

NAOS Final Review September 2020

Argo: Updates on its Status and Future

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Status: Snapshot nearly 4000 operational floats 23 active countries



Status: Timelines

Deployment per year shows decreasing trend since 2014.

Float reliability is improving for main float models, which partially compensates for declining funding.

The array was degraded by the COVID, while it has been recovering to some extent since this summer.



Future of Core Argo

Threats:

- Flat budgets/increasing costs
- Single supplier for sensors and affordable 2-way high bandwidth communications
- Fail to meet our user needs

Opportunities:

- Lower data latency-> new applications e.g. coupled NWP
- Very high satellite bandwidth is on the horizon
- New CTD supplier(s) -> strategy for pilots/proving process

We *must* continue to Innovate

- Continue to improve platform and sensor *reliability* across all Argo teams -> drives up our *efficiency* and cost effectiveness
- Work with our manufacturers to test new sensors and new communication systems
- Continue to improve the *quality and timeliness* of our data. Continue to invest in and develop our *data system* and services to meet users needs. Build closer ties with key users.
- Build stronger coordination and collaborations with *ship operators* – array dispersion is less with short surface times

Argo's design for beyond 2020



- Core Floats, 2500
- 00 Target density doubled
- Deep Floats, 1200
 - BGC Floats, 1000 Oxygen, Nitrate, pH, Chl., particle abundance, downwelling irradiance



Progress?





Generated by www.jcommops.org, 08/09/2020

Progress?



Antarctic - good success. Equatorial enhancement might be most feasible

Arctic remains very challenging - pilot mode

Arge



Argo Beyond 2020 is a big and exciting challenge

- Momentum is rapidly building
- A **slow steady build up**, solving technical issues along the way, is the **ideal** pathway forward
- Invest in technical testing and improvements, and share learnings across all teams
- Increase frequency of technical workshops
- Increase frequency of data/sensor workshops
- Lessons learned from core Argo around sensor testing -> new CTD and BGC/optical sensors
- Adapt Argo's **governance** to reflect our larger and more diverse community

Argo leadership beyond 2020



| | BGC co- chairs | BioGeoChemical Argo Mission Team | | |
|------------------------|--------------------|-------------------------------------|--------------------|---------------------------------|
| Argo Steeri Tear | o ing n | 2000m Core Argo | ADMT co- chairs | Argo Data Management Team |
| | Deep co- chairs | Deep Argo Mission Team | | |
| | | | | |

Contributions to the single Argo dataset from the Argo missions and float types: Upper 2000m and below 2000m, Core parameters (T,S) and BGC parameters



Immediate Concerns

- How will Argo fill in growing coverage holes, especially as we recover from **COVID19**?
- How do we implement new BGC and Deep missions while maintaining Core coverage? → Living Pathways documents are being drafted
- Excessive cost and low availability, particularly for BGC, of sensors is a significant problem. Issue of scale of manufacturing.
- **Deployment planning**: BGC and Deep deployments will need to be more targeted than Core as they have thinner arrays and iridium floats do not disperse much.
 - → This leads to a **tighter partnership** with the RV and other ship operators and across Argo deploying groups.
- Need to **promote** "Argo Beyond 2020" globally to gain the support required, so that we can **better serve** the broader community.

Summary

- Argo has a **compelling new design** that will further revolutionize our understanding of and ability to predict the oceans and climate
- We are **at the beginning** of its implementation
- We will encounter many technical and logistical challenges
- Investment in **innovation** in both Argo technology and Argo data management is crucial to success
- NOAS has been a fantastic example in this endeavour
- We must continue to **work together** across nations to meet the challenge of realizing the Argo Beyond 2020 Design