Argo National Data Management Report 2020
- BSH (Federal Maritime and Hydrographic Agency), Germany

1. Status
(Please report the progress made towards completing the following tasks and if not yet complete, estimate when you expect them to be complete)

- Data acquired from floats
  Presently there are 163 active/operational German floats which belong to BSH except for 5 associated to AWI. Only 22 floats have been deployed in 2020 to date because of cancelled cruises due to covid. 11 more floats are going to be deployed by South African colleagues in December. Data from all presently active floats are available from the GDACS.

- Data issued to GTS
  All German floats are processed in real-time by Coriolis and immediately inserted into the GTS.

- Data issued to GDACs after real-time QC
  All profiles from German floats are processed by Coriolis following the regular quality checks and are routinely exchanged with the GDACs.

- Data issued for delayed QC
  At present (24.11.2020) the German Argo fleet comprises 1014 floats which have sampled 81813 profiles. 73081 profiles of all eligible files are already available as D-files and 6185 are still pending. The total rate of eligible D-files provided to the GDACs is 89 % and has continued to be at high levels from last year's value of 92%.

- Delayed data sent to GDACs
  The D-files are submitted by email to Coriolis together with the diagnostic figures and a short summary of the DMQC decision taken and are inserted into the GDAC after format testing.

- Web pages
  BSH is maintaining the new Argo Germany Web site at https://www.bsh.de/DE/THEMEN/Beobachtungssysteme/ARGO/.
  It provides information about the international Argo Program, the German contribution to Argo, Argo array status, data access and deployment plans. It also provides links to the original sources of information.

- Statistics of Argo data usage
  Currently no statistics of Argo data usage are available. The German Navy uses Argo data on a regular basis for the operational support of the fleet and uses their liaison officer at BSH to communicate their needs. The SeaDataNet portal uses German Argo data operationally for the Northwest European Shelf. Based on the feedback from the national user workshop (Argo data are routinely assimilated in the GECCO reanalysis, which is used for the initialisation the decadal prediction system MiKlip. They are also routinely assimilated into the Earth-System-model of the Max-Planck Society in various applications reaching from short term to decadal predictions and are used for model validation. At BSH the data are used within several projects such as KLIWAS, RACE, MiKlip, ICDC and

Expertennetzwerk BMVI. Data are also used in various research groups at universities.
- Products generated from Argo data
A quality screened subset of float data in the Atlantic has been created on the yearly basis and has been exchanged with the universities.

2. Delayed Mode QC
(Please report on the progress made towards providing delayed mode Argo data, how it's organized and the difficulties encountered and estimate when you expect to be pre-operational).
The overall percentage of D-files from all German programs is remaining at a quota of 89%. BSH had adopted floats from all German universities and agreed last year to perform similar services for the AWI floats. A preliminary DMQC for the subset of re-processed AWI floats (now in V3.1) has now been performed, but the submission of D-files has been postponed to increase the reference data base in the Weddell gyre which is outdated. At the moment 8586 profiles are available from the 187 AWI floats and only 42% are available as D-files. For all other floats (741 floats) the DMQC quota is at 95%. Additional time was spend to check files updated to format V3.1 and repeat DMQCs (if necessary), particular for old floats from the universities with BGC sensors with format inconsistencies in the older formats. Occasionally new R-files would be created during reprocessing which were not created before.

German Floats/ Program Name	Number of profiles	Number of D-files	D-files pending	Comments
Argo BSH	56406	52875	1062	Overall 94%
Argo AWI	8586	3548	4960	Are waiting for updates to reference data Overall 42%
Argo GEOMAR (129 floats)	13474	13400	74	Reprocessing nearly finished Overall 99 %
Argo U. HH (187 floats)	3346	3258	88	Reprocessing nearly finished Overall 98 %
Argo Denmark (5 floats)	371	360	11	Old floats associated with U. HH, reprocessing nearly finished Overall 97%

BSH has also adopted floats from Finland (37 floats), the Netherlands (92 floats), Norway (58 floats) and Poland (26 floats) for DMQC and is performing DMQC on parts of the MOCCA fleet (56 floats) from the European Union. The progress in these programs providing D-files is generally good, but redecoding of older file-formats and pending DMQCs for floats in the Baltic are resulting in lower numbers in some programs. Since Argo-Norway has received fundings from the national research council to increase the number of Norwegian floats deployed

per year, the program will get more involved in the dmqc activities. Floats deployed from 2019 onward will be covered by Norwegian DMQC operators. The same is true for Argo-Poland which also will perform DMQC on their own floats from 2019 onward. The statistics shown below are already a mixture of dmqc performed by BSH and the national DMQC-operators.

There are remaining issue with floats from Finland, Poland and MOCCA which are operating in the Baltic and will receive their DMQC decisions from regular laboratory calibrations performed when floats are recovered annually or from nearby calibration stations. The system for the DMQC is set-up within the EuroArgo ERIC in research projects as MOCCA and EArise.

Adopted floats/ Program Name	Number of profiles	Number of D-files	D-files pending	Comments
Argo Poland (26 floats)	3644	1051	1699	Baltic floats pending Overall 34%
Argo Finland (37 floats)	3563	795	2301	Only baltic floats pending Overall 22%
Argo Netherlands (92 floats)	11714	11015	216	Overall 94%
Argo Norway (58 floats)	6059	4417	499	New dm-operators involved Overall 72%
MOCCA (56 floats)	9452	6095	2590	5 Baltic floats pending Overall 65 %
US Navy (10 floats)	1940	1790	150	Overall 93% Overlooked new cycles from one float
NAAMES/US (E. Boss) (13 floats)	2743	2641	102	Overall 96% Have to check why files have not been uploaded

Investigations of fast salty drifters were continued and consolidated with the entire European fleet. Information is now available in a shared in a spreadsheet

https://docs.google.com/spreadsheets/d/1TA7SAnTiUvCK7AyGtSTUq3gu9QFbVdONj9M9zAq8CJU/edit#gid=974650348

Out of the 106 floats presently listed on the spreadsheet 40 floats are associated to Argo-Germany.

3. GDAC Functions
(If your centre operates a GDAC, report the progress made on the following tasks and if not yet complete, estimate when you expect them to be complete)
- National centres reporting to you
- Operations of the ftp server
- Operations of the www server
- Data synchronization
- Statistics of Argo data usage : Ftp and WWW access, characterization of users (countries, field of interest : operational models, scientific applications) …

4. Regional Centre Functions
(If your centre operates a regional centre, report the functions performed, and in planning)

BSH is part of the SOARC consortium.

As part of work performed in the European projects MOCCA and EArise we are presently working on reference data for the Nordic Seas and Arctic proper. The reference data base for these areas is updated/established and once done the dmqc results for all floats in this area will be checked to test for data set homogeneity.

5. References