

Cascadia Initiative deployment update – August 30th, 2012

The fourth cruise of 2012 to deploy ocean bottom seismographs (OBS) for the Cascadia Initiative community experiment was conducted on the *R/V Oceanus* cruise OC1208A Leg 4, August 22nd to 30th. This portion of the Year-2 OBS array covers the southern Juan de Fuca (JdF) plate, the Gorda plate, across the Gorda ridge axis onto the Pacific plate, and provides a reference array of broadband seismometers widely distributed across the Gorda and JdF plates. Data from this deployment will be available to the community after the instruments are recovered in the summer of 2013.

Twenty-five OBS from the Woods Hole Oceanographic Institution (WHOI) were deployed at 24 sites under good weather conditions. Fifteen OBS carry intermediate-period seismometers, and were built for the Amphibious Array with funding from the American Recovery and Reinvestment Act (ARRA). These instruments were deployed in a ~70 km spaced grid covering the Gorda plate onto the Pacific plate and the southern Juan de Fuca plate. Ten OBS, funded by the W.M. Keck Foundation, carry broadband seismometers and strong-motion accelerometers. All 25 OBS carry a Differential Pressure Gauge (DPG). Because of their broadband response, 7 of the Keck OBS were widely distributed across the Gorda and Juan de Fuca (JdF) plates to provide a reference array. These sites will be occupied during each of the four years of the Cascadia Initiative. Because of the strong-motion accelerometer, the three remaining Keck OBS were placed near the Mendocino Triple Junction.

The cruise plan was to deploy 25 stations in a counter-clockwise order. The deployment sites were shifted modestly relative to their planned locations to ensure that the OBS were deployed on relatively flat terrain. According to the priorities established by the Cascadia Initiative Expedition Team, when communications with the OBS failed at one site, a second OBS was deployed there and no OBS was deployed at site J26. The attached Table and Figure show the planned and deployed seafloor sites.

This cruise was considerably shorter than planned because the *R/V Oceanus* had to go into dry dock for unexpected repairs. Consequently we only performed a handful of acoustic surveys at times when the WHOI group was resting. In addition, only the ARRA OBS and one Keck were tracked to the seafloor, for the remaining Keck OBS we simply confirmed that the instrument sank to about 300 m depth. Three CTD casts were performed to accurately characterize the water velocity structure where acoustic surveys were made and will be used to invert for final seafloor locations.

A complete cruise report, additional information about the community experiment, and details of ongoing planning for 2013 and beyond is available of the Cascadia Initiative Expedition Team website: <http://cascadia.uoregon.edu/CIET>

Prepared by the Cascadia Initiative Expedition Team.