



WP 23

Agenda Item: 5.5

Person Responsible: Adrian Fox

**XXXIII SCAR Delegates Meeting**

**Auckland, New Zealand, 1-3<sup>rd</sup> September 2014**

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

**Report to SCAR Delegates – August 2014**



## Executive Summary

**Title:** 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](#), the [SCAR Antarctic Digital Database](#), and the [SCAR Map Catalogue](#). 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 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.

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). Both Cervellati and Ramorino have done outstanding work on the CGA, but are both now retired and wish to step back from this role. PNRA Italy have stated that they are able to continue to manage the CGA and have nominated Prof Carlo Baroni, University of Pisa as the successor. The SCAGI group would like to thank PNRA for the continuing support for 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.

### 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.

# Standing Committee on Antarctic Geographic Information (SCAGI)

## 1. Community Projects

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

1. SCAR Antarctic Digital Database
2. SCAR Composite Gazetteer Antarctica
3. SCAR Map 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.
- c) Production of a series of Air Operations Planning Maps at 1:1 M scale by British Antarctic Survey, IGN Belgium, Norwegian Polar Institute and US Polar Geospatial Center (2014).

### 1.1 SCAR Antarctic Digital Database - [www.add.scar.org](http://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](mailto:a.fox@bas.ac.uk)).

#### *Achievements in the last year*

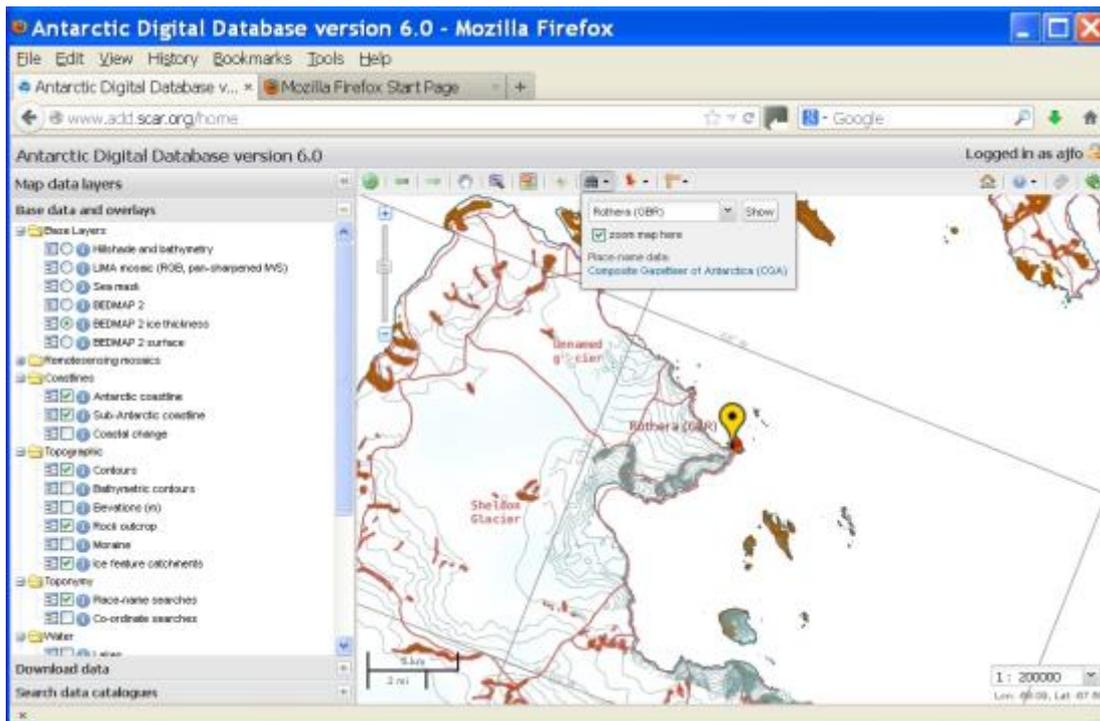
Version 6.1 will be launched in time for the 2014 SCAR meeting. It will include improvements to the content following addition of significant new data from the Australian Antarctic Data Centre and BAS, as well as developments to the website and delivery systems.

The ADD data is included the Global Map, as the coverage for Antarctica (<http://www.iscgm.org/cgi-bin/fswiki/wiki.cgi>). Co-Chief officer Adrian Fox attended the International Steering Committee for Global Mapping 2013 meeting in Cambridge, UK on 20 July 2013 and submitted a 2014 report to the ISCGM.

#### **Usage statistics for period 1 July 2012 to 20 June 2013**

- Number of new registrations = 433
- Total number of registered users = more than 6500
- Total data downloads = 5301
- Total number of logins by registered users = 1567 (average of 3+ downloads per login)

These statistics are at the same level as 2012-13 showing sustained use of the ADD.



Screenshot of ADD 6.0 showing zoom to CGA place name facility and glacier catchment dataset

### ***Planned future developments:***

Continued improvement of the underlying topographic data and website. We are in discussions with US Polar Geospatial Data Center to include improved rock outcrop for Antarctica derived from image classification of high resolution (sub-metre) satellite imagery.

### ***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) are 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](mailto:Ursula.Harris@aad.gov.au)) runs the web-site that provides access to the CGA database. Cooperation between Italy and Australia is excellent.

At end of July 2014 the SCAR CGA is based on a database which includes **19,235** features and contains more than **37,239** 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.

#### ***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: Italy, Norway/Belgium UK and USA have completed or are actively working on this task.

#### ***Usage statistics from 1 July 2013 to 30 June 2014:***

- Number of new place names in the CGA = 258 (up from 188 in 2012-13).
- Total of place names now (July 2013) in the CGA = 37025
- Number of unique features (= features which have got a single name) = 7718
- Distribution of new place names: Bulgaria = 203; USA = 41; S. Korea = 10; UK = 4

It is notable that Bulgaria is by far the most active place-naming country, as it was in 2012-13.

#### ***Distribution by Country for the CGA place names:***

Argentina	2545	Japan	346
Australia	2432	Republic of Korea	27
Belgium	117	New Zealand	2596
Bulgaria	1159	Norway	1647
Canada	2	Poland	365
Chile	1865	Russia	4808
China	279	South Africa	2
Ecuador	9	Spain	35
France	223	United Kingdom	4967
Germany	393	USA	13161
India	21	Uruguay	5
Italy	53	GEBCO*	185

\*Note: GEBCO = General Bathymetric Chart of the Oceans, there is some overlap between names for under-sea features created by GEBCO and the national gazetteers included in the SCAR CGA.

#### ***Planned future developments:***

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

#### ***Issues:***

There are no place-name submissions in 2012-2013 from some countries with active Antarctic programmes and that have submitted names in the past, including Australia, 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 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.

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). Both Cervellati and Ramorino have done outstanding work on the CGA, but are both now retired and wish to step back from this role. At the SCAR SCAGI meeting on 23 August 2014, Roberto Cervellati will hand over this role to Carlo Baroni (University of Pisa). SCAGI would like to thank Roberto Cervellati and Chiara Ramorino for many years of service to SCAR and PNRA Italy for their continued support of the CGA.

### **1.3 SCAR Map Catalogue - <http://data.aad.gov.au/aadc/mapcat/>**

This is compiled and maintained by the Australian Antarctic Division Data Centre: (Ursula Harris: [Ursula.Harris@aad.gov.au](mailto:Ursula.Harris@aad.gov.au)). It contains entries for over 6200 maps from 26 countries, of which about 950 are digital maps from five countries (up from 3640 hard copy maps and 698 digital maps in 5 years since 1 June 2009).

## **2. Future plans for SCAGI**

SCAGI is holding a meeting on 23 August 2014, in Auckland. There are at least 16 attendees to the meeting, the same number that attended the Portland meeting in 2012. The meeting will include discussion about place-naming issues and whether the Air Operations Planning Maps Series should become a SCAR Product.

## **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.

Encouragingly, the 2014 SCAGI meeting has a similar attendance (at least 16) to the 2012 Portland meeting, with 11 attendees from 7 countries at an intersessional meeting in Cambridge in July 2013. 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.

## **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 Italian representation changed to Prof. Carlo Baroni of University of Pisa following the retirement of Prof. Roberto Cervellati. Dr Antonie Haas of AWI is a new German

representative to SCAGI. The SCAGI co-Chairs are very pleased to welcome both new members to the SCAGI group.

### **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 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, July 2014.**