

OBSIC Operations Subcommittee
Spring/summer virtual meeting
3 June 2024
0800-1000 PDT; 1100-1300 EDT

Attendees

OBSIC OS: Jim Gaherty, Anne Bécel, 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 2023 meeting in Woods Hole. 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/MSRI funding; (3) progress in bringing the rapid-response fleet into operation; and (4) plans for the remainder of the year. The committee is very supportive of continued efforts in all of these areas. Subsequent committee discussion focused on options for addressing the decay and limitations of the existing short-period (active source) fleet, improving engagement with SZ4D, opportunities and challenges for future community meetings, and membership rotations. These discussions will continue at the fall 2024 in-person meeting in Seattle.

Meeting Minutes:

NSF update (Gail)

Budget still under final negotiation, but probably about 10% cut for OCE. Mostly comes out of new awards, because of commitments to facilities and continuing awards. That level applies to all the science programs across relevant parts of NSF. There is concern that this reduced level might become the new baseline for future. NSF is focusing on core programs to get through the reduction.

OBSIC Facility Update: Operations, Data (John, Andrew)

Cruises since Nov 2023

Puerto Rico: Joint MCS and OBS experiment. Involves land stations, WHOI OBS, GeoMAR deep OBS (over 8000 m). Lost two SIO OBS (5469 m and 5019 m).

Tonga-Samoa: 29 SIO BBOBS, deployed for 18 mo.

USGS Skilak Lake, AK: 2 OBS (160-180 m depth), 8 onshore stations. Full WHOI BB package (TC and DPG). Investigating turbidites in lakes – how shaking of sediments occurs and is controlled by lake geometry.

Data submissions

Data submissions to the DMC were made for Blake Ridge, Axial, and Puerto Rico experiments, and are all up to date. All went through Navy review, which had some issues. Blake was mostly submitted within 90 days target, but missing 8 stations. Navy had a backlog, not clear why they were slow. Challenging because of lack of details within Navy personnel communications when they have issues. For PR, the process proceeded normally but was a bit slow (approximately 4 mo for completion). For Axial, the submission was significantly delayed, taking over 6 months to get back. Maybe a bit of WHOI problem – bailers had old data as well as the new data, with different sample rates, which created confusion for Navy personnel. Data were sent back to WHOI for trimming and resubmission as dayfiles. Hopefully this procedure will be utilized going forward.

New instrument requests and preliminary budgets:

Requests for three (3) short-period (SP) experiments. Experiments requiring up to 52 instruments could go in 2025, those needing 65 would need to wait until 2026. One requesting 154 instruments would require partnership. There were three BB OBS requests, all requiring a modest number of instruments.

Progress on the MSRI build (35 BB sensors):

All will be available in 2025. Frames nearly all received, and remainder will arrive soon. WHOI is waiting on one final acquisition board design/build. They have been testing the seismometer release system in the WHOI tank, as well as the anchor design.

Instrument Upgrades

Acquired one new Abalone frame, and upgraded all Abalone dataloggers and battery houses, peripherals. Will use 15 on EPIC; designed a mechanism to stack to save ship space.

Acquired 5 T120s to upgrade sensors on WHOI TC systems.

Acquired 5 new Horizons for the Angler systems, rather than wait for SIO T240s.

Clarification on Nanometrics sensor types: T120 OBS is a Trillium 120 sensor in Nanometrics titanium OBS housing. Horizon 120 is the same sensor from Nanometrics, but in a land form that is then put by WHOI in their own leveling system and housing, which is significantly cheaper. Horizon 120's have much lower self noise than existing Trillium Compacts (TC) in the surface-wave band. WHOI is acquiring as many as possible, including 12 for the upcoming Naif and Eilon deployments

Update on Rapid Response (RR) capability

Did RR exercise with USGS – dry run on mobilizing the fleet for an event. Mobilized onto a small boat out of WHOI. Tested full deployment including timing and offload. The Sercel fleet is now working well – Sercel personnel visited and help iron out problems and get the fleet in good shape, and the overall assessment is much more positive than after the initial tests. Now discussing staging locations, possibly Alaska (shipping to Alaska is currently ~2 months). Exploring possibility for air shipping.

Cruise schedule for 2024

Skilak Lake is complete. Summer/Fall include Galapagos recovery, Axial recovery, and the Chain Transform active experiment and passive deployment.

Cruise Schedule for 2025 (tentative)

Appears to be a very busy year: Naif BB deployment, Eilon BB deployment, Skilak lake, Wei BB recovery (by July), Chain Transform recover (Nov/Dec), Shuck ENFAIM active source. Based on OBS needs, WHOI could do Wiens and Abers (both 20 BB OBS) in 2025, but no ships available in the western Pacific. If Abers can arrange for the Tangaroa (NZ) that experiment could still go.

Other activities

Participating in FDSN OBS Standards Initiative – lead by Wayne Crawford.

Outreach – Hannah and Nicole very active in promoting OBSIC activities on Instagram

Webpage – creating a Google Map page of OBSIC experiments. Will be interactive, modeled on PASSCAL page, with metadata drawn directly from DMC. Being finalized before release.

Committee Discussion Topics

State of SP fleet

SIO losing instruments more rapidly – how to deal with this? The reality is both SIO and WHOI SP fleets are glass-ball based, and are becoming increasingly fragile with age.

One option is to buy Sercel off-the-shelf SP instruments. They are quite cheap, approximately half the cost of self-designed instruments. They are not well tested at long offset, but at least one previous user (Satish Singh of IPG Paris) says they are good.

Other option is to write and submit an OTIC proposal for up to \$1.25M, to build and test two or three designs. Deadline for proposals is in February, and WHOI did not have time this year to get that proposal in.

SZ4D engagement

Discussion on development to provide SZ4D's desires for longevity and data delivery of BB and pressure systems have been constructive, with good possibilities emerging. However, SZ4D still not clearly sure of what they want. John also is not directly involved with Operations committee, and a direct nomination of him to that committee could be helpful.

Community meetings

Given the current state of NSF budgets, there is likely to be little support for community meetings in the near future. There was interest in a one-day add-on to the MSROC annual meeting at AGU in December, focused on international partnerships and opportunities: unfortunately funding for the extra day is not available, and that meeting will not happen this year, although international participants have been invited to the MSROC open session. OBSIC OS will continue to brainstorm on alternative mechanisms for community meetings, including possible sponsorship opportunities, and add-ons to existing meetings.

Committee Rotations

The committee thanks Ross Parnell-Turner and Emilie Hooft for their service and contributions. The committee discussed a number of possible nominees to join OBSIC OS, with a focus on expertise in active-source OBS experiments, and mixed BB/SP passive instrumentation for seismicity and other similar problems. Following consultation with NSF, Brandon Shuck (LSU) and Wenyuan Fan (UCSD) will be joining OBSIC as new members.

Next meeting: Oct 31, Nov 1, hosted by UNOLS at the University of Washington, Seattle.