

# The IBCSO Data Compilation SOGIS: Data Management and Processing

## Southern Ocean

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## Geographic Information System

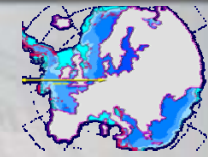
Norbert Ott & Hans Werner Schenke

Alfred Wegener Institute for Polar and Marine Research  
Bremerhaven, Germany



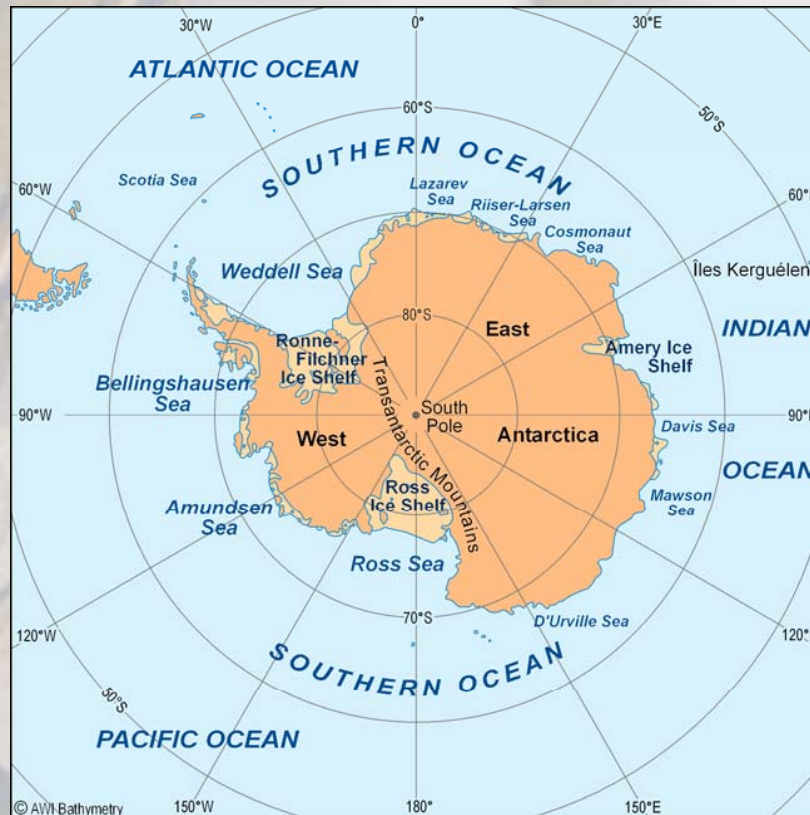
# Objectives

- **International collaboration**
- **Interoperable digital SOGIS**
- **Complementary data exchange**
- **Portraying seafloor topography**
- **Generating thematic maps**

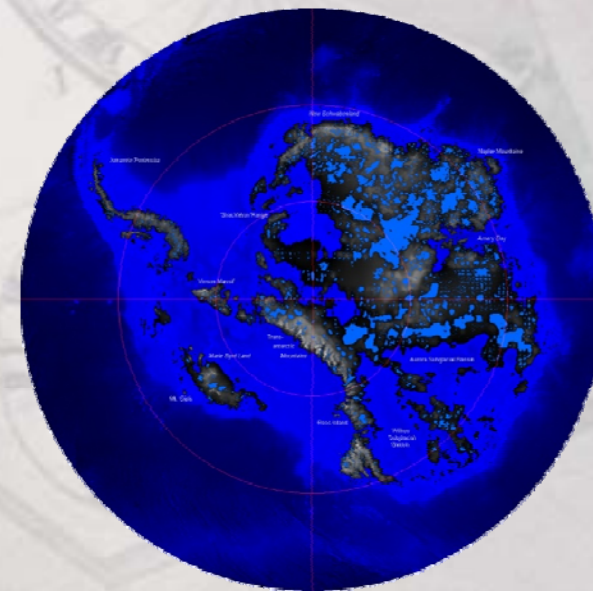


# Southern Ocean - Antarctica

## Sketch of Antarctica and the SO



## Rock surface and sea ground

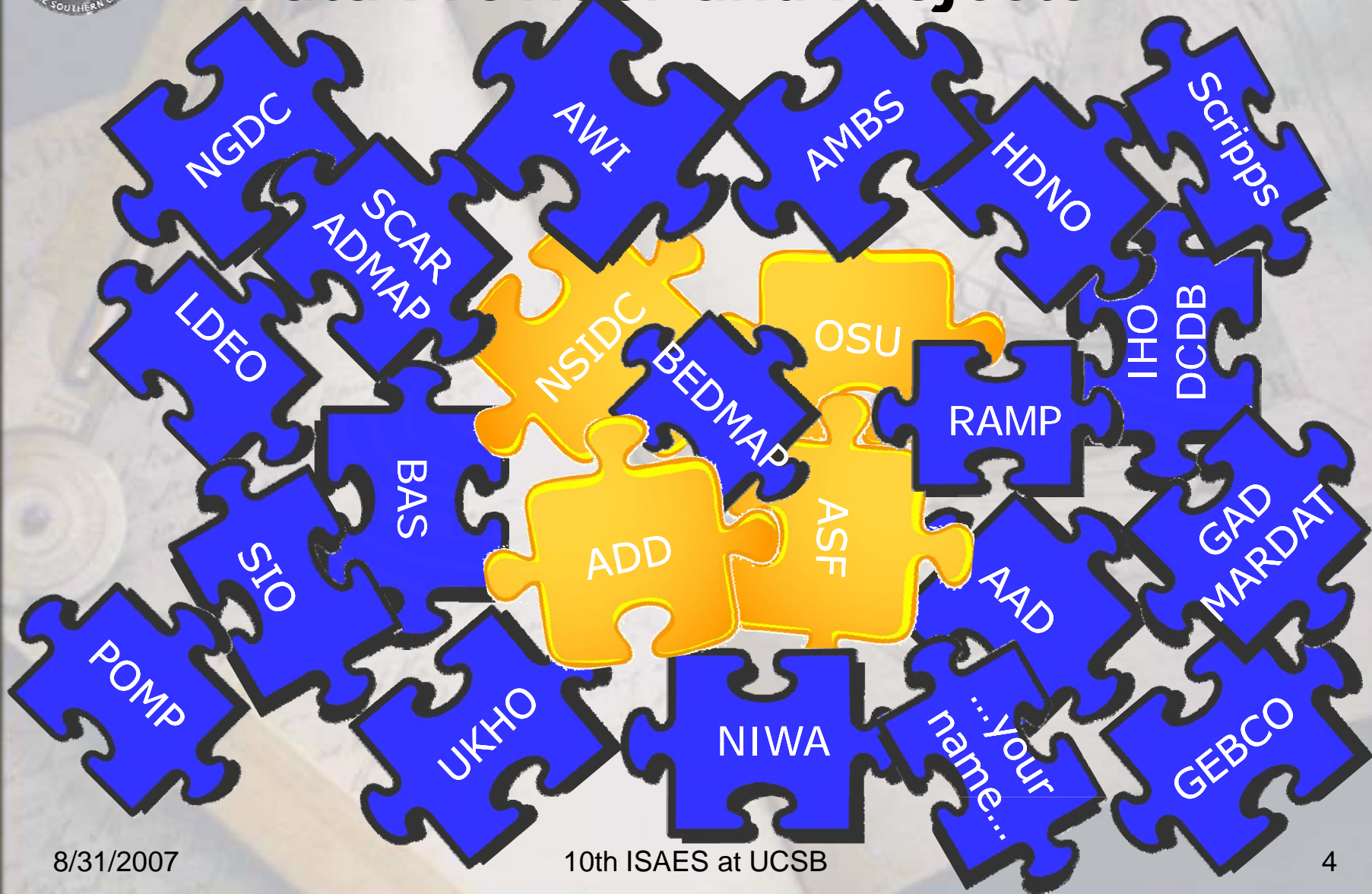


Source: BEDMAP, 2000





# Data Provider and Projects



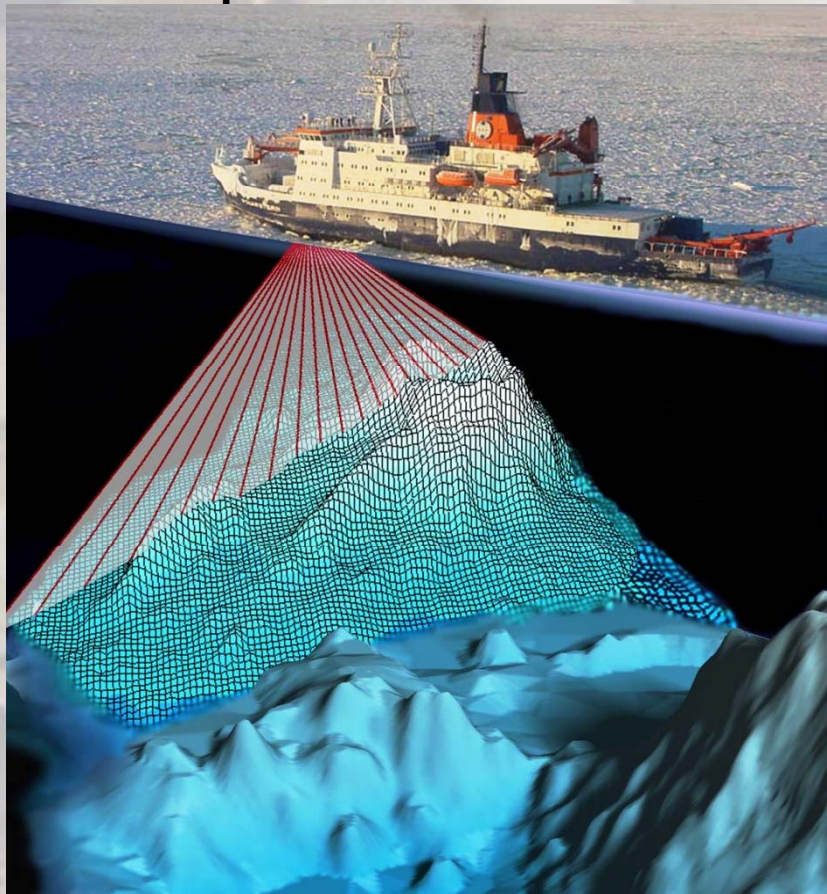




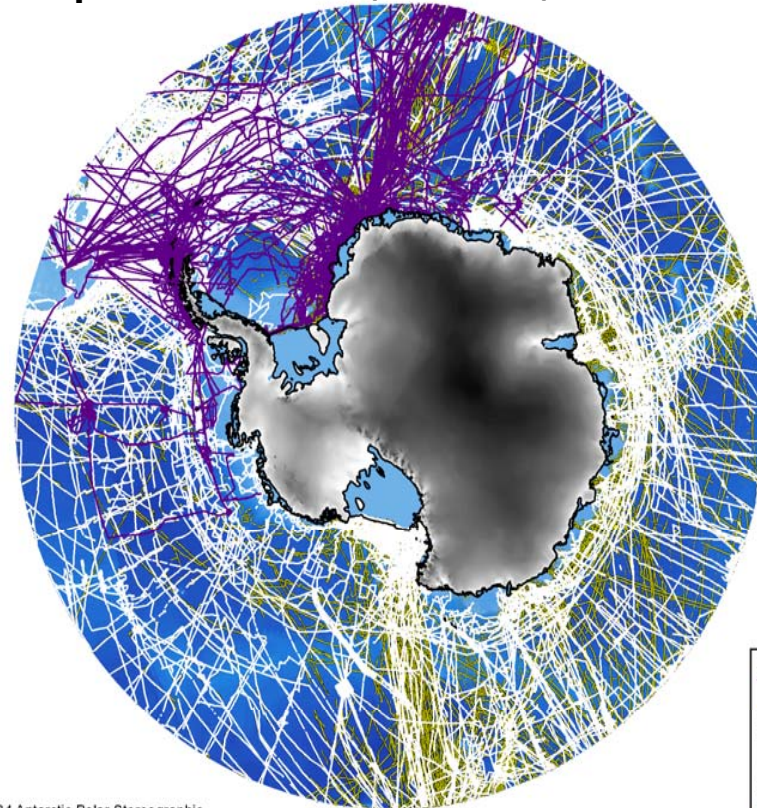
# Echo Sounding Data



## Depth Measurements



## Ship Tracks: AWI, GEBCO, IHO-DCDB



WGS 1984 Antarctic Polar Stereographic  
Projection Stereographic South Pole  
Standard parallel 65°S

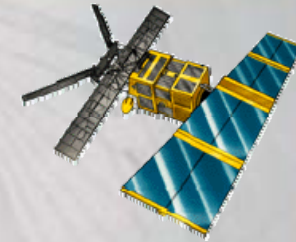
0 625 1.250 2.500 3.750 5.000  
Kilometers



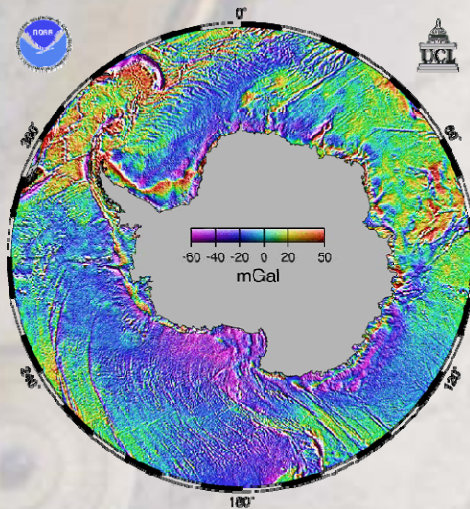




# Gravity Data

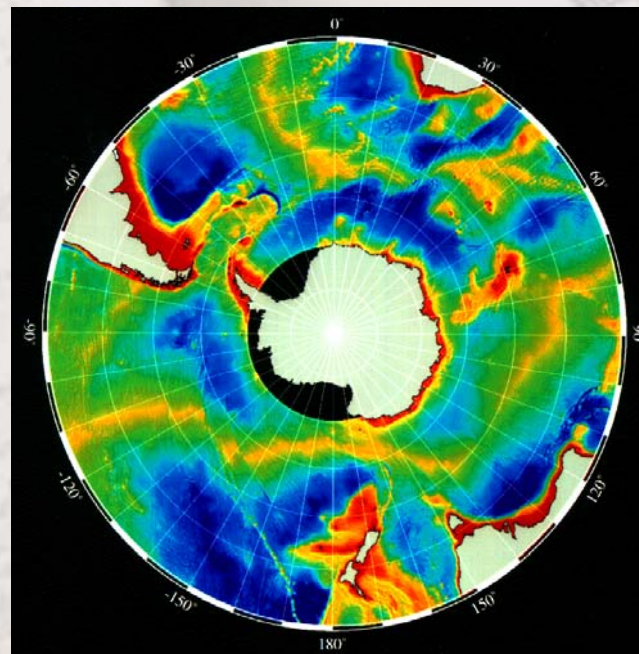


## Marine Gravity



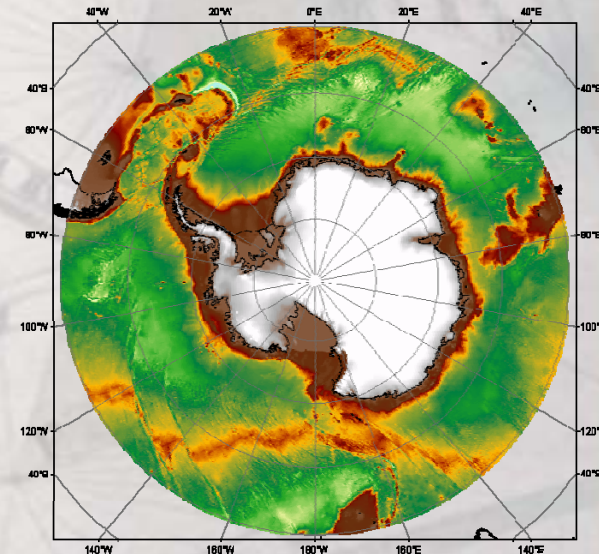
Source: McAdoo & Laxon, 1997

## Predicted Bathymetry



Source: Smith & Sandwell, 1997

## 2' Global Relief

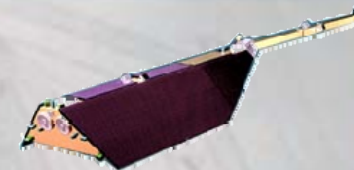


Source: NGDC, 2006

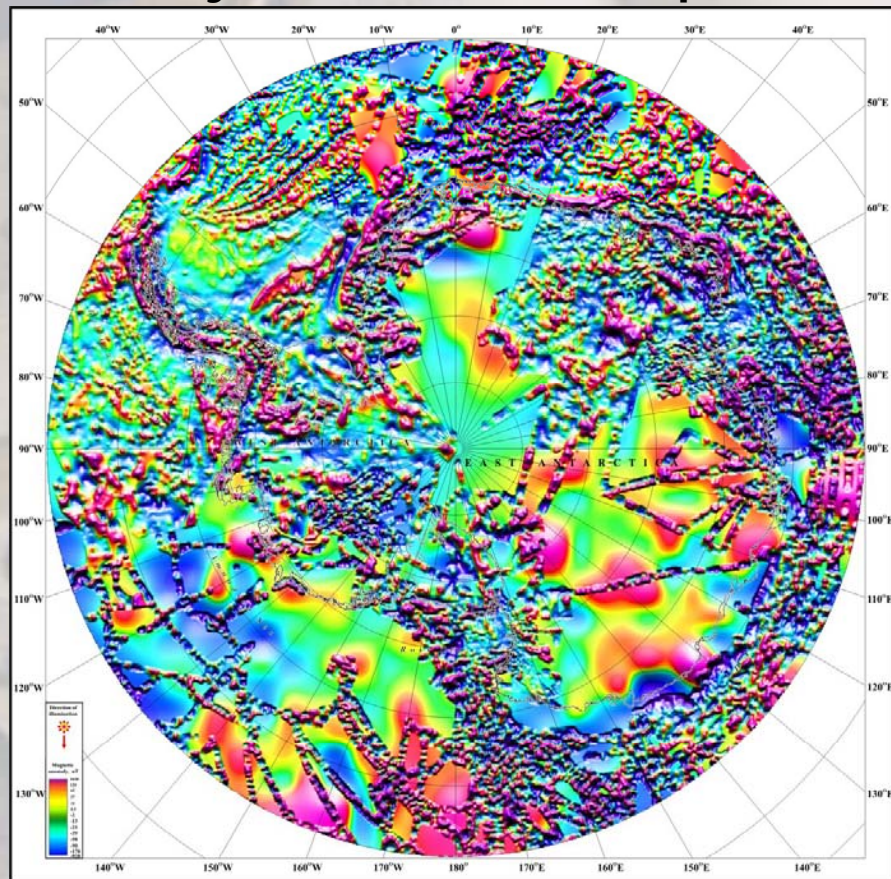




# Magnetic Anomalies

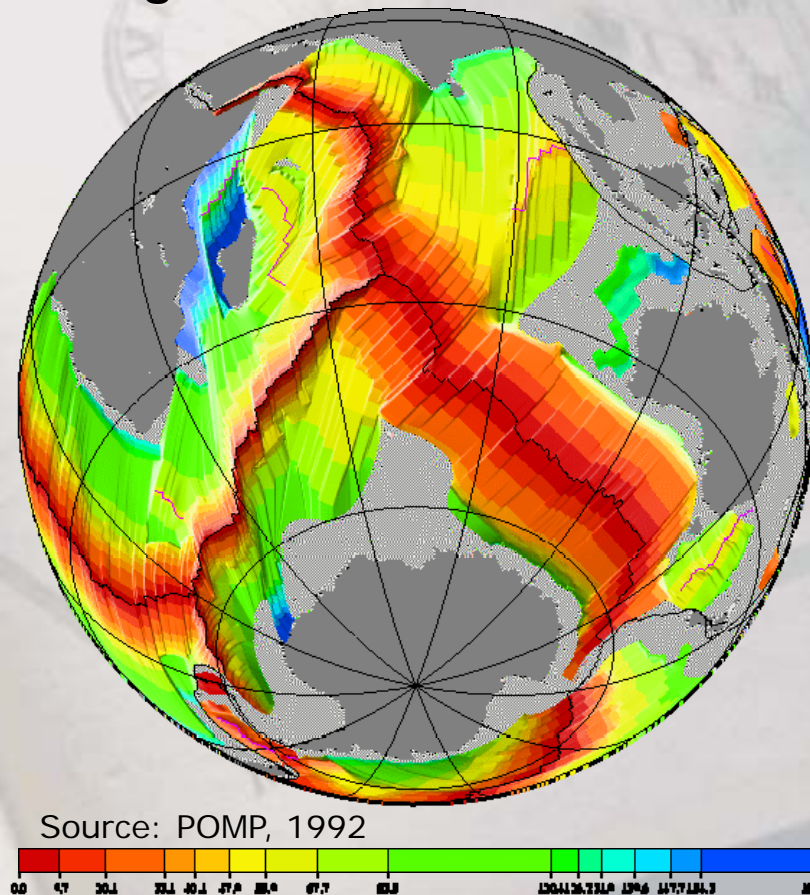


## Survey, Ørsted and Champ Data



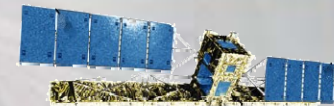
Source: ADMAP, 2007

## Age Grid of the Ocean Floor



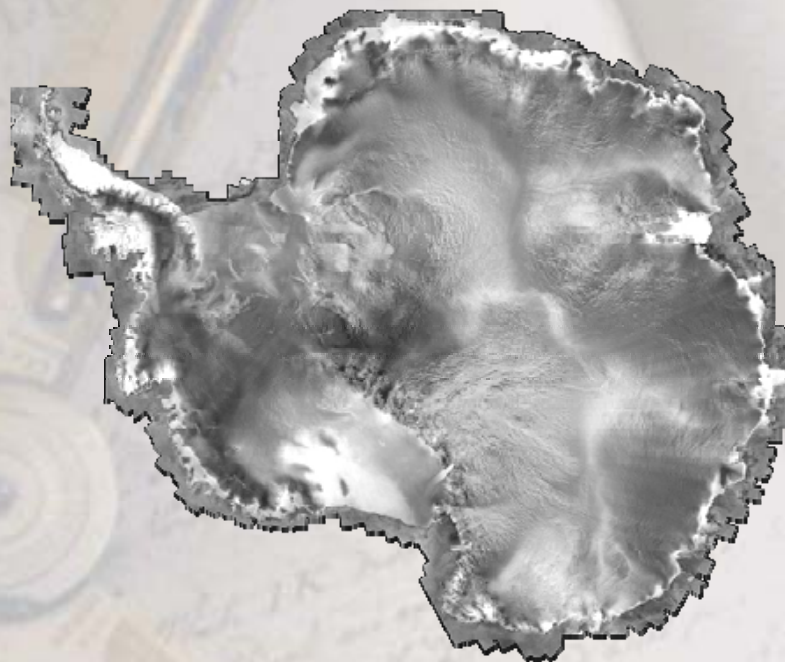
Source: POMP, 1992





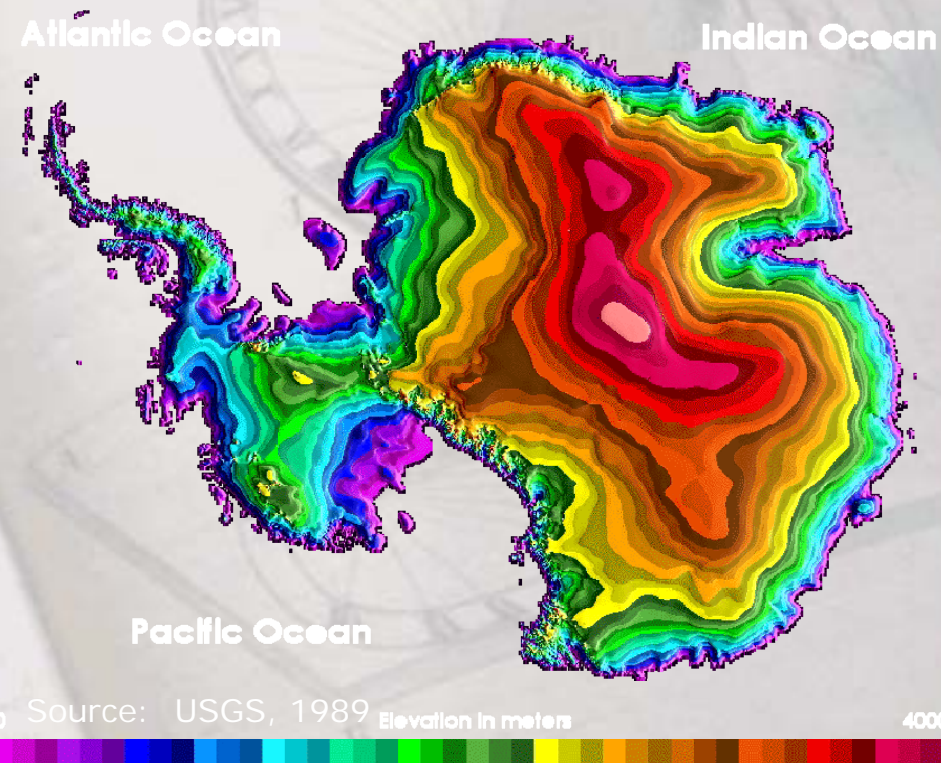
# Radar imagery and DTM

## Radarsat SAR Mosaic



Source: RAMP and AMM, 2007

## Digital Terrain Model



Source: USGS, 1989  
Elevation in meters 4000

**coastline, grounding line, ice edge, ice- and sea-bed topography**



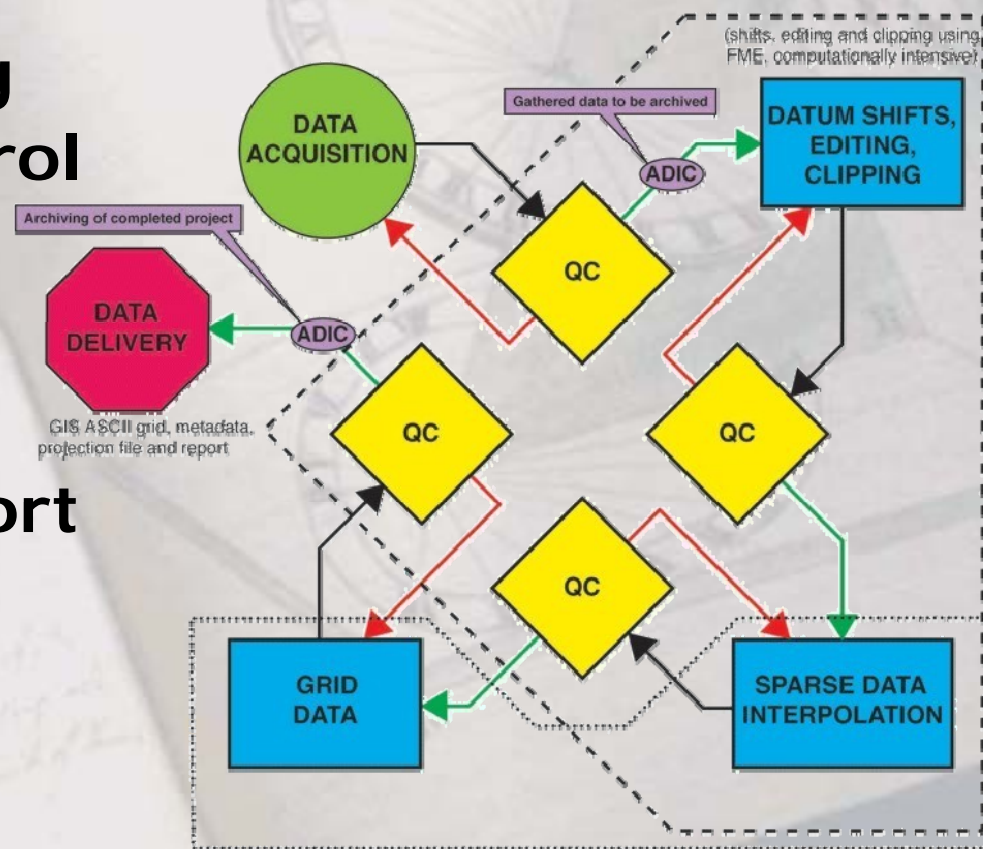


# GIS-Architecture

- **High end GIS**
  - Full data capabilities
- **GIS concept**
  - Desktop GIS (me)
  - Server GIS (AWI and me)
  - Web GIS (you)
- **Data storage**
  - Files vs. geodatabase

# GIS Data Processing

- **Ping-Processing**
  - profile de-spiking
  - geometrical control
  - quality control
  
- **GIS-Modeling**
  - data import, export
  - georeferencing
  - data modeling
  - data merge
  - quality control







## Prospective Tasks

- **Continuous data transfer**
  - backbone of the **SOGIS**
- **Evaluation of processing techniques**
  - data merge for optimized visualization
- **Collaboration with other efforts**
  - AMBS, ADMAP, BEDMAP, RAMP, SOOS, ...
- **IBCSO meetings/work shops**
  - 1<sup>st</sup> Meeting: Saturday, 8:00a.m. to noon



## Conclusions

- **Use of digital data**
  - flexibility
- **Implementation of SOGIS**
  - interoperability
- **Use of digital tools**
  - numerical analyzes
- **IBCSO products**
  - database, metadata, maps
  - operational network



# Acknowledgements

-    and 
  - Supporting the IBCSO program
- Friends of the  and 
  - Providing knowledge and information
- Collaborating facilities
  - Providing cooperation and data
- 
  - Funding and logistics
- ISAES Office at 
  - Thanks for your kind assistance