

The International Council for Science

# SCAR **bulletin**

No. 165 FEBRUARY 2008

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Report of the SCAR Standing Committee on Antarctic  
Geographic Information (SC-AGI)  
Inter-sessional Meeting

Buenos Aires, Argentina  
8 - 10 October, 2007



Published by the

**SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH**

at the

**Scott Polar Research Institute, Cambridge, United Kingdom**

**SCAR Standing Committee on Antarctic Geographic Information  
(SC-AGI) Inter-sessional Meeting  
Buenos Aires, October 8 to 10, 2007**

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## 1. Background

All work in Antarctica relies on a consistent geographic framework, and the main function of the new Standing Committee on Antarctic Geographic Information (SC-AGI) 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.

At the XXIX SCAR meeting in Hobart 2006, the Expert Group on Geographic Information (EGGI) was repositioned from within the Standing Scientific Group for the Geosciences to become SC-AGI. SC-AGI is the direct descendant of the SCAR Working Group on Cartography, formed in 1958.

Building on the work done by its predecessor EGGI, SC-AGI continues to deliver a range of up to date Geographic Information products through its various projects. These products include the SCAR Composite Gazetteer of Antarctica, the Antarctic Digital Database, the SCAR King George Island GIS Database, SCAR Map Catalogue and SCAR Feature Catalogue.

SC-AGI integrates topographic and names information received from national Antarctic programs into the SCAR ADD and SCAR Composite Gazetteer of Antarctica. SC-AGI promotes an open standards approach to support free and unrestricted data access and develops the respective specifications including the SCAR Feature Catalogue and Symbology.

The Chair of SC-AGI is Henk Brolsma ([henk.brolsma@aad.gov.au](mailto:henk.brolsma@aad.gov.au)). For further details see the Antarctic Spatial Data Infrastructure (AntSDI) website: <http://www.antsdi.scar.org/eggi>.

## 2. Introduction

The first intersessional meeting of SC-AGI was held at the Palacio San Martin in Buenos Aires on the 8 to 10<sup>th</sup> October 2007. SC-AGI would like to thank Sergio Marensi, Andres Zakrajsek and the Instituto Antártico Argentino (Argentinean Antarctic Institute) for hosting the meeting in such beautiful surroundings. We would also like to thank Jan Huber and the Antarctic Treaty Secretariat (ATS) for inviting us to their offices for a very good icebreaker.

Eleven SC-AGI members attended the meeting, with guests from the International Hydrographic Organisation (IHO), the General Bathymetric Chart of the Oceans (GEBCO) and the ATS attending for specific sessions (see Appendix 1). The original agenda (Appendix 2) was only used as a guideline and was modified during the meeting. In preparation for the meeting several short Issues Papers (see Appendix 3) were submitted and distributed to the SC-AGI members and attendees through the web (see <http://www.antsdi.scar.org/eggi/meetings/scagi-intercessional-meeting-buenos->

[aires/index](#)). This proved an efficient mechanism to get the meeting attendees up to speed with particular issues and also to allow members who were not able to attend to comment. Actions arising from the meeting are summarized in Appendix 7. Presentations from the meeting are available on the AntSDI website.

### **3. SC-AGI Buenos Aires Meeting**

#### *(i) Introductions*

Andres Zakrajsek started by welcoming people to Buenos Aires and Mike Sparrow thanked the sponsors of the meeting. Henk Brolsma, as SC-AGI chair, summarized the aims of the meeting and asked people to introduce themselves.

#### *(ii) Sustainability and Future of SC-AGI*

Henk Brolsma opened a discussion on the future sustainability of SC-AGI (see also Issues Paper SCAGI-BA2007-10). As explained in Section 1, SC-AGI is now a SCAR Standing Committee in recognition that its interests are cross-disciplinary.

SC-AGI members need to ensure that:

- topographic data are contributed regularly to the SCAR ADD as they become available
- all new topographic data have metadata attached
- feature types are attributed to data according to the SCAR Feature Catalogue
- new names are contributed and existing information is updated regularly (annually). Annual reports should be submitted by nations regardless of whether new names have been added or not
- the development of Web Map Services (WMS) and Web Feature Services (WFS) are developed according to international standards and in consultation with SC-AGI members
- maps are distributed to SC-AGI members and
- regular communication is maintained between SC-AGI members.

**Action: Project leaders to provide updates to SC-AGI website and chair to coordinate updates every 4-6 months.**

**Action: P. Cooper and A. Fox to investigate if BAS is prepared to host a list server.**

Mike Sparrow pointed out that SC-AGI will have a higher profile at the next Open Science Conference (<http://www.scar-iasc-ipy2008.org>) and will likely have a display alongside other SCAR “services” such as JCADM (the Joint Committee on Antarctic Data Management).

(iii) *The Landsat Image Map of Antarctica (LIMA) Project*

Jerry Mullins and Adrian Fox updated the SC-AGI members on progress with the Landsat Image Map of Antarctica (LIMA). LIMA is a cooperative programme between the United States Geological Survey (USGS), British Antarctic Survey (BAS) and the National Aeronautics and Space Administration Program (NASA).

In support of the International Polar Year (2007-2008), LIMA provides a comprehensive view of Antarctica for researchers and the public. From the LIMA web portal, scientists and the general public will be able to download the mosaic and all of the original 1,065 hand-selected Landsat scenes used to create the mosaic at no charge. See <http://lima.usgs.gov>. An education and outreach website will also soon be available at: <http://lima.nasa.gov/>.

**Action: With regards to LIMA, H. Brolsma to liaise with J. Mullins and A. Fox on ground control points in the Australian Antarctic Territory.**

**Action: H. Brolsma and others to work with USGS on location of named features in Antarctica and to improve coordinates.**

Cheryl Hallam briefly talked about possible future interactions with Google Earth since they are keen to use the LIMA (and other Antarctic) data in their viewer.

**Action: J. Mullins to liaise with Google Earth and advise SC-AGI.**

(iv) *The SCAR Map Catalogue*

Henk Brolsma opened the discussion on the SCAR Map Catalogue, with reference to Issue Paper SCAGI-BA2007-2. The SCAR Map Catalogue contains details of maps and charts from 25 countries. Almost 6000 references are included, including over 600 digital references. However, there is a need for SC-AGI members to ensure that new maps are being added to the database as per Standing resolutions Gd-5 of SCAR Bulletin No 92 January 1989, that states:

“That members [should] automatically distribute to the Antarctic Mapping Centres of the SCAR nations two copies of their maps, charts, publications, and gazetteers of areas within the zones of interest to SCAR, together with any additions and amendments thereto. Additional copies may be supplied on the understanding that extra costs would be met by the requesting member.”

**Action: SC-AGI Chair and C. Hallam to discuss what USGS map information can be sent automatically to upgrade the SCAR Map Catalogue and also whether it is possible to generate thumbprints.**

The AADC recently added some 500 SCAR Geosciences maps to the SCAR map catalogue. These maps are also listed on the SCAR BAS Geosciences map catalogue but that catalogue does not show the spatial extent of the maps and is not linked to the SCAR composite gazetteer and other SCAR databases.

**Action: H. Brolsma to contact Chair of SCAR Geosciences (Alessandro Capra) to discuss with him the distribution of geosciences maps to SCAGI members**

Cheryl Hallam gave a presentation on enabling technologies for map production. In particular USGS are using the Map Production System from ESRI to produce maps for the Convoy Range.

**Action: SC-AGI members to liaise with C. Hallam with respect to finding out who uses the ESRI MPS software.**

The importance of keeping the map catalogue up to date was emphasized. The distribution system was discussed and several actions suggested:

**Action: All SC-AGI members to check if maps are up to date in the SCAR Map Catalogue and H. Brolsma to send advice on how people can edit maps in the catalogue.**

**Action: SC-AGI Chair to write to head of Geosciences (A. Capra) in order to remind members to add geological maps to the catalogue.**

**Action: Map distribution address list to be sent to H. Brolsma for putting up on SC-AGI website.**

**Action: SC-AGI to review the Standing Resolution on Distribution of Maps**

*(v) The Aerial Photography Collection*

Jerry Mullins introduced the USGS Aerial Photography Collection. The 350,000 digitized and web enabled photos are being made available to the international community at no charge. See <http://earthexplorer.usgs.gov>.

*(vi) The Antarctic Coastal Change Project*

Adrian Fox and Jerry Mullins gave an update on the Antarctic Coastal Change Project. This project is compiling a comprehensive inventory of named and unnamed glaciers; determining coastal change using Landsat images from the 1970s to the present and estimating the velocity of glaciers. Five out of twenty-four maps have now been printed and are available.

During the discussions the idea that SC-AGI should have a list of contact names for use by the group was raised.

**Action: SC-AGI needs to put together a list of names of committees and contacts for general use. SC-AGI members to send information to chair.**

*(vii) SCAR Grove Mountains GIService Portal (GCMP)*

An update was received by Prof. E. Dongchen and Dr. Nengcheng Chen on the SCAR Grove Mountains GIService Portal (see Appendix 5) but unfortunately not quite in time to be discussed at the meeting. SC-AGI members should note the report and act on it as accordingly.

*(viii) Submitted reports*

Both New Zealand and Japan, being unable to attend the meeting, submitted reports to update members on progress and to comment on particular issues raised before the meeting (see Appendix 4 and papers SCAGI-BA2007-13 and 14). This worked well and SC-AGI members agreed that in future, when members are unable to attend a meeting, they should try to submit a short (no more than 2 pages ideally) commenting on relevant issues.

**Action: Interested SC-AGI members to contact NIPR as relevant with regards to ALOS/PALSAR data.**

*(ix) International Hydrographic Organisation (IHO) GIS*

The IHO summary is available both in hard copy and electronic format. Michel Huet, secretary of the IHO, attended the first day of the meeting and it was agreed that he would liaise with SC-AGI and Gateway Antarctica so that IHO charts could be added to the SCAR MAP Catalogue and the Gateway Antarctica WMS (Ross Sea region). SC-AGI and IHO/GEBCO/SCUFN (Standing Committee on Undersea Feature Names) will liaise on a possible project with regards to Harmonization between SCUFN and SCAR CGA.

**Action: SC-AGI Chair to liaise with SCAR Geosciences and M. Huet to get Tide Gauge information for IHO GIS.**

**Action: IHO charts to be added to SCAR Map Catalogue.**

*(x) The General Bathymetric Chart of the Oceans (GEBCO) and the International Bathymetric Chart of the Southern Ocean (IBCSO)*

GEBCO aims to provide the most authoritative, publicly available bathymetry data sets for the world's oceans ([www.gebco.net](http://www.gebco.net)). GEBCO bathymetry is available in digital form, either on CD-ROM with a user-friendly interface or as a free online 1-minute global bathymetric grid. GEBCO operates under the auspices of the International Hydrographic Organisation (IHO) and the United Nations' (UNESCO) Intergovernmental

Oceanographic Commission (IOC). A discussion was lead by Roberto Cervellati on the possible interactions between GEBCO and the SCAR CGA. The following actions were proposed:

**Actions: With regards to the GEBCO undersea features:**

- **R. Cervellati to send undersea features in question to IHO / SCUFN and SCUFN to consider names in the list. This should be done officially from SCAR CGA. (R. Cervellati)**
- **Need to add links from SCAR CGA to GEBCO forms (H. Brolsma)**
- **Add undersea feature types to FC and then link to SCUFN (H. Brolsma)**
- **Need to check for new SCAR CGA features offshore with GEBCO. (R. Cervellati, H-W. Schenke)**
- **H-W Schenke to propose a harmonisation project for SCAR CGA and SCUFN**

**Action: USGS requests a list of US names for GEBCO undersea feature – list to go to J. Mullins**

Hans Werner-Shenke also gave the SC-AGI members a detailed summary of the work of the International Bathymetric Chart of the Southern Ocean (<http://www.ibcso.org/>).

*(xi) Larsemann Hills Project*

The SC-AGI members decided that since there were several projects that seemed to be moribund, if no updates were received from these by a given deadline then they should be removed from the list of SC-AGI projects.

**Action: SC-AGI Chair to write to Chinese SC-AGI representative with regards to an update on progress of the Larsemann Hills names project**

*(xii) King George Island GIS*

Henk Brolsma presented a report by Steffen Vogt on the King George Island GIS (KGGIS) (see also Issue Paper SCAGI-BA2007-8). The Department of Physical Geography (IPG) University of Freiburg has established and continually updated the SCAR KGGIS topographic database data access services on behalf of SC-AGI. The project has its website at <http://www.kgis.scar.org>. Several issues were discussed such as the issue of data access (i.e. that individual countries need to continue to provide new or improved data when it becomes available); symbology (that a consistent symbology should be used in the spatially enabled web server) and the issue of place names (is it possible to have one pair of coordinates per feature?). Jan Cisak also gave a presentation on the Polish contribution to the KGGIS.

**Actions: H. Brolsma to contact S. Vogt to ensure that new data (list of names) is available for KGI IPY project**



**With regards to enquiring if different countries would be prepared to accept S. Vogt's unofficial list of coordinates on KGI:**

- **H. Brolsma to ask S. Vogt to contact Argentina (H. Brolsma)**
- **Chile to consider list of names (P. Vicuña)**
- **A. Fox to contact UK Antarctic Place names Committee (A. Fox)**
- **SC-AGI Chair to clearly define process of updating coordinates (H. Brolsma)**

**Action: J. Cisak to distribute new photomap of western shore of Admiralty Bay and new topographic maps to SC-AGI members and to add these maps to the map catalogue**

**Action: SC-AGI Korean member and S. Vogt to work with Dr Young on Korean names on KGI**

**Action: H. Brolsma to ensure all SC-AGI members have their Map Catalogue passwords.**

**Action: J. Cisak to send additional KGI information (names in Turret Point area) to S. Vogt and new Polish names to CGA.**

(xiii) *Polar View*

Adrian Fox gave a brief presentation on Polar View (<http://www.polarview.aq/>). Polar View delivers real-time sea ice information to shipping in the Polar Regions based primarily on Envisat ASAR imagery and AMSR-E passive microwave data. Its services improve the efficiency and safety of vessels operating in the Southern Ocean, thus reducing the environmental impact and cost of operations. Polar View will also deliver sea ice related inputs to both operational and climate models.

(xiv) *History of Aerial Photography in Antarctica*

Jerry Mullins (based on a report by John Manning – paper SCAGI-BA2007-16) and Adrian Fox talked about the History of Aerial Photography in Antarctica project. Research progress has principally been focused on the initial work of the early aviator Sir Hubert Wilkins from 1928 in the region of the Antarctic Peninsula and activities of the Norwegian whaler explorer Lars Christensen in the 1930s in East Antarctica. Advances have also been made by the Australian Antarctic Division in adding some of their aerial photography collection. All flight lines including Highjump flight lines are now another layer in the AADC geographic information system. British Antarctic Survey has also documented the flight lines of the early BAS photography whilst the United States Geological Survey has similarly undertaken a major project to make details of the aerial photography on line.

**Action: H. Brolsma to send flight lines and scanned images of Operation High Jump aerial photos to J. Mullins**

(xv) *SCAR Cybercartographic Atlas of Antarctica*

Peter Pulsifer submitted an update report (see SCAGI-BA2007-20) on the Cybercartographic Atlas of Antarctica (CAA). In collaboration with Dr. Vergani, development of the Atlas has been led by The Geomatics and Cartographic Research Centre (GCRC) at Carleton University, Ottawa, Canada.

CAA concepts were developed between 2000 and 2003 at which time the GCRC secured research funding through the Social Sciences and Humanities Research Council of Canada (SSHRC). The SSCRC grant focused on examining human computer interaction in the context of interactive cartography and provided a base for developing CAA content and technology.

At present, the project has published several prototype modules that are a proof of concept for use in subsequent phases of the CAA development. These modules can be accessed from the following page:

<https://gcr.ccarleton.ca/confluence/display/GCRCWEB/Atlases>.

Two additional modules are currently being developed - Antarctic Biodiversity and Integration in Antarctic Science.

(xvi) *SC-AGI regional groups*

The suggestion was made that an efficient way of working might be to form regional SC-AGI groups that are interested in a particular area in the Antarctic region. Such groups already exist in certain forms on King George Island and in the Ross Sea region. SC-AGI members felt that this might work for particular regions and we should encourage such cooperation, but was probably not worth pursuing further through SC-AGI itself.

(xvii) *Feature names*

When the SCAR Composite Gazetteer Antarctica is hosted at the Australian Antarctic Data Centre the generic terms will be mapped to the feature types in the SCAR Feature Catalogue. The majority of the feature types can be mapped automatically to the generic terms with some editing after the first pass.

SC-AGI are involved in two cooperative projects, one in the Larsemann Hills (Henk Brolsma and Dongchen E) and another in the Allan Hills (Henk Brolsma and Cheryl Hallam).

**Action: H. Brolsma to contact Chinese SC-AGI member with respect to Larsemann Hills names and features**

**Action: J. Mullins to work with H. Broolsma with regards to coordinates and naming of features in Allan Hills. This information should then be submitted to SCG once confirmed.**

Chile now has a national authority for Antarctic names. The Directorate for Frontiers and Boundaries (DIFROL) of the Chilean Foreign Office now oversees the public distribution of foreign and Chilean cartography (see SCAGI-BA2007-21).

**Action: SC-AGI members to write a brief summary of how naming processes work in their country (~ 1 page)**

(xviii) *SCAR Data and Information Strategy*

The SC-AGI chair noted that, with the publication of the draft SCAR Data and Information Strategy (see paper SCAGI-BA2007-15, in particular Section 5.4.1, Page 36), to quote from the data strategy “The SCAR Executive, SC-AGI and JCADM Chairs must ensure that the strategic directions articulated by both JCADM and SC-AGI are complimentary and that the work-plans of the two groups are synergistic, with some tasks being jointly pursued”. SC-AGI will therefore need to work closely with JCADM and feed into the requirements.

**Action: SC-AGI Chair to work closely with JCADM chair on data information strategy. SC-AGI members to feed back to SC-AGI chairs with respect to relevant sections of the data strategy.**

(xix) *SCAR Feature Catalogue Report*

Henk Broolsma led the discussion on the SCAR Feature Catalogue, based on an issues paper submitted by Ursula Ryan (SCAGI-BA2007-6). Spatial data is increasingly available in digital form, managed using GIS software and is often distributed via the web. More data is being exchanged between nations/institutions and used by a variety of disciplines. To promote the interchange of data and the interoperation of GIS it is necessary to develop a common set of terms to describe the various types of geographic data we are exchanging. The SCAR Feature Catalogue is providing the Antarctic Community with a mechanism to create and manage this set of common terminology.

SC-AGI discussed how to define a particular feature, e.g. should a mountain be defined as being a feature above a particular height, say 1000 m? The problem is that often particular terms are interchangeable. The group agreed that ideally the Feature Catalogue and the Antarctic Digital Database should be linked, but in practice this wasn't being done except by Australia. Although not a difficult task it would be time consuming if the Feature Types were to “retrofitted” to data. In the case of feature boundaries it may well be up to individual projects to define e.g. a Ross Sea bio-regionalisation zone in the case of SCAR MarBIN.

*(xx) Geographic information/Geomatics Standards (ISO TC2 11)*

The ISO/TC 211 Geographic information/Geomatics is a subcommittee of ISO (the International Standards Organization) responsible for the standards in geographic information (see [www.isotc211.org](http://www.isotc211.org)). SCAR has encouraged the adoption of ISO TC211 standards for geographic information since 1996, soon after the formation of TC211, and became a class A liaison member of TC211 in 2002. Mr A P R Cooper is the representative from SCAR to TC211; Mr Larry Hothem is the representative from ISO TC211 to SCAR.

It was noted that the Existing standard (ISO 19112) does not adequately support the CGA, and that Mr Cooper is looking into the question of whether this should be rectified when ISO 19112 is next revised, which will be considered in 2008.

**Action: SG-AGI members to submit a short paragraph or URL to P. Cooper of relevant items for the ISO TC211 meeting (28<sup>th</sup> Oct-2<sup>nd</sup> Nov.).**

**Action: P. Cooper to email proposed changes (e.g. changes that are not backward compatible) to Feature Catalogue ISO 191110 to SC-AGI chair.**

**Action: P. Cooper and others to consider participating in the revision of ISO 19112 (Spatial Referencing by name), to work on amendments to cover composite Gazetteers (H. Brotsma, P. Cooper, L. Hothem, All members).**

*(xxi) SCAR Antarctic Digital Database*

The Antarctic Digital database (ADD) is a compilation of scale of capture and generalised topographic data for the continent of Antarctica (see <http://www.add.scar.org:8080/add/>). It is derived from a wide variety of sources, and aims to provide the best currently available data in all areas. Version 5 was released at the Buenos Aires meeting. The ADD is available free of charge for personal, non-profit use.

Several ADD issues were raised (see Issues paper SCAGI-BA2007-3.). These included the addition of layers such as glacier outline and sea-ice extent and how to link it to the Composite Gazetteer of Antarctica in the future. It was agreed that flora and fauna databases would not be included in the SCAR ADD as SCAR MarBIN and SCAR EBA were the custodians with responsibility for these complex data sets.

**Action: ADD should liaise with the glaciologists with regards to e.g. including glacier outlines etc.**

**Action: P. Cooper to investigate if ADD should include the sea ice extent and to explore relevant links with NOAA.**

**Action: SC-AGI Chair to contact J. Huber with regards to whether Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMA)**

**should be added to ADD and if this is agreed J. Huber, H. Brolsma and P. Cooper to discuss issues such as: How should this be done? Who would do this?**

**Action: P. Cooper and H. Brolsma to discuss point object linkages between the CGA and ADD.**

**Action: SC-AGI to develop a 1 page document on the SC-AGI projects that outlines: the use-cases, what its aims are, who its users are and what it should deliver now and in the medium term.**

**Action: P. Cooper and H. Brolsma to discuss questions raised with regards to SCAR ADD data structure.**

**Action: SC-AGI Chair to work with COMNAP to decide e.g. what should be made publicly available from COMNAP database in ADD, e.g. information on Antarctic bases.**

*(xxii) SCAR Composite Gazetteer of Antarctica (CGA)*

The SCAR Composite Gazetteer of Antarctica (CGA) is a digital application that collects and compiles place names from national gazetteers of Antarctica for a range of scientific, logistical and other purposes. It currently contains just under 36,000 geographical names that correspond to over 18,000 features.

It is a tool with content such that any contained place names can be:

- incorporated into any Geographic Information System (GIS) or internet mapping service for map production purposes,
- used for reference purposes in tasks that require a common understanding of location, and
- used for any purpose that requires a user to identify a place where individual nations have assigned different names to the same Antarctic feature.

To provide these services effectively requires that the SCAR CGA:

- includes the information for names from national naming authority gazetteers,
- has a Unique Identifier (UID) provided by SCAR for any given real world feature which attracts a name, and
- reaches in due time, a content with a known level of accuracy - that is, one agreed set of accurate coordinates (latitude and longitude) per feature.

Roberto Cervellati gave an update on the CGA. Because the CGA is a composite of all the national gazetteers each feature can have several names associated with it. Therefore a unique identifier is assigned to a particular feature. In order for the CGA to be most effective it is important that the relevant contacts are made in each SCAR country.

**Action: A. Guichard to liaise with SC-AGI chair and R. Cervellati with respect to French SC-AGI contact.**

**Action: Need to ask SCAR National Delegates to assist in naming additional SC-AGI members**

Since there seemed to be some misconception as to the exact purpose and role of the SCAR CGA Henk Brolsma and Roberto Cervellati drafted a discussion paper (SCAGI-BA2007-5) on this subject, with the idea that an agreed statement should go out to e.g. members of the ATCM and other relevant bodies. This statement was modified during the meeting (see Appendix 5) and will be submitted to the SCAR Executive Committee for approval.

Antoine Guichard, the Executive Secretary of COMNAP gave a brief presentation on the COMNAP paper to ATCM XXX on “Antarctic Information Exchange: Importance of Unambiguous and Consistent Geo-referencing” (see issues paper SCAGI-BA2007-18 and 19).

**Action: British SC-AGI member to investigate whether “acknowledged” as well as “approved” names in the UK Gazetteer be included in the CGA.**

Henk Brolsma presented an issue paper on New Fields in the CGA (issues paper SCAGI-BA2007-7). Definitions of new fields are attached as Appendix 6.

**Action: H. Brolsma to add new fields to the SCAR CGA when it is hosted at the Australian Antarctic Data Centre. Definitions of the new fields will be posted on the web site.****Action: H. Brolsma to send out examples of new SCAR CGA fields.**

The question was raised as to what should be done when a feature has disappeared in the CGA.

**Action: J. Mullins to let SC-AGI know how US describes a disappeared feature in their Gazetteer. H. Brolsma to contact NZ with regards to the same question.**

The consensus was that where a SC-AGI member requested the feature to be removed it would be but if others had the same feature in their national gazetteer it would remain as an entry for their country with the status being noted.

*(xxiii) SCAR Symbology*

The issue of symbology, i.e. deciding which symbols represent a particular feature on a map was discussed. There is a SCAR Symbol Library, which is a collection of standard symbols for rendering features on screen-based maps. They are used by a number of communities including the Australian Ocean Data Centre Joint Facility (AODCJF), SCAR Standing Committee on Antarctica Geographic Information and the Australian Antarctic Data Centre.

**Action: H. Brolsma to distribute SCAR 1981 symbology booklet**

**Action: P.Cooper to distribute Style Layer Descriptors developed by BAS for comment by interested SC-AGI members (to Chile, Argentina, Australia, UK, Germany, Korea, Italy, Poland, NZ etc.)**

**Action: (i) H. Brolsma to liaise with A. Capra (head of SCAR geosciences) with respect to symbology, (ii) H-W. Schenke to be contact with bathymetry.**

*(xxiv) SCAGI funding*

Mike Sparrow summarized the funds available to SC-AGI. As well as using SC-AGI funds to e.g. attend meetings, it was agreed that SC-AGI members should propose projects, for example to work on feature names or to better harmonise the bathymetry gazetteer and the CGA.

**Action: M. Sparrow to investigate total funds from ADD licensing**

*(xxv) Next Meeting*

The next SC-AGI meeting will be held during the SCAR Business Meetings, in St Petersburg, prior to the Open Science Conference Dates are 4<sup>th</sup> and 5<sup>th</sup> of July 2007.

**Appendix 1: List of Attendees**

Argentina -	Cristina Morandi Andres Zakrasjek Jorge Lapenta (Hydrographic Service Argentina)
Australia -	Henk Brolsma
Chile -	Patricia Vicuña
Italy -	Roberto Cervellati Chiara Ramorino
Korea -	Kiweon Seo
Poland -	Jan Cisak
United Kingdom -	Adrian Fox Paul Cooper
USA -	Jerry Mullins Cheryl Hallam
GEBCO -	Hans-Werner Schenke
IHO -	Michel Huet
SCAR Executive -	Mike Sparrow
COMNAP -	Antoine Guichard
JCADM -	Diego Gomez Izquierdo



**Appendix 2: Original Agenda****Monday 8 October**

0930 – 1000

Welcome

1000 - 1030

SCAGI Infrastructure projects – broad outline only.

1030 – 1700

Report on SCAGI projects

1030 to 1130

LIMA – Landsat Image Mosaic for Antarctica – Adrian Fox (UK), Bob Bindschadler (USA) and Jerry Mullins (USA).

Geospatial Information – Enabling technologies – Jerry Mullins (USA)

1130 to 1200

Antarctic Coastal Change Project – Jerry Mullins (USA)

1200 to 1230

SCAR Grove Mountains GIService Portal (GCMP)

Prof Dongchen and others

1230 to 1300

Names project

Eastern Antarctica - Henk Broksma (Australia) and Wendy Shaw (New Zealand) and Jerry Mullins (USA)

**1300 to 1430****Lunch**

1430 - 1515

Names projects

Larsemann Hills - Henk Broksma (Australia) and Dongchen E (China)

1515 – 1600

SCAR – International Bathymetric Chart of the Southern Ocean (IBCSO)

[IHO GIS](#) for Antarctica: Hans-Werner Schenke

Go to then Reg Hyd Comm and Miscellaneous

1600 - 1630

**Afternoon tea**

1630 - 1700

King George Island GIS

Report by Steffen Vogt (Germany) presented by Jorge Arigony (Brazil)

1700 to 1730

SCAR Cybercartographic Atlas of Antarctica – Report by Peter Pulsifer (Canada)

1730 to 1800

History of Aerial Photography Antarctica – John Manning (Australia)

**1830 – about 1930**

**ATS Ice Breaker**

**Hosted by the Antarctic Treaty Secretariat – Jan Huber Executive Secretary**

**Ten minute walk from our meeting rooms.**

**Tuesday 9 October**

0900 – 1000

SCAR Map Catalogue and Map Distribution - Henk Brolsma (Australia)

1000 – 1100

SCAR Map distribution Discuss SCAR standing resolution Gd-5 as approved by XX  
SCAR

1100 – 1200

SCAR Feature Catalogue Report by Ursula Ryan / Presented by Henk Brolsma  
(Australia)

1200 - 1300

SCAR ADD – Paul Cooper (UK)

**1300 - 1430**

**Lunch**

1430 – 1630

SCAR CGA – Roberto Cervellatti (Italy) and Henk Brolsma (Australia)  
Antoine Guichard (COMNAP) - Paper by COMNAP to ATCM

1630 - 1715

SCAR CGA – transfer of web site to AADC web site.

Further development of – additional fields and mapping of generic terms to SCAR  
Feature Catalogue

1715 - 1800

SCAR Symbolology – Adrian Fox (UK) and Report by Ursula Ryan / Presented by Henk  
Brolsma (Australia)

2000 Evening meal at Comer Restaurant  
Will send details.

**Wednesday 9 October**

0900 - 1100

SCAGI – establishment of regional groups, continued sustainable functioning as a standing committee and communication within group.

1100 – 1200

SC-AGI / JCADM

SCAR Data and Information Strategy – SC-AGI / JCADM

**1300 – 1400**

**Lunch**

Other business

**Appendix 3: List of Submitted Papers**

SCAGI-BA2007-1	Agenda Buenos Aires meeting (as of 25 September)
SCAGI-BA2007-2	Issues paper SCAR Map Catalogue
SCAGI-BA2007-3	Discussion paper SCAR ADD uses
SCAGI-BA2007-4	SCAR Standing Resolution 92 WGGC 1989
SCAGI-BA2007-5	SCAR CGA What it is!
SCAGI-BA2007-6	Issues paper SCAR Feature Catalogue
SCAGI-BA2007-7	Issues paper SCAR CGA New Fields (DOC)
SCAGI-BA2007-8	Issues Paper SCAR KGIS (PDF)
SCAGI-BA2007-9	Issues Paper SEAL (PDF)
SCAGI-BA2007-10	Issues paper SCAR SC-AGI sustainability
SCAGI-BA2007-11	Cybercartographic Atlas report (DOC)
SCAGI-BA2007-12	Grove Mountains GIS Portal report (PDF)
SCAGI-BA2007-13	New Zealand report
SCAGI-BA2007-14	Japan report
SCAGI-BA2007-15	Draft SCAR Data and Information Strategy (JCADM)
SCAGI-BA2007-16	History aerial photography J Manning 29September07
SCAGI-BA2007-17	SC-AGI report to SCAR Executive Committee, Washington, June 2007
SCAGI-BA2007-18	ATCM XXX Working Paper 042 (English)
SCAGI-BA2007-19	ATCM XXX Working Paper 042 (Spanish)
SCAGI-BA2007-20	Cybercartographic Atlas
SCAGI-BA2007-21	Chilean Names document

## Appendix 4a: New Zealand Report

Graeme Blick

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### Discussion on Agenda Items

- **Agenda Item 4: IHO GIS Site:**  
We note that the IHO intends to develop a “GIS for Antarctica” and that the New Zealand Antarctic GIS (<http://www.anta.canterbury.ac.nz/gis/>) is an internet map server distributing data on Antarctica but with an emphasis on the Ross Sea Region. Data in the New Zealand Antarctic GIS consists of physical features such as coastlines and human features such as permanent bases. Specific to the Ross Sea Region are data on rock samples, aerial photography, tourism, a spatial bibliography and many others. The New Zealand Antarctic GIS, created in 2004, is hosted and regularly updated by Gateway Antarctica at the University of Canterbury and is freely accessible to anyone with an internet connection. The development of the IHO “GIS for Antarctica” may cause the possibility for overlap and ideally it should integrate with the NZ Antarctic GIS.
- **Agenda Item 9: SCAR map distribution and NZ recipient:**  
Gateway Antarctica is the nominated New Zealand SCAR Map recipient. Antarctic maps should be forwarded to:  
The Map Librarian  
Gateway Antarctica  
Centre for Antarctic Studies and Research  
University of Canterbury  
Private Bag 4800  
Christchurch  
New Zealand
- **Agenda Item 16: Regional groupings suggestion:**  
New Zealand agrees in principle with the idea of regional groupings. However, our preference is not to have groups established by geographical location as suggested in the agenda, but to have groups based on areas of interest in Antarctica, for example there might be a Ross Sea Region Group. This may mean that some countries are members of several groups.
- **Agenda Item 17: SC-AGI review in July 2008:**  
For a number of years New Zealand has operated an informal GIS, GPS and Mapping Group (minutes from the 2007 meeting are attached as ANNEX 1). The group included representatives from the USGS and Raytheon Polar Services as well who also operate in the Ross Sea Region. To better align this Group with SC-AGI it is proposed to rename this group the RSR Geographic Information Group and that the New Zealand National Representative to SC-AGI, Graeme Blick, will chair this group. Annual meetings will be convened prior to the Annual Antarctic Conference and report New Zealand activities to SC-AGI. Initial tasks are to consider the objectives of the NZ Group in light of the SC-AGI objectives and invite participation from interested New Zealand agencies.

## **ANNEX: New Zealand Antarctic GIS Activities 2006/07**

Notes taken from the Ross Sea Region, Antarctica – GIS, GPS & Mapping Group, meeting of 2 July 2007. Reports were provided by LINZ and Gateway Antarctica.

### *1. Gateway Antarctica, University of Canterbury*

Irfon Jones, GIS technician for Gateway Antarctica gave an update on activities.

- Continued expansion of the ArcIMS site with Antarctica New Zealand's updated spatial bibliography: >3,500 references from 1956-2007.
- Creation of support maps for the LGP of the Darwin-Hatherton Glaciers.
- Updated GCMD metadata database with 2006/2007 NZAP information and historic metadata from selected researchers.
- Maintained the aerial photograph archive and added scanned images online as required.
- Set up servers for an Antarctic image library and remotely sensed data.

Outlined Gateway Antarctica's future directions as regards spatial data and remotely sensed data:

- Addition of layers to the online ArcIMS site:
  - Bathymetry
  - Updated station names
  - Updated feature names
  - Historic aerial photography
  - Remote sensed data
- Update the look and feel of the website to accommodate its increased size
- Improve our use of historic aerial photographs
- Remote sensing becoming a research focus with the appointment of a remote sensing expert.

### *2 Land Information New Zealand*

#### **New Zealand Geographic Board**

Wendy Shaw gave an update on the activities of the Geographic Board:

- Not much happening as regards naming with no maps from the US with features to be named.
- The Sisters: Gertrude and Rose Rocks (stacks off Cape Adare). Gertrude no longer exists and Rose reduced in size. Therefore The Sisters and Gertrude Rock removed from the names database. Historic photographs of the stacks would be appreciated.
- Peter Cleary and Fred Davey retired from the Board.
- New legislation to extend the Board's jurisdiction over the Ross Sea area. Legislation is not yet before the House.
- SCAR-SGI: Collaborated with the Australians, US and Italians with the names on the Allan Hills / Coombs Hills map.

- Coastline mapping by the USGS at 1:100,000: Started from the Peninsula, the Board predicts an increase in future naming requirements once mapping starts in the Ross Dependency.
- Australia's proposal of a one name per feature and increased coordinate accuracy recommendations to ATCM due to other names being used by other countries to already named features.
- Renewal, in May 2006, of the LINZ / USGS high level agreement on mapping, surveying and place names. The relationship protocol hasn't yet been finalised.
- Issues with US on the naming of transient features (e.g. ponds).

### **Geodetic Survey, Topographic Mapping and Hydrographic Mapping**

LINZ has continued with geodetic activities in the Ross Sea Region of Antarctica, Graeme Blick discussed:

- Ross Sea Region Geodetic Datum has been extended and drum beacons are being removed.
- Continued calibration of the Scott Base and Cape Roberts tide gauges.
- Continued operation and maintenance of the Scott Base and Cape Roberts GPS CORS sites.
- Monitoring of historic huts for Antarctica New Zealand.
- Proposed Installation of a GPS CORS site at Butcher's Ridge in collaboration with the US and UNAVCO this summer season.
- Publication of hydrographic charts of Cape Royds to Pram Point, McMurdo to Scott Base stations.
- Ross Island (8-12 sheets) and Convoy Range (10 sheets) mapping is going ahead with USGS.
- Proposed Mapping of the Darwin-Hatherton Glaciers. David Collett leading the mapping with the plan to create 10 x 1:50,000 sheets with the use of remotely sensed images using imagery from the Japanese ALOS satellite. It is proposed to put in ground control this summer with the aim to complete mapping of the first sheets towards the middle of 2008.

### **Policy**

Geoff O'Malley discussed perspectives from the Policy Group:

- Most of the Darwin-Hatherton Glaciers in Australian Antarctic Territory. However they are an important area for New Zealand researchers.
- The need for a change of wording in the draft Geographic Board Bill to allow the New Zealand Geographic Board to name places in Antarctica in conjunction with other naming authorities.
- The New Zealand Geospatial Strategy.
- MFAT and Maritime NZ looking at a desktop exercise for a Ross Sea rescue mission following the Nisshin Maru's difficulties.
- NIWA ship Tongariro taking part in the Ocean Survey 20/20 & CAML programmes.

## **Appendix 4b – Japan Report**

### **Part 1: Geographical Survey Institute Japan**

Geodetic Survey, Topographic Mapping and Distribution Map 2006-2007

- \_ Precise Geodetic survey :Prince Harald Coast, Lützow-Holm bay, Sôya Coast,14 points
- \_ Gravity survey: Lützow-Holm bay, Sôya Coast,Syowa station(IAGBN(A)), 15 points
- \_ Geomagnetic survey Lützow-Holm bay, Sôya Coast, Syowa station, 15 points
- \_ GPS remote base station : Langhovde (LANG), Syowa station (SYOG: IGS) , 2 points
- \_ Mapping\_Revision Sôya Coast area 1:25000 maps (1986-1987) to ITRF2000,GRS80 by ALOS and other satellite images and GCP data. We set new GCP(11 points) around Sôya coast and Syowa station.  
GSI Japan sent 1:250,000 Satellite Image Maps to 27 other country Antarctic map agencies on 2006.

### **Part 2: ALOS/PALSAR Consortium for the monitoring of the Antarctic Ice Sheet**

**Makoto Omura (Kochi Women's University)**  
**Kazuo Shibuya (National Institute of Polar Research)**

At the Hobart SCAR General Assembly meeting during 07-16 July 2006, we introduced our plan of establishing a Consortium to utilize ALOS/PALSAR data over Antarctica. Our project “Monitoring of Antarctic Ice Sheet and Glaciers on Coastlines by SAR” (IPY EoI No.823; P.I. M. Omura) under the umbrella of “Antarctic Surface Accumulation and Ice Discharge” (IPY Activity ID No.88, EoI No.351; P.I. R. Bindshadler) continued discussion with the ERSDAC (Earth Remote Sensing Data Analysis Center, Japan), and reached the agreement that the PALSAR data purchased by NIPR can be utilized for such studies by the consortium members.

In the 2007 Japanese Fiscal Year, NIPR purchased 230 scenes (level1.0 or level1.1) and sent the desired number of scenes to each participating institution (country), where the area of interest is shown in the attached figure and explanation is given below.

#### 1. China

Chinese Antarctic Center for Surveying and Mapping, Wuhan University is basically interested in the Amery Ice Shelf – Lambert Glacier – Zhongsan Station – Dome A area, and the corresponding scenes were sent.

#### 2. Australia

The Australian Antarctic Division/University of Tasmania showed interest in the 60 – 120degE coastal area, but no request came to NIPR.

The data requirement covering the Australian sub-antarctic islands came from the University of New South Wales, and the data for delivery are under processing.



### 3. Germany

Technical University of Dresden showed interest in the Dronning Maud Land and Lake Vostok areas and the corresponding scenes were sent.

### 4. Italy

Universita di Modena e Reggio Emilia withdrew from the consortium, and the area over Victoria Land and Dome C is open.

### 5. Japan

National Institute of Polar Research is collaborating with the scientists from other universities/institutes, and the basic concern is over the JARE activity area, covering the 0 – 55degE region.

### 6. UK

The University of Edinburgh showed interest over the Antarctic Peninsula area, but no request came to NIPR.

### 7. USA

University of Washington showed interest over Marie Byrd Land, but no request came to NIPR.

### 8. Chile

In place of UK/USA, Chile (Centro de Estudios Cientificos Valdivia) was interested in Marie Byrd Land, Antarctic Peninsula, and Patagonia. Sample data were sent already.

In the JFYs 2008 and 2009, equivalent number of scenes will be made available to the participating countries.

In order to utilize satellite resources effectively, those who have endorsement of data supply from JAXA/ESA/NASA (with PI number) are of lower priority. ERSDAC basically provides us raw (level1.0) data by the NIPR payment. By using the GAMMA MSP processor, NIPR generates and sends level1.1 (slc) scenes, when necessary. It is already demonstrated that the three succeeding snapshots (A, B, and C) produce interferograms for A-B, B-C, and A-C FDB HH 34.3 degree SAR scenes with a time span of 44, 44 and 88 days e.g. around Syowa Station area.

NIPR has an archive of JERS-1/ERS-1/ERS-2 SAR scenes, and the MOU between JAXA enables us to utilize these (10 years ago) scenes under similar consortium.

For the participants, “acknowledgment” is requested in his/her paper/report, and an example of the statement will be shown later.

For the SCAGI colleagues, NIPR/ERSDAC is ready to provide PALSAR scenes within the framework of the consortium and within the limit of the allocated NIPR budget (about 250 scenes per year). Those who like to participate in the consortium and analyze the PALSAR scenes, should contact Kazuo Shibuya (shibuya@nipr.ac.jp) for details.

**Appendix 5 - SCAR Grove Mountains GIService Portal (GMGP)****Project Coordinator:** China - Dongchen E

Collaborators: Australia (Henk Brolsma), Russia (tbd)

Contact: Dongchen E

**Technology Leader:** Nengcheng Chen

Members: Zeming Wang, Songtao Ai, Shengkai Zhang

**Activities:**

1. GPS Control Point Database
2. Topographic database
3. Satellite Imagery Database from large scale to small scale
4. DEM Database
5. Meteorite Distribution Database
6. Grove Mountains GI web service Portal
7. Decision Service for Antarctic Expedition

**Summary:**

## 1) Set up topographic database and imagery database

First, we analyze the current situation of Grove Mountains, such as the physical environment, research value and management activities and goals. Then, based on this situation, requirements analysis has been done from data, function and performance aspect, and related GIS application technologies have been discussed. GeoDatabase, MapObjects and ArcIMS technologies have been applied in this system. Vector data, image data and thematic database have been well established.

## 2) Design and Implementation of Grove Mountain Natural Resource Desktop Information System

Furthermore, the overall design of this system is introduced. C/S mode and three-tier structure (data tier, application tier and application tier) are utilized to construct the system. The system function could be divided into five parts, data input, data operation, data edit, data output and data release in internet.

Following is the system detailed design and the main functions above have been implemented. User interface has been designed in this part. Finally, the prototype of this system is implemented (Figure 1).

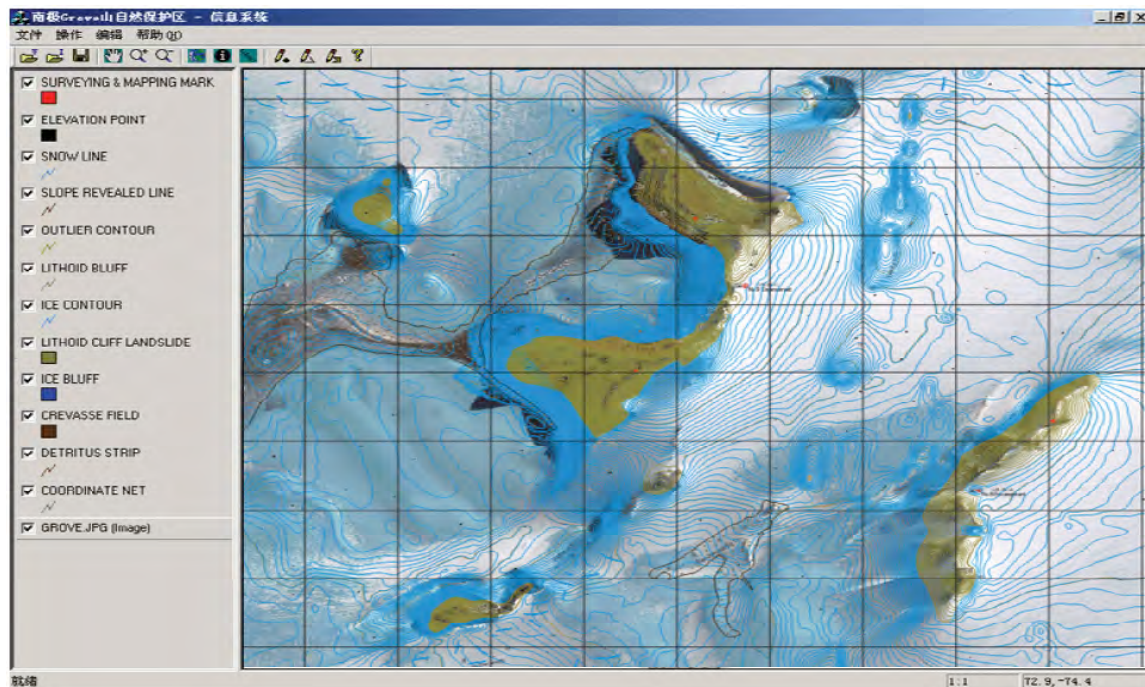


Figure 1 user interface of Antarctica Grove Mountains Information desktop system

### 3) Design and Implementation of Grove Mountains GI web prototype based on search engine and ontology reasoning

In order to improve the access precision of polar geospatial information service on web, a new methodology for retrieving global spatial information services based on geospatial service search and ontology reasoning is proposed, the geospatial service search is implemented to find the coarse service from web, the ontology reasoning is designed to find the refined service from the coarse service. The proposed framework includes standardized distributed geospatial web services, a geospatial service search engine, an extended UDDI registry, and a multi-protocol geospatial information service client. Some key technologies addressed include service discovery based on search engine and service ontology modeling and reasoning in the Antarctic geospatial context. Finally, an Antarctica multi protocol OWS portal prototype based on the proposed methodology is introduced.

#### 3.1 Architecture

Four core components are included in the architecture of the proposed global polar geographic information service (GIService) retrieval (Figure2).

The Distributed GIService provides access to data layer architecture through services, including a great number of OGC compatible geospatial information services existing in AntSDI (Such as KGIS in Germany, ADD in GB, Map/Feature Catalog in Australia, etc.) or elsewhere. It separates the Prototype engine from the data layer to facilitate improvements and changes to the data structure and/or type of data storage without the need of changing the business logic. An OWS ontology tree is stored as files or in a database. The OWS ontology tree is generated from the knowledge of OGC OWS domain and Antarctica geospatial domain. The ontologic constructs are loaded to

memory so it can be used for querying, manipulation and reasoning. The Distributed GIService and OWS ontology tree is composed of the data layer.

A GIService search engine is the core component in the architecture, responsible for the link crawl and OWS service detection through processing of OWS service capabilities and content matching. Service metadata includes information of the service provider, service operation, and service content. An Antarctic domain OWS instance is generated from GIService descriptions (metadata) and OWS ontology tree using the OWS service ontology reasoner.

The extended UDDI Registry includes the access URL and service metadata discovered by engine. This is accessible through a UDDI and OGC catalogue service interface.

The Multi-protocol geospatial service client provides a user interface layer to find, query, and invoke the desired geospatial Web Service.

In the prototype system, the information flow of OWS service search is described as:

- 1) Open source search engine, “Nutch” was used to traverse links on web pages and generate a URL database. The indexer uses the content to generate an inverted index of all terms and all pages;
- 2) The document set is divided into a set of index segments, each of which is fed to a single searcher process; The strings “WMS”, “WFS” and “WCS” are parsed as keywords to query the indexed web content;
- 3) An OGC “getCapabilities” request is sent to the identified “WMS”, “WFS” and “WCS” service URL links and the service parameters are processed from the response.

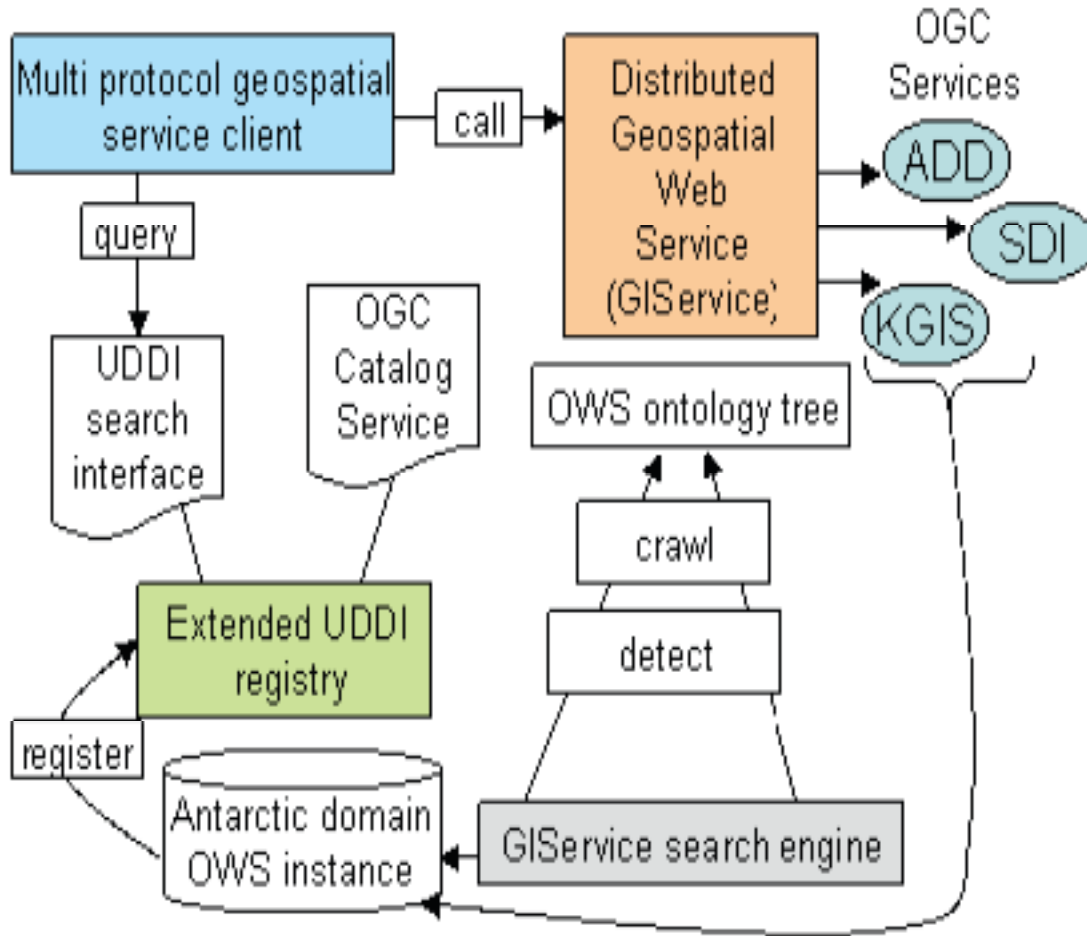


Figure 2. Architecture of prototype system

### 3.2 Antarctica multi protocol OWS portal

A multi-protocol OWS service portal (See figure 3 and 4) based on the common interface was implemented to support multiple types of geospatial web services (WMS, WFS, WCS) from different implementers supporting the OGC specifications. Through the portal, international polar spatial information services can be published, registered, found, invoked, and integrated. Users can use the portal to find and access distributed polar spatial data through any compatible registered services; these include services from the Chinese polar spatial database using WMS and WFS, the Canadian cyber atlas of Antarctica using WMS, the German King George Island spatial data using WMS and WFS, UK’s ADDI data using WFS, the Australian Antarctic Data Centre holdings using WMS, and the USA’s USGS polar database using WMS, among others.



Figure 3. Antarctica multi protocol OWS portal (<http://polar.chinare.cn/map/>)

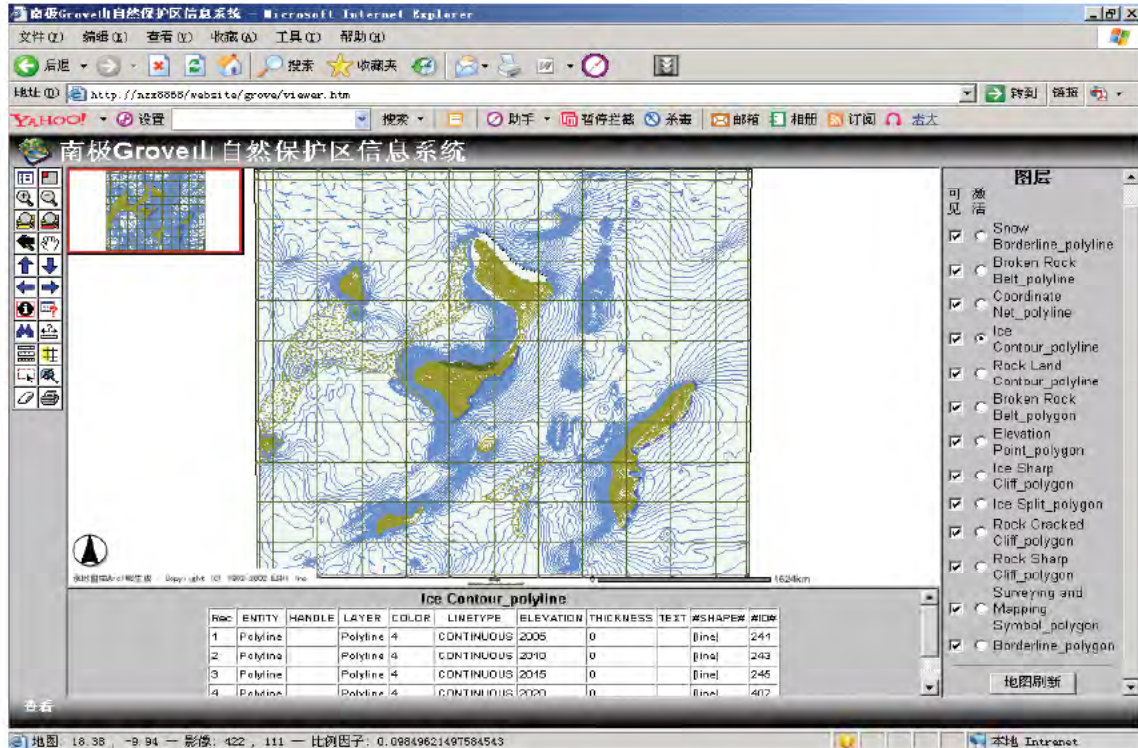


Figure 4 : user interface of Antarctica Grove Mountains Information distribution portal

**Next Step:**

- 1) Improve the spatial data quality.
- 2) Improve the functions of system.
- 3) Set up the website.
- 4) Develop and improve the Grove Mountains GI web service Portal.
- 5) Thin Multi protocol Geospatial Client based on WMC standard.
- 6) Integrate Grove Mountains GI web service Portal with GeoGlobal.

**Acknowledgments**

This project is supported by the SCAR AGI without funding. This work is supported by grants from Chinese CNSF project (No. 40501059, PI: Dr. Nengcheng Chen) and State Bureau of Surveying and Mapping Key Lab for Polar Surveying and Mapping Science project (No. 060302, PI: Dr. Nengcheng Chen).

## **Appendix 6 SCAR CGA: New Fields**

### **Name - existing field**

Name of a feature in a national gazetteer.

Mandatory

### **Description – existing field**

Who, what or why the feature was named for.

Optional for existing names

Mandatory for new names

### **Latitude - existing field**

Decimal degrees in data base with option of entering data in degrees, minutes and seconds.

Mandatory

### **Longitude - existing field**

Decimal degrees in data base with option of entering data in degrees, minutes and seconds

Mandatory

### **Coordinate accuracy (Coord\_accu) – new field**

The estimated accuracy of the coordinates in metres.

Optional for existing information

Recommended for new names and when updating coordinates.

### **Elevation - existing field**

Height of feature in metres

Optional if height is not known,

Recommended for new features if height is known.

### **Elevation\_accuracy – new field**

The estimated accuracy of the altitude in metres

Optional for existing information,

Recommended for new names and when updating heights if the information exists.

### **Feature Type – new field**

Feature type - derived from the generic feature term and mapped to the SCAR Feature Catalogue.

### **Feature type code**

Code in the SCAR Feature Catalogue relating to a particular Feature Type.

### **Feature class – existing field**

Feature classes will be mapped to the SCAR Feature Catalogue using the features described on the SCAR Composite Gazetteer web site Annex F and G.



**Institution – new field**

The name of the institution that provided or calculated the coordinates and elevation.

Optional for existing information

Recommended when updating coordinates.

**Person – new field**

Name of the person in the institution that derived the coordinates.

Optional for existing and new information.

**Accepted and / or Verified by – new field**

The name of the institution that either accepted, verified and / or checked the coordinates, elevation, coordinate accuracy and elevation accuracy.

Optional for existing information,

Recommended when updating or accepting new coordinates.

**Gazetteer – existing field**

Name of country and custodian responsible for the feature name and where the gazetteer information came from.

Pick list from existing list of countries, Australia, USA, United Kingdom etc.,

Mandatory

**SCAR\_GAZ\_ID**

The unique identifier in the SCAR Composite Gazetteer Antarctica.

Automatically generated

**Source type – new field**

Origin of the coordinates.

Pick list from Topographic map, GPS hand held, GPS differential, survey control, satellite image, geo-referenced aerial photo, unknown

Optional for existing information.

Recommended when updating coordinates and adding new features.

**Source name – new field**

Name of the map, satellite image etc where the coordinates were derived from.

Pick list from Map name, satellite image type (pick list ASTER, DigitalGlobe, GeoEye, SPOT 1, SPOT 2, SPOT 3, SPOT 5, Landsat, date and number and or path, row.)

Optional for existing information

Recommended when updating coordinates.

**Publisher**

Where coordinates are derived from a map, the publisher of that map.

Recommended if information is known.

**Source Identifier**

Where a coordinate or elevation is derived from a map, the unique identifier of that map

in the national catalogue.  
Recommended when updating coordinates

**Map scale – new field**

Scale of the map from which the coordinates were derived.  
Optional  
Recommended if a map has been used to improve the location of the feature.

**National map number - new field**

Where agencies have a map number then include that wherever possible. For example the scanned USGS topographic maps  
Optional  
Recommended if a map has been used to improve the location of the feature and national identifier exists for the map.

**SCAR map catalogue number - new field**

Catalogue number of the map in the SCAR map catalogue used to derive the coordinates of a feature.  
Optional for existing information,  
Recommended when updating coordinates from a map that is in the SCAR map catalogue or that should be in the SCAR map catalogue.

**Status**

This is to show the status of a name if it is different from other names – for example if a feature has disappeared or if the name does not meet place name standards in a national gazetteer.  
Pick list from historical, disappeared or acknowledged.  
Historical – where a feature was incorrectly identified or may never have existed but was shown on maps and is now recognised as being incorrect. The information is preserved for historical and research purposes.  
Disappeared – where a feature did exist but due to natural or human forces now no longer exists.  
The term “Acknowledged” is used by the UK Antarctic Place Names Committee where names are acknowledged as being in use but insufficient evidence exists for their approval.  
Mandatory if the status is changed.

**Status notes**

Note on status – notes on when it was discovered it was incorrectly identified or links to historical research, when it disappeared or why a feature is acknowledged.  
Mandatory if the reason for the status change is known.

**Comments – new field**

Notes by those updating the coordinates or other fields.  
For example, if the location of a feature is still in question or unable to be determined from the quoted coordinates or description.

### Appendix 7: Full List of Actions

No	Action	Whom	By When
1	Project leaders to provide updates to SC-AGI website and chair to coordinate updates every 4-6 months.	H. Brolsma, project leaders	Ongoing from end of Jan. 2008
2	P. Cooper and A. Fox to investigate if BAS is prepared to host a list server.	H. Brolsma, P. Cooper, A. Fox	Dec. 2007
3	With regards to LIMA, H. Brolsma to liaise with J. Mullins and A. Fox on ground control points in the AAT.	H. Brolsma, J. Mullins, A. Fox	Dec. 2007
4	H. Brolsma and others to work with USGS on location of named features in Antarctica and to improve coordinates.	H. Brolsma, J. Mullins, R.Cervellati,all	End July 2008
5	J. Mullins to liaise with Google Earth and advise SC-AGI	J. Mullins	Ongoing
6	SC-AGI Chair and C. Hallam to discuss what USGS map information can be sent automatically to upgrade the SCAR Map Catalogue and also whether it is possible to generate thumbnails.	C. Hallam, D. Sechrist	Jan. 2008
7	Action: H. Brolsma to contact Chair of SCAR Geosciences (Alessandro Capra) to discuss with him the distribution of geosciences maps to SCAGI members	H. Brolsma	ASAP
8	SC-AGI members to liaise with C. Hallam with respect to finding out who uses the ESRI MPS software.	C. Hallam, all	March 2008
9	All SC-AGI members to check if maps are up to date in the SCAR Map Catalogue and H. Brolsma to send advice on how people can edit maps in catalogue.	All	March 2008
10	SC-AGI Chair to write to head of Geosciences (A. Capra) in order to remind members to add geological maps to catalogue.	H. Brolsma	Dec. 2007
11	Map distribution address list to be sent to H. Brolsma for putting up on SC-AGI website.	H. Brolsma, P.Cooper	Dec. 2007
12	SC-AGI to review the Standing Resolution on Distribution of Maps	H. Brolsma, J. Mullins, A. Fox, P. Vicuña	June 2008
13	SC-AGI needs to put together a list of names of committees and contacts for general use. SC-AGI members to send info to chair.	H. Brolsma, all	ASAP
14	Interested SC-AGI members to contact NIPR as relevant with regards to ALOS/PALSAR data.	All	Ongoing
15	SC-AGI Chair to liaise with SCAR Geosciences and M. Huet to get Tide Gauge information for IHO GIS	H. Brolsma, M. Huet	End December 2007

16	SC-AGI to establish contact between M. Huet (IHO) and I. Jones (Gateway Antarctica) with regards to the Ross Sea GIS	H. Brolsma, M. Huet, I. Jones	ASAP
17	IHO charts to be added to SCAR Map Catalogue.	H. Brolsma, M.Huet	End December 2007
18	With regards to the GEBCO undersea features: <ol style="list-style-type: none"> <li>1. R. Cervellati to send undersea features in question to IHO / SCUFN and SCUFN to consider names in the list. This should be done officially from SCAR CGA. (R. Cervellati)</li> <li>2. Need to add links from SCAR CGA to GEBCO forms (H. Brolsma)</li> <li>3. Add undersea feature types to FC and then link to SCUFN (H. Brolsma)</li> <li>4. Need to check for new SCAR CGA features offshore with GEBCO. (R. Cervellati, H-W. Schenke)</li> <li>5. H-W Schenke to propose a harmonisation project for SCAR CGA and SCUFN</li> </ol>	R.Cervellati, H. Brolsma, H-W Schenke	July 2008
19	USGS requests a list of US names for GEBCO undersea feature – list to go to J. Mullins	H-W. Schenke, R.Cervellati	Dec 2007
20	SC-AGI Chair to write to Chinese SC-AGI representative with regards to an update on progress of the Larsemann Hills names project	H. Brolsma	ASAP
21	SC-AGI Chair to contact S. Vogt to ensure that new data (list of names) is available for KGI IPY project	H. Brolsma	ASAP
22	With regards to enquiring if different countries would be prepared to accept S. Vogt's unofficial list of coordinates on KGI: <ol style="list-style-type: none"> <li>1. H. Brolsma to ask S. Vogt to contact Argentina (H. Brolsma)</li> <li>2. Chile to consider list of names (P. Vicuña)</li> <li>3. A. Fox to contact UK Antarctic Place names Committee (A. Fox)</li> <li>4. SC-AGI Chair to clearly define process of updating coordinates (H. Brolsma)</li> </ol>	H. Brolsma, P. Vicuña, A. Fox	July 2008
23	J. Cisak to distribute new photomap of western shore of Admiralty Bay and new topographic maps to SC-AGI members and to add these maps to the map catalogue	J. Cisak	Dec. 2007
24	SC-AGI Korean member and S. Vogt to work with Dr Young on Korean names on KGI	K. Seo, H. Brolsma, S. Vogt	July 2008

25	H. Brolsma to ensure all SC-AGI members have their Map Catalogue passwords.	H. Brolsma	Dec. 2007
26	J. Cisak to send additional KGI information (names in Turret Point area) to S. Vogt and new Polish names to CGA.	J. Cisak	Dec. 2007
27	H. Brolsma to send flight lines and scanned images of Operation High Jump aerial photos to J. Mullins	H. Brolsma	July 2008
28	H. Brolsma to contact Chinese SC-AGI member with respect to Larsemann Hills names and features.	D. E, H. Brolsma	ASAP
29	J. Mullins to work with H. Brolsma with regards to coordinates and naming of features in Allan Hills. This information should then be submitted to SCG once confirmed.	H. Brolsma, J. Mullins	May 2008
30	SC-AGI members to write a brief summary of how naming processes work in their country (~ 1 page)	All	Dec. 2007
31	SC-AGI Chair to work closely with JCADM chair on data information strategy. SC-AGI members to feed back to SC-AGI chairs with respect to relevant sections of the data strategy.	H. Brolsma, T. DeBruin, all	July 2008
32	SG-AGI members to submit a short paragraph or URL to P. Cooper of relevant items for the ISO TC211 meeting (28 <sup>th</sup> Oct-2 <sup>nd</sup> Nov.).	All	Oct. 21st
33	P. Cooper to email proposed changes (e.g. changes that are not backward compatible) to Feature Catalogue ISO 191110 to SC-AGI chair.	P. Cooper, H. Brolsma	Oct 21st
34	P. Cooper and others to consider participating in the revision of ISO 19112 (Spatial Referencing by name), to work on amendments to cover composite Gazetteers (H. Brolsma, P. Cooper. L. Hothem, All members).	P. Cooper, H. Brolsma, L. Hothem	Jan. 2008
35	ADD should liaise with the glaciologists with regards to e.g. including glacier outlines etc.	P. Cooper, H. Brolsma	Ongoing
36	P. Cooper to investigate if ADD should include the sea ice extent and to explore relevant links with NOAA.	P. Cooper	July 2008
37	SC-AGI Chair to contact J. Huber with regards to whether Antarctic Specially Protected Areas (ASPAs) and Antarctic Specially Managed Areas (ASMA) should be added to ADD and if this is agreed J. Huber, H. Brolsma and P. Cooper to discuss issues such as: How should this be done? Who would do this?	J. Huber, H. Brolsma, O. Cooper	July 2008
38	P. Cooper and H. Brolsma to discuss point object linkages between the CGA and ADD.	P. Cooper, H. Brolsma	July 2008
39	SC-AGI to develop a 1 page document on the SC-AGI projects that outlines: the use-cases, what its aims are, who its users are and what it should deliver now and in the medium term.	H. Brolsma, all project leaders	June 2008

40	SCAR ADD: P. Cooper and H. Brolsma to discuss questions raised with regards to SCAR ADD data structure.	P. Cooper, H. Brolsma	Dec. 2007
41	SC-AGI Chair to work with COMNAP to decide e.g. what should be made publicly available from COMNAP database in ADD, e.g. information on Antarctic bases.	H. Brolsma, A. Guichard, P. Cooper	March 2008
42	A. Guichard to liaise with SC-AGI chair and R. Cervellati with respect to French SC-AGI contact.	H. Brolsma, A. Guichard, R. Cervellati	March 2008
43	Need to ask SCAR National Delegates to assist in naming additional SC-AGI members	M. Sparrow, H. Brolsma	ASAP
44	British SC-AGI member to investigate whether “acknowledged” as well as “approved” names in the UK Gazetteer be included in the CGA.	A. Fox	Dec. 2007
45	H. Brolsma to add new fields to the SCAR CGA when it is hosted at the Australian Antarctic Data Centre. Definitions of the new fields will be posted on the web site.	H. Brolsma, R. Cervellati	Dec. 2007
46	H. Brolsma to send out examples of new SCAR CGA fields.	H. Brolsma	Dec. 2007
47	J. Mullins to let SC-AGI know how US describes a disappeared feature in their Gazetteer. H. Brolsma to contact NZ with regards to the same question.	J. Mullins, R. Cervellati, H. Brolsma	April 2008
48	H. Brolsma to distribute SCAR 1981 symbology booklet	M. Sparrow, H. Brolsma	Dec 2007
49	P. Cooper to distribute SLDs developed by BAS for comment by interested SC-AGI members (to Chile, Argentina, Australia, UK, Germany, Korea, Italy, Poland, NZ etc.)	P. Cooper	Dec. 2007
50	(i) H. Brolsma to liaise with A. Capra (head of SCAR geosciences) with respect to symbology, (ii) H-W. Schenke to be contact with bathymetry.	H. Brolsma, H-W Schenke	Dec. 2007
51	M. Sparrow to investigate total funds from ADD licensing	M. Sparrow	Dec. 2007