

## Argo National Data Management report for Germany (2006)

### 1. Status

Four German groups have deployed floats which contribute to ARGO: AWI (Alfred-Wegener Institut, Bremerhaven), BSH (Bundesamt für Seeschifffahrt und Hydrographie, Hamburg), the IFM-GEOMAR (Leibnitz Institut für Meereswissenschaften, Kiel) and the ZMAW (Zentrum für Marine und Atmosphärische Wissenschaften, Hamburg). The real-time data acquisition for all German groups is performed by Coriolis, which issues the data to GTS and performs the real-time QC. The real-time data from the four projects are sent for delayed QC back to the four groups. Each of the four groups is responsible for their “own” data, performs the delayed mode QC and then sends data back to the GDAC (Coriolis).

Basic Web pages exist for all 4 projects.

<http://www.awi-bremerhaven.de/Research/IntCoop/Oce/wecon.html>

<http://www.german-argo.de/>

<http://www.ifm-geomar.de/index.php?id=argo>

<http://www.mersea.eu.org/Insitu-Obs/1-Insitu-Floats.html>

Among the four German groups, about 7 PI's are working on ARGO data for scientific applications. ARGO data are not assimilated in operational models, but are used for assimilation in a global ocean model (ECCO at the ZMAW). While so far no standard products are generated from ARGO data, products are evaluated for a number of scientific purposes.

### 2. Delayed mode QC

Each of the four groups handles their own data for delayed mode QC and is responsible for providing these data to the GDACs. Delayed mode QC is generally done on a half-yearly basis. Within the joint German-ARGO project (AWI, BSH, IfM-Geomar) extensive collaboration exists and several meetings have dealt with the issue of delayed mode QC.

AWI presently operates floats in the partly ice covered Southern Ocean / Weddel Sea. These floats (mainly NEMO) have an ice sensing algorithm incorporated that prevents surfacing under ice. Profile data are archived in the float and sent when an ice-free surface is encountered. For positioning under ice the floats are tracked acoustically by a RAFOS sound source array. Delayed mode procedures have been set-up at the AWI and controlled data have been sent to Coriolis since the beginning of 2006. Due to the lack of data in the winter season, it would be preferable to perform the delayed mode QC on yearly intervals to get a better view of the salinity trends. The historical data base is poor in the southern Ocean and fronts in the ACC are also an issue.

BSH presently operates 49 active floats. Delayed mode procedures have been set-up at the BSH on a half-yearly basis and controlled data have been sent to Coriolis twice

since the beginning of 2006. About half (26) of the floats needed no salinity drift correction, some floats showed a small drift that was corrected and some of the older floats deployed around year 2000 showed stronger drifts and even jumps in salinity. The data base from the central Atlantic is in general good and no major problems have been encountered. The project is considered to be pre-operational.

The IFM-GEOMAR presently operates Argo floats in the tropical Atlantic. Delayed mode procedures have been set-up at the IFM-GEOMAR on a half-yearly basis and controlled data from the Atlantic have been sent to Coriolis since the beginning of 2006. There is a delay in processing 4 floats in the Indian Ocean (Argo equivalent), but they will be processed soon. Besides of problems with format changes and software modifications the system is considered to be pre-operational.

The ZMAW presently operates most of the Argo fleet in the Nordic Seas, and there will be a close cooperation with the Norwegian efforts regarding the QC of the floats in that area. The programs for delayed mode QC have been implemented and DMQC will be performed on a half-yearly basis.

### **3. Present level of and future prospects for national funding for Argo including a summary of the level of human resources devoted to Argo.**

The German Argo component has been funded from research funding agencies and the Ministry of Research (BMBF) until 2006. This funding included float deployments and personnel at each of the groups involved. It has been made clear, that there will be no continuation of this kind of funding from the BMBF. However, there is still the possibility for funding of scientific programs including an Argo component (Argo equivalent floats), but this is strictly PI driven research. Secondly, for a transition period of one year (2007) there is some funding of personnel (3 positions), travel and the like (but no additional floats) for the transition of German Argo from research oriented to more operational. Thirdly, the good news is that the Ministry of Traffic (responsible for the German Weather Service and the BSH) agrees to launch an operational Argo component with funding of the order of 35 to 50 floats per year; this is planned to begin in 2008 and presently there are negotiations for year 2008 financing.

### **4. Summary of deployment plans (level of commitment, areas of float deployment) and other commitments to Argo (data management) for the upcoming year and beyond where possible.**

Altogether Germany will deploy 37 Argo floats in 2007, with some of the activities already taking place. These floats will be put into the Nordic Seas (11), the North Atlantic (14), the tropical Atlantic (2) and the Southern Ocean (10). These are all funded. Beyond 2007 the situation is somewhat unclear, but we are confident that we will have sustained (annual) deployments through national funding of the order of 35 to 50 floats per year (personnel is less clear). Regionally, the efforts will be focussed on the Atlantic, presumably in the areas of primary German / European interest (North Atlantic, Nordic Seas).

## **5. Summary of national research and operational uses of Argo data as well as contributions to Argo Regional Centers.**

As the German Argo component (past to present) is linked to research programs like CLIVAR, Argo data will be used for climate related studies. Assimilation efforts are ongoing for research purposes. Increased interest by German PIs in Argo data usage is anticipated from the Euro-Argo initiative.