

**Antrag an die Deutsche Forschungsgemeinschaft (DFG)  
auf Gewährung einer Sachbeihilfe im Schwerpunktprogramm 1144 "Vom Mantel  
zum Ozean: Energie-, Stoff- und Lebenszyklen an Spreizungsachsen"**

***EMSEIS Joint ElectroMagnetic and SEISmological Experiment***

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Passive elektromagnetische und seismologische Messungen zur Erkundung der tiefen Schmelzstruktur unter dem mittelatlantischen Rücken.

Passive electromagnetic and seismological measurements to study the deep melt structure beneath the Mid-Atlantic Ridge (MAR).

***Summary***

Midocean spreading axes and divergent oceanic plate boundaries play a major geological, geochemical and biological role for the evolution of the oceanic crust and the oceanic system in general, as outlined in the call for proposals of the SPP1144. Our research proposal has the goal to resolve regions of an anomalously low shear velocity, seismic attenuation and electrical resistivity beneath the Mid-Atlantic spreading axis within the study region of the SPP1144. Such regions are indicative for the presence of partial melt with varying melt connectivity. We propose a joint marine electromagnetic and seismological experiment along the same profiles. The joint analysis and interpretation of such data will allow us to resolve the two- and three-dimensional structure of regions containing partial melt and melt lenses within the crust or at the crust-mantle boundary. Our study will thus provide elementary information on where and how fluids, magma and heat is transported from the mantle to the seafloor and spreading axis.

We plan the seafloor experiment for the period beginning with autumn 2005 (second period of SPP1144) and in cooperation with other groups of the SPP1144. However, the development, preparation and calibration of own measuring systems has to start already now, as well as the development and improvement of our analysis techniques.