

## AntSDI: The coolest SDI on Earth?

### - Towards a SDI for Antarctica



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## Outline

- Institutional Background: ATS, SCAR, SCAR EG GI
- User communities
- How AntSDI is being created:
  - standards, specifications
  - framework data
  - place-names
  - metadata
- Components of AntSDI
- Conclusions

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## Antarctic Treaty System



ANTARCTIC TREATY SECRETARIAT  
SECRETARÍA DEL TRATADO ANTÁRTICO  
SECRETARIAT DU TRAITÉ SUR L'ANTARCTIQUE  
СЕКРЕТАРИАТ АНТАРКТИЧЕСКОГО ДОГОВОРА

[http://www.ats.org.ar/]

- Antarctic Treaty 1959/61  
Protocol on Environmental Protection 1991/98
- 45 nations involved (consultative parties and acceding states)
- bans measures of military purpose in Antarctica
- freezes territorial claims
- ensures freedom of scientific investigation
- scientific observations and results shall be exchanged and made freely available

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## SCAR

- Scientific Committee on Antarctic Research
- the leading organization for facilitating and coordinating Antarctic Research
- formed in 1958
- currently 28 full member countries, 4 associate member countries, 7 ICSU union



[www.scar.org]

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## SCAR

- Main objectives:
  - initiate and co-ordinate high quality international scientific research in the Antarctic region
  - provide objective and independent advice to policy makers (ATCM)
  - facilitate free and unrestricted access to Antarctic scientific data and information
  - develop scientific capacity in all SCAR members, especially with respect to young scientists
  - communicate scientific information about the Antarctic region to the public

[SCAR Constitution 2004, www.scar.org]

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## SCAR EG GI

- SCAR Expert Group Geographic Information (EGGI)
- 1958: Working Group on Geodesy and Cartography
- Part of Geosciences Standing Scientific Group of SCAR, provides GI support to all disciplines



- EGGI works on
  - co-ordinated mapping and GIS products
  - GI standards and specifications

[www.geosciences.scar.org/geog.html]

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## SCAR EG GI Projects and Products

- SCAR Antarctic Digital Database
- SCAR Composite Gazetteer of Antarctica (place-names)
- SCAR King George Island GIS
- East Antarctica GIS
- SCAR Map Catalogue
- SCAR Spatial Data Standards
- Geospatial Information: Enabling Technologies
- Cybercartographic Atlas of Antarctica
- Antarctic Data Linkages (liaise with JCADM and STADM)

## SCAR EGGI Vision

To establish an Antarctica Spatial Data Infrastructure (AntSDI)

Terms of Reference for AntSDI:

Understanding that geographic location is a fundamental element for integrating and communicating Antarctic science knowledge, the GI group aims to create an Antarctic Spatial Data Infrastructure (AntSDI) by:

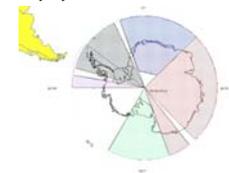
- Providing Antarctic fundamental geographic information products and policies in support of science programs
- Integrating and coordinating Antarctic mapping and GIS programs
- Promoting open standards approach to support free and unrestricted data access
- Promoting capacity building within all SCAR nations

## User Communities

- AntSDI's primary user community is  
**the multi-disciplinary Antarctic Research Community**
- AntSDI is an essential part of the required IPY data infrastructure (International Polar Year 2007-09)
- other potential communities include:
  - politics (CEP: Antarctic Protected Area System as part of the ATS)
  - logistics operators (COMNAP: reporting, field activities, etc.)
  - tourism industry (IAATO)

## How is AntSDI being created

- Area of Interest for SCAR:  
Antarctica, its offshore islands, and the surrounding ocean including the Antarctic Circumpolar Current, the northern boundary of which is the Subantarctic Front.
- Area of Interest for the Antarctic Treaty System:  
The area south of 60° South



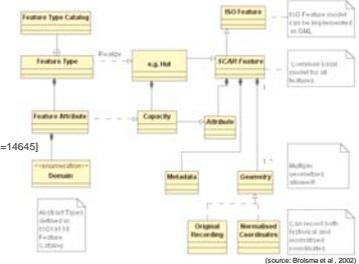
## How is AntSDI being created

- ISO 15926-1  
Geographic Information/Geomatics
- Developments based on ISO TC211 standards
  - SCAR has liaison status to TC211 (one of the few genuine scientific organizations)
  - Examples of candidate standards include:
    - ISO 19110 / DIS19135: SCAR Feature Catalogue
    - ISO 19112: SCAR Composite Gazetteer of Antarctica
    - ISO CD19136: GML
    - ISO 19115 / PDTS19139: Metadata
    - ...

## How is AntSDI being created

- SCAR Feature Catalogue: an essential part of the SCAR Spatial Data Standards Project (coordinated by the Australian Antarctic Division)
- to ensure common semantics
- based ISO 19110

[www.aad.gov.au/default.asp?casid=14645]



## How is AntSDI being created

- Framework data:

the flagship: SCAR Antarctic Digital Database  
continent wide topography  
scale: 1:1 Mio / 1:5 Mio  
created and maintained by  
British Antarctic Survey



[www.add.scar.org]

selected large scale framework data for specific areas:  
e.g. SCAR King George Island GIS (SCAR KGIS)

other medium to large scale framework data  
developed and provided by national institutions

## How is AntSDI being created

- Place-names

SCAR CGA

Composite Gazetteer:  
Compilation of  
national gazetteers

35277 entries

- challenges:

political issues  
feature identification  
multi-naming  
positioning



## How is AntSDI being created

- Metadata catalogue for  
data discovery:

Antarctic Master Directory

- part of  
Global Change Master  
Directory

- within JCADM's responsibility  
(Joint Committee on  
Antarctic Data Management)

- not yet fully spatially enabled



[http://gcmd.nasa.gov/KeywordSearch/Home.do?Portal=amd]

## How is AntSDI being created

- Service Oriented Architecture (SOA)  
is currently being implemented

- open and shared standards and interfaces,  
e.g. OGC WMS, OGC WFS, OGC WCS

- in the scientific context WMS is an appropriate service for  
data discovery and portrayal tools

- scientists want direct access to data,  
once the tools used by researchers implement OGC  
interfaces, WFS and WCS will become important data  
access services for modelling, data mining, etc.

## Conclusions

- AntSDI is implemented in a highly international and  
collaborative context
- AntSDI implementation efforts by SCAR EG GI:
  - develop policies
  - implement basic services and demonstrator projects for a SOA
  - provide selected framework data
- AntSDI has its focus on data use and data applications in a  
scientific context
- AntSDI has great potential for politics, operations management,  
tourism, education, etc.
- Implementation of AntSDI needs to be supported by capacity  
building efforts
- AntSDI has to be in place for IPY 2007/2009

## Thank you for your attention!



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