Argo-KOREA Annual Report 2020

by the National Inst. of Meteorological Sciences/KMA

22nd Argo Steering Team Meeting (AST-22)
Virtual, 22-26 March 2021

1. Status of Implementation

In 2020, The National Institute of Meteorological Sciences of Korea Meteorological Administration (NIMS/KMA) deployed 6 Argo floats in the East Sea and Yellow Sea (Fig.1). Four floats were deployed in the East Sea on November 15, 2020 with 800 m of parking depth and seven-day profiling scheme, and two floats were deployed in the Yellow Sea on November 10, 2020, for the shallow sea observation with two-day profiling scheme and 60 m of parking depth. Especially all deployment processes were carried out by the KMA'a research vessel, called GISANG1, and temperature and salinity profiles were successfully obtained from the starting day in the Yellow Sea and the East Sea. In addition, the NIMS/KMA has deployed 253 Argo floats around the Korea peninsula and the Northwestern Pacific Ocean since 2001, and 18 floats are in acting as of March 2021.

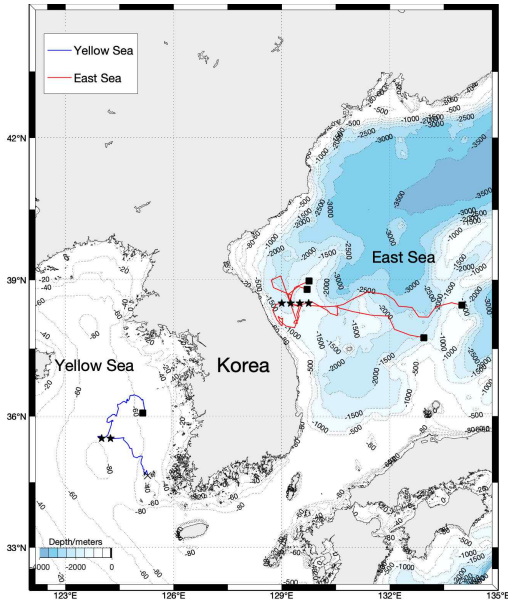

Fig. 1. Deployment position and moving track of Argo floats deployed by the NIMS/KMA in 2020. Stars: initial position, Squares: acting, Cross-symbol: inacting.

a. Status of contributions to Argo data management

A prototype of quality control process for the shallow sea (Yellow Sea) was developed, and tested it on 793 profiles observed from September 2017 to July 2020. We used OW version 1.1.2 (the same OW version used in the East Sea and the Northwestern Pacific), with new reference data-base and new parameters. Since the shallow sea is prone to change its distinctive salinity characteristic every season, only shipboard CTD data collected at the similar time and location were used for OW. The DMQC prototype will be tested for the shallow sea data and the processed D-files will be sent to the GDAC by next year. We also have done MEDD test for profile data from the East Sea and the Northwestern Pacific area.

b. Delayed Mode QC

We completed DMQC operation on 1,875 profiles (1,524 from the East Sea and 351 profiles from the western North Pacific), which had been observed until early July 2020. The profile data formatted by NETCDF had been sent to the Ifremer GDAC on November 19, 2020. However, we found that 22,477 D-files submitted to the Ifremer GDAC in 2018-2019 had not been updated successfully. We are keeping closely in touch with the Ifremer, and will fix this issue soon.

2. Present level of and future prospects for national funding for Argo including summary of human resources.

The NIMS/KMA Argo program has been funded by the Korea government since 2001. We purchased 6 floats in 2020 and successfully deployed all around Korea peninsular this year, and the funding in 2021 would be same scale and purchasing 6 floats.

Following persons contribute to the Argo-Korea program:

- KiRyong KANG, Hyeong-Jun JO (KMA)
- Sung-Dae KIM, Hyuk-Min PARK (KIOST)
- Jong-Jin PARK, Min-Ji Park (Kyungpook National University)

3. Summary of deployment plans

The NIMS/KMA has a deployment plan in 2021: two floats for the East Sea to keep the observation network, two floats for the Yellow Sea to continue the shallow sea observation, and two for near Jeju Island to monitoring low salinity

issue from the Changjiang diluted water especially during the summer season (Fig. 2). Continuing same deployment scheme in the Yellow Sea and East Sea will help keeping regular observation network to investigate the long-term oceanic environment variation in this area. The summer low salinity issue near Jeju Island has affected seriously on the aquaculture industry, which requires time series of salinity profiles off southwest of Jeju Island.

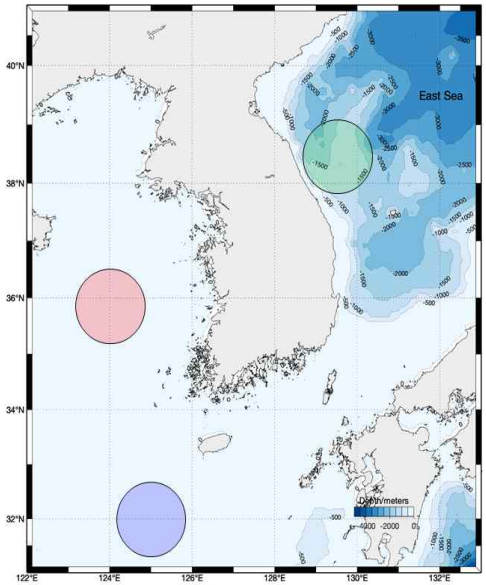

Fig. 2 Area map of Argo floats deployment in 2021 by the NIMS/KMA

4. Summary of National Research and Operational Uses of Argo data as well as contributions to Argo Regional Centers.

There were three Argo floats activated in 2020 in the Yellow sea. Even there were two floats deployed in 2020, there was one more float (ID 2901797) which was deployed in 2019 and lasted 480 days from Nov. 8, 2019. It is a surprising result since the expected life span of this case was about 240-300 days.

The NIMS/KMA upgraded the operational Argo web page (http://argo.nims.go.kr) in 2020. It included the trajectory of float based on the Google dynamic map, temperature and salinity profile data and status of floats showing vertical profile and T-S diagram (Fig. 3). It has shown **39,903 hits** by visitors in monthly average.

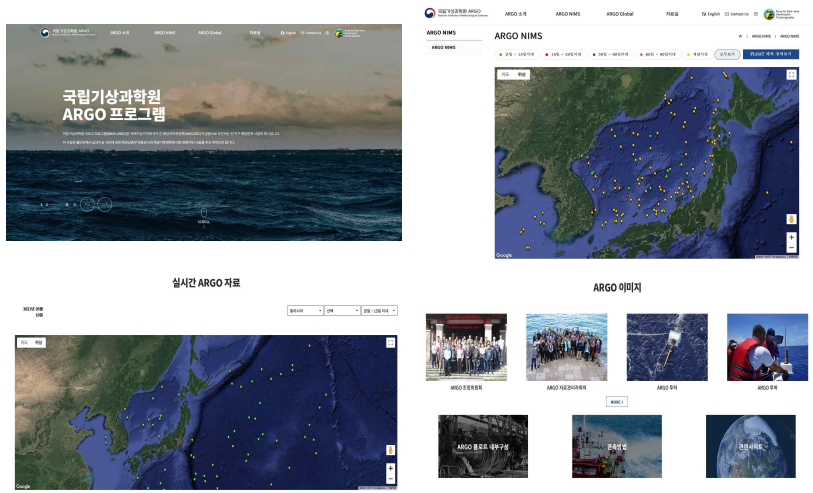

Fig. 3. Upgraded Argo homepage of the National Institute of Meteorological Sciences, Korea Meteorological Administration (http://argo.nims.go.kr).

5. Issues that your country wishes to be considered (and resolved) by AST regarding the international operation of Argo.

- Extension of Argo float to the shallow and regional seas

6. CTD data uploaded to CCHDO

- No CTD data uploaded to the CCHDO website.

7. Bibliography

KiRyong Kang, HyeongJun Jo, YoonJae Kim. 2020. Ocean responses to typhoon Soulik (1819) around Korea. Ocean Sci J. **55**(3):445-457. doi:10.1007/s12601-020-0030-x

8. Effects of COVID-19

We experienced some delays in the float procurements but there was no essential impact on carrying the Argo float deployment into the planned area.

9. RBR CTD piloting and deployment plans

We have no deployment plans for RBR floats.