief Officer

SCAR News

SCAR's 29th meeting a success in Hobart

The organisers of the combined SCAR and COMNAP meetings in Hobart during the period July 8 to 19, 2006, were pleased by having attracted some 850 registrants from 32 countries. Approximately 750 abstracts were submitted for the SCAR Open Science Conference (12-14 July). There were 13 parallel sessions, and 39 separate themes. 120 students attended, from 15 countries. Ian Allison, Kate Kiefer, and the Australian Antarctic Division were congratulated on the excellent organisation of the meeting.

SCAR elects new officers

During the 29th SCAR Delegates meeting (17-19 July, Hobart, Tasmania), SCAR elected as new President Professor Chris Rapley, Director of the British Antarctic Survey and a former SCAR Vice President. Chris has recently been much involved in developments surrounding the International Polar Year, having chaired the ICSU/WMO Planning Committee for the IPY, and now being a member of the ICSU/WMO Joint Committee for the IPY, which is charged with implementation. Chris will be joined on the Executive Committee by newcomers Dr. Sergio

Marenssi, Director of the Instituto Antartico Argentino, Dr. Antonio Meloni of the Instituto Nazionale di Geofisica, Roma, and Dr. Zhanhai Zhang, Director of the Polar Research Institute of China. Dr. Chuck Kennicutt of Texas A & M University remains as Vice President, and Dr. Jörn Thiede, of AWI, as Past President. Dr. Thiede was elected an Honorary Member of SCAR

SCAR Awards its first Medals for Achievement

On July 12, 2006, as part of the opening ceremony for the SCAR Open Science Conference, in Hobart, Tasmania, the President, Professor Jörn Thiede awarded the following three SCAR medals: (i) to Dr. Peter Barrett (NZ), the SCAR President's Medal for Outstanding Achievement in Antarctic Science; (ii) to Dr. Paul Mayewski (USA) the SCAR Medal for Excellence in Antarctic Research; and (iii) to Dr. David Walton (UK) the SCAR Medal for International Scientific Coordination. We would particularly like to congratulate Peter Barrett as he has been a long time geoscience participant and advocate in SCAR activities and committees, and he is an active member of GSSG and the ACE program.

Research programme implementation plans

The Implementation Plans for the SALE (Subglacial Antarctic Lake Exploration), ACE (Antarctic Climate Evolution), AGCS (Antarctica in the Global Climate System) and EBA (Evolution and Biodiversity in the Antarctic) Programmes are now available to download on-line:

[SALE Final Implementation Plan](#)

[ACE Final Implementation Plan](#)

[AGCS Revised Implementation Plan \(5th July 2005\)](#)

[EBA Final Implementation Plan \(21st December 2005\)](#)

GSSG encourages researchers interested in contributing to these projects to contact the programme managers. We are particularly keen to see scientists from all SCAR Member countries listed as contributors.

GSSG News

SSG-GS Business Meeting – Hobart, July 2006.

The SCAR Geoscience SSG and associated groups met during SCAR XXIX, in Hobart. In addition to the general group meetings, there were also meetings of GIANT (Geodesy in Antarctica), ANTEC (Antarctic Neotectonics), POLENET (the IPY Polar Earth Observing Network), Permafrost- ANTPAS (the IPY Antarctic Permafrost and Soils Project), SDSL (the Seismic Data System Library), ANDRILL science and management committees, and the Plates and Gates IPY proposal team. The SCAR Open Science Conference succeeded in attracting a large group of interested scientists, many of whom were able to participate in the SSG meetings, which facilitated cross-discipline communication.

Expanded reports on the work of the various sub-groups will be available from the SCAR web site (<http://www.geoscienc.scar.org>). The web site also contains national and other reports on science that come under GSSG.

The SCAR Executive Committee is encouraging the development of interdisciplinary cross-linkages between the SSGs and between the Scientific Research Programmes (SRPs). The first SCAR Cross-Linkages Workshop was held at the Free University, Amsterdam, The Netherlands, 22 – 24 November, 2005. A report of the workshop is available on the SCAR web site

GSSG Office Bearers 2006-2008

Chief Officer Prof Alessandro Capra and Deputy Chief Prof. Ross D. Powell have two more years in charge. The Officers worked very well, so GSSG asked the SCAR Executive to retain Bryan Storey as Secretary of GSSG for a further two years.

Chief Officer:

Prof Alessandro Capra

University of Modena and Reggio Emilia, ITALY.

Deputy Chief Officer:

Prof. Ross D. Powell

Northern Illinois University, UNITED STATES

Secretary:

Prof. Bryan Storey

Gateway Antarctica, University of Canterbury, Christchurch, NEW ZEALAND

Action and Expert Groups

New Action Group

Phil O'Brien suggested that the SSG consider an integrated Antarctic drilling initiative to combine plans for the various drilling programmes within SCAR, e.g., ANDRILL, Shaldril, Fastdrill, ice core drilling. A new Action Group, called Sub-ice Geological Exploration (SIGE), has been created to take this initiative forward. The aim of SIGE is to coordinate and develop multinational capabilities in geophysics and drilling to enable broad geoscience problems to be addressed and to ensure that maximum multidisciplinary science benefit comes from drilling and geophysical exploration. This will help to understand the geology and ice sheet processes beneath the Antarctic ice sheets.

Action Groups Terminated

The Communications and Marine Surveying Action Groups have achieved their goals and have been terminated.

Expert Group Repositioning

A special recommendation was presented by SSG GS, and approved by SCAR, to remove the Expert Group on Geographic Information (EGGI) out of SSG and to reposition it as a standing committee under the

Administration and Outreach wing of SCAR, reporting directly to SCAR Executive. The EG Geographic Information is not a research group but provides infrastructure and supports the work of all SSGs. It requires critical input from national geographic information agencies rather than from geoscientists. The activities of EGGI complement JCADM activities by providing the geographic reference and associated services for data collection and dissemination in an integrated and cross-disciplinary fashion. EGGI will now have available an integrated geographic framework and will be able to more easily rely on current, consistent and comprehensive data accessed through an efficient dissemination system.

New GSSG structure 2006-08

Action Group 06-08

Sub-Ice Geological Exploration (SIGE)

Chair: B. Storey (NZ)

Marine Acoustics

Chair: P. O'Brien (Aust)

Expert Group 06-08

Geodetic Infrastructure of Antarctica (GIANT)

Chair: R. Dietrich (Ger)

Antarctic Permafrost and Periglacial Environments

Chair: J. Boelhouwers (Swe)

International Bathymetric Chart of the Southern Ocean (IBCSO)

Chair: H.W. Shenke (Ger)

Antarctic Digital Magnetic Anomaly Project (ADMAP)

Chair: M. Ghidela (Arg)

Antarctic Neotectonics (ANTEC)

Chair: T. Wilson (USA)

GSSG members also supports activities within SCAR's on-going ACE and SALE Scientific Programmes.

GeoReach News

GeoReach newsletter

At the GSSG business meeting, it was agreed to publish the GeoReach electronic newspaper three times per year. This is to be done in parallel with highlighting Geoscience publications on the SCAR web site, in order to enhance communications within and outside GSSG.

Unfortunately Glenn Johnstone, leader of the Communications Action Group, and involved in the GeoReach Newsletter and Geoscience web site, is no longer involved in Antarctic activity. The SSG decided to charge the SSG-GS Secretary with the responsibility of publishing the newsletter, maintaining the web site, and upgrading the membership list.

Marine Acoustics

The Action Group on Marine Acoustics aims to understand the impacts of acoustic technology on the marine environment. The Group met in Cadiz, Spain, from the 23rd to 26th January 2006 for its third workshop and has provided input to ATCM/CEP discussions at two previous meetings, and provides scientific background information for national regulators responsible for issuing permits for marine geophysical surveys. The report prepared after the first workshop has been used extensively by groups involved in issues beyond the Antarctic, and the risk analysis developed at the second workshop has also been considered widely (e.g. US Marine Mammal Commission). The third workshop results were incorporated into a Working Paper for the Antarctic Treaty Consultative Meeting in May 2006. All of the SCAR acoustics reports are or will be available on the SSG-GS web page.

Sub-Ice Geological Exploration (SIGE)

SIGE aims to:

- Understand the geology and basal ice sheet processes beneath the Antarctic Ice sheets.
- Coordinate and develop multinational capabilities in geophysics and drilling to address broad geoscience problems.
- Ensure maximum multidisciplinary science benefit comes from drilling and geophysical exploration.

Geodetic Infrastructure of Antarctica (GIANT)

The work plan of GIANT for 2004-2006 was realized. The main achievements were in the continuous working of the permanent observatories and the development of GPS. The GPS stations in Antarctica were included into a reprocessing of the global GPS network for the time span 1994-2006. So far 30 stations are part of the campaign network. The network solution of the Antarctic GPS stations was submitted to the International Association of Geodesy to become part of the International Terrestrial Reference Frame (ITRF) 2005. The data base for an improved Antarctic geoid, consisting of gravity and bedrock elevation data, was significantly improved and first computations of regional geoids were performed. GPS antenna calibration investigations were also carried out.

Expert Group on Antarctic Permafrost and Periglacial Environments (EGGPE / PPE)

The Antarctic Permafrost and Soils Project (ANTPAS) was awarded programme status by the IPY Joint Committee. A website and mailing list is available (<http://erth.waikato.ac.nz/antpas/>).

There is a new IPA soil carbon initiative (led by Kuhry, Tarnocai, Bockheim) and the permafrost community had a Special Issue of the journal Geoderma. Soil maps are being prepared for Wright and Taylor Valleys and the McMurdo area under the "Dry Valleys" heading (led by Bockheim, McLeod, and Balks) and datasets are available for developing maps of the Transantarctic and Ellsworth Mountains.

The Permafrost/CALM/Periglacial process monitoring network has been designed

Expert Group on the new International Bathymetric Chart of the Southern Ocean (IBCSO)

IBCSO examines the largely unknown topography of the Southern Ocean, defined in the IHO S-23 Document as the area south of 60°S surrounding Antarctica. This ocean presently contains, due to continuous ice-coverage, so-called “white spots”, which describe areas without any knowledge about form and structure of the seafloor. The survey activities of modern ice-breaking research vessels during the last decade using multibeam systems have increased the data-base, which may result in compilations of new bathymetric charts around Antarctica that could reveal the seafloor morphology of large “white spots”.

The IBCSO project is well established within international organizations like the International Hydrographic Organization (IHO), the International Oceanographic Commission (IOC) and the General Bathymetric Chart of the Oceans (GEBCO). Special attention to IBCSO is being given by the Hydrographic Committee on Antarctica (HCA) of the IHO, where data exchange between the national Hydrographic Offices and scientific institutions is realized.

The IBCSO proposal was presented to the thirty-seventh session of the IOC Executive Council in Paris, 23–29 June 2004 and accepted as an IBC-project. A mailing list server was established and is maintained by the NGDC in Boulder, CO, USA. The mailing list can be used to send information to all members and collaborators involved in IBCSO. The address is: Antarctic@mailman.ngdc.noaa.gov

Antarctic Digital Magnetic Anomaly Project (ADMAP)

Recognizing the considerable geological utility and growth of magnetic surveying in the Antarctic, and its importance for pan-Antarctic studies, SCAR urges sponsors of magnetic surveys to archive the survey data in the digital database of the Antarctic Digital magnetic Anomaly Project (ADMAP) for distribution to the World Data Centres and the international geosciences community.

Recent achievements of ADMAP include the development of a compilation DVD of data up to year 1999 for release to the World Data Centers and update of the near-surface anomaly predictions from Magsat in the ADMAP database with the significantly more accurate observations from the Ørsted and CHAMP satellite missions. Improved modeling of the Antarctic core field and its secular variations has been developed, as have external fields for better definition of the crustal anomalies in magnetic survey data. In order to support geological applications of the ADMAP data rock magnetic and other physical properties have been compiled into a database and development and promotion of regional and continental scale interpretation efforts of the ADMAP data provides new insight into global tectonic and geologic processes in the Antarctic context. ADMAP also

provided support to the World Magnetic Anomaly Map initiative of the International Association of Geomagnetism and Aeronomy (IAGA).

Expert Group on Antarctic Neotectonics (ANTEC)

The goals of ANTEC are to coordinate an implementation plan for deployment of geodetic and seismological stations in Antarctica, promote research on neotectonics and geodynamics of Antarctica by holding workshops and symposia and to ensure that protocols for data collection, archiving and distribution are meeting the needs of the international research community. Recent activity has included organising a symposium on *Short and long-term observations in Polar regions*, at the EGU, April, 2006 and contributing to the development of the POLENET: Polar Earth Observing Network proposal, approved by the IPY Joint Committee as a core activity.

ISAES X

The meeting organisation committee of the 10th International Symposium on Antarctic Earth Sciences (ISAES), which is to be held in Santa Barbara, 2007, asked the GSSG for \$15,000 to help to cover primarily travel costs to the meeting for student and scientists from developing countries. Considering the importance and high profile of this Geoscience meeting, the SSG-GS assembly approved the financial support.

SDLS (Seismic Data Library System)

SCAR urges delegates to work with their national Antarctic programme managers and multi-channel seismic reflection data collectors to ensure that all multichannel seismic reflection data collected by their country are submitted to the SDLS according to the timelines outlined in ATCM Recommendation XVI-12, and to ensure that all MCS data collected more than 4 years ago are received at the SDLS before the end of the IPY.

SALE News (Subglacial Antarctic Lake Environments)

The SALE community has been busy over the last few months hosting sessions at international meetings, participating in field campaigns, attending a major workshop in Grenoble, France in April; setting the agenda for the second SALE meeting, recruiting broader membership to the group, and responding to a variety of press stories on Russian activities at Vostok Station. There were one poster and two oral sessions at the American Geophysical Union (AGU) Meeting in San Francisco in December, 2005 entitled "Icy Lakes" and a SALE poster session took place at the European Geosciences Union (EGU) Meeting in April. Ninety people participated in the workshop in Grenoble, France in April, 2006, which included 29 oral presentations, 35 posters, and discussion groups. The second SCAR SALE two-day meeting followed the workshop. The Convener of SALE visited the far east and is actively soliciting nominations for SCAR SALE membership from Asian rim countries including Japan and China. A collaboration of the Bavarian Academy

of Sciences in and the Alfred Wegener Institute for Polar and Marine Research, funded by the German Science Foundation DFG, will investigate subglacial lake circulation, salinity changes, frazil ice and clathrate formation. Reports on the Russian activities at Vostok Station have received wide news coverage and has been reported in such disparate press as Aljezeera and the Shanghai Daily. SALE presentations and posters also featured at the SCAR Open Science Conference in Hobart and included a plenary presentation by John Priscu.

Further details on these activities can be found at the [SALE Program Office](#) (hosted by Texas A&M University)

ACE News (Antarctic Climate Evolution programme)

The third ACE special issue was published early in 2006. It is Barrett P., Florindo F. and Cooper A. (Editors) (2006). 'Antarctic Climate Evolution - view from the margin'. *Palaeogeography, Palaeoclimatology, Palaeoecology*, v 231, p 1-252.

The papers within the issue cover a wide range of techniques and timeframes concerning the evolution of the Antarctic continental margin, ranging from detailed sedimentary analyses of the Cape Roberts Project core to numerical modelling investigations of ice sheet growth and decay.

Future meetings

2006

Workshop for Polar Earth Observing Network (POLENET) for the International Polar Year

4-6 October 2006, Dresden, Germany

For more information go to: <http://www.geo.tu-dresden.de/ipg/polenet>

An Earth System Science Partnership Global Environmental Change Open Science Conference

9-12 November 2006, Beijing, China

For more information go to: <http://www.essp.org/essp/ESSP2006/>

POLENET Implementation Workshop: Seismology in the IPY: The POLENET Project

December 10, 2006. San Francisco, USA. Preceding the AGU meeting.

American Geophysical Union

11-15 December 2006, San Francisco, USA

For more information go to: <http://www.agu.org/meetings/fm06/>

2007

European Geosciences Union

15 – 20 April 2007, Vienna, Austria

Including *Geophysical Observatories in Polar Regions*

For more information, go to: <http://meetings.copernicus.org/egu2007/>

International Union of Geodesy and Geodetics

2 – 13 July, 2007, Perugia Italy

For more information, go to: <http://www.iugg2007perugia.it/>

International Union for Quaternary Research

28 July – 3 August, Cairns, Australia 2007

For more information, go to: <http://www.aqua.org.au/AQUA/INQUA2007.html>

SCAR International symposia of Antarctic earth sciences

26 August – 1 September, 2007, Santa Barbara, California

Including ANTPAS workshop and ANTEC *Thematic Sessions & Workshop*

For information on ISAES go to: <http://isaes2007.geol.ucsb.edu>

2008

9th International Conference on Permafrost

29 June - 3 July, 2008, Fairbanks, Alaska

The conference marks the 25th Anniversary of the formation of International Permafrost Association (IPA), 50th Anniversary of IGY and 25th Anniversary of the first IPY. The main Theme for this conference is: "Permafrost on a Warming Planet: Impacts on Ecosystems, Infrastructure and Climate". Registration and further particulars are available on the conference website: <http://www.nicop.org/>

33rd International Geological Congress

5 - 14 August, 2008, Oslo, Norway

Several sessions on polar geosciences are being planned, especially those linked to IPY activities.

For more information, go to: <http://www.33igc.org/>

ANTEC Planned Activity:

Workshop: *Integrated Analysis and Modeling of POLENET Data*

Tentatively planned to be held in Modena, Italy; Convened by Dr. A. Capra (with POLENET Interpretation & Modeling Working Group); either before or following the EGU meeting in April, 2008.

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