

OOI User Engagement

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oceanobservatories.org



OOI Communications Team User Engagement

Case Studies & Special Considerations

Leslie Smith
OOI Science Communicator



Broad Communications

The OOI Communication Team seeks to reach a broad audience both within and beyond the scientific community.




Media Engagement

- 2016 World Ocean Day Press Release
 - Total Reach 24.1 million
 - Facebook Post Reach 2,000
 - 1,500 Website Visits day of release
- 2017 Q1
 - Website received over 26,000 visits
 - OOI mentioned in 13 popular press articles from 12 different media outlets, with a total reach (unique monthly visitors) of 8.6 million.
- Media Tracking – 2016 Summary
 - Total Reach 823 million
 - 186 articles across >150 media outlets
 - Highlights
 - The Washington Post
 - The New York Times
 - The Seattle Times
 - Nature
 - EOS
 - Science Magazine
 - Scientific American
 - Popular Science

Newsletter & Website Updates

- 1,400 OOI List Serv Subscribers
- Periodic Newsletter (monthly, quarterly)
- List Serv blasts as needed to advertise events/opportunities
- Inclusion within weekly COL newsletter
 - 7,400 Subscribers
- Periodic distribution through UNOLS newsletter

OOI Community Forum Now LiveIs this email not displaying correctly?
View it in your browser.



OOI Community Forum Now Live

We are excited to announce that the OOI Community Forum is now live and available for community members to use - <https://forum.oceanobservatories.org/>.

The OOI Community Forum provides the opportunity for users to connect from around the world in order to foster collaboration, share best practices, and provide a central repository of shared knowledge surrounding the Ocean Observatories Initiative.


We encourage community members to use the forum to share cool discoveries, discuss OOI related science questions, and seek out collaborators for future projects. If you see a gap in the forum topics, and want to suggest a new focus area for discussion, we welcome any of your input.

Additionally, the OOI Data Team will regularly monitor the forum to help answer questions relating to instrument configuration, data access, data formats, and data quality.

Note: The forum is, and will remain, a work in progress. One "in-progress" item to be aware of is the login. In its' current state, users will need to create a new login name and register for an account via the forum site before you are able to post or reply to topics. You can still browse and read posts without having to log in, however. The forum software is compatible with CILogin, which will allow for a single login account across all the OOI sites, but that capability is still in the process of being added.

Thanks! We look forward to continuing the conversation!

Welcome to the Forum: <https://forum.oceanobservatories.org/viewtopic.php?f=19&t=5>
Forum Guidelines: <https://forum.oceanobservatories.org/viewtopic.php?f=19&t=6>

**Resources for RESEARCHERS**
[OOI DATA DATA PORTAL \(OQINET\)](#)

Conferences/Town Halls

The OOI Team attends 1-2 conferences a year. Conference participation focuses on a presence in the Exhibit Hall, special Town Hall sessions, and scientific presentations & posters.



Conferences Attended

- American Geophysical Union Fall meeting
- Ocean Sciences Meeting (Biannual)
- MTS/IEEE Oceans Meeting

Focus of Exhibit Hall engagement

“How can OOI data help your research?”

Opportunities for in depth discussions and exploration of the OOI Data portal and infrastructure.



Town Halls

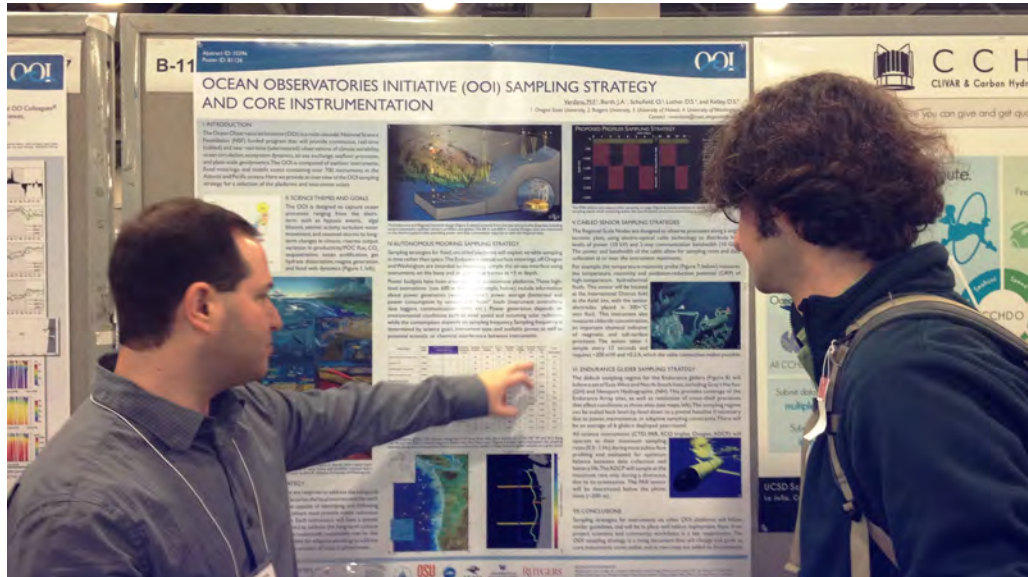
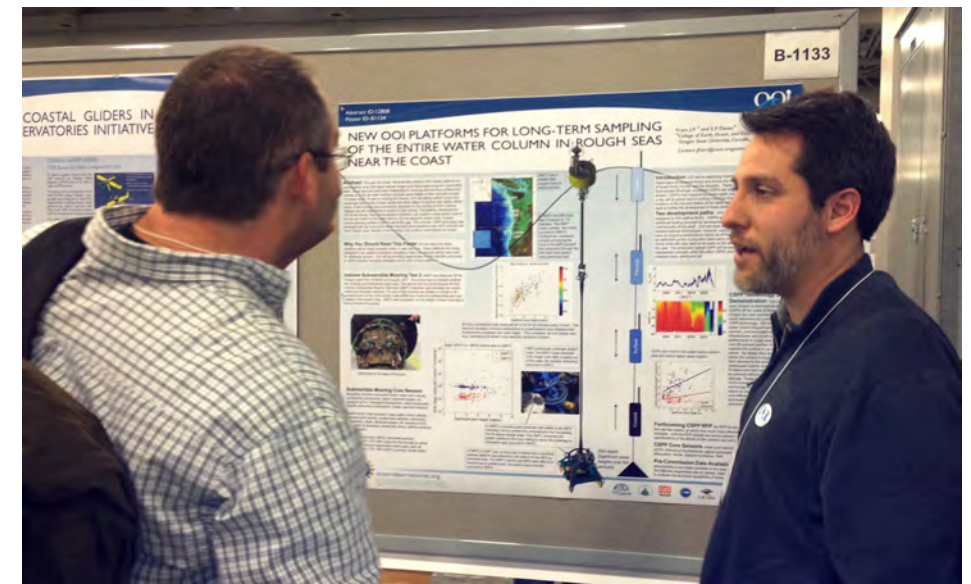
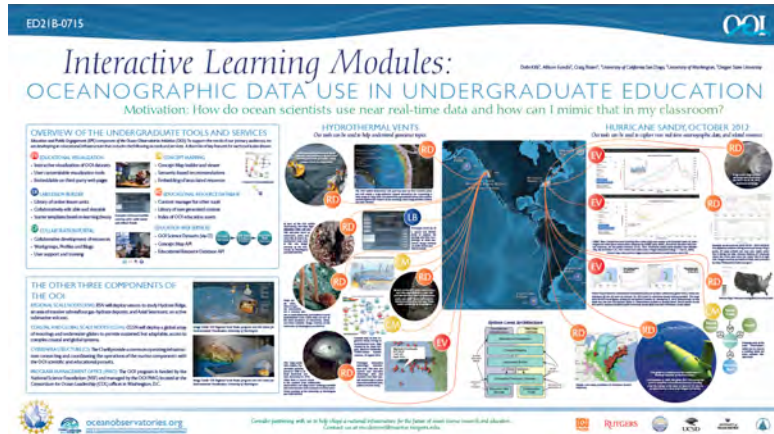
Town Halls offer OOI scientists, engineers, management, and data team an opportunity to direct connect with the community through targeted discussions.

Previous town hall topics have included:

- Accessing OOI Data
- NE Pacific Joint Town Hall with ONC
- OOI Construction updates



Posters & Presentations



Website, Help Desk, Forum

The OOI website is a focal point in the OOI Strategic Communications plan for user engagement. It serves as the main entry point for the community to learn more about the OOI, access data and education tools, connect with other users, and ask for assistance.

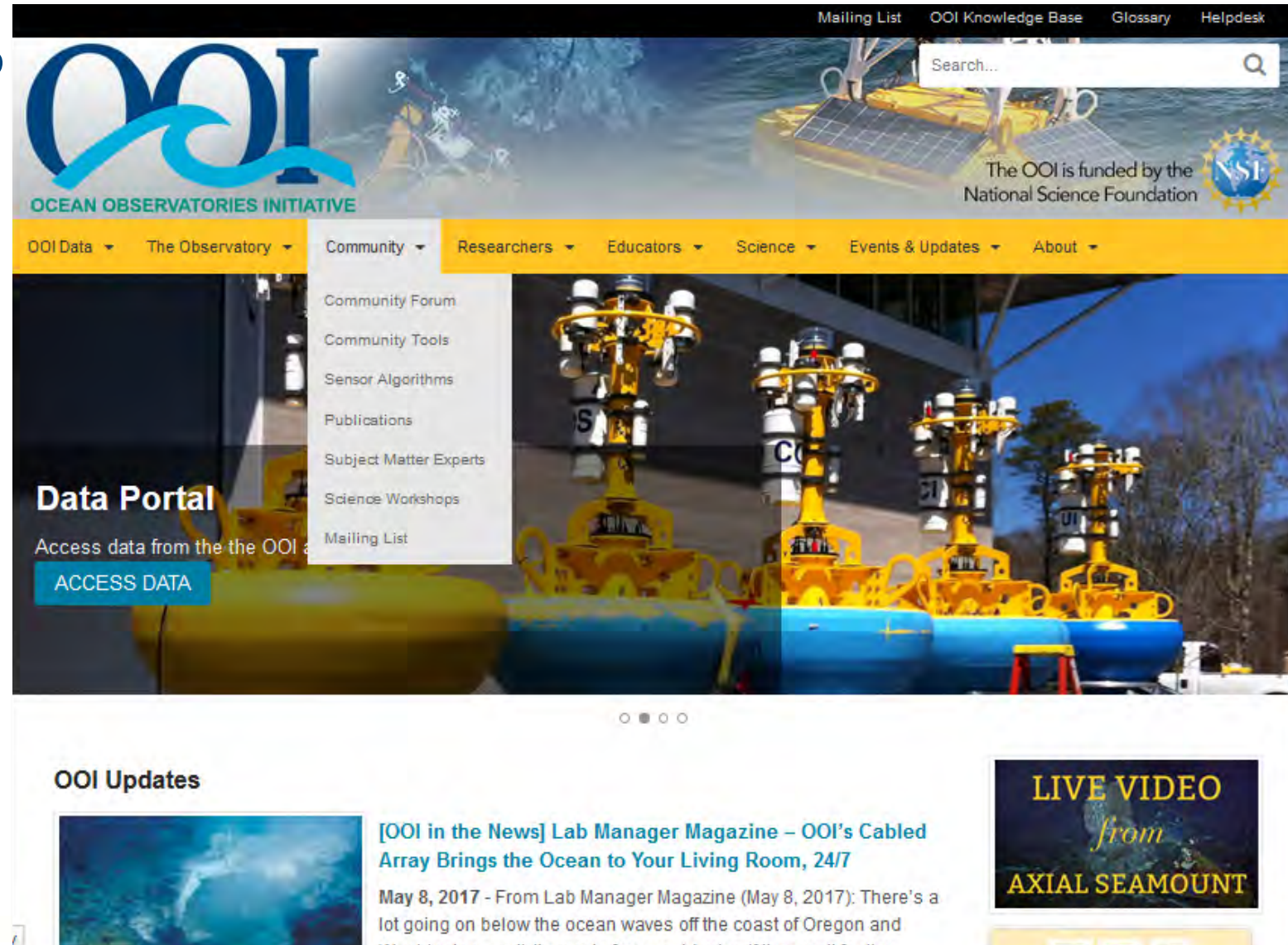
oceanobservatories.org/



Website Features

Portal of entry for various stakeholders and users:

- Data
- Science Themes
- Community Tools/Forum
- Researcher Proposal Information
- Education



Help Desk

Questions about data, data access, and instrumentation

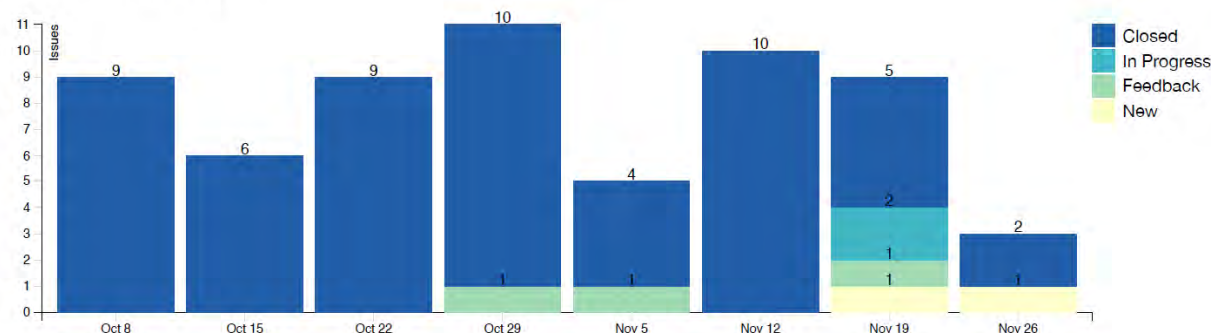
All inquiries are tracked in a ticketing system

- 664 Total Tickets (since June 2015)
- Currently only 30 remain open

OOI Help Desk - Weekly Summary

For November 26, 2016 to December 2, 2016

The Last 8 Weeks



help@oceanobservatories.org

Welcome to the OOI Helpdesk

What can we help you with?

The OOI Helpdesk is the key point of contact for any and all inquiries about the OOI project and its data. Through the Helpdesk, you can ask questions about a myriad of topics including but not limited to OOI history, partnerships, funding, future RFPs, access to data, and more. All inquiries sent to the OOI Helpdesk will be addressed in a timely manner.

Before contacting the Helpdesk, we encourage you to check out the following resources that may help you with your inquiry:

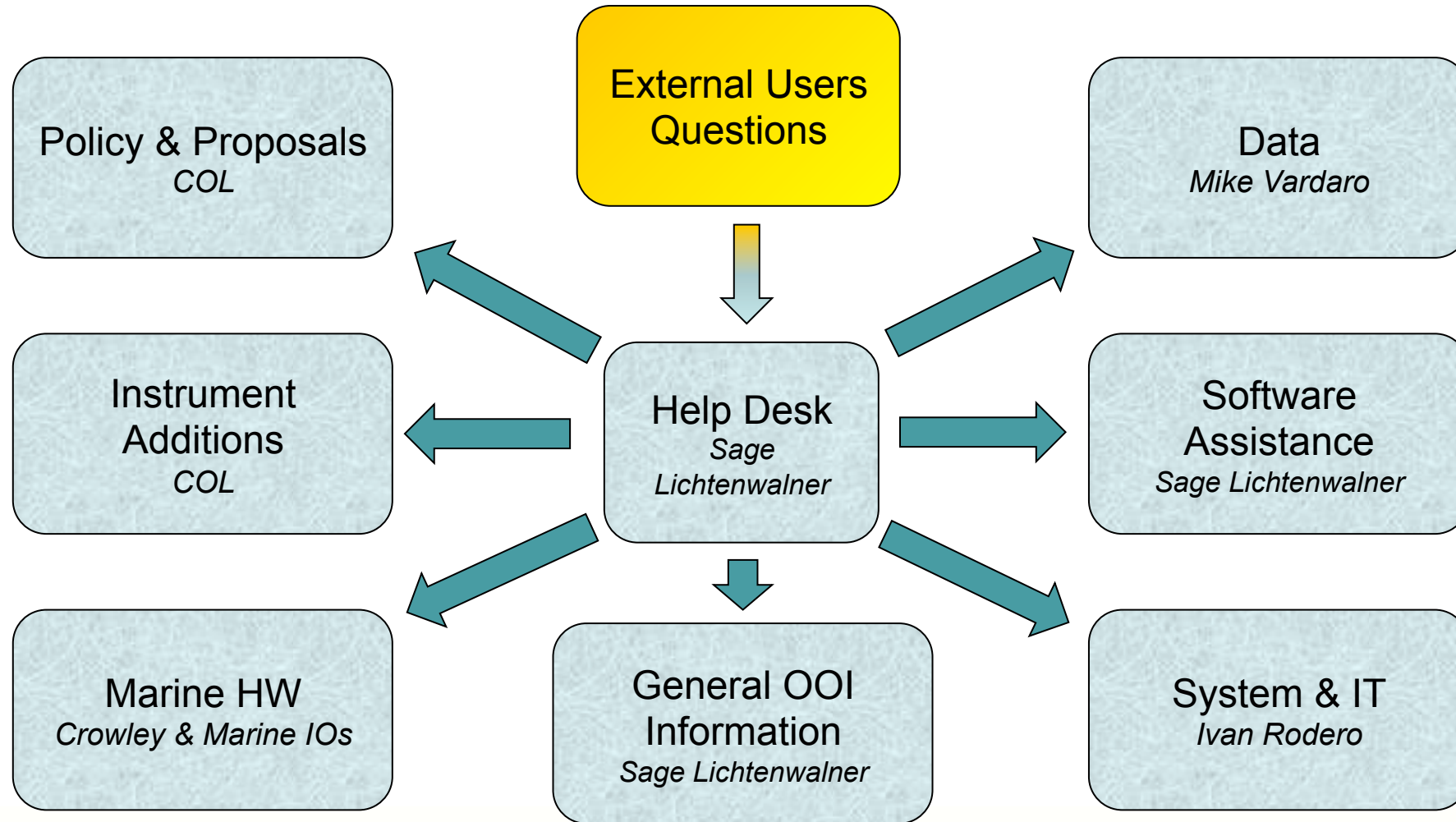
- [Frequently Asked Questions](#)
- [OOI Data Usage Policy](#)
- [Data Quality Control](#)
- [Operations Plan](#)
- [Observations and Sampling Approach](#)
- [Data Portal Tutorial](#)

Still have a question?

Send us an email: help@oceanobservatories.org.

If you are reporting an issue with the OOI Data Portal... please provide as much detail as possible regarding your issue. Let us know what page you were on, what time you encountered the issue, and describe what you were trying to accomplish when the problem occurred. A member of the OOI team will connect with you shortly about your report.

Help Desk Process



Forum

forum.oceanobservatories.org/

Users can connect from around the world in order to...

- Foster collaboration
- Share best practices
- Share new discoveries
- Provide a central repository of shared knowledge surrounding the OOI

Monitored by the OOI Data Team to help answer data and configuration questions

The screenshot displays the OOI Forum interface. At the top, there is a navigation bar with 'Home' and 'Board index'. Below this, the 'General Forums' section is highlighted in yellow. It contains two forum entries:

- Announcements**: General news and announcements from the OOI program. It has 2 topics and 2 posts. The last post is by 'admin' on 'Thu Apr 27, 2017 2:44 pm'. It includes the OOI logo and a green checkmark icon.
- General Questions**: If you do not see a relevant topic above, ask your question here. It has 0 topics and 0 posts. It includes a world map icon and a minus sign icon. The moderator is 'Staff'.

Below the 'General Forums' section is the 'Data Access' section, also highlighted in yellow. It contains three forum entries:

- Data Portal (OOInet)**: The primary source for all OOI datasets and metadata, quick plots, and system status (OOInet). It has 2 topics and 2 posts. The last post is by 'Echinocrepis' on 'Mon May 01, 2017 6:20 pm'. It includes a screenshot of the OOI Data Portal and a green checkmark icon. The moderator is 'Staff'.
- Machine to Machine Interface (M2M)**: Script-based direct and asynchronous downloads of OOI data via an authenticated M2M connection. It has 0 topics and 0 posts. It includes an 'M2M / API' logo and a minus sign icon. The moderator is 'Staff'.
- Raw Data Archive**: Direct access to OOI data as they are received from the. It has 0 topics and 0 posts. It includes the OOI logo and a minus sign icon.

Community Tools

- Repository for community generated tools external to the OOI Cyberinfrastructure team
- These tools include:
 - Quality Control Testing Repository
 - Download & plotting tools
 - “Decoders” for reference designator codes
 - Tilt Meter Plots
 - Python modules for CAMHD & HYDBB
 - Time-Lapse Videos

oceanobservatories.org/community-tools/

Publications

Goal: List all publications that reference the OOI and its data.

We have a long way to go on that goal...but welcome your help and ideas!

Are there publications that you know of that we currently do not have on the website?



The screenshot shows the OOI website with a navigation bar at the top containing links for Mailing List, OOI Knowledge Base, Glossary, and Helpdesk. The main header features the OOI logo and the text "OCEAN OBSERVATORIES INITIATIVE". Below the header is a yellow navigation bar with links for OOI Data, The Observatory, Community, Researchers, Educators, Science, Events & Updates, and About. The "Community" link is selected, leading to a page titled "Reports and Publications". On the left side of this page is a sidebar menu with links for Community Forum, Community Tools, Sensor Algorithms, Publications, Subject Matter Experts, Science Workshops, and Mailing List. The main content area lists several publications, including works by Brasseur, L., M. Tamburri and A. Stammer (Eds.), Caress, D.A., D.A. Clague, J.B. F., Dreyer, W.W. Chadwick Jr., A. Denny, and D.S. Kelley, Cowles, T., J. Delaney, J. Orcutt, R. Weller, deCharon, A., L.M. Smith, C. Companion, Delaney, J.R. and D.S. Kelley, Delaney, J.R. and R.S. Varga, Gawarkiewicz, G., J. Nelson, R. He, R.W. Fulweiler, J. Goff, T. Grothues and E. LaBrecque, Gawarkiewicz, G.G., R.R. Todd, A.J. Plueddemann, M. Andres and J.P. Manning, Karson, J.A., D.S. Kelley, D.J. Fornari, M.R. Perfit, and T.M. Shank, Kelley, D.S., J.R. Delaney, S.K. Juniper, and Mahoney, D. and A. Plueddemann.

Subject Matter Experts

SME Spring-Summer 2016 Evaluations

The following subject matter experts have begun assisting the OOI data evaluation team in assessing the validity of [OOI Raw Data](#) from select sensors. Specifically, these SME's have been asked to assess whether or not the instruments are working properly and yielding data that are realistic. As well as to examine whether or not the sampling protocol implemented for the deployment is appropriate to achieve the scientific goals of deploying that instrument.

Volunteers are listed with their assigned instrument. Click the hyperlink for more information about each instrument:

- Thibault Barreyre – Diffuse Vent Fluid 3-D Temperature Array ([TMPSF](#)) and Hydrothermal Vent Fluid Temperature and Resistivity ([TRHPH](#))
- Sebastien Bigorre – Bulk Meteorology Instrument Package ([METBK](#))
- Emmanuel Boss – Spectrophotometer ([OPTAA](#))
- Dave Butterfield – Hydrothermal Vent Fluid Interactive Sampler ([RAFLS](#)) and Particulate DNA Sampler ([PPSDN](#))
- Bill Chadwick – Bottom Pressure and Tilt ([BOTPT](#))
- Timothy Crone – HD Digital Video Camera ([CAMHD](#))
- Femke De Jong – Wire-Following Profiler CTD ([CTDPF](#)) and Dissolved Oxygen ([DOFST](#))
- John Dunlap – Horizontal Electric Field, Pressure and Inverted Echo Sounder ([HPIES](#))
- Jim Edson – Direct Covariance Flux ([FDCHP](#))
- John Hildebrand – Broadband Acoustic Receiver – Hydrophone ([HYDBB](#))
- Bob Jensen – Surface Wave Spectra ([WAVSS](#))
- Mei Sato – Bio-acoustic Sonar – Coastal ([ZPLSC](#))
- Ian Walsh – CDOM Fluorometer ([FLCDR](#)) and 2-Wavelength Fluorometer ([FLNTU](#))

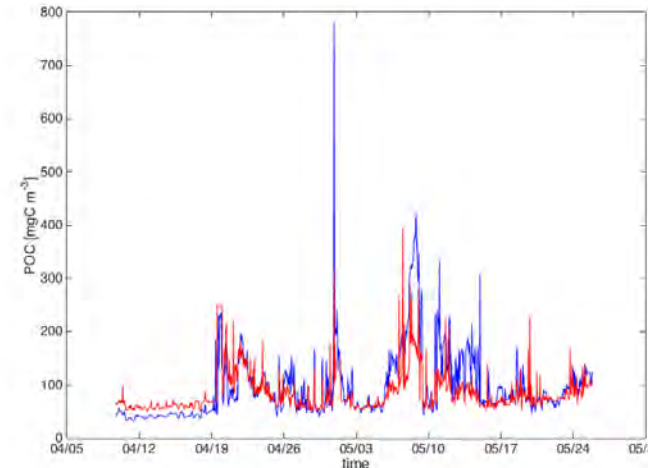
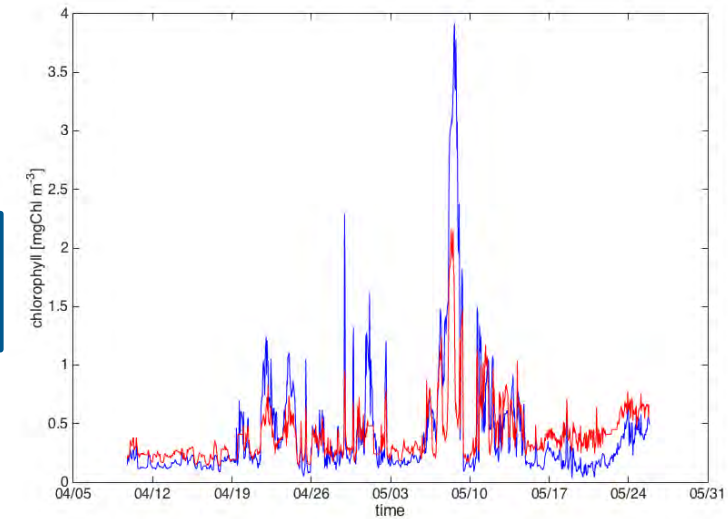
The Scientific Oversight Committee is working with the OOI data evaluation team to expand the SME effort to additional volunteers. Stay tuned for additional updates.

[MORE INFORMATION ON SME'S](#)

[ACCESS OOI DATA](#)

[oceanobservatories.org/
researchers/subject-matter-experts](http://oceanobservatories.org/researchers/subject-matter-experts)

OPTAA SME Review Wet Labs AC-S



Dr. Boss stated “The fact that we can do this closure exercise gives me confidence that we should be able to see when fouling or drift become an issue.” He did caution that this analysis represented a very small data set at one location at a specific time, under limited ambient temperature and trophic conditions. “While very encouraging, much more work will need to be done to establish how representative it is,” he noted.

Proposals & Staff Consultations

All Ocean Science Researchers are encouraged to use OOI data, and to propose:

- Use OOI data to address a specific question or hypothesis
- Connect new instruments to the observatory network
- Modify sampling rates on existing instrumentation
- Additional work during normally scheduled OOI cruises

oceanobservatories.org/information-for-researchers/

Data Use Proposals

- Data are free, anyone can use OOI data, you do not need a proposal to use it
- NSF is welcoming proposals to fund researchers as they seek to use OOI data to answer a specific scientific question
- DOI Procedures – more soon!
 - In the meantime see the OOI Data Usage Policy

oceanobservatories.org/information-for-researchers/

Connecting Instrumentation

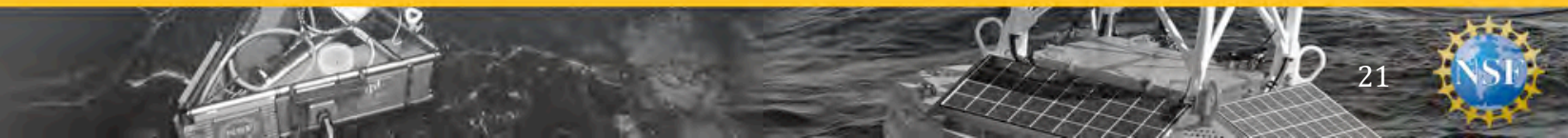
- Webinars held prior to NSF deadlines to provide information
- Identification of candidate instruments
 - CGSN - Connect self-powered, self-logging instruments
- Consultation with CGSN/EA/CA engineers on viability
 - CGSN/Cabled Staff provide letter confirming technical feasibility, recommended schedule and costs
- Consultation to determine potential impacts to permits and/or environmental compliance.
- Shiptime request (as needed)
- Funding of proposal
- Researcher development of instrumentation
- Integration and test at CGSN/EA/CA
- Deployment

oceanobservatories.org/information-for-researchers/

Sampling Rate Modification

- OOI instruments sample at “Baseline Sampling Rates”
- Researchers can propose to modify sampling rates
 - Rates can be lower than “As-Deployed Sampling Rates” but can not go below “Baseline”
 - Changes must be timed with deployment cycles
- Staff Consultation to ensure compatibility

oceanobservatories.org/information-for-researchers/



Staff Consultations

- Prior to the Feb & Aug NSF Proposal Deadlines, Staff Consultations and overview webinars are offered.
 - ~25-60 people register for each webinar
 - Recordings & PDF of slides posted online
- Consultations are recommended for any proposal seeking to make a change to existing OOI infrastructure or operation procedures in order to ensure compatibility of the proposal within the constraints of the system.
- Consultations began Jan. 2016
- July 2017 will mark our 4th round of consultations

oceanobservatories.org/staff-consultations/

Cruise Berths & Water Samples

- Conducting additional work on normally scheduled OOI Cruises
 - Occupying extra berths as available
 - Additional activities must fit into the existing cruise schedule
 - Subject to vessel size & safety restrictions
- Hydrographic casts at each site prior to deployment or after recovery
 - Often there is sufficient water to support additional assays

Array	Location	Frequency	Timing
Pioneer	Cape Cod, MA	2x per year	Spring (May/June) Fall (Oct/Nov)
Endurance	Oregon and Washington	2x per year	Spring (April) Fall (October)
Cabled	Axial Seamount, Oregon Continental Slope and Coast	1x per year	Summer (July/Aug)
Argentine Basin	SW Atlantic, off Argentina	1x per year	Winter (Nov/Dec)
Irminger Sea	NW Atlantic, off Greenland	1x per year	Summer (July/Aug)
Southern Ocean	SE Pacific, off Chile	1x per year	Fall (Oct/Nov)
Station Papa	NE Pacific, off Alaska	1x per year	Summer (July)

Workshops

Targeted workshops have been used since the conception of the OOI as a way to engage the user community in the design of the OOI and the scientific questions it would address.

Since Construction, workshops have been utilized in order to highlight uses of the data, test new data access points, and discuss lessons learned.



Science Workshops

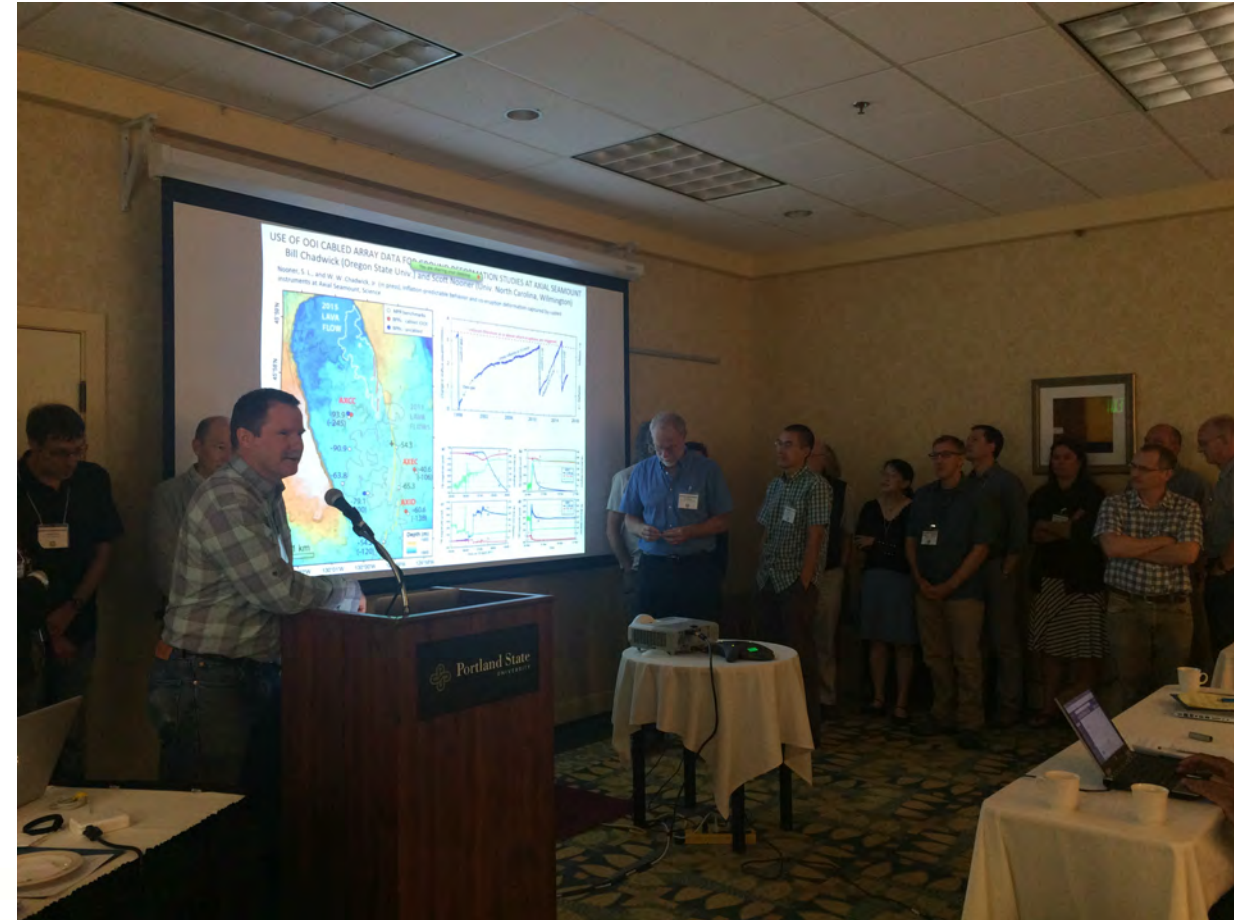
- *Science Community Workshop I, Baltimore, MD (2009)
- *Science Community Workshop II, ASU, Tempe, AZ (2010)
- +OOI Shelf/Slope Processes Workshop, Providence, RI (2011)
- *Pioneer Array Sampling Focus Group Meeting, Washington, DC (2012)
- +OOSC Mini-Workshop on OOI Cyber Infrastructure: Pioneer Array Data Quality Assessment, Rutgers Univ., Rutgers, NJ (2015)
- +OOI-OOSC Coastal Observatories Workshop, Arlington, VA, (2016)
- +UNOLS - OOI Coastal Arrays Workshop: Pioneer, Endurance and the Coastal Cabled Arrays, NSF, Arlington, VA, (2016)
- +UNOLS Community Workshop: Cabled, Endurance, Station Papa (2016)

*Denotes OOI-sponsored +Denotes NSF-sponsored

1-Slider Presentations

UNOLS Community Workshop: Cabled, Endurance, Station Papa (Sept. 2016)

Each participant was asked to explain how they plan to use OOI data in their research

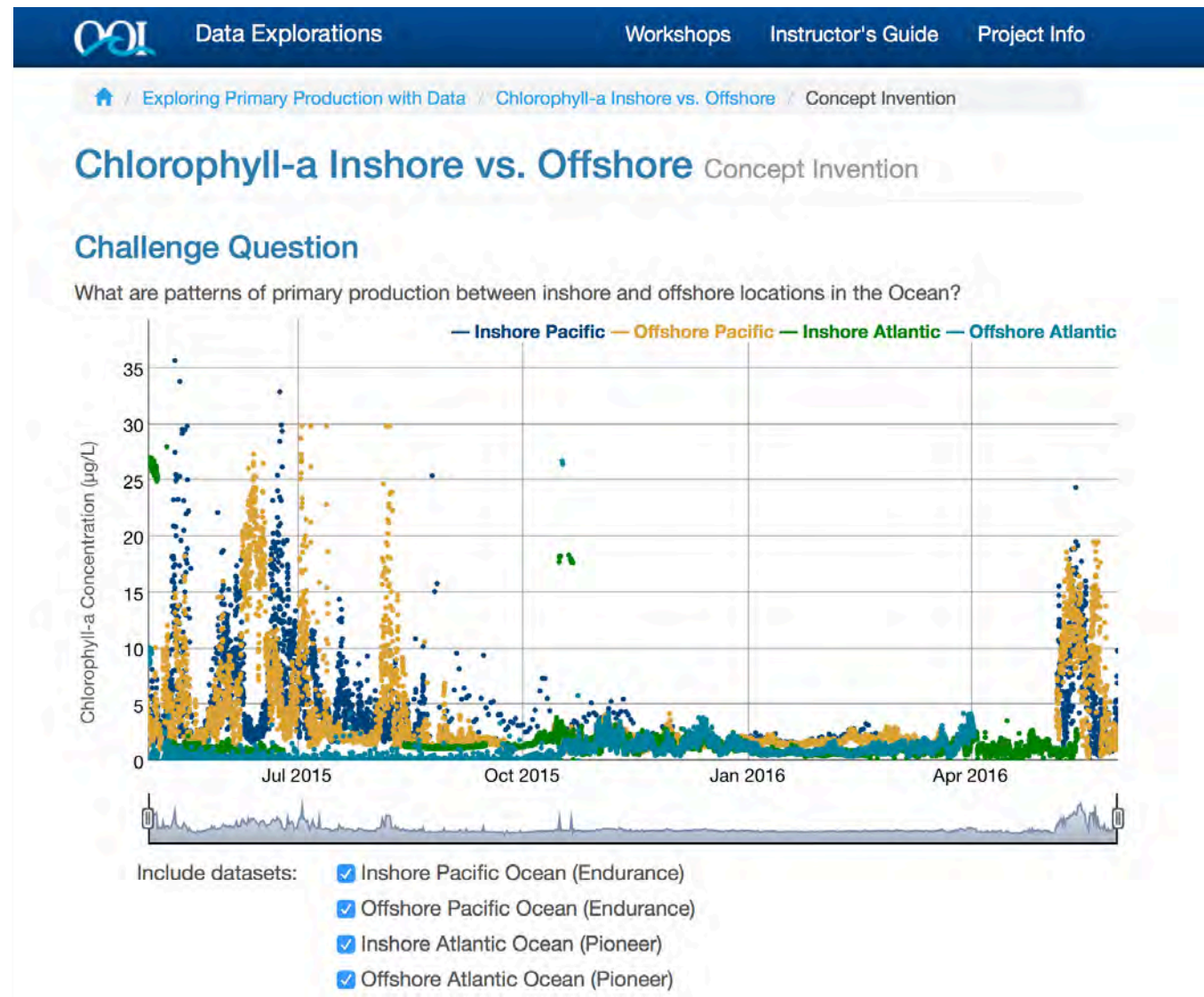


Education Workshops

- Front End Needs Assessment with undergraduate college professors (2011)
- Needs Assessment Workshop, Seattle, WA (2012)
- Needs Assessment Workshop, Rutgers, NJ (2012)
- Online Community Survey (2012)
- COSEE online webinar (2013)
- Cutting Edge Teaching Oceanography Workshop, San Francisco, CA (2013)
- COSEE Pacific Partnerships Summer 2013 Community College Faculty Institute (2013)
- Community College Undergraduate Research Initiative (CCURI) Workshop (2014)
- OOI Data Explorations

Data Explorations

- Workshops for undergraduate professors teaching entry level oceanography courses
 - Biology (Primary Production)
 - May 2016
 - Chemistry
 - May 2017
 - Geology
 - June 2017



education.oceanobservatories.org/explorations/

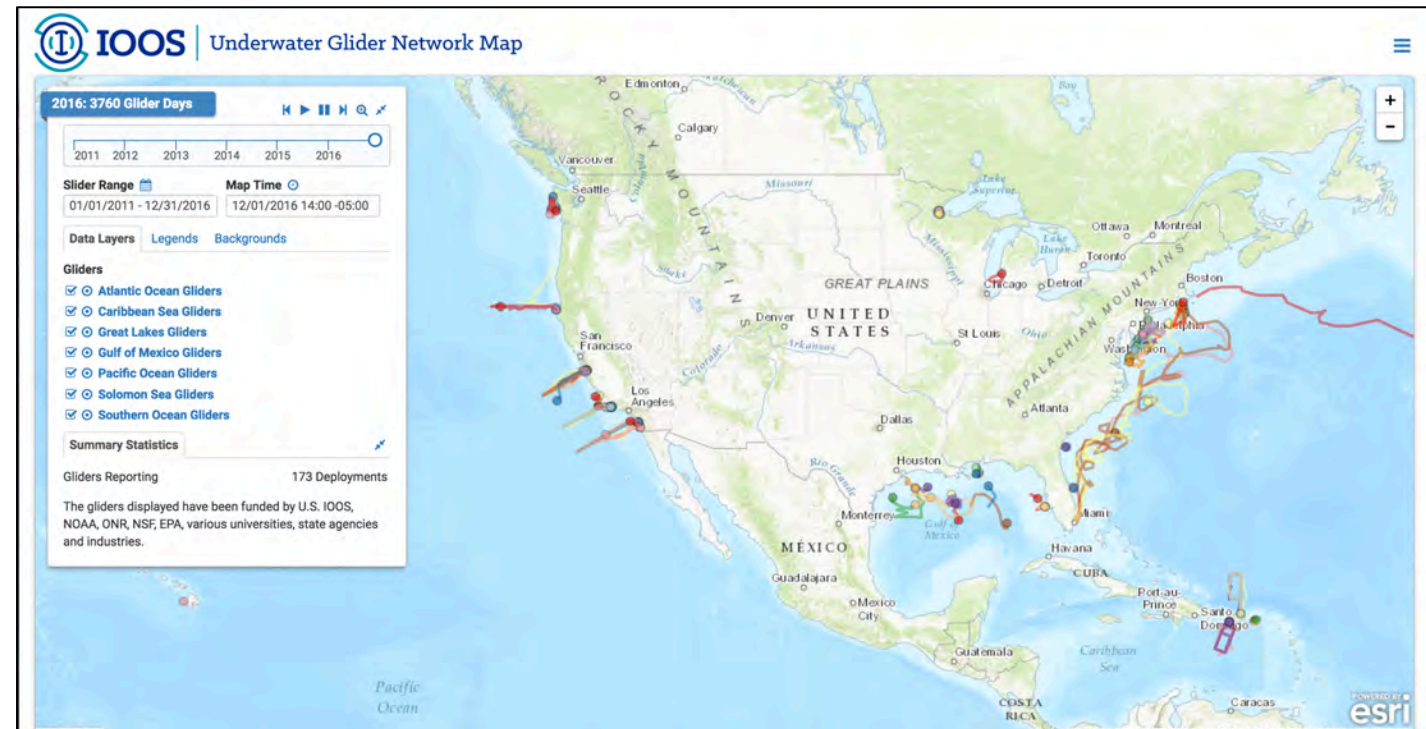
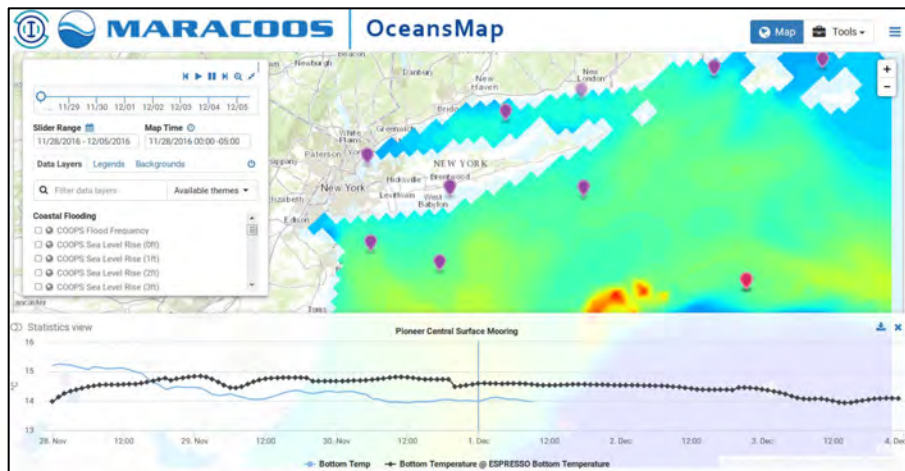
Engagement with other Observatories

The OOI Communication Team seeks to reach a broad audience



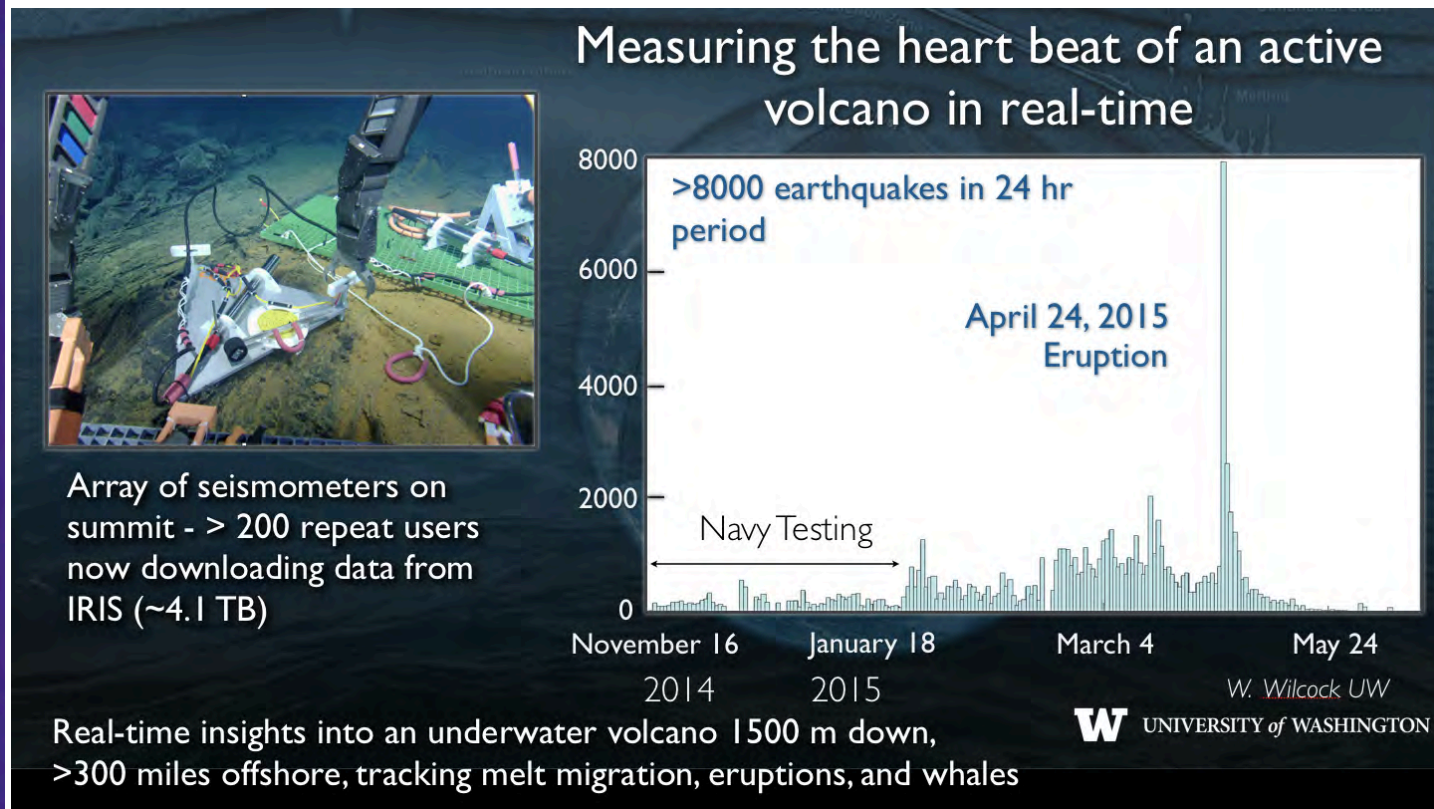
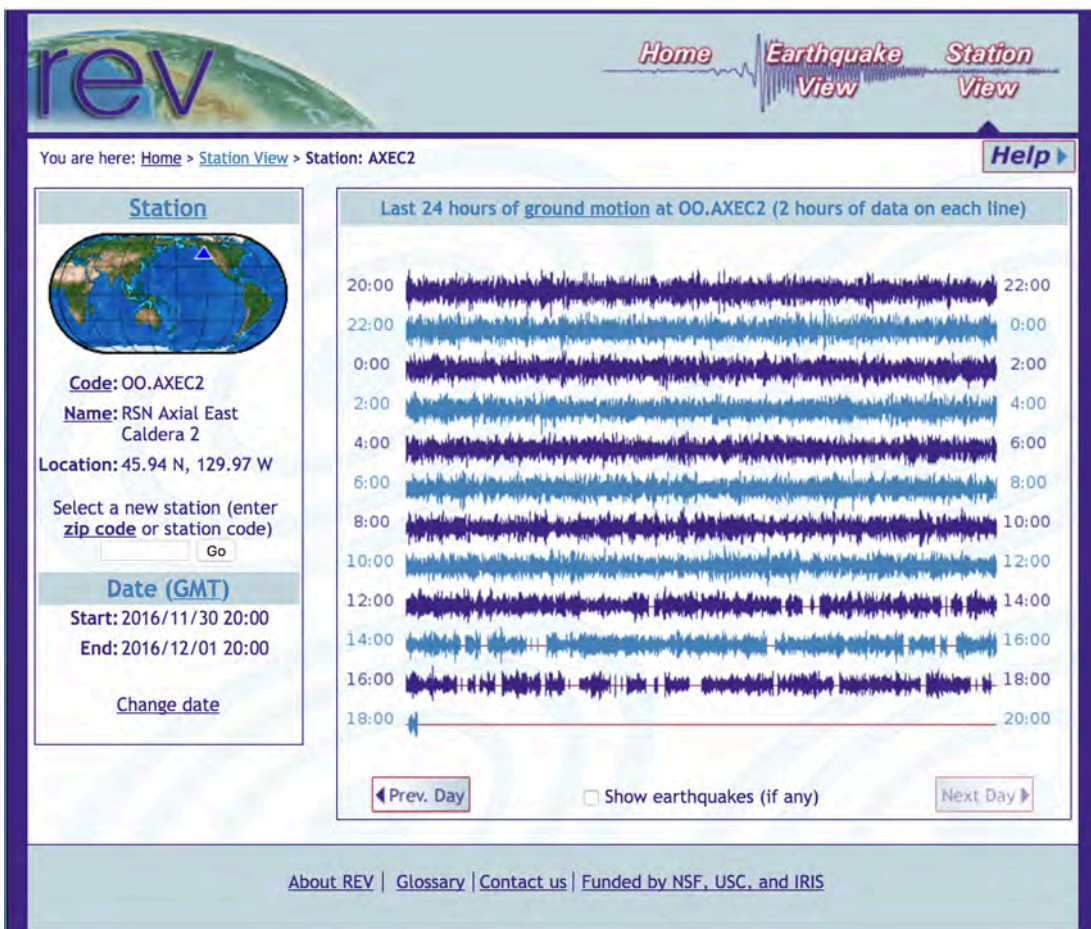
OOI Data in IOOS and Regional Associations

OOI Data discoverable and accessible in NANOOS & MARACOOS Visualization Systems and the IOOS GLIDER DAC



Successful collaboration between NSF & NOAA

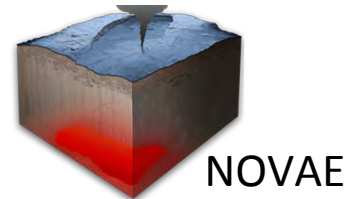
OOI Data in IRIS



IRIS = Incorporated Research Institutions for Seismology

Partnerships, engagement, dialogue!

We look forward to continued partnerships and engagement with other observatories and networks around the world.



Coastal Global User Engagement

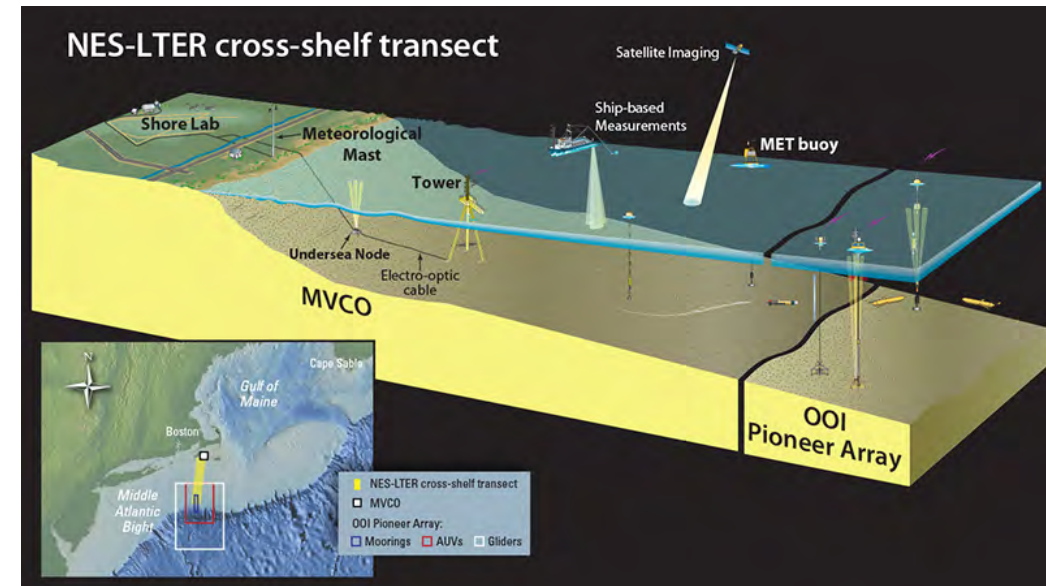
Case Studies & Special Considerations

Sheri White
CGSN Lead System Engineer



Examples & Issues

- Proposal to add 2 sensors to Global Southern Ocean Surface Mooring by NOCS UK researcher seeking NERC funding
 - What are the issues with funding coming from non-NSF sources?
- NSF Northeast U.S. Shelf Long Term Ecological Research (LTER) Site
 - Ties in with the OOI Pioneer Array offshore
- Proposal to place a mooring in the vicinity of Pioneer
 - How are OOI permits affected by non-OOI moorings?
- Deploying non-OOI assets on OOI cruises
 - Not a lot of deck space for additional projects
 - CGSN has deployed floats and moorings for other programs
- Proposals also exist to use the data



Data & CI User Engagement

Case Studies & Special Considerations

Mike Vardaro
OOI Data Manager



MIO & SOC Communications

- Weekly Science Oversight Committee (SOC) calls
- Weekly/biweekly calls between data team and MIO technicians and scientists on operations issues, troubleshooting, communications, upcoming deployments (calendar)
- Redmine tickets track daily QA/QC inquiries, alert notifications, and user comments
- Weekly PM to PM calls to discuss any outstanding issues



OOINet Testing

- Alpha 1 Test (external)
 - Alpha 2 Test (internal)
 - Beta Test
 - Commissioning Testing
 - January UNOLS workshop
 - GUI Testing
 - September UNOLS workshop
 - Need external user testing in 2017
- Testing results in pass and fail results.
 - Failures result in trouble tickets which are used to track additional work and improve the system
 - Once issues are resolved, tests are repeated



Sept. 2016 Workshop Feedback

Short Term SW fixes

- i. No file **aggregation** prior to delivery. **Fixed**
- ii. Improved **bathymetry**. **Fixed**
- iii. Data Team **annotations** from MIO information about HW issues - **Fixed**: Data team now able to enter annotations, view them in GUI (more work to go)
- iv. Large data download **time outs, request lost**, email response confusing. **Fixed**
- v. **Missing data products and instruments** (eg. MASSP, ZPLSC). **Fixed**: routes users to raw data archive, Alfresco, etc.; some analytical data still incoming
- vi. **Depth, Lat/long and pressure** for all deployed instruments. **Fixed**
- vii. **Status timeline** with metadata; overview from first deployment to present. Operator can perform manual updates. **Fix in progress**: Data team and UI team working on fix
- viii. Plotting from **multiple instruments** on 1 plot. **Fix**: Re-enabled, but needs GUI fix

Sept. 2016 Workshop Feedback

Long Term SW fixes

- vi. Incorporate all the naming and labeling options (**vocabulary**) that the data team added to preload, and improve filtering in the GUI. **Improved, but ongoing**
- vii. **Simplify Data Catalog** to start with empty “cart” so users are not overwhelmed with options. **Future fix.**
- viii. **Plotting clarifications:** users should be informed if data cannot be plotted in 2D and best way to plot. **Future fix.**
- ix. **Improved links and access** to raw data archive, documentation, and metadata info – **Fix in progress**
- x. **Improve Overall Data Quality.** **Long-term fixes:** data team deep dives, secondary post-recovery calibration, external review by SMEs, Data Assembly Center (would require reallocation of funds)

User Initiated Deep Dive

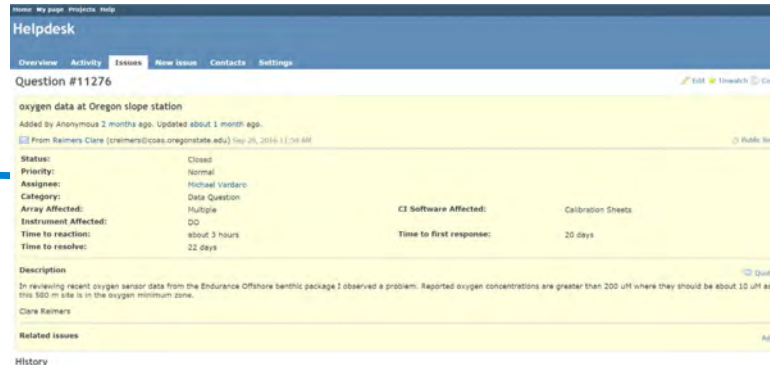
Data assurance/Data quality

User
Prof. Clare Reimers



Discover O2 data at
Seafloor is too high

Help desk
contacted



Deep Dive
Initiated

MIO's and Data
Team assess, trace
to incorrect CAL file
provided by the
vendor

MIOs

Assess to what
degree this is an
issue throughout
the system

Data team

Annotate the
existing data & w/
COL make a public
announcement

Community Interactions

- OOI Data Team facilitating data interaction, discovery and analysis for the OOI community
- This includes SMEs, scientists, educators, postdocs, graduate and undergraduate students



CamHD Compute Engine

Introduction

Welcome to the CamHD Compute Engine (CCE). The CCE is a computational platform that allows users to investigate, process, and visualize data from the OOI CamHD camera system. CamHD is currently located in the ASHES hydrothermal vent field on Axial Seamount, and collects approximately 100 gigabytes of data per day during normal operations. The official CamHD [Raw Data Archive](#) currently houses over 80 terabytes of data, making it difficult to download these data for analysis. The CCE allows users to work on a large subset of the CamHD data remotely without downloading raw data.

Currently the main component of the CCE is a JupyterHub server with a large subset of the CamHD data on local storage. The current CamHD dataset includes all of the data from the first camera deployment, from November 2015 to July 2016, and is about 25 TB in size. The JupyterHub server currently has several kernels available, including Python 3.6, Python 2.7, Google Go, and a custom PyCamHD kernel for working with the [PyCamHD](#) module. Users also have the option of installing custom kernels.

Getting Started

To obtain an account on the system, first make sure you have a [GitHub](#) account, which is how users authenticate. Next, send an email to tjcrone@gmail.com with your GitHub user name to have it whitelisted. Finally, go to the [CamHD JupyterHub](#) to log in. If you are new to Jupyter, you may want to explore [this introduction](#) to the platform.

Examples

Several [example notebooks](#) are available on GitHub. You can clone the example repository into your home directory using the Jupyter terminal window to get a working copy of the examples and adapt them for your research. See the instructions in the examples repository for more information.

References

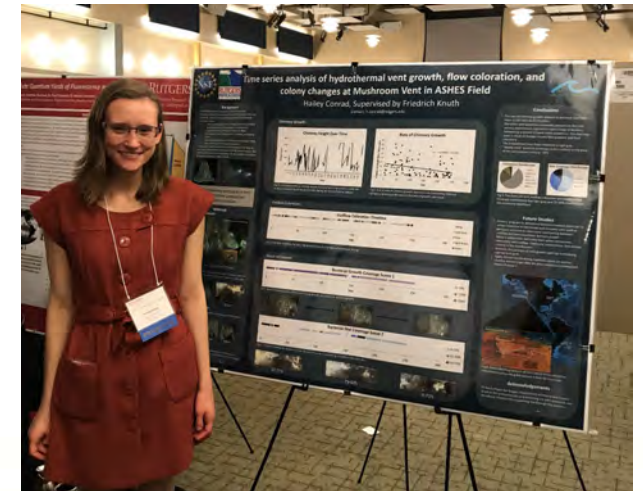
[PyCamHD](#)
[CamHDHub Examples](#)
[Raw Data Archive](#)
[Live Video](#)
[CamHD](#)
[Jupyter Basics](#)

Funding and Acknowledgements

The CamHD Compute Engine was funded by the National Science Foundation and by the Lamont-Doherty Earth Observatory. The CamHD system was designed and built by the University of Washington's Applied Physics Lab, and is operated by the University of Washington. The Ocean Observatories Initiative funds the operation of the Cabled Array. The Rutgers OOI Data Team manages the data from the CamHD system.



- SME receives NSF grant and sets up CAMHD JupyterHub as an OOI satellite platform for data processing and analysis
- Tools linked on OOI website
- Freshman undergraduate student now able to process video data using these tools



Student Engagement

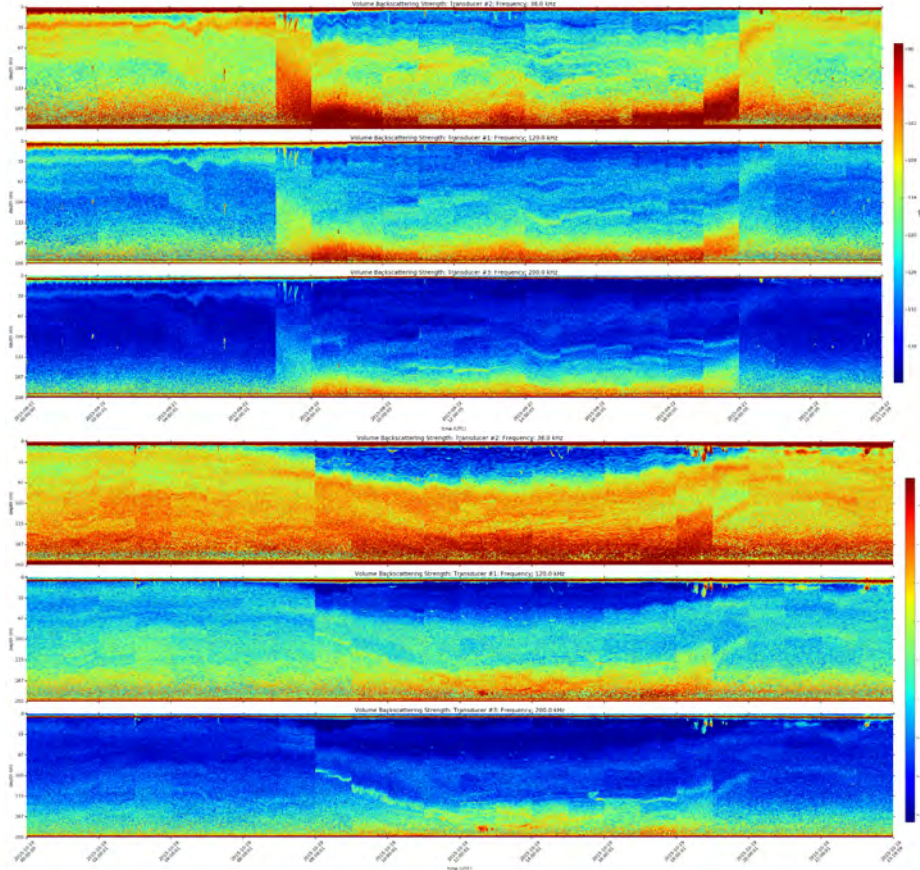
Rutgers University undergraduate course - *Topics of Marine Science: Ocean Observing*
Group research projects culminating in a final presentation.
One Group focused on comparing CTD cruise data to Axial Base Shallow Profiler



Science Data Products (EA)

Daylight hours

Diel migration of different size communities



EK 60 Simrad

Split-beam calibration of the OOI echosounder

Mei Sato¹, Kelly J. Benoit-Bird¹, Kent Fletcher^{1,2}, Walt Waldorf^{1,2}, Christopher Wingard^{1,2}

¹ College of Earth, Ocean, and Atmospheric Sciences, Oregon State University, 104 CEOAS Admin Bldg., Corvallis, OR 97331

² Ocean Observatories Initiative

Summary

In-situ calibrations of the 120 kHz, split-beam EK 60 echosounder were conducted at 80-m site on the OR line (CE02SHBP, 44.6370°N, 124.3059°W). A tungsten carbide sphere (38.1-mm diameter) was floated 10 – 12 m above the transducers on the August 2, 2015 deployment of the instrument and floated away from the instrument via a sacrificial burn link on August 18, 2015 (Figs. 1, 2). Data were collected at 1 Hz for the first 20 min of every hour. We used the standard calibration method (Demer et al., 2015) for the 120-kHz split-beam echosounder, where on-axis single targets can be isolated. On-axis single targets were selected in Echoview (version 6.1; Echoview Software Pty Ltd), using their 'single target detection – split beam (method 2)' and 'filter targets' algorithms. The settings were chosen so that only on-axis targets could be selected, resulting in 270 single targets. Target strength (TS in dB) values beyond 1.5 interquartile range were identified as outliers and removed from the analysis. TS of the single targets was determined using the least square method. The integrated area scattering measured as Nautical Area Scattering Coefficient (NASC in m² nmi⁻²) that corresponding to the single targets was obtained through Echoview by integrating over 5 bins (0.96 m). Calibration values were determined by comparing the measured TS and NASC values to the sphere's theoretical values (Tables 1, 2). Recommended parameters for the data analysis of EK60 (OOI's Serial Number = 05) using Echoview were summarized in Table 2. Use of default vs. recommended parameters resulted in 5 dB difference in mean S_v values (Fig. 3), affecting our ability to separate organism types using multifrequency echosounders as well as biomass estimates that may result from these data. In-situ calibrations provided critical foundation for quantitative analysis of the OOI acoustic time-series data.

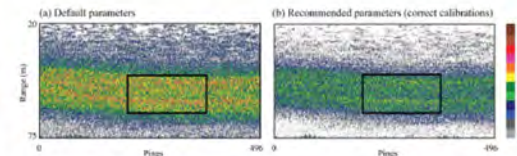


Figure 3. Effect of calibration values on the frequency response at 120 kHz. Mean S_v values shown in the black boxes resulted in 5 dB difference between the use of (a) default values and (b) recommended parameter.

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PEER-REVIEWED PUBLICATIONS

- Sato, M., J. K. Horne, S. L. Parker-Stetter, T. E. Essington, J. E. Keister, P. E. Moriarty, L. Li, and J. Newton. Impacts of moderate hypoxia on fish and zooplankton prey distributions in a coastal fjord. *Marine Ecology Progress Series* (in press).
- Sato, M., J. K. Horne, S. L. Parker-Stetter, and J. E. Keister. 2015. Acoustic classification of coexisting taxa in a coastal ecosystem. *Fisheries Research* 172: 130-136.
- Sato, M., J. M. Klymak, E. Kunze, R. Dewey, and J. F. Dower. 2014. Turbulence and internal waves in Patricia Bay, Saanich Inlet, British Columbia. *Continental Shelf Research* 85: 153-167.
- Sato, M., J. Dower, E. Kunze, and R. Dewey. 2013. Second-order seasonal variability in diel vertical migration timing of euphausiids in a coastal inlet. *Marine Ecology Progress Series* 480: 39-56.
- Borstad, G., L. Brown, M. Sato, D. Lemon, R. Kerr, and P. Willis. 2010. Long zooplankton time series with high temporal and spatial resolution. *Oceans 2010 MTS/IEEE Seattle*, 9 pp. DOI: 10.1109/OCEANS.2010.5664585.
- Sato, M. and P.A. Jumars. 2008. Seasonal and vertical variations in emergence behaviors of *Neomysis americana*. *Limnology and Oceanography* 53: 1665-1677.
- Sato, M. and H. Yamazaki. 2008. Estimating micro-scale intermittency of fluorescence fields from conventional CTD measurements. *Journal of Marine Systems* 70: 240-247.
- Sato, M. and G.C. Jensen. 2005. Shell selection by hermit crab, *Pagurus hirtae* (McLaughlin & Jensen, 1996) (Decapoda, Anomura). *Crustaceana* 78: 755-760.

OTHER PUBLICATIONS

- Sato, M., K.J. Benoit-Bird, K. Fletcher, W. Waldorf, C. and Wingard. 2016. Split-beam calibration of the OOI echosounder. Report for the Ocean Observatories Initiative.

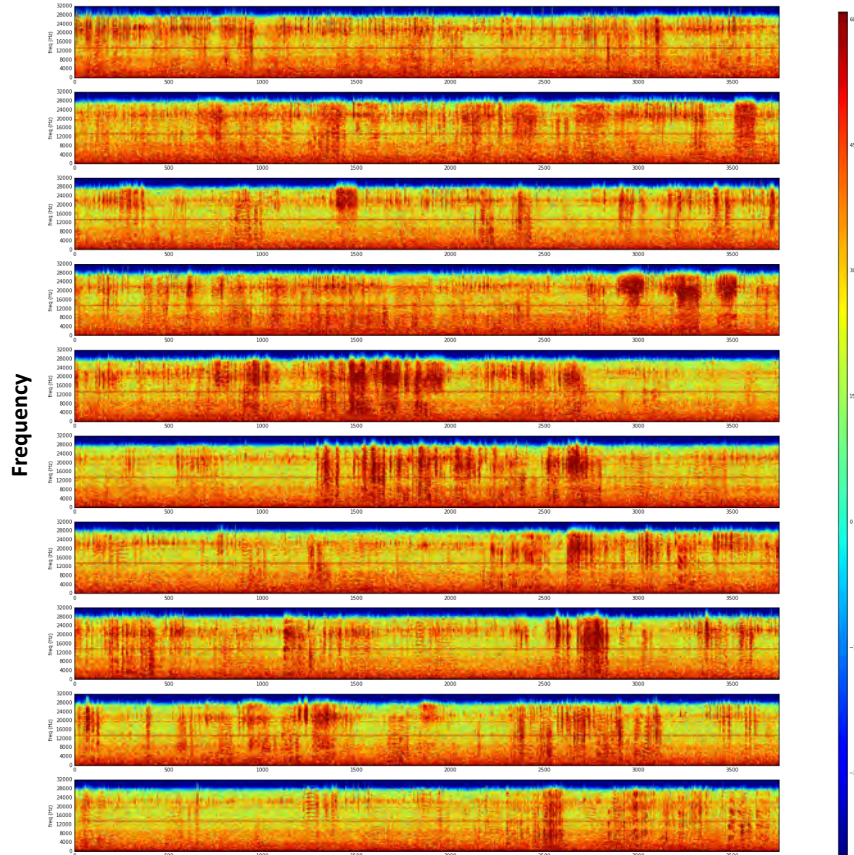
Information captured, noted and disseminated on the web page

Community Tools

Multiple paths for analyzing high density data

High density hydrophone data being analyzed by tools being developed by OOI team while simultaneously enabling external SMEs

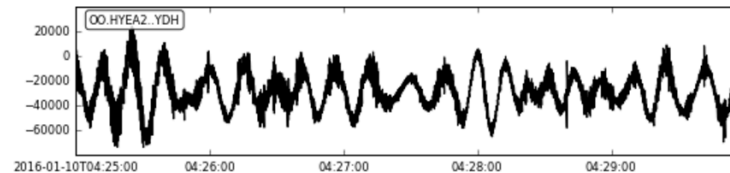
New tools to visualize data



Analysis tools for hydrophone data

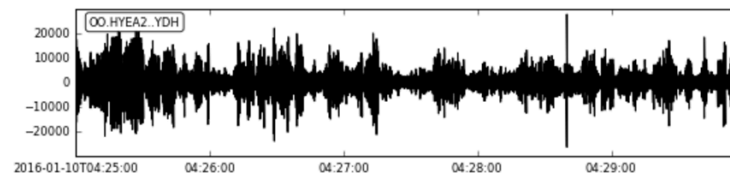
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2016-01-10T04:25:00 - 2016-01-10T04:29:998



```
filtered.plot()
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2016-01-10T04:25:00 - 2016-01-10T04:29:998



Upon request, full raw data sets delivered to external SMEs



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Publications

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- Ambient ocean noise
- Oceanographic instrumentation
- Near-surface geophysical imaging

Degrees:

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- M.S., University of California, San Diego
- Ph.D., UCSD, Scripps Institution of Oceanography

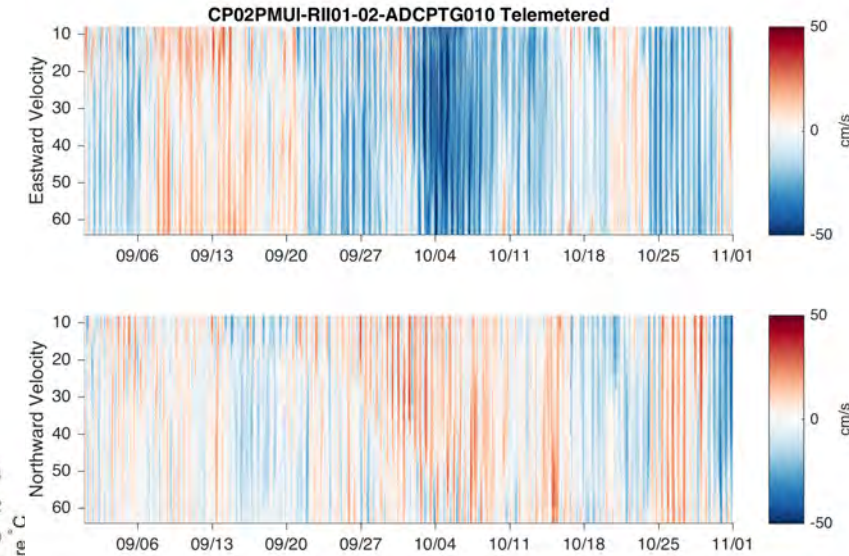
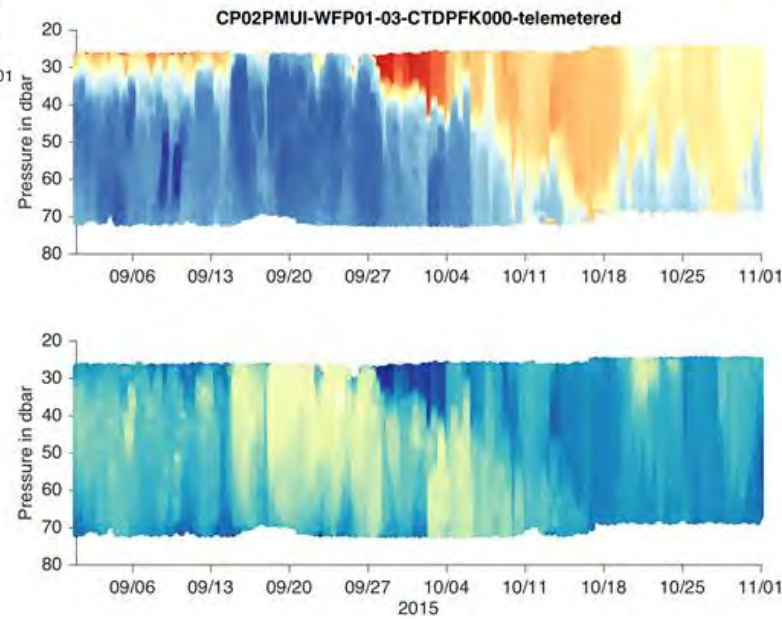
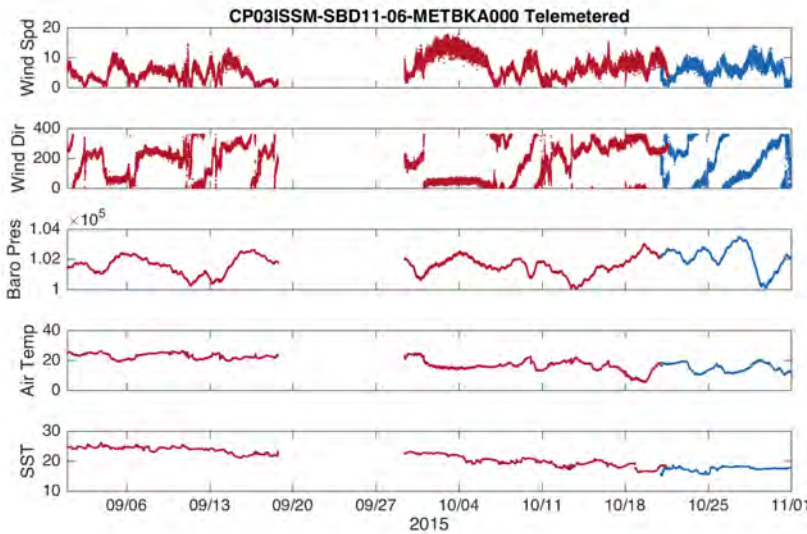
<http://cetus.ucsd.edu/>

Thanks to Peter Cable

Verifying events across

infrastructure

Storm induced events, high sustained
Winds, Temperature, Salinity
and the ADCP data



Questions?

For more information please check out our website:

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Data Portal - ooinet.oceanobservatories.org

Ask the Help Desk – help@oceanobservatories.org



Cabled Array User Engagement

Case Studies & Special Considerations

Deb Kelley
Director, OOI Cabled Array

