

Chinese Argo National Data Management Report

5-9 December, 2022 (ADMT-23)

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1. Status

- Data acquired from floats

From last December, China acquired 5,464 temperature and salinity (additionally 821 O₂, 532 CHLA/BBP/CDOM, 729 DOWN_IRRADIANCE and 292 NITRATE) profiles from 89 operational floats including 5 APEX, 53 PROVOR, 24 HM2000, 4 ARVOR_D, 1 NAVIS, 1 HM4000 and 1 XUANWU floats (Fig.1). CLS stopped the telnet service for Argos message from this April, unfortunately CSIO didn't receive that notice, which lead to an interruption of the data reception from those floats (4 floats) using Argos satellite until October. At present, CSIO has not installed Argos web service client successfully, and has to export Argos messages from the CLS website. The technician from CLS is now helping us to solve the problem.

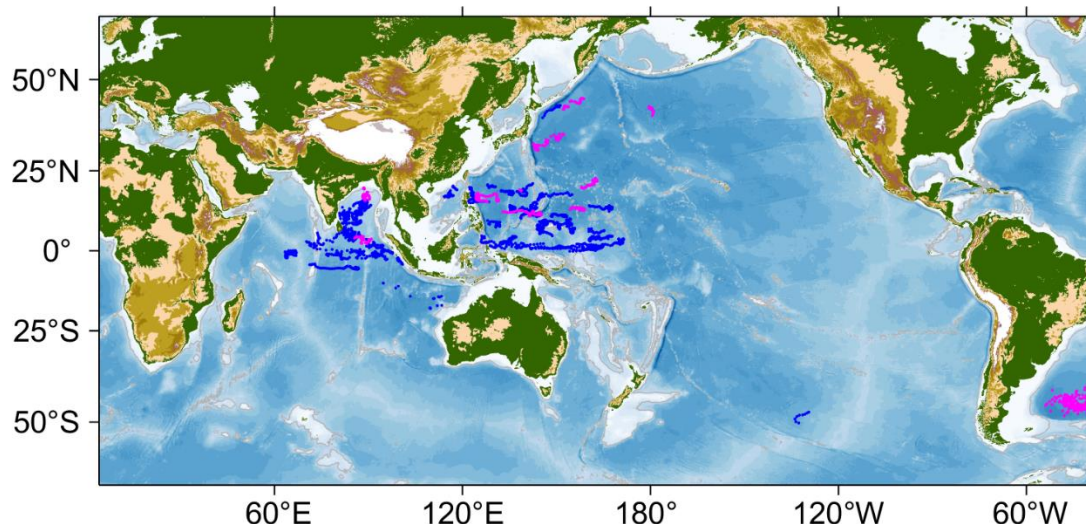


Fig.1 The geographic distributions of Core (blue) and BGC (pink) profiles

- 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 updated deepest pressure test has been added into our RTQC procedure according to the latest QC manual. CSIO also routinely checks feedbacks from Coriolis data center and reflags the doubtful data. As QNLM deployed the first XUANWU (6000 m) float equipped with SBE61 CTD, CSIO added the real-time adjustment for salinity observations based on the new CPcor.

- Data issued for delayed QC

At CSIO, Ms. Xiaofen Wu is still in charge of DMQC for all core profiles. Some difficult floats that she cannot make decision are always sent to Zenghong and other DMQC experts (such as Annie Wong, Jenny Lovell, Cecile Cabanes, etc.) for further inspection. We appreciate their sincere help.

- Delayed data sent to GDACs

About 10187 D-files were sent to GDACs. Totally above 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 10 organizations have deployed profiling floats and share data with Argo community.

- Products generated from Argo data ...

BOA_Argo: It is 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 the Gradient-dependent Correlation Scale Method (<ftp://data.argo.org.cn/pub/ARGO/GDCSM/>). The data set had been published at the Argo Program website since this September.

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 four times 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). This year, we had mainly processed on HM2000 floats and floats on “Argo Delayed-Mode Salinity Audit” list provided by Annie Wong and floats checked by “OceanOPS QC”. In addition, during the processing of DMQC, we also compared the float data with ISAS climatology, so as to confirm whether there is indeed a drift in salinity from multiple channels. Finally, we found that the reference dataset requires more new data to be added, for example, we have 2 floats deployed in the western Indian Ocean (WMO: 2902559 and 2902659, both have died), after talked with Annie Wong, we could not make a conclusion about the sensor drift because the reference data are quite old there.

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.