

Report for the North Atlantic Regional Data Center Meeting

31st January 2007

Ifremer Brest

I- Introduction, objectives of the meeting

The NA-ARC meeting was held in Brest and hosted by Ifremer. It was following an EURO-Argo meeting which aimed to start to make a bid for European funding for Argo under the European Strategy Forum on Research Infrastructures initiative.

The North Atlantic Argo Regional Centre covers the North Atlantic Ocean, Nordic seas, Mediterranean and Black Seas.

Sylvie Pouliquen proposed the following objectives for the meeting:

- See the progress since last meeting
- Identify actions to progress on the main functions of ARC
 - Deployment plan
 - Contribution to the CTD reference database
 - Consistency over the network
- Identify topics where we would like to collaborate
- Provide a better visibility on what we do with Argo at regional level.

II- 2007 deployment plan update

S Pouliquen explained to the partners the new procedure that has been developed at AIC by M Belboch to facilitate deployment plan elaboration and updates. This new tool has the advantages to be linked to the notification system and benefit from the GIS tools developed at AIC. She thanked all the institutes that have already entered their plans in the new tool and encouraged the others to do it. Everybody agreed to work that way.

S Pouliquen mentioned that, as agreed at last meeting, AOML maintains a www page with deployment opportunities (<http://www.aoml.noaa.gov/phod/sardac/logistics/opportunities/index.php>). It seems that it's maintained only from opportunities spontaneously provided by PIs and therefore is not really up to date for 2007. People were asked to send the opportunities to Elizabeth.Forteza@noaa.gov. We also thought that it could be useful to better use the research vessel planning information which is available on the WWW for most of the countries. We proposed to consider such an activity within the EURO-ARGO proposal to contribute to deployment opportunity inventory for Europe.

AOML is considering to upgrade the deployment plan tool developed for drifters (described in annex 3) to float planning. We agreed that such tool will soon be very important as the array is nearly completed. D Quatfasel agreed to look at IFM-HH if he could dedicated some man power to work on this issue in collaboration with AOML

III- Delayed mode QC

The DMC2 meeting was held in WHOI/USA beginning of October and 22 persons attended representing half of the teams operating in delayed mode (DM). The complete report can be found at http://www.coriolis.eu.org/cdc/meetings/DMQC2_report_v2.pdf. B King reported that even if most of the DM operators are making progress and working in a coherent way, the problem at present is still to resolve the backlog of delayed mode data as more real time profile are archived that processed in delayed mode.

C Coatanoan presented the new delayed mode tool developed by B Owens that integrates the developments made by Annie Wong & all and Boehme & Send into a unique tool. The preliminary tests show good agreement with the Boehme tool previously used in Atlantic with a great advantage of the automatic piece-wise splitting tool that is implemented in the software. NA-ARC teams should

therefore consider testing this tool for their delayed mode activities. The question of the parameterization of the mapping scale was raised and B King encouraged the dm-operators to share their expertise via the delayed mode mailing list (argo-dm-dm@jcommops.org) maintained by AIC.

Within NA-ARC partners, there are some countries who have only deployed a few floats and for whom it would be very difficult to be a delayed-mode operator. OGS/Italy proposed to process all the Mediterranean and Black Seas floats in delayed mode (PM to check about the status of Navocean floats with B Molinari/AOML) , UK to process Irish floats, and IFM-HH/Germany to process the Norwegian ones operating in Nordic seas. Dutch floats are at present orphan. AIC will help us identifying the remaining orphan floats that need to be processed in delayed mode in the North-Atlantic Area of responsibility. Once the inventory is made, call for volunteers will be made by email according to float location.

IV- Consistency check at basin scale

V Thierry presented the preliminary results of the study conducted by P Galaup & al at Coriolis. The method is based on the use of objective mapping to identify suspicious values in float data. Out of 11,500 profiles tested, about 5 anomalous profiles were identified. The anomalies have been notified to the corresponding DACs and have been corrected. In addition, the procedure allows pointing out some floats that were not consistent with the reference climatology and/or the floats nearby. Coriolis has plans to transfer the method to pre-operational end of 2007 if the remaining scientific studies are successful.

S Pouliquen presented on behalf of C Schmid the statistical method developed by AOML for SA-ARC. Delayed-mode profiles are compared against the climatology (currently WOA-01) and nearby profiles (buddies, within 150 km and 11 days). The comparison is done at multiple levels (every 200m starting at 400m) for temperature and salinity. For each level the mean and the standard deviation of the differences are derived (once for climatology and once for buddies). They give a first indication if a float has a problem.

The two methods proved that checking consistency at basin level using statistical methods is possible and useful. Collaboration between the two teams should be encouraged later this year when the two teams will have progressed in their studies.

B King suggested to compare bunches of floats processed by different operators to detect processing biases that one team may include. He also suggested, in a later stage, to look at the error assigned to the correction by the different teams.

Finally, PM Poulain mentioned that in the Mediterranean Sea, Argos transmission can be bad, and rescuing data with bad CRC is an issue to consider in delayed mode. He was wondering if similar problem could happen in North Atlantic: as Coriolis is at present studying the at-sea behaviour of a bunch of 250 floats, L Gourmelen proposed to look at this issue.

V- Contribution to the reference DB for Argo

C Coatanoan presented the decision taken at last ADMT meeting regarding the Reference Data Base issue for Argo. For detail see the report at <http://www.coriolis.eu.org/cdc/meetings/Argo-DM-report-7th.pdf> (page 9). It was agreed that CTD should be sent to NODC/USA **only** by the national NODCs.

NA-ARC partners agreed that the CTD they provided could be made available to the ARGO community and also to CCHDO **in restricted access mode**.

KA Mork mentioned that a lot of CTD were transmitted to ICES and but nobody knew if they were integrated in CCHDO or WOD2005. S Pouliquen will contact CCHDO and NODC to get the answer. This is an important source of data at least in EUROPE that we should consider (<http://www.ices.dk/ocean/dotnet/HydChem/HydChem.aspx>)

VI- How to improve visibility to our work in North Atlantic & Mediterranean Sea

S Pouliquen mentioned that at present the NA-ARC is imbedded into the Coriolis WWW site and only provide visibility to the French scientific contribution to the NA-ARC. She would like to provide more visibility to the other country contributions to Argo in term of products or scientific results. We were all aware that building WWW site can be time consuming and that at present it's done on a best effort way. Therefore we proposed:

1. to ask AIC to make link to ARC www sites from www.argo.net
2. to make a page that will link to national contributions that will be provided to S Pouliquen

If the EURO-ARGO proposal is a success we will be able to build a European portal that will be much better.

M Belbeoch raised the issue of capacity building with in NA-ARC and we agreed that the issue was different from South Atlantic and that at present we had no man power to allocate to these activities within NA-ARC. A proposal for training workshop within EURO-ARGO will be made that could address this issue. The question of visitor scientist in institutes for ARGO activities is out of the scope of NA-ARC and has to be addressed in bilateral way with the different institutes around the table.

The meeting ended at 1230 and S Pouliquen thanked all the participants for their contributions and also to have accepted to stay an additional day for this NA-ARC meeting.

I. Annex 3 Agenda

- Introduction, objectives of the meeting (10') : S. Pouliquen
- 2007 deployment plans update (all 20')
 - Please enter your plan on AIC tool that generates all maps automatically for us
 - Tools for helping deployment plan elaboration
- Delayed mode QC (45')
 - Results on Delayed Mode Workshop : B King (TBC)
 - Improvement on the new DMQC tool & first test in North Atlantic:C Coatanoan
 - How to handle floats deployed on VOS for which to Pi is attached (all)
 - Discussion on way to progress
- Procedure to check ARGO data consistency among the basin (45')
 - Procedure developed at Coriolis : V Thierry
 - Procedure developed at AOML : ?? on behalf of C Schmid
 - Others ???
 - Discussion on way to progress

11:00-11:15 Coffee Break

- Improvement of CTD data collection for the Atlantic (20') C Coatanoan
 - Presentation of ADMT results and actions
 - Discussion on progress at NA-ARC level
- Products and Scientific results based on Argo data in the area (all) (20')
- Wrap-up and action plan (20')

13:00 Lunch

II. Annexe 2: Participant lists

Name	Institute	Country	Attendance
Ross Hendry	DFO	Canada	No
Sylvie Pouliquen	IFREMER	France	Yes
Virginie Thierry	IFREMER	France	Yes
Loic Gourmelen	SHOM	France	Yes
Séverine Mattio	SHOM	France	Yes
ChristineCoatanoan	IFREMER	France	Yes
Loic PETIT DE LA VILLEON	IFREMER	France	No
Yves Gouriou	IRD	France	Yes
Pierre-Yves LE TRAON	IFREMER	France	No
Mathieu Belbéoch	AIC	France	Yes
Detlef Quadfasel	IFM-Hamburg	Germany	Yes
Olaf Klatt	AWI	Germany	No
Birgit Klein	BSH	Germany	No
Jurgen Fischer	Ifm-geomar	Germany	Yes
Glenn Nolan	IMR	Ireland	No
Guy Westbrook	IMR	Ireland	No
Pierre-Marie Poulain	OGS	Italy	Yes
Andreas Sterl	KNMI	Netherlands	Yes
Kjell.Arne.Mork	IMR	Norway	No
Einar Svendsen	IMR	Norway	No
Pedro Velez	IEO	Spain	Yes
Gregorio Parrilla	IEO	Spain	No
Garry Dawson	UK Hydrographic Office	UK	No
Brian King	NOCS	UK	Yes
Turton, Jon	UKMetOffice	UK	Yes
Silvia Garzoli	AOML	USA	No
Bob Molinari	AOML	USA	No

III. [Annex3 Deployment planning tool at AOML](#)

The major challenge for maintaining a 3° by 3° global array of floats is logistical. All remote locations require significant lead times for float shipment, in order to take advantage of ships of opportunity. Thus, if a laboratory or operational center is reacting to presently existing gaps in the array, these gaps will inevitably persist for many months – while new gaps may develop in the meantime.

To address this challenge, AOML is currently developing forecast tools for the global arrays of drifters and floats. Initial development has focused on the drifter array, for which AOML is tasked to achieve a global 5° by 5° resolution by the end of 2005. For a drifter in each 5° bin, we have calculated the Lagrangian probability distribution function (PDF) for a drifter's location 90 days later based on the quality-controlled historical dataset. This four-dimensional PDF can then be summed over all drifters in the present array to predict the array 90 days later. An example is shown in Fig. 1. This tool clearly indicates where deployments should be concentrated over the next three months; a six-month prediction is in development at AOML.

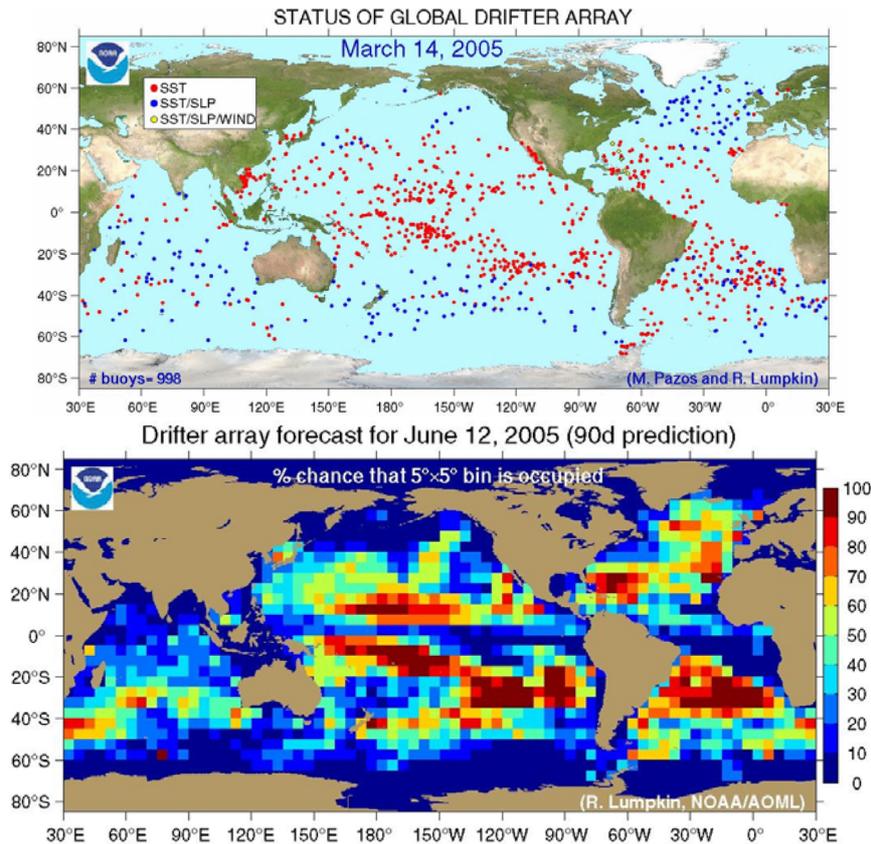


Fig. 1: Global Drifter Array on 14 March (top) and prediction for 90 days later (bottom). The prediction indicates the percent chance (0—100%) that a 5°x5° bin will be occupied by at least one drifter from the 14 March array (e.g. with no additional deployments).

We will apply this tool to the Argo float array using the Lagrangian statistics describing the evolution of profile location, anticipate gaps in the array, and arrange deployments accordingly.