

Chinese Argo National Data Management Report

Virtual meeting, 6-10 December, 2021 (ADMT-22)

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1. Status

- Data acquired from floats

This year China acquired 5,825 temperature and salinity (additionally 597 O₂, 567 CHLA, 567 BBP, 532 CDOM, 978 DOWN_IRRADIANCE and 431 NITRATE) profiles from 124 operational floats including 15 APEX, 47 PROVOR, 56 HM2000, 5 ARVOR_D and 1 NAVIS floats (Fig.1). It is worth nothing that Pilot National Laboratory for Marine Science and Technology, Qingdao (QNLN) sent historical core profiles obtained from 39 HM2000 floats with earliest deployment in 2018 to CSIO, which contributed 3,959 TS profiles in the period 2018-2021 to Argo community.

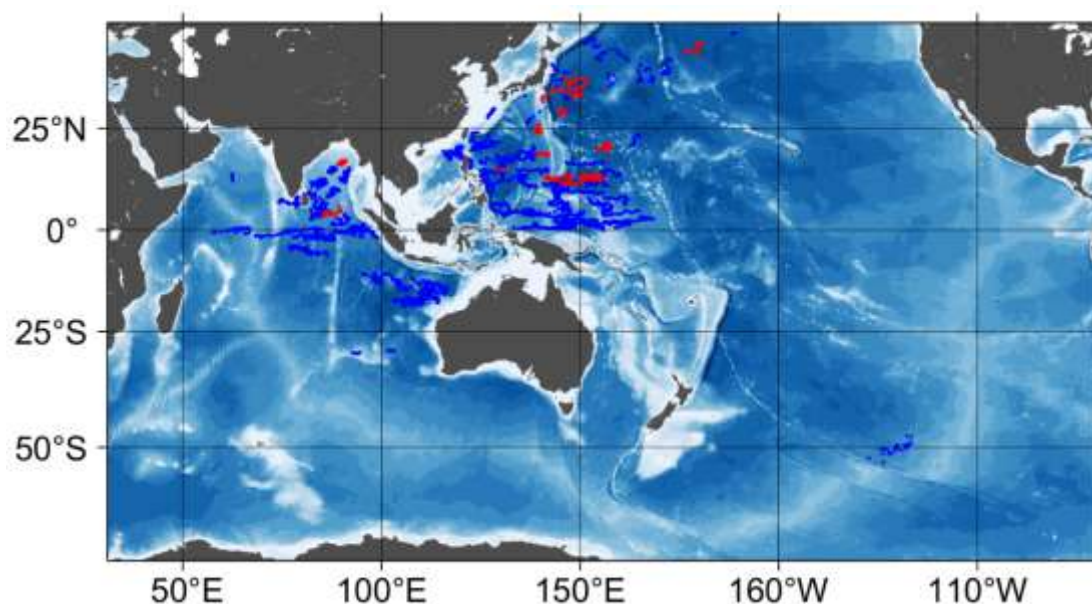


Fig.1 The geographic distributions of Core (blue) and BGC (red) profiles

- Data issued to GTS

At CSIO, the JMA BUFR generation script is being applied. BUFR bulletin is generated for each Argo profile and transferred to China Meteorological Administration (CMA), who will insert bulletin into the GTS. Besides T/S profiles, O2 profiles are able to be converted into BUFR and inserted into GTS.

- Data issued to GDACs after real-time QC

Meta, technical, trajectory and profile files are submitted to GDAC in netCDF format version 3.1 on an operational basis. The MEDD test has been added into our RTQC procedure according to the latest QC manual. The Global range test was revised according to the ADMT-21 action items. The real-time adjustment for CHLA has been added into our system.

- Data issued for delayed QC

At CSIO, under Zenghong's help with decision-making and DMQC team members' (Dirk, Catriona, Jenny, etc.) help at CSIRO, Ms. Xiaofen Wu was still in charge of DMQC for core profiles this year.

- Delayed data sent to GDACs

About 15,853 D-files were sent to GDACs. Totally about 78% of the core profiles have been DMQC'd, and D files of some old floats have received the second DMQC processing.

- Web pages

The website (<http://www.argo.org.cn>) of the China Argo Real-time Data Centre (Hangzhou) was maintained by CSIO, from which the latest progress on China Argo, the real-time observations from Chinese floats including data file and related plots are provided.

- Statistics of Argo data usage (operational models, scientific applications, number of National Pis...)

Operational uses: Argo data have been used into most ocean data assimilation systems operated by department or institutions such as NMEFC, NMDIS, IAP, QNLM, etc.

Scientific applications: The Argo data are mainly used in from seasonal to decadal ocean variations in global and regional scales, air-sea interactions, ocean's role in global climate change.

- Until now, about 21 PIs from 11 institutions and universities have deployed profiling floats and share data with Argo community.
- Products generated from Argo data ...

BOA_Argo: It is now a biannually updated gridded Argo product developed by CSIO (ftp://data.argo.org.cn/pub/ARGO/BOA_Argo/). The product is based on the post-QC'd Argo dataset maintained by CSIO.

GDCSM_Argo: It is a gridded Argo product jointly developed by SHOU (Shanghai Ocean University) and CSIO based on a Gradient-dependent Correlation Scale Method (<ftp://data.argo.org.cn/pub/ARGO/GDCSM/>).

IAP data set: IAP data set is a global ocean gridded data set developed by Lijing Cheng from IAP. In contrast to BOA_Argo, other available profiles from various instruments (e.g. XBT, MBT and shipboard CTD, etc.) are also used while producing the data set. It includes $1^{\circ} \times 1^{\circ}$ monthly temperature fields since 1940 from the sea surface to 2000 m.

Post-QC'd global ocean Argo dataset: The dataset is based on a FAST post-QC toolbox developed by CSIO, with which we can make a synchronization with GDAC server twice a day and conduct a post-QC procedure to each profile (<ftp://ftp.argo.org.cn/pub/ARGO/global/core/>). The daily high-quality Argo data derived from this toolbox are now transferred to several operating departments.

Global ocean BGC-Argo dataset: The dataset is derived from the B-files on the GDAC, and is separated into various txt files according to BGC parameters. The dataset is also expected to be quarterly updated depending on the CSIO resources (<ftp://ftp.argo.org.cn/pub/ARGO/global/bgc/>).

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 .)

CSIO is now still using the DMQC system developed by CSIRO to process Chinese floats (mainly Core Argo and Deep Argo floats). This year, we had updated the system and made it suitable for HM2000 float. Next, we may also try to go to the OWC Python software.

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)

None.

4. Regional Centre Functions

(If your centre operates a regional centre, report the functions performed, and in planning)

None.