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SIDEBAR SeaView: Bringing Together an Ocean of Data

By Karen Stocks, Steve Diggs, Christopher Olson, Anh Pham, Robert Arko, Adam Shepherd, and Danie Kinkade

The Ocean Observatories Initiative (OOI) supports a comprehensive information management system for data collected by OOI assets, providing access to a wealth of new information for scientists. But what of those wishing to access data from the region of an OOI research array that is not from OOI assets, perhaps to look at longer term trends from before the launch of OOI, or to build a larger regional context? Despite the excellent work of ocean data repositories, finding, accessing, understanding, and reformatting data for use in a desired visualization or analysis tool remains challenging, especially when data are held in multiple repositories.

SeaView (http://www.seaviewdata.org) is a US National Science Foundation (NSF) EarthCube effort that works with existing data repositories to create highly integrated thematic data collections in user-requested formats. The project has three related goals:

- **Supporting Scientists.** Driven by input from end-user workshops and interviews, SeaView has produced three thematic data collections, each available as Ocean Data View (ODV) collections and also via a THREDDS Data Server to support R, MATLAB, and Python users. One of these collections focuses on the Pioneer Array region.
- **Strengthening Repositories.** SeaView is helping the ocean data repositories to align their data and processes, to find errors and inconsistencies in the data, and to make ocean data more accessible and easily integrated.
- **Informing EarthCube.** EarthCube (https://www.earthcube.org) is an NSF-supported community effort to design and develop the cyberinfrastructure needed to support geosciences in the coming decade. SeaView's experience is informing EarthCube's data integration planning.

To date, SeaView has produced three thematic collections of deeply integrated data pulled from its partner repositories. The Pioneer Array region was selected to support scientists who are developing new research around the OOI array, and because data were available to support the kinds of research prioritized by scientists during SeaView outreach (e.g., biophysical interactions on regional scales). This collection (Figure 1) includes CTD casts from 60+ cruises (11 bottle-calibrated), Northeast Fisheries Science Center Bottom Trawl Survey data, ship tracks, cruise metadata, and links to additional data resources. It supplements the OOI asset data provided through OOI Net. Data sets were selected based on having data within the core Pioneer region of 39.0°N–40.7°N and 69.9°W–71.5°W. For most, the entire data set is provided, including points outside this box. The exception is the Bottom Trawl Survey that, due to its large size, is truncated at 37°N–43°N and 64°W–74°W to match the extent of the other data sets.

A second SeaView collection focuses on the Bermuda Atlantic Time-series Study (BATS) region, providing CTD data from BATS and Hydrostation S, plankton composition, primary productivity, sediment flux, and additional expedition data from the region, all mapped to Rolling Deck to Repository (R2R) cruises and ship tracks. This is the first release of some of these data to the scientific community. A third collection from the Hawaii Ocean Time-series (HOT) region includes CTD and Niskin bottle water sample data from >250 cruises, microbial data from MicrOBIS, and cruise metadata and ship tracks. A fourth collection from the Southern Ocean is in development.

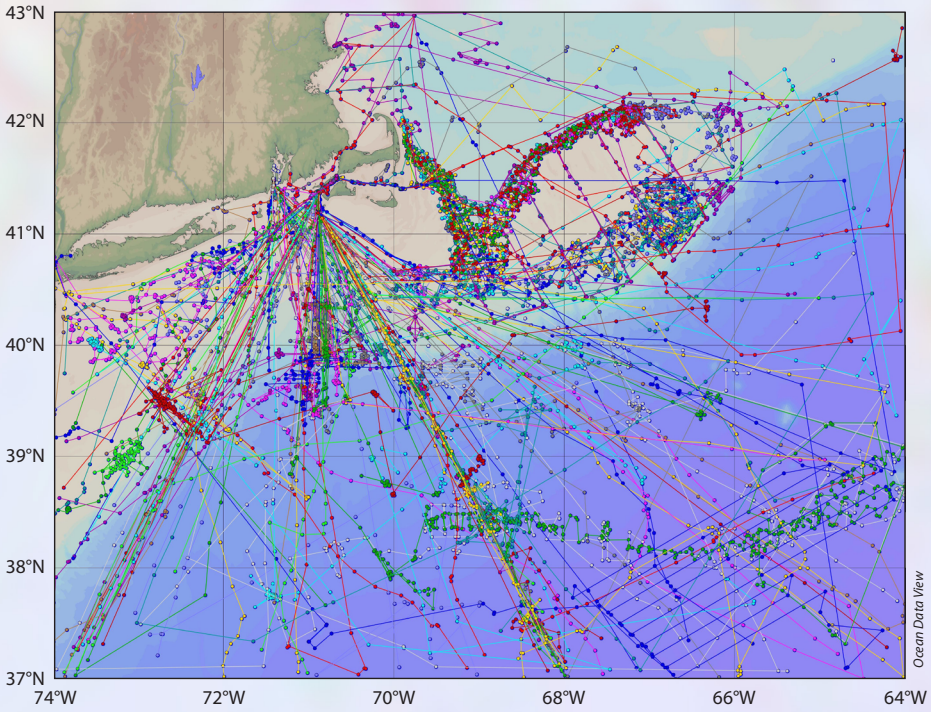

FIGURE 1. Data offered by SeaView's Pioneer region collection include the cruise tracks and station locations mapped here. *Map created in ODV (Schlitzer, R., Ocean Data View, http://odv.awi.de, 2016)*

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