

## **Argo Chinese National Report 2016**

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### **1. The status of implementation**

#### **- floats deployed and their performance**

From the last AST meeting, China deployed 24 floats (11 APEX, 1 PROVOR and 12 HM2000) in the South China Sea (SCS), the northwestern Pacific and Indian Ocean via 4 cruises. It was the first time for China to deploy profiling floats in the SCS and share data within Argo community. It could be regarded as the beginning of the SCS Argo regional observing network (~25 operational floats) that will be dominated by China Argo. The 10 floats deployed in the SCS are HM2000 floats which use BeiDou satellite for data transmission and GPS for positioning. One float (WMO: 2902699) did not transmit data after its deployment, and it was recovered by fisherman from Vietnam in this February and is kept by the Sub Department of Fisheries of Binh Thuan Province of Vietnam. Until now the other 9 HM2000 floats are all active and report good TS profiles with a 5-day cycle time. About 376 floats have been deployed by China from 2000, and 118 floats are still active as of 25 February 2016.

#### **- technical problems encountered and solved**

A set of (5) Iridium APEX floats stopped transmitting data prematurely after about 110 cycles and showed an energy drop at the end of their lifetime. These floats observed intensive profiles during the passages of several typhoons. To estimate the energy consumption with Alkaline batteries, we sent the technical data from those floats to TWR as well as UW. The results based on their energy budget models supported the observed data. So we suggest each Iridium APEX float should be installed Lithium battery packs either by the manufacturer or by float users before deployment.

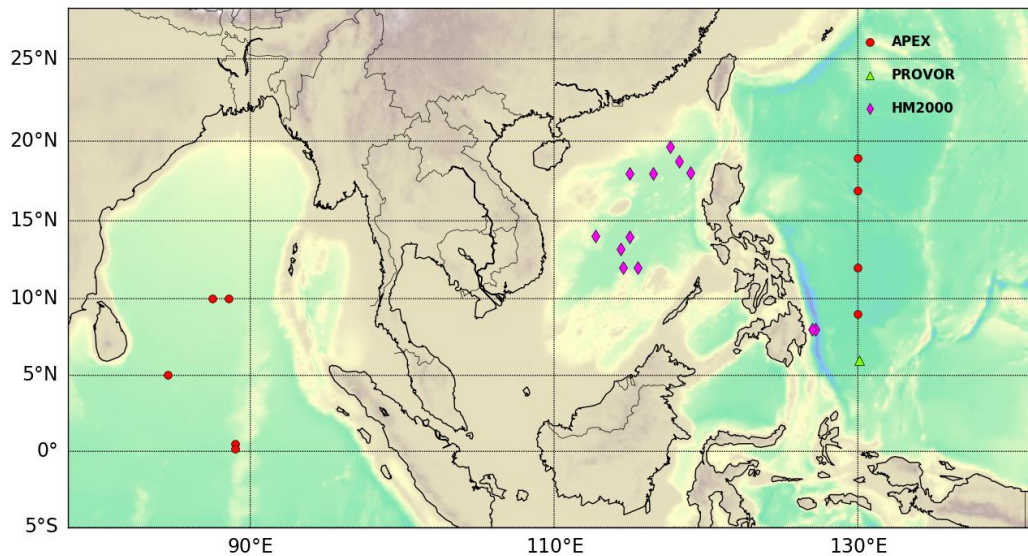


Fig.1 Launch positions of the floats from Mar. 2016 to Feb. 2017.

**-status of contributions to Argo data management (including status of pressure corrections, technical files, etc)**

From the last AST meeting, CSIO received data from 177 active floats (69 APEX, 89 PROVOR, 14 HM2000 and 5 ARVOR) and submitted 5383 TS profiles to GDACs. CLS still helps us to insert profiles from the old floats into GTS, moreover, CSIO distributes all data into GTS via Chinese Meteorological Agency (Beijing). All Argo profiles are converted to BUFR format through a Perl script developed by JMA. However, there were a few interruptions in 2016 because the breakdown of FTP server at Zhejiang Meteorological Bureau. In 2016, we took a lot of time to convert historical profile, technical and trajectory files into Version 3.1. Now all of the metafiles, and most of the technical and trajectory files have been updated.

**- status of delayed mode quality control process**

In the past year, CSIO didn't submit any D-files to GDAC because the lack of manpower. We plan to restore DMQC and to eliminate the backlog this year. A construction of the SCS reference CTD dataset is scheduled for DMQC of all Argo floats in the SCS.

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

Unlike other countries, China Argo is mainly supported by research programs,

which leads to an unstable number of yearly deployment. In the past two years, the number of the operational floats reduced because the number of new deployments relied on related research programs. The situation is expected to be changed this year with the appeals from PIs. In the period of the "13<sup>th</sup> Five-Year Plan" (2016-2020), the government is expected to increase the support to China Argo as a part of implementing China's strategic initiative of the "21<sup>st</sup> Century Maritime Silk Road", and to help the countries along "Maritime Silk Road" to strengthen capability of addressing climate change, as a result, China will make more contribution to global Argo. If this proposal is granted, about 200 floats (100 HM2000, 50 Iridium APEX and 50 PROVOR) will be deployed during its first implement year (2017). During its second year, 400 floats will be deployed, then the Chinese Argo real-time observing network consisted of 400 operational floats will be constructed. Following 2019, ~200 floats/year will be routinely deployed to maintain the network for at least 5 years.

Currently there are 6 staffs working for float deployment, data processing and data application at CSIO.

**3. Summary of deployment plans (level of commitment, areas of float Deployment, low or high resolution profiles) and other commitments to Argo (data management) for the upcoming year and beyond where possible.**

The identified number of floats to be purchased this year is 45 including 15 Iridium floats, 10 BGC-Argo, 15 HM2000 and 5 deep-Argo. These floats are funded by the Ministry of Finance who will support the purchase of scientific instruments for those state key laboratories passed a 5-year assessment. China Argo Real-time Data Centre is an important basic platform for SOED (state key laboratory of Satellite Ocean Environment Dynamics). As a result, China will deploy ~45 floats at least this year, however, the number will be more than 200 if the proposal of China Argo real-time observing network along Maritime Silk Road could be granted. Of course, it is a great challenge to deploy so many floats via various investigation cruises and volunteer ships.

**4. Summary of national research and operational uses of Argo data as well as contributions to Argo Regional Centers. Please also include any links to**

**national program Argo web pages to update links on the AST and AIC websites.**

Argo data has become an important data source in basic research and operational application. CSIO maintains a monthly global Argo gridded dataset (called BOA\_Argo) and updates once a year. We are preparing an English version of the user manual of this dataset and put it into Argo-UCSD website.

There are two websites maintained by China, one is maintained by NMDIS ([www.argo.gov.cn](http://www.argo.gov.cn)) at Tianjin (China Argo data center), and another is maintained by CSIO ([www.argo.org.cn](http://www.argo.org.cn)) at Hangzhou (China Argo Real-time data center). The implement status of China Argo, real-time data display including T/S/O2 profiles, float trajectory, profile data, the derived products and status of global Argo are provided.

#### **5. Problems encountered during the operation of international Argo and suggestions**

No.

**6. To continue improving the number of CTD cruise data being added to the reference database by Argo PIs, it is requested that you include the number and location of CTD cruise data uploaded by PIs within your country to the CCHDO website in the past year.**

No CTD data were submitted.

#### **7. Keeping the Argo bibliography**

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