



Project Title: Monterey Ocean Bottom Broadband seismometer

This project has already been approved in the MARS installation permits (MBNMS-2002-039, CCC permit # E-05-007, and CSLC PRC W 25980/R12903). A brief description is included here for reference only. Please see permit application materials submitted previously for additional information.

Project Abstract: This project will connect the existing Monterey Ocean Bottom Broadband (MOBB) seismometer to the MARS cable. MOBB and the MARS science node will be just less than 3 km apart. This will require the use of an extension cable with Science Instrument Interface Modules (SIIMs) to connect the two sites.

Methods:

The MOBB observatory, on Smooth Ridge at a depth of 1000 m, has been operating autonomously with its own battery power and data storage since April of 2002. The instrument suite at the MOBB site comprises a buried Guralp CMG-1T broadband seismometer, a Falmouth 2D-ACM Current Meter sitting on the sea floor, and a Scripps Differential Pressure Gauge (DPG) contained in the electronics module.

The MOBB electronics, with the exception of the buried Guralp seismometer and the freestanding current meter, are housed in a removable module that is protected by an 1181 kg steel trawl-resistant bottom mount. The module contains the data logger, a 9.6 kWh battery, and a DPG. To service the autonomous system, the electronics module is removed by the ROV *Ventana* every four months, and then replaced with an identical electronics module containing fresh batteries and empty data disks.

To transition to a cabled system, an extension cable will be laid across Smooth Ridge for a distance of 3 km to connect the MOBB seismometer to the MARS node. The extension cable is 0.35 inches in diameter. The current plan is to connect MOBB to MARS in February 2008.

The cabled observatory system developed in this project will serve for other users interested in connecting sensors to the MARS cable, provide a prototype for interfaces for the Ocean Observatory Initiative (OOI) Cabled observatory and coastal observatories, and more generally, contribute to advance the capabilities of ocean floor observatories at the international scale. The data acquired during this project will be openly available in real-time and for future analysis by the research community through the Northern California Earthquake Data Center (NCEDC).