



XXXI SCAR Delegates Meeting

Buenos Aires, Argentina, 9-11 August 2010

Agenda Item: 5.4

Person Responsible: M.Sparrow
(on behalf of
H. Brolsma)

**SCAR Standing Committee on Antarctic
Geographic Information (SCAGI)**

Executive Summary

Title: SCAR Standing Committee on Antarctic Geographic Information (SCAGI)

Authors: H. Brolsma, A. Fox, R. Cervellati

Relevant URLs or references to other reports: <http://www.antsdi.scar.org/eggi>, WP10 (SCADM report)

Introduction/ Background: All work in Antarctica relies on a consistent geographic framework, and the main function of the Standing Committee on Antarctic Geographic Information (SCAGI) is to manage and improve the geographic framework not only for Antarctic scientific research but also for other activities including operations, environmental management and tourism. SCAGI continues to deliver a range of Geographic Information products through its various projects. These products include the SCAR Composite Gazetteer of Antarctica, the SCAR Antarctic Digital Database, the SCAR King George Island GIS Database, the SCAR Map Catalogue and SCAR Feature Catalogue. SCAGI integrates topographic and names information received from national Antarctic programs into the SCAR ADD and SCAR Composite Gazetteer of Antarctica. SCAR / SCAGI in keeping with Article III.1.c of the Treaty that Scientific observations and results from Antarctica shall be exchanged and made freely available promotes an open standards approach to support free and unrestricted data access and develops the respective specifications.

Important Issues or Factors: Too much work being done by too few SCAGI members – this is not sustainable.

Both the SCAR CGA and SCAR ADD need editing and metadata added for them to comply with the SCAR Data and Information Management System (DIMS)

SCAR Composite Gazetteer Antarctica:

1. Needs radical improvement before it can be used at large scales in software such as Google Earth. Requires input from all countries.
2. Suggestions and requests for improvement are either ignored, agreed to but not followed up on or there is an unwillingness to change anything.

SCAR Antarctic Digital Database:

1. SCAR ADD needs metadata to be added to it. This is not an onerous task.
2. Little geographical information is being received to keep it up to date and relevant. Requires input from all countries.

SCAR DIMS:

In enquiries to SCAGI members it appears little data is being shared or metadata being written so that data can be discovered.

Recommendations/Actions and Justification: Delegates need to make themselves familiar with the work that SCAGI does and encourage their national representatives to become involved with and contribute data to SCAGI products.

Expected Benefits/Outcomes: The SCAR Executive requested that SCAR products be promoted so that there would be a wider use and awareness of them within the SCAR community. If the actions suggested in SCAR DIMS were taken up by SCAGI members then users could have confidence in the SCAR CGA and SCAR ADD.

Partners: SCADM, SCAR member countries

Budget Implications: For the SCAR CGA and SCAR ADD to be improved, it requires that, either SCAGI members take on the necessary work or the work is outsourced. Continuation of \$4k a year allocation.

SCAR Standing Committee on Antarctic Geographic Information (SCAGI)

Update to meeting report of Amsterdam, September 7 to 9, 2009

Table of Contents

1. Background	4
2. Introduction	4
3. SC-AGI Meeting	5
Project Reports	5
Coastal Change and Glaciological Maps of Antarctica Project	5
Names Projects	6
Aerial Photography	6
Cybercartographic Atlas.....	6
SCAR Composite Gazetteer of Antarctica and SCAR Map Catalogue	6
GEBCO/IBCSO	7
AGIC and Antarctic Mapping	7
Antarctic Digital Database	8
Other Issues.....	8
Election of SCAGI deputy chief officers	8
SCAGI Website.....	8
King George Island GIS.....	8
Appendix 1 – SCAGI Attendees.....	10
Appendix 2 – Report on Antarctic Digital Database.....	11

1. Background

All work in Antarctica relies on a consistent geographic framework, and the main function of the Standing Committee on Antarctic Geographic Information (SCAGI) is to manage and improve the geographic framework not only for Antarctic scientific research but also for other activities including operations, environmental management and tourism.

SCAGI continues to deliver a range of Geographic Information products through its various projects. These products include the SCAR Composite Gazetteer of Antarctica, the SCAR Antarctic Digital Database, the SCAR King George Island GIS Database, the SCAR Map Catalogue and SCAR Feature Catalogue.

SCAGI integrates topographic and names information received from national Antarctic programs into the SCAR ADD and SCAR Composite Gazetteer of Antarctica. SCAR / SCAGI in keeping with Article III.1.c of the Treaty that *Scientific observations and results from Antarctica shall be exchanged and made freely available* promotes an open standards approach to support free and unrestricted data access and develops the respective specifications.

The Chair Officer of SCAGI is Henk Brolsma (henk.brolsma@aad.gov.au) and the Deputy Chief Officers are now Adrian Fox (ajfo@bas.ac.uk) and Roberto Cervellati (roberto.cervellati@consorzio.pnra.it).

2. Introduction

The third intersessional meeting of SCAGI was held at the Trippenhuis in Amsterdam from the 7 to 9 of September 2009. The meeting was held in parallel with the Standing Committee on Antarctic Data Management (SCADM), with many of the sessions being held jointly. SCAGI would like to thank the Royal

Netherlands Institute for Sea Research (NIOZ) and the Netherlands Organization for Scientific Research (NWO) for hosting the meeting and the official dinners.

During the joint session with SCADM Certificates of Appreciation were awarded to Roberto Cervellati and Chiara Ramorino for their long-standing work on the SCAR Composite Gazetteer of Antarctica (SCAR CGA).

There were thirteen attendees at the SCAGI-only sessions of the meeting, including invited experts (see Appendix 1 for full list). Apologies were received from New Zealand and Poland. Unfortunately there was a clash with the Latin American Congress of Antarctic Research in Ecuador and so no Latin American representatives were present. Henk Brolsma, the SCAGI chair, noted that we would work with our Latin American colleagues to try to ensure such meetings do not clash in the future.

3. SC-AGI Meeting

Henk Brolsma, the SCAGI chair, opened the first SC-AGI only session by introducing the topics to be covered. In particular there were several outstanding issues for which solutions were required:

- i) hosting of the SCAGI web site. The web site is rather large and complex, and now needs to be hosted somewhere other than the University of Freiburg;
- ii) although progress has been good greater effort is needed from some Members to share SCAGI-related data;
- iii) SCAGI needs to work more closely with COMNAP on GISs and topographic surveys;
- iv) the GIS for King George Island (KGI) also needs to be moved from the server at Freiburg University so as to make it more useful for the KGI community. A volunteer institution is being sought.

Henk also noted that the draft Rules of Procedure for SCAR Working Groups would need to be modified to include, e.g. the need for two new deputy chief officers.

ACTION: SCAGI Chief Officers to review draft Rules of Procedure for SCAR Working Groups with regards to SCAGI.

ACTION Completed

SCAGI's membership has risen to 26 with the most recent new member being Ecuador, which is an important development.

Mike Sparrow, the SCAR Executive Officer (now Executive Director), summarised issues of relevance to SCAGI that arose from the SCAR Executive Committee Meeting (EXCOM) held in Punta Arenas in August. EXCOM recognised that SCAGI has demonstrated significant progress since its migration from an Expert Group to a Standing Committee. EXCOM welcomed these developments, endorsed plans to reorganise the web site and solve the KGI GIS problem, and applauded the developing close cooperation with SCADM. Mike mentioned the need to highlight SCAGI products such as the Antarctic Digital Database (ADD). One example where this could be done is on the new SCAR website that will be developed over the next year.

Project Reports

Coastal Change and Glaciological Maps of Antarctica Project

Jerry Mullins gave an overview of the USGC Coastal-Change and Glaciological Maps of Antarctica Project (see <http://pubs.usgs.gov/imap/2600/>).

ACTION: Jerry Mullins to contact Jane Ferrigno to ensure details of the USGS digital maps are entered into the SCAR Map Catalogue.

Active - liaison with Dan Sechrist

Henk Brolsma sent Jane Ferrigno, map distribution list 14 December 2009. No further contact to date.(3 May 2010)

Maps have been circulated and received.

Names Projects

Henk Brolsma gave an update on the Larsemann Hills names project .

***ACTION:** Henk Brolsma to send information on Larsemann hills names project project to Chiara Ramorino for inclusion in SCAR CGA.*

Data ready for upload – will advise Chiara when this is done.

Active – will be completed by mid May 2010

Additional fields completed by HB on 11 June 2010.

Prof Ed Dongchen advised on 11 June 2010.

Ai Songtao summarised progress with the *Grove Mountains names project*. This project has now been expanded to include other areas, such as the Amery Ice Shelf and Dome A (the PANDA IPY project). For the moment the website is only available in Chinese, but the plan is to produce an English version.

***ACTION:** Ai Songtao to send link of PANDA website to Chief Officer for inclusion in SCAGI web site.*

With regards to the Allan Hills Project Henk Brolsma will liaise with Jerry Mullins with regards to new sets of coordinates to be sent to the US Names Committee.

***ACTION:** Henk Brolsma to liaise with Jerry Mullins with regards to new sets of coordinates to be sent to the US Names Committee.*

Matter was to be tabled for consideration in late April 2010 by the US Advisory Committee on Antarctic Names.

Reply received on 18 May 2010 - draft cooperative work plan received for determination of coordinates for USA and Australian common names in the Australian Antarctic Territory.

***ACTION:** Henk Brolsma to send around a paper on how data should be formatted with names for SCAR CGA.*

Active – draft paper to Chiara and Roberto for editing.

Aerial Photography

Henk Brolsma commented that the Australian project on the History of Aerial Photography in Antarctica would need to be withdrawn from the list of national projects as the project leader, now retired, was not able to commit to the project.

Adrian Fox noted that the British Antarctic Survey is in the process developing a web browser to discover aerial photography. The USGS is in the process of scanning all aerial photography with Paul Morin compiling that information and associated flight lines for all aerial photography in Antarctica. A discussion was held on the metadata that should be included on flight line information, something that interested parties would discuss further offline.

***ACTION:** Paul Cooper to send updated TMA and RARE flight lines updated by BAS using more recent map data.*

***ACTION:** Jerry Mullins to send estimate on cost of scanning aerial photography after receipt of information from Henk Brolsma, Adrian Fox and Jean-Yves Pirlot on the number and type of rolls of aerial photography.*

Active – email to Adrian and Jean Yves reminding them of this action item.

Cybercartographic Atlas

Henk Brolsma noted that this project was being withdrawn, due to lack of funding for the project. Comment was also made that technological innovations such as Google Earth that were not available when the project was originally proposed have made many aspects of the project redundant.

SCAR Composite Gazetteer of Antarctica and SCAR Map Catalogue

Roberto Cervellati gave a presentation on the SCAR Composite Gazetteer of Antarctica (CGA) – see <http://data.aad.gov.au/aadc/gaz/scar/>. A major task this year has been the transfer of the SCAR CGA from Italy to AAD.

ACTION: Henk Brolsma to send an email to SCAGI contacts about the fields in the SCAR CGA.

Completed.

ACTION: Henk Brolsma to remind SCAGI representatives to make their major maps (those they would normally distribute) available to the SCAR Map Catalogue and if possible to make any new data available to the SCAR ADD via Paul Cooper.

Completed – revised map distribution list completed and circulated.

General Bathymetric Chart of the Oceans (GEBCO)/ International Bathymetric Chart of the Southern Ocean (IBCSO)

Norbert Ott gave the group an update on GEBCO/IBCSO (<http://www.ibcso.org/>).

ACTION: Henk Brolsma to liaise with Hans Werner and Norbett Ott (GEBCO and AWI) when they determine the limits of under sea features.

No communication from AWI on extents of undersea features as at 20 May 2010.

Report received on 24 May 2010 from Hans Werner Schenke:

Progress report from GEBCO expected after the SCUFN meeting in September 2010.

Antarctic Geospatial Information Centre (AGIC) and Antarctic Mapping

Paul Morin presented work on Antarctic mapping, MODIS mosaics and USGC air photography.

(i) Daily Antarctic MODIS Mosaics

Daily MODIS mosaics of Antarctica are now available from the NASA Rapid Response website in near- real time at: <http://rapidfire.sci.gsfc.nasa.gov/subsets/?mosaic=Antarctica>. A complete mosaic of previous day(s) can be viewed by clicking on the "Prev" button on the top of the page.

Each day a set of true color images are generated from data from the Terra and Aqua satellites at 4km, 2km, 1km and 250m resolutions along with a 367 false-color image generated from Terra. By clicking on each individual tile within the mosaic, a page featuring that tile will come up, and the 250m image for that tile can be downloaded.

The images are mapped using the Polar Stereographic projection with origin at 0 longitude and -90 latitude with a -71 standard parallel (also known as EPSG code 3031). Each one of the files can be downloaded with the metadata file and directly used in GIS and remote sensing software for integration into other products and services.

Information on using the mosaic image in GIS and image processing software packages is available on the FAQ page <http://rapidfire.sci.gsfc.nasa.gov/faq/>.

(ii) USGS Antarctic Air Photography

The USGS Antarctic Resource Center has completed the medium resolution scans of their entire air photography collection from 1947 to the present of 330,000 photos. All photos have been placed online with known digitized flight lines and calibration information by the Antarctic Geospatial Information Center and can be downloaded from <http://www.agic.umn.edu/imagery/aerial>. If requested, all of the images can be written to a 2tb hard disk and shipped to researchers and other programs. Contact Michelle LaRue at larue010@umn.edu for more information.

ACTION: Henk Brolsma to liaise with Paul Morin with regard to what is required re finding maps via Google search, specifically (i) Paul Morin to draft and register a page on searching for Antarctic Maps. (ii) SCAGI members to provide information as to what are the key maps, Digital Elevation Models, key scanned paper maps etc.

Note that the draft page can be found at: <http://www.agic.umn.edu/?q=resources/mapping>

ACTION: Henk Brolsma and Paul Morin to produce a one page summary on how to deliver maps in a format useful for Google Earth

ACTION: Mike Sparrow to Liaise with Paul Morin re producing a SCAR News Item about satellite/photo data available.

Completed.

ACTION: *Adrian Fox and Paul Morin will carry out an initial audit examining what DEM (Digital Elevation Model) products are available in SCAGI areas of interest.*

Awaiting reply.

Antarctic Digital Database

Paul Cooper gave a presentation on progress and issue with the SCAR Antarctic Digital Database (ADD) - see www.add.scar.org and Appendix 2. Paul identified a number of issues, including the potential revision of the SCAR ADD using LIMA (<http://lima.usgs.gov/>) and the creation of ISO 19115 metadata for SCAR ADD features.

Paul Cooper reported that if modern metadata standards were to be written for the original SCAR AAD data it would require approximately two person years to complete. Chief Officer Henk Broolsma replied that this wasn't necessary as there was a hard copy "metadata" record also available in PDF format for the SCAR ADD and all that was required was for a metadata record for the SCAR ADD to be entered with the hard copy description of the data attached. New topographic data came with metadata record attached and in time would replace the earlier topographic information.

ACTION: *Paul Cooper to write metadata record for the SCAR ADD (AADC can assist if required) and Paul to insist all new data for the SCAR ADD come with metadata attached otherwise data cannot be added to the SCAR ADD.*

Active.

Scale of capture data - Suggestions sent to Paul for addition of metadata. Countries to assist with metadata by sending title, entry ID and URL for each record.

SCAR ADD metadata

Suggestion as above. Details will be sent to meeting for consideration.

Other Issues**Election of SCAGI deputy chief officers**

Adrian Fox and Roberto Cervellati were elected by acclaim as co-chief officers of SCAGI. Roberto noted that he would be willing to stand aside at a future meeting if another (preferably non-European) SCAGI member wished to be considered for the post.

Active – Roberto now responsible for improving contact with South American countries.

SCAGI Website

The SCAR web site is rather large and complex, and now needs to be hosted somewhere other than the University of Freiburg since it has been impossible to contact the German SCAGI representative.

ACTION: *SCAR SCAGI Website: (i) Henk Broolsma to draft letter to University of Freiberg asking them to send information on AntSDI and to close website down (ii) move website to new SCAR website with CMS when available*

Active – waiting for reply from Freiberg University. Letters, emails written by SCAR head office to Freiberg University and SCAR delegate for Germany requesting solution to the problem – no response as of 15 June 2010.

King George Island GIS

SCAGI needs to develop a GIS / Web Map Server for King George Island GIS similar to that developed by Steffan at Freiburg University (<http://www.kgis.scar.org/mapviewer/kgis.phtm>). This service has the potential to be useful not only to SCAR but to other groups such as COMNAP and the ATS.

ACTION: *Mike Sparrow to provide contact to KGI Action Group to Adrian Fox. Adrian to liaise with Sergio Marensi with regards to liaison between KGI AG and KGI GIS.*

Completed.

Future of the KGI Action Group will be discussed at the SCAR Delegates meeting in Buenos Aires.

***ACTION:** SCAGI COs and SCAT Secretariat to work on finding a host country for the KGI GIS from the ten nations represented on the island.*

Active – letters sent. No response to date (20 May 2010).

Appendix 1 – SCAGI Attendees

SCAGI Members

Australia -	Henk Brolsma (Chair)
Belgium -	Jean-Yve
China -	DongChen
	Ai Songtao
France -	Elisabeth Calvarin
Italy -	Roberto Cervellati
	Chiara Ramorino
United Kingdom -	Adrian Fox
	Paul Cooper
USA -	Jerry Mullins
SCAR Secretariat -	Mike Sparrow

Invited Experts

AGIC -	Paul Morin
GEBCO -	Norbert Ott

Appendix 2 – Report on Antarctic Digital Database

Report on the Antarctic Digital Database Standing Committee on Antarctic Geographic Information, Amsterdam, Holland, 7-9 September 2009.

Introduction

The Antarctic Digital Database (ADD) is a compilation of topographic and other information for Antarctica. It was originally compiled in 1990-1993, and released on CD in 1993. Since then it has passed through five successive versions, being first released on the Internet in 1997. In Summer 2007, the most recent version (5) was released through a completely revised web-site, with many new features. This report summarizes developments since the last meeting of SC-AGI in St Petersburg in July 2008.

Usage

Since July 2008, 345 persons have registered to download data from the ADD. The table at the end of the report breaks the number persons registering down by country. Approximately 16,000 people have entered the ADD web-site during the same period.

New developments

Since the last meeting of SC-AGI, only one change to the ADD has been noted on the ADD's web-site. The web-site has been updated to use the "OpenLayers" software to view maps of Antarctica, and as part of this change, links have been added to the USGS web servers for the Landsat Image Mosaic of Antarctica (LIMA). Despite this being the only change made since the last meeting of SC-AGI, it provides a considerable improvement to user's experience of the ADD, and provides access to LIMA seamlessly with the ADD through the map browser on the ADD web-site.

All changes are detailed in the "News" link on the ADD web-site. Change on the ADD web-site is driven by several forces, including advice tendered by SC-AGI at its meeting, user suggestions and new data sources becoming available.

Future developments

The ADD will continue to develop in the ways already outlined through incremental improvements to the technology and user interface of the web-site, adoption of new data and maintenance of existing data and functionality. The following headings will provide an overview of expected developments:

New data

Incorporation of new data for the Antarctic Peninsula is an ongoing project. All members of SCAR should notify the manager of the ADD of digital map data suitable for inclusion in the ADD. Guidelines for assessing suitability are:

Does the organization offering the data own the intellectual property rights for the data?

Is the map source original (that is, not based on data already incorporated in the ADD)

Is the map data an improvement on the data included in the ADD already (that is, are the data at a larger scale or based on more reliable source information than that already used by the ADD)

Does the data cover a significant area? For example, base plans do not cover a sufficiently large area for inclusion in the ADD.

In the longer term, a new coastline and rock outcrop layer for many areas should be derived from the Landsat Image Mosaic of Antarctica (LIMA). This will be a major project, but areas where the existing coastline is of poor quality (e.g. the coast adjacent to the Amundsen and Bellingshausen seas) will be targeted first. Areas where existing mapping is of good quality will not be revised in the short term; in such areas differences between the ADD and LIMA are probably because of real change in the coast (see Issues paper).

New data layers will be incorporated as they become available; data already available includes a database of lakes for the Antarctic Peninsula and a database of sub-glacial lakes for the whole of Antarctica.

Data for further sub-Antarctic Islands will be incorporated as they become available. BAS has new mapping for the South Sandwich Islands in preparation, and data for Marion Island is available, but in a form that will require substantial effort to incorporate in the ADD. No data has been supplied by other nations as yet, and in

one case the response from the mapping agency has been that the data can only be made available on commercial terms.

New functionality

A means of watermarking image data provided by the ADD will be considered, to ensure that images are correctly attributed. This is increasingly urgent, as the ADD now provides map data in a form readily used on the Internet. I have already had to insist on acknowledgment in one case where I found images from the ADD being used without suitable credit being given.

Maintenance

The site will continue to be maintained and bugs fixed as they arise.

A Paul R Cooper
01 September 2009

Table of registrations since SC-AGI meeting in St Petersburg, July 2008

country¹	Number of registrations
UNITED STATES	94
UNITED KINGDOM	44
AUSTRALIA	22
NEW ZEALAND	17
ARGENTINA	15
BRAZIL	14
GERMANY	12
CANADA	11
CHILE	11
CHINA	10
FRANCE	9
SPAIN	9
NORWAY	8
ITALY	7
SOUTH AFRICA	6
INDIA	5
NETHERLANDS	5
RUSSIAN FEDERATION	4
KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	2
CZECH REPUBLIC	2
SWEDEN	2
POLAND	2
BELGIUM	2
JAPAN	2
ERITREA	1
UKRAINE	1
MALAYSIA	1
LIBYAN ARAB JAMAHIRIYA	1
SOMALIA	1
LITHUANIA	1
BOUVET ISLAND	1
JAMAICA	1
PORTUGAL	1
COTE D'IVOIRE	1
SLOVENIA	1
HONDURAS	1
FRANCE, METROPOLITAN	1
IRAQ	1

¹ Note that the countries below are those entered by those registering, and may not be an accurate reflection of the countries from which users register.

Table of registrations since SC-AGI meeting in St Petersburg, July 2008

country¹	Number of registrations
UNITED STATES MINOR OUTLYING ISLANDS	1
VENEZUELA	1
YUGOSLAVIA	1
GIBRALTAR	1
PERU	1
ARMENIA	1
TRINIDAD AND TOBAGO	1
CYPRUS	1
SWITZERLAND	1
NETHERLANDS ANTILLES	1
SAINT KITTS AND NEVIS	1
ZAMBIA	1
LAO PEOPLE'S DEMOCRATIC REPUBLIC	1
COSTA RICA	1
IRELAND	1
RWANDA	1
TOTAL NUMBER OF REGISTRATIONS	345