UK Argo Data Centre and the Southern Ocean Regional Data Centre (SORDAC)

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UK Argo sponsors

Funding for UK Argo is provided by:

Department of the Environment, Food and Rural Affairs (Defra)

- climate prediction

Ministry of Defence (MoD)

- ocean forecasting
- seasonal forecasting

Natural Environment Research Council (NERC)

- ocean/climate science

UK Argo Project

- UK Argo is undertaken by a partnership of the Met Office (who also manage the project); National Oceanography Centre, Southampton; BODC and UK Hydrographic Office
- BODC acts as the Data Assembly Centre for UK floats in the Argo programme regardless of their location
- UK Argo float data can be accessed from either of the two Global Data Assembly Centres (GDACs)

The BODC Web site also provides:

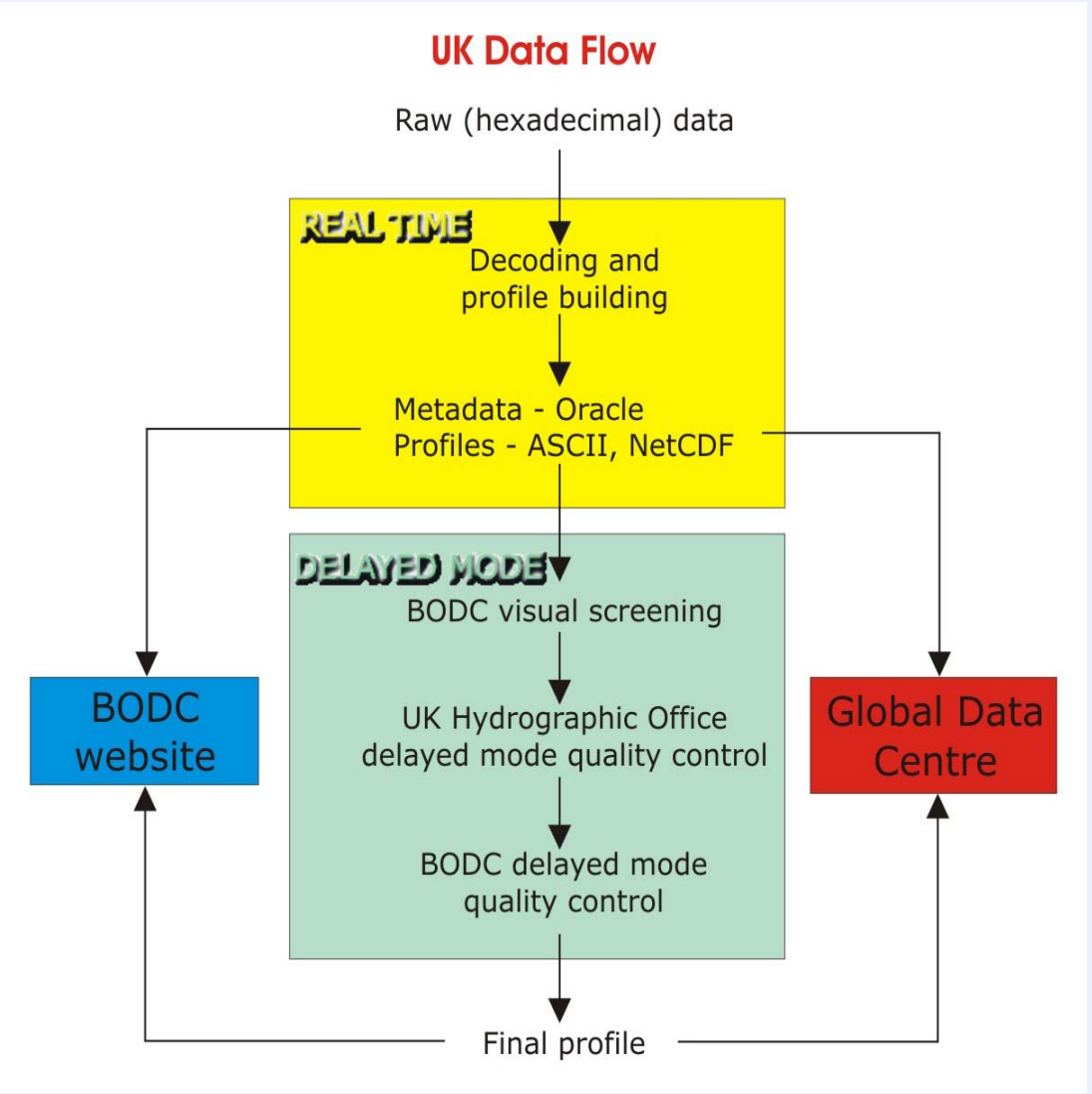
- Information about the current status of each UK float
- Information for each UK Argo float deployment
- Data are available via an interactive map and a selection form

UK Argo Data Management

The primary functions of the data centre are to:

- facilitate timely delivery of *'real-time*' UK Argo data
- provide information on *UK float status*
- *validate the 'delayed-mode*' data in collaboration with UKHO and NOC, Southampton
- ensure timely *delivery of 'delayed-mode' data* to the UKHO's databases
- collaborate with the *international Argo community* in the management, exchange and dissemination of the 'delayed-mode' data, including the development and adoption of common protocols

Data flow in the UK



UK Hydrographic Office

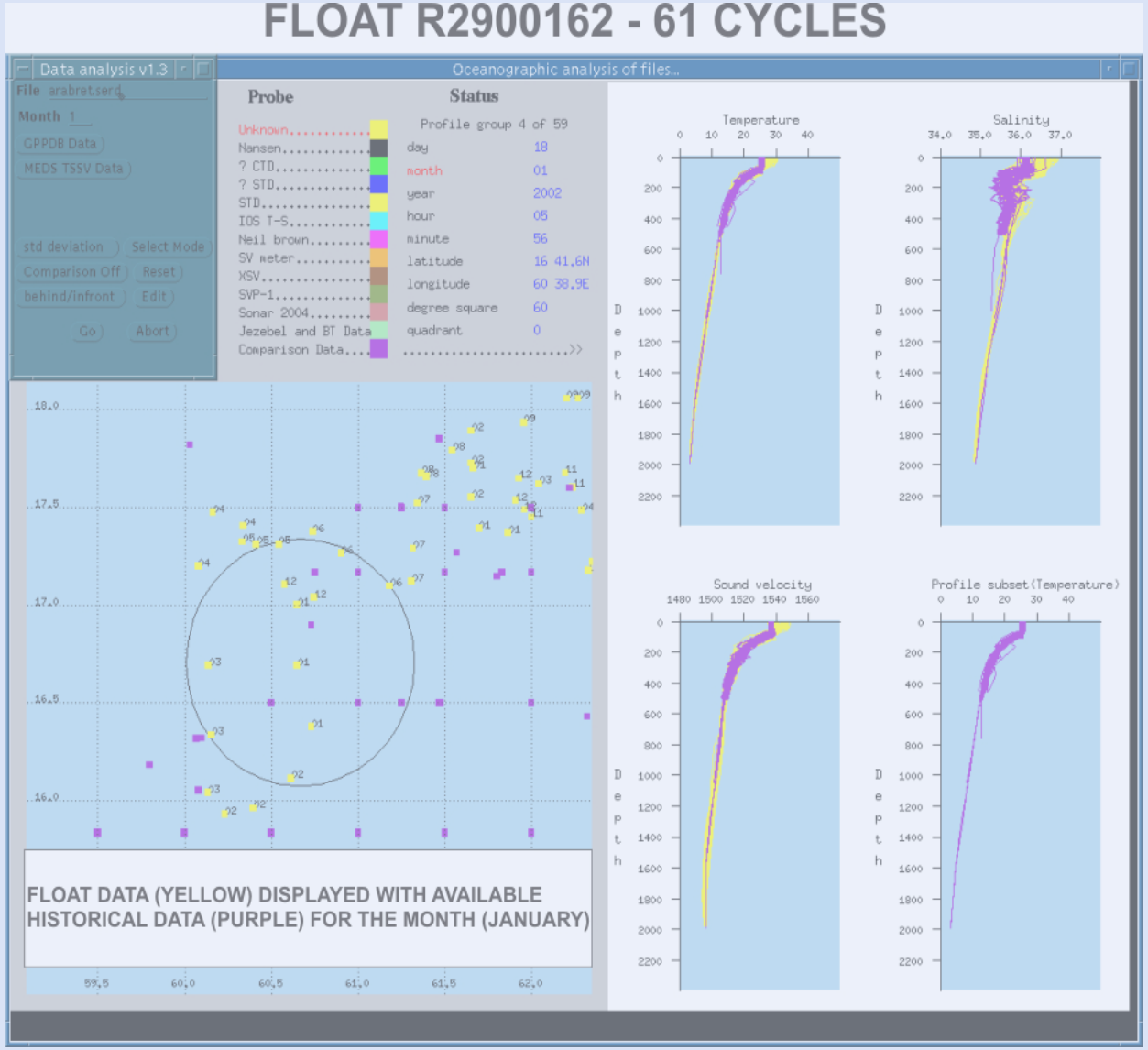
Software:

- Shows data location
- Displays data profiles (Argo and historical other data)
- Individual or multiple profile display
- Overlay variable standard deviation envelope to data

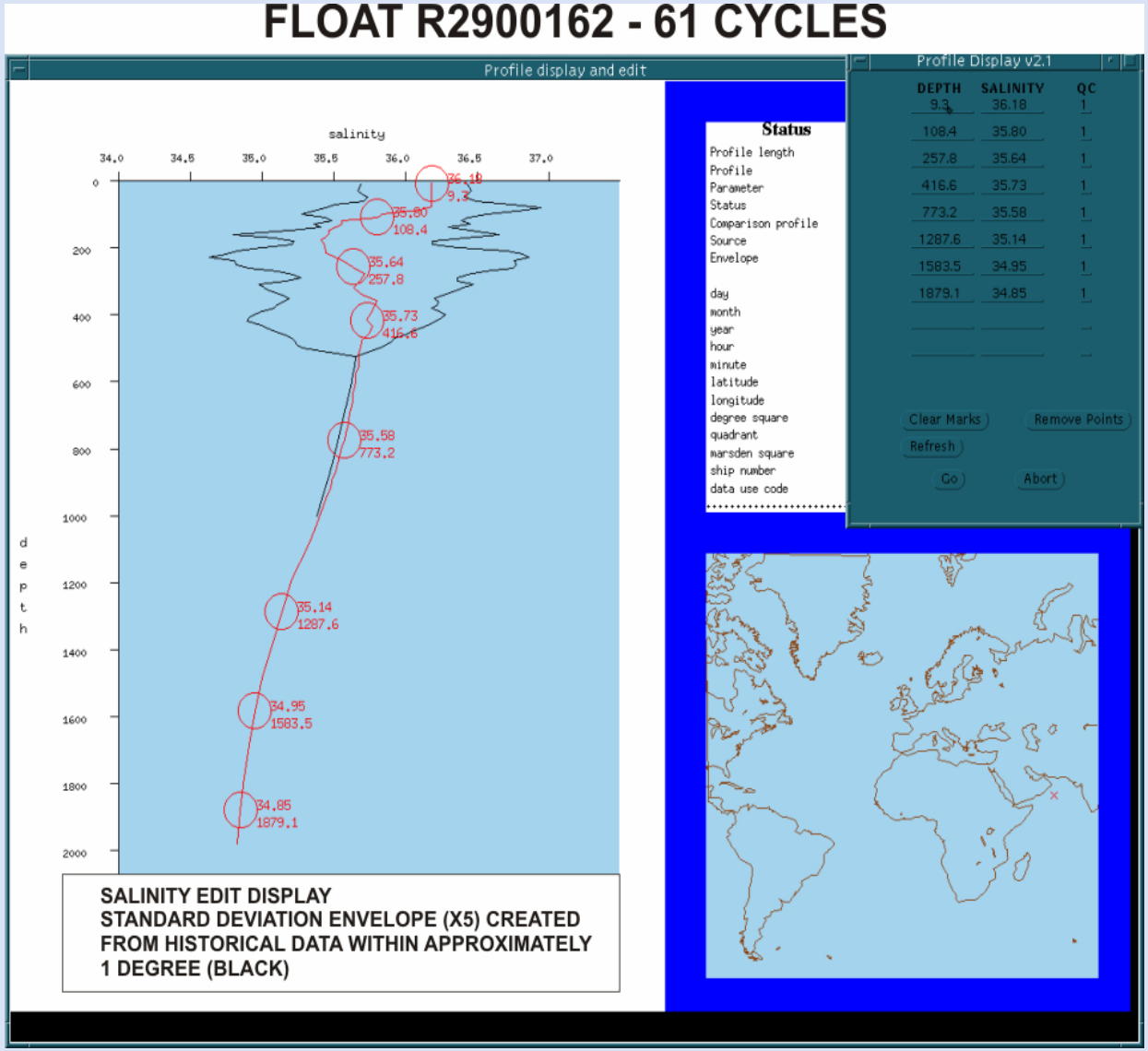
Procedure:

- Examine individual profiles
- Can edit but choose not to
- Flag problems
- Report compiled by software
- Data and report passed back to BODC for continuation of delayed mode procedures

UK Hydrographic Office Software



UK Hydrographic Office Software

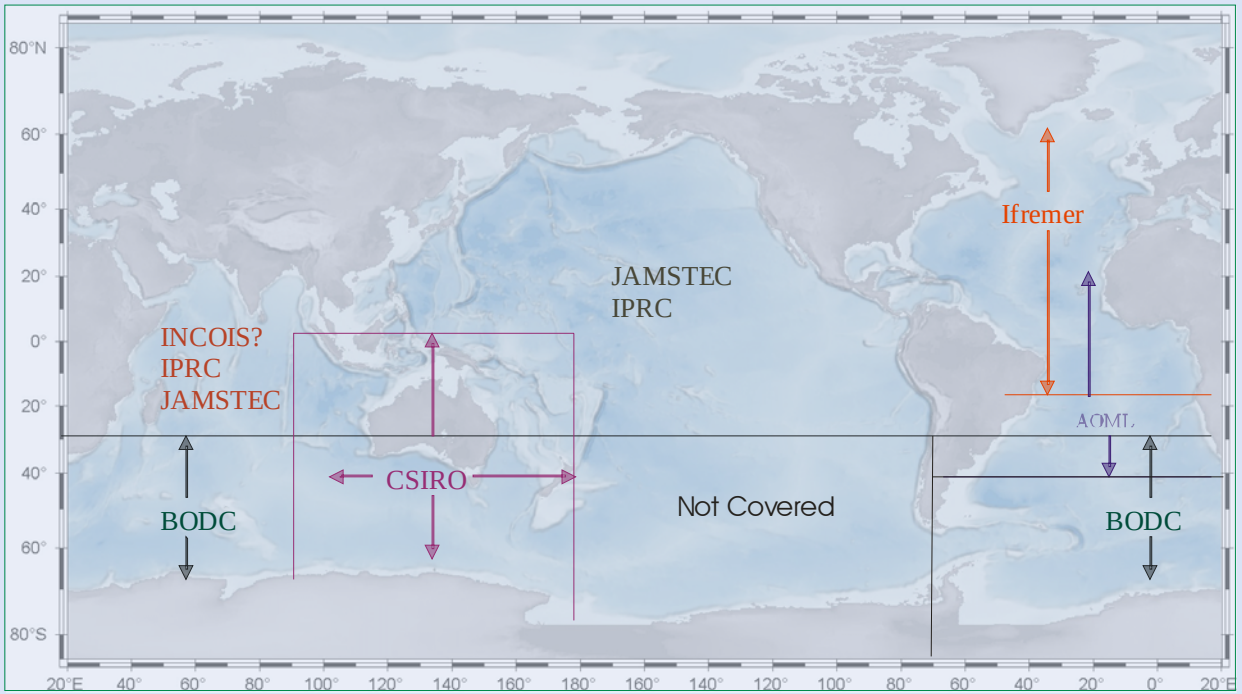


UK Hydrographic Office Experiences

- UKHO has looked at all UK data from July - December 2003.
- Comparatively few bad data found.
- More data was flagged as outside existing data but probably good.
- Sparse data in the Southern Ocean for comparison.
- Often seeing features in the Argo data that were not apparent in existing data (e.g. warm layers at depth).

Take care with comparisons to avoid introducing bias

SORDAC Responsibilities



Will operate south of 30°S => 5 - 10° overlap at the northern boundary with all other RDACs.

Atlantic Ocean Sector: BODC 70°W – 90°E

Indian Ocean Sector: CSIRO 90°E – 180°E; BODC remainder

Pacific Ocean Sector: Not yet determined.

SORDAC Setup

- Collaboration between BODC and CSIRO with BODC currently taking the lead.
- Agree to carry out the RDAC functions as set out by the ADMT, concentrating efforts initially on the required functions:

1. Perform regional analysis of all Argo data in the region
2. Provide feedback via national DACs to PIs
3. Develop a regional historical data set
4. Prepare and distribute Argo data products
5. Prepare and distribute documentation on the RDAC activities

Perform regional analysis

- BODC and CSIRO will compare all Argo data in their respective regions against available recent hydrographic data.
- Data will be obtained directly from the GDACs
- Both groups will perform the same tests
- In regions of overlap results will be compared
- Ideas and software will be exchanged

Provide feedback to PIs

- Results of tests will be forwarded to the DAC responsible for the float.
  - The RDAC will NOT make any changes to the data only suggest changes.
- The RDAC will ask the DACs to update the files to indicate that tests have been performed even if all tests have been passed.
- The RDAC will ask for advice from either the DAC or the PI when required. The PI has the final say.
- The RDAC requests that PIs and national DACs provide the deployment CTD data where available.

Develop a regional historical data set

- WOCE will be used as the basis.
- Other data will be added
  - WOD 2001 – Will be cleaned up
  - Other relevant agencies, e.g. Alex Orsi (Texas A+M University), CLIVAR, BAS etc.
  - BODC & CSIRO holdings
  - CTDs from the deployment cruises
  - Good float data

Maintenance of regional historical data set

- BODC will act as custodians
  - Ensure the format
  - Prevent duplicates within the data set
  - Prevent duplicate copies of the data set
  - Enable version control
- All data/changes are to be provided to BODC who will apply them
  - Will ensure not duplicating existing data
  - Will ensure that the data is in the standard format
  - Will NOT perform checks on the quality of the data.
- Will be made available, along with accompanying documentation, on the SORDAC website.

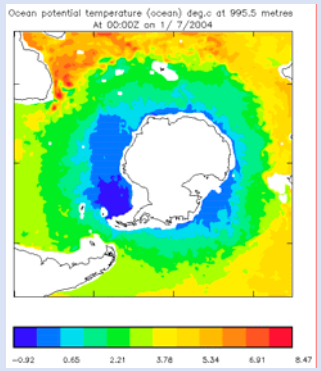
Prepare products and documentation

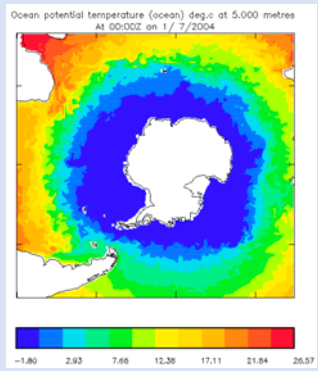
- BODC will provide some products covering the whole Southern Ocean.
- The SORDAC partners will work together to produce a suite of products that span their individual regions of interest.
- The SORDAC partners will produce products in their region of interest.
- Documentation will be produced by the agency responsible for the product
- General RDAC documentation will be produced in collaboration between the SORDAC partners.

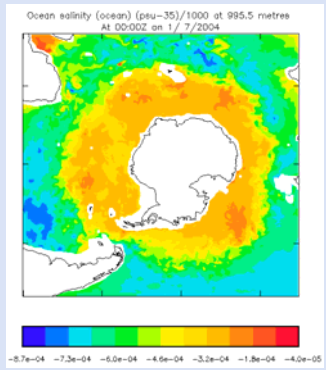
Available products

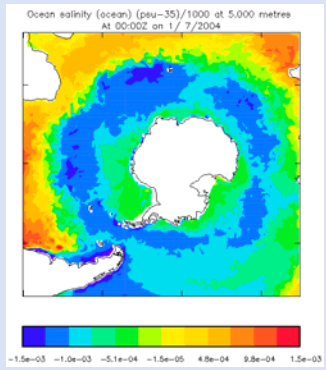
FOAM output
(Monthly at 5 m and 995.5 m)

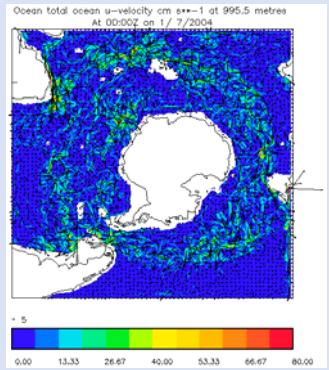
- Potential temperature
- Salinity
- Velocity

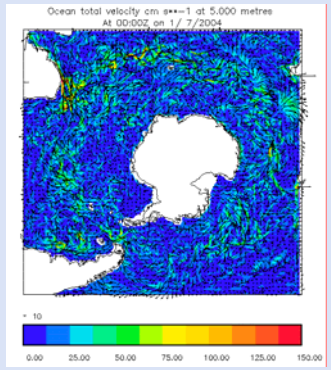








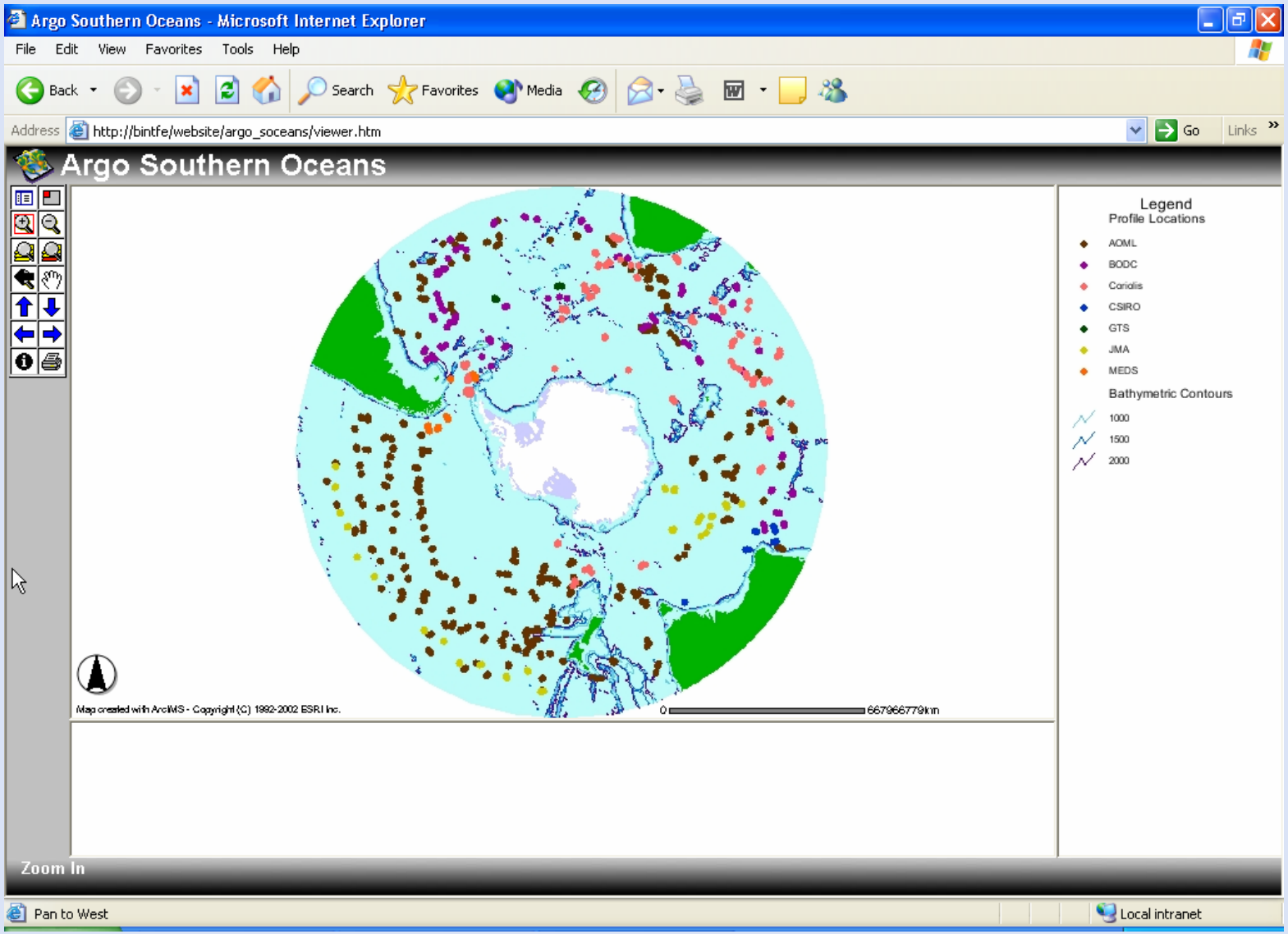




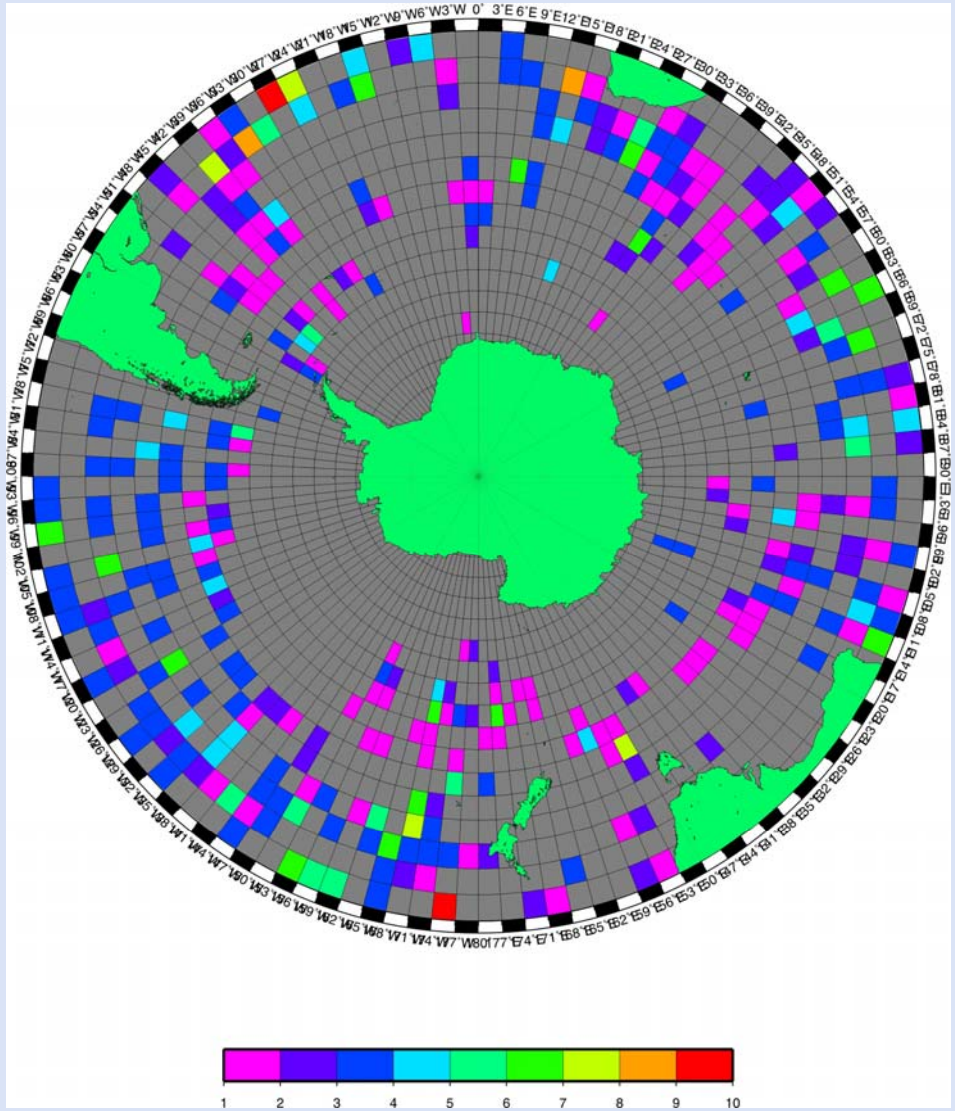
Current status
(static images updated monthly)

- All profiles made in a month
- Raster map indicating % of aimed network coverage

Monthly Profile Maps



Raster Image



Future Products

- Change network status maps to fully dynamic and interactive
- BODC will concentrate on Drake Passage region for all development before applying to a wider area

Examples:

- A map of all historical data available with age indication
- For each float shown on the interactive map display basic metadata, e.g. Float age, responsible DAC etc. (updated daily from metadata files held at GDACs)
- Temperature and salinity contour plots over the whole region at set depths (not possible yet as not enough data)
- The list is endless!!

Distribution

- The historical dataset, products and documents will all be available through the website
- BODC will host the main SORDAC website and will provide
  - Information on the Argo project
  - Information on the role of the RDAC
  - Documentation of the regional centre procedures
  - Download facility of the historical data set
  - Current network status in the Southern Ocean
  - Display and link to products produced by the SORDAC partners
  - Link to other SORDAC partners pages that display the work they are carrying out.

www.bodc.ac.uk/projects/international/argo/southern_ocean/