Observations of the behavior of hydrothermal plume by dye tracer release experiment at Southern EPR

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We performed the dye tracer experiment to observe the physical property of hydrothermal plume. We cannot trace the trajectory of plume far from vent by using the natural tracers because we don't know where of vent area the contents of plume come from. Accordingly, we injected the dye tracer into plume artificially to observe the behavior of plume. During injection, we observed the concentration of dye tracer by in situ fluorometer with CTDT attached with ALVIN in plume at the height of 5m, 10m, 20m, 30m, 40m and 50m above the vent. We went up in plume with monitoring dye concentration, and we confirmed that the plume risen up at the height of 128m within about 40 minutes. Heat and Chemical flux can be estimated by the numerical model simulation using these observational data.