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

Antarctic Treaty System

- 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

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

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]

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 EGGI
- 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]
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

- 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
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
  - 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
  - [www.add.scar.org](http://www.add.scar.org)

Place-names

- SCAR CGA
- Composite Gazetteer: Compilation of national gazetteers
- 35277 entries
- challenges:
  - political issues
  - feature identification
  - multi-naming
  - positioning

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

- 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 an highly international and collaborative context
- AntSDI implementation efforts by SCAR EG GI:
  - develop policies
  - implement basic services and demonstrator projects for a SDA
    - provide selected framework data
  - 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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