

The Cybercartographic Atlas of Antarctica

July 2002

Introduction

- Originated in Argentina. Grew from Latin American Cybercartographic atlas project
- Presented at SCAR in Tokyo in 2000
- Seeking major funding with some measure of success
- Etc..

Definition of a Cybercartographic Atlas

- On-line
- Multimedia
- Multisensory
- Etc.

Atlas Description

- A Cartographic Information System that uses a variety of Information Technologies including GIS, however the map is the primary interface rather than a simple output or display device.
- Presents information at global, continental and local scales
- Potential user communities include scientists, policy makers and the general public

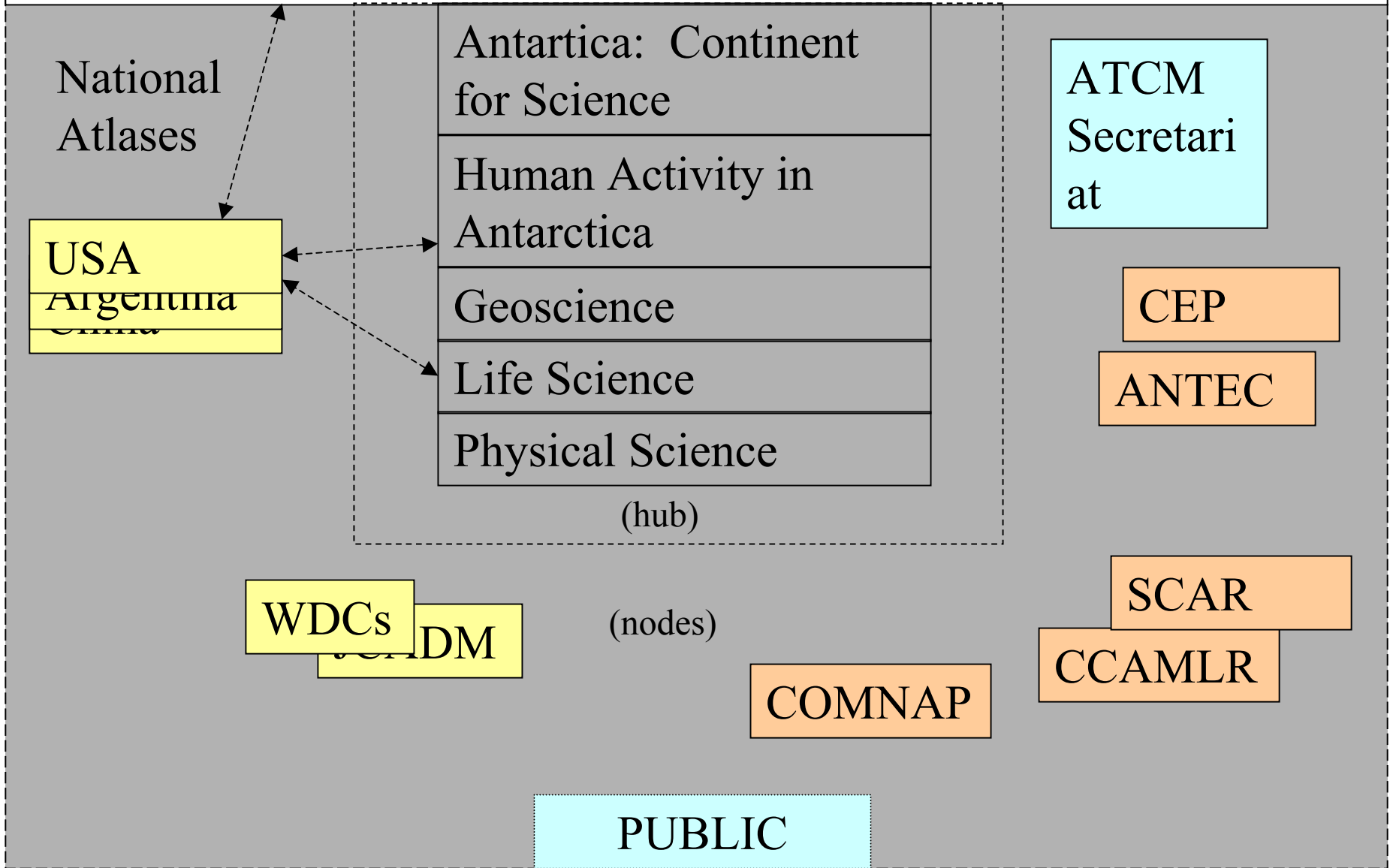
Goals of the Cybercartographic Atlas of Antarctica

- Create an innovative new product and methodology to compliment discovering, utilizing, presenting and distributing existing information and data about Antarctica to a wide variety of users, including scientists, decision makers and the general public
- Facilitate increased cooperation and information exchange between Antarctic stakeholders under the terms of the Antarctic treaty
- Through international cooperation, to develop and link National Atlases of Antarctica

General Themes of the Atlas

- Antarctic Environment – A holistic interpretation of the human and physical Antarctic Environment (SCAR, CCAMLR, General Public – All users)
- Geosciences (SCAR)
- Life sciences (SCAR)
- Physical sciences (SCAR)
- Antarctic Treaty System (ATCM,SCAR,PUBLIC)
- Human Impact (General Publics,COMNAP,SCAR)
 - Marine Management Fisheries)
 - Built environment
 - Tourism
- Education and general knowledge for the public including
 - History
 - Virtual participation of users in real-time

Model for Cybercartographic Atlas of Antarctica



Users



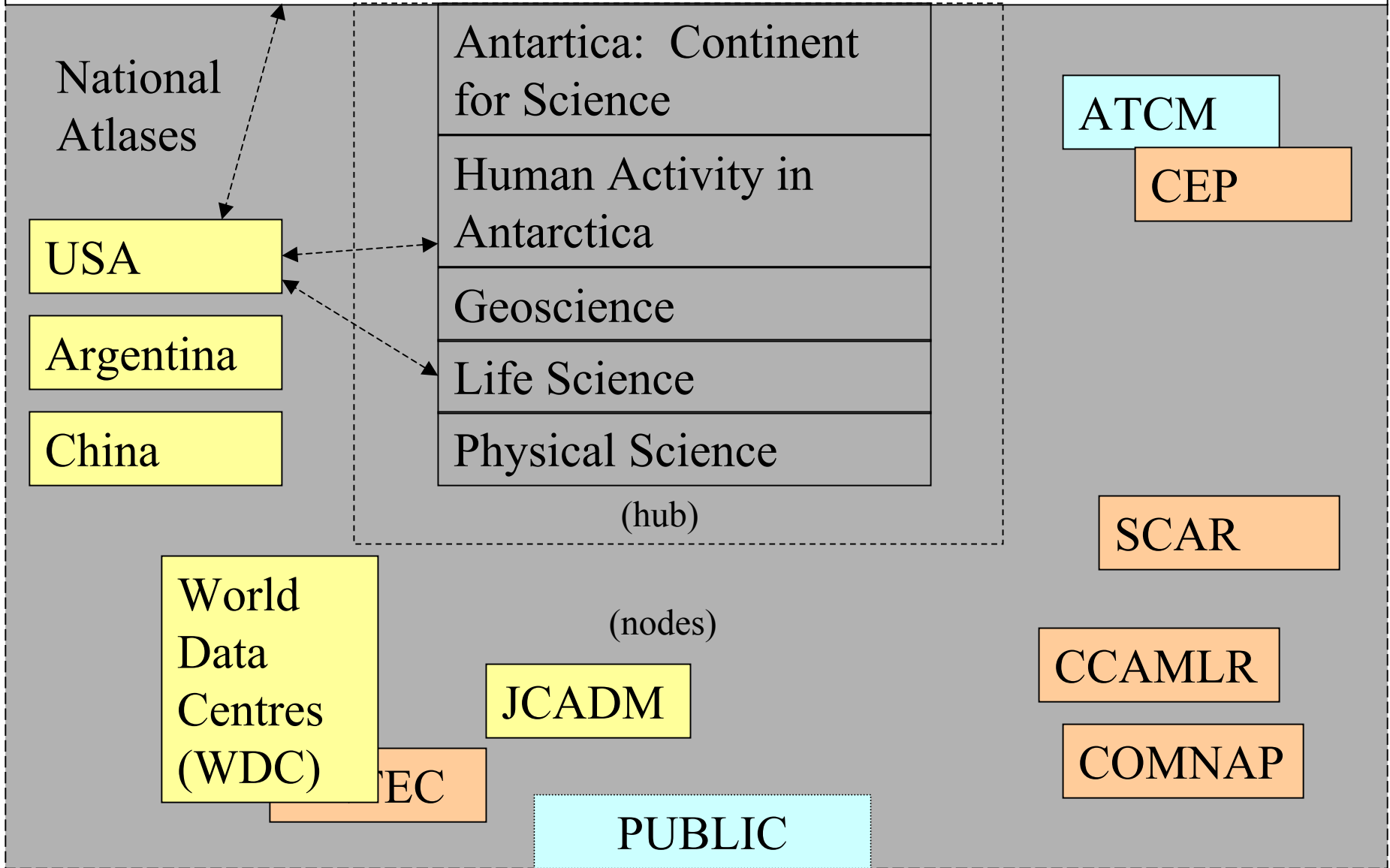
Providers



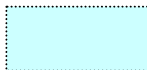
User/Providers



Model for Cybercartographic Atlas of Antarctica



Users



Providers



User/Providers



Methodology

- Distributed system
- Adoption of interoperability, metadata, archiving and production standards
- User centred design with the potential for multiple user interfaces
- Use of alternative interfaces termed “abandonware”

Content

- Interactive maps
- Remote Sensing Imagery
- Real-time geo-locationing (i.e. GPS tracking signal)
- Pictures (informal, collections, art)
- Sound – oral history, sound archives, symphonies
- Video
- Movies (IMAX, Shackleton, documentary)
- Animation
- Text (Books, articles, references)
- Process models
- Live Webcam
- Virtual Reality, HUD – historical recreation
- Near real-time expedition feedback
- Chat – communication
- Repository of artifact – electronic pinboard
- [Archive – content produced by the atlas]

Resources

- Antarctic Master Directory
- World Data Centres
- National atlases
- Satellite image repositories
- CCAMLR
- COMNAP
- Other public and private databases
- SCAR Working groups (I.e. Composite names gazetteer, Antarctic Digital Database, ADGRAV, ADMAP)
- Antarctic scientists
- Major Antarctic Research Institutes
- Antarctic Museums (Video, 3D models of artifacts)

List of Potential Contributions

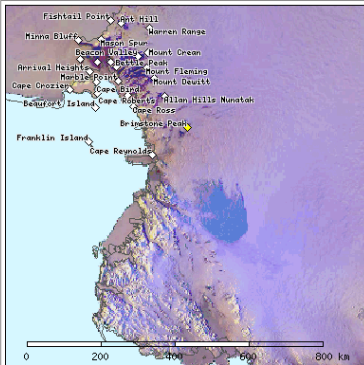
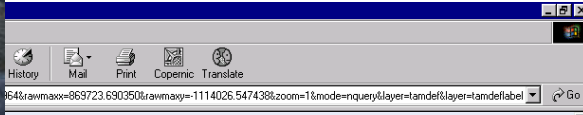
- Antarctic Geodesy
- Chinese Atlas of Antarctica
- Decline of Elephant Seals
- Ice Shelf Breakup
- Human Activity in Antarctica

* Current projects?

Antarctic Geodesy

- Focus: Comprehensive examination of geodesy in Antarctica. A review of geodesy from the era of astronomic observations to the present use of millimetre accuracy space geodesy
- Geographic Coverage: Continental
- Content description: Maps, satellite imagery, geodetic control points
- Managing group: GIANT

Antarctic Geodesy



Reference Map

Query Results

Name: Brimstone Peak
 Code: BRMD
 Ellipsoidal Height: 2084.360
 Web Link: [Station Summary](#)
 Latitude: S 75d 48m 00.91s
 Longitude: E 158d 28m 07.63s

Results showing 9999 indicate no data available

For precise geodetic coordinates of these points please contact the [WG-GGI Executive Officer](#)

Geodetic Control Database

Map Display

Pan / Recenter Map

Select a pan or zoom function from the list above

and click on the map in the area you wish to view.

Query Point / Feature Information

Browse the Map

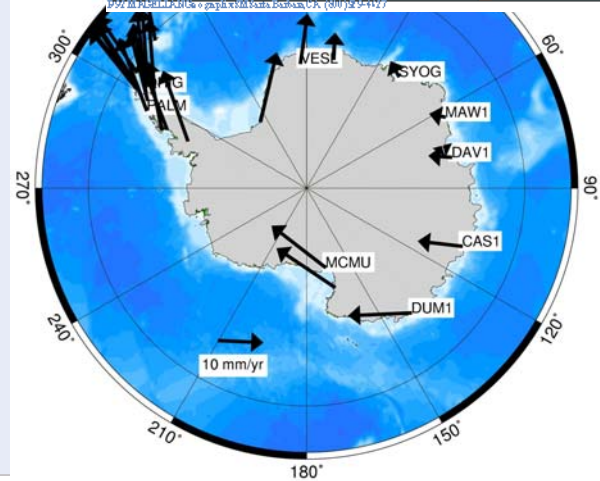


Layer Display

1. On the map - zoom to the area you wish to view
 2. Select a layer to display from the following list
 3. Click the Refresh Layers button

- | | |
|---|--|
| <input type="checkbox"/> ★ Argentinian Astro Points | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ Australian Geodetic Control | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ▲ Australian Other Survey Control | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ■ Australian Bench Marks | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ★ Australian Astro Points | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ British Geodetic Control | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ Chilean Geodetic Control | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ GAGPS GPS Points | <input type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ New Zealand Geodetic Control | <input type="checkbox"/> Label this point |
| <input checked="" type="checkbox"/> ◆ TAMDEF Geodetic Control | <input checked="" type="checkbox"/> Label this point |
| <input type="checkbox"/> ◆ Victoria Land Geodetic Control | <input type="checkbox"/> Label this point |

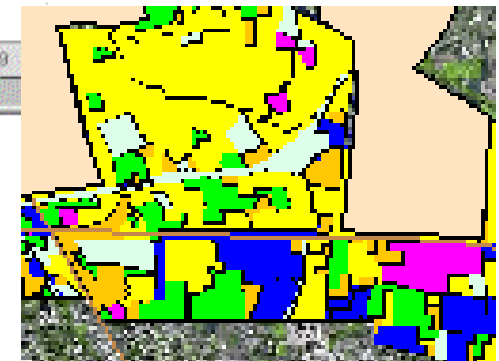
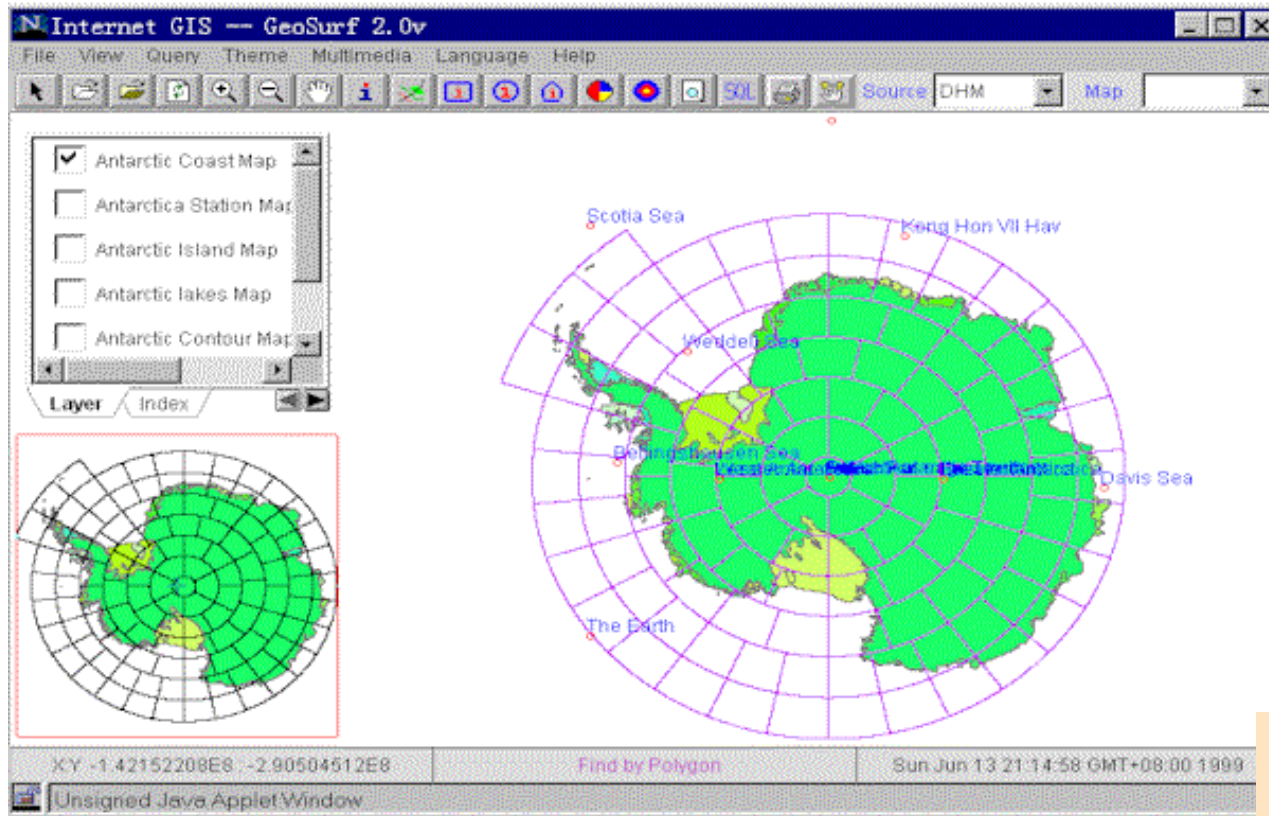
Refresh Layers



National Contributions: Chinese Atlas of Antarctica

- Focus: An Atlas providing a broad coverage of a variety of topics related to Antarctica
- Geographic Coverage: Global, Continental, Local
- Content description: Maps, Satellite Imagery, Multimedia
- Managing group: Chinese Antarctic Center of Surveying and Mapping, Wuhan University
- Interest to government: ?

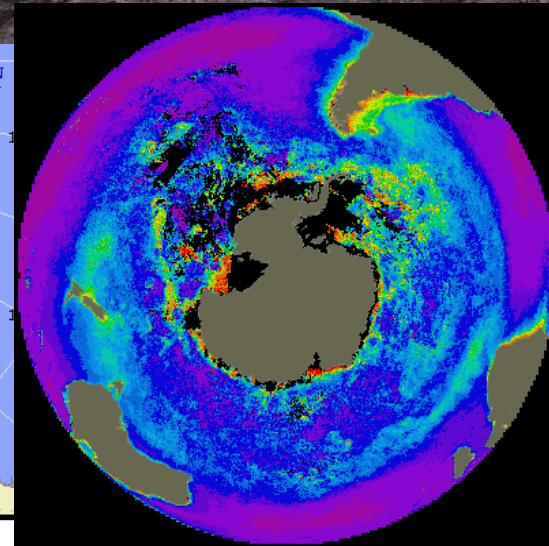
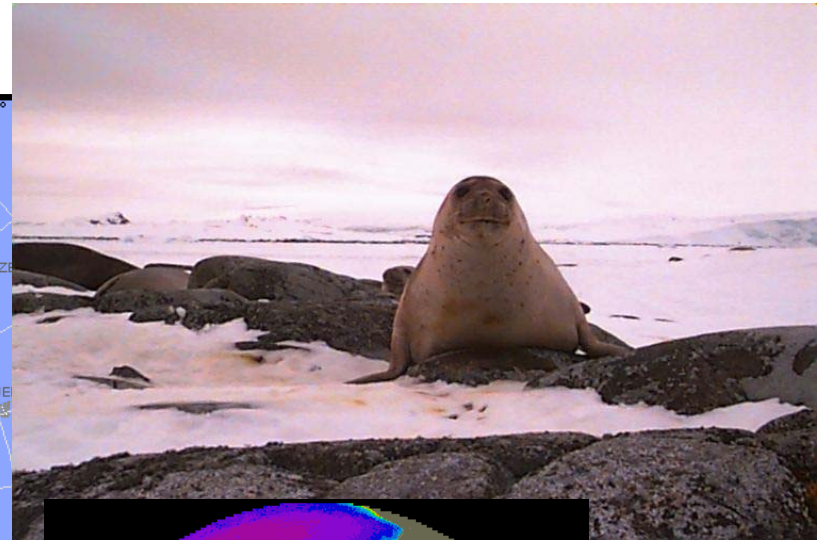
Chinese Cybercartographic Atlas of Antarctica



The Impact of Climate Variability on Elephant Seals

- Focus: An investigation of the observed and potential effects of global warming and rare ecological events on the life cycle of the Elephant seal
- Geographic Coverage: Continental, Local
- Content description: Maps, satellite imagery, graphs, scientific literature, Webcams, GPS tracking of seals
- Managing group: Argentinean-Belgian cooperation

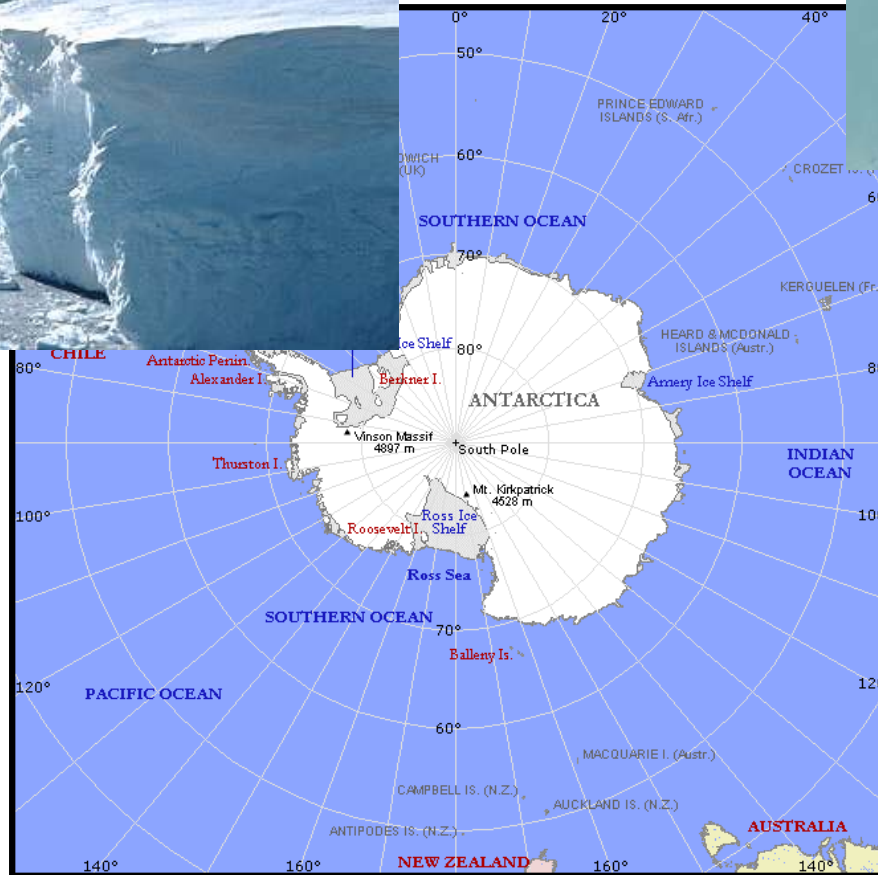
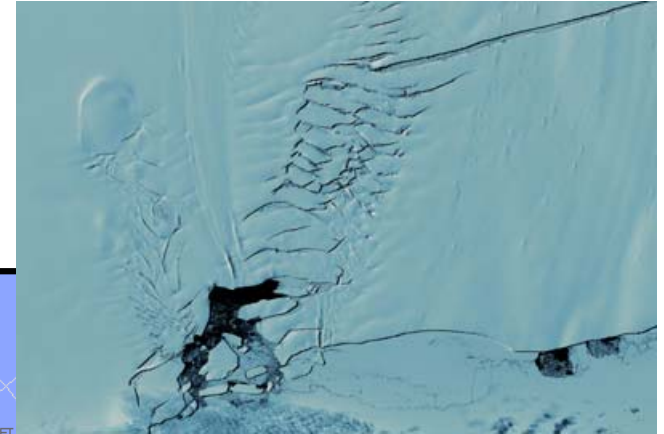
The Impact of Climate Variability on Elephant Seals



Ice Shelf Breakup

- Focus: An investigation of the nature and potential causes of recent ice shelf breakups
- Geographic Coverage: Regional - Ross, Larsen, Bellinghausen
- Content description: Maps, animation – time series, text, near real-time satellites
- Managing group: ?

Ice Shelf Breakup



Human Activity in Antarctica

- Focus: Presentation of the movement of people and goods on the Antarctic continent.
- Geographic Coverage: Global, Continental, Local
- Content description: Airstrips, Stations (Webcams), Protected Areas (location, photographs, management plans), treaty text, historic monuments, tourist ships, meteorological information
- Managing Group: Hub (Carleton University)

Human Activity in Antarctica



Future of the Atlas

- Project schedule
 - Several projects in progress
 - Development phase
 - Tentative – January, 2003
 - Demonstration to the first SCAR international conference (?2004, 2005?)

Invitation to Participate

- SCAR Working Groups
- IAATO
- CCAMLR
- COMNAP