Status of Argo and OneArgo

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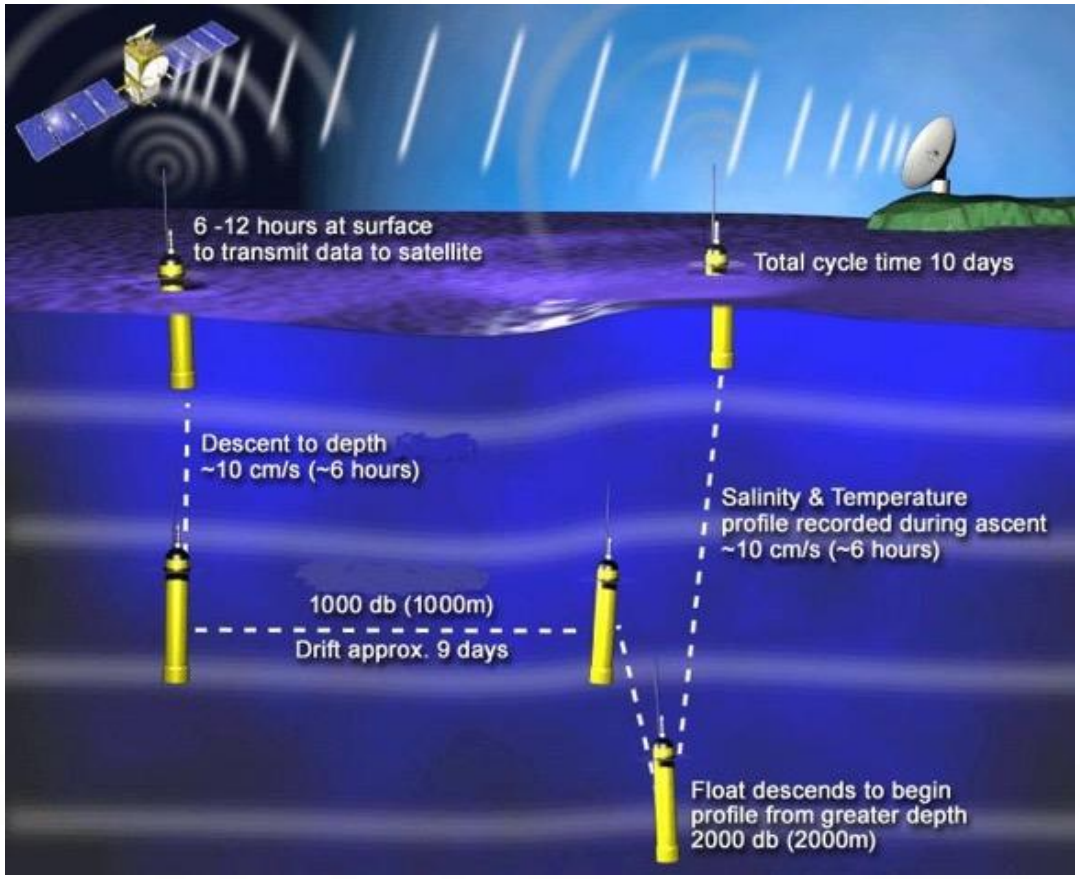
WHOI

Argo

Combines an highly efficient ocean sensing technology, a global mission and with fit-for-purpose data management system

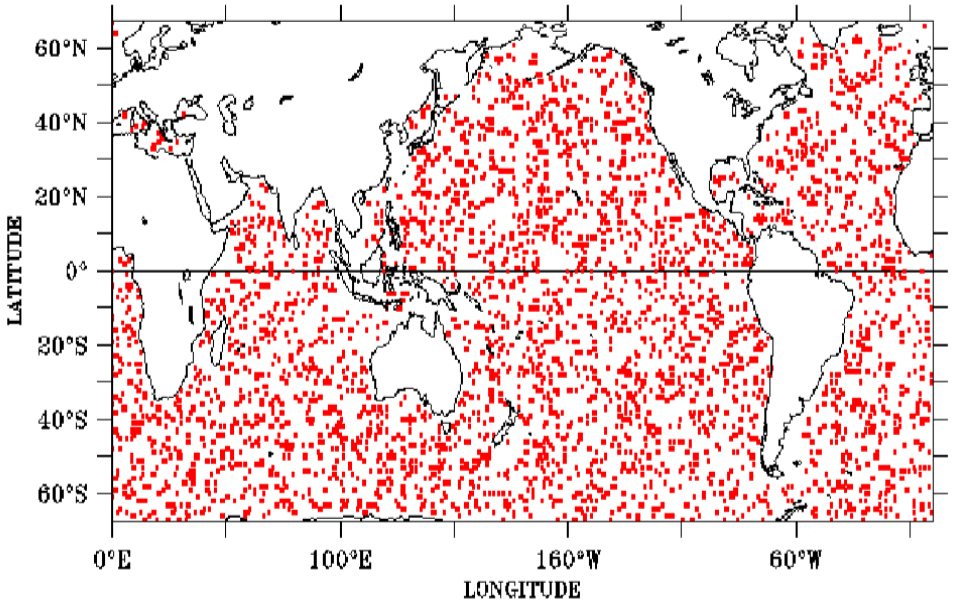


- Long lived autonomous ocean profilers with stable high-quality sensors
- A simple and effective global design
- Designed to be synergistic with satellite missions
- Open and fast data sharing
- Strives for uniform data quality
- Multiple nations operate (~30) and deploy (~52) Argo floats
- Serve both science and operational users

Argo allows ocean ‘sensing’ without relying on research vessel time.
Argo enables everyone to explore our dynamic ocean environment > 6000 research papers

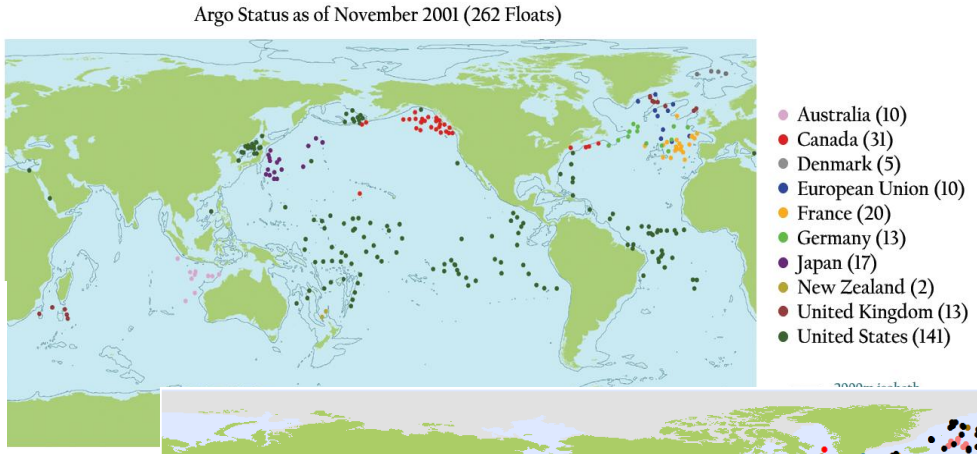
Past Argo Implementation

The first 20 years

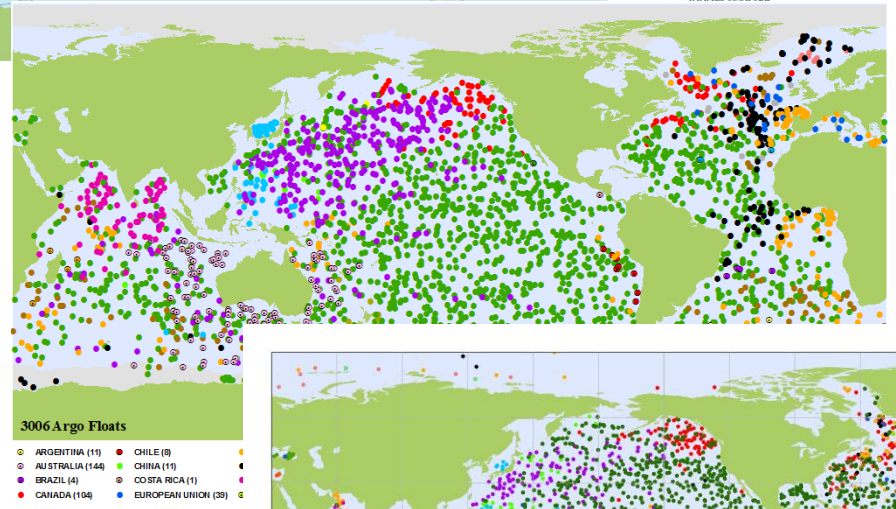


Original design – 1998

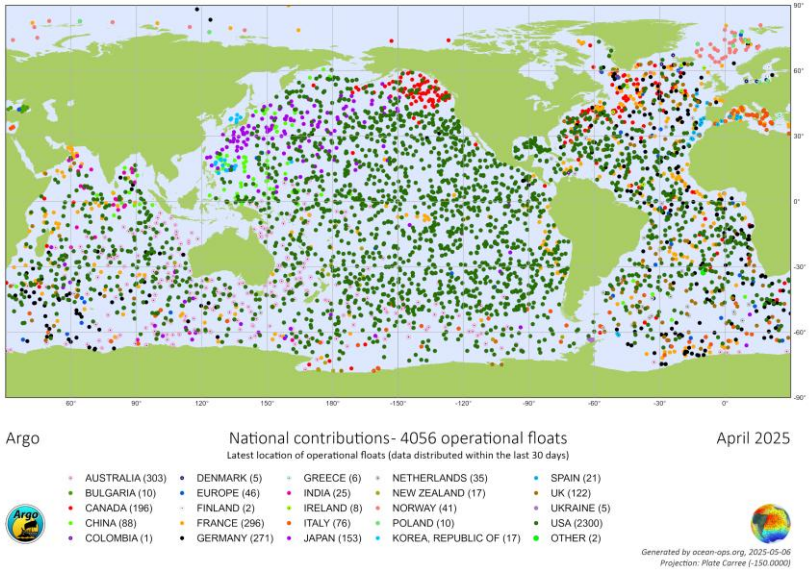
Temperature/salinity ; 0-2000m; open deep ocean



2001 - nascent



2007 - complete

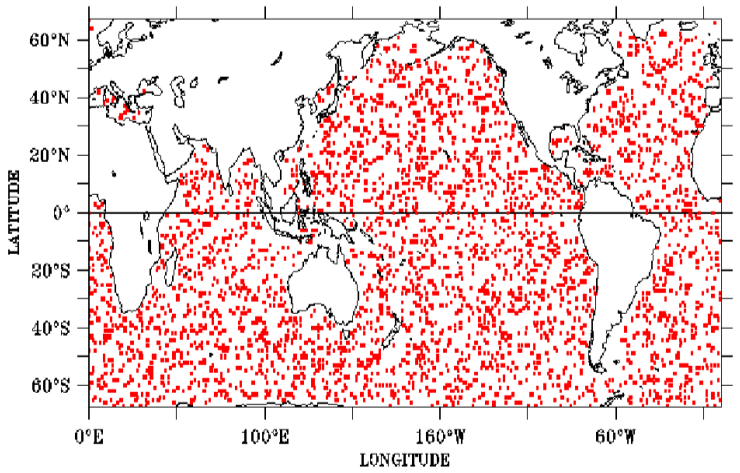


2025 – expanding global

A new design - OneArgo

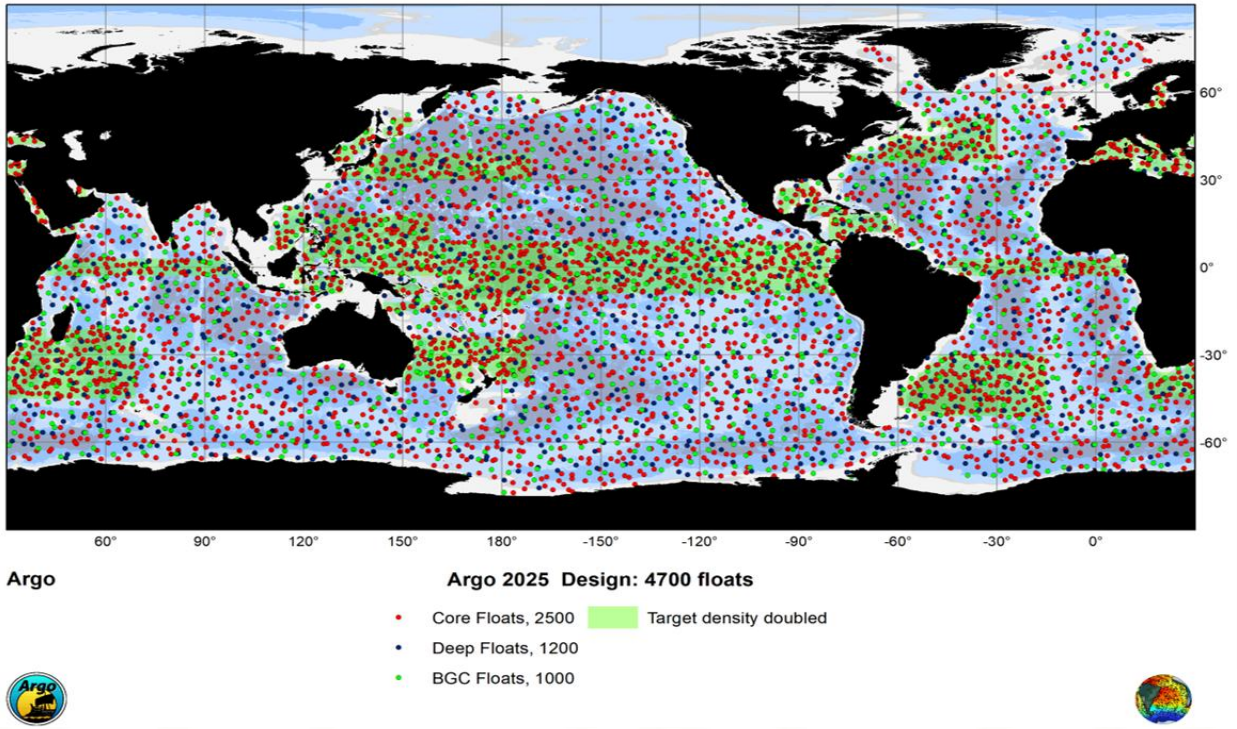
Expanding to serve new communities and support new services

Original “Core” Design



Original Design
physics in the ice-free open ocean

New “OneArgo” Design



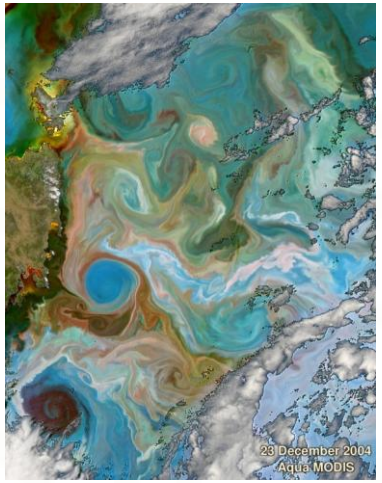
Full Depth, Global (including polar) and multidisciplinary (bio-optics, oxygen, pH, nitrate)

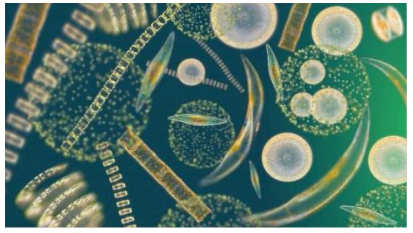
New Missions of OneArgo: targeting major blind spots

BioGeoChemical Mission

- Plankton/particles via bio-optics
- Carbon system via pH
- Ocean environment via oxygen and nitrate

Satellite partners



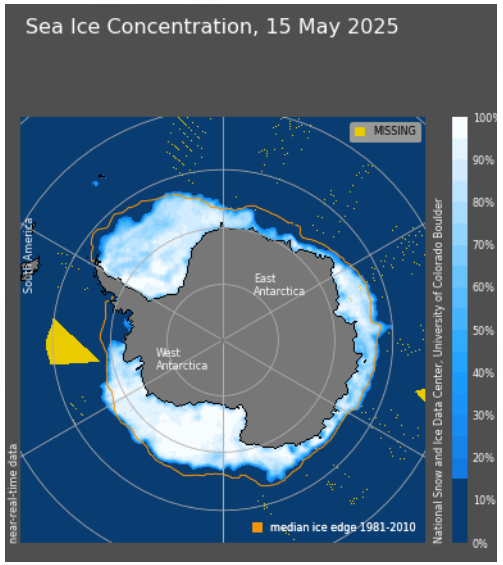


Ocean Colour

Polar Mission

- Seasonal sea-ice zones
- Developed ice-avoidance strategies
- Winter data is stored and shared in spring

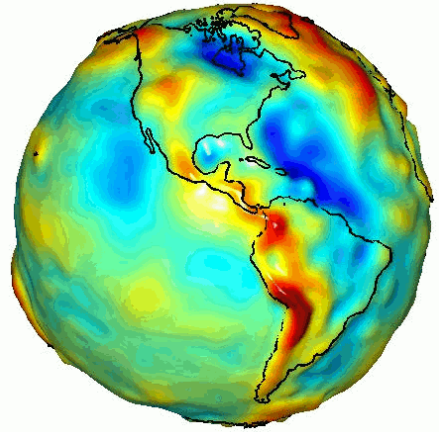
Ice Radars



Deep Mission

- Full depth sampling
- High accuracy sensors needed to track deep ocean changes

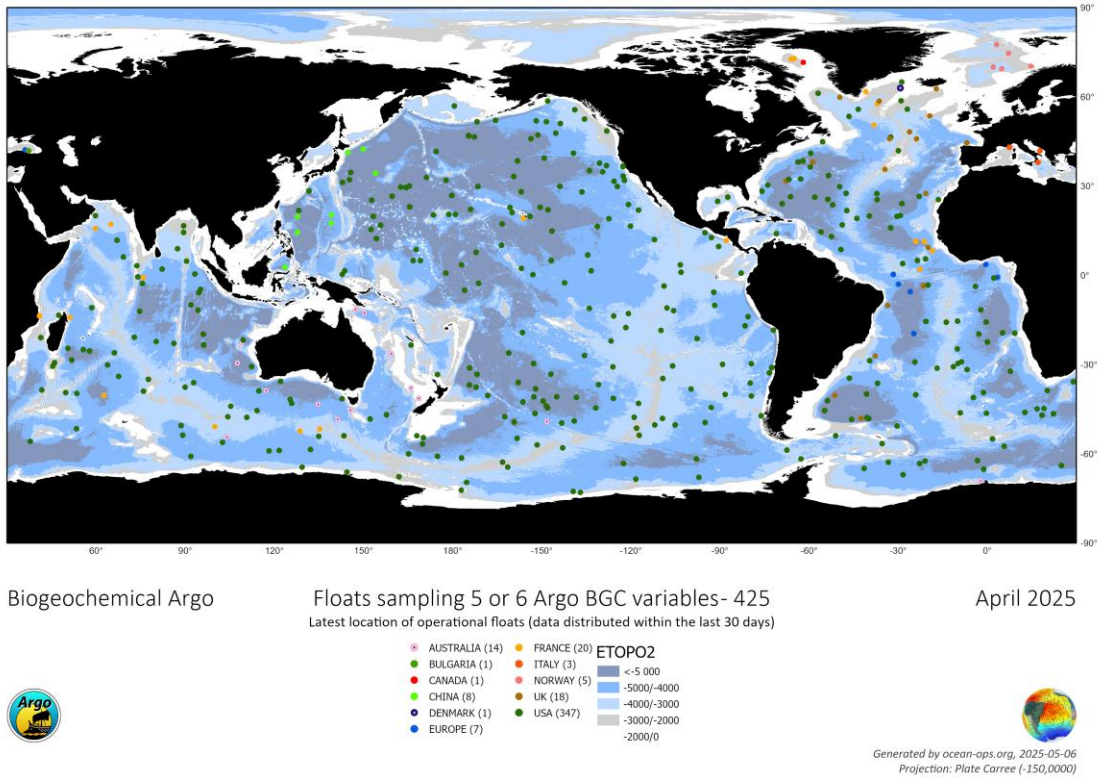
Gravity and Altimetric sea level



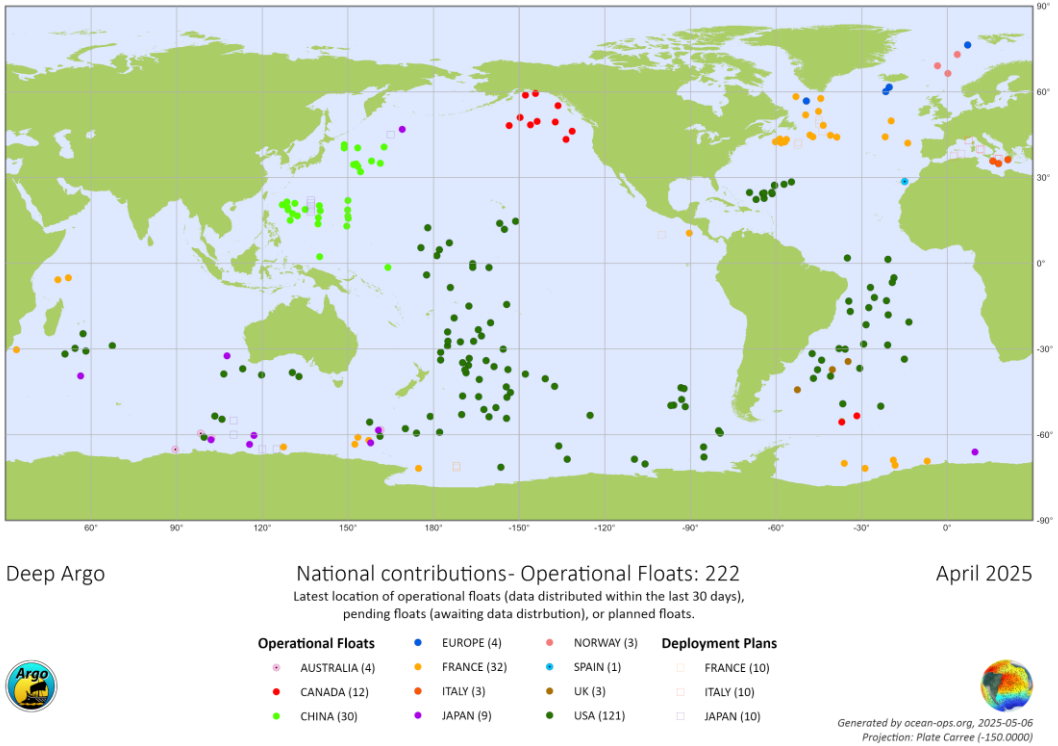
Credits: NASA

The Implementation Status

BGC ~ 40%



Deep ~ 18%



Supported by one-off research investments in large-scale pilots

Enabled technological readiness in our suppliers, our deployment teams and our data system

Where to now?

- The global Argo community has a strong track record of delivery
- Over the past 10 years, we have solved the technical, logistical and data management challenges involved in operating the new missions that comprise OneArgo
- We can accurately cost it out – 3 x the cost of original Argo ~ $100M/year globally
- The remaining challenge is to secure sustained funding for these crucial new data streams. We have a short window of time to exploit the momentum already built.

In the next talks we will hear about some of the key applications of the One Argo data streams