

Initial Results of IODP NanTroSEIZE Expedition 380: Borehole Observatory Installation at the Frontal Thrust of the Nankai Prism

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During January-February of 2018, IODP Expedition 380 successfully installed a Long-Term Borehole Monitoring System (LTBMS) at NanTroSEIZE Site C0006 at the toe of the Nankai accretionary prism offshore the Kii Peninsula. This installation was extended a transect with two similar LTBM Systems previously deployed from D/V Chikyu, one in Hole C0010A upslope in the prism from Site C0006 and the other in Hole C0002G farther landward in the Kumano Basin. The three-LTBMS transect will provide unprecedented resolution of stress and strain variations across 34 km of the leading edge of the over-riding plate at the Nankai subduction system. The C0006 LTBMS was installed in a new hole (C0006G) that was drilled mid-way between two deeper holes (C0006A and -B), both logged with MWD or LWD during IODP Exp. 314 in 2007. Expedition 380 cased Hole C0006G to 391 mbsf, drilled it to 495 mbsf, and then installed the LTBMS to 457 mbsf. The LTBMS sensor configuration included strainmeter and seismometer/tiltmeter packages cemented in place at 410-425 mbsf; a thermistor cable with five sensors at 237-412 mbsf and three pressure sampling screens, one each at 453.5 mbsf below the cement, at 425 mbsf at the strainmeter within cement, and at seafloor. Shortly after Exp 380, the LTBMS was scheduled to be connected in March 2018 to the DONET network for real-time streaming of all data (<https://join-web.jamstec.go.jp/join-portal/en/>). We will report on the initial results and data enabled by this connection.

Keywords: IODP, Nankai Trough, borehole observatory