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Coastal and Global Scale Nodes (CGSN) Operational Status

Al Plueddemann, Derek Buffitt and the CGSN Team
OOIFB meeting, 08 May 2024



CGSN Status

- CGSN is in the midst of three array-service cruises in three months (April, May, June):
 - Pioneer just deployed
 - Papa and Iriminger about to be serviced.
- Maintaining 17 moorings, glider fleet, AUVs and ~350 instruments.
- Mooring infrastructure >90% operational
- Moored instrumentation >80% operational



CGSN Status

| Array | Infrastructure | Instruments | Telemetry | Collected |
|---------------|----------------|-------------|-----------|-----------|
| Irminger GSM | 95% | 57% | 57% | 57% |
| Irminger HYPM | 100% | 100% | 100% | 100% |
| Irminger FLMA | 100% | 100% | 100% | 100% |
| Irminger FLMB | 100% | 100% | 100% | 100% |
| Papa HYPM | 100% | 100% | 100% | 100% |
| Papa FLMA | 100% | 100% | 100% | 100% |
| Papa FLMB | 100% | 100% | 0% | 100% |
| Pioneer CNSM | 93% | 92% | 88% | 92% |
| Pioneer NOSM | 93% | 90% | 87% | 91% |
| Pioneer SOSM | 100% | 88% | 87% | 91% |
| Pioneer NOPM | 100% | 94% | 100% | 100% |
| Pioneer EAPM | 100% | 100% | 100% | 100% |
| Pioneer SOPM | 100% | 100% | 100% | 100% |
| Pioneer NEPM | 100% | 100% | 100% | 100% |
| Pioneer SEPM | 100% | 100% | 100% | 100% |
| Pioneer WESW | 100% | 80% | 40% | 100% |
| Pioneer CNSW | 100% | 80% | 40% | 100% |

Irminger

- **4 moorings, all operational: SUMO, HYPM, FLMA, FLMB**
- 2 gliders on site (1 adrift)
- SUMO at decreased capacity due to storm damage and power issues for one DCL
- **Next cruise:** Irminger-11, 28-May to 02-July (includes OSNAP)

Papa

- **3 moorings, all operational: HYPM, FLMA, FLMB**
- 2 gliders on site (1 seeking early recovery)
- FLMB acoustic transmission failed, expect full recovered data.
- **Next cruise:** Papa-11, 26 May to 15 June (includes UW waverider)

Pioneer

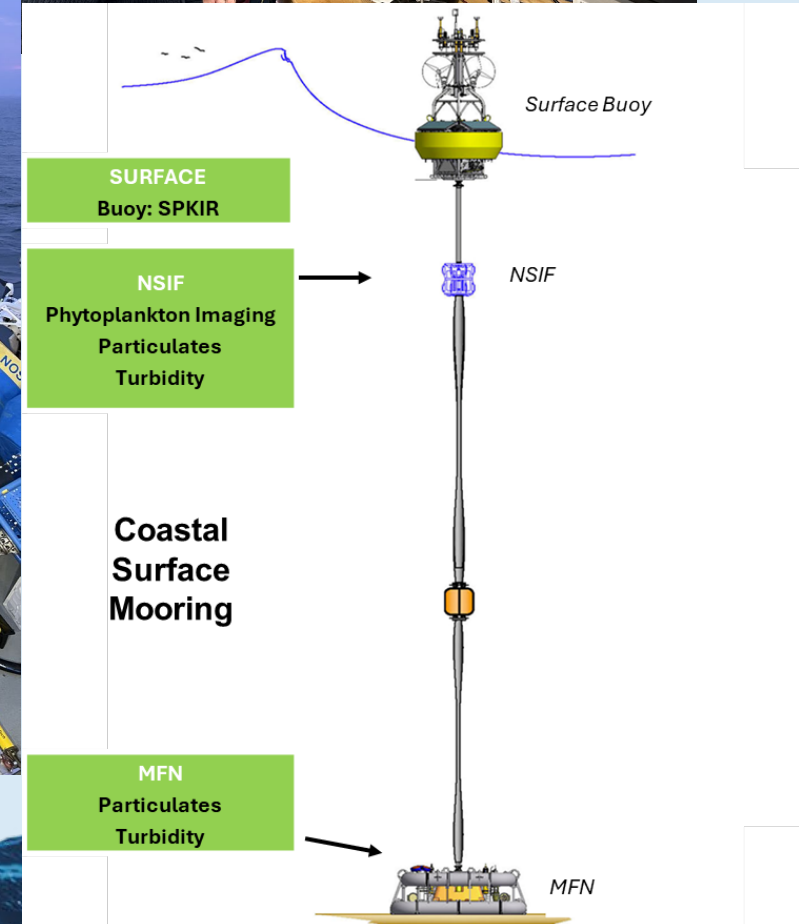
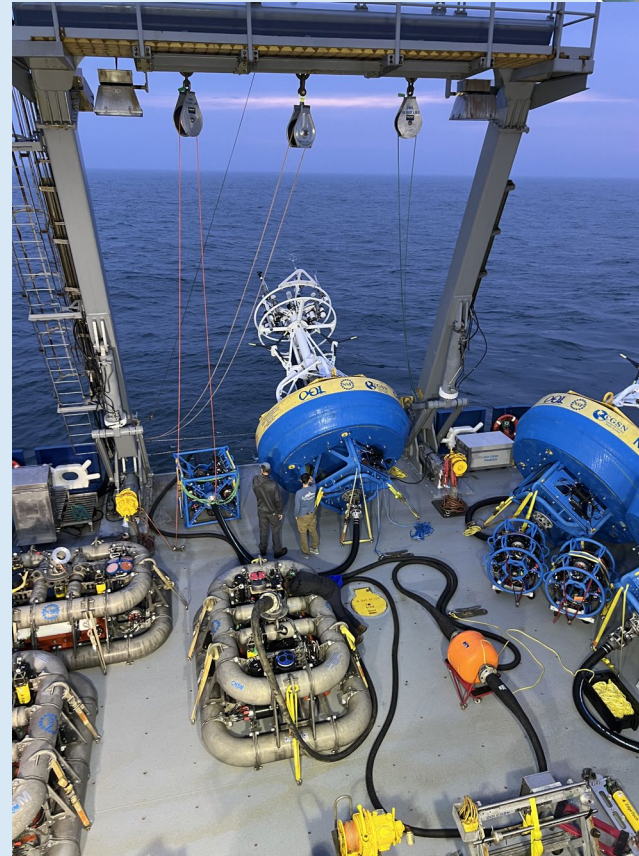
- **10 moorings, all operational: 3 CSM, 5 CPM, 2 SWM**
- Glider deployment and AUV surveys also completed
- CSMs power limited, 2 OPTAAs not functioning
- SWM oxygen and FLORT not deployed on Prawler
- SWM CTD, VELPT, ADCP not telemetering.
- **Next cruise:** Pioneer-21, 21-Nov to 21 Dec



Operational Highlights

New instruments deployed on MAB surface moorings:

- Buoy: Stream+ satellite telemetry and spectral Irradiance
- NSIF: Plankton imaging (IFCB), particle size, turbidity
- MFN: Particle size, turbidity



Operational Highlights

NSIF-L (Large) deployed on Pioneer MAB Central Surface Mooring:

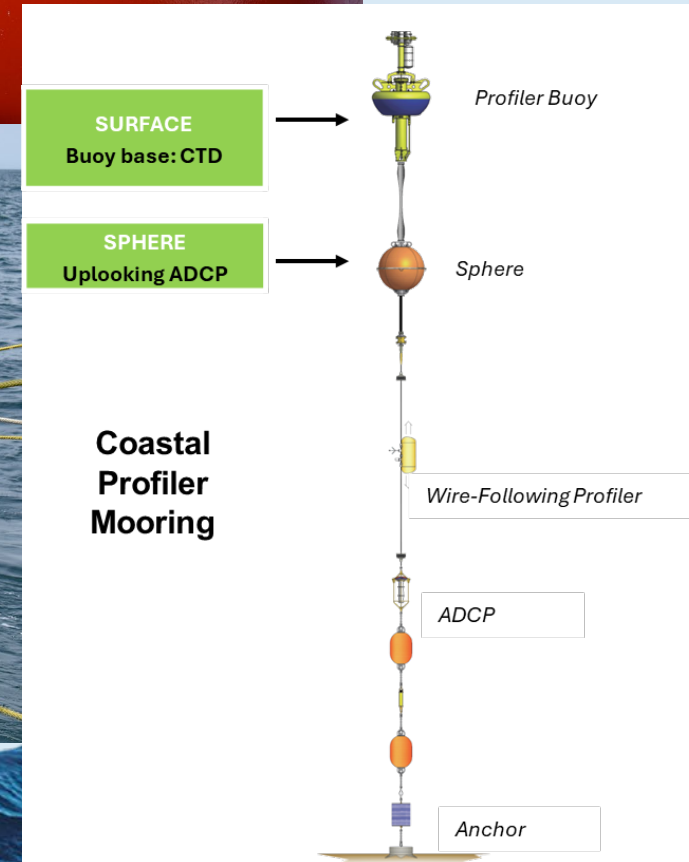
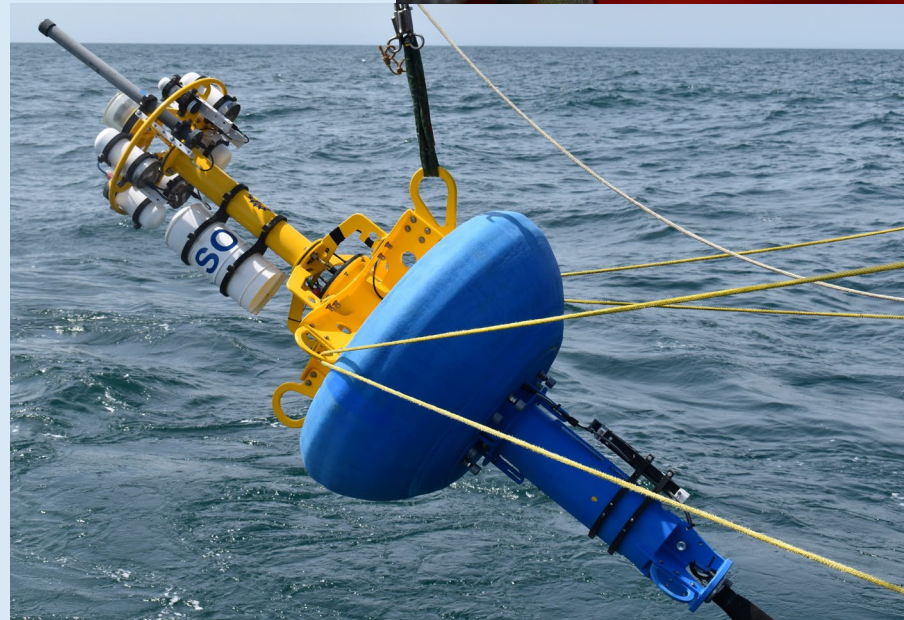
- Re-designed to accommodate plankton imaging (IFCB)
- Also carries particle size (LISST) and turbidity sensors
- Allows for future instrument additions



Operational Highlights

New instruments on MAB Profiler Moorings

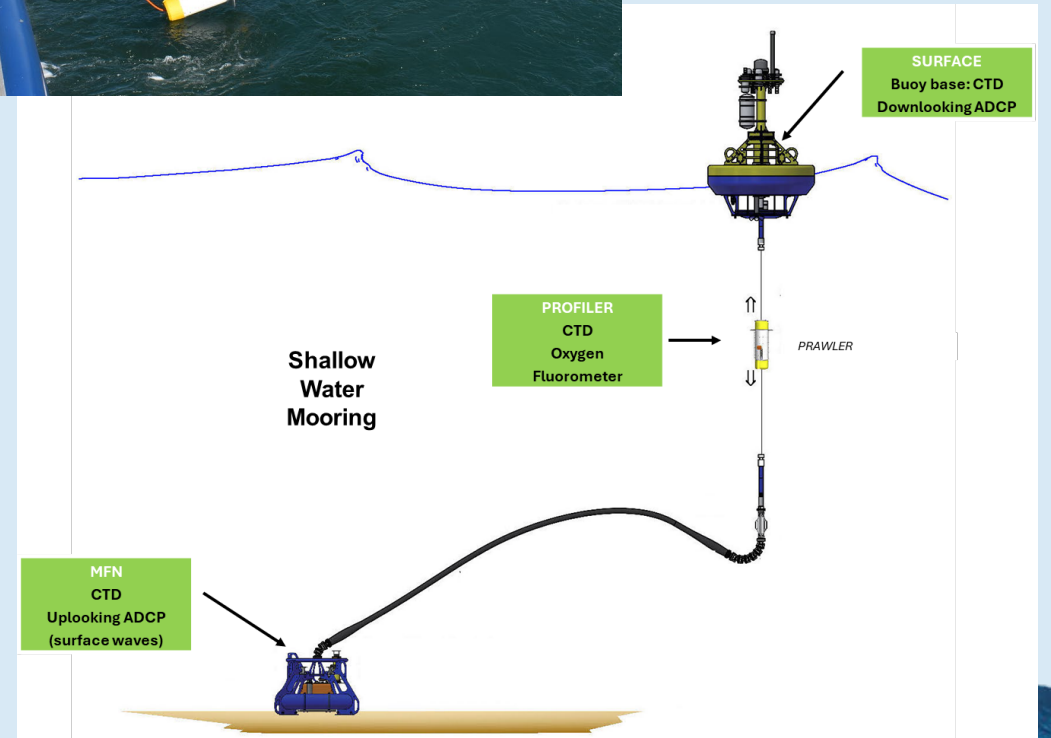
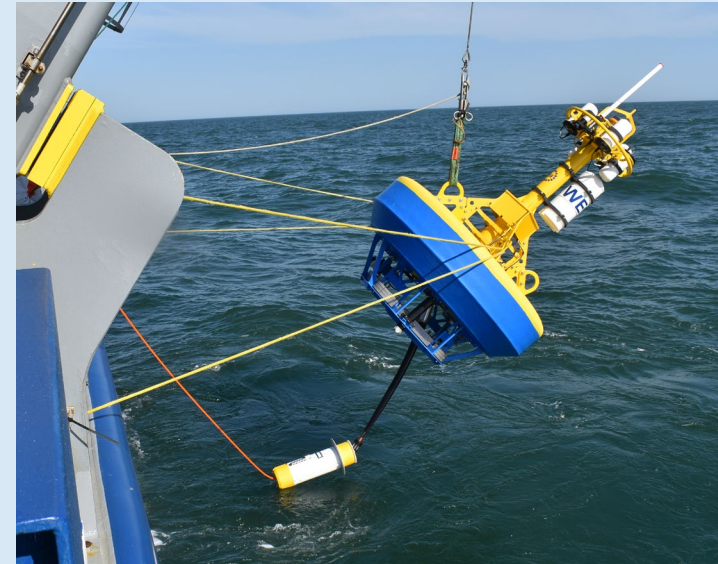
- CTD on buoy base
- ADCP upward looking on Sphere



Operational Highlights

New mooring design and profiling vehicle deployed at MAB:

- Shallow water mooring design allows Prawler profile very near the surface
- Buoyant stretch hose provides compliance at bottom of riser, allowing for heave to power Prawler movement
- Mooring riser instrumentation includes CTD and VELPT on buoy, CTD and ADCP on MFN.

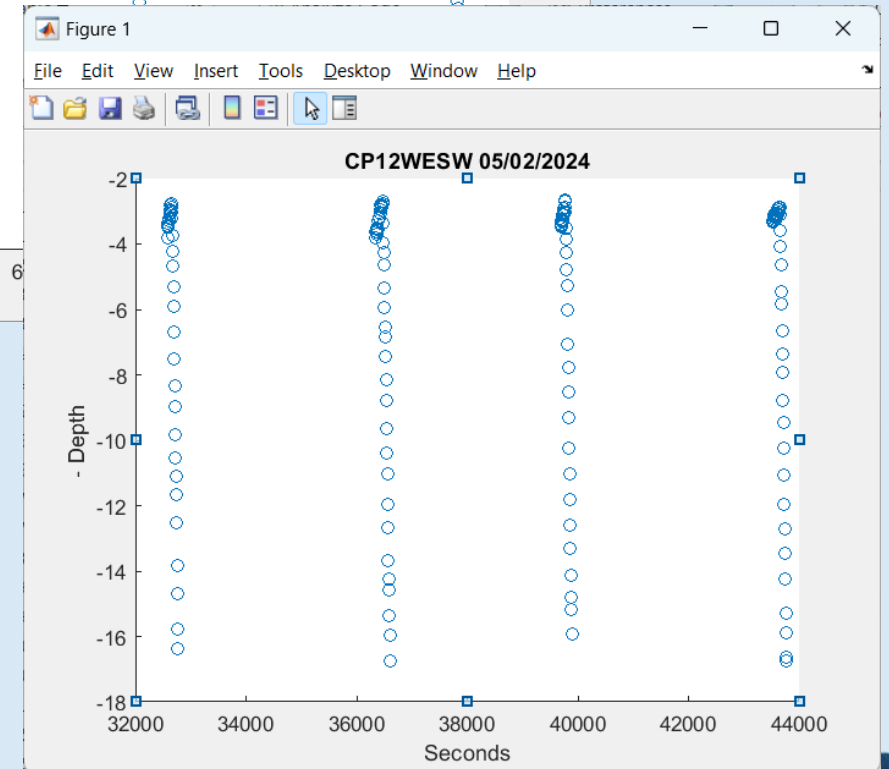
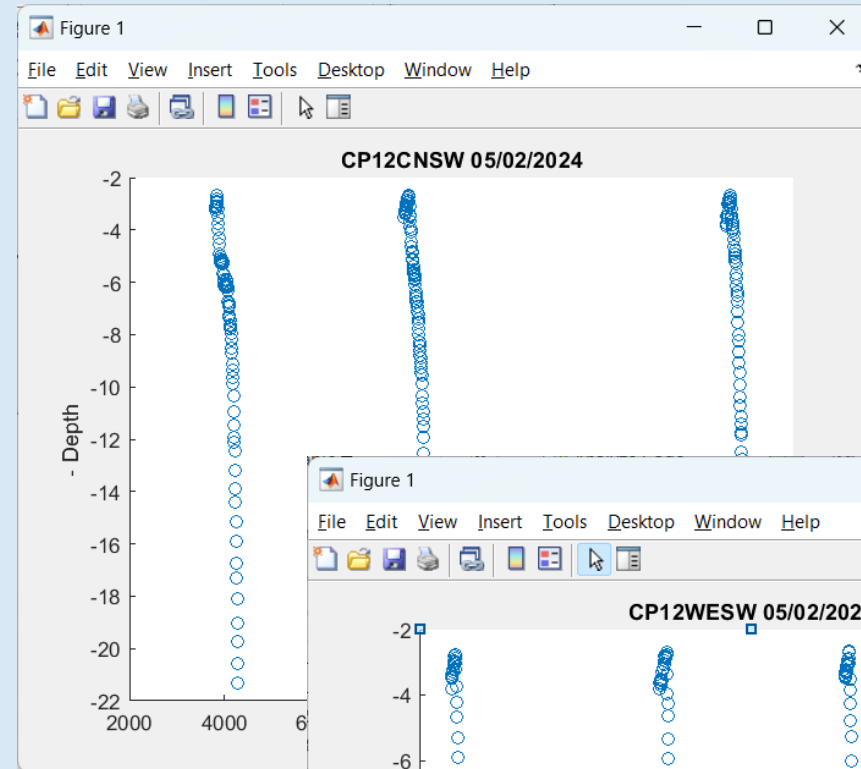


Operational Highlights

Early results from Prawler on SWM:

- Constantly profiling (wave powered), does not collect science data on every profile
- Configured for 24 science profiles/day, or ~1 profile/hr
- Profiling to within 2.5 m of the surface

4 profiles in ~14,000 sec
= 1 profile/hr

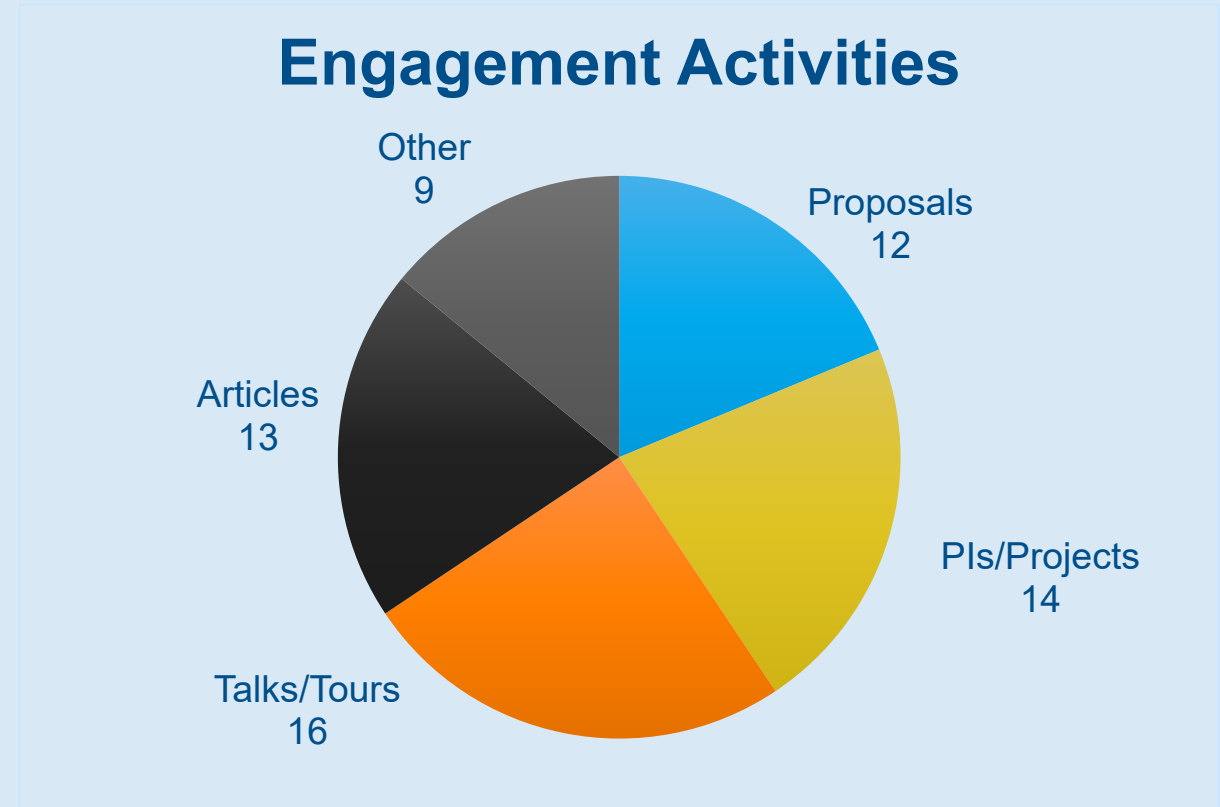




Community Engagement

Over 60 Outreach and Engagement activities so far in PY-VI (Q1+Q2)

- Proposal-Related:
 - Feasibility assessment, subcontracts
- PIs and Projects:
 - Collaborations and Ancillary Activities
- Talks and Tours:
 - Conferences, workshops, LOSOS tours, ...
- Articles:
 - Contribution to Newsletter and Website
- Other:
 - Interns, committees, working groups, ...





Engagement Highlights

Proposal Related

- Four funded projects associated with Pioneer MAB (DOE, BOEM, UNH, WHOI)
- Six interested PIs/agencies (NOAA, OSU, UNC, NCSU, ECU, WHOI)

Collaborating PIs and Projects:

- IOOS, NDBC, DFO, MATE, LTER, BCO-DMO, GOA-ON, OceanSITES, Ocean Data Labs, Accessible Oceans

NATIONAL DATA BUOY CENTER
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Station 41082
NSF Ocean Observatories Initiative
Location: 35.950N 75.125W
Date: Tue, 7 May 2024 18:00:00 UTC
Winds: S (180°) at 3.9 kt
Atmospheric Pressure: 29.81 in and falling
Air Temperature: 68.9 F
Water Temperature: 64.2 F
[View Details](#) - [View History](#)

GOA-ON Global Ocean Acidification Observing Network

G101SUMO: Global Irminger Sea Apex Surface Mooring

| Observations | Details |
|------------------------------|---------------------|
| Latitude: 59.9341 | Longitude: -39.4673 |
| Type: Mooring | |
| Region: North Atlantic Ocean | |
| State(s): US | |
| Provider: OOI | |
| Data Source: OOI | |
| Asset Class: SISO | Asset ID: M_566 |

BCO-DMO
Biological & Chemical Oceanography Data Management Office

[SUBMIT DATA](#) [ACCESS DATA](#) [RESOURCES](#) [ABOUT US](#)

DATABASE

| | |
|--------------|-------|
| Programs | 50 |
| Projects | 1,621 |
| Deployments | 3,376 |
| Platforms | 652 |
| Datasets | 6,693 |
| Publications | 4,907 |

Project: OOI Discrete CTD and Water Sampling Cruise Data

Acronym/Short Name: OOI Cruise Data
Project URL: [Project Web Site](#)
Data URL: [Data](#)
Start Date: 2010-01
End Date: 2028-09

Programs:
[Ocean Observatories Initiative \[OOI\]](#)



Engagement Highlights

Talks and Tours:

- Contributed to 5 Ocean Sciences abstracts
- Lecture and lab featuring OOI data for MIT/WHOI graduate students
- Articles:
 - Contributed to 13 Newsletter and Website articles
- Other:
 - Pioneer MAB Workshop planning
 - Woods Hole Partnership in Education Program (PEP) mentoring

Water Sample Data Available in New Repository

Pioneer MAB Relocation At-Sea Tests Continue

Instrumentation Updates for Pioneer MAB Array

Four-Part Series on Using Data Explorer

Another Round of Pioneer MAB At-Sea Tests

AUV Data Available in a Variety of Formats

Number of Surface Wave Observations Increased and Geographic Range Extended

A High-Tech Ocean Observing System Comes to NC Coast





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Questions?

