The genetic relationship between hydrothermal systems (precipitates, vent fluids, and vent fauna) and their ultramafic host rocks along the slow-spreading Mid-Atlantic Ridge between 14°45‘N and 15°05‘N is the focus of this cooperative project. The main scientific question is whether hydrothermal circulation and leaching has taken place in ultramafic rocks or in basaltic or gabbroic lithologies that are also present in the area. The petrology of the primary mantle material, the degree of partial melting, and the mineralogical and chemical composition of both primary and secondary sulfides are keys to understand the role of the source rocks in providing elements to the hydrothermal system (“source rock control”). The determination of fingerprints of the source rock (including PGEs and Os isotopes) on the mineralogical, geochemical, and isotopic composition of the hydrothermal precipitates at the seafloor will add to this goal and also provide vital information for the studies of cooperating research groups that focus on fluid chemistry, evolution of the hydrothermal systems over time, and microbial processes at minerals surfaces. The samples for this project will be collected during cruise M60/3 of R/V Meteor scheduled for 15.01.-13.02.2004.