XXXIV SCAR Delegates Meeting
Kuala Lumpur, Malaysia, 29-30 August 2016

SCAR Standing Committee on Antarctic Geographic Information (SCAGI)

DRAFT prepared before SCAGI meeting on 21 August 2016

Executive Summary

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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, the SCAR Antarctic Digital Database, the SCAR Map Catalogue and the Air Operations Planning Maps series. The usage statistics included in the report below show that these are active products that are used and valued by the Antarctic community.

SCAGI integrates topographic and names information received from national Antarctic programmes into the SCAR ADD and SCAR Composite Gazetteer of Antarctica. 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 four main SCAR-SCAGI products: Composite Gazetteer of Antarctica (CGA), Antarctic Digital Database (ADD), SCAR Map Catalogue (MapCat) and Air Operations Planning Maps series.

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.

The SCAR Composite Gazetteer of Antarctica is a key product for SCAGI that is widely used by the Antarctic community (see usage statistics below). It has for many years been managed by Roberto Cervellati and Chiara Ramorino, of the Italian National Antarctic Research Programme (PNRA). During 2015 responsibility for managing the CGA transferred to Prof Carlo Baroni, and Mrs Jaqueline Muller, University of Pisa. Our Italian colleagues collaborate closely with the Australian Antarctic Data Centre (Ursula Harris) for delivery of the CGA.

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.

The current contacts are listed at http://www.scar.org/scagi/scagi-members.

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, International Steering Committee for Global Mapping.

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 August 2016: SCAR Standing Committee on Antarctic Geographic Information (SCAGI)

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 Air Operations Planning Maps Series

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

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

b) Call for surveyed ground check data for a new US Digital Elevation Model of Antarctica derived from sub-metre resolution, stereo satellite imagery.

1.1 SCAR Antarctic Digital Database http://www.add.scar.org/home/add7

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 year

Improvements since the 2014 SCAR meetings include improvements to the content following addition of significant new data from the Australian Antarctic Data Centre, improvements to the coastline from new mapping from satellite imagery by the US Polar geospatial Centre and British Antarctic Survey, and contours of some areas of the Antarctic Peninsula. The ADD team continues to develop the website and delivery systems. Server improvements at BAS have given the web-delivery system increased resilience.

The ADD data is included inthe Global Map, as the coverage for Antarctica (http://www.iscgm.org/cgi-bin/fswiki/wiki.cgi). Co-Chair Adrian Fox submitted a report to the International Steering Committee for Global Mapping meeting in New York in August 2015.

Usage statistics for the period 1 June 2014 to 16 June 2015

NB Usage statistics for 2015-16 will be included in the final report after the 2016 SCAGI meeting.

- Number of new registrations = 480
- Total number of registered users = more than 7000
- Total data downloads = 5414
- Total number of logins by registered users = 1835 (average of about 3 downloads per login)

These statistics are at the same level as previous years showing sustained use of the ADD.

Planned future developments:

Continued improvement of the underlying topographic data and delivery mechanisms:

a) Inclusion of further coastline data for parts of the Antarctic Peninsula

b) Evaluating for inclusion new DEM/contour, rock outcrop and other continent-wide datasets derived from automated processing of satellite imagery.

c) Continued work at BAS to improve the server infrastructure for web-services should further increase load capacity and resilience of the ADD website.

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 (University of Pisa/PNRA) is responsible for capturing and including new names/features or amendments to existing names in the CGA. The Australian Antarctic Data Centre (Ursula Harris Ursula.Harris@aad.gov.au) runs the web-site that provides access to the CGA database. Cooperation between Italy and Australia is excellent.

In June 2015 the SCAR CGA database included more than **19,300** features and contained more than **37,300** names. It collects the geographical information received from **23** Countries, plus the General Bathymetric Chart of the Oceans (GEBCO). 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 a comprehensive description, such as the size or the position relative to other features.

Usage statistics from 1 July 2014 to 30 June 2015:

NB Usage statistics for 2015-16 will be included in the final report after the 2016 SCAGI meeting.

- Number of new place names in the CGA = 195 (compare 188 in 2012-13; 258 2013-14).

- Total of place names (June 2015) in the CGA = 37320

Bulgaria is by far the most active place-naming country, as it was in 2012-13 and 2013-14 with 162 new names submitted to the CGA in 2014-15.

China has recently submitted a tranche of 359 names – these are currently being checked in preparation for inclusion for the CGA.

Planned future developments:

New names and amendments to existing names and coordinates will continue to be included in the CGA. Place-naming organisations are encouraged to check their gazetteer coordinates against freely available Landsat Imagery to eliminate inaccuracies resulting from the original definition of the coordinate from historical mapping and blunders.

The US Polar geospatial Center has developed a GIS tool to aid checking and capturing of coordinates and geographic information associated with place names and this will be demonstrated at the SCAGI meeting.

There will be a discussion at the SCAGI meeting about establishing guidelines for best practice for Antarctic place naming, building on the experience of the SCAGI member organisations.

Issues:

In recent years, nearly all new names have come from Bulgaria, China, New Zealand, UK and USA. There are other countries with active Antarctic programmes that have not recently submitted names but have submitted names in the past, including Australia, Belgium, Chile, China, France, India, Norway, Russia and others. It is not known to what extent this is due to lack of naming activity, or failure to submit new national place names to the CGA. It is critical for the continued success of the CGA that National Naming Authorities submit any new names to the CGA.

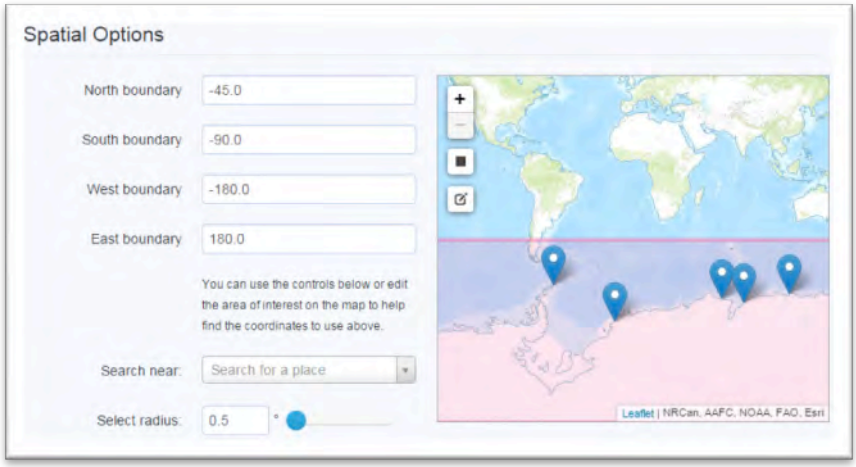
Multiple names for the same feature remain a problem - there are about 37,300 names for more than 19,000 features in the CGA, showing an average of nearly two names per feature. The problem is much worse in places like the South Shetland Islands where many features have three or four names. The CGA unique 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.

The SCAR Composite Gazetteer of Antarctica is a key product for SCAGI that is widely used by the Antarctic community. It has for many years been managed by Roberto Cervellati and Chiara Ramorino, of the Italian National Antarctic Research Programme (PNRA). During 2015 responsibility for managing the CGA has transferred to Prof Carlo Baroni, and Mrs Jaqueline Muller, University of Pisa.

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

NB Usage statistics for 2015-16 will be included in the final report after the 2016 SCAGI meeting.

This is compiled and maintained by the Australian Antarctic Division Data Centre: (Ursula Harris: Ursula.Harris@aad.gov.au).
It contains entries for over 6300 maps from 26 countries, of which about 1000 are digital maps from five countries. Developments in 2014-15 include: Addition of a block of 83 scanned place-names maps from the UK and 50 new maps from Australia; development of a new facility for spatial search for maps in the website, and agreement for the Map Catalogue to be the primary access point for SCAR Air Operations Planning Maps.



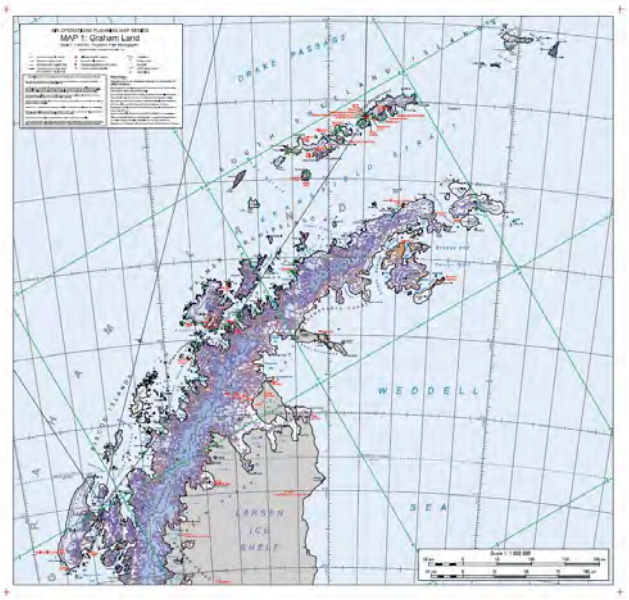
Screenshot showing the new spatial search facility now included in the SCAR Map Catalogue

1.4 SCAR Air Operations Planning Maps series

The vision for the SCAR Air Operations Planning Maps is to produce a series of maps at 1:1,000,000 scale covering Antarctica that are focused on presenting information important for Air Operations planning in an easy to use format; in particular the maps show heights and contours in feet.

The maps are to be produced through an internationally collaborative effort coordinated through SCAR-SCAGI and have a consistent specification for content and style. Following discussions with pilots and programme managers and trialling of prototypes in 2014-15, the SCAR SCAGI group finalised a specification for the maps at the 2015 SCAGI meeting in Brussels. For the 2016-17 Antarctic summer season, the aim is to provide maps covering the costal and mountain zones for about 270 degrees of the continent. The maps are in the final stages of preparation by BAS, IGN Belgium, Norwegian Polar Institute and US Polar Geospatial Center, in liaison with Australia.

The maps will be available for download as PDF files from the SCAR Map Catalogue. The maps are intended for planning Air Operations, not for use as Air Navigation Charts – this is clearly stated on the maps.



Propotype of the SCAR Air Operations Planning Maps series,

trialled in Antarctica during 2014-15

2. Recent activities/Future plans for SCAGI

SCAGI held an intersessional meeting on 15 June 2015, hosted by the Belgian National Geographic Institute, in Brussels. There were 8 attendees from 6 countries at the meeting, with one other delegate joining to give a national report by Skype. The meeting included reports on the SCAR-SCAGI products and national reports from Australia, Belgium, Bulgaria, France, Germany, Italy, New Zealand, Norway, UK and USA.

The next meeting will be held in Kuala Lumpur on 21 August 2016 at the SCAR Business Meetings in association with the SCAR Open Science conference.

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 four main SCAR-SCAGI products: Composite Gazetteer of Antarctica (CGA), Antarctic Digital Database (ADD), SCAR Map Catalogue (MapCat) and Air Operations Planning Maps series.

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.

Encouragingly, the 2015 SCAGI intersessional meeting had a similar attendance (9 from 6 countries) to the 2013 intersessional meeting in Cambridge (11 attendees from 7 countries). Attendance at the main biennial meetings has been greater (16 in Portland; 20+ in Auckland). However, lack of engagement from South American countries 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. The current contacts are listed at http://www.scar.org/scagi/scagi-members.

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.

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, Global Map.

7. Budget Implications.

For the SCAR products 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, July 2016.***