

## **National Report on Argo-2015**

**by Republic of Korea**

### **Deployment in 2015 and Future Plan**

Korea Meteorological Administration (KMA) and Korea Institute of Ocean Science & Technology (KIOST) are involved in the International Argo Program since 2001. In 2015, KMA deployed additional 17 floats in the East Sea.(14 floats in May, 3 floats in July)

KMA has a plan to deploy 16 floats in the East/Japan Sea in August 2016. One float equipped with DO sensor will be deployed. It is expected that KMA is able to continue the float deployment.

KIOST's strategy regarding the Argo program is under revised in terms of contribution toward the global ocean observation.

### **Status of Argo data management**

During Jan. - Dec. 2015, 2,944 R-files of KMA were sent to GDAC. It is improvement 22% than last year.

National Fisheries Research and Development Institute (NFRDI)/Korea Oceanographic Data Center (KODC) is responsible for DMQC. NFRDI/KODC executed DMQC for 15,083 profiles (~87.8% of total profiles).

### **Research and operational uses of Argo data**

KMA used Argo data for Impacts of Argo temperature in East Sea Regional Ocean Model with a 3D-Var Data Assimilation

Impacts of Argo temperature assimilation on the analysis fields in the East Sea is investigated by using DA-ESROM, the East Sea Regional Ocean Model with a 3-dimensional variational assimilation module. Namely, we produced analysis fields in 2009, in which temperature profiles, sea surface temperature and sea surface height anomaly were assimilated and carried out additional experiment by withdrawing Argo temperature data. When comparing both experimental results using assimilated temperature profiles, RMSE of the Exp. AllDa is generally lower than the Exp. NoArgo. In

particular, the Argo impacts are large in the subsurface layer, showing the RMSE difference of about 0.5°C. Based on the observations of 14 surface drifters, Argo impacts on the currents along the drifter positions are improved fields in the surface layer are investigated. In general, surface currents along the drifter positions are improved in the Exp. AllDa, and large RMSE differences between both experiments are found in drifters which observed longer period in the southern region where Argo density was high. On the other hand, Argo impacts on the SST fields are negligible, and it is considered that SST assimilation with 1-day interval has dominant effects. Similar to the difference of surface current fields between both experiments, SSH field also reveal significant difference in the southern East Sea, for example the southwestern Yamato Basin where anti cyclonic circulation develops. The comparison of SSH fields implies that SSH assimilation does not correct the SSH difference caused by withdrawing Argo data. Thus Argo assimilation has an important role to reproduce meso-scale circulation features in the East Sea.

## Web pages

KMA is operating the Argo Korea Web site. The URL is:  
<http://argo.nimr.go.kr/>

The screenshot displays the Argo Korea Web site interface. At the top, there is a header with the NIMS logo and the text '국립기상과학원 ARGO 프로그램' (National Institute of Meteorological Sciences ARGO Program). Below the header, there are navigation tabs for 'ARGO 플로트', '실시간 ARGO 자료', '지연모드 ARGO 자료', '동해 수온 모니터링', '자료실', and '공지사항'. The main content area features a map of the East Sea with several green dots representing Argo floats. To the left of the map is a sidebar with a tree view containing categories like 'ARGO 플로트', '실시간 ARGO 자료', '지연모드 ARGO 자료', '동해 수온 모니터링', '자료실', and '공지사항'. To the right of the map, there is a 'WMO ID' list with a search box and a legend for '수온 계' (Temperature) with color-coded entries for different data sources: '순일 - 1987년 이후 자료' (Green), 'KMA - 2007년 이후 자료' (Yellow), '한양 - 2007년 이후 자료' (Orange), '두말 - 1987년 이후 자료' (Red), and '대정대학교 수온자료' (Purple).

