

Geobiological coupling between hydrothermal vent fluids and symbiotic primary producers at spreading axes

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For the final 2 years of the SPP 1144 we propose to conclude our research on one of the major groups of primary producers at hydrothermal vents on the Mid-Atlantic Ridge (MAR), endosymbiotic bacteria of invertebrate hosts. In close collaboration with geologists and geochemists, we will investigate the influence of different geological settings and gradients in vent fluids on symbiotic diversity, biomass, and activity. This research will contribute to one of the core-disciplinary questions of the SPP 1144: How do biological and hydrothermal processes interact? Another core question of the SPP 1144 is: How do ridge morphology and ocean currents control the dispersal of vent organisms along the ridge? We propose to investigate this question by examining the biogeography of symbionts from mussels and shrimp. This will reveal if geological and hydrological barriers between the northern and southern MAR vent sites cause spatial isolation of symbiotic bacteria. The proposed research will contribute to a better understanding of the coupling between geological and biological processes at slow-spreading ridge systems.