

Call for National Reports for Argo Steering Team Meetings

South Africa

The AST requests a National Report from each country involved in implementing the Argo array prior to the yearly AST meetings. These reports help inform all Argo participants of the status of each National Program and help guide the AST meetings. Please use the questions below to help produce your report and send it to Megan Scanderbeg two weeks prior to the annual AST meeting.

Note: Take-over cruises = cruises to maintain bases on sub-Antarctic Islands (Marion and Gough) and Antarctica

1. The status of implementation of the new global, full-depth, multidisciplinary Argo array (major achievements and problems in 2020)
 - a. floats deployed and their performance

None procured by us. Deployed on behalf of other teams. Six Argo floats on the Gough Island cruise (September 2020) and 28 floats on the SANAE VI cruise (December 2020 – February 2021).

- b. technical problems encountered and solved

None.

- c. status of contributions to Argo data management (including status of high salinity drift floats, decoding difficulties, ramping up to include BGC or Deep floats, etc)

None. Available to assist with deployment of Deep and BGC floats only where sufficiently competent Research team onboard. Most deployments currently take place on take-over cruises.

- d. status of delayed mode quality control process

n/a

2. Present level of and future prospects for national funding for Argo including a summary of the level of human resources devoted to Argo, and funding for sustaining the core mission and the enhancements: BGC, Deep, Spatial (Polar, equator, WBCs)

Present: One person on AST team (Dr. Morris). One person on BGC team (Dr. Thomalla). Limited input to data management teams. Make available deployment opportunities to assist with core mission and enhanced missions where possible.

Future: An infrastructure funding initiative is being pursued through the Department of Science and Innovation (DSI) in South Africa. Progress has slowed due to current global pandemic. The initiative will allow for the procurement of core and BGC floats to be deployed in South Atlantic, South Indian and Southern Oceans if approved.

3. Summary of deployment plans (level of commitment, areas of float deployment, Argo missions and extensions) and other commitments to Argo (data management) for the upcoming year and beyond where possible.

Take-over cruises 2021/2022:

- **Marion Island cruise:** April / May 2021. Four floats from UK MetOffice have already for this cruise. Transect goes from Cape Town to Marion Island and returns directly to Cape Town again.
- **Gough Island cruise:** September 2021. Transect goes from Cape Town to Tristan da Cunha, then on to Gough Island. The vessel returns via the same route.
- **SANAE IV cruise:** December 2021 – February 2022. Transect goes from Cape Town along the GoodHope Line to Antarctica.

Potential research cruises 2021/2022 (COVID-19 dependent):

- **SEAmester cruise:** July 2021. Vessel will transect from Cape Town to just north of Port Elizabeth and undertake a CTD transect across the Agulhas Current. Thereafter returning to Cape Town.
- **SAMBA mooring cruise:** September / October 2021. Vessel will transect from Cape Town directly westwards into the South Atlantic to service moorings.
- **SANAE / SO-CHIC Weddell Gyre:** Dec 2021 – Feb 2022. Vessel will follow the Goodhope line between Cape Town and Antarctica with a dedicated scientific voyage planned to the Weddell Gyre as part of the EUH2020 SO-CHIC project.

Here is a [link](#) to the commitments table at OceanOPS. If you cannot edit the online table, please send a list of deployment plans for each of the columns in the table as needed.

4. Summary of national research and operational uses of Argo data as well as contributions to Argo Regional Centers. Please also include any links to national program Argo web pages to update links on the AST and AIC websites.

Dr Sandy Thomalla from SOCCO, CSIR is a member of BGC-Argo scientific committee that met in April and November 2020.

Research from SOCCO that utilizes Argo data:

Ryan-Keogh, T., Thomalla, S., Monteiro, PMS., Tagliabue, A. Long term trend of increasing iron stress in Southern Ocean phytoplankton, In review. Also presented at SOCCOM virtual Southern Ocean Mini-AGU meeting, January 2021.

Potential plans for deployment of BGC-Argo PROVOR float with chlorophyll, backscatter, PAR, Oxygen and upward facing transmissometer (for flux estimates) on SANAE / SO-CHIC voyage to Southern Ocean in December 2021.

5. Issues that your country wishes to be considered and resolved by the Argo Steering Team regarding the international operation of Argo. These might include tasks performed by the AIC, the coordination of activities at an international level and the performance of the Argo data system. If you have specific comments, please include them in your national report.

Standards and Best Practices (S+BP) for Argo deployments, data processing, etc. Working with the OCG S+BP team lead (Prof. Juliet Hermes), the South African Argo team would be happy to assist further in this regard.

6. To continue improving the quality and quantity of CTD cruise data being added to the reference database by Argo PIs, it is requested that you include any CTD station data that was taken at the time of float deployments this year. Additionally, please list CTD data (calibrated with bottle data) taken by your country in the past year that may be added to the reference database. These cruises could be ones designated for Argo calibration purposes only or could be cruises that are open to the public. To help CCHDO track down this data, please list the dates of the cruise and the PI to contact about the data.

There may be some additional data from the SAMBA Mooring cruise from September 2020. This needs to be ascertained and uploaded for the CCHDO.

7. Keeping the Argo bibliography ([Bibliography | Argo \(ucsd.edu\)](#)) up to date and accurate is an important part of the Argo website. This document helps demonstrate the value of Argo and can possibly help countries when applying for continued Argo funding. To help me with this effort, please include a list of all papers published by scientists within your country in the past year using Argo data, including non-English publications.

McMonigal, K., Beal, L., Elipot, S., Gunn, K., Hermes, J., Morris, T., & Houk, A. (2020). The impact of meanders, deepening and broadening, and seasonality on Agulhas Current temperature variability. *Journal of Physical Oceanography*, 50 (12), 3529-3544.

Ryan-Keogh, T., Thomalla, S., Monteiro, PMS., Tagliabue, A. Long term trend of increasing iron stress in Southern Ocean phytoplankton, In review.

There is also the thesis citation list ([Thesis Citations | Argo \(ucsd.edu\)](#)). If you know of any doctorate theses published in your country that are missing from the list, please let me know. Finally, if you haven't already sent me a list of Argo PIs in your country, please do so to help improve the statistics on how many papers are published including an Argo PI vs no Argo PIs.

Morris, T. 2020: *Downstream evolution of ocean properties and associated fluxes in the Greater Agulhas Current System: Ad hoc Argo experiments and modeling.* University of Cape Town, Cape Town, South Africa.

8. How has COVID-19 impacted your National Program's ability to implement Argo in the past year? This can include impacts on deployments, procurements, data processing, budgets, etc.

Technically none, other than being unable to undertake research cruises limiting our deployment opportunities to take-over cruises only.

9. Argo is still interested in piloting the RBR CTD. Does your National Program have any deployment plans for RBR floats in the next couple years? If so, please indicate how many floats will you be buying in 2021 and 2022 (if known) and where they might be deployed.

None. However happy to assist with deployment of floats where possible.