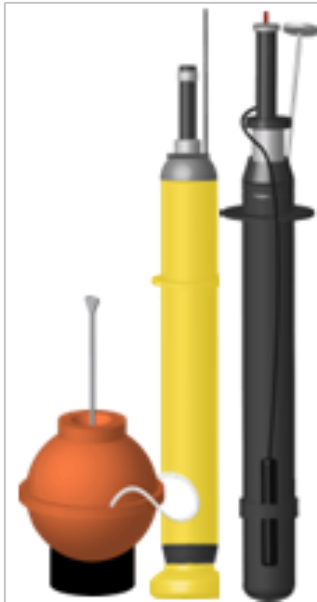
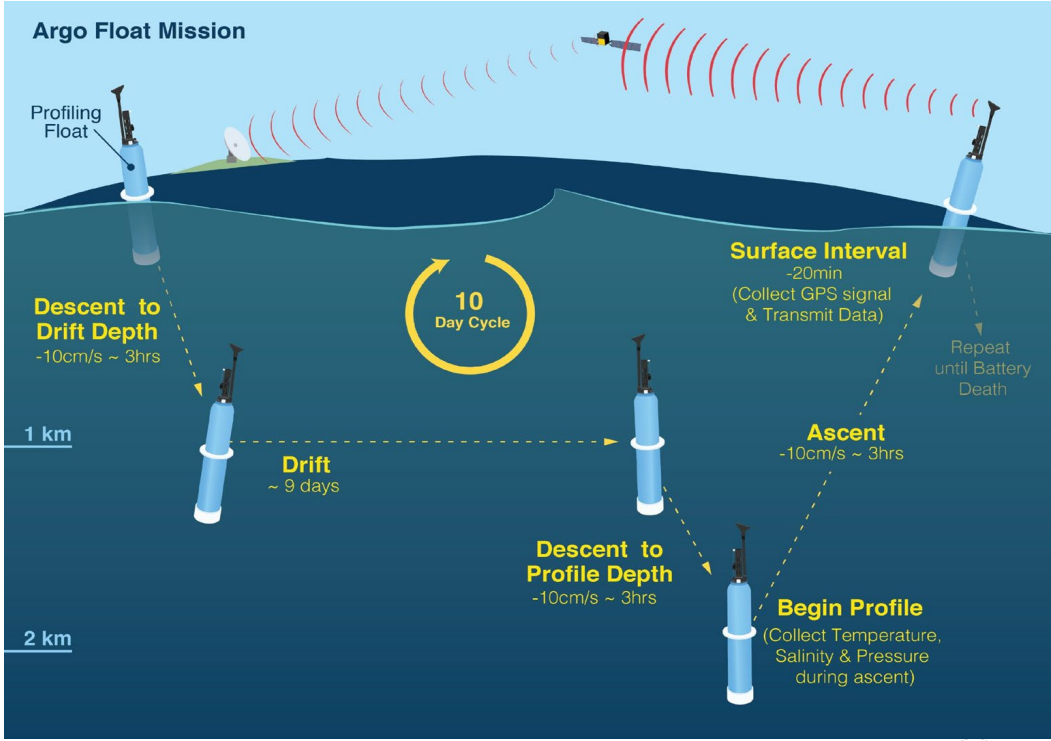
Argo in the Caribbean

Emily A. Smith, PhD
US Argo Program Manager
May 8, 2023

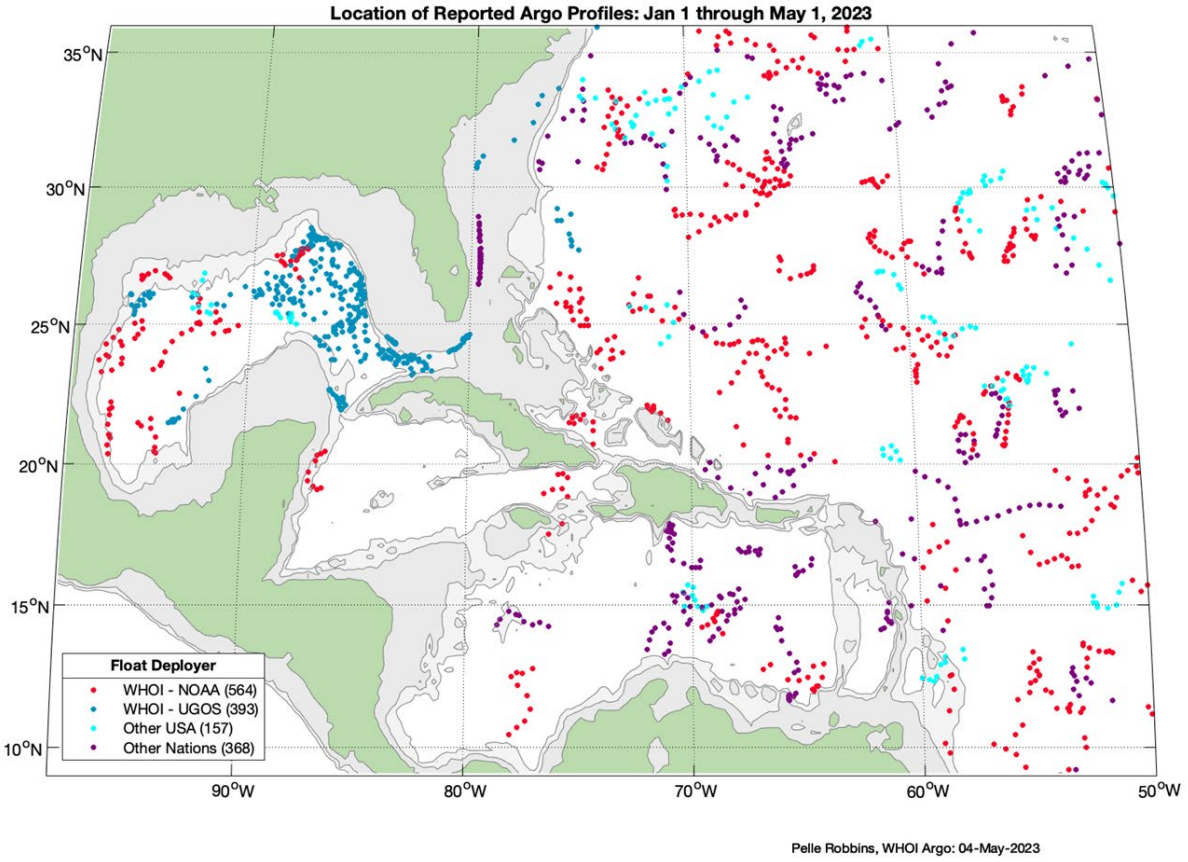


Argo Program

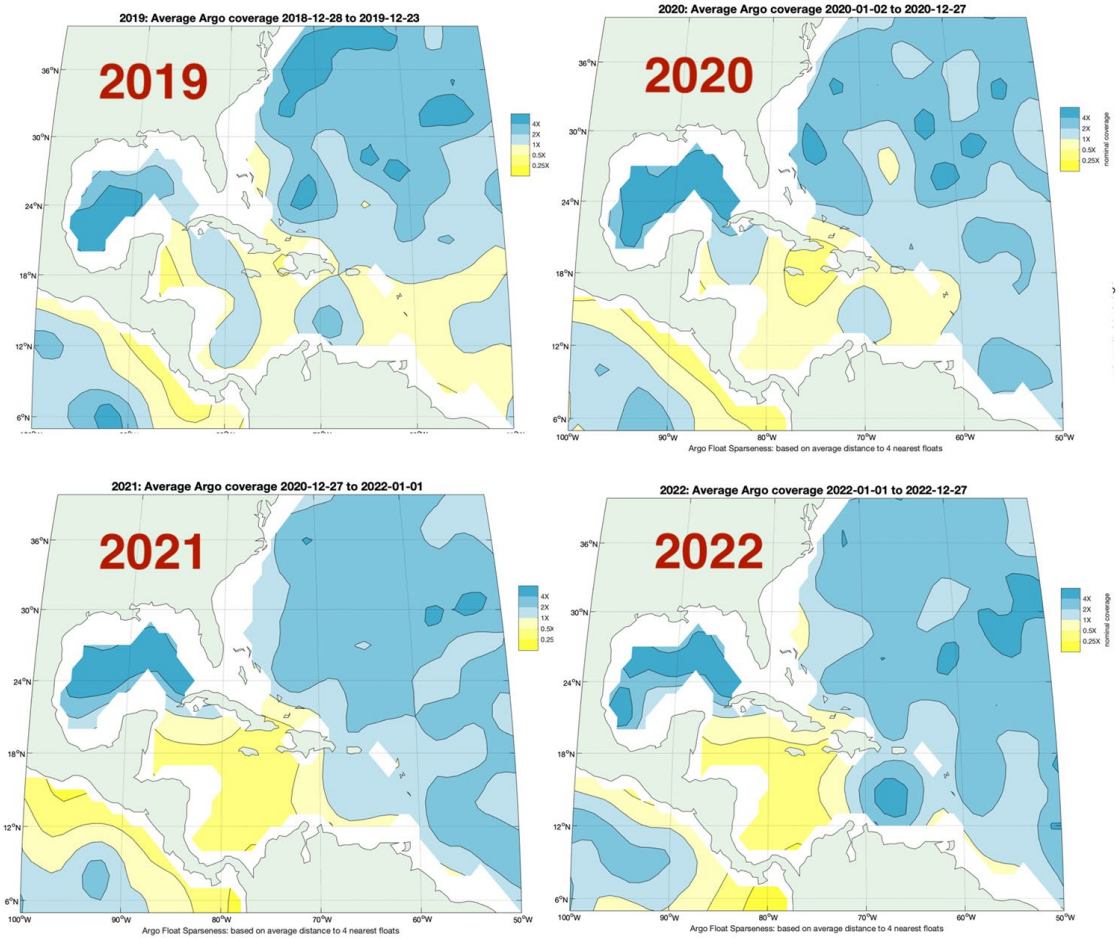
- 10 day
- 1000 dbar parking depth
- 2000 dbar sampling depth for temperature and salinity
- Long-term and sustained
- **Full depth and multi-disciplinary



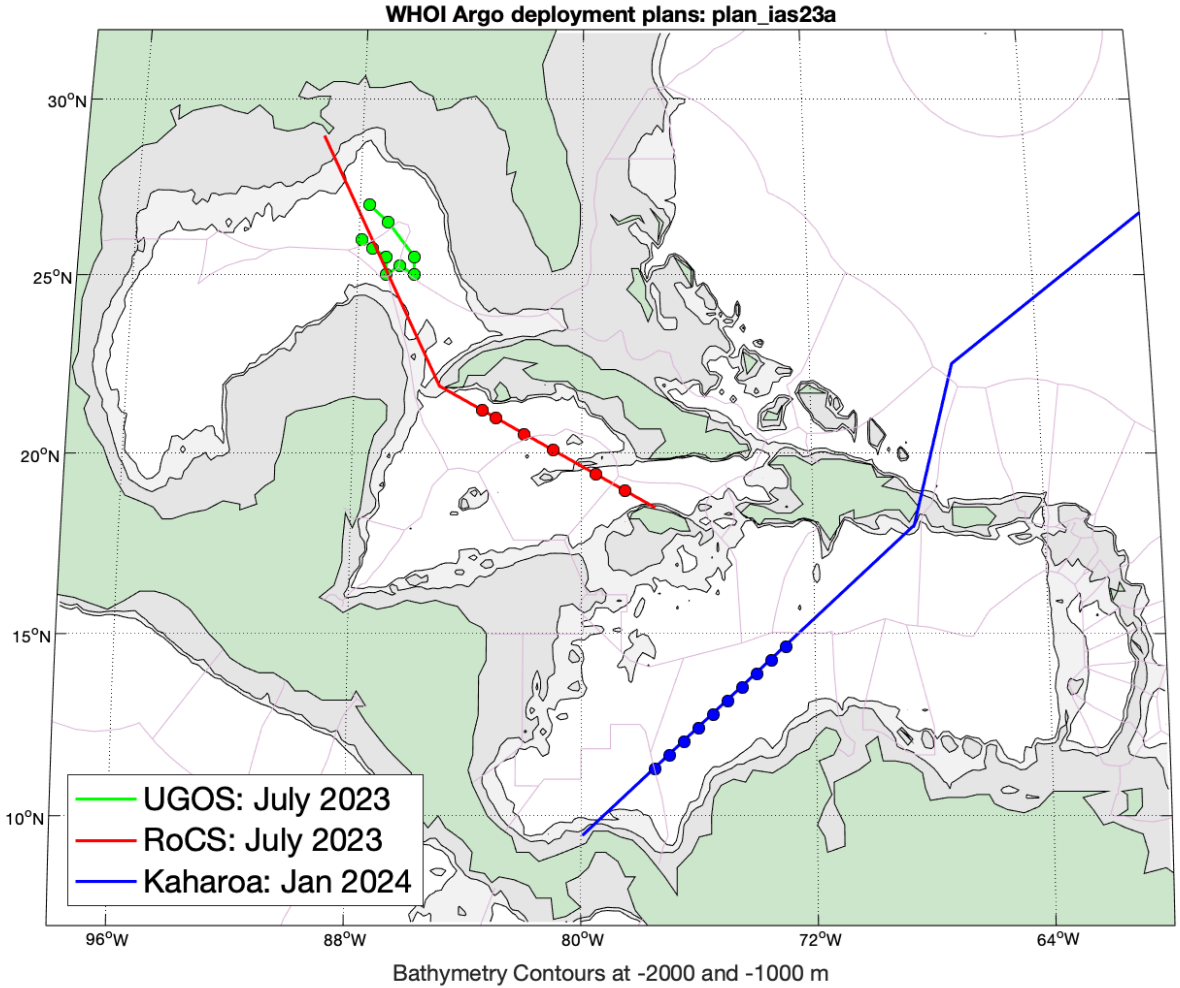
Argo in the Caribbean



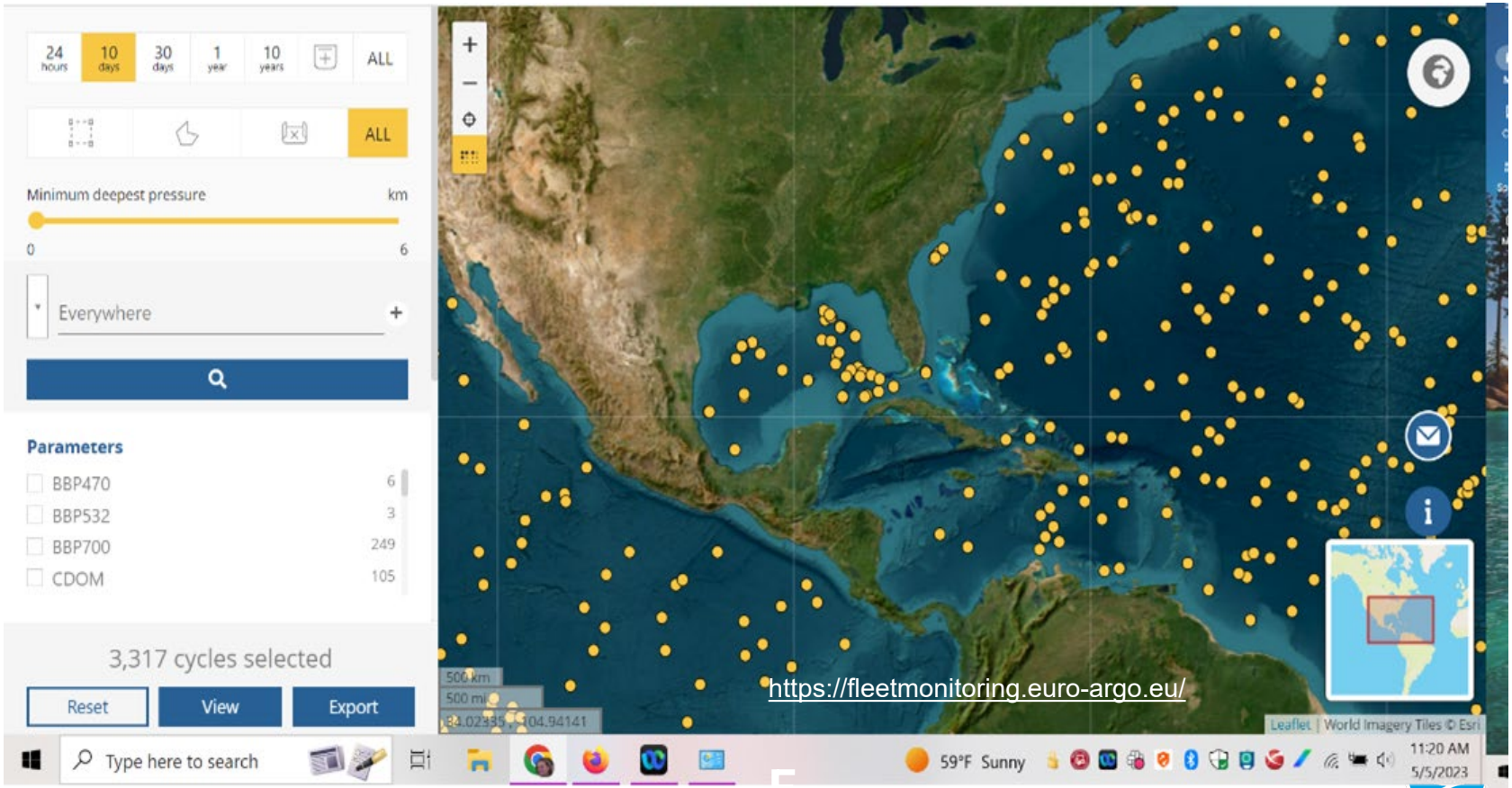
Annual Average Argo Coverage



Pelle Robbins, WHOI Argo: 04-May-2023


WHOI Argo deployment plans: plan_ias23a
30°N
25°N
20°N
15°N
10°N
96°W
88°W
80°W
72°W
64°W
UGOS: July 2023
RoCS: July 2023
Kaharoa: Jan 2024
Bathymetry Contours at -2000 and -1000 m
WHOI Argo:05-May-2023

Real-time array monitoring - Real-time data sharing with all nations



Float 4902350

MAIN INFORMATION | TECHNICAL PLOTS

ALL METADATA

About Float

WMO: 4902350

Platform maker: MRV

Inst reference: 7369

Platform type: S2A

Transmission system: IRIDIUM

PTT: n/a

Owner: BRECK OWENS, STEVEN JAYNE, P.E. ROBBINS

Data Centre: AOML

Deployment

Launched 6 years ago: 17/10/2016 07:44:00

Deployment Latitude: 25.0376

Deployment Longitude: -95.4015

Ship: RV PELICAN

Cruise:

Project: Argo WHOI

Principal Investigator: BRECK OWENS, STEVEN JAYNE, P.E. ROBBINS

Cycle activity

Status: Active

Age: 6.53 years old

Last station date: 28/04/2023 09:55:58

Cycle: 287

Last Surface Data: 1.04 dbar 26.285°C 36.346 PSU

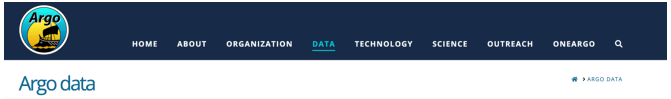
Last Bottom Data: 2007.64 dbar 4.288°C 34.973 PSU

Stations data

ARGO MONITORING HELP

Type here to search 59°F Sunny 11:22 AM 5/5/2023

Access to data, documentation, FAQs, tools and data products



Argo data sources

There are many sources of Argo data depending on the desired format, source and application. Browse through the different options below to learn more. Some of the ways listed below are maintained by the Argo Program and Argo Data Management Team, while some are created and hosted by others, but highlighted here.

If you use any Argo data, please cite the Argo DOI.

Argo data files

- Argo profile, trajectory, meta and technical data files
- Real time and delayed mode quality controlled data available
- Maintained by Argo Data Management Team
- Served at Argo GDACs via ftp, http, rsync, DOI, errdap, thredds
- Data in NetCDF format
- Selection tools available
- Auxiliary directory at GDACs to access experimental data
- Argo Archive at NCEI

GTS data stream

Real time Argo data go out on the GTS for operational centers to gather within 12 hours of the observation for use in their forecasting and prediction models.

- Core Argo profiles only
- Real time quality control only
- BUFR format with QC flags
- Maintained by Argo Data Management Team

Software tools

An array of tools have been developed aimed at both beginners and experts to help users gather, manipulate, visualize and quality control Argo data.

- Software tools
- Quick start guide
- Data FAQ
- Argo DMQC GitHub repository
- Argo RTQC GitHub repository
- EuroArgo GitHub repository
- Developed by both people involved in Argo and those outside of it

Argo data products

- Products using Argo data and sometimes other data sources
- Gridded products of temperature, salinity, mixed layer depth, etc.
- Curated profile collections
- Velocity products
- data often in NetCDF format, sometimes in other formats
- Not maintained by Argo Data Management Team

Visualizations and web applications

This collection of websites and tools allow non-scientists and scientists alike to quickly look at Argo data plots. Items listed below are not present in all tools.

- View Argo profile, trajectory, meta, technical and gridded data
- Save Argo data and/or plots
- Hosted by people directly involved in Argo and by people outside of Argo
- Access Argo profile data in JSON
- API access to curated Argo profile database
- Monitor Argo statistics

Model outputs and reanalysis products

Argo is the primary source of subsurface ocean data at operational centers around the world. Find out which centers assimilate data and what types of data are available.

- Not maintained by Argo
- Data often in NetCDF format

https://argo.ucsd.edu/

Data visualizations

ARGO DATA › DATA VISUALIZATIONS

Sometimes accessing and decoding the freely available Argo data files in NetCDF format can be difficult (see the quick start guide to get started) for those not familiar with the format or how to use the data. While there are existent data viewers like Ocean Data View (ODV) and Java Ocean Atlas (JOA) that can read in Argo profile data, several visualizations and web applications have been developed to help a wide range of users access and view Argo data. Browse through the table below to learn more about the available options. If you have a way to visualize Argo data that you would like added to the table below, email argo@ucsd.edu.

Compare visualization features here

Visualization	Description	Target Audience	Region
Argovis	Visualize temperature, salinity, and BGC data by location at argovis.colorado.edu or access data via an API. View float trajectory forecasts, compare gridded fields with Argovis' grid visualization module or co-locate Argo data with Atmospheric Rivers. Stay tuned for additional modules using satellite and other Earth science datasets. See the Argovis quickstart page for more information on its features.	Public, educators, Argo community, scientific community	global
EuroArgo Selection Tool	The **EuroArgo Selection Tool** provides an interactive map interface that allows users to click on individual float locations and to make regional selections. There are also options to select what parameters users would like, the data quality mode and time period of interest. Users can select to download the data chosen in csv, Argo netCDF or Copernicus netCDF format.	Public, educators, Argo community, scientific community	global
OceanOPS Dashboard	Get technical with the site used frequently by the Argo community, **OceanOPS Dashboard**. Click on a float to pull up metadata, technical information and access to float data. There are many search options including by mission, program, transmission system, sensor, etc. Make plots or look at performance indicators based on your selection or view static maps and indicators produced monthly. Includes data figures produced by Ifremer and shown on several other visualizations	Argo community, governmental agencies	global
Global Marine Argo Atlas	The Global Marine Argo Atlas makes it easy for users to look at Argo data and compare it to other global data sets in one free program. The Atlas, made to view gridded netCDF datasets, particularly Argo, Reynolds SST and Aviso altimetry, comes with the data already included and can be updated quarterly to receive new data as it becomes available. **Note:** the Atlas must be downloaded and the large dataset takes up a few GBs. The Windows version uses an old version of the graphing program and no longer has full capability for some difficult computations. Please consider Argovis's gridded module instead.	Public, educators, Argo community, scientific community	global
Mon Océan et moi website	***Mon ocean et moi*** (My Ocean and Me) & Adopt a Float are France-based educational projects designed specifically to raise students awareness of ocean science and help students follow floats in the ocean. Explore the interactive map showing BGC Argo float locations and figures of BGC Argo data.	Public & educators	global
EuroArgo Dashboard	The **Euro-Argo** dashboard provides an interactive map interface that features metadata and technical data used mostly by the Argo community, but also float locations, trajectories and figures. It is the only site that tracks float battery life and other technical aspects of floats, making it an excellent tool to monitor the health of the Argo fleet. Includes data figures produced by Ifremer and shown on several other visualizations	Argo community	global
Earth.nullschool.net	If you want to see how ocean currents move in real time across the globe, check out **Earth Null School**. Used by classrooms to study weather and climate, this data viz site now has a beta version of Argo data available at **this link**. **Note**: this is a beta version with limited Argo data.	Public & educators	global

Argo data users

We would love to hear about anyone in the region using the data and how you are finding/accessing it!!

Email: Susan Wijffels at swijffels@whoi.edu