

Report for the North Atlantic Regional Data Center Meeting

25-26 October 2005

Ifremer Headquarters Issy Les Moulineaux

I. Presentation of Argo Data Management Network and Role of the Regional Data Centers. Objectives of the meeting S Pouliquen

S Pouliquen summarized the Argo program goals and data flow. When the Argo data management architecture was designed a few years ago, three different elements were identified to be implemented progressively:

- National DAC in charge of real-time processing of the data and in some cases also delayed mode processing
- Two Global Data Centers in charge of distributing, from a single portal and in an homogeneous way, the ARGO data processed by the national DACs
- Regional Data centers responsible for both verifying the consistency of all the Argo profile data in a specific region and coordinating ARGO activities for a basin

The two first elements have been set up. It's time now to establish the Regional DACs .

The role of the RDACs was recalled from the 4th ADMT meeting report and we agreed to focus on the points proposed in the agenda. B Molinari pointed out that "capacity building action" should also be considered in North Atlantic RDAC (NAARDAC) activities as South-America and Africa partners should be involved in the tropical area and Mediterranean sea areas covered by NAARDAC. It was pointed out that delayed mode activities handled at the RDAC level should not duplicate work done at the National DACs and PIs level, and we agreed that at the RDAC we will "only" consider the consistency of the delayed mode data and not perform any DMQC activities.

Considering the product and "climatology" issue it was stressed that the nature of any products could be different depending on the users we wish to serve. Considering the overlap with the South Atlantic RDAC, it is clear that close coordination has to be set up.

II. Report on South Atlantic RDAC meeting S Garzoli

S Garzoli summarized the SAARDAC activities that evolved from two meetings held earlier this year (for detail see the meeting report on SAARDAC www site <http://www.aoml.noaa.gov/phod/sardac/>).

SAARDAC has decided to split the work into three main areas:

- Logistics, specifically deployments (vessel opportunities, local logistic support, float donation program,...)
- Data center activities: Standardize QC procedures. Improve Climatology, ease access to In-Situ data (GTS profiles, Difters, NODC,...) by eventually providing products on CDROMs for countries with limited internet connections. Provide products such as mapped mixed layer properties, ...
- Capacity Building: to train people in float deployment and data processing.

Taking into account the USA experience, countries should study the possibility of establishing a donation program to lesser developed countries to get them involved in Argo. This should ease deployments near/from these countries to fill gaps in the Argo network.

Coordination with the North Atlantic RDAC is needed and we have to be sure that products are consistent.

III. Presentation by the different countries on how they can contribute to the North Atlantic RDAC and what they are expecting from it

- [Canada : R Hendry](#)

Canada expects to deploy 10-15 floats per year in the Northwest Atlantic (40-60N) as part of the Canadian Argo Program. Canada can provide deployment opportunities in this region to other countries. Canada expects to occupy the AR7W line on an annual basis, and can provide the associated CTD data to a North Atlantic RDAC for quality control purposes.

- [France V Thierry](#)

France will deploy from 50-80 floats per year with Argo program as a whole. France can provide opportunities for deployment.

Coriolis can get CTD data from French PIs and provide them to the RDAC. Coriolis can also assemble CTD data in a temporary reference database from the different contributors to NAARDAC and make them available to DACs and PIs.

In term of products, Coriolis can provide:

- Weekly analyses of T & S
- Reanalysis and annual means for the Argo period

Coriolis will also develop and test a tool for checking consistency at North Atlantic level of Delayed Mode data by analyzing residuals from objectives analysis.

There has been discussion on the level of sophistication of products to be produced by the RDAC. Specifically, the ability of non-experts to appreciate possible shortcomings in sophisticated products must be considered.

- [Germany B Klein](#)

The Argo program is funded in Germany by research money until the end of 2006. After that it will have to be declared as operational and money should come from the Ministry of Transportation for about 30 floats/year. At the moment, Germany is involved in four main areas: Tropics with IfM-Kiel, North Atlantic Ridge with BSH, Wedell Sea with AWI, and Nordic Seas with IfM/HH.

B Klein could act as a focal point in Germany to collect CTD data more rapidly to forward to the RDAC as BSH is a NODC. Germany can also offer opportunities for deployment.

Germany needs high quality CTD data, but may prefer to produce their own climatologies.

- [Italy L Petit de la Villéon on behalf of PM Poulain](#)

The Argo work in the Mediterranean Sea officially started with the MFSTEP project, for the western part of the basin, and with USA/Navocean for the eastern part. This work will continue within the MOON project MOU that was signed by a group of countries surrounding the Mediterranean Sea. OGS is willing to lead RDAC work on the Mediterranean Sea. By email PM Poulain agreed to act as a focal point to collect CTD, to coordinate deployment in the Mediterranean Sea, to adapt Argo DM method to Mediterranean Sea profiles, and to improve climatologies for the Mediterranean Sea. USA asked if OGS was willing to DMQC the Navocean floats in the Mediterranean Sea also. PM Poulain agreed by email.

- [Netherlands A Sterl](#)

KNMI (Dutch weather service) has deployed 3 floats in the North Atlantic in 2004 and 4 in 2005. The funding is made on a year to year basis but there is hope for longer term funding.

The Netherlands can provide opportunities for deployment. KNMI can act as a focal point to facilitate access to CTD data.

- [Spain P Velez Belchi](#)

Spain expects to have 3-4 floats per year to deploy. IEO can provide CTD data for a reference dataset and P Belchi can act as a focal point. IEO can also provide information on opportunities for deployment

- [UK G Dawson](#)

UK activities are mainly in the Southern Ocean, but UK proposes to participate in NAARDAC as part of its role as the Southern Ocean RDAC (SORDAC).

In the North Atlantic, 3-4 floats/per year will be deployed. UK is looking for cooperation with DACs contributing to NAARDAC for DMQC of these floats. In exchange BODC could DMQC floats in the Southern Ocean.

UK can provide deployment opportunities.

BODC would prefer to provide CTD to a unique point (e.g. CCHDO/CLIVAR) that could serve both CLIVAR and Argo, however, BODC can provide CTD data to NAARDAC.

- [USA S Garzoli and B Molinari](#)

USA plans to deploy about 50 floats in the North Atlantic.

USA can provide deployment opportunities in the South and North Atlantic. B Molinari pointed out that a strategy for reseeded needed to be defined.

USA can provide CTD data and especially high resolution data from the repeated CTD line at 24N. USA can also help with the development of a reference database.

USA would like to collaborate:

- on tools to check the consistency of the ARGO Delayed Mode quality control dataset
- on the development of products and test on overlapping zones with SAARDAC
- on capacity building with African countries.

IV. Discussion on "Do we need a Regional Data Center for the North Atlantic "

We agreed that we needed a NAARDAC and that all the points mentioned below needed to be addressed.

- Consistency of the Argo data from the North Atlantic
- A reference data base for quality control
- Logistics for deployment
- Capacity building
- Products delivery
- Coordination with other RDACs

It was decided that the question of the type of products to be provided needed some attention.

There was a discussion of the role of a RDAC in trying to ensure long-term sustained coverage of regional areas like the North Atlantic. A significant part of the present North Atlantic float coverage came about from time-limited research programs, and there is no obvious mechanism for ensuring the re-seeding that will be required to sustain the North Atlantic float array. At the RDAC level, we can monitor existing coverage and gather information on national deployment plans and national or commercial vessel deployment opportunities , However, it is not clear that the RDAC is the appropriate forum for debating an overall strategy for sustainability. It was stressed that the International Argo Steering Team should consider the issue of long-term sustainability of the Argo array.

V. Reference database:

We agreed that we should not duplicate within Argo the World Data Centers for Oceanography or CLIVAR efforts to gather high quality CTD data. An action has started at the Argo project Office and ADMT to emphasize the need of the Argo community for rapid access to these data and we hope that either CLIVAR or appropriate Oceanographic Data Centers will take steps to help Argo. In the past the U.S. NODC has created specific databases for projects (like GTSP) so they may be able to do it for Argo for the most recent CTD data.

In the mean time we agreed to set up an intermediate solution to gather CTD needed for Atlantic DMQC activities:

- Boundaries 80N-80S Drake passage to 20E
- CTD from surface to 2000m, accuracy better than 0.005 PSU , low resolution (1 point every 10m)
- Simple Metadata to be able to track which data have been included in the Atlantic reference Database.
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Each country agreed to ease CTD data flow to this Reference database.

Coriolis proposed to host this temporary database and integrate new CTD data (eliminating duplicates and documenting the content of this DB) and make it available for only DMQC purposes on request.

The group suggested that a good solution for Argo could be a global reference database. This has to be discussed at next ADMT in Tokyo.

VI. Logistics and coordination of Floats deployment

- Vessel opportunities for float deployment

Each country will provide a contact point for providing deployment opportunities (research and commercial). USA agreed to make this information available on the SAARDAC website for the whole Atlantic

- Coordination to fill the gaps in Argo Array

We need to gather the information from a contact point from each country. Coriolis will compile the maps and make them available on the NAARDAC WWW site for the whole Atlantic.

Sylvie Pouliquen will circulate by email after the meeting the mailing list of contacts point for these two topics.

VII. Consistency of the Argo data on the North Atlantic

Coriolis and AOML are developing different methods to check the consistency of the Argo data. We propose that these two methods are tested and results compared before the end of 2006. Bob Molinari suggested, and the meeting agreed, that Argo Data Management chairs should organize a specific RDAC meeting in 2006 to address these issues

It was recommended that communications with the modeling community be improved. Specifically, their experiences with the quality and quantity of the Argo data should be related to the various DACs. Each contact point should try to set up these contacts with national modelers and provide feedback to the RDAC.

VIII. Products

The ADMT(Argo Data Management Team) has defined 2 types of products:

1. Products to evaluate the network: there is no need for specific products to evaluate network performance on the North Atlantic

2. Scientific products:

- T & S Analysis: this product should be made accessible through NAARDAC www site with a disclaimer on the method that averages were performed on depth levels and not on density levels. A clear documentation should be provided.
- Current products would be interesting
- Monthly/Annual/Seasonal improved mean state/climatology, from delayed mode Argo data, and high resolution CTD observations for North Atlantic. Modelers require such data to initialize their simulations.
- Links will be established to products from national DACs when they want to make them available.

IX. Sharing expertise

- This will come by itself now that we know each other. We could provide information on the web naming expert contacts for specific topics (e.g., float experts, RTQC and DMQC contacts, Deployment contact ,...)
- Capacity building around the Mediterranean Sea (a possible link with CIESM should be considered). Collaboration with South Atlantic RDAC for the tropical area

NAARDAC recommends the establishment of appropriate mailing lists and/or an online forum on technical aspects at AIC.

X. Coordination

- Implementation of a NAARDAC WWW site

Coriolis will set up a NAARDAC www site, with the same layout as the South Atlantic site to facilitate user access. Coriolis will draft a first version and partners from RDAC would be asked to react to it. Sylvie Pouliquen will make one page on Coriolis WWW, with the main conclusions of this meeting before the ADMT meeting and the first version of the WWW site should be ready for the AST meeting in January.

XI. Wrap-up for presentation at next ADMT meeting

For the RDAC presentation at the ADMT session, the recommendations we have reached from this meeting for the NAARDAC should highlight the coordination with SAARDAC.

For RDAC discussions as a whole, S Pouliquen will try to propose common features that should be implemented by the other RDACs.

XII. Other topics

At the European level, Coriolis is acting as a DAC for most of the countries except UK, acting as a GDAC, and will be leading the NAARDAC activities. D Quadfasel highlighted the fact that this has a cost that up to now is only supported by France. If France had difficulties in getting funding or manpower for continuing these activities, some European countries that use the French centers will experience difficulties as they have no backup solution. Therefore Germany proposed to support some Coriolis activities in a way that is still to be defined. One interesting possibility could be by providing scientific manpower through Marie Curie or something similar to help on Delayed Mode and RDAC activities. S Pouliquen accepted the proposal and agreed to work with Germany on this action.

Participants

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Report on South Atlantic Rdac meeting S Garzoli

Presentation by the different countries how they can contribute to this RDAC and what they are expecting from it

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- France V Thierry
- Germany: B Klein
- Italy PM Poulain
- Netherlands A STerl
- Spain P Velez Belchi
- Usa: B Molinari
- UK G Dawson

Discussion on "Do we need a Regional Data Center for North Atlantic "

This day will be devoted to defining actions on focused topics for coming year(s). The list below is a starting point for discussions and is opened to addition and modification.

Summary of Tuesday discussions: S Pouliquen

Reference database:

- The need of delayed mode quality control for Argo C Coatanoan

Logistics and coordination of Floats deployment

- Vessel opportunities for float deployment
- Coordination to feel the gaps in Argo Array
- Sharing experience of float deployment and feedback to industry.

Products

- Coherency of the Argo data on the North Atlantic
- T & S Analysis
- Improve Climatology

Coordination

- Implementation of a NAARDAC WWW site
- Link with other RDACs

Wrap-up for presentation at Next ADMT meeting