Agenda Item: 6.2

XXXII SCAR Delegates' Meeting

Portland, USA, 23-25 July 2012

Person Responsible: A Fox

Report to SCAR delegates – July 2012

SCAR Standing Committee on Antarctic Geographic Information SCAGI

Executive Summary

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

Authors: Adrian Fox and Jean-Yves Pirlot, SCAGI co-Chief Officers

Relevant URLs or references to other reports:

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, and actively develop, a range of Geographic Information products through its various projects. These products include: the SCAR Composite Gazetteer of Antarctica (CGA), the SCAR Antarctic Digital Database (ADD), the SCAR Map Catalogue and SCAR Feature Catalogue. SCAGI integrates topographic and names information received from national Antarctic programmes into the SCAR ADD and SCAR CGA. In keeping with Article III.1.c of the Treaty that Scientific observations and results from Antarctica shall be exchanged and made freely available, SCAGI promotes an open standards approach to support free and unrestricted data access and develops the respective specifications.

Important Issues or Factors:

Most of the effort in SCAGI comes from a few committed members. To ensure maximum effectiveness for SCAR, SCAGI is focusing its limited resources on delivering the three main SCAR-SCAGI products: Composite Gazetteer of Antarctica (CGA), Antarctic Digital Database (ADD), SCAR Map Catalogue (MapCat).

The SCAR products can only be as good as the data that are in them. It is critical for the continued relevance and utility of the SCAR-SCAGI products that SCAR members contribute all new maps, topographic data, and place-names information to the ADD, MapCat and CGA in a timely manner.

Geographic Information and place-names in Antarctica sit within a range of organisational settings in different countries, including National Mapping, military, research centre and university agencies. Some of these organisational settings do not have strong links to SCAR, and it would be extremely helpful to gain commitment from National Delegates from all the countries in SCAR to encourage engagement with SCAR-SCAGI by their relevant agency.

Recommendations/Actions and Justification:

Delegates should ensure that they are familiar with the work that SCAGI does and encourage their national representatives to become involved with and contribute all new data to SCAGI products. Delegates should ensure that retiring national representatives are replaced with a successor national representative and that the SCAGI co-Chairs are informed of this change.

Expected Benefits/Outcomes:

Wider engagement by the Antarctic community would help SCAGI to continue to develop, and deliver effectively, reliable relevant Geographic Information Services to the Antarctic science and operations communities. Maintaining the position of SCAR as the source of Geographic Information Services such as the ADD and CGA supports the SCAR Strategic Plan objective of an international leadership role for SCAR.

Partners: SCADM, SCAR member countries, other organizations with an interest in Antarctic geographic Information such as COMNAP, CCAMLR, Antarctic Treaty System, IHO, NASA, Google.

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.

Report to SCAR delegates – July 2012

SCAR Standing Committee on Antarctic Geographic Information SC-AGI

1. Community Projects

The SCAR Standing Committee on Antarctic Geographic Information is responsible for four SCAR Community Projects. These are:

1. SCAR Antarctic Digital Database
2. SCAR Composite Gazetteer Antarctica
3. SCAR Map Catalogue
4. SCAR Feature Catalogue

In addition to those projects, national institutions develop products that benefit the wider Antarctic community. The SCAR SCAGI has proved a valuable arena for setting up collaborations between national institutions, for example:

a) The Landsat Image Mosaic of Antarctica (LIMA) developed by the United States Geological Survey, NASA and BAS. This originated in discussions at the SCAGI meeting in Hobart, 2006.

b) Initiative led by USGS to scan the archive of Antarctic aerial photography including collections held by BAS and AAD.

1.1 SCAR Antarctic Digital Database www.add.scar.org

Introduction

The SCAR Antarctic Digital Database (ADD) is a compilation of the best available international topographic mapping for Antarctica. It is merged into a single seamless dataset with fully structured, topologically correct data, with metadata about source and date. It is available for web-download in a variety of formats for use in science and logistics applications and in other web-services.

The ADD has been maintained and developed by BAS on behalf of SCAR since 1993. This is an active project and continues to develop to include new data as it becomes available and to improve access to the information for the international community. The British Antarctic Survey remains fully committed to supporting the ADD. Contact person for ADD is Dr Adrian Fox (a.fox@bas.ac.uk).

Achievements in the last two years

Version 6.0 was launched on 1 June 2012 and includes major improvements to the content, website and delivery systems. To avoid overload of the new version there will be a phased roll-out of the system, comprising:

June 2012: BAS/UK users to test stability of system, ask for feedback.

Early July: Existing registered users

14-18 July: promotion at SCAR Portland through, SCAGI, SSG plenary (15 July); OSC paper (18 July).

After OSC: follow-up email through SCAR mailing list

August 2012: Advertising through Cryolist and other systems.

Content:

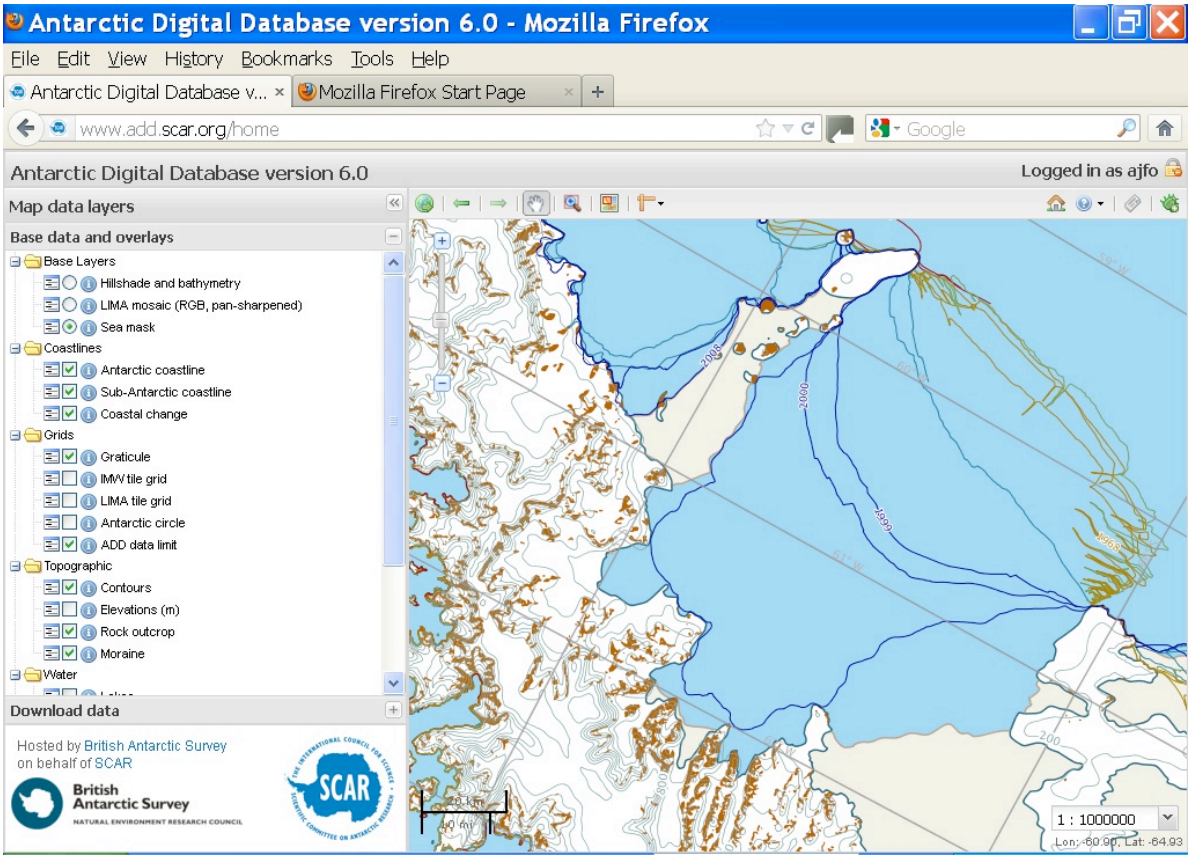
- Significantly improved coastline derived from interpretation of European Space Agency Envisat satellite radar imagery and other satellite imagery. It is a shared coastline with the PolarView service (www.polarview.aq) which provides access to satellite radar imagery about sea-ice density and distribution. Generalised versions of the coastline are included for use in other products.
- The new coastline was delivered to Google in early July 2012 for adoption as the Antarctic coastline in Google Earth and Google Maps.
- A new "boundary of contiguous grounded ice" based on the NASA Antarctic Surface Accumulation and Ice Discharge (ASAID) project (www.nasa.gov/topics/earth/features/antarctica-outline.html). This is valuable because it provides a consistent product from a single source, but merging this with the existing topographic information and maintaining a topologically correct structure has required substantial effort.
- Upgrades from new mapping in Antarctic Peninsula by BAS.

Website and delivery mechanisms:

- Significant development work on the website, including a new web-map browser with selectable data layers and improved tools for defining Areas of Interest for download that include box-drawing and buffering around a place-name.
- Wider range of download formats including ESRI shapefile, Google Earth KML and GeoTIFF
- Implementation of usage tracking. Statistics since launch on 6 June are:

  30 new registrations
  132 successful logins
  558 downloads of data

  Total registered users of the system at 5 July 2012 = 6007.



Screenshot of ADD 6.0 showing topographic and coastal change data for Larsen B Ice Shelf area

Planned future developments:

The ADD will adopt a planned update cycle with upgrades in June and December each year. Improvements that will be included in December 2012 include:

- Bedrock topography from the international project BEDMAP-2, which is refining the bed topography of Antarctica from geophysical data.
- New topographic data from Australian Antarctic Division.
- Zoom to SCAR Composite Gazetteer of Antarctica place-name

Issues:

The ADD can only be as good as the data that is in it. It is critical for its continued relevance and utility that SCAR members contribute all new topographic data to the ADD.

1.2 SCAR Composite Gazetteer of Antarctica http://data.aad.gov.au/aadc/gaz/scar/

Introduction:

The SCAR composite gazetteer of Antarctica (CGA) is a compilation of the national Antarctic gazetteers of countries active in Antarctica. For historical reasons names in many areas have evolved with multiple naming and different geographic coordinates for the same feature in separate gazetteers. In 1992 SCAR started the CGA, as an effort to put in order this complex field comprising a huge amount of data. A relevant, practical aspect of this effort has been to identify which place names were applicable to the same feature and to group those names under a unique identifier (UID).

The purpose of the CGA is to allow features to be unambiguously identified for scientific and operational uses, and to identify which features have already been named to discourage further duplicate naming.

Italy (ENEA/PNRA, (Roberto Cervellati: roberto.cervellati@enea.pnra.it) are responsible for capturing and including new names/features or amendments to existing names in the CGA. The Australian Antarctic Data Center (Henk Brolsma: henk.brolsma@aad.gov.au) runs the web-site that provides access to the CGA database and has implemented improved search tools. Cooperation between Italy and Australia is excellent.

Today the SCAR CGA is based on a database which includes **nearly 19,000** features and contains **nearly 37,000** names. It collects the geographical information received from **23** Countries. It is an active project and continues to evolve:

- While all major features in Antarctica have already received a name and are stored in the database, minor features continue to be named by the Geographical Boards as a consequence of the activities of the national expeditions in Antarctica. These new features have to be added to the database.

- Many of the major features are still lacking of a comprehensive description, such as the size or the position relative to other features.

Achievements in the last two years:

The quality of the maps available when many features were first named has impacted on the accuracy of many of the coordinates in the CGA. Many of the names lack coherence with the current available continent-wide web products such as LIMA or Google Earth which is a disincentive to use the names.

It was recommended at the July 2010 SCAGI meeting in Buenos Aires to check the national gazetteers against LIMA or other satellite imagery sources and revise the coordinates. Much progress has been made with this: Australia, Italy, UK and USA have completed or are near completion of this task.

Monthly average usage statistics from June 2011:

3744 page views;

2146 unique visits;

Average time on each page 1 minute 13 secs;

69.5 % of visitors accessed multiple pages.

Planned future developments:

New names and amendments to existing names and coordinates will continue to be included in the CGA.

Issues:

It is critical for the continued success of the CGA that National Naming Authorities submit any new names to the CGA. Multiple names for the same feature remains a problem - there are about 37,000 names for 19,000 features in the CGA, showing an average of nearly two names per feature. The problem is much worse in places like the South Shetland Islands where many features have three or four names. The CGA unique identifier aims to reduce confusion by grouping together names for the same feature. Delegates are requested to encourage their National Naming Authorities to use the CGA to check for existing names for features proposed for naming, to avoid further duplication and confusion.

1.3 SCAR Map Catalogue http://data.aad.gov.au/aadc/mapcat/

This is compiled and maintained by the Australian Antarctic Division Data Centre (Henk Brolsma henk.brolsma@aad.gov.au).
It contains entries for 5155 hard copy maps from 26 countries and 947 digital maps from five countries; up from 3640 hard copy maps and 698 digital maps on 1 June 2009.

Typical annual usage of the CGA is about 50,000 unique visits, accessing about 100,000 pages. In the calendar year 1 July 2011 to 4 July 2012 there were 5631 downloads of digital maps. However, the great majority of map entries in the Map Catalogue are metadata or a low-res quicklook, rather than the full map in a downloadable, printable form.

2. Future plans for SCAGI

SCAGI will hold an inter-sessional meeting in 2013. Date and location for this will be discussed at the SCAGI meeting. Adrian Fox is prepared to host this at the British Antarctic Survey, Cambridge if required.

3. Important Issues or Factors:

Most of the effort in SCAGI comes from a few committed members. To ensure maximum effectiveness for SCAR, SCAGI is focusing its limited resources on delivering the three main SCAR-SCAGI products: Composite Gazetteer of Antarctica (CGA), Antarctic Digital Database (ADD), SCAR Map Catalogue (MapCat).

The SCAR products can only be as good as the data that are in them. It is critical for the continued relevance and utility of the SCAR-SCAGI products that SCAR members contribute all new maps, topographic data, and place-names information to the ADD, MapCat and CGA in a timely manner.

If member countries feel that the SCAGI products are not meeting the needs of the Antarctic community these issues should be expressed to SCAGI, in order to improve their relevance. Too many countries are not engaging with or contributing to the SCAR-SCAGI products

The 2012 SCAGI meeting will have greater attendance than recent meetings, with least 15 attendees from 11 countries, but there are no South American attendees and this lack of engagement remains a concern. While it is recognized that to be physically present at a meeting can be expensive and sometimes not possible for the Members, it should be possible however to work by e-mail or, as a minimum, to reply to e-mail. Despite efforts to ensure that SCAGI has up-to-date contact details for national representatives, often there is no acknowledgement or reply to contacts.

4. Recommendations/Actions and Justification.

4.1 Delegates should ensure that they are familiar with the work that SCAGI does and encourage their national representatives to become involved with and contribute data to SCAGI products.

4.2 Delegates should seek to ensure that where a national representative retires or leaves their post a successor is appointed and supported to be involved with SCAGI.

4.3 Delegates should note that US representation will change this year to Paul Morin of US Polar Geospatial Center, University of Minnesota, following the retirement of Jerry Mullins of USGS.

The SCAGI co-Chairs are very pleased at the continued commitment of the US to the work of SCAGI and would like to highlight the exceptional contribution and collaborative spirit of Jerry Mullins and the USGS over many years.

5. Expected Benefits/Outcomes.

More engagement by a wider range of SCAR members would help to ensure the continued development and value of the SCAGI Geographic Information Services and promote their wider usage.

Effective provision of reliable, accurate and relevant geographic information services through SCAGI is highly beneficial for science and operations in Antarctica and contributes to the international leadership of SCAR, in line with the Strategic Plan 2011-16.

6. Partners.

Partners for SCAGI include:

The SCAR member nations and other SCAR related groups such as SCADM.

The Antarctic Treaty System, CCAMLR and COMNAP.

Other international organizations that are involved with or are users of Antarctic Geographic Information including the International Hydrographic Organization, national hydrographic organizations; national place-naming organizations; NASA; Google.

7. 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. Funds for collaboration visits for key members working on the SCAR-SCAGI products to resolve specific issues would be useful in some cases.

Continuation of $4k a year allocation.

Adrian Fox and Jean-Yves Pirlot, ***SCAR SCAGI co-Chief officers, June 2012.***