



Analysis of deep-ocean volcanic activity using hydroacoustic techniques

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In 1995, NOAA-PMEL built and deployed one of the world's first deep-ocean hydrophones that was capable of recording continuous, low-frequency (10 Hz – 1 kHz), broadband ambient ocean-acoustic data for 2-3 years. We have used our novel deep-sea passive acoustic sensor to detect and study a wide range of marine geophysical and biological phenomena throughout the world's oceans. Hydroacoustic signals propagating through the water-column can often be detected at much greater distances than seismic waves propagating through the solid Earth. In this talk, I will present an overview of our research on the use of hydroacoustic techniques to quantify deep ocean earthquake and volcanic activity. Highlights include 1) the detection of magma intrusion and seafloor eruption at Axial Seamount (northeast Pacific ocean), 2) explosion records of the deepest volcanic eruption directly observed (West Mata volcano, western equatorial Pacific), and 3) the 2017 shallow water eruption of Bogoslof volcano in the Aleutian Islands.