2007 Fall Meeting
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Cite abstracts as **Author(s) (2007), Title, *Eos Trans. AGU, 88*(52), Fall Meet. Suppl., Abstract xxxxx-xx**

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HR: 1340h
AN: **V33B-1383**
TI: Characterizing Offshore Earthquakes at Hawaii Recorded by the First PLUME Temporary Ocean-Bottom Seismometer Network
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AB: In 2005-2006 and again in 2006-2007, the Plume-Lithosphere Undersea Melt Experiment (PLUME) deployed successive networks of ocean-bottom seismometers (OBSs) around the Hawaiian Islands. The experiment consisted of a 2-year deployment of broadband land seismometers and two year-long deployments of broadband OBSs, the first with a station spacing of about 75 km centered on the island of Hawaii and the second with larger spacing of about 200 km. PLUME's major objective was to determine the mantle structure beneath the Hawaiian hotspot and swell; however, these unique data are also potentially valuable to the study of small offshore earthquakes. The Hawaiian Islands are marked by significant and continuous seismic activity. In addition to the thousands of microearthquakes that are detected and located by the USGS Hawaiian Volcano Observatory (HVO) seismic network each year, Hawaii also experiences occasional large, damaging earthquakes. Several of these large events occurred in Hawaii's offshore region (e.g., the 1871 Lanai earthquake, the 1938 Maui earthquake, and the 2006 Kiholo Bay earthquake), and such events pose a significant seismic hazard for the state. We assess whether data from the first PLUME OBS deployment and land data can improve the detection and location of offshore microearthquakes around Hawaii. We are particularly interested in whether the PLUME data set may reveal offshore fault zones not detected to date by the HVO seismic network. Initial tests indicate that many offshore earthquakes already in the HVO catalog produce detectable P and S waves on the PLUME three- component seismometers, and earthquake detection rates are improved when seismograms are high-pass filtered above about 5 Hz to reduce the seismic noise from wind-generated waves. Differential pressure gauge data yield far fewer detectable events (with the exception of a swarm of Loihi earthquakes in December 2005) and appear less promising for improving our knowledge of offshore seismicity patterns.
DE: 7230 Seismicity and tectonics (1207, 1217, 1240, 1242)
DE: 8137 Hotspots, large igneous provinces, and flood basalt volcanism
SC: Volcanology, Geochemistry, Petrology [V]
MN: 2007 Fall Meeting

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