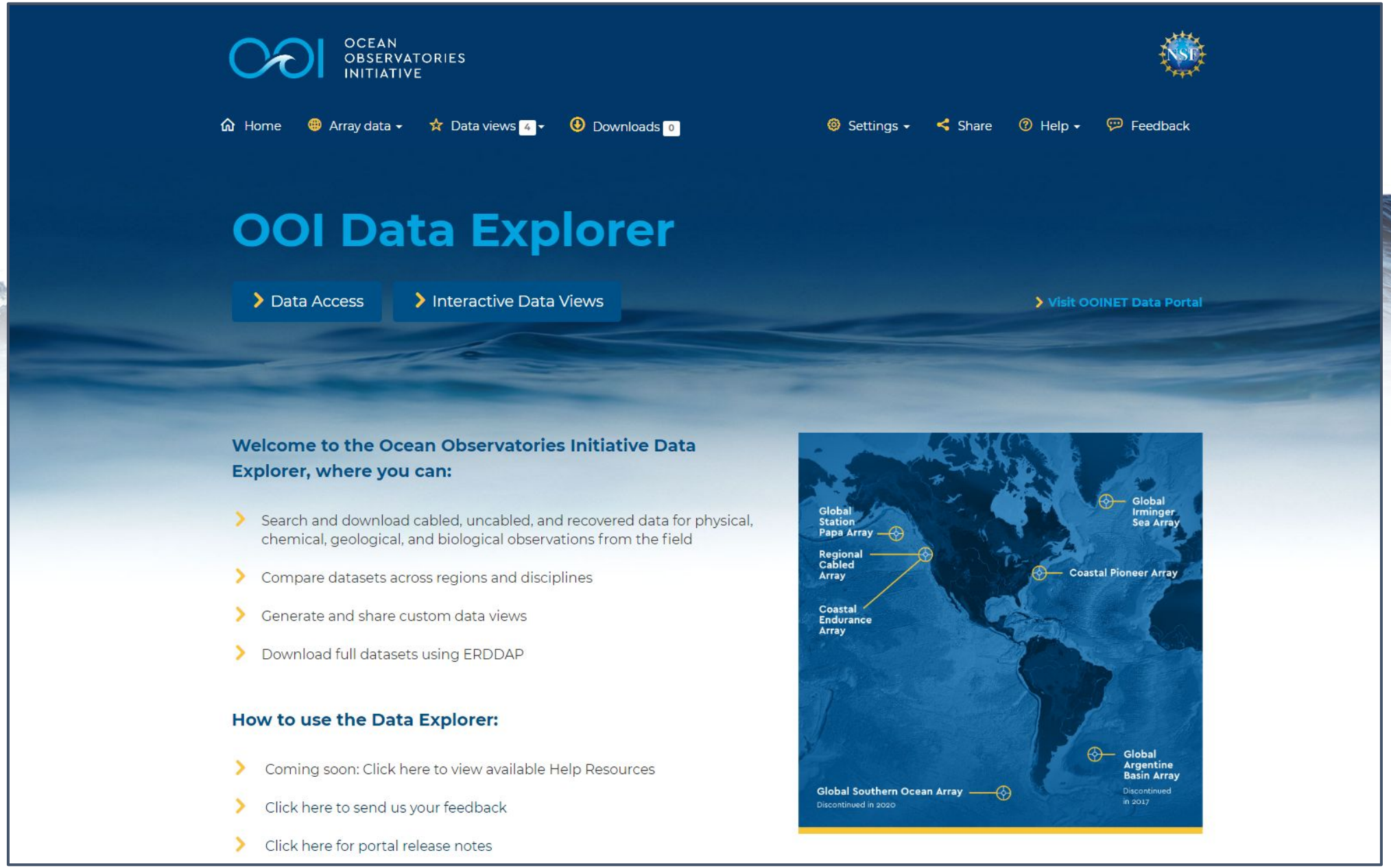


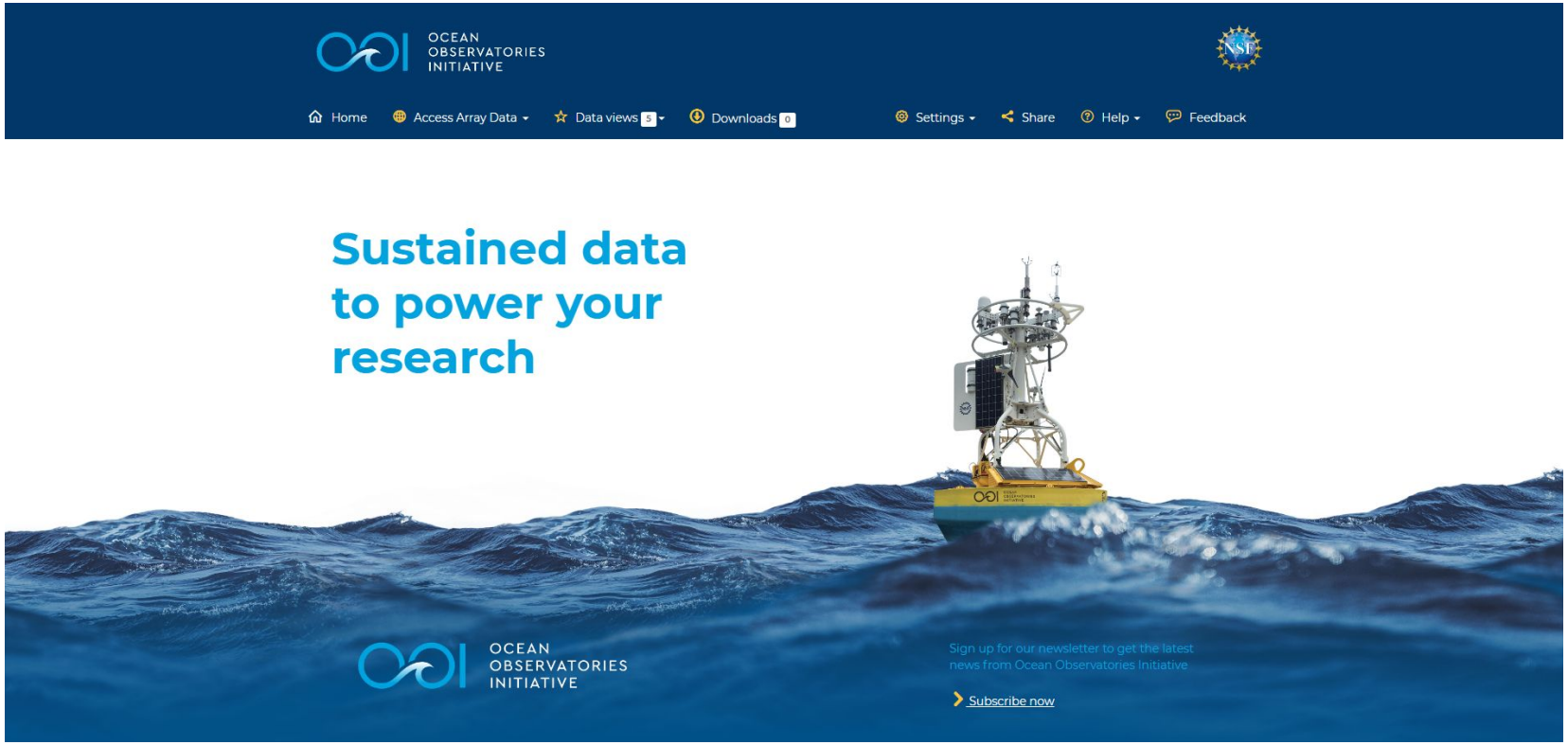
Data Explorer v1.0

Axiom Data Science

https://dataexplorer.oceanobservatories.org/

Data Explorer

- Data exploration system for researchers to find, discover, and access OOI data
- Launched Oct 2020 following user-driven design approach
- Exists alongside OOI Data Portal to maintain data access



Overview

Axiom
DATA SCIENCE

Mission

To build a better understanding of society and the environment by increasing the accessibility, reuse and impact of scientific data.

Capabilities

Support government, academic, and private sectors in data management, analysis, software engineering, cyberinfrastructure.

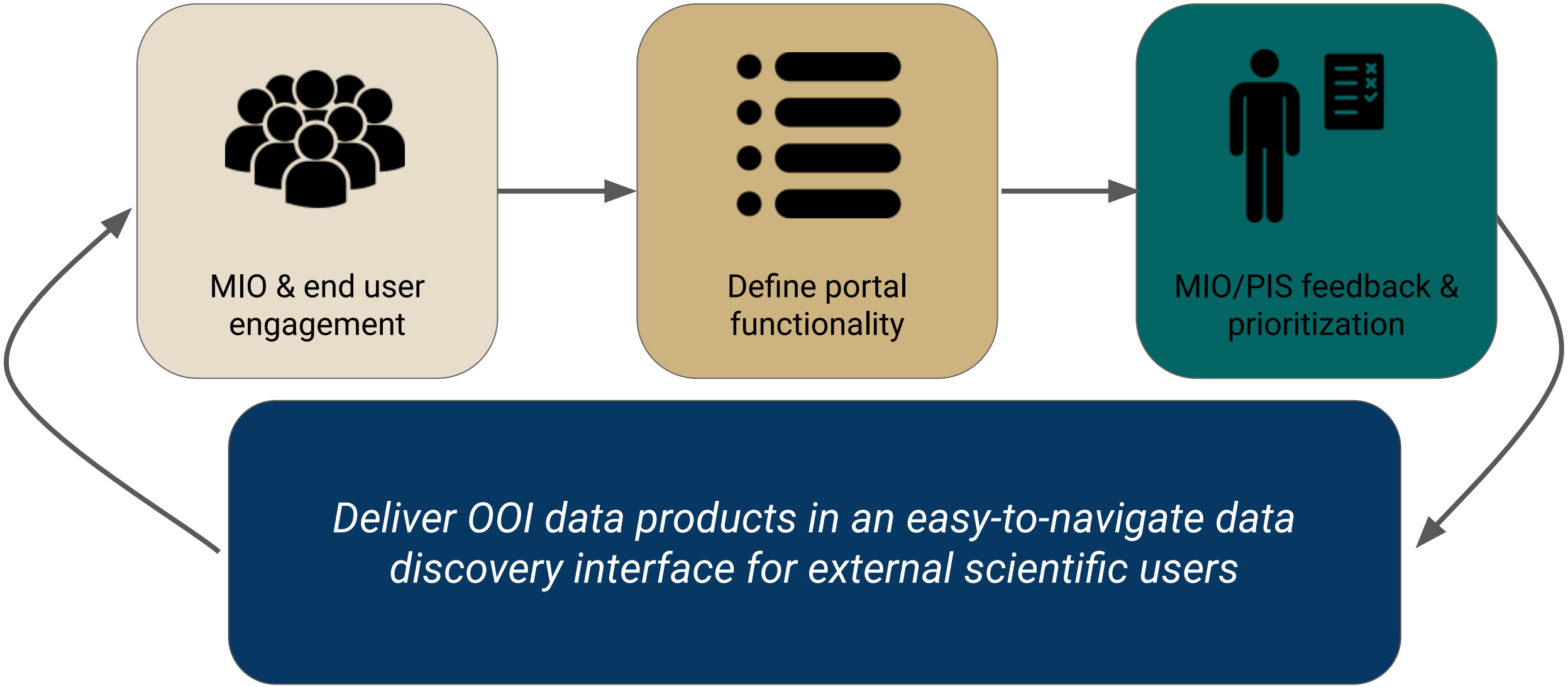
Profile

Services: High-performance computing, development operations, cluster compute, and large-scale operational assembly approaches.
Offices: AK, RI, OR

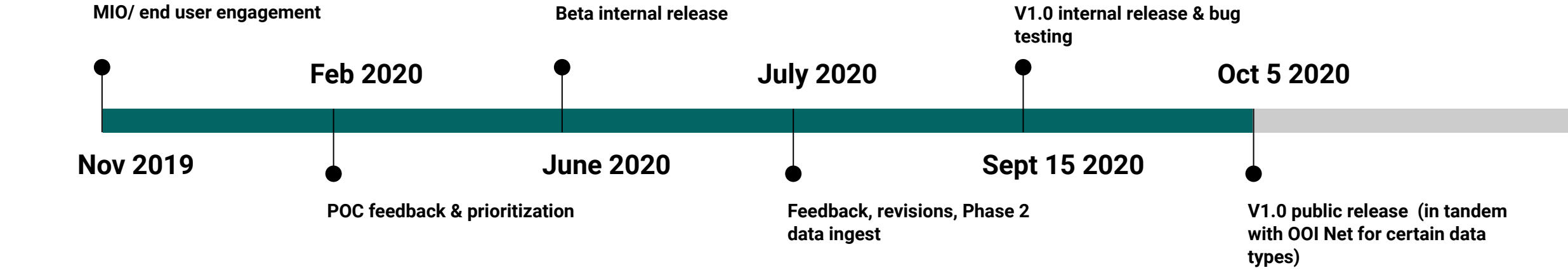
Partnerships

NOAA · Office of Naval Research Science & Technology · IOOS Integrated Ocean Observing System · NASA · NSF · BOEM Bureau of Ocean Energy Management

Development approach *(POC, beta, 1)*



Development timeline

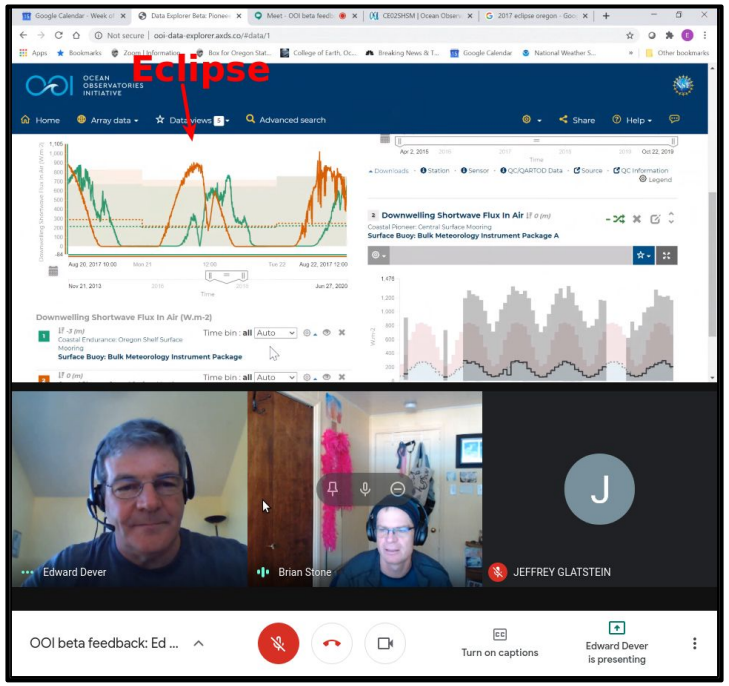


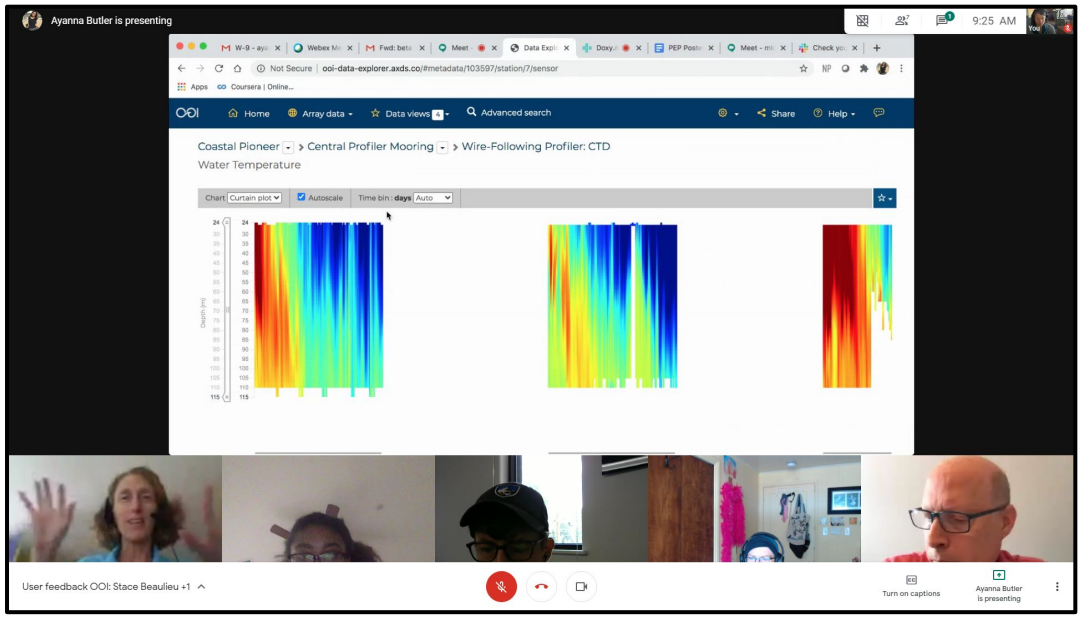
Data Explorer (beta): user interviews

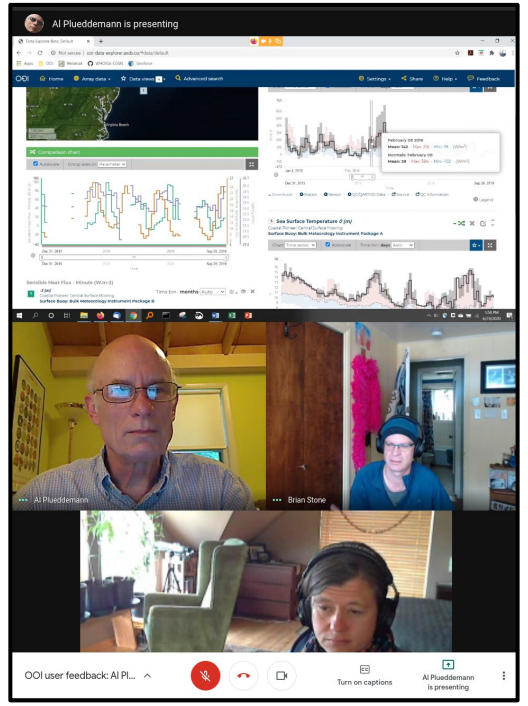
Purpose: Gather feedback and additional input to inform development of the next iteration (v1.0)

Interviewees:

- Chris Wingard, OSU
- Mike Vardaro, UW
- Wendi Ruef, UW
- Jon Fram, OSU
- Deb Kelley, UW
- -Al Pluedemann, WHOI
- -Stace Beaulieu, WHOI
- -Miguel Goni, OSU
- -Ayanna Butler, WHOI
- -Carrie Wall Bell, NOAA-NMFS
- -Cheryl Greengrove, UW Tacoma
- -Melanie Fewings, OSU
- -Ed Dever, OSU

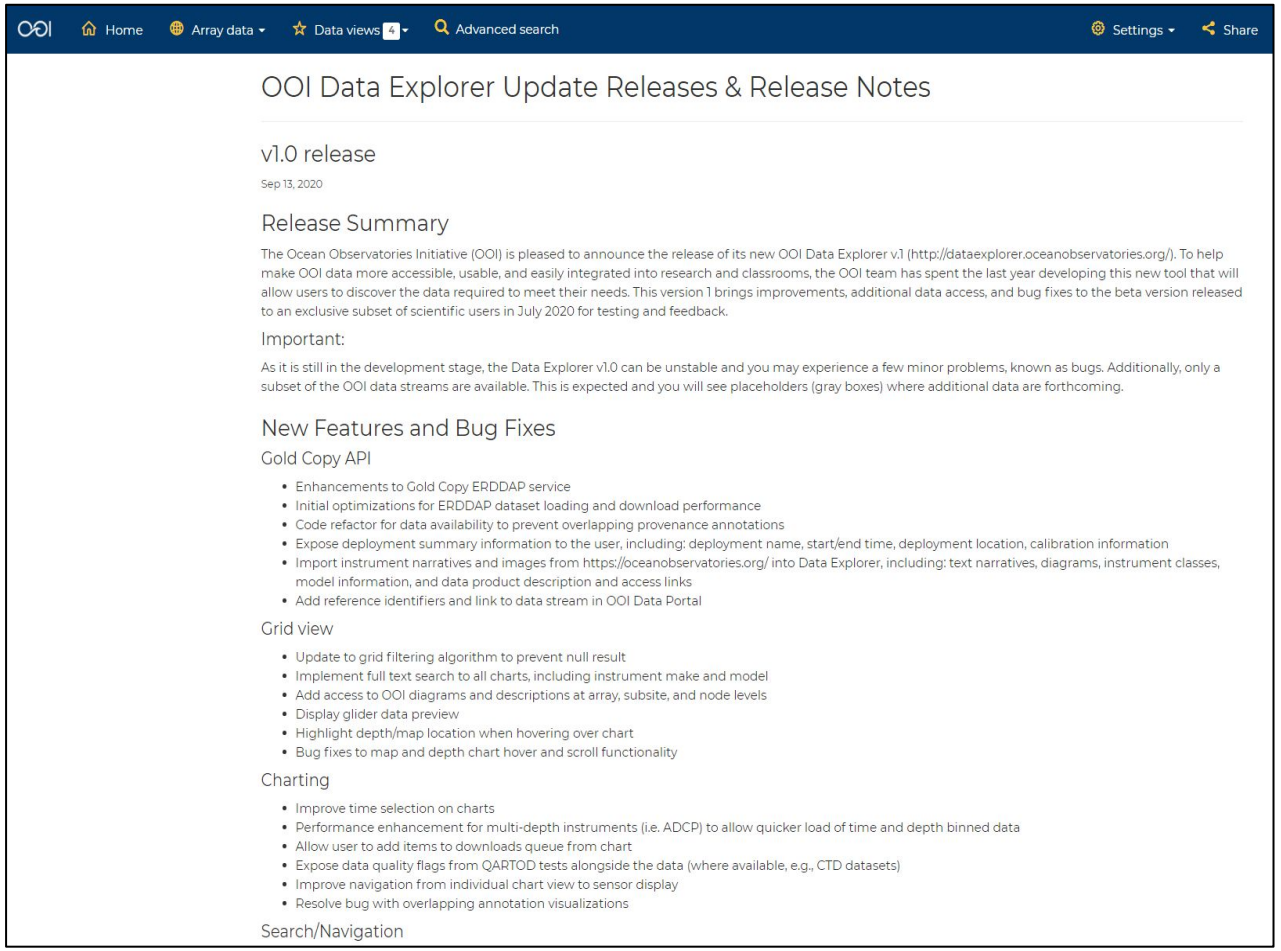






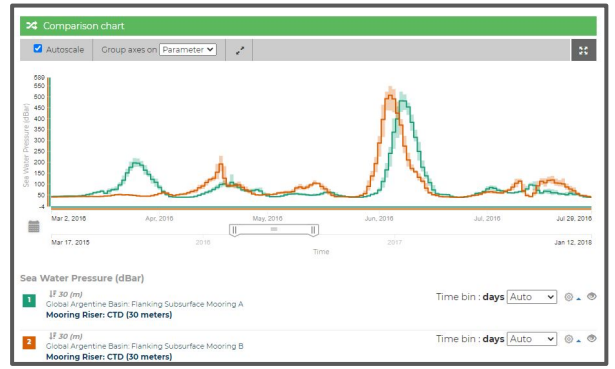
Data Explorer (v1.0): pre-release & launch

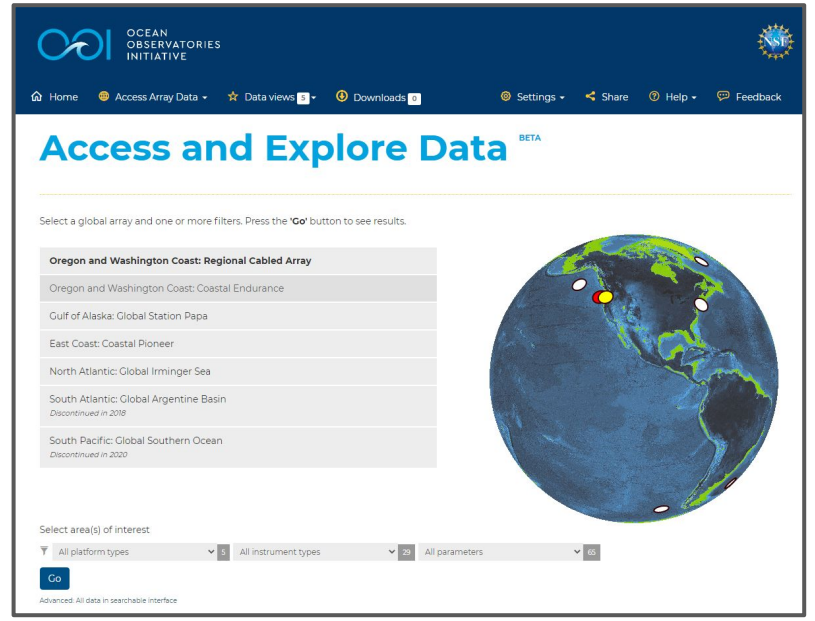
- Responsive to user interviews
  - Resolved feedback and bug fixes
  - Integrated new functionality
  - Ingested additional data set
- Internal release to DMWG, PIs & interviewees Sept for bug testing
- Oct 5: go live!
- Oct 21: community webinar



https://l.axds.co/2ZWT0Kj

Data Explorer: key features

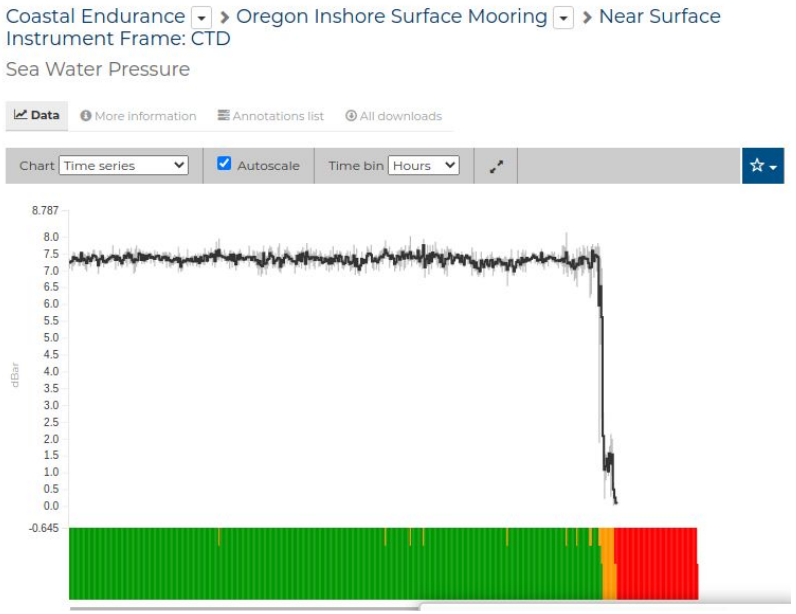




- Pre-calculated data sets
- Merged streams (telemetered and recovered)
- Data access via interoperability (ERDDAP, THREDDS)
- Interactive display and time series chart
- Ability to view multiple graphs at once
- Ability to create custom data view for sharing
- Robust search capabilities
- Visualization of QC flags and annotations
- CF compliant metadata
- 36 instrument types, 100+ primary data products (parameters)

Data Explorer (v1.0): Community Standards

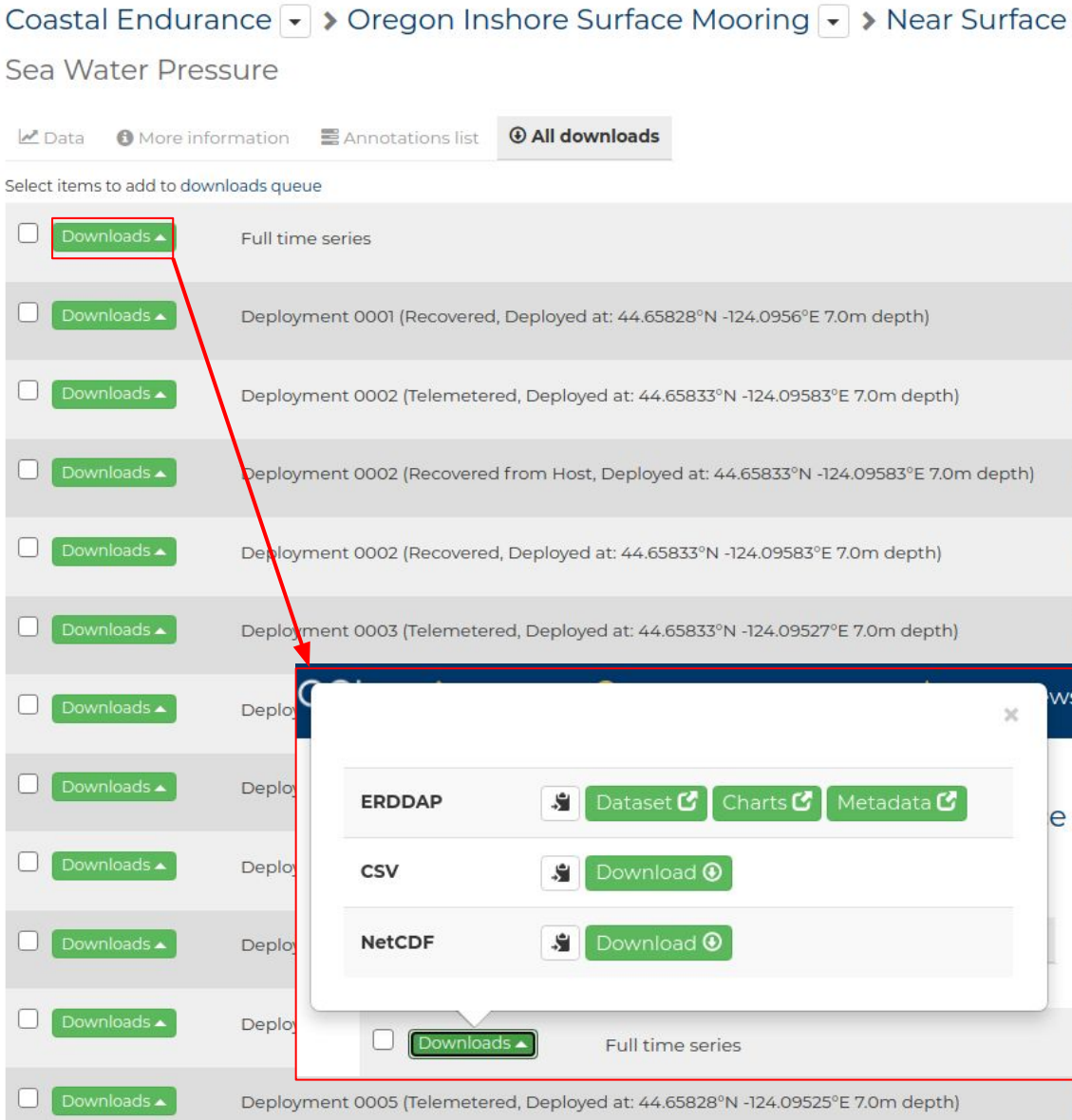
- Data discovery: use metadata standards
  - CF Standard names: OOI already has standard names for many data products. We worked to match up more parameters with existing names. Some names still need to be matched or proposed
  - Datasets in ERDDAP use IOOS/CF metadata profile
- Data exploration: use QC standards to flag data
  - OOI is using working to apply QARTOD to their data, using the ioos_qc library
  - QC rollup flags are visualized and available in the netCDF files in an IOOS-standard way
- Data Access: use standard file formats and community-adopted services
  - netCDF, ERDDAP, THREDDS




```
  sea_water_practical_salinity {
    Int32 _ChunkSizes 473909, 1;
    Float64 _FillValue -9999.0;
    Float64 actual_range 25.8808822616, 33.3163974841;
    String ancillary_variables "sea_water_practical_salinity_qc_agg
sea_water_practical_salinity_qc_tests";
    String id "1017734";
    String ioos_category "Other";
    String long_name "Salinity";
    Float64 missing_value -9999.0;
    String platform "station";
    String standard_name "sea_water_practical_salinity";
    String standard_name_url
"http://mmisw.org/ont/cf/parameter/sea_water_practical_salinity";
    String units "1e-3";
  }
```

Data Explorer (v1.0): Data Access

- ERDDAP (merged timeseries, one dataset per instrument):
  - http://erddap.dataexplorer.oceanobservatories.org/erddap/index.html
  - Expected Personas: users who want to quickly pull down subsets of the data to analyze, and don't need the individual deployments and/or sub-minute timeseries. Great for new users who don't understand jargon like stream, ref-des, deployment.
- THREDDS gold copy (full-resolution datasets, one for every instrument, stream, and deployment):
  - http://thredds.dataexplorer.oceanobservatories.org/thredds/catalog.html
  - Expected personas: users who want to download netCDF files to do their own analysis
- ERDDAP gold copy (full-resolution datasets, one for every instrument, stream, and deployment):
  - http://erddap-goldcopy.dataexplorer.oceanobservatories.org/erddap/index.html
  - Expected personas: users who want to run pull down subsets of the full-res datasets. If they want to access data for entire instruments for offline analysis, netCDF via THREDDS is recommended
  - We have been working with Bob Simons (ERDDAP developer) on improving load speed and reducing memory usage for very large datasets, and plan to continue that work over the next year



Data Explorer v1.0 demo

OCEAN OBSERVATORIES INITIATIVE

Home | Array data | Data views 4 | Downloads 0 | Settings | Share | Help | Feedback

OOI Data Explorer

Data Access | Interactive Data Views | Visit OOINET Data Portal

Welcome to the Ocean Observatories Initiative Data Explorer, where you can:

- Search and download cabled, uncabled, and recovered data for physical, chemical, geological, and biological observations from the field
- Compare datasets across regions and disciplines
- Generate and share custom data views
- Download full datasets using ERDDAP

How to use the Data Explorer:

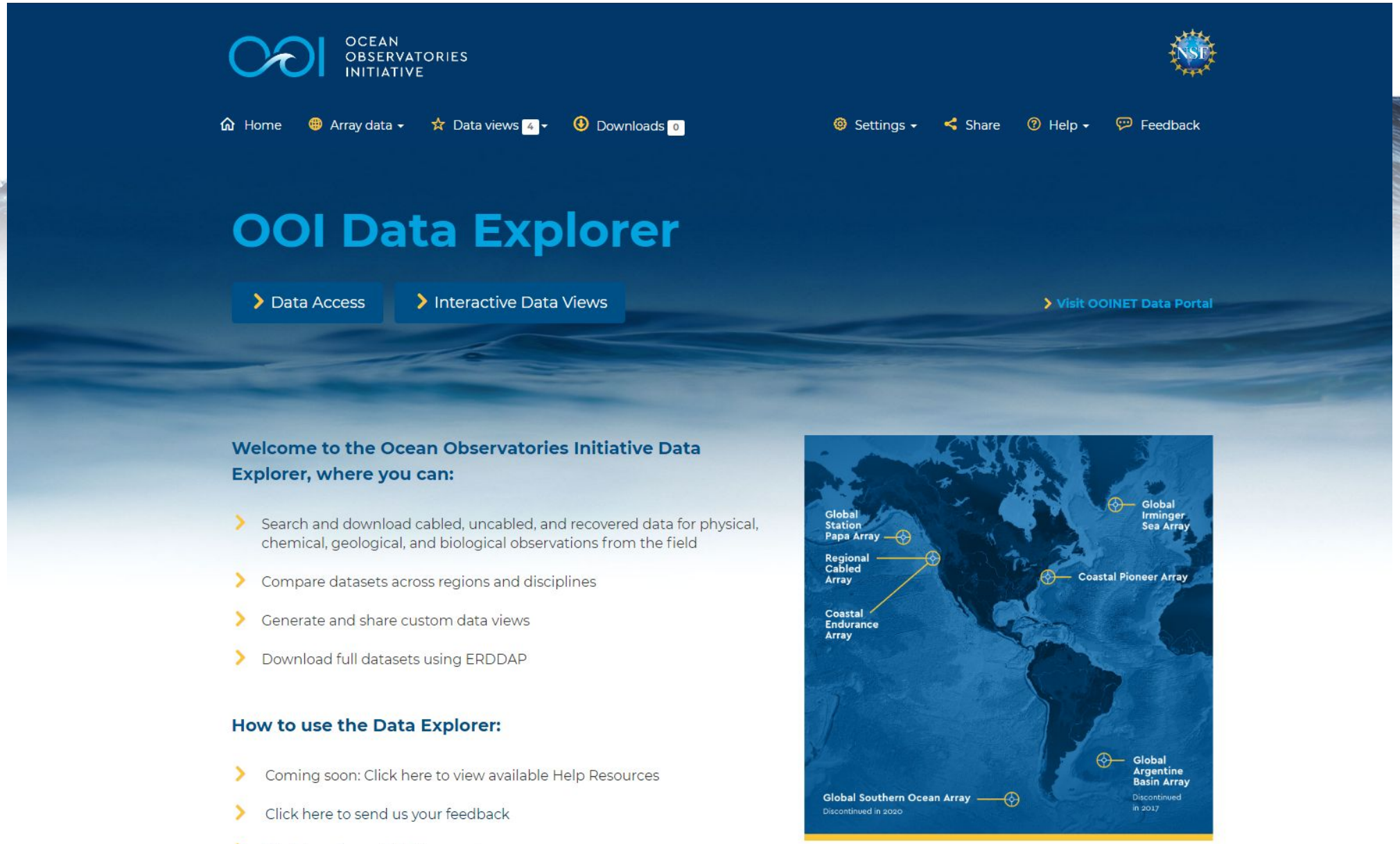
- Coming soon: Click here to view available Help Resources
- Click here to send us your feedback
- Click here for portal release notes

Data Explorer: Looking forward

Next steps

- resolve bug fixes (ongoing)
- continue user-driven design and engagement for feedback
- additional portal functionality & optimization as per user stories
- feedback prioritization
- migration of additional data sets
- integration with new CI system

Questions?


OCEAN OBSERVATORIES INITIATIVE
Home
Array data
Data views 4
Downloads 0
Settings
Share
Help
Feedback
OOI Data Explorer
Data Access
Interactive Data Views
Visit OOINET Data Portal
Welcome to the Ocean Observatories Initiative Data Explorer, where you can:
Search and download cabled, uncabled, and recovered data for physical, chemical, geological, and biological observations from the field
Compare datasets across regions and disciplines
Generate and share custom data views
Download full datasets using ERDDAP
How to use the Data Explorer:
Coming soon: Click here to view available Help Resources
Click here to send us your feedback
Click here for portal release notes
Global Station Papa Array
Regional Cabled Array
Coastal Endurance Array
Global Irminger Sea Array
Coastal Pioneer Array
Global Argentine Basin Array
Discontinued in 2017
Global Southern Ocean Array
Discontinued in 2020