OBSIC Operations Subcommittee
Spring/summer virtual meeting
6 July 2023
0900-1300 PDT; 1200-1600 EDT

Attendees
OBSIC OS: Jim Gaherty, Emilie Hooft, Helen Janiszewski, Ross Parnell-Turner, Susan Schwartz, Matt Wei
OBSIC Facility: Andrew Barclay, John Collins, Nicole Mantopoulos
NSF: Gail Christeson

Summary:
The OBSIC OS, including WHOI facility and NSF representatives, met over zoom to receive an update on facility activities, and discuss outstanding action items identified at the Fall 2022 meeting in Flagstaff. From the facility reports, it was clear that the WHOI group has been very productive since the Fall meeting on several fronts: (1) several successful field activities; (2) significant progress on refreshing the broadband pool by refurbishing and upgrading Cascadia instruments and building new instruments using funds from drop fees and the OCE/MGG/MSRI funding; (3) enhancements of laboratory instrument-testing procedures; and (4) continued development of data metrics and products. The committee is very supportive of continued efforts in all of these areas. Subsequent committee discussion then made progress on several open action items, including: initiating new mechanisms to introduce OBSIC to early career and other potential new OBS users, and working with WHOI on outreach; ideas for sharing useful materials for experiment development and planning (e.g. experiment-timing spreadsheets); and brainstorming possible speakers for EarthScope webinars emphasizing use of OBSIC data. We also received brief updates on action items still being addressed by the facility, and settled on a plan for a fall 2023 in-person meeting at WHOI.

Meeting Minutes
0900-1000 OBSIC facility operations update (Collins)
WHOI OBSIC executed four field expeditions between Oct 2022 - July 2023: Cayman deployment/recovery of 30 SIO SP instruments; recovery of 25 BB SIO OBS for the OHANA experiment; Deployment of 53 broadband instruments (mixed type, all WHOI) for the Galapagos experiment; and a small three-station SP deployment (WHOI instruments) near the New England Seamounts for a few months for a Navy-funded experiment. In addition, archiving of all data for the Queen Charlotte experiment was completed at the EarthScope DMC.

Upcoming experiments include several recoveries and deployments. Broadband deployment schedule is booked into the middle of 2025.

There were several new requests for short periods and broad band instruments for new proposals. One request was specifically for strong-motion instruments for a five-year period. There was one international request for broadband instruments (no US PIs) that is unlikely to be filled due to the high demand for these instruments in the US NSF community.

As of the meeting, the current mix of WHOI instruments stands at: 25 SP, 73 BB (mixed designs), and 10 rapid response. Coming on-line soon will be six additional BB instruments funded from drop-fee money, and 15 Abalones upgraded with new dataloggers. In addition, drop-fee money also has provided six Trillium 120 sensors that can be used instead of existing Trillium Compact (TC) sensors in existing OBS. When complete, these upgrades will increase total available BBs to 94, with a better mix of TC vs other broader-band sensors. The build of 35 new instruments funded by OCE/MGG via the MSRI program is also underway, with major parts (sensors, dataloggers) ordered.

The rapid-response fleet funded by USGS (10 Sercel MicrObs) were delivered and preliminary observations from an initial test deployment were presented. There have been some difficulties working with Sercel, and potentially some performance issues with the instruments. Evaluation is just beginning.

Finally, an overview was presented of WHOI's proposal to the MSRI program for a new active-source fleet. They proposed to design and build 120 SP OBS. The proposed plan includes a prototype development phase, development of a fleet management system, and at-sea infrastructure (the fleet will live on Langseth or her replacement). Proposed duration is three years, with the first year a design year to build a prototype. Significant decisions are still needed on sensor design, in particular avoiding the need to level accurately. The plan is to test both Sercel MEMS and 4.5Hz geophone systems. An additional decision is whether or not the sensor is internal or external to the primary OBS frame: internal makes operations simpler, but some users may argue that external placement is required for data quality.

1000-1100 OBSIC facility data metrics update (Barclay)
An update was provided on progress on the data metrics system being developed by OBSIC in response to recommendations of the facility mid-term review in 2021. Phase 1 of the system (completed summer/fall 2022) includes an Experiments page with all available experiments, a page for each experiment with an experiment map and performance summary and basic parameters (including orientations) of each station, and a page for each site with spectral characterization of each component. Phase 2 of the project is largely complete and has included updating several existing features based on user comments, and fully deploying the system on all long-duration (BB and SP) experiments archived under the OBSIC program. Currently the system is being extended to SP active-source evaluation. This process is more subjective than for passive data, but can still provide first-order evaluation of time windows when instruments are working or not. Phase 3 of the project is still underway, and will include tilt information, making the metrics available for download, and adding additional links to other project documents or web pages. In the longer term, WHOI hopes to add information on seafloor compliance, post-cruise diagnostics, and mechanisms for user-supplied input.

The subcommittee also received a summary of ongoing efforts to improve and standardize the sensor testing program used in the lab. The Gold standard for instrument testing is "qualification testing", which includes manual waveform inspection and sensor calibration relative to a Trillium 240, using a minimum of 3 days of recorded data. All BB and DPG sensors are qualification tested prior to each deployment. DPG testing includes calibration of both the time constant and gain. Each full system (sensor, datalogger, clock, power, cables, firmware) is tested prior to shipping, including using a Huddle test for coherence.

1115-1120 update on EarthScope ex officio seat (Gaherty)
The subcommittee approved a proposal to recommend that MSROC offer an ex officio committee seat to the EarthScope consortium, rather than a seat limited to OBSIC OS. That recommendation has been forwarded to MSROC.

1120-1300 Committee discussion on existing action items
Action Item: Recommendation from OBSIC renewal panel to develop early career/new users webinar on formulating effective OBSIC plans and budgets
The subcommittee agreed to take the lead on this topic, with participation by the facility. Some of these topics will be included in an early career event being hosted by MSROC prior to the fall AGU in San Francisco. Helen, Emilie, and Jim all agreed to be involved, and will follow up with webinar ideas after the UNOLS December meeting.

The facility is also undertaking several modifications to the webpage to improve information on past experiments and guidance for potential PI's, including example cruise planning resources, MGDS links, regularly updating the publications list by WHOI librarian, and more clarity on the algorithm for estimating experiment costs.

Action item (all): evaluate whether PI guidelines on website establish reasonable expectations
The committee will provide example spreadsheets for budgeting shiptime and other aspects of experiment planning, to be included on the webpage. Several other minor suggestions were made to improve the PI information, including adding an option for asking questions or providing comments, adding prompts to consult directly with OBSIC on specific topics, and including prompts to raise awareness on permitting processes, among others.

Action item (all): brainstorming session to nominate or reach out to potential speakers for EarthScope webinar.

Several suggestions were made for speakers from relatively recent OBSIC experiments, spanning active- and passive-source imaging, earthquake monitoring, and environmental applications. Gaherty will share the list with the webinar organizers at the EarthScope consortium.

Action item (Collins): provide revised cost estimates for committee discussion
WHOI proposes to (i) decrease the formula for processing & archiving (decrease time from 40 days to 15/20 days) and (ii) increase the drop-fees to account for inflation over the last 10 years.

Action item (Collins): Draft up a warning statement regarding cost stability and possible need for changes to informational budget.
WHOI will follow up at the next meeting.

Next meeting: last week of October, at Woods Hole.