



Argo Spain 2012 report

Pedro Vélez-Belchí, Instituto Español de Oceanografía

1. The status of implementation

The Argo Spain program started in 2003 and is coordinated by the Instituto Español de Oceanografía (IEO). Since then, 51 floats have been deployed, of which 31 are still active.



Figure 1. Status of the Argo Spain program on June 13th 2013. From a total of 51 floats deployed, 31 (red) are still active

- Floats deployed and their performance

During 2012, a total of 6 Argo floats were deployed by Spain:

- 3 Apex floats were deployed by the *R/V Angeles Alvariño* in the Eastern Atlantic.
- 3 Apex floats were deployed in the Western Mediterranean Sea by SOCIB, the Coastal Ocean Observing and Forecasting System located in the Balearic Islands.

Although the funding for the purchase of the floats may come from different sources all Argo floats deployed by Spain are managed by the Argo-Spain program, which gives support to the different contributions.



- Technical problems encountered and solved

No major technical problems were encountered in 2013

- Status of contributions to Argo data management (including status of pressure corrections, technical files, etc)

After the deployment, the detailed technical information is provided to the DAC in charge of the floats (Coriolis) and to the AIC. The Argo-Spain program is aware of the changes in the technical and metadata data formats, and is providing the necessary information.

Some of the earlier floats deployed by Spain were affected by TNPD. These floats have not been yet corrected, but the corrected files will be submitted during 2013.

- Status of delayed mode quality control process

The delayed quality control process is underway, however it has not been submitted yet. The submission will be done during 2013.

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

The Argo Spain program is actually not funded. Spain remains committed to the European contribution to Argo (Euro-Argo), however the final decision for becoming a member of Euro-Argo has not yet been taken. This decision, that will mean a long-term contribution (5-10 years) to Argo, should be taken during 2013 by the Spanish Ministry of Economy.

The funding covers (and will cover) float procurement, transmission costs, and part-time (1.5 manmonth per year) personnel support. The *Instituto Español de Oceanografía* funds the scientific coordination and the remaining personnel support of the Argo-Spain program

Besides the long-term support from the Spanish Ministry of Economy, the Coastal Ocean Observing and Forecasting System located in the Balearic Islands (SOCIB) will deploy 3/4 Argo floats in the Western Mediterranean until 2014, although this funding could be extended until 2021. The Argo-Spain program also coordinates this contribution.

3. Summary of deployment plans and other commitments to Argo for the upcoming year and beyond where possible.

During 2013 a total of 5 Argo floats will be deployed. The main goal is to support the global array in the Atlantic Ocean and in the Mediterranean Sea. The deployment plan has been submitted to the IAC.

Although the final deployments may change following feedback from the Spanish research community the actual plan is:

- 3 floats to be deployed in the Mediterranean Sea.
- 2 floats to be deployed in the Eastern Atlantic.



Beyond 2013 funds are only secured for Argo deployments in the Western Mediterranean Sea, with 3 floats to be deployed every year until 2014.

4. Summary of national research and operational uses of Argo data as well as contributions to Argo Regional Centers.

Argo is used by many Spanish researchers to improve the understanding of the climate and ocean variability. Ocean and weather forecast operational models also use Argo data.

The web page of the Argo Spain program is: <http://www.argoespana.es>

5. Issues that your country wishes to be considered and resolved by the Argo Steering Team regarding the international operation of Argo.

None.

6. To continue improving the number of CTD cruise data being added to the reference database by Argo PIs, it is requested that you include the number and location of CTD cruise data uploaded by PIs within your country to the CCHDO website in the past year. These cruises could be used for Argo calibration purposes only or could be cruises that are open to the public as well.

After most of the Argo-Spain deployments, a CTD cast is performed. However, the data have not been submitted to the CCHDO website due to lack of personnel. It will be done during 2013.

7. List of all papers published by scientists within Spain in the past year using Argo data, including non-English publications.

- Prieto, E., C. González-Pola, A. Lavin, R. F. Sánchez, and M. Ruiz-Villarreal, 2013: Seasonality of intermediate waters hydrography west of the Iberian Peninsula from an 8 yr semiannual time series of an oceanographic section. *Ocean Science*, 9, 411-429
- Reverdin, G., L. Marié, P. Lazure, F. d'Ovidio, J. Boutin, P. Testor, N. Martin, A. Lourenco, F. Gaillard, A. Lavin, C. Rodriguez, R. Somavilla, J. Mader, A. Rubio, P. Blouch, J. Rolland, Y. Bozec, G. Charria, F. Batifoulier, F. Dumas, S. Louazel, and J. Chanut, 2013: Freshwater from the Bay of Biscay shelves in 2009. *Journal of Marine Systems*, 109–110, Supplement, S134-S143,
- Schroeder, K., C. Millot, L. Bengara, S. Ben Ismail, M. Bensi, M. Borghini, G. Budillon, V. Cardin, L. Coppola, C. Curtil, A. Drago, B. El Moumni, J. Font, J. L. Fuda, J. García-Lafuente, G. P. Gasparini, H. Kontoyiannis, D. Lefevre, P. Puig, P. Raimbault, G. Rougier, J. Salat, C. Sammari, J. C. Sánchez Garrido, A. Sanchez-Roman, S. Sparnocchia, C. Tamburini, I. Taupier-Letage, A. Theocharis, M. Vargas-Yáñez, and A. Vetrano, 2013: Long-term monitoring programme of the hydrological variability in the Mediterranean Sea: a first overview of the HYDROCHANGES network. *Ocean Science*, 9, 301-324



- Font, J., J. Boutin, N. Reul, P. Spurgeon, J. Ballabrera-Poy, A. Chuprin, C. Gabarró, J. Gouillon, S. Guimbard, C. Hénocq, S. Lavender, N. Martin, J. Martínez, M. McCulloch, I. Meirold-Mautner, C. Mugerin, F. Petitcolin, M. Portabella, R. Sabia, M. Talone, J. Tenerelli, A. Turiel, J.-L. Vergely, P. Waldteufel, X. Yin, S. Zine, and S. Delwart, 2012: SMOS first data analysis for sea surface salinity determination. *International Journal of Remote Sensing*, 1-17
- Pérez-Hernández, M. D., A. Hernández-Guerra, T. M. Joyce, and P. Vélez-Belchí, 2012: Wind-Driven Cross-Equatorial Flow in the Indian Ocean. *Journal of Physical Oceanography*, 42, 2234-2253,
- Plaza, M. A. S., J. L. Pelegri, F. J. Machin, and V. B. Barrios, 2012: Inter-decadal changes in stratification and double diffusion in a transatlantic section along 7.5 degrees N. *Scientia Marina*, 76, 189-207,

