

Chinese National report
(Submitted by Jianping Xu)

1. Status of implementation

1.1) Floats deployed and their performances

Under the support from MOST (Ministry Of Science and Technology) and SOA (State Oceanic Administration), China Argo project in the 2003 F-Y deployed 3 APEX floats in the sea area of northwest Pacific Ocean. Since the first float was launched in the eastern Indian Ocean in March 2003, China has totally deployed 24 floats, of which 2 in the Indian Ocean and 22 in the Pacific Ocean.

Those floats were differently provided, 13 PROVOR floats by MetOcean Company in Canada, and 11 APEX floats by Webb Research Corporation. At present, there are 11 floats operation in waters, and 2 floats have been taken to Philippines coast bays.

The 24 floats were all deployed from R/V (Xue Long and XiangYang Hong 14). At the same time, ship-based CTD and Laboratory Salinometer (Guild Line Auto Sal 8400B) are used to make synchronous observations of T/S. Water samples are taken in order to get the standard salinity value near the Argo floats deployed, for the purpose of understanding the CTD's performance and correcting the in-situ data provided by the Argo floats. In 2003, National Ocean Technology Center (NOTC) deployed 2 experimental COPEX floats in the northwest Pacific.

1.2) Technical problems encountered and solved

In the past year, there mainly were two technical problems encountered: One problem was probably caused by floats' communication obstacle. That is, some floats had no signal when tested in laboratory by uplink receiver; some float, even if passed the Lab test, could just provide 1-2 profiles and then fail. The problems mostly come from the PROVOR floats. The second problem was caused by the float's pressure sensor. After float normally worked several profiles, the following profiles became shallower and shallower with pressure abnormal, until float remained on the surface. This problem mainly occurred on a batch of the APEX floats. But recently this situation also happened to the PROVOR floats.

According to the float manufacturer's analysis, it was the sensor producer provided the unqualified pressure sensors that caused the trouble. Now the reason has been found and the problem has been resolved. And from now on this problem will never happen. We hope the float quality be surely further improved. According to the deployed-float statistics of 2003, there exist only 50% floats that could routinely run over a whole year.

The 2 experimental COPEX floats (developed by NOTC) separately configured the FSI-CTD sensor and Sea-Bird CTD sensor. Though the 2 floats got some profiles, there is a great difference between the designed observing depth and the actual observed depth. And it remains to be improved.

1.3) Status of Contributions to the Argo data management

The China Argo Data Center (Chinese Language Web Server) began to work in 2002,

which are used to distribute Argo data and its products, and related information. Its data comes from the Global Argo Data Centers via the international website. Using the Argo Real-time and Delayed Mode Quality Control Models recommended by International Argo Data Management Group, China Argo Data Center produces Argo data disk and provides for the home users.

The China Argo Real-time Data Center, under the China Argo Data Center, is responsible for the Argo floats deploying, real-time data receiving /processing and distributing. Assisted by the School of Oceanography (University of Washington, USA), an Auto-online Argo Real-time data/products exhibiting system was set up in the China Argo Real-time Data Center. Also according to the Argo Real-time and Delayed Mode Quality Control Models recommended by International Argo Data Management Group, Argo data are received and corrected and distributed by Web-net, and Argo data disks are periodically produced and provided for the home users.

In July 2003, National Marine Environment Forecasting Center (under SOA) received the Global Argo floats profiles on the GTS, which were transmitted by China GTS 's Receiving Station-China Meteorological Administration.

2. National funding

Presently, the fund for the China Argo floats deployment is mostly coming from the MOST, and SOA gives the support of R/V for the floats deploying. The Argo data application research is mainly supported by the NNSF (National Natural Science Foundation of China) and the SOA. The Chinese scientists are now looking for a national specific fund for the implement of China Argo project.

3. Deployment Plans

In the 2004 F-Y, China will deploy 16-20 floats in the areas of North Pacific (10), West Equatorial Pacific (4-6) and Eastern Indian Ocean (2-4). In addition, another 2 experimental COPEX floats will be deployed in the North Pacific.

4. Research Applications of the Argo data

In the past year, the Argo project become gradually known by public (via the media, Argo Webs and scientific conferences). The data has been more widely applied by universities and institutions in China. The Chinese Academy of Meteorological Sciences, Second Institute of Oceanography, Ocean University of China, First Institute of Oceanography, National Marine Environment Forecasting Center etc., all has research group for the application research of Argo data in the oceanic and atmospheric fields. And a sum of successful research results have presented, such as " Application of a 4DVAR data assimilation system to the Argo data", " Research on the circulation and water mass in the West Pacific with the Argo data", and " The decreasing of sea surface salinity by the typhoon in the northwestern Pacific warm pool area". The China National Climate Center has being tried to apply the Argo data to the operational forecasting of " Global Sea-Atmosphere Coupled Model (CGCM)". As the global Argo data increasing, it will definitely be more and more used in the fields of oceanography and atmosphere.

5. Issues for the AST-6

5.1) Up to now, there are over 1000 floats running in the oceans. It is suggested that AIC produces a disk for the delayed-mode controlled Argo data set, and distributes to the countries and regions, especially to those who are presently has no GTS receiving stations and Internets, which would expand the influence of the Argo Project and the use

of the Argo data worldwide, and attract more countries and regions to join the Argo Team or get their support.

5.2) As the Argo floats increasing in the seas, there is an increasing probability of the floats being encountered by coast people or fisherman. For this issue, some International Organizations as WMO etc should make effort to recover those floats. That has at least two advantages. Firstly, those floats could be reused and thus reduce the cost of floats and their deployment. Secondly, those floats can provide manufacturers more information about the float's performances and trouble reasons, and enable them to improve float's working period. At present, about 50% floats can't effectively work for a year, which disappoints the float users.

5.3) Presently, there is no GTS interface at the China Argo Real-time Data Center, and we could not insert the Data onto the GTS. Instead, we have authorized CLS to issue to GTS. But much data has not been sent to GTS; and some profiles are not completely sent to GTS. So we appeal the DADCs could improve this situation, ensure that the China Argo data be shared by all the Argo member countries.