



Pumice from volcanoes: Its possible role for the iron and silica budget of the surface ocean and diatom growth

C. Teschner (1,2), N. Olgun (1,2), S. Duggen (1), P. Croot (2), and H. Dietze (2)

(1) IFM-GEOMAR, Dynamics of the Ocean Floor, Kiel, Germany , (2) IFM-GEOMAR, Marine Biogeochemistry, Kiel, Germany

Volcanic eruptions can inject pumice in major amounts into the oceans. Pumice can swim in seawater as pumice rafts or single pieces for years and contain relatively high concentrations of iron and silica, mainly found in seawater-reactive, metastable glass. Yet it is unknown to what extent pumice can release iron and silica, important for diatom growth, to surface ocean water. We examined the release of iron and silica of pumice from Central American volcanoes in contact with natural seawater by means of Cathodic Stripping Voltammetry and standard photometry. Based on our data we focus on evaluating how pumice from volcanoes in Central America may have contributed to the budget of the key nutrients iron and silica in the Central Pacific Ocean. Our study also provides new constraints on the importance of pumice for the marine biogeochemical iron- and silica-cycle.