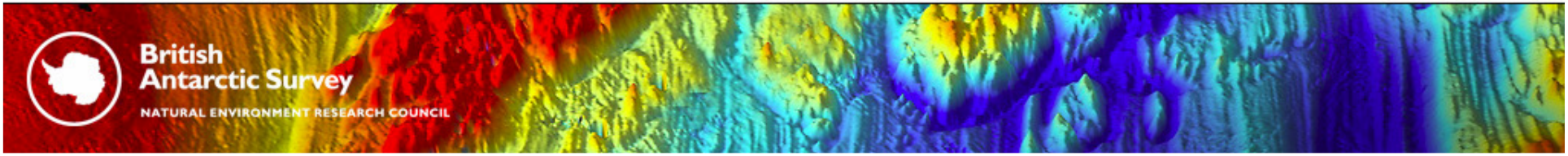
POLAR SCIENCE
FOR PLANET EARTH

Application of Standards in Antarctica

A Paul R Cooper

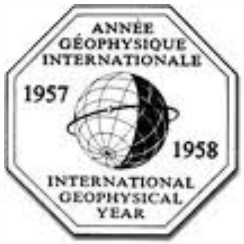


Application of Standards in Antarctica

- Background to the Scientific Committee on Antarctic Research
- Why is SCAR interested in Standards?
- History of Standards in Antarctic Mapping
- Standards currently in use
- Demonstration
- Summary

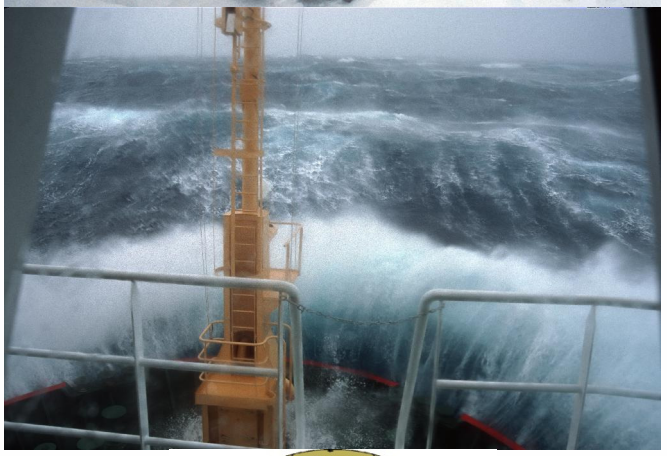
What is SCAR?

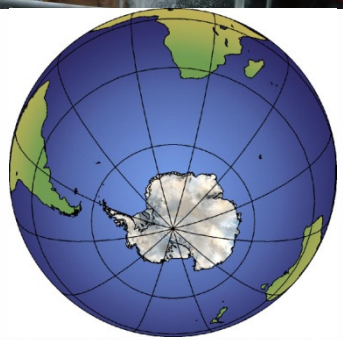
- Not the baddies in a 1960's TV series!
- The Scientific Committee on Antarctic Research
- A committee of ICSU, the International Council for Science
- Formed in 1957, during the International Geophysical Year
- Coordinates scientific work in Antarctica
- Advises the Antarctic Treaty system
- Has been involved in Antarctic Cartography since 1958



Geographic Information and SCAR

- Antarctica is a difficult place to map
  - Hostile climate
  - Remote
  - Vast distances (58 times as big as the UK, 1.4 times as big as the USA)
  - No infrastructure
- Combining different national resources is essential
- SCAR has coordinated cartography and geographic information since 1958.





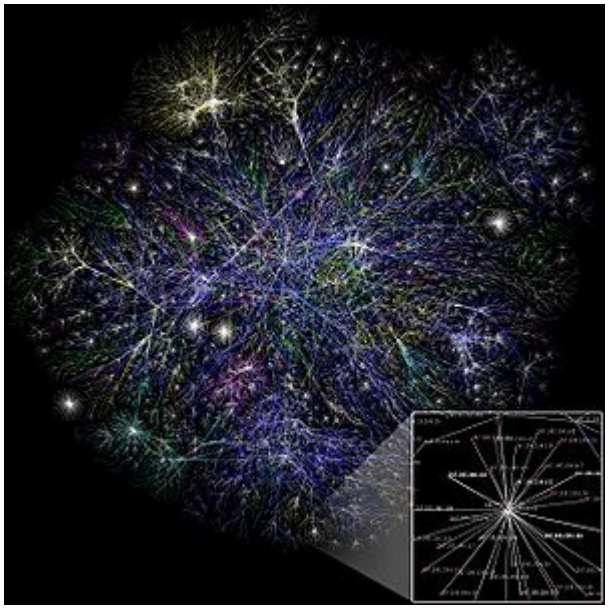
Why is SCAR interested in Standards?

- Joined up mapping requires standards
- Since 1961, SCAR has promulgated standards
- Published a standard legend for Antarctic maps in 1961
- Made recommendations for Antarctic map projections in 1961
- Made recommendations for reference ellipsoids and datums:
  - 1961 - International Ellipsoid
  - 1972 – WGS 72
  - Now – WGS 84
- Standards make maps created by different agencies “interoperable”
- Since 1996, SCAR has encouraged the use of ISO TC211 standards
- SCAR has been a Class A liaison organization since May 2002

Why Standards?

- Everyone in my field/organization uses <insert data format>
- International standards allow data sharing between different disciplines, organizations and countries.
- GIS crosses disciplinary and organizational boundaries.
- GIS allows data from different disciplines and organizations to be brought together
- Discipline or organization specific formats do not promote data re-use.

Why Standards? The Big picture



- Standards are vital for success
- THE Success story:
  - The Internet
  - Based on strong standards
  - Runs on diverse hardware and operating systems
  - Allows many suppliers to contribute.
- Failures too many to enumerate!
  - No standards, or poorly developed standards
  - OK while running in a well controlled hardware/software environment
  - Fail when exposed to the real world!

Standards used: ISO 19115 and ISO 19139 (Metadata)

- Most Antarctic data has a location
- ISO 19115 is the primary standard for Antarctic Data
- Global Change Master Directory uses a minimal implementation
  - Antarctic Master Directory is a sub-set
- Most Antarctic Datasets have a presence there
- Fuller implementations used in specific projects

Standards used: ISO 19110 (Feature Cataloguing)

- The Antarctic community is multi-lingual and multi-cultural
- The Antarctic treaty has four Official Languages – English, Russian, French and Spanish.
- The Antarctic Treaty is currently acceded to by 48 nations.
- Even people who speak English can have misunderstandings!
- ISO 19110 ensures we are all talking about the same thing.
- The SCAR Feature Catalogue is maintained by Australia
  - http://data.aad.gov.au/aadc/ftc/
- It covers topographic features with focussing on those peculiar to Antarctica.

Other (non-ISO) Standards

- OGC web services are widely used
- Antarctic Digital Database (www.add.scar.org)
- USGS
  - LIMA
- National Snow and Ice Data Centre
- Standards VITAL in all web-based applications!

Demonstration

Summary

- SCAR is an international community
- Standards are vital to make sharing data work
- Standards are vital to create services of use for all
- Standards are a basis for solutions working in diverse environments.

Thank-you!