

# Ocean-Bottom Seismograph Instrumentation Center (OBSIC)

- OBSIC provides Ocean-Bottom Seismographic sensors and support for community.
- Created by NSF in 1999, the current OBSIC facility was established at Woods Hole Oceanographic Institution (WHOI) in August 2018, and is now in the third year of a second 5-year Cooperative Agreement between WHOI and NSF-OCE.
- Provides and operates OBS to support NSF-sponsored investigators, and to investigators at other research or educational institutions with government, private, or industry funding.
- Experiment support: Instruments, expendables, gear mobilization, technicians at sea
- Data Support: Archiving of experiment seismic data in appropriate US national data center(s) (currently EarthScope Data Management Center, soon to be US National Geophysical Facility Data Center); development of data quality metrics and tools; secondary data products

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## Available Instrumentation

### Broad-band Ocean Bottom Seismographs

- ~100 units\* with various broad-band seismic sensors and differential pressure
- Seafloor duration up to 18 months, water depths up to 6 km
- Designed for full spectrum of passive-source seismic analyses (source, structure)

### Short-period Ocean Bottom Seismographs

- ~25 units\* with narrow-band (4.5 Hz) geophones
- Seafloor duration up to 12 months, water depths up to 6 km
- Designed and managed primarily for short-duration active-source imaging
- Also useful for seismicity and other passive analyses requiring only short-period recording

### USGS Rapid Response Fleet

- 10 Sercel MicrOBS narrow-band units with MEMS sensors
- managed and maintained by OBSIC, rapid-response deployment controlled by USGS

\*Additional Broadband and Short-period instruments available from SIO via subaward



**Angler OBS**



**Short-Period  
OBS**

- Community Governance for OBSIC Program
  - Sub-Committee of the Marine Seismic Research Operations Committee (MSROC)
- Members:
  - Jim Gaherty, Chair (Northern Arizona University) (term ends 2025)
  - Anne Bécel (LDEO)
  - Wenyuan Fan (SIO, UCSD)
  - Josh Russell (Syracuse University)\*
  - Emily Roland (Western Washington University)
  - Brandon Shuck (LSU)
  - Matt Wei (URI)
- Nominal three-year terms
- Meets twice a year (one virtual, one in person) plus calls as needed
- Terms of Reference at: <https://www.unols.org/committee/ocean-bottom-seismometer-instrument-center-operations-sub-committee-obsic-os>
- Operates with guidance and support from NSF (Gail Christesen, OBSIC Program Manager)

\*MSROC liason

### **Primary areas of OBSIC-OS focus:**

- Maintaining guidelines for the use of the equipment and services of the OBSIC facility;
- Supporting facility assessment for experiment planning and operations, and data management and quality;
- Promoting and supporting community outreach and engagement within the marine and terrestrial seismic communities as well as the broader scientific community;
- Monitoring the current and future health of the facility, including procurement and management of resources for equipment testing, maintenance, development, and recapitalization;
- Advocating for technical capacity building and training of future personnel including engineers;
- Facilitating cooperation with the larger (non-OBS) marine-seismic community through interaction with MSROC;
- Supporting open distribution, discoverability, and usability of OBSIC data and data products through a national data archive;
- Facilitating coordination and cooperation with the research community to support a broad range of objectives, including global-scale and shoreline-crossing studies;
- Developing and responding to new initiatives to enhance the effectiveness of the OBSIC program.

- Jan 2023: Published white paper to support enhancements to short-period active-source instrumentation. ***Remains a critical issue for broader US marine-seismic community.***
- Oct 2024: 1.5-day in-person meeting at University of Washington
  - Discussed ideas/options for replacing and enhancing active-source fleet, including cost and logistical advantages of a dedicated modern SPOBS pool that stays on the Langseth
  - Continued discussion of community enhancement activities in the face of limited NSF funding; webinars, focused meetings (e.g. SSA), meeting add-ons (AGU, SAGE-GAGE)
  - Discussed need and opportunities for OBSIC engagement with community initiatives, include SZ4D, COSZO, and CRESCENT
  - Discussion on possibilities to deploy APG sensors with broadband sensors
  - Advanced OBS metrics such as tilt and compliance corrections – GitHub page?
- Aug 2025: 2 hour zoom meeting
  - Update on facility activities (field, lab, data, USGS rapid response 12/05/24 Mw 7 Mendocino)
  - Committee action items: new members, short-period fleet, community engagement