

Argo New Zealand National Report, March 2025.

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1. The status of implementation of the new global, full-depth, multidisciplinary Argo array (major achievements and problems in 2024)

a. floats deployed and their performance:

- 1) 2 Solo2 floats purchased by NIWA were deployed during the R/V Kaharoa II delivery voyage:
790115 (SIO 3271) deployed 6 August 2024 at 22.50°S, 167.90°E
790116 (SIO 3272) deployed 9 August 2024 at 33.00°S, 170.50°E
- 2) 1 Apex Core float purchased by the Antarctic Science Platform (ASP) was deployed by HMNZS Aotearoa Vessel:
7900694 deployed 3 February 2025 from HMNZS Aotearoa at 71.39°S, 171.35°E
- 3) 2 NKE Provor CTS5 BGC floats purchased by the ASP were deployed in shallow (~600m shelf waters) during an R/V Tangaroa Antarctic voyage:
7900693 deployed 28 January 2025 from R/V Tangaroa at 76.82°S, 179.92°E
7900970 deployed 28 January 2025 from R/V Tangaroa at 76.23°S, 176.57°E

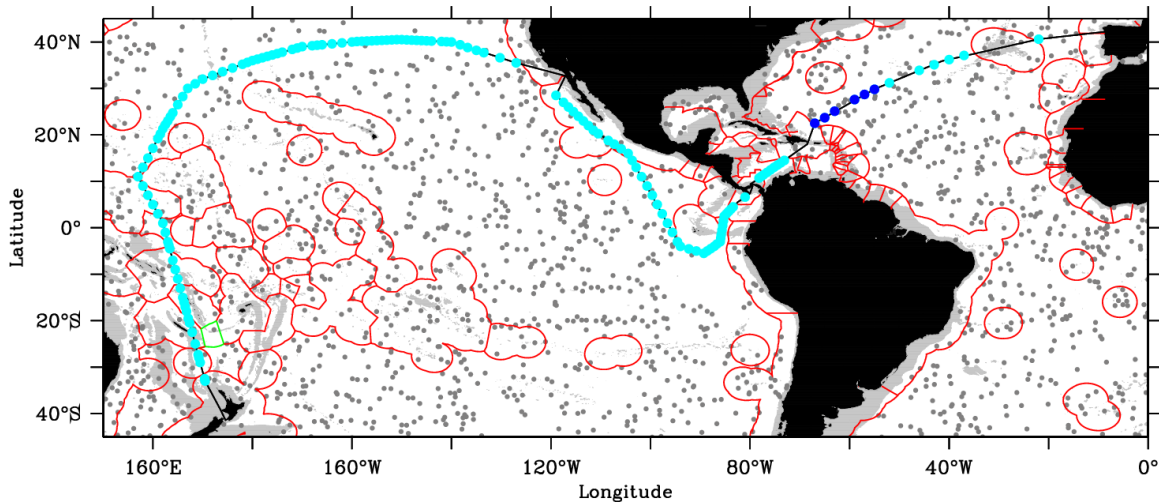


Photo: Svenja Halter

NKE Provor CTS5 just after deployment in the Ross Sea

New Zealand also facilitated the deployment of floats from other countries:

- 1) Kaharoa II delivery voyage: 146 Core floats and 6 Deep floats supplied by SIO, UW, WHOI, CSIRO and NIWA (NZ) were deployed



Kaharoa 2 delivery voyage route (John Gilson)

- 2) 10 SIO Solo2 floats were deployed in January 2025 during an R/V Tangaroa Antarctic voyage.
- 3) 2 Canadian Core Arvor floats were deployed from HMNZS Aotearoa in the Southern Ocean (Ross Sea gyre region) in February 2025:
4902704, deployed at 73.59°S, 172.39°W on 4 February 2025 and 4902698 deployed at 74.80°S, 175.21°W on 5 February 2025.

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.

d. status of delayed mode quality control process:

DMQC on NZ Solo2 floats is performed by Scripps Institution of Oceanography (John Gilson).

DMQC for the 2 BGC Argo floats and the Apex float in the Ross Sea is performed by Esmee van Wijk, Christina Schallenberg and Gabriela Semolinopilo from CSIRO.

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

NIWA New Zealand Argo float funding is on a year-to-year basis. The 2024-2025 funding was allocated towards a BGC float reflecting increased local interest in BGC Argo. An MRV BGC float is in the process of being purchased (delayed by sensor delivery). The intention is to alternate annually between purchasing 2 Solo2 Core floats and a single BGC float.

This past year has seen another New Zealand group purchase and deploy floats. The Antarctic Science Platform (ASP) purchased and deployed two NKE Provor BGC floats in the Ross Sea. The ASP hopes to purchase 2 floats biennially.

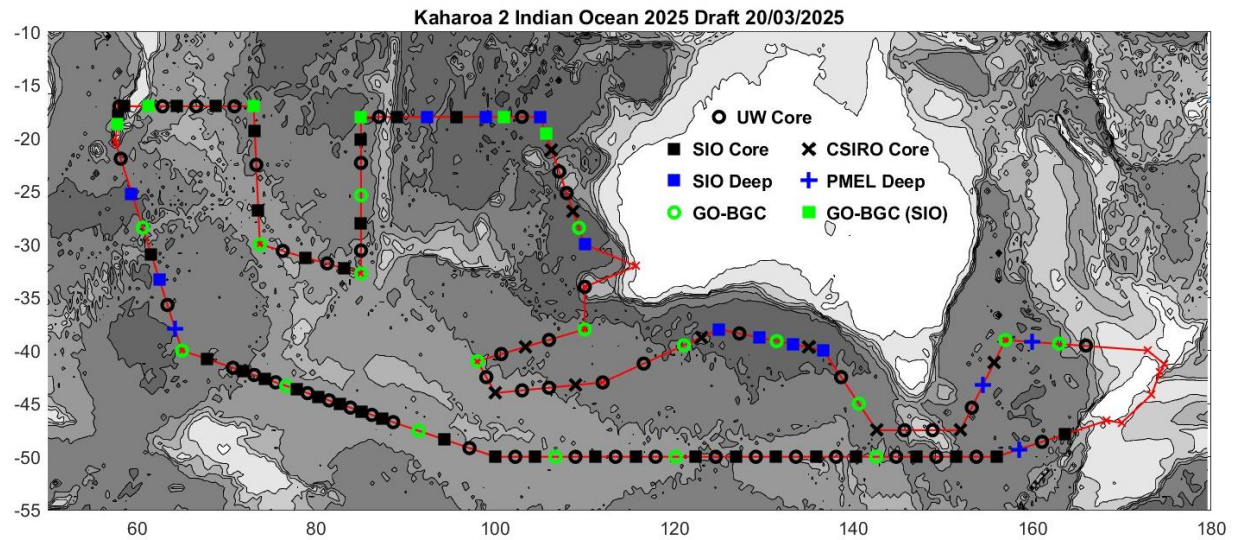
Funding for personnel is via research programmes, also funded year-to-year and a contract with Scripps Institution of Oceanography associated with the R/V Kaharoa II charter. This supports of the order of 4 months of personnel time.

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.

New Zealand floats: complete purchase of MRV BGC float. Apply for funding for 2xSolo2 core floats.

Deployments for other countries:

- a) **R/V Tangaroa Tsunami servicing voyage** (Dart Voyage) (southwest Pacific): July 2025. SIO is planning deployments.
- b) **R/V Kaharoa II Indian Ocean deployment voyage.** (November 2025-February 2026) A collaboration between SIO, UW, CSIRO, PMEL and NIWA.



Planned deployment locations for 2025 Kaharoa II Indian Ocean voyage

Current planning is for 133 float deployments comprising:

UW Core:	50
SIO Core:	35
CSIRO Core:	10
GO-BGC:	18
GO-BGC (SIO):	6
SIO Deep:	10
PMEL Deep:	4

4. Summary of any research and development efforts over the past year to try new sensors or improve float technology. This could include new collaborations with vendors or other partners.
None.

5. 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.

Argo data and products are routinely used in research, including physical oceanography, marine ecosystems, climate and fisheries.

6. 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 OceanOps,

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.

No issues beyond those faced universally, e.g., funding, EEZ permissions.

- 7. Outreach and communication: please describe, in brief, outreach efforts within your national program over the past year. Also, if you've issued any communications, press releases, participated in articles, etc, please send the links. We are considering our social media strategy, so please let us know which social media you engage with and the corresponding handles.**

There was Extensive media coverage of New Zealand's first BGC deployments of two floats during the Antarctic voyage from NIWA, ASP and also from Antarctica NZ: [TAN2502 voyage update – 31 January 2025 | NIWA](#) ; [Tangaroa voyage 2025 | Antarctica New Zealand](#)

- 8. 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.**

New Zealand data has not historically been provided to CCHDO. NIWA is redeveloping its CTD capability and we hope to provide data in the near future.

9. Argo bibliography ([Bibliography | Argo \(ucsd.edu\)](#))

Han, C., Bowen, M., Sutton, P. 2023. The response of the upper ocean to tropical cyclones in the South Pacific. Journal of Geophysical Research.129(4), <https://doi.org/10.1029/2023JC020627>.

Salinger, M.J., Trenberth, K.E., Renwick J., Diamond, H.J., Behrens, E., Bell, J., Fitzharris, B.B., Herold, N., Parker, A.K., Smith, R.O., Sutton, P.J., Trought, M.C.T. (2024). Climate Extremes in the New Zealand region: Mechanisms, Impacts, Attribution. International Journal of Climatology. <https://doi.org/10.1002/joc.8667>

Sutton, P.J.H., Rickard, G.J., Roemmich, D.H. (2024) Southwest Pacific Ocean warming driven by circulation changes. Geophysical Research Letters. 51(13). <https://doi.org/10.1029/2024GL109174>

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Fernandez et al., (2025), Spatiotemporal connections in the Ross Sea: A synthesis from the New Zealand Antarctic Science Platform Ocean Mechanics project. *Special Feature Collection - Understanding the Trajectory and Implication of a Changing Southern Ocean: The Need for an Integrated Observing System* <https://online.ucpress.edu/elementa> (submitted).

10. Does your National Program have any deployment plans for RBR floats in the next couple of years? If so, please indicate how many floats will you be buying in 2023 and 2024 (if known) and where they might be deployed.

New Zealand currently has no intention to purchase RBR CTD floats. We may deploy other nations' RBR-equipped floats (e.g. SIO, CSIRO).