

GeoReach

Newsletter from the
SCAR Geoscience Standing Scientific Group



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SCAR XXVIII Meeting - Bremen

Phil O'Brien reported (to the Chief Officers meeting at the end of the Open Science Symposium) that the group [GSSG] had been most impressed by the Open Science Conference. The SSG had experienced some difficulty in scheduling the required meetings of all the subsidiary groups within the SSG meeting due to shortened time. The group was strongly supportive of the proposed SALE and ACE

programmes. Some new Action Groups were being proposed, including one to respond to requests for advice on ATS matters, typically acoustic techniques in the marine environment. Two other Action Groups would focus on place names and on geological sampling protocols. A portfolio of programme suggestions for IPY had been developed. A new Expert Group on Permafrost has been proposed with interested involvement from the SSG on Physical Sciences.

Phil O'Brien stood down as Chief Officer (citing work and family commitments). Alessandro Capra (Italy) was elected Chief Officer; Ross Powell (USA) was elected Deputy Chief Officer; and Bryan Storey (NZ) will continue as Secretary.

Office Bearers 2004-06

The Chief Officer, of the GSSG, Philip O'Brien, informed the meeting that he was standing down from the post for work and personal reasons. The full meeting of the SSG voted to install Prof Alessandro Capra of Italy as Chief Officer and for Prof Ross Powell to replace Prof Capra as Deputy Chief Officer.

New Action Groups

GSSG members at the meeting endorsed the following New Action Groups.

Treaty and CEP Action Group

[This Action Group will be transformed into a GSSG representative group of specialists within the SCAR-ATCM relationship. (See SCAR web site, www.scar.org/researchgroups/geoscience/)]

Convenors: Philip O'Brien (Australia), Luiz Gamboa (Brazil)

Background: Experience of the last 2 years shows that an extra link is needed between SCAR representative to the CEP and the Standing Science Groups. The Geoscience Standing Science Group proposes to establish an Action Group to handle issues of two-way

communication between working scientist SCAR representatives to the CEP.

Terms of Reference: To communicate with SCAR representative at the CEP and ATS to bring matters of concern to the CEP and Treaty to the Geoscience SSG for advice and to identify areas of concern in geosciences and geospatial information, raise them in ATS fora and provide scientific advice.

Activities for 2004-2005

1. Integrity of Place names.

Develop guidelines for national programs to review spatial data and associated metadata attached to named places to improve the integrity of the Gazetteer of place names.

Milestones: Produce information paper and suggested guidelines for the 2005 ATS meeting.

Participants: Steffen Vogt, Bryan Storey, Roberto Cervellati

2. Sampling Management Guidelines

Review existing rules and guidelines for the management geological samples to see if improvements can be made to ensure the best use of samples, the minimum disturbance to sample sites and the preservation of material for future study.

Milestones: Produce information paper and any revised guidelines for the 2005 ATS meeting.

Participants: Phil O'Brien (Australia), Jane Francis (UK), Lothar Viereck-Goette (Germany)

3. Environmental Impact of Marine Acoustic technology

Provide reviews of the best scientific advice on the impacts of acoustic technology on the Antarctic marine environment to aid Treaty nations and scientists in management to minimise any impacts.

Milestones:

1. Produce Report Version 2.0 by October 2004.

2. Produce revised CEP information paper and report by the ATCM of 2006.

Participants: Phil O'Brien

Marine Survey Coordination Action Group

Conveners: Phil O'Brien (Australia), Miquel Canales (Spain), Ron Macnab (Canada), Rainer Gersonde (Germany)

Background: Members engaged in marine geoscience research have identified a need for additional mechanisms for communication between those working in this field, especially communication of planned surveys before they take place. This is important in enhancing collaboration and reducing duplication of effort. The Acoustics Action Group has identified coordination of surveys to avoid unnecessary resurveying as an important measure to minimise the environmental footprint of marine research.

Terms of Reference: To develop mechanisms for improved communication about planned marine surveys within the Antarctic community.

Milestones:

1. Develop web forms for documentation of essential details of planned surveys for posting on the GSSG web site (May 2005).

2. Develop list of contacts among national operators and the marine geoscience community (via CONMAP) to obtain the information needed (June 2005).

Confirmed Action Group

Communication and Outreach Action Group (COG)

Convenor: Glenn Johnstone (Australia)

Background: The Communication and Outreach Action Group - formed at SCAR XXVII successfully completed its 2 year programme from 2002-04.

Feedback solicited at XXVIII SCAR has indicated this Action Group has been working well and should continue for another 2 years.

Glenn Johnstone (Australia) has been re-appointed as Chairman of COG, assisted by Phil O'Brien (Australia) and asked to identify the terms of reference, a proposal on what funding the Group would require and develop a forward work plan.

COG Terms of Reference:

1. To gather, collate and disseminate geospatial and geoscientific information relevant to GSSG members and activities through electronic communication methods (website and listservers).

2. To maintain an up-to-date website for the GSSG containing information on member contact details, observatory details, reports from meetings / symposia etc., links to GSSG projects, SSG publications,

3. To form and maintain strong links with SCAR and non-SCAR bodies to promote geospatial and geoscientific information for use in research and planning.

4. To research, publish and distribute regular newsletters on GSSG activities

5. To cooperate closely with the SCAR Secretariat in relation to their activities on communication and outreach for 2004-06

New Expert Groups

Expert Group on Permafrost and Periglacial Environments (EGPPE)

Chief Officer: Jan Boelhouwers, Uppsala University, Sweden

Deputy:* Jim Bockheim, University of Wisconsin, United States

Mauro Gugelmin, University Insubria, Varese, Italy

Secretary: Megan Balks, Department of Earth Sciences (chairperson), University Waikato, Hamilton, New Zealand

* Two Deputy Chief Officers are identified because of the expected heavy workload associated with this expert group.

Summary

Neither the Science Committee for Antarctic Research (SCAR) nor the International Permafrost Association (IPA) effectively reach the entire Antarctic permafrost community. Given the important role played by permafrost and periglacial activity in Antarctic landscape dynamics, weathering, soil biogeochemical processes and biodiversity, and human activities (e.g. construction, disturbance, contaminant behaviour) there is a need to bring both groups together under the auspices of a single and expanded working group. Thus the main recommendation of the Permafrost Action Group (PAG) is the creation of a SCAR Expert Group on Permafrost and Periglacial Environments (EGPPE). This expert group will report to the Standing Science Group on Geoscience but has the added value of involving experts from both the Life and Physical Science SSGs. It will also have direct links with the IUGS International Permafrost Association, the WCRP CliC Programme, WMOs GTOS Programme and IPY.

The aims and workplan of the Expert Group are available from the full GSSG report www.scar.org/members/XXVIII/delegatespapers/12rptgeoscience.pdf

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

Convener: Hans Werner-Schenke

Background: The topography of the Southern Ocean surrounding Antarctica is still largely unknown. Sea floor topographic maps are important for many areas of research and for safe navigation. The survey activities of modern icebreaking vessels during the last decade using multibeam systems have increased the data availability, making it possible for compilations of new bathymetric charts around Antarctica.

Terms of References

The Expert Group on the new International Bathymetric Chart of the Southern Ocean (IBCSO) will develop new compilations of bathymetric data.

Antarctic Digital Magnetic Anomaly Project (ADMAP)

Convener: Marta Ghidella

Background:

The ADMAP multinational project was created in 1995 under the auspices of SCAR and IAGA (International Association of Geomagnetism and Aeronomy). It operated during several years working on the compilation of the Antarctic magnetic anomaly data. The latest results of

ADMAP have been the publication a map and the production a special issue of *Tectonophysics* with related papers (Magnetic Anomalies of the Antarctic, Vol. 347, 2002). The map, in digital form, as well as the corresponding grid, is available from www.geology.ohio-state.edu/geophys/admap

The ADMAP group now intends to become an Expert Group with the major objective of maintaining the data base and making it a permanent tool available to the scientific community.

Terms of reference:

Understanding the magnetic anomaly field of the Earth's crust is of fundamental importance for understanding geological processes. Considering that numerous magnetic surveys have been carried out by various institutions, the ADMAP group aims to produce a coordinated effort for:

- Compiling the existing magnetic data acquired by various institutions
- Coordinating protocols for data distribution
- Serve as a reference for future survey planning
- Archiving and maintaining the magnetic anomaly data base of Antarctica

Antarctic Neotectonics (ANTEC)

Convener: Terry Wilson, Ohio State University, USA

Background: ANTEC was approved by SCAR in 1998 at the meeting in Chile. The group was appointed by the executive in 1999. ANTEC thematic symposia have been held each year at international meetings (European Geophysical Society; European Union Geology; American Geophysical Union); a major science planning workshop was held in 2001; and poster sessions and workshops have been convened at SCAR meetings in 2002 and 2004. Given the existence of ANTEC for some years, the GSSG thought it appropriate that ANTEC continue as an Expert Group for another 2 years in its present form rather than be further developed as a Program.

Terms of Reference: The ANTEC group promotes and coordinates multidisciplinary, multinational research relevant to Antarctic neotectonics.

Confirmed Expert Group

The Expert Group on Geospatial Information was confirmed as continuing for the period 2004-06 with the existing 2 sub-programmes of Geographic Information and Geodesy (GIANT) also continuing (with updated project plans)

Geospatial Information - Geographic Information

Convener: Steffen Vogt (Germany)

Terms of Reference: Understanding that geographic location is a fundamental element for

integrating and communicating Antarctic science knowledge, the GI group aims to create an Antarctic spatial data infrastructure (ANTSDI) by:

- * Providing Antarctic fundamental geographic information products and policies in support of all SCAR science programs and operations management
- * Integrating and coordinating Antarctic mapping and GIS programs
- * Promoting an open standards approach to support free and unrestricted data access
- * Promoting capacity building within all SCAR nations

The projects of the Geographic Information programme are:

1. Place Names (SCAR CGA)
2. Topographic Database (SCAR ADD)
3. Map Catalogue (SCAR MapCat)
4. King George Island GIS (SCAR KGIS)
5. Spatial Data Model
6. Geospatial Information - Enabling Technologies
7. Cybercartographic Atlas of Antarctica
8. GIS Collaboration in East Antarctica
9. Antarctic Data Linkages

Geospatial Information - Geodetic Infrastructure of Antarctica (GIANT)

Convenor: Reinhard Dietrich (Germany)

Terms of Reference:

- * Provide a common geographic reference system for all Antarctic scientists and operators.
- * Contribute to global geodesy for the study of the physical processes of the earth and the maintenance of the precise terrestrial reference frame
- * Provide information for monitoring the horizontal and vertical motion of the Antarctic.

Projects of the GIANT programme are:

1. Permanent Observatories
2. Epoch Crustal Movement Campaigns
3. Physical Geodesy
4. Geodetic Control Database
5. Tide Gauge Data
6. Atmospheric Impact on GNSS Observations in Antarctica in relation to Geophysical research
7. Ground Truthing for Satellite Missions
8. Geodetic Advice on positioning limits of special areas in Antarctica
9. In-situ GNSS Antenna Tests and Validation of Phase Centre Calibration Data
10. High Accuracy Surface Change and DEM's from Satellite and Airborne Imagery
11. High Accuracy Kinematic GPS Positioning

GSSG Funding 2005-06

Project	Bid 2005	Bid 2006	Actual 2005	Actual 2006
Cyberatlas meeting	3,000	3,000	1,000	1,000
Place names	2,000	2,000	1,000	1,000
Ant. Digital Database	3,000	3,000	1,000	1,000
Communication & outreach	1,000	1,000	1,000	1,000
ADMAP	8,000	8,000	1,000	2,000
IPY Initiatives	8,000	8,000	1,000	1,000
Atmospheric impacts on GNSS	2,000	2,000	1,000	2,000
ISO TC211 representation	2,000	2,000	500	1,000
ANTEC (Transfer from 2004)	10,000	10,000	4,000	1,000
Antarctic GIS workshop	8,000	0	3,500	0
GNSS Antenna calibration	500	500	500	500
IBSCO	4,000	4,000	1,000	2,000
High accuracy DEMs	2,500	2,500	500	1,500
Totals	\$54,000	\$38,000	\$17,000	\$15,000

Full report is available from: www.scar.org/members/XXVIII/delegatespapers/12rptgeoscience.pdf

SCAR News

Changes in SCAR

C G Rapley and R Schlich completed their terms of Office. M C Kennicutt II (United States) and H Shimamura (Japan) were elected as Vice-Presidents of SCAR for the period 2004-08. G Kleinschmidt and S-H Lee had resigned from the Standing Finance Committee and Delegates approved the appointments of R Dietrich (Germany) and T J Wilson (United States).

Appointment of XXVIII SCAR Finance Committee

The Standing Finance Committee was augmented by the appointment of J Valencia (Chile) and F J Davey (New Zealand) to complete the XXVIII SCAR Finance Committee.

Swiss application for Full Membership

The Delegate from Switzerland, C Schlüchter, presented the Swiss application for Full Membership of SCAR [Paper 04]. The Delegates discussed the application in closed session and agreed that Switzerland should be admitted to Full Membership. The President congratulated C Schlüchter and welcomed Switzerland as a Full Member of SCAR.

Malaysian application for Associate Membership

The Delegate from Malaysia, A A Samah, presented the Malaysian application for Associate Membership of SCAR. The Delegates discussed the application in closed session and agreed that Malaysia should be admitted to Associate Membership.

New SCAR Executive Officer

Dr. Marzena Kaczmarek joined the SCAR Office at the Scott Polar Research Institute in Cambridge, UK, on June 1st 2005 to take over from Peter Clarkson. Further information can be found on the SCAR web site at: <http://www.scar.org/about/officers/executivecommittee/executiveofficer.html>

CGA News

The Composite Gazetteer of Antarctica (CGA) is an international compilation of all geographical names used in Antarctica. The work is being performed in the framework of the Scientific Committee on Antarctic Research (SCAR). SCAR committed the CGA to Italy in 1992 at its 22nd Meeting held in Bariloche.

Data are introduced in a general database which is available on the web at the site

www3.pnra.it/SCAR_GAZE where some search facilities are provided as well.

Data are also available on a printed form consisting in two volumes issued in 1998 plus a supplement which was delivered in July 2004 at the 28th SCAR Meeting in Bremen.

The database is updated quarterly, the last updating having been on 1 April 2005. At that time 17675 different features were stored in the database corresponding to 35279 geographical names. The geographic border of the CGA is the latitude 60° south.

The database contains data from 22 Countries plus the undersea data from the General Bathymetric Chart of the Ocean (GEBCO).

The routine work performed by the Italian team, based at Consorzio PNRA in Rome, mainly consists of: adding new features or new names (given to some already named feature), adding to the existing names a description of the feature and the date of approval of the name; detecting and correcting misspellings, mistakes, inconsistencies.

Source of the information are the representative of the Countries in the SCAR, which in turn obtain the basic information from their National Geographic Boards. The link between the Italian team and the representatives in SCAR is at the moment suffering from the recent adoption of a new SCAR structure. Nevertheless the compilation work progresses due to the unceasing commitment of the previous national experts.

Contact point: chiara.ramorino@enea.pnra.it.

ACE News

As you are probably aware, the science plan for the ACE (Antarctic Climate Evolution) scientific research programme (SRP) was approved by the SCAR Delegates at their meeting in Bremerhaven in October 2004. The programme will last for 6 years and be subject to periodic review. The next stage is to prepare an Implementation Plan which, along with the implementation plans for the other SRPs, will be considered by the SCAR Executive at their meeting in Sofia, Bulgaria in July 2005. We imagine that the implementation plans will be fairly brief documents, but they must set out clearly who will be doing what within the programme, the expected scientific outcomes, the timescale of the programme and the milestones.

Since the actual research will be carried out by the National Programmes I am contacting you

now to get the above information for ACE. To collect the information in a fairly standard format I've attached a proforma which I would be grateful if you could complete as best you can. (see below)

It's broken down into the following time themes of ACE (with leaders in parentheses) dealing with ice sheet and climate histories during (1) the LGM-Holocene (Tony Payne); (2) the Pleistocene (Tim Naish); (3) the Miocene and Pliocene (Alan Haywood); (4) the Oligocene-Miocene transition (Rob DeConto); and (5) the Eocene and Oligocene (Jane Francis).

The intension is to assemble geological data for each of these time periods, and use numerical modelling to test geologically-based hypotheses regarding ice sheet and climate history.

The full science plan for ACE can be found on the SCAR web site, and our own website at:

<http://www.scar.org/researchgroups/>
<http://www.ace.scar.org>

I realise that it's difficult to produce detailed plans for work covering the next 5 years, as funding may not be guaranteed for this period. However, any information that you can give would be of value.

I would be grateful for responses as soon as possible so that I can prepare the implementation plan in advance of the SCAR Executive meeting.

Please let me know if you have any questions.

Best wishes

Professor Martin Siegert
Co-Chair ACE (Antarctic Climate Evolution)
February 2005

**Expected National Scientific Contributions to the
SCAR Scientific Research Programme**

Antarctic Climate Evolution (ACE)

Nation -

Form completed by (name, institute) -

Timeframe 1 - LGM-Holocene

Scientific Activities

Implementation/methodology i.e. planned field work, modelling studies

Who will undertake these activities?

Expected scientific outcomes/deliverables

Timescale

Milestones

Timeframe 2 - the Pleistocene

Scientific Activities

Implementation/methodology i.e. planned field work, modelling studies

Who will undertake these activities?

Expected scientific outcomes/deliverables

Timescale

Milestones

Timeframe 3 - the Miocene and Pliocene

Scientific Activities

Implementation/methodology i.e. planned field work, modelling studies

Who will undertake these activities?

Expected scientific outcomes/deliverables

Timescale

Milestones

Timeframe 4 - the Oligocene-Miocene transition

Scientific Activities

Implementation/methodology i.e. planned field work, modelling studies

Who will undertake these activities?

Expected scientific outcomes/deliverables

Timescale

Milestones

Timeframe 5 - the Eocene and Oligocene

Scientific Activities

Implementation/methodology i.e. planned field work, modelling studies

Who will undertake these activities?

Expected scientific outcomes/deliverables

Timescale

Milestones

OTHER NEWS

Atlas of Antarctic Sea Ice Drift

This project was aimed at developing a digital Atlas of Antarctic Sea Ice Drift which provides a comprehensive view of sea-ice motion around Antarctica - as a reference for contemporary ocean and climate modelling. The Atlas provides statistics on the state of sea-ice cover for numerical weather forecasting models and ship routing, as well as a detailed error analysis, such that the data are of practical value in sea-ice model data assimilation.

The Atlas is based on data covering almost two decades starting at 1979, and focusses on sea ice variability over periods ranging from submonthly to interannual. The data analysis takes advantage of algorithms developed for ice drift using data from passive microwave sensors on polar-orbiting satellites as well as on drifting buoy data gathered within various national programs and within the International Programme for Antarctic Buoys (IPAB).

The graphical presentations involve various combinations of sea ice variables, periods and years, being commonly georeferenced in a geographic information system. They also comprise ice concentrations from SSM/I and weather data from NCEP Reanalysis. A download area provides access to the underlying data in digital form and can be used under the

conditions specified in the data agreement, as follows: The use of the included data and images is free and should be acknowledged in the following way if there are no other statements given:

C. Schmitt, Ch. Kottmeier, S. Wassermann, M. Drinkwater: Atlas of Antarctic Sea Ice Drift, 2004. The work was performed at the Institut fuer Meteorologie und Klimaforschung, Universitaet Karlsruhe by funding of the Deutsche Forschungsgesellschaft (DFG) Project Ko924/3-1.

Published under: <http://imkhp7.physik.uni-karlsruhe.de/~eisatlas>

JCADM Review

SCAR and COMNAP have undertaken a review of the Joint SCAR / COMNAP Committee on Antarctic Data Management (JCADM) (<http://www.jcadm.scar.org/> and <http://www.scar.org/researchgroups/jcadm/rev.iew.html>) Texel, March 31 - April 1, 2005. JCADM brings together the managers of National Antarctic Data Centres, and is responsible for management of the Antarctic Master Directory (AMD), hosted by NASA's Global Change Master Directory (GCMD). The AMD is intended to comprise a one-stop-shop for access to the metadata that concern Antarctic data sets.

The Review Team noted that

- i. There are now over 3000 entries in the AMD [1326, July 2001; 2116, July 2002; 2544, April 2003; 2966, June 2004; 3094, March 2005];
- ii. The number of countries adding metadata has increased from 9 in 2002 to 19 in 2005;
- iii. The number of AMD users has grown from 100/month in Jan 2003 to 450/month in March 2005;
- iv. A number of countries have set up national portals with the AMD (2 in 2002, to 15 now).

A report on JCADM will be finalised by the end of May for submission to the meetings of the SCAR and COMNAP Executive Committees in Sofia, Bulgaria, in July.

The Review Team comprises:

- Lesley Rickards, BODC, IODE
- Alessandro Capra, Geosciences SSG
- Maurizio Candidi, Physical Sciences SSG
- Ad Huiskes, Life Sciences SSG
- Berry Lyons, Director Byrd Polar Res Centre, Ohio State.
- Colin Summerhayes, SCAR
- Ted Scambos, National Snow and Ice Data Centre, Colorado Uni.
- Anders Kalqvist, representing COMNAP
- Heinz Miller, representing COMNAP

United States Polar Rock Repository

The United States Polar Rock Repository (USPRR) is a national facility at the Byrd Polar Research Center, Ohio State University. It is supported by the National Science Foundation Office of Polar Programs. The repository houses rock collections from polar regions for use by researchers and educators around the world. The repository also contains associated materials such as field notes, annotated photos and maps, raw analytic data, paleomagnetic cores, ground rock and mineral residues, thin sections, microfossil mounts, microslides and residues. The USPRR was opened in October 2003 and has been acquiring rock samples from geologists since that time. All information about the samples is available in an online database: <http://bprc.mps.ohio-state.edu/rr/samples/>

Sample splits can be requested by researchers for analysis.

UPCOMING MEETINGS

SCAR - COMNAP Joint Executive meeting

To be held in Sofia (Bulgaria) from 11-14 July 2005

International Conference on Glacial Sedimentary Processes and Products

22-27 August 2005, Aberystwyth, United Kingdom
Sponsor: International Association of Sedimentologists (IAS)

Co-sponsors: International Commission of Snow and Ice (ICSI), International Glaciological Society (IGS), International Quaternary Association (INQUA), Antarctic Climate Evolution (ACE), Scientific Commission on Antarctic Research (SCAR), Quaternary Research Association (QRA), British Geological Survey (BGS)

The aim of this conference is to promote dialogue between researchers in the fields of contemporary glacial processes, glacial sedimentology and ice sheet modelling in order to advance these fields in an integrated way. Contributions are invited from researchers working on all aspects of glacial sedimentary processes and products, covering glaciomarine, glaciolacustrine and terrestrial settings, from Archaean times to the present day.

Full conference details and delegate booking forms can be found at the conference website: <http://www.aber.ac.uk/visitors/glaciology/>

Dynamic Planet 2005

22-26 August 2005, Cairns, Australia

The 2005 [IAG/IAPSO/IABO Joint Assembly](#) will offer a scientific program encompassing the most recent advances in geodesy, oceanography and marine biology. The dynamic nature of our planet naturally creates interactions of life within the oceans, the oceans themselves and the continents and many of the symposium sessions cover interdisciplinary themes. Particular session on *Oceanography and Geodesy In Polar Regions*

See the conference web site at <http://www.dynamicplanet2005.com/> for further information.

Sixth International Conference on Geomorphology

September 7-11 2005, Zaragoza, Spain.
Organized by the International Association of
Geomorphologists.
It includes an Special Session on Antarctic
Geomorphology. General information and Second
Circular at the web site of the conference:
<http://wzar.unizar.es/actos/SEG>

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

XXIX SCAR

Will be held in Hobart, Australia. The Science
Week will be held in Hobart from 9-14 July 2006.
Further details on the meeting will be discussed
at the upcoming SCAR-COMNAP meeting in July
2005 in Sofia, Bulgaria.