

GOOS Network OCG-16 Report

Argo

Prepared/submitted by S. Wijffels, B. King, B. Owens

1. Highlight the key network successes
 - Maintained core design
 - BGC array continues to grow ~ 50% of design target
 - Deep array ~ 20% design target
 - New mission profiles are already greatly impacting ocean sampling of BGC/optical parameters and the deep ocean
 - Community has produced a 'societal impact' paper
 - Community plans to strongly engage in UNOC3 Science Congress
 - Strengthening Technical CoP
 - Spinning up of Polar Mission Team
 - Working with commercial sensor and platform makers to achieve robust machine-readable metadata
2. How has the network advanced across the OCG Network Attribute areas¹

- **Maintains network mission and target**

Mission targets documented and assessed – under KPI menu at OceanOPS/Argo

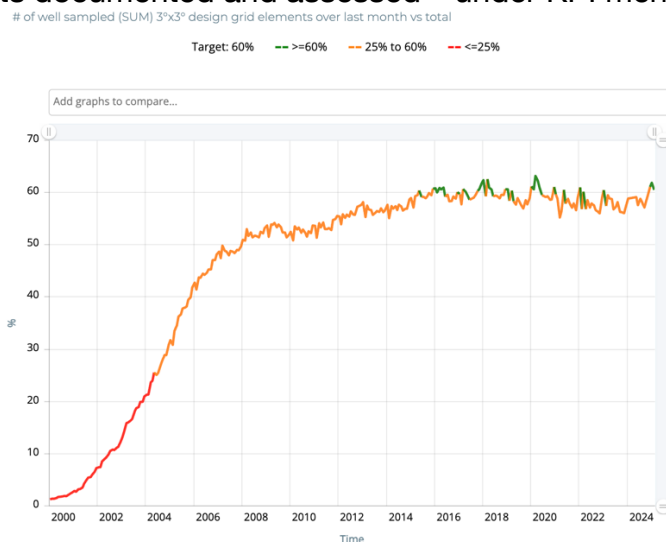


Figure 1: Core Argo coverage sustained

¹ <https://oceanexpert.org/downloadFile/45372>

- **Global in scale**

Yes, but some marginal seas remain unsampled due to a lack of EEZ concurrence. Southern Hemisphere seasonal ice zone coverage has improved. We have only pilot deployments in the Arctic, as the seasonal ice zone expands there.

- **Sustained observation**

Core mission seems secure in the near term. BGC mission is facing a cliff with major US NSF funded program winding up without renewal in place. Deep Argo is stalled at ~20% of global design.

- **Community of practice**

Besides the international science (including BGC, Deep and Polar Mission Teams) and Data Management teams, we now have a very active Technical Community of Practice (TCoP), that meets regularly both virtually and F2F. A new Technical Task Team has also been established to assess and deal with new sensors coming into the array. Annual Argo meetings are fully integrated across all missions, which is resulting in a single OneArgo international team.

- **Delivers data that are free, open and available in a timely manner**

Delivery remains stable, data latency is slowly reducing – more is getting delivered within 3-6 hours. Recently the US mirror GDAC has had issues and lost functionality. The French mirror GDAC remains fully functioning and data flows to users remain healthy. The community is looking to solve the issues with the US GDAC in the next few months. Argo is looking at new ‘simpler to use’ operational ‘data’ products. The list of Argo based products, including new velocity products, is growing:

<https://argo.ucsd.edu/data/argo-data-products/>

- **Observe one or more Essential Ocean Variables or Essential Climate Variables**

Argo has not added any new parameters in the last 12 months. Experimental floats are imaging particles and plankton, and this is a possible new data stream and mission that is starting to be discussed. Interest in mixing measurements remains high but sensor lifetime remains problematic. A largescale process study (outside of Argo) will shed light on this challenge.

- **Develops, updates, and follows Standards and Best Practices**

Data processing standards/methods are continually updated, documented in the Argo data manuals, and implementation is tracked by the Argo Data Management Team. At the recent TCoP, working with our suppliers, we are developing standard float and sensor missions and configurations to assist the global community deal with increasingly complex controllers/sensor payloads. Float operators are responding to requests to iron out differences between mission programming, eg removing time-of-day sampling bias and consistent near-surface sampling.

3. Future Plans² and Opportunities - at network and/or cross-network OCG level
 - We are exploring new data formats to serve our data, rather than our unwieldy, complex and slow to read netCDF files.
 - We are exploring new suppliers for deep floats (Osean), new pH sensors and new CTDs (D2).
 - Production of a longer lived BGC float, S2BGC, is only just now going into production.
4. Challenges and Concerns - at network and/or cross-network OCG level

Sustainable funding for the new missions remains our present major challenge. Argo teams are trying to work within their national contexts to work towards this, and the community is engaging in WMO and the UNOC process. We still face the issue that our user community believes the new missions are 'in the pipeline' rather than recognizing the need to ensure these are resourced.

5. Asks from OCG (Exec, networks, OceanOPS, and/or GOOS) and any priority topics that should be addressed at OCG-16
 - To find a way to track the efficacy of the combined GOOS – the parameter view of the GOOS and some tracking metrics
 - We lack a clear design (and costing) for ocean carbon observing (beyond surface flux estimates)– this is problematic when trying to articulate our ask from governments.
6. Recent publications, articles, etc. (if you want to share)

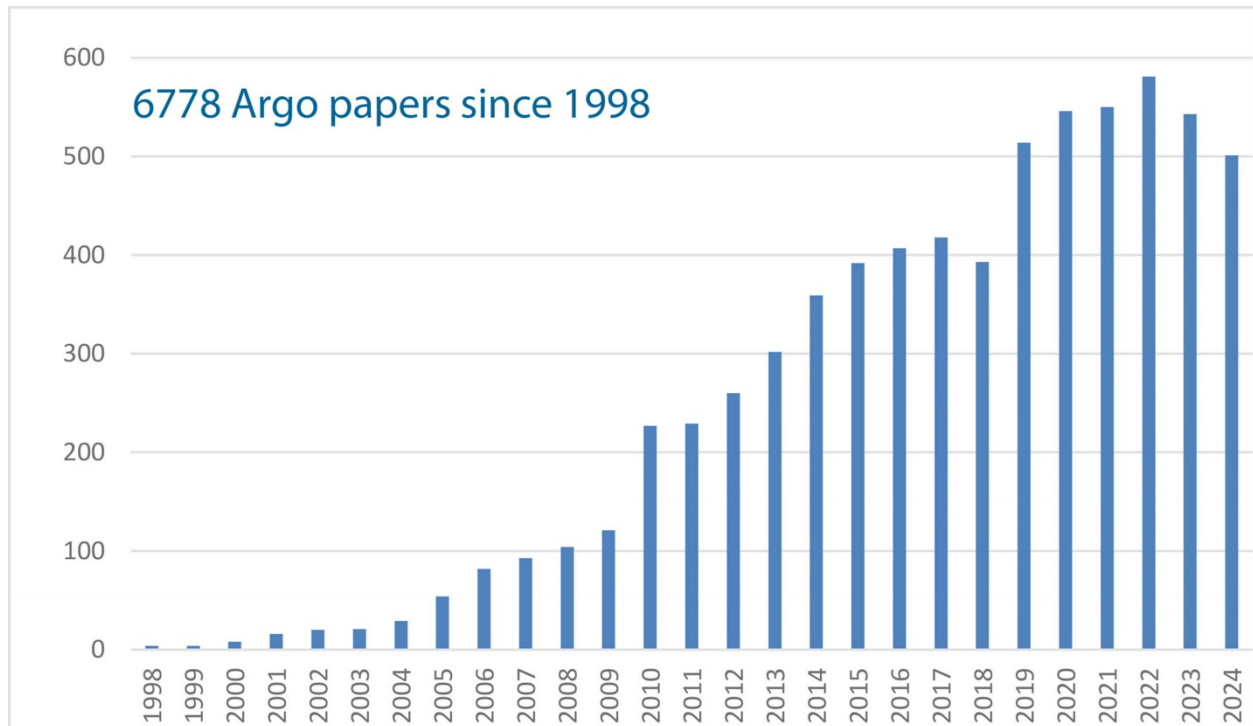
To keep our users up-to-date to changes and the evolution of the Argo data set:
<https://argo.ucsd.edu/whats-new-with-argo-data/> (updated yearly)

To explain the societal benefits of Argo:

Thierry, V., H. Claustre et al, submitted. Advancing Ocean Monitoring and Knowledge for Societal Benefit: The Urgency to Expand Argo to OneArgo by 2030. *Frontiers in Marine Science*.

Scientific use continues to be very strong:

² Future plans on implementation, instrumentation, data management, test, new sensors, plan for new EOVS/ECV observations, capacity development, etc.



Additional considerations:

- What requirements do you base your system design/completeness on - e.g. for the report card? Are you utilizing / are responsive to any requirements from e.g., GCOS, WMO RRR? If yes, what and how?
- What would you like to see in OceanOPS 2026-2030 strategic plan?
- Questions for other networks, networks specific questions for discussion at the session, and highlight cross OCG questions for discussion next day session
- What are your links to the Ocean Decade? (List programs etc. you are involved in)