

Analysis of dissolved organic matter in hydrothermal fluids from hydrothermal vents at the Suiyo seamount

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We tried to search biomarkers in microbial origin in hot waters from hydrothermal vents. Hot water samples were collected from three natural hydrothermal vents (Tmax. = 310, 221, and 480C) and a drilled core (APSK04, Tmax. = 210C) located in a seafloor hydrothermal system developed on atop of the Suiyo Seamount, Izu-Ogasawara island-arc, western Pacific, using a ROV Hakuyo 2000, during the Shinsei-Maru cruise in July-August 2001 and the Shinryu-Maru cruise in August 2002. Hot water passed through a ODS disk (Empore Extraction Disk 90mmf) with a pre-filter (pore size 1mm), and dissolved organic matter was adsorbed on the ODS disk. The adsorbed organic matter was eluted with toluene using Soxhlet extractor for 12h. After the eluents were concentrated, they were analyzed by GCMS. Native sulfur (S8) is characteristic for high temperature samples, and PAHs found in the sample of natural vent near APSK05 suggests pyrolysis of organic matter. Some hydrocarbons that show basepeak at M/Z = 69 were found in hot water from APSK04, and these compounds may indicate the existence of alkylcyclopentanes that are characteristic for some thermoacidophilic bacteria.