

Argo National Data Management Report – Norway 2021



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1. Real Time Status

- **Data acquired from floats**

In 2022, Norway deployed 14 Argo floats (4 BGC@6var, 4 BGC@1-4var, 3 Deep+DO, 3 core). The location and drift of the floats are shown in Figure 1.

Presently there are 47 operative Norwegian floats (Figure 2).

In total 5289 profiles are acquired, and 2402 DM and 854 DM-pending. The right figure below shows the number of deployments in the Nordic Seas/Barents Sea/Arctic Ocean (north of Svalbard).

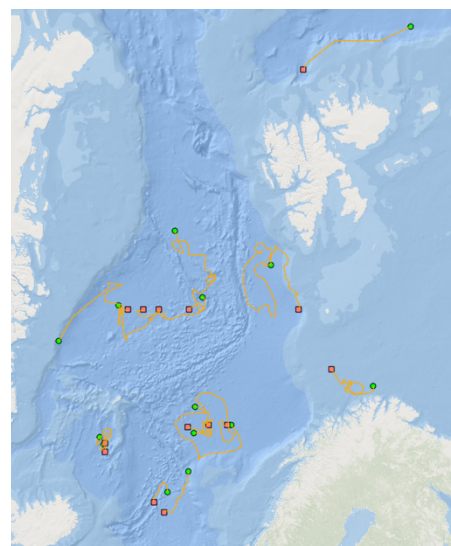


Figure 1. Deployment locations (red squares) in 2022 and drift of the floats (green dots are last registered positions).

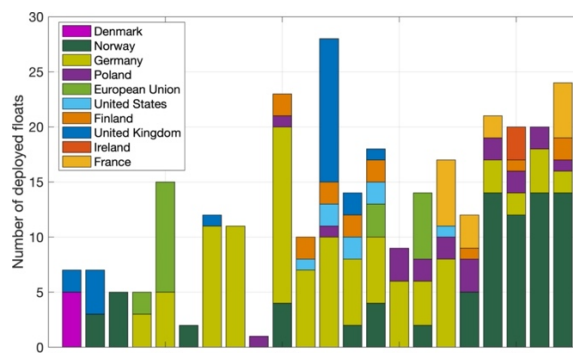
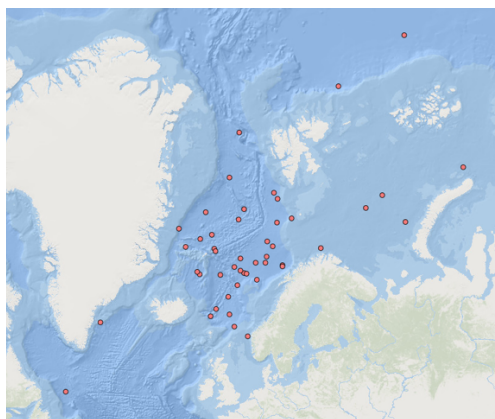


Figure 2. Left: Last registered position of the active floats in Argo Norway. Right: Number of deployed floats in the Nordic Seas and Barents Sea for each year country.

Data from all operational floats are available from the GDACs.

The 47 operative floats consist of:

- 6 BGC floats (all 6 variables)
- 12 Bio floats (1-4 BGC variables: DO, chla, bbp, irradiance)
- 10 Deep floats with DO.
- 19 core floats

- **Data issued to GTS**

All Norwegian floats are processed in real-time by Coriolis and delivered to GTS.

- **Data issued to GDACs after real-time QC**

All profiles from Norwegian floats are processed in real-time by Coriolis and exchanged with GDACs.

- **Data issued for delayed QC**

At present (23. Nov. 2022) the Norwegian Argo fleet comprises 84 floats. According to Argo Information Center the floats have so far sampled 10968 profiles with 8027 DM-profiles and 894 DM-pending profiles. In 2022 (1. Jan - 6. Dec), **4158 profiles** were acquired (DM: 2015; DM-pending: 771).

- **Delayed mode data sent to GDACs**

BSH (Germany) has done the Quality Control of core data from Norwegian floats deployed in 2018 and earlier, and the D-files are submitted to Coriolis with a short summary and diagnosis figures. Norway do now DMQC of floats deployed in 2019 and later, both core and BGC-floats. According to Argo Information Center the floats have so far sampled **10968 profiles with 8027 DM-profiles and 894 DM-pending profiles.**

2. Delayed Mode QC

BSH has adopted older floats from Norway for DMQC (see report for Germany). Norway do now DMQC of 54 floats deployed in 2019-2022. There exist **6047 profiles for these 54 floats with 3267 DM and 828 DM-pending.**

BGC-variables:

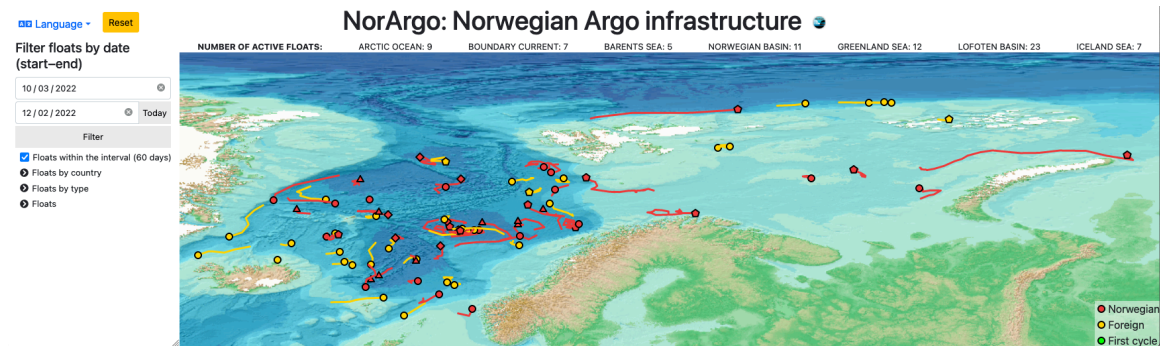
DMQC has been performed on the oxygen (NORCE) for 16 Argo floats (in total 1182 profiles), on the pH (NORCE) for one float (125 profile) and on nitrate (IMR) for 4 BGC-floats (398 profiles).

DMQC of nitrate needs to be redone with the new temperature correction of the sensor. We plan to do DMQC on the other BGC-variables (IMR) in near future; CHLA at the end of this year, and BBP and Irradiance in 2023.

3. Value Added items

- **Web pages**

A web page for NorArgo (<https://norargo.hi.no>) has been developed that IMR updates. A web page for the operational Argo floats in the Nordic Seas have been developed that IMR updates : <https://norargo-map.hi.no/> (see below).



- **Statistics of Argo data**

Norway uses the data in research, operational services and monitoring.

IMR uses the data as part of the monitoring program for the marine environment in Norwegian waters.

The NERSC routinely assimilates the data into their TOPAZ4 model and assimilation system for operational monitoring and forecast of the ocean climate. MET.NO also assimilates the Argo data into their operational models.

In which fields do the users use the infrastructure in

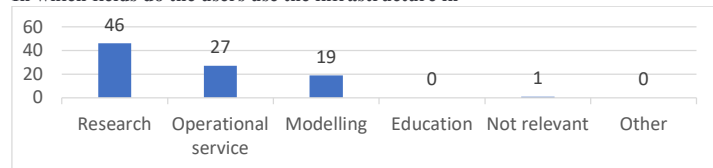


Table 3. Number of users for different fields (several choices can be ticked).

Ocean areas of interest

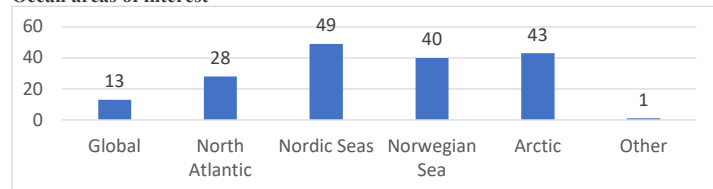


Table 4. Number of users in which the infrastructure are used for in different ocean areas (several choices can be ticked).

The data are used in many research projects and in master and Dr. thesis.

We performed a user survey in Norway, and some of the results are shown in the table.

- **Products generated from Argo data ...**

The ocean heat and fresh water contents of the Norwegian Sea are regularly updated using Argo data and used for monitoring (see figure below).

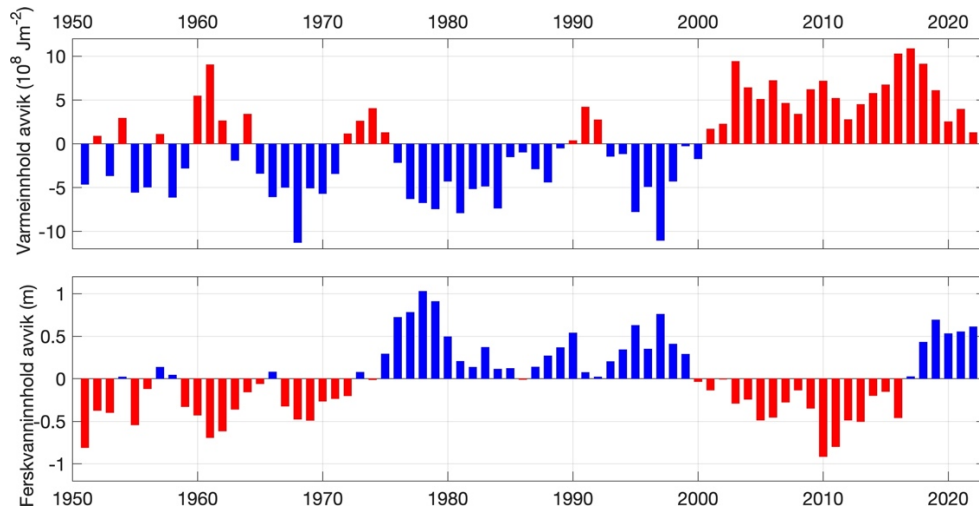


Figure 3. Yearly relative ocean heat (upper) and fresh water (lower) content in the Norwegian Sea. Updated from Mork et al., 2014, GRL.

4. GDAC Functions

5. Regional Centre Functions

6. Other issues