The Status and future plan on the Argo observation in the East Sea (Sea of Japan)

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• Deployment and observation status
  - Domain, Location and number, active and profile number,

• Monitoring & Research
  - long-term variation of temperature profile
  - Argo data application to ocean modeling

• KMA plan 2012
• The East Sea is a marginal sea of the western Pacific Ocean.

• It is semi-closed sea and consists of three large basins - maximum depth reaches 4000m in Japan Basin.

• The East Sea is connected to open sea through four shallow (~200m) straits.
  - Warm current flows into the sea via Korea str. (2-3sv).

• Below about 500m, a cold and nearly homogeneous water mass exists.

• The East Sea has a similar water characteristics and current system with open ocean → “Miniature of Ocean”
Total 143 of Argo floats were deployed by KMA, KORDI, JMA, and AOML.
Density of Argo Obs.

- Number of profile data within 0.5 x 0.5 deg. grid (1998-2011)

- Trajectories of KMA floats deployed in 2004 and 2005
Active Floats & Life-time

- **Active floats**: 33 (2012.3.14)

- **Life-time of floats (without active floats)**

![Map and histogram showing active floats and life-time distribution.](image-url)
Number of monthly temperature profiles

- Argo data gradually increase from 2001
- Temporal distribution is more dense.

Profile data in 2009

- Argo
- CTD & XBT

Contribution of aoml floats
Monitoring of Temperature in Ulleung Basin

- KMA conducts monitoring of temperature in the East/Japan Sea from 2004, using Argo data.
- Results are displayed in the NIMR-Argo web site with R- and/or D-files (http://argo.nimr.go.kr)

600 dbar
Impacts of Argo Data in the Ocean Circulation Model

◆ Ocean Model & Exps.
  • Ocean model: GFDL MOM 3
  • Resolution: $0.1^\circ \times 0.1^\circ$; 42 vertical levels
  • DA: 3D VAR
    - T profiles (including Argo)
    - SST
    - SSH
  • Experiments (2009 hindcast):
    - All data assimilated (Exp_all)
    - without Argo assimilation (Exp_NoArgo)

◆ Surface drifters (2009)
  • 18 surface drifters from AOML
  • Drogue depth: 15 m

◆ Temp. & Vel. Diff. (Exp_all – Exp_NoArgo)

◆ RMSE Diff. (Exp_all – Exp_NoArgo)
  • SST (1st layer)
  • U, V comp. (15m dep.)
KMA Plan 2012

- **Deployment Plan:** 10 floats in July 2012
- **CTD observation in April 2012**
  - to examine the feasibility of East Sea Argo data DMQC
  - location: near float of ‘7900236’
• Current status of Argo deployment in the East Sea
  - Total 143 floats released from 1998
  - 33 floats are active
  - Floats mostly measured data in the southern region
  - Argo becomes the most effective data in this region

• Monitoring the oceanographic environment change
  - long-term variation of temperature profile

• KMA’s plan for this year:
  - to deploy 10 floats in the East Sea
    (including 1day cycle float to study about short-term variability)
  - to evaluate the feasibility of East Sea Argo data DMQC