

**Investigations on population genetics and the influence of hydrothermal activity on bivalve growth at MAR hydrothermal vents**

C. Borowski, Max Planck Institute of Marine Microbiology, Bremen

This proposal aims at studying within SPP 1144 the influence of hydrothermal vent activity on growth patterns of *Bathymodiolus* and the influence of discontinuous ridge morphology on the equatorial Mid-Atlantic Ridge (MAR) on the biogeography of hydrothermal vent invertebrates. In close collaboration with geophysicists and geochemists we will investigate how mussel shells preserve changes of water temperature as variations of growth increments and isotopic composition and thereby act as bioarchives which record data of environmental change that can be used for the dating of hydrothermal events. By comparing these processes at the tectonically inactive and stable hydrothermal vent system Logatchev and the volcanically affected southern MAR (SMAR) vents, this study contributes to the core question of SPP 1144: How do biological and hydrothermal processes interact? Another focus of this study is to elucidate the role of the large equatorial fracture zones as biogeographic conduits or barriers for gene flow across or along the MAR. This will be investigated by analysing phylogenetic marker genes of dominant macrofauna species. The proposed study will contribute to a better understanding of geo-bio-coupling processes at the MAR.