Tidal variation of seafloor hydrothermal activity detected by ZABUTON heat flow meter

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A thermal-blanket heat flow meter (ZABUTON) was developed in order to monitor a time variation of heat flow at sediment-free hydrotermal areas. We carried out few-days-long observations at hydrothermal sites of southern EPR, southwestern Okinawa Trough and Suiyo-Seamount caldera. All data showed semi-diurnal temperature variations. They are related to the movement of hot fluid induced by tidal modulations. At Okinawa Trough site, the lower thermistor of ZABUTON showed a temperature variation of +/-1.5degC, suggesting larger temperature oscillation below sea floor.