OBSIP

OCEAN BOTTOM SEISMOGRAPH INSTRUMENT POOL

Completing Earth's geophysics puzzle.

A National Science Foundation funded facility.

The Ocean Bottom Seismograph Instrument Pool - “OBSIP”

...is a national instrument facility that provides ocean bottom seismometers to support research and further our understanding of marine geology, seismology and geodynamics.

OBSIP is funded by the National Science Foundation and is comprised of a Management Office and three Institutional Instrument Contributors - Lamont Doherty Earth Observatory, Scripps Institution of Oceanography, and Woods Hole Oceanographic Institution, each of whom contribute both instruments and technical support to the pool.

Ocean bottom seismometers, available through OBSIP, include both broadband instruments for long-term deployment of passive experiments, and short period instruments that are used for active seismic refraction studies in coordination with vessels towing airgun arrays.

OBSIP works closely with the University National Oceanographic Laboratory System (UNOLS) in scheduling cruises to support OBSIP experiments.

There are currently 93 short period and 160 broadband instruments in the OBSIP pool.

Photo courtesy of Heather Relyea

Seismic Science

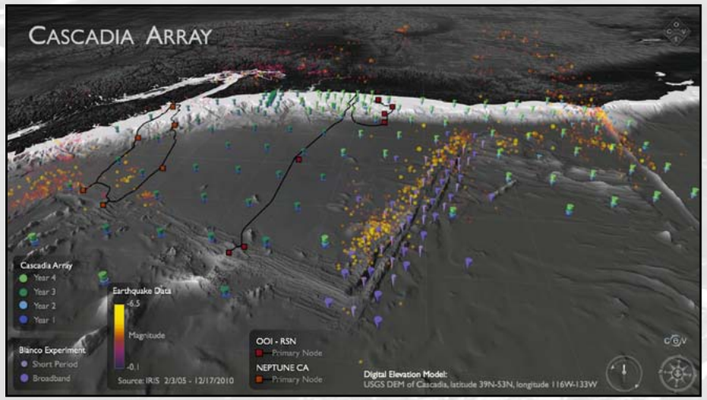
The Cascadia Initiative

The Cascadia Intitiative is an onshore/offshore seismic and geodetic experiment deployed in the Pacific Northwest to study questions ranging from megathrust earthquakes to volcanic arc structure to the formation, deformation and hydra- tion of the Juan De Fuca and Gorda plates.

As part of the 2009 Stimulus or ARRA (American Recovery and Reinvestment Act) spending, NSF's Earth Sciences (EAR) and Ocean Sciences (OCE) divisions funded the construction of an amphibious array of 60 Ocean Bottom Seismometers by the three IIC's for OBSIP.

Twenty of the Lamont OBSs will be installed in trawl-resistant enclosures and will be available for deployments in water depths extending from the shelf down to 1,000 m. These 20 OBSs will be deployed via the ship's wire and recovered using a Remotely-Operated Vehicle.

The OBSs will be utilized in four one-year deployments. These experiments will provide an offshore extension of the EarthScope Transportable Array (~70 km spacing) as well as 3 dense experiments focused on either imaging various properties of the thrust interface and forearc or recording local seismicity.



The Marianas Project

In early 2012, an experiment lead by Washington University in Saint Louis and Woods-Hole Oceanographic Institution, Missouri deployed both broadband and short period ocean-bottom seismometers in an area located along the Mariana Trench in the western Pacific Ocean. The experiment will image the distribution of serpentinite in the upper mantle and explore the relationships between serpentinization and seismicity in a subduction zone.

The R/V Langseth was employed to shoot airguns over the short period OBS array of the active seismic portion of the experiment.

Photo courtesy of Doug Wiens

National Science Foundation

NSF is the primary funding source for OBSIP and for the majority of ocean bottom geophysics basic research conducted by America's colleges and universities.

A Key Partner...

The research vessel Marcus G. Langseth, operated by Lamont Doherty Earth Observatory, plays a key role in executing active source OBSIP experiments. The Langseth is the only US research vessel specifically equipped to perform advanced multichannel seismic studies. OBSIP short period instruments are often deployed in conjunction with the Langseth to allow scientists to record refraction responses from its active source airgun array.

Photo courtesy of L-DEO Office of Marine Operations & Sandbox Studios, San Francisco

Photo courtesy of Heather Relyea

Incorporated Research Institutions for Seismology

OBSIP Management Office

IRIS is a consortium of over 100 US universities dedicated to the operation of science facilities for the acquisition, management, and distribution of seismological data.

Lamont-Doherty Earth Observatory
COLUMBIA UNIVERSITY | EARTH INSTITUTE

Institutional Instrument Contributor

Lamont-Doherty Earth Obervatory scientists study the planet from its deepest interior to the outer reaches of its atmosphere providing a rational basis for the difficult choices facing humanity.

Scripps Institution of Oceanography
UC San Diego

Institutional Instrument Contributor

Scripps Institution of Oceanography seeks, teaches, and communicates scientific understanding of the oceans, atmosphere, Earth, and other planets for the benefit of society and the environment.

Woods Hole Oceanographic Institution

Institutional Instrument Contributor

WHOI scientists and engineers are committed to understanding all facets of the ocean as well as its complex connections with Earth's atmosphere, land, ice, seafloor, and life—including humanity.

CONTACT

OBSIP Management Office
Incorporated Research Institutions for Seismology
Brent Evers
Project Manager
brent.evers@iris.edu
202-682-2220 x 156
www.obsip.org

Photo courtesy of Brent Evers