Geophysical Research Abstracts
Vol. 16, EGU2014-15834, 2014
EGU General Assembly 2014


# Propidium Monoazide-based Method for Identifying Phylogenetic Association of Necromass Near Hydrothermal Systems

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Black Smoker hydrothermal systems are geologically driven systems located near subduction zones and spreading centers associated with plate margins. The high temperature and low pH of fluids that are often associated with basalt-hosted hydrothermal systems select for unique microbial communities primarily comprised of prokaryotes capable of S and Fe cycling. High temperature fluids, where temperatures exceed 300˚C, are likely to have a lethal effect on transient deep water planktonic communities and, over long temporal scales, may influence the molecular composition of pelleted necromass aggregates near the chimney system. We have developed a method for discriminative sequencing permitting intra vs. extracellular 16S rDNA sequencing to reveal community differences between biologically-relevant and necromass-associated DNA. This method has only recently been applied to marine environments and, here, we propose its use as relevant tool for studying the molecular ecology of high temperature hydrothermal systems, as physical drivers of massive transient community die offs and associated detrital 16S rDNA community shifts. Ultimately, we aim to understand the fraction of 16S rDNA communities that do not represent living taxa, or the information-containing fraction of total necromass pool, to better frame ecological hypotheses regarding environmental biogeochemical cycling in hydrothermal system environments.