

Looking Beyond the Beach: The Importance and Challenges of Seafloor Observations.

Maya Tolstoy

Lamont-Doherty Earth Observatory of Columbia University

Two-thirds of Earth's surface is covered with water, including many of the most dangerous and active plate boundaries. It is therefore critically important to be able to make long-term seafloor measurements to understand planetary geophysical processes. Advances in battery and storage capabilities, led in part by the cell phone revolution, have resulted in significant advances in the capabilities of seafloor geophysical instruments in recent years. For instance ocean bottom seismographs (OBSs) can now be routinely deployed for a year or more with high sample rate continuous recording. Large-scale community experiments such as the Cascadia Experiment have demonstrated the ability to think big in terms of experiment goals and geographic coverage, and have extended Earthscope style deployments to the seafloor. However, to fully integrate with on-shore experiments and to be most useful in hazard analysis, the ultimate goal is real-time geophysical data from the seafloor. A skeleton capability for this now exists off Cascadia in the form of the Ocean Observatory Initiative Cabled Array. Challenges and opportunities for seafloor geophysical measurements in both real-time and annual recovery modes will be discussed.



2012 Cascadia Experiment Recovery Cruise – TN283– LDEO Trawl Resistant Mount OBS about to be recovered. Trawl fishing as well as biofouling is a challenge for geophysical instruments in shallow waters.