OBSIP Overview

Instrumentation Centers:
Lamont-Doherty Earth Observatory  
  A. Barclay, J. Gaherty, M. Tolstoy
Scripps Institution of Oceanography  
  J. Babcock, A. Harding, J. Orcutt
Woods Hole Oceanographic Institution  
  J. Collins, K. Peal, B. Wooding

IRIS OBSIP Oversight Committee:
Don Forsyth, Chair, Brown  
Anne Trehu, OSU  
David Okaya, USC  
Doug Wiens, Washington U  
Monica Kohler, Caltech  
Harm van Avendonk, UTAustin  
Will Wilcock, U Washington

OBSIP Management Office (OMO)
IRIS  
Brent Evers, Project Manager  
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Funded by the NSF, Marine Geology and Geophysics Program
Instrumentation

Broad Band instruments

- 3-component seismometer spanning 0.01-10 Hz or better
- Wide-band differential pressure gauge (DPG) and/or hydrophone
- High-resolution (24 bit) A/D seismograph
- 1+ year recording at 40-50 Hz

Short Period instruments

- Vertical-component 2-4 Hz seismometer
- Hydrophone
- 24 bit A/D seismograph
- 60+ day recording at 200 Hz or better

More info at http://www.obsip.org
Ocean Bottom Seismology in the U.S.

• Dawn of time - 1999: Multiple independent OBS groups. Non-affiliated users collaborate with OBS operators in experiments on ad hoc basis. No common design or archiving of data.

• ~ 1990 31 ONR OBSs developed and built at WHOI and SIO. Serve as informal pool available for use by broader community.

• 1995-1996 MELT Experiment uses 51 OBSs from 4 groups in first long-term, large-scale deployment – coordination through workshops and funded by NSF’s RIDGE program.

• 1997 NSF-sponsored Workshop on *The Future of Ocean Bottom Seismology* develops plan to increase number and availability of seafloor seismic instruments following PASSCAL model.
Ocean Bottom Seismology in the U.S.

• OBSIP is charged by NSF with providing state-of-the-art ocean-bottom seismic instrumentation and at-sea technical assistance for the collection of marine seismic data by the entire U.S. scientific community.
• Members are WHOI, SIO, and LDEO. To date, more than 50 separate field programs supported, involving > 90 research cruises.
• OBSIP is funded via Cooperative Agreements with WHOI, SIO, and LDEO. Members receive modest annual, non-project specific, base support to maintain/up upgrade their OBS fleet; all other support is tied to funded field programs or instrument development proposals.
• 2011/2012 OBSIP Management Office is established to relieve instrument centers of management duties and provide enhanced coordination with NSF and user community. IRIS wins competition to run OMO.
As of April 2009, OBSIP (WHOI, SIO, LDEO) has supported 37 separate field program, involving 71 research cruises. Red stars show locations of passive deployments; orange circles show locations of active-source experiments.
Notes: The map shows a selection of past (yellow), current (green) and planned (blue) OBSIP deployments. Clicking on an area will link to additional information.
Cascadia Initiative

A multi-year, community project using the Amphibious array, including land stations and trawl-protected seismographs.
Challenges and Limitations

• Free-fall design
  – No control on seismometer placement (poor coupling)
  – Susceptible to bottom currents (tilt noise) and trawling
    • Poor performance of horizontal components
    • Long-duration deployments limited to depths greater than 1000 m, even greater in heavy fishing regions
  – High risk with many potential failure points
• Glass flotation – maximum depth ~6000 m
• No GPS timing – clock drift rates of 2-5 ms/day
• No SOH, no intermediate data recovery
Scheduling

• Fill out instrument-request form (obsip.org) prior to proposal submittal – submit to OMO office
  – OBSIP provides cost-estimate to be included as supplemental information in proposal (**not** in budget)

• Scheduled in order of official funding
  – In conjunction with ship scheduling

• Non-NSF projects allowed, but have lower priority in scheduling

More info at http://www.obsip.org
Old Example:

Similar schedules are developed for both broadband and short period instruments, typically looking ahead two or three years.
March 2010  • Marine Community: R/V Langseth workshop. Incline Village, NV.


Sept 2010  • Marine Community: OBS workshop. Snowbird, UT.

Sept 2010  • Internal IRIS memo: Pros & Cons of taking on OMO.

Dec 2010  • IRIS: proposal submission.

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**OBSIP Management Office (OMO)**

**Program Solicitation**

NSF 10-570

Replaces Document(s):
NSF 09-613

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National Science Foundation
Directorate for Geosciences
Division of Ocean Sciences

Full Proposal Deadline(s) (due by 5 p.m. proposer’s local time):

December 01, 2010
Preparation for Transition (2011)

March 2011  • **NSF-OCE**: awards OMO to IRIS.

March 2011  • **IRIS**: begins Cooperative Agreement negotiations with NSF. Several iterations and changes in budgets during 2011.

March 2011  • **IRIS**: Woodward, Woolley visits to IICs.

Sept 2011  • **OBSIP Oversight Committee**: re-formed, first meeting. 

   Forsyth (ch), Christeson, Dunn, Okaya, Trehu, Toomey, Wiens.

Sept 2011  • **IRIS**: Project Manager advertised. Interviews Nov. 2011.

Jan 2012  • **IRIS**: OMO Project Manager starts (Brent Evers).

Feb 2012 -- Cooperative Agreement with NSF starts.

Early Summer 2012 -- IIC submit subaward proposals to OMO; OBSIP-OC reviews.

Aug 2012 -- Initial transition subawards to IICs.

latter 2012 -- repeat solicitation process for 2013 subawards (full year).

June 2012  • **IRIS workshop new-users workshop.**
Relationship between IICs and OMO

OBSIP Communications Protocol
Relational of OMO within IRIS

OBS structure similar to but not identical to PASSCAL, GSN. OMO taps into Business-Data Services and E&O.
Report on the Experiments With Portable Ocean Bottom Seismographs Workshop

September 26–28, 2010 | Snowbird Resort, Utah
OMO Duties

1.0
OBSIP Management Office

1.1
OBSIP Management
- 1.1.1 Monitor performance
- 1.1.2 Prepare proposals, reports, plans
- 1.1.3 Support oversight committee

1.2
Operations
- 1.2.1 Schedule experiments
- 1.2.2 Support data quality and availability

1.3
Business Administration
- 1.3.1 Administer subawards
- 1.3.2 Monitor and report financial performance
- 1.3.3 Collect drop fees

1.4
OBS Community Activities
- 1.4.1 Administer OBSIP website
- 1.4.2 Conduct workshops
- 1.4.3 Represent OBSIP