
Float technology progress. PROVOR / ARVOR floats.

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Halifax.

Serge Le Reste, Ifremer - technology department,
with contribution of CNRS-laboratoire de Villefranche.

Context and plan

The development of floats has involved Ifremer, CNRS and the industrial partner NKE. The work has been done within several project frameworks like NAOS (Novel Argo Ocean observing System) , E-Aims (Euro-Argo Improvements for gmes Marine Service), Remocean.

- Status for :
 - ✓ Argo float improvements
 - ✓ Oxygen measurement
 - ✓ Deep float
 - ✓ Argos3 satellite transmission
 - ✓ Bio Argo floats

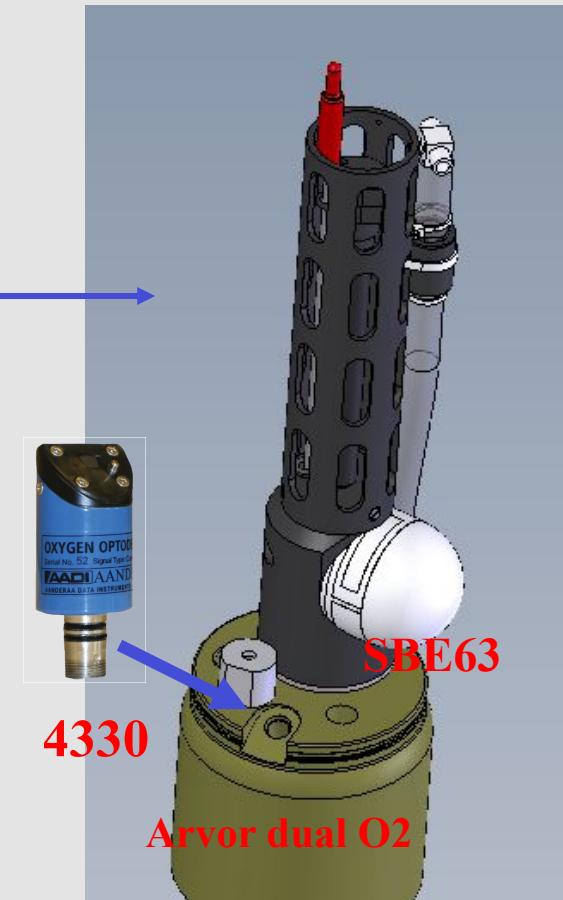
Argo float improvements

- ✓ The firmware of the Arvor float has evolved to improve its reliability and lifetime by:
 - Completing rugged self tests before deployment,
 - Simplifying the deployment procedure,
 - Adding technical information to transmitted data

- ✓ A new needs of the scientific community has been implemented:
 - Binding two missions with different parameters on a float (Argos transmission) to allow a specific experiment before starting the standard Argo mission (2000 dbar profile, 10 days period)

Oxygen sensors

- Add a SBE63 sensor to the existing Arvor float
- Aanderaa 4330 with individual multipoint manufacturer calibration ordered.
- Iridium transmission, GPS position.
- Deployment planned during the GEOVIDE cruise in June-July 2014.



Argos 3 satellite transmission

Argos3: Bi-directional link working according 2 modes said « low data rate» (400 bits/s) or « high data rate» (4800 bits/s) embedded on MetopA and Saral satellites.

The purpose is to assess the performance of Argos3 in order to shorten the surface time, to transmit more data, to remotely control the float. This action was initiated for marginal seas applications.

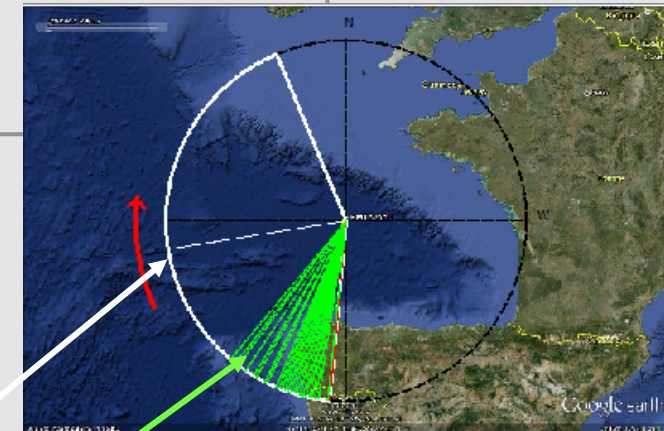
Results in 2012-2013: One Arvor in « low data rate » mode & « full-ack protocol » worked from October 2012 to January 2014 in the bay of Biscay. 140 cycles done.

- Synchronizing its surface time with the satellite pass
- Transmitting one Argo profile (more than 100 points) spending 10 minutes
- Energy balance divided by five compared to Argos2
- Increased battery life of 25% compared to Argos2

→ in Spring 2014, 2 Arvor will be deployed in Mediterranean Sea by OGS (E_Aims EU project)



Arvor-A3



Satellite pass visibility

Data transmission

Example of Argos3 transmission A3
(Saral mai 2013)



Main work for the next months...

- ✓ Test at sea of the new Arvor firmware (Coriolis deployment)
- ✓ Test of Argos3 full-ack protocole satellite transmission performance in Mediterranean sea (EuroArgo)
- ✓ Test the industrial 4000m deep Arvor prototype at sea (NAOS)
- ✓ Test of Provlce (NAOS)

Thank you for your attention.