

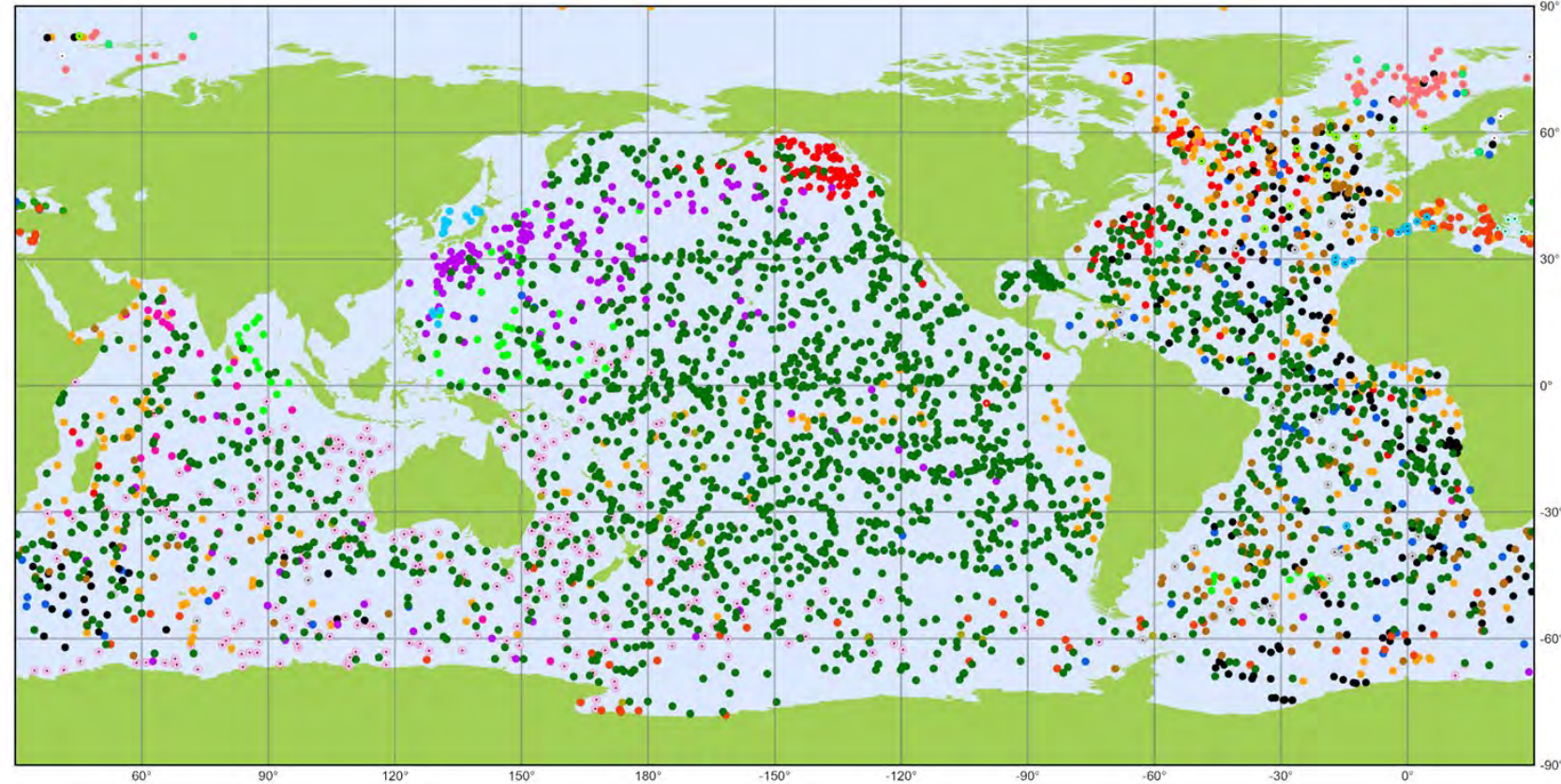
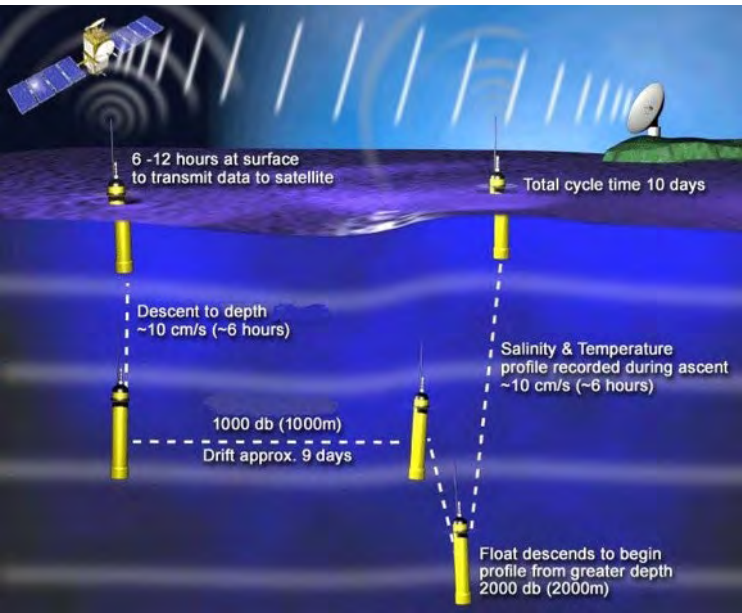
Argo: Present and Future Challenges

Peter Oke, Susan Wijffels, Brian King
and the Argo Steering Team



Argo's original design: implemented 2006 - 2023

- ~3000 floats uniformly sampling the offshore oceans
- 30 nations
- spans 0-2000m
- 10,000 profiles/month
- mostly T/S measured
- data shared globally in real time
- >6000 research papers



Argo

National contributions - 3849 operational floats
Latest location of operational floats (data distributed within the last 30 days)

June 2023

• AUSTRALIA (293)	• FINLAND (6)	• IRELAND (16)	• NORWAY (49)	• UK (143)
• BULGARIA (8)	• FRANCE (300)	• ITALY (86)	• PERU (1)	• USA (2114)
• CANADA (161)	• GERMANY (223)	• JAPAN (175)	• POLAND (10)	
• CHINA (62)	• GREECE (5)	• NETHERLANDS (37)	• KOREA, REPUBLIC OF (16)	
• EUROPE (86)	• INDIA (29)	• NEW ZEALAND (15)	• SPAIN (14)	

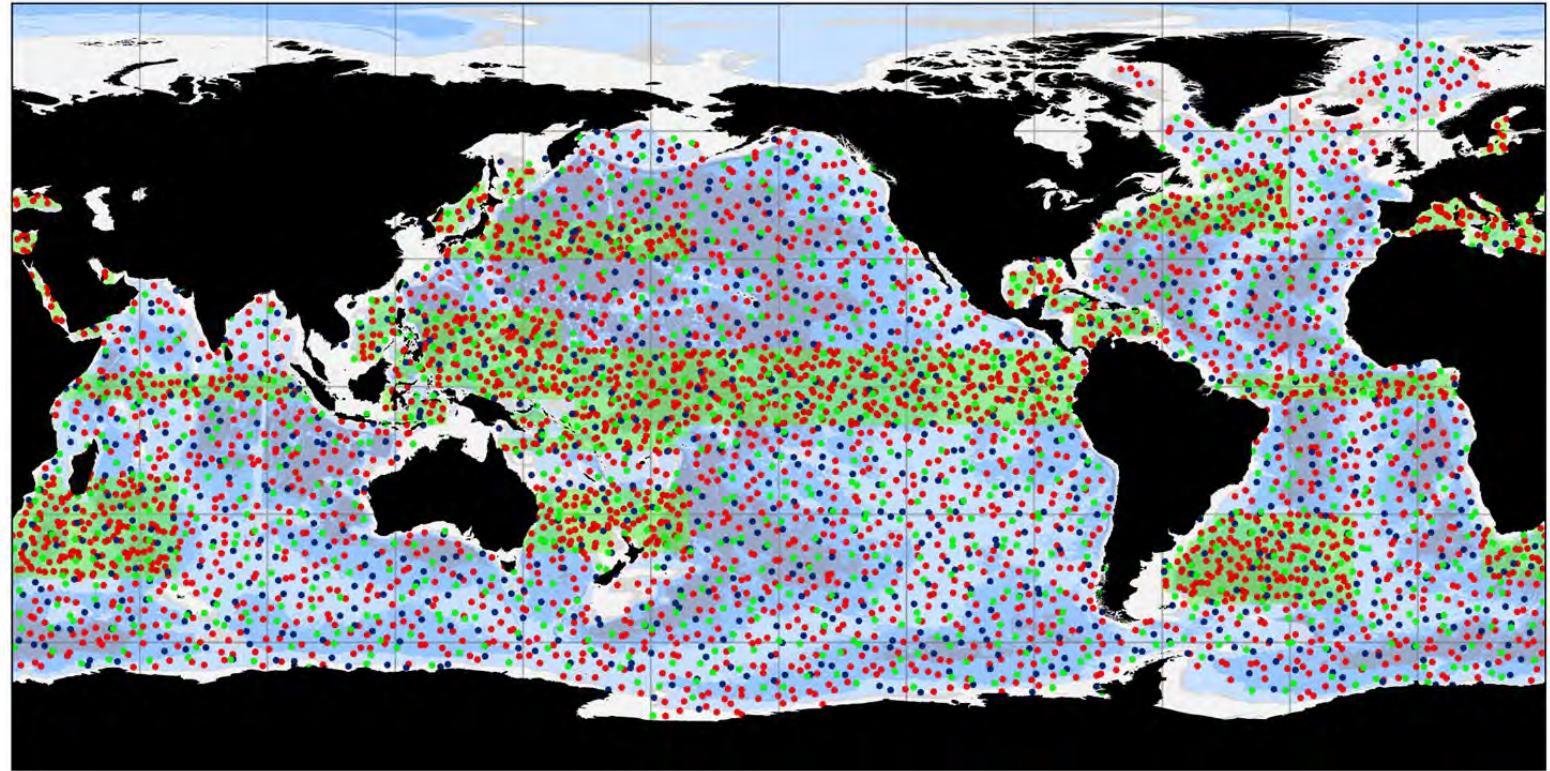


An ambitious new design: One Argo

- Full depth - Deep Mission
- Multidisciplinary - BGC Mission
- Truly global (polar oceans and marginal seas)

Increase to 4700 operating floats
w/ 1000 BGC mission and 1250 on
Deep Mission

Arose from OceanObs '09
community imperative to go deeper
and more multidisciplinary



Argo

Argo Distribution - OneArgo

Argo global, full-depth, multidisciplinary design: 4700 floats

- Core Floats, 2500
 - Deep Floats, 1200
 - BGC Floats, 1000
- Target density doubled



Progress towards OneArgo? 2010 - present

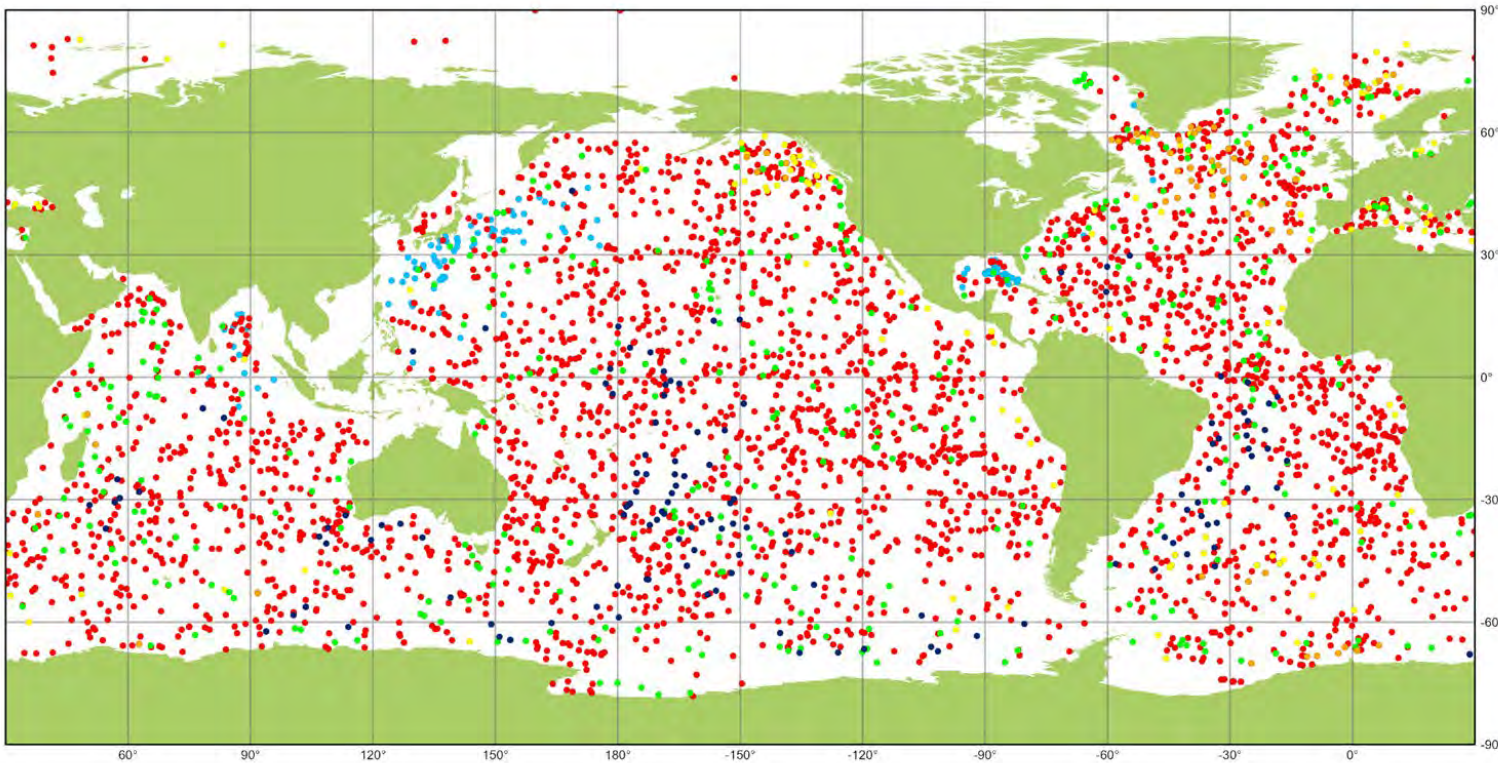
Technical capacity building with our commercial suppliers and in the Argo community

- Develop, test, fix ... *and test and fix ...* new float platforms - deeper pressure (Deep) and greater lifting power (BGC), better ice avoidance etc ... \$\$\$ \$\$\$ \$\$\$
- Develop, test, fix, test, fix, test, fix new sensors - deep CTD, BGC sensors ... \$\$\$ \$\$\$ \$\$\$
- Ready to expand the data system to handle OneArgo data and build capacity in national centres to do this task
- Start **building the case for full implementation** (including how to cost it based on real-world experience)



OneArgo : successful pilots arrays, stalled global implementation

Raised new missions to High Technical Readiness Level



- Total = 3796/4700 (81%)
- Deep = 194/1250 (16%)
- Biogeochemical (≥ 5 params) = 383/1000 (29%)

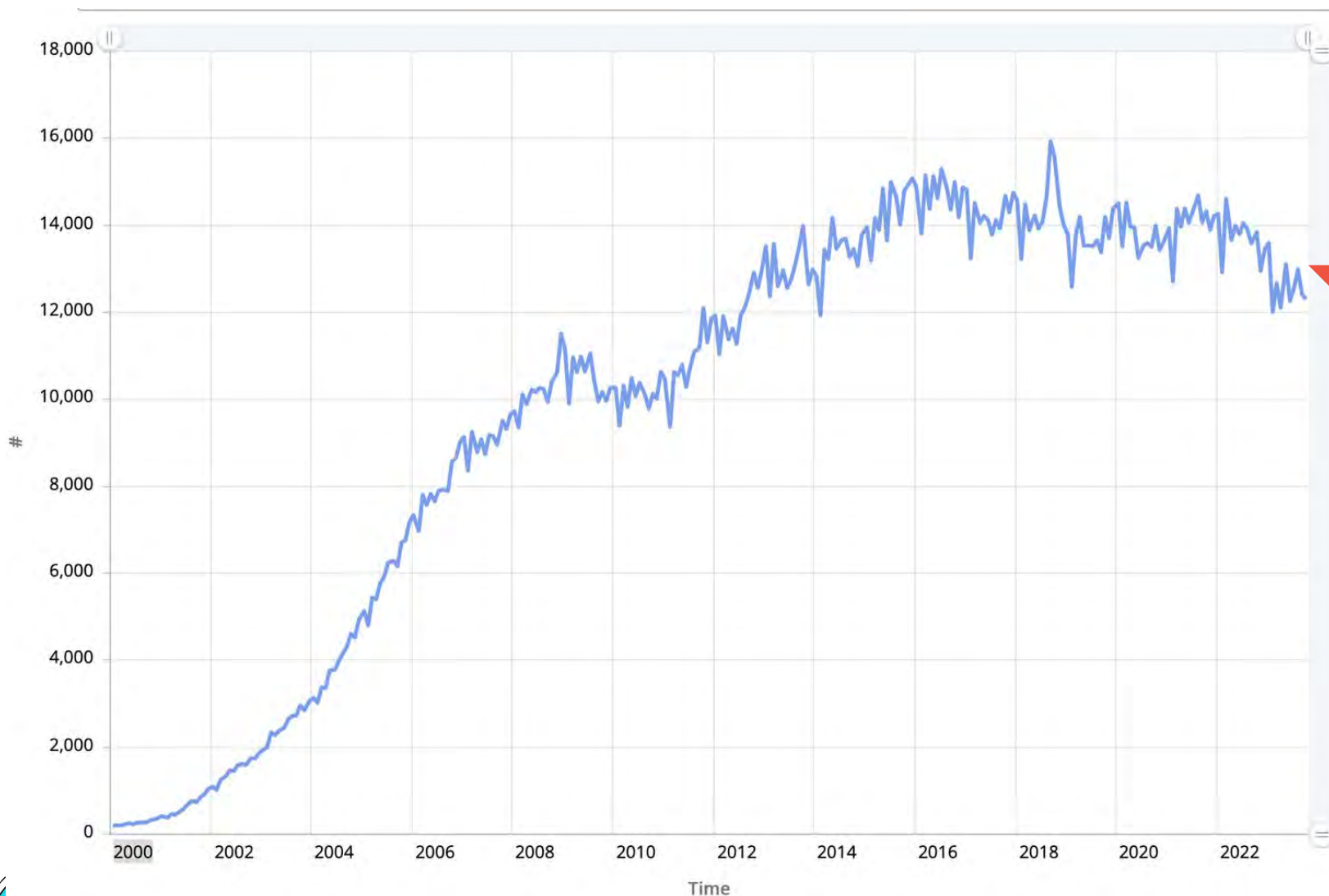
Presently the Argo system is in net decline

Argo Networks
3796 operational units
October 2023

- Deep (TSO only) (61)
- Deep (194)
- BioGeoChemical (without TSO only) (383)
- Core + 02 (TSO) (124)
- Core (2983)
- Equivalent (150)



OneArgo – we are seeing a decline in total profile returns



Presently the Argo system is in net decline

Flat budgets +
developing new
capabilities + facing
COVID inflation

A critical time for Argo

1. After nearly **10 years of work** we have developed the **capability to implement the OneArgo** design including attracting the interest and investment of our commercial suppliers
2. The main **impediment** is the required **large** increase in **sustained funding** required (2.5-3 times 'core Argo')
3. We have a ~5 year window to move into implementation mode ... otherwise we will lose interest of our suppliers and continue to damage core coverage
4. Argo seeks OceanPredicts' assistance in demonstrating the value and need for OneArgo, and to argue for it as a high priority for ocean, climate and Earth prediction/assessment



A critical time for Argo

Again ...

Argo seeks OceanPredicts' assistance in demonstrating the value and need for OneArgo, and to argue for it as a high priority for ocean, climate and Earth prediction/assessment

OneArgo won't just happen.



Some specific requests to the OceanPredict community

The Argo Steering Team love ...

- use cases and data withholding experiments

... SynOBS Flagship activity is exciting; the AST are waiting with anticipation for the results and demonstrations.

Please consider ...

... the impact of data withholding experiments; is a degradation of 5% a reflection of the value of the data? Or the bluntness of the tool?

Full exploitation of data ... should remain a very high priority for OceanPredict.



Some specific requests to the OceanPredict community

The Argo Steering Team would like to know ...

- *About what timeliness is needed for real-time data delivery* ... not just ever more calls for quicker data, but if there are really well made cases for timeliness, argo needs to hear them, so argo can deliver the strongest benefit to users, so long as it doesn't compromise the program
- *There was a time when near-surface sampling was under scrutiny, calls for argo to sample nearer the surface than say 2 or 1 dbar. Is that still a thing ?*
- *And part of the OneArgo design is the tropical and western boundary current enhancements. What does OP think about those needs ?*

