

High- and low-temperature alteration of ultramafic oceanic crust: Mineralogy, geochemistry and isotope characteristics of hydrothermal systems at the Mid Atlantic Ridge between 14° and 15°N

Responsible: K.S. Lackschewitz, C.W. Devey and A. Eisenhauer, IFM-GEOMAR Leibniz-Institut für Meereswissenschaft, Kiel

Hydrothermal deposits may be created as a result of either ultramafic rock-seawater or basalt-seawater reactions. Sampling the Mid Atlantic Ridge between 14°45'N and 15°05'N during the Meteor cruise M60/3 has indicated that ultramafic rocks make up a significant proportion of the upper oceanic crust in this area. The ultramafic rocks from the Logatchev hydrothermal field show a remarkable variety of rock types and intensities of alteration, ranging from relatively pristine ultramafic rocks (e.g. orthopyroxenite, peridotite) to lizardite-chrysotile-magnetite or talc-lizardite-chrysotile-magnetite-hematite assemblages. The partial to complete serpentinization of the rocks indicates that reaction of hydrothermal fluids with upper mantle lithologies is a common process. Here we report on the mineralogy of the sampled bulk and clay samples and discuss initial alteration processes investigated during the