OOISE Project Education Workshop
April 26-28, 2019, Portland, ME

Purpose:
Discuss undergraduate educator experiences using OOI in the classroom: successes and challenges, identify case studies

Participants:
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High-level takeaways:

- There are success stories for using OOI data in the classroom, however, there are significant barriers for expanding usership outside of educators with direct and deep knowledge of OOI data (i.e., through personal research).
- **Major barrier(s): Identifying, downloading (reliability), and quality controlling data are too time consuming for educational use**: Professors don't have time (& in some cases expertise) to hunt through, QA/QC & process raw data, as well as build exercises for their students; students don't have enough time within class to download or access current data & do exercises
- **Benefit of implementing workshop recommendations*:** Making the data portal more accessible for education will also help scientists whose research/application needs do not require accessing raw data to do their own quality control.

*The group recognized that implementing their recommendations will likely require additional financial and personnel resources.

Recommendations:

1) **Data Delivery and QA/QC:**
    - Need an easy way for an educator/researcher to determine a data set's value before committing time to download, review and build curriculum around the data.
    - Consider moving OOI data into the cloud with associated computational capacity to mitigate current inefficiencies → OOI data delivery currently relies on a pre-cloud cyberinfrastructure that generates large unique data files for download from user requests through a non-standard interface, resulting in long and unreliable download and requiring local computing capacity for the user. Also results in data sets that are functionally unique making reproducibility difficult.
    - Provide curated datasets (version controlled & regularly updated) → datasets packaged to meet common oceanographic needs and to enable meaningful time series analysis, for example, all sensors of a particular point on a given mooring (e.g., all CTDs on a flanking mooring) or all sensors on a given profiler, and high level looks (hourly or daily data versus every second).
    - QA/QC must be performed at OOI level to lift barrier to use → a lot of the data that are fundamental to what we teach in intro classes are not at high enough quality (require too much work and expertise = missed opportunities). Can provide these data streams in addition to raw; need data that aren't just flagged but fixed and improved.

2) **Support:**
   - Need responsive help desk → Even for an independent study, students need to be guided by someone who has already mastered the interface. Some professors will be able to provide this deep mastery of OOI data, but not most.
   - Create a mechanism through which educators can directly engage with the OOI or with each other to collaborate on widgets, tools, and lesson plans → centralizing role(s) of education developer or community connector is more cost-effective than funding several external proposals

3) **Other:**
   - Develop 'second generation' widgets → the widgets available on the data explorations are good, but better to have widgets that allow for zooming and plotting and that pull or are regularly updated with current data.