

GeoReach

Newsletter from the
SCAR Geoscience Standing Scientific Group



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From the CO's Desk

I attended the SCAR Executive meeting that was held in Sofia, Bulgaria, from 11th to 14th of July 2005, along with the Chief Officers of the other Standing Scientific Groups. Attendance of the three SSG Chief Officers at these meetings was noted to be very important in order to discuss scientific approaches on SCAR activities thoroughly and to allow better planning of science initiatives within SCAR. The participation of SSG Chief Officers was confirmed for the next SCAR Executive and SCAR General Assembly. During the course of the Sophia meeting the three SSG Chief Officers met and discussed among other questions, the next SCAR Open

Science Conference, to be held in Hobart, Australia, in 2006. The CO's further discussed plans for a cross-disciplinary meeting of all SSGs on, with a Global Change theme, to be held over November 22-24, 2006, in Amsterdam, The Netherlands. Several researchers have been invited to plan future interdisciplinary activities under the SCAR umbrella for this first joint meeting of the SSG's.

The joint CO meeting was very profitable and we all agreed that similar meetings should be planned at future SCAR Executive meetings, and the SCAR Open Science Conference or SCAR Delegates Assembly.

Reports of both the SCAR Executive meeting and our CO meeting, are available on the SCAR web site www.scar.org.

Due to the large number of congresses, meetings and workshops organized by all of the different research groups within GSSG, it was decided to plan full meetings of the GSSG every two years associated with the SCAR Open Science Conference.

I invite convener's of each AG, EG and Scientific Programme, as well as participating researchers to send Glenn Johnstone (CO AG leader) and me information about initiatives and planned or completed meetings or. We will continue to publish GeoReach in the future, even if it was decided by the SCAR Executive that electronic bulletins or web site news of all SCAR SSG's and SP's will be edited.

Prof. Alessandro Capra
GSSG Chief Officer

Census of Marine Antarctic Life

Geoscience in the Census of Antarctic Marine Life

The Census of Antarctic Marine Life is an IPY project developed within the biological community that has a significant role for marine geosciences and corresponding opportunities for survey logistics. Phil O'Brien attended the first

CAML Science Steering Committee meeting in Brussels in May to present the geological work needed to underpin some of the CAML objectives. CAML is primarily focussed on understanding biodiversity. However, a major focus will be on the benthic biota of the slope, rise and abyssal plains. There is clear recognition that understanding benthic communities requires an understanding of sea bed geomorphology, sediment transport and Holocene history of a region. Therefore, benthic sampling surveys being planned under the CAML umbrella need geological input in sample site selection, and coring and sedimentology as part of their science program.

The other CAML program where geology has a role is in the study of benthos beneath ice shelves. Geosciences can help understand the length of time sub-ice shelf environments have existed and the behaviour of individual ice shelves during the Quaternary.

The CAML science statement can be viewed at the web site which is: <http://www.caml.aq/>. An appendix setting out the role of geoscience in CAML is in preparation by Phil O'Brien. It is expected that a number of nations will be carrying out benthic sampling programs that will need input on seabed geomorphology, sedimentology and biogeochemistry.

CAML is sponsored by SCAR and the Sloan Foundation. Prof Michael Stoddart of Australian Antarctic Division is the Project Leader and Project Coordinator is Dr Victoria Wadley. A number of national Antarctic programs have offered ships for surveys in 2007/8. For more information, watch the CAML web site, contact Phil O'Brien (phil.obrien@ga.gov.au) or Dr Victoria Wadley (Victoria.Wadley@aad.gov.au).

SCAR News

Global Earth Observation System of Systems (GEOSS) authorised by G8 meeting in Scotland (July 8, 2005)

G8 leaders meeting at the G8 summit in Gleneagles, Scotland, July 8, 2005, authorized a plan to implement the Global Earth Observation System of Systems (www.epa.gov/geoss/) to thwart pollution and global warming, as part of the G8's "Plan of Action: Climate Change, Clean Energy and Sustainable Development". In particular, the G8 will work to strengthen existing climate observing systems in Africa, through the Global Climate Observing System (GCOS), initially to developing fully operational regional climate centres in Africa. But the GEOSS is not just about Africa, it is a global initiative involving the world's space agencies, the UN agencies like WMO, UNEP, FAO, and UNESCO and

its Intergovernmental Oceanographic Commission, and the main research organisations including ICSU, the IGBP, and the World Climate Research Programme (WCRP). GEOSS will include space-based and *in situ* observations on the ocean, ice and atmosphere from the Southern Ocean and from Antarctica. SCAR has an opportunity to make a significant contribution to the development of the south polar elements of the GEOSS.

Changes in SCAR

SCAR online newsletter

Issue 1, Number 1, January 2005 is available from the following address:

www.scar.org/news/newsletter/issue1/jan05.html

Professor Zhanhai Zhang appointed as SCAR Vice President

Following the resignation of Prof Shimamura, the SCAR Executive Committee at its meeting in Sofia (11-13 July 2005), decided that Professor Zhanhai Zhang should become a SCAR Vice President, starting with immediate effect.

Prof Zhang's contact details are as follows:

Director General
Polar Research Institute of China
451 Jinqiao Road, Shanghai Pudong 200136, China
Tel: +86 21 6850 7533
Fax: +86 21 5871 1663
Email: zhangzhanhai@pric.gov.cn

New Executive Officer

On June 18th, after many years of service to SCAR, Peter Clarkson took his well-deserved retirement.

Peter has done a great job for SCAR, but is now headed for a new life. He tells us that he doesn't intend to stop working. He has lots of ideas for writing on polar matters, and will carry on lecturing on tourist ships to Antarctica and providing assistance on Antarctic matters when called for.

Peter is the official SCAR Memory Bank. Although he has passed on much of his extensive knowledge to his successors, we shall miss his wise advice, and indeed his warm companionship. But he will still be in Cambridge, and has told us we can call on him from time to time when we need a hand in the office (or to

dredge the Memory Bank for some particular information). He will work for SCAR on contract in July, to train Marzena Kaczmarzka, the new SCAR Executive Officer.

In future please send your SCAR business requests or information to Marzena Kaczmarzka (mik24@cam.ac.uk). You will still be able to contact Peter for a while on his e-mail (pdc3@cam.ac.uk), for personal correspondence.

Communications Plan

The SCAR Communications Plan has been approved by the SCAR Executive Committee at the recent meeting in Sofia, Bulgaria. Details and a copy of the plan can be found at www.scar.org/communciations/

The overall objectives of the plan are to:

- raise the visibility of SCAR and its activities;
- promote the concepts that inspire SCAR's agenda;
- raise awareness of the importance of scientific research in the Antarctic region;
- ensure successful implementation of SCAR's research programmes and activities;
- develop cooperation with partners and supporters;
- mobilise human and financial resources;
- link Secretariat staff more effectively with the SCAR Executive Committee, National Committees, scientific activities and programmes, and partners;
- link SCAR more effectively with other Antarctic organisations; and
- help to build the capacity of new Members to enable them to participate in and benefit from SCAR activities and programmes.

GIG News

Tracking the B-15 berg

There has been a website set up by MODIS imagery folks at NASA Goddard to chart the daily progress of the B-15 iceberg.

rapidfire.sci.gsfc.nasa.gov/subsets/?RossSea/

The page contains a number of image subsets that are automatically generated in near-real-time and as true-color images for various applications users.

ADD and Web Mapping

Paul Cooper, at BAS, has released an experimental web map browser for the Antarctic Digital Database (ADD), which can be accessed at www.add.scar.org/WMSbrowser

This is currently an experimental page, based on a Web Feature Service and Web Map Service. Expect it to change in content, appearance and functionality over the next few months.

It has been tested with Internet Explorer 6, Mozilla Firefox and Opera, and should work correctly with most modern Javascript-enabled browsers.

The underlying services are not yet ready for public release, but if any one wishes to use them on an experimental basis, please contact Paul Cooper at paul.cooper@bas.ac.uk.

Cyberatlas & GI meeting, Ottawa

A meeting of the Cybercartographic Atlas project and a more informal meeting of the Geographic Information Group was held in Ottawa from 18-20 September.

A small number of participants, representing 5 SCAR member countries, met to discuss the progress on Geographic Information projects. A number of international tele-conference hook-ups with other members ensured that the majority of Project Leaders were involved in discussions.

Information on recent ISO TC-211 activities was provided by Paul Cooper, from BAS, as well as reports on the Cybercartographic Atlas, the US Atlas of Antarctic Research, the King George Island GIS, the Antarctic Digital Database (see above article), the SCAR Feature Catalogue and AAD activities. The second day of the meeting examined such issues as the possible expansion of the boundaries to the ADD, the future of the Composite Gazetteer of Antarctic and the future of Web Services for Antarctic Geographic Information.

A full report on the meeting will be available from www.carleton.ca/gcra/caap/meetings.htm

Permafrost and Periglacial Environments

The Expert Group on Antarctic Permafrost and Soils (ANTPAS) held a workshop from 12 to 16 June 2005, in Potsdam, Germany

At the workshop agreement was reached to develop a set of protocols to allow spatial extension of data collection throughout the Antarctic region, also by non-specialists. We are close to the agreed deadline for circulation of draft versions but it is clear that we will not meet these. Lead authors have been asked to

circulate the draft documents via the ANTPAS mail list, as soon as they are ready, to give a chance for community-wide input and comment.

A number of new contacts have emerged especially from researchers in Argentina and Spain working in Tierra del Fuego and James Ross Island. The ANTPAS Chief Officer is trying to get a better understanding of these activities and how to integrate them best into ANTPAS. Contacts are developing with Norwegian scientists to extend monitoring work in Dronning Maud Land.

SEDIFLUX has approached ANTPAS for collaboration to establish small catchments for sediment budget studies in the Antarctic region. This will integrate well with the periglacial process monitoring and CALM. More info on SEDIFLUX at: <http://www.ngu.no/sediflux>.

A reminder! Please submit your research project information to Megan Balks for posting on the website. [erth.waikato.ac.nz/antpas/] This greatly helps both with communication within the group to achieve our goals and in preparation for IPY activities. It should not take more than 20 minutes of your time when you actually do it.

[Thanks to Professor Jan Boelhouwers for this information]

ACE News

Programme details

The ACE implementation plan has been accepted by the SCAR executive committee, pending a minor additional section on how ACE work can be linked to the Joint Committee on Antarctic Data Management. Details of the implementation plan can be found on the ACE website (www.ace.scar.org). The ACE science programme will be led by a series of subcommittees, the names and chairs of which are as follows:

- LGM-Holocene Chair: Tony Payne (UK)
- Pleistocene Chair: Tim Naish (NZ)
- Middle Miocene-Pliocene Chair: Alan Haywood (UK)
- Oligocene-Miocene Chair: Rob DeConto (USA)
- Eocene/Oligocene Chair: Jane Francis (UK)
- Radio-Echo Sounding: Chair: Detlef Damaske (Germany)

International Polar Year

The ACE programme has been conditionally endorsed by the ICSU/WMO Joint Committee for the International Polar Year (2007-9). In the endorsement letter, the joint committee states that "... these endorsements provide assistance

and support as IPY researchers seek funding for the work proposed." ACE's progress in this matter will be reviewed at the start of 2006.

Publications

Sixteen papers given at the Antarctic paleoclimate sessions of two meetings in mid-2004 (the Open Science meeting of the Scientific Committee on Antarctic Research, Bremen, July 24-28, 2004, and Session T.29 of the International Geological Congress, Florence, August 20-28, 2004), are due to be published in a single special volume of *Palaeogeography, Palaeoclimatology, Palaeoecology*, entitled "Antarctic Climate Evolution - view from the margin", edited by Peter Barrett, Fabio Florindo and Alan Cooper. The volume is now in press, and should appear in a few months.

Meetings

Alan Haywood chaired a session at the Earth System Processes 2 (8-11 August 2005), in Calgary, Alberta, Canada, titled "The Last Great Global Warming: Proxy Reconstructions and Modeling the Pliocene Climate". Several ACE related papers were given at the meeting, including a paper by Dan Hill on 'Modelling the East Antarctic cryosphere during the Pliocene'.

In August, an ACE-sponsored meeting took place at the University of Wales, Aberystwyth on Glacial Sedimentary Processes and Products (organised by Mike Hambrey). Several ACE papers were presented, including a double paper by David Pollard on numerical modelling of the Antarctic ice sheet and the subglacial sediment erosion, transportation and deposition. It is hoped that a follow up meeting will take place in Alaska during 2009, with others to follow of a four yearly basis.

Professor Martin Siebert
Co-Chair ACE (Antarctic Climate Evolution)
September 2005

ANTEC news

Terry Wilson reports:

The principal focus of ANTEC activities in 2005 has been on development of the IPY initiative called "POLENET: Polar Earth Observing Network" and linked proposals for geodetic and seismic observatories. The aim of this programme is to investigate systems-scale interactions within the polar earth system and polar geodynamics by deploying autonomous remote observatories, on the continents and possibly offshore. The principal components of these observatories will consist of continuous GPS and seismometers, with the potential

addition of meteorology packages, geomagnetic observatories, tide gauges (at coastal sites), and bottom pressure gauges (at offshore sites). Well-established international collaboration through SCAR is being expanded to set up a consortium of researchers who together will deploy a polar network of solid-earth observatories across the Antarctic and sectors of the Arctic. Discussions to date have involved 18 nations, and outreach to additional nations is underway. An Expression of Intent was submitted to the IPY International office in January, and we received preliminary recognition as an IPY activity from the ICSU/WMO Joint Committee. A full proposal will be submitted for the September 2005 deadline.

A planning/coordination meeting for POLENET was held at the EGU meeting in Vienna, Austria, in April 2005. Scientific presentations on Antarctic geodesy and a business meeting centred on planning for POLENET took place at the joint IAG-IAPSO-IABO meeting *Dynamic Planet 2005* in Cairns, Australia, in August 2005.

Scientific presentations on Antarctic seismology and discussion of the seismological deployment for POLENET will take place at the IASPEI meeting in Santiago, Chile, in early October 2005. Additional scientific sessions and planning meetings are scheduled for the American Geophysical Union meeting in December 2005 (San Francisco) and for the European Geosciences Union meeting in April 2006 (Vienna). Interested scientists should contact Terry Wilson (wilson.43@osu.edu) or Reinhard Dietrich (dietrich@ipg.geo.tu-dresden.de) for further information.

OTHER NEWS

IPY

There has been an increasing amount of activity in relation to IPY - with many groups developing and submitting various research proposals.

www.scar.org/events/internationalpolaryear/ - has information relevant to some of the SCAR activities.

www.ipy.org/ - has links to all the Expressions of Interest and full research proposals received so far.

WAIS and IPY

This message describes the strategy that the WAIS Working Group has adopted to formulate a strong response to US-NSF's IPY solicitation expected this summer/fall.

We regard a set of linked proposals to be the most favourable means to garner significant support for new research in the Amundsen Sea Embayment (ASE) area, consistent with the previously published ASE Science and Implementation Plan. You can find this plan on the WAIS web site or go directly to igloo.gsfc.nasa.gov/wais/links/ASEP-final.pdf.

The linked proposals will focus on the following areas:

- Oceanography and Floating Ice Dynamics:
- Ice Dynamics Modeling:
- Ice Sheet Dynamics
- Terrestrial Geology:
- Ice Coring and Paleoclimate:

The corresponding timetable for developing these proposals is:

- July 1: announce the process, contacts, and schedule in e-mail distributed to WAIS mailing list
- August 31: complete proposal outlines made available on the WAIS web site for comments (the outline will include a brief description of the work to be done, who would do it and about how much it would cost)
- September 30: revised proposal outlines are presented at WAIS workshop
- November: final proposals are submitted to NSF (and elsewhere for international collaborators)

We also have tentatively identified lead and supporting persons to handle the proposals in each area. In some cases their acceptance of these roles was qualified (or inferred by their failure to turn me down), but we need to have some front people start things off. These heroes are:

- Oceanography and Floating Ice Dynamics: David Holland with support from Stan Jacobs and Adrian Jenkins
- Ice Dynamics Modeling: Jesse Johnson with support from Christina Hulbe and Tony Payne
- Ice Sheet Dynamics: Sridhar Anandkrishnan with support from Ian Joughin
- Terrestrial Geology: John Stone with support from Brenda Hall
- Ice Coring and Paleoclimate: Ken Taylor with support from Eric Steig

If you are interested in being included in any of these proposals, it is important that you contact the appropriate people named above to express your interest. The next two months will be a critical phase. These proposals will take some time to pull together and will probably not be easily modified in the 11th hour. Nor will they be your regular NSF proposal in the sense that

they will be required to conform to the higher standards of IPY, which to me means they must include or be tightly linked to international activities, include substantial educational and outreach components and, most importantly, strive to achieve a level of research accomplishment beyond business-as-usual. I expect NSF will include some form of these criteria in their solicitation announcement.

[Thanks to Bob Binschandler for supplying this information.]

SCAR - COMNAP Joint Executive meeting

This annual meeting was held in Sofia (Bulgaria) from 11-14 July 2005 - reports and photos from the SCAR Executive meeting are available from:

www.scar.org/members/execmeetingreports/sofia05/

International Conference on Geomorphology

The International Conference on Geomorphology (7-11 September 2005, Zaragoza, Spain) was attended by about 850 scientists. It included a Special Session on Antarctic Geomorphology in which 13 works were presented, including authors from 9 different countries. An special issue of the international journal Polish Polar Research will be published on 2006 containing articles proceeding from the mentioned Session.

US-ITASE

The US component of the International Trans Antarctic Scientific Expedition expects to go into the field during the 2006 - 2007 Antarctic field season. In preparation, the US ITASE Science Management Office held a short meeting just prior to the recent WAIS meeting. The plan is to discuss the forthcoming traverses, agree on routes, logistics, and science. The meeting is open to anyone interested, and was held at the Arlington Room of the Algonkian Regional Park Meeting Center, on Wednesday September 28.

You may view the full Science Management proposal at:

www.ume.maine.edu/USITASE/Proposal/index.html

Professor Paul Andrew Mayewski
Director, Climate Change Institute
University of Maine
Orono, Maine 04469 USA

Phone 1-207-581-3019
www.climatechange.umaine.edu

UPCOMING MEETINGS

American Geophysical Union (AGU) 2005 Fall Meeting

5-9 December 2005, San Francisco, California
Sessions that may be of interest to the SCAR community include:

Session C 02: Intrapermafrost Gas Hydrates and Their Relationship to Geohazard and Global Climate Change

Session C 04: Permafrost and Seasonally Frozen Ground in a Changing Climate

Session C 09: "The Dynamics of Glacier System Response: Tidewater Glaciers and the Ice Streams and Outlet Glaciers of Greenland and Antarctica"

Session C 12: "Sea Ice Feedbacks and Climate Change"

Session C 11: "Antarctic Ice Shelves: Climatic, Oceanographic, and Biologic Interactions"
Abstract Submissions Open: Tuesday, 26 July 2005

Abstract Submission Deadline: Thursday, 8 September 2005

For further information on the AGU 2005 Fall Meeting, please go to:
www.agu.org/meetings/fm05/

We would like to draw your attention to:

Special Session at the Fall AGU Meeting 2005

Antarctic Ice Shelves: Climatic, Oceanographic, and Biologic Interactions

This session aims to cover a variety of glaciological topics related to ice shelves (see description below), and also welcomes contributions on the recent sub-Larsen Ice Shelf discovery.

AGU abstract submission opens on July 26th and closes on September 8th, so please start thinking about abstracts now. We look forward to your submission.

Most of the ice mass lost from the Antarctic continent occurs in ice shelf processes, through basal melting, surface melting and iceberg calving. Since they are in contact with both the ocean and the atmosphere, ice shelves are more

responsive to climate change than the rest of the ice sheet. They play a supporting role for outlet glaciers as well, i.e. they influence the speed at which these glaciers flow, and reductions in their extent or mass can lead to an increased flux of ice from the continent. Recently, chemotrophic biologic communities have been discovered on the seabed beneath former ice shelves - an astounding development with many implications for extraterrestrial and sub glacial lake habitats.

This session aims to bring together glaciologists, oceanographers, marine geologists, and biogeochemists to discuss the following topics: ice shelf/ice stream interactions; flow history; sub ice shelf oceanography; tides in shelf areas; ice shelf mass balance; ice shelf rifting, calving, retreat, and iceberg evolution; and a new ecosystem adapted to the cold and dark.

Conveners: Helen Amanda Fricker, Ted Scambos and Eugene Domack.

AGU Ocean Sciences Meeting in Feb. 2006

OS082: The Southern Ocean and Its Margins: Sediment Archives and Dynamics of Environmental Change and Variability

Please go to the following site for further information:

www.agu.org/meetings/os06/

The greater Southern Ocean with its polar basins and continental margins account for globally-significant fractions of oceanic deep water formation, annual sea ice formation, and marine primary production. In order to predict how this complex region will respond to and influence future climatic changes, it is important to understand the nature and timing of past environmental changes, as well as the dynamics that underlay these changes. The past decade has seen a significant body of research focused on extracting paleoenvironmental records from marine sediments in the greater Southern Ocean. These records are obtained in locations ranging from fjords to the continental slope to the open ocean, and span timescales ranging from years to tens of thousands of years. In addition, a lot of progress has been made in our understanding of the Southern Ocean circulation, its variability, and response to external factors. This session will highlight the results of these studies, as it invites theoretical, numerical, observational and paleoceanographic studies that address change and variability of the greater Southern Ocean and its continental margins. A focus will be on establishing a circum-Antarctic record of environmental conditions over the past 20 thousand years, and identifying the factors that may have led to, or influenced these conditions.

Kind regards

Eugene Domack, Peter Sedwick (Bermuda Biological Station), Wilbert Weijer (Scripps Institution of Oceanography)

2nd International Alfred Wegener Symposium

30 October - 2 November 2005 Bremerhaven, Germany

Type of Event: Symposium

Themes: Meteorology; Glaciology; Geosciences; Geothemes in the future; History of Science Contact

Email: secretary@alfred-wegener-symposium.de

Website: www.alfred-wegener-symposium.de

International Union of Geodesy and Geophysics General Assembly

2-8 October 2005, Santiago de Chile.

We welcome papers that address the following list of topics:

- 1) Assessment on the actual level of intraplate seismicity in the Antarctic.
- 2) Distribution of the mechanical properties of the crust and upper mantle.
- 3) Studies of the thermal properties of the crust and upper mantle.
- 4) Linkage between seismic models and surface heat flow.
- 5) Relationship between seismicity patterns and ice mass loading and unloading.
- 6) Plate tectonics assessments based on accurate high precision GPS displacement determinations jointly interpreted with seismicity, focal mechanisms, and coseismic events.
- 7) Location of active seismic areas which imply a reactivation of structural elements and tectonic implications.
- 8) Progress in seismic tomography, particularly in the Scotia Arc region, and description of transition zones between continental and oceanic crust floored terrains.
- 9) Seismic upper mantle anisotropy in West Antarctica and the Scotia Arc: its relationship with asthenospheric flow description and its bearing on Gondwana reconstructions.
- 10) Links between Seismology and Deep Electrical Resistivity or Aerogeophysics or both.

E-mail : iaspei2005@igm.cl
Website: www.igm.cl/iaspei/iaspei.htm

XXIX SCAR

The XXIX SCAR meeting will comprise: (i) Business meetings of SCAR subsidiary bodies (9-11 July); SCAR Open Science Conference (12-14 July); (iii) COMNAP and SCALOP meetings (9-14 July); (iv) SCALOP Symposium (July 13); (v) SCAR Delegates meeting (July 17-19)

The organising committee of XXIX SCAR is pleased to announce that the conference web site is up and running. You can register your interest in attending, as well as submit your abstract for the Open Science Conference, look at accommodation options and find out more Tasmania. Please have a look at:

www.scarcomnap2006.org

Website

The GSSG website has had a few minor corrections and amendments done - most particularly to the [Membership](#) page. If you are a formally recognised member of GSSG and your contact details are incorrect please email me on scar@ga.gov.au with the appropriate information...thanks.