

## **China National Report**

**Submitted by Prof. Xu Jianping**

### **Present Status of China Argo**

China Argo gets financial supports from the Ministry of Science and Technology, the State Oceanic Administration (SOA) and the National Natural Science Foundation. So far it has been funded through R & D projects and the amount of fund is limited.

#### **1. Floats deployed and recovered**

No floats were deployed in 2007 by China Argo. There are 10 floats still active, in which Float 5900019 has been working in the Northwest Pacific for more than 5 years and observed about 180 profiles.

In July 2007, China Argo Real-time Data Center bought 2 APEX floats with lithium batteries from Webb, but they have not been deployed yet. In November the same year, the National Marine Environmental Forecasting Center (NMEFC), SOA entered into a contract with Webb for purchasing 10 APEX floats.

In March 2007 the fishermen from China Hainan Province got a float in the fishing net to the east of Hainan Island. The float has a number of 3063. It entered into our EEZ but no organizations or countries informed us about it. In August 2007 the fishermen from Zhejiang Province happened to get another float, an ALACE float numbered 168 in the fishing net. During the visit of Mr. Mathieu Belbeoch to China Argo Real-time Data Center, the owners of the floats were informed about the float, but we have gotten no responses up until now. The two floats are still kept in China Argo Real-time Data Center waiting for retrieval by their owners.

In July 2007, China Argo Real-time Data Center was informed by AIC that an Argo float (Argos Platform Number 21302, WMO Number 5900225) deployed by China Argo in January 2003 to the east of Philippines was taken by Philippines fishermen to Davao Gulf, Mindanao Island and was kept by the Philippines Coast Guard until now. As early as 2004 to 2007, China Argo Real-time Data Center contacted the scientists of the Marine Science Institute (MSI) of University of the Philippines for many times and asked them to help us to get the float back to China, but no result for some reason or other. In July 2004, MSI helped us successfully in retrieving another float taken by the fishermen to Bislig Bay, Mindanao Island. China Argo Real-time Data Center and MSI have built up close links in exchange of Argo data and recovery of Argo floats. Both sides have very happy cooperation. At present we have got in touch

with the Philippines Coast Guard through AIC and scientists of MSI are entrusted to help us to transport the float to China.

For effective retrieval of Argo floats, China Argo Real-time Data Center has designed and printed 50,000 copies of an advertising poster, which were distributed among the fishermen and other people working on the sea before the end of 2007, with an aim of timely retrieval of beached Argo floats or floats drifting near shore.

The International Argo Technical Coordinator, Mr. Mathieu Belbeoch made a special trip to visit China in September 25-29, 2007. Officials dealing with marine affairs from the Department of International Cooperation, State Oceanic Administration talked to him on the issue concerned by us about the foreign Argo floats entering our EEZs for many times, and made it clear to him about our position on this issue. We hope that the Argo TC will report the information to Argo co-chairmen or the whole member of the Argo Steering Team and urge relevant countries to act on the aim of the International Argo Program. Any float deployed in the name of Argo should be for the purpose of scientific research and operational application, not for grabbing marine environmental information of the territorial seas or EEZs of other countries and thus, harm the marine rights of the countries. We also hope that the TC will inform the coastal countries about the information of the Argo floats that are going to enter or have entered the EEZs or territorial seas according to IOC Assembly Resolution XX-6 and ask for their opinion if they allow the float continue the observation, thus to make it possible for them to take necessary measures and to avoid any infringement of their marine rights.

## **2. Technical problems encountered**

All the active floats are APEX floats at present. No energy flu or Druck pressure transducer problems are found on these floats.

## **3. Status of Argo data management**

### **3.1 Real-time data management**

China Argo Real-time Data Center at SIO/SOA is responsible for receiving the data from all active floats deployed by China. All the R-files through real-time QC are sent to GDACs in NetCDF format and profiles are inserted into GTS at CLS. 382 profiles were sent to GDACs in 2007.

### **3.2 DMQC**

China Argo Real-time Data Center has made big progress in DMQC in 2007. Thermal mass correction has been applied on all APEX floats. A total amount of 1611 D-files have been transmitted to GDACs and more than 90% profiles have been applied DMQC. In 2008 trial utilization of OW method will be carried out in the center.

### **3.3 Products of Argo floats and data**

The estimated monthly mean mid-depth currents in Pacific Ocean are available at China Argo Data Center's website (<http://argo-cndc.org>). At the National Marine Environmental Forecasting Center, Argo data is being used with other data from GTS in their ocean assimilation system, and the reanalysis products are available at <http://dell1500sc.nmefc.gov.cn/argo-sz/argo11n.asp>. The Chinese Academy of Meteorological Sciences has added the Argo profiles into the BCC-GODAS System and the data is released at the website of IRI/LDEO, Columbia University (<http://iridl.ldeo.columbia.edu/SOURCES/.CMA/.BCC/.GODAS/>).

### **4. Operational use of the Argo data**

China National Climate Center and NMEFC have assimilated Argo data into ocean and climate forecasting models and entered into a stage of operational trial application. The Ministry of Science and Technology and State Oceanic Administration approved 2 projects of basic research based on the global Argo real-time observation program to support Argo data assimilation and re-analysis of multi-resources data for the study of formation and variation of the upper layer structure of the subtropical Pacific Ocean, the heat and salt exchange between the Pacific Western Boundary Current and the coastal seas of China, and the seasonal to interannual variation of the upper layers of the subtropical Pacific and Indian Oceans, so as to provide theoretical basis for the study of forecastability of the marine environment of the Northwestern Pacific Ocean and short term tropical climate and to allow wider application of Argo data in operational forecast of weather, climate and ocean features.

## **Deployment plans**

### **1. Deployment plan in 2008**

China plans to deploy 32 floats including 2 APEX floats with oxygen sensor (SeaBird IDO) and 2 iridium APEX floats. These floats are all going to be deployed in the Northwestern Pacific Ocean.

### **2. Available deployment opportunities**

China's polar *R/V SNOW DRAGON* goes to Antarctic from November to March every year to carry out scientific expedition and provide logistic supply for the Great Wall and Zhongshan Antarctic stations. Another *R/V OCEAN No. 1* had a round-the-world trip in 2006 and fulfilled a scientific survey in Pacific and Indian Oceans in January 2007. In May 2008 it will carry out another Pacific-Indian Ocean survey. China Argo floats are deployed mainly by these two vessels. We are willing to help other Argo members to deploy Argo floats in the Southern Ocean and Indian Ocean through the two vessels.

China Argo Real-time Data Center, the Second Institute of Oceanography, SOA and the state key laboratory of Satellite Ocean Environmental Dynamics hope to host the

3<sup>rd</sup> Argo Science Workshop in Hangzhou. We wish to make more contributions for the wider application of Argo data as well as sustained development of Argo project.

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