

Proposed Test of LDEO Horizontal Pressure Gradient Instrument

Neil Armstrong Science Verification Cruise, June 2016

Rationale: Test of the LDEO horizontal-pressure gradient instrument, to determine whether the seafloor tilting due to ocean waves can be detected and corrected for in the seismometer data. This instrument was tested for a few hours off Bandon, OR in October 2015, and although this proved the instrument design, a longer test is required to explore the concept.

Instrumentation. LDEO trawl-resistant shield with two seismometers, one absolute pressure gauge, and a HPG sensor. Entire package has a footprint of ~9'X10', and weighs ~1500 lb in air.

If we use a heave-compensating winch, it'll be a MASH2K from the East Coast Winch Pool at WHOI, which has a footprint of ~6'X4'.

Deployment: Lowering to the seafloor on a (preferably) heave-compensating winch. In this case, we'd lower the instrument using a sinking line that would then be laid out away from the instrument to a weight and a buoy ('rescue line'). Optimum water depth is **70 m**, minimum useful recording duration is 3 days. Estimate 2 h onsite for prep; 1 h for deployment.

Recovery: The rescue line would be used to recover the instrument. If it is missing, the TRM is equipped with a popup-float recovery system. Estimate 1 h for recovery.

LDEO Personnel: We'd likely send 4-5 people to WHOI to set up the instrument, and would like to have 2-3 people participating in the cruise.

Hazmat: Small lithium-metal battery pack, housed in pressure case.

