2018 Geodynamics Seminar

Subseafloor Microbial Communities at Axial Seamount

Julie Huber

Woods Hole Oceanographic Institution

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Abstract

At deep-sea hydrothermal vents, chemolithoautotrophic microbial communities thrive across geochemical gradients above, at, and below the seafloor. In this study, we examined the activity of autotrophs both spatially and temporally across geochemically different diffuse fluids from Axial Seamount, an active submarine volcano in the NE Pacific Ocean. Results revealed that chemolithoautotrophic microbial community structure, function, and activity are spatially dynamic, vent-specific, and shaped by both fluid chemistry and physical characteristics of individual vents. Sites maintain microbial communities and specific populations over time, but with spatially distinct taxonomic, metabolic potential, and gene transcription profiles. Experiments were also carried out on the seafloor with a novel *in situ* incubator unit to provide further insights to primary productivity in the subseafloor, and comparisons between seafloor and ship experiments will be presented. This study highlights the connection between microbial metabolic processes, fluid chemistry, and microbial population dynamics at and below the seafloor and increases understanding of the role of chemolithoautotrophic vent communities in deep ocean biogeochemical cycles.

For more information about the 2018 Geodynamics Seminar Series please go to:
http://www.whoi.edu/main/2018-geodynamics-program