

OOI Activities and Initiatives led by Early Career Scientists

Group built from previous activities:

- Discipline Specific/Interdisciplinary Workshops, Summer/Fall 2018
- Early Career Workshop, May 2019



Slack channel:

<https://tinyurl.com/ooi-ecs>

Website:

<https://ooi-ecs.github.io/>

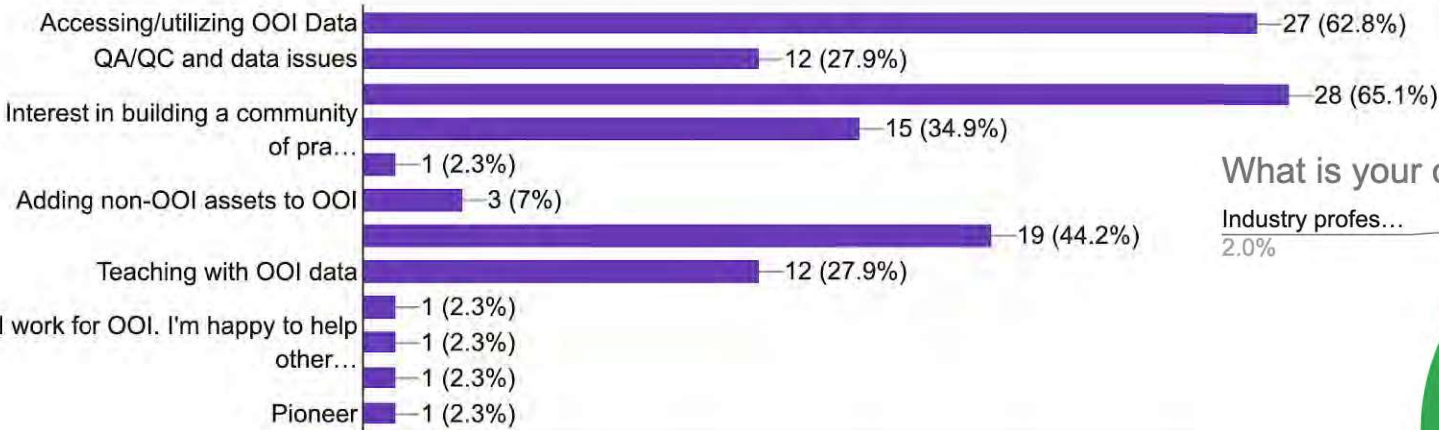
OOI Early Career Town Hall

Ocean Science Meeting, San Diego

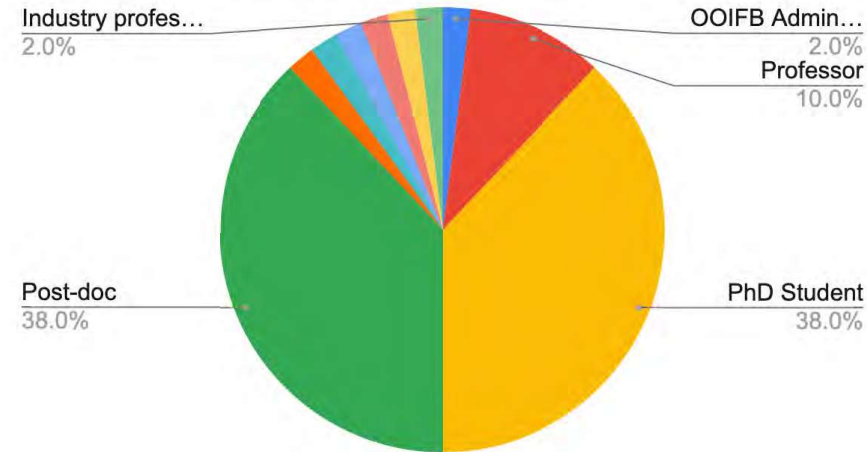


Is there any specific topic you'd like us to address?

43 responses

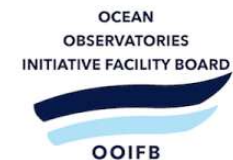


What is your career level?



OOI Early Career Town Hall

Ocean Science Meeting, San Diego



Is there any sp...
43 responses

Feedback from participants

Accessing/utilizing OOI Data — 27 (62.8%)

QA/QC and data issi

• Data access and QA/QC still a barrier to entry.

Interest in building a community — 15 (34.9%)

• of pra
Version control of data

Adding non-OOI assets to C

• Strong interest in future OOI data workshops and peer

Teaching with OOI data — 12 (27.9%)

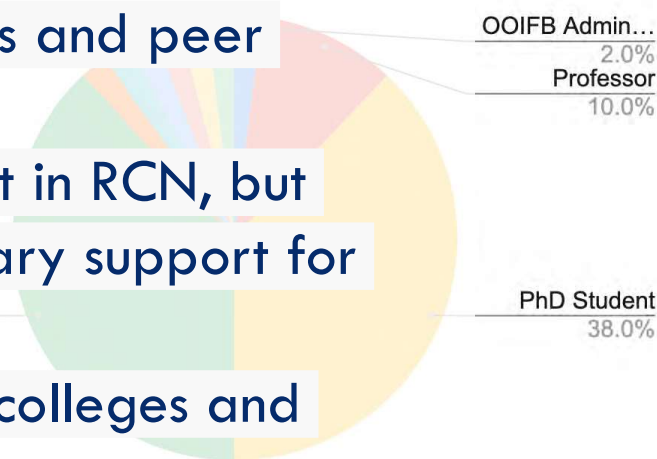
training.

I work for OOI. I'm happy to h

• other
How to build community of practice? (interest in RCN, but concerns about return on investment and salary support for ECS).

• Using data for teaching, e.g. for community colleges and minority serving institutions

What is your career level?



NSF funded project:

OOI Biogeochemical Sensor Data Workshop

(planning underway, virtual activities 2021, in person meeting 2022)

S. Clayton (ODU)

H. Palevsky (Boston College)

H. Benway (OCB, WHOI)

1. Develop **guidelines and best practices** for using OOI BBC sensor data.

2. Build a **community of practice**.

| Array | Platform | Oxygen Aanderaa | Oxygen SeaBird | Nitrate Satlantic SUNA/ISUS | pH Sunburst SAMI | pCO ₂ Sunburst SAMI | pCO ₂ Pro- Oceanus | Chlorophyll & backscatter WetLabs |
|-------------------|----------|--------------------|-------------------|-----------------------------------|------------------------|--------------------------------------|-------------------------------------|-----------------------------------------|
| Global | Fixed | 7 | 0 | 2 | 4 | 4 | 1 | 7 |
| | Profiler | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| | Gliders | 2 | 0 | 1 | 0 | 0 | 0 | 2 |
| Pioneer | Fixed | 6 | 0 | 3 | 6 | 3 | 3 | 3 |
| | Profiler | 0 | 7 | 0 | 0 | 0 | 0 | 7 |
| | Gliders | 2 | 0 | 2 | 0 | 0 | 0 | 2 |
| Endurance | Fixed | 12 | 0 | 6 | 12 | 8 | 4 | 8 |
| | Profiler | 6 | 2 | 5 | 2 | 2 | 0 | 7 |
| | Gliders | 2 | 0 | 0 | 0 | 0 | 0 | 2 |
| Cabled | Fixed | 4 | 0 | 0 | 2 | 0 | 0 | 2 |
| | Profiler | 2 | 2 | 2 | 2 | 2 | 0 | 4 |
| OOI program total | | 72 | 11 | 28 | 38 | 27 | 10 | 73 |



Research Products

K. Fogaren and C. Russoniello mentors for Ocean Data Labs Summer REU Program

Estimating groundwater recharge rates over the Contiguous United States
 Kendra Devereux¹ and Chris Russoniello²
¹The College of Wooster Department of Earth Sciences, Wooster, OH; ²West Virginia University Department of Geology and Geography, Morgantown, WV

Background
 Groundwater is an important source of potable water and is used for crop irrigation by millions of people in the United States, so it is vital to understand current and future rates of recharge to predict and manage groundwater availability. Understanding the spatial distribution of groundwater recharge at high resolution and how it is expected to change over time is especially important for water resource managers during the time of modern climate change. Predicting future recharge rates may help managers prepare for and mitigate the impacts of climate change on vulnerable populations that rely on groundwater. This study estimates future groundwater recharge rates across the Contiguous U.S. at 800 m resolution by subtracting evapotranspiration and quick flow from precipitation.

Precipitation (P)
 Effective precipitation (P) was calculated as precipitation (P_r) plus groundwater-sourced irrigation (I_r) for agriculture and golf courses:

$$P = P_r + I_r$$

Evapotranspiration (ET)
 Evapotranspiration was calculated using the regression equation developed by Reitz et al., 2017:

$$\frac{ET}{P} = \frac{\lambda \left(\frac{P_r}{P} \right)^2}{(85) \left(\frac{P_r}{P} \right)^2 + (6)}$$

Seasonal Variability of Phytoplankton Biomass on the Oregon Shelf
 Alondra German, University of Oregon
 Kristen Fogaren, Oregon State University

Abstract
 Water column profiles were collected using CTD casts on 10 research cruises on the N/Ocean from December 2017 to July 2019. These cruises sampled at an inner Shelf and a Mid Shelf site on the Newport Hydrographic line in 30 m and 60 m of water, respectively. Water column profiles from the collected CTD casts have been processed and compared using open-source data processing tools in Python. Variables such as temperature, salinity, density, and fluorescence are compared over different seasons at the two sites. Water column fluorescence was used as a proxy for phytoplankton biomass, and integration of fluorescence profiles provides insight

Results
 Winter Spring Summer Fall



Frontiers Paper in press
 led by ECS group members

Open Data, Collaborative Working Platforms, and Interdisciplinary Collaboration: Building an Early Career Scientist Community of Practice to Leverage Ocean Observatories Initiative Data to Address Critical Questions in Marine Science

OPEN ACCESS

Edited by:
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 Woods Hole Oceanographic
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Specialty section:
 This article was submitted to
 Ocean Observation,
 a section of the journal
 Frontiers in Marine Science

Ocean observing systems are well-recognized as platforms for long-term monitoring of near-shore and remote locations in the global ocean. High-quality observatory data is freely available and accessible to all members of the global oceanographic community—a democratization of data that is particularly useful for early career scientists (ECS), enabling ECS to conduct research independent of traditional funding models or access to laboratory and field equipment. The concurrent collection of distinct data types with relevance for oceanographic disciplines including physics, chemistry, biology, and geology yields a unique incubator for cutting-edge, timely,

Pending proposals

Whitaker & Fogaren, Collaborative Research project comparing environmental DNA samples from 2 cruises in context of environmental parameters from Oregon Line of the Coastal Endurance Array.

Xu, Bemis and Soule, Collaborative Research: From Magma to Vents: Monitoring Hydrothermal Fluid Temperature and Crustal Permeability in Relation to Magma Movement at Axial Seamount.

Submitted to NSF 6/2020

OOI Early Career Scientists

Ongoing Challenges

Funding/Resources

- Internal funding is constrained
- Some startups have been frozen
- OOI focused projects have suffered from competition from other funded activities

Community Status

- Activity has decreased
- Mechanisms for renewal are a challenge (e.g. RCN)