

MIS005-10

Room: Function Room B

Time: May 24 11:30-11:45

Origin of methane in marginal geofluids

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Methane concentration higher than 1 mmol/kg is a remarkable geochemical feature of hydrothermal fluids venting at the Okinawa Trough. Although the high methane concentration was considered to result from thermal decomposition of sedimentary organic matter (Ishibashi et al., 1995, Chem. Geol.), we investigated hydrothermal fluids using multiple tracers, δ -13C, δ -D, [H₂], and C1/C2 ratio, and proposed a novel model that describes microbial methanogenesis at fluid recharge zone as a dominant methane source for the venting hydrothermal fluids (Kawagucci et al. in prep.). This model has a potential to discuss the origin of methane not only for hydrothermal systems, but also for any methane-entrained geofluid systems at marginal region because fluid recharges possibly occur at organic matter-enriched land (Toki et al., 2004, EPSL). Discussion about the origin of methane at the Okinawa Trough hydrothermal systems and our model will be presented.

Keywords: methane, origin of methane, geofluids