

# Argo National Report – South Africa

Report to Argo Steering Team Meeting: March 2019

Compiled by: Tamaryn Morris – Marine Unit, South African Weather Service

For any queries or deployment requests, please email [tamaryn.morris@weathersa.co.za](mailto:tamaryn.morris@weathersa.co.za)

The South African Argo Program presently is one of deployment opportunities and educational outreach as opposed to procuring of floats and seeding the global Argo array. However, we are striving to develop projects and funding opportunities in that direction. Given South Africa's unique position geographically of bordering three oceans – The Atlantic, Indian and Southern Oceans – we are able to provide numerous deployment opportunities for Argo floats to the global array. We are also working on dynamic research programs and experiments using Argo floats to a) study physical forcing dynamics and b) contribute to the development of biogeochemical floats particularly in the Southern Ocean. The research groups currently involved in the South African Argo program are: The South African Weather Services (SAWS) – who are the National Focal Point, University of Cape Town (UCT), the Department of Environmental Affairs (DEA), The Council for Scientific and Industrial Research (CSIR), The South African Environmental Observation Network (SAEON), and the Nansen-Tutu Centre for Marine Environmental Research.

## 1. Status of implementation (major achievements and problems in 2018):

### Floats deployed and their performance (on behalf of UK MetOffice)

#### Indian Ocean:

IIOE-2 Cruise (RV SA *Agulhas II*) – June 2018

2 x floats deployed on behalf of UK MetOffice within the Mozambique Channel

(sn: 8463,8464)

#### Atlantic Ocean:

Gough Island supply cruise (RV SA *Agulhas II*) – September 2018

2 x floats deployed on behalf of UK MetOffice along the Gough Island supply cruise transect

(sn: 8467,8468)

### Technical issues encountered and solved:

None at this stage.

### Status of contributions to Argo data management (including status of conversion to V3 file formats, pressure corrections, etc)

None

### Status of delayed mode quality control processes:

Not applicable

**2. Present level of (and future prospects for) national funding for Argo including summary of human resources devoted to Argo:**

Individuals from organisations (listed above) work on different projects involving Argo floats and have come together under the auspices of the South African Argo program to share knowledge, resources, cruise time where applicable and information regarding Argo. We are working towards taking this forward now.

We have one Argo representative (T. Morris, SAWS) for the South African Marine Science community who is also looking to drive the Argo float procurements and data management plans in future endeavours.

**3. Summary of deployment plans (level of commitment, areas of float deployment, low or high resolution profiles, Argo extensions) and other commitments to Argo (data management) for the upcoming year and beyond where possible:**

Southern Ocean:

Marion Island Cruise (RV SA *Agulhas II*) – April/May 2019.

This cruise follows the CrossRoads Transect on Figure 1.

**Six floats from WHOI and four from UK MetOffice will be sent for this cruise.**

SCALE Winter Cruise (RV SA *Agulhas II*) – July / August 2019

This cruise follows the GoodHope Transect on Figure 1 to the Marginal Sea Ice Zone.

*available for Argo float deployments*

SCALE Spring Cruise (RV SA *Agulhas II*) – ~ November 2019

This cruise follows the GoodHope Transect on Figure 1 to the Marginal Sea Ice Zone (if possible).

*available for Argo float deployments*

SANAE Cruise (RV SA *Agulhas II*) – December 2019 / January 2020.

This cruise follows the GoodHope Transect on Figure 1.

*available for Argo float deployments*

Indian Ocean:

SEAmester Training Cruise (SA *Agulhas II*) – July 2019.

The cruise will undertake CTD stations along the ASCA transect. Refer to Figure 1 for positions.

*available for Argo float deployments*

International Indian Ocean Expedition (IIOE-2) Expeditions

Cruises are being developed for both the eastern and western Indian Ocean and these can be communicated for interested countries wanting to deploy Argo floats into the Indian Ocean. Currently, the Department of Environmental Affairs is looking to do additional cruises this year and next in to the western Indian Ocean. **Thus deployment opportunities may become available.**

Atlantic Ocean:

Gough Island Cruise (RV SA Agulhas II) – September 2019.

This cruise follows the SAMBA Transect on Figure 1.

*available for Argo float deployments*

SAMBA Mooring Array (RV Algoa) – September / October 2019.

Refer to Figure 1 for positions. Note: The CPIES will need to be service on this cruise, so the vessel will sail to the 0 degree latitude.

*available for Argo float deployments*

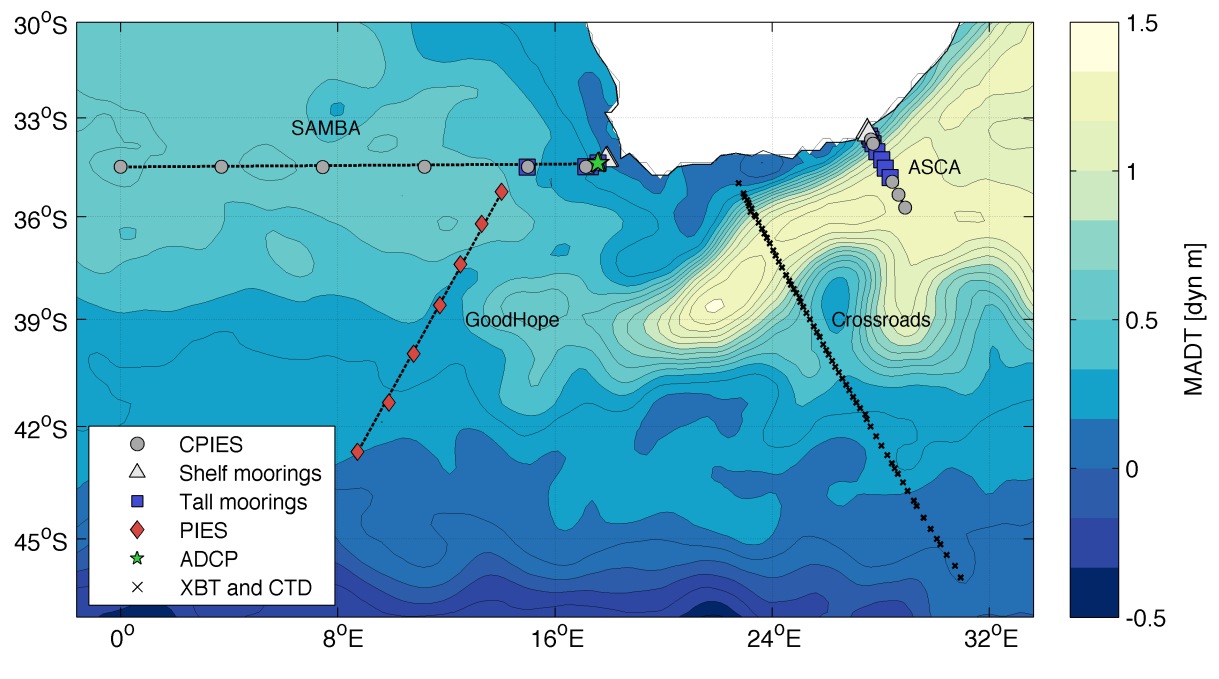


Figure 1: Large mooring array and CrossRoads transects around South Africa where floats could be deployed if available (Morris et al 2017).

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:**

Projects and initiatives reported on in the AST report for South Africa from 2017 are ongoing. Publications stemming from some of the work are listed below.

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.**

None at this stage.

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.

Twelve cruises with CTD casts deeper than 2000 m have been loaded on to the CCHDO. These cruises are from the Indian, Atlantic and Southern Oceans:

SA Agulhas II Cruises:

1.	AGU019	Marion Island Cruise	April 2016
2.	AGU020	ASCA SEAmester Cruise	July 2016
3.	AGU024	Marion Island Cruise	April 2017
4.	AGU025	Winter Cruise (Southern Ocean)	June 2017
5.	AGU026	SAMBA SEAmester Cruise	July 2017
6.	AGU027	Gough Island Cruise	September 2017
7.	AGU030	Marion Island Cruise	April 2018
8.	AGU032	IIOE-2 (Mozambique Channel)	June 2018
9.	AGU033	ASCA SEAmester Cruise	July 2018

Algoa Cruises:

1.	ALG237	SAMBA Cruise	April 2017
2.	ALG241	Transkei Winter Cruise	July 2017
3.	ALG253	SAMBA Cruise	October 2018

7. Keeping the Argo bibliography ( <http://www.argo.ucsd.edu/Bibliography.html> ) 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. We reached more than 2000 papers published using Argo data! 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. I've added a thesis citation list too ([http://www.argo.ucsd.edu/argo\\_thesis.html](http://www.argo.ucsd.edu/argo_thesis.html)). 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.

Dilmahamod AF, Aguiar-Gonzalez B, Penven P, Reason CJC, De Ruijter WPM, Malan N, Hermes JC. 2018. SIDDIES corridor: A major east-west pathway of long-lived surface and subsurface eddies crossing the subtropical south Indian Ocean. *Journal of Geophysical Research: Oceans*, 123, <https://doi.org/10.1029/2018JC013828>

Morris T, Lamont T. 2019. Using ocean robots on high-resolution profiling to capture the fast-flowing Agulhas Current. *South African Journal of Science*, 115(1/2), <https://doi.org/10.17159/sajs.2019/5523>

8. **As discussed at the AST-18, I'm making an additional request to help Argo scientists who are asked to give talks or do outreach programs. This action item asks for each National Program to submit a slide with figures and text describing their favorite Argo discovery paper. I will collect these slides and make them available to AST members. The idea is that when an AST member is asked to give a talk on Argo, they could choose from a collection of slides describing key Argo discovery papers. Please consider contributing a slide to this collection.**

Not yet for South Africa. Will work on this and submit shortly.