

Deep Drilling at the Nankai Trough: IODP NanTroSEIZE Expedition 358 Summary and First Results

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IODP Expedition 358 was carried out beginning October 10, 2018 and scheduled to continue until March 31, 2019. The primary objective was to sample and make geophysical measurements in and around the megasplay fault/plate boundary fault at Site C0002, by extending the riser borehole (Hole C0002P) established during previous Integrated Ocean Drilling Program NanTroSEIZE expeditions. After Expedition 348 in 2014, Hole C0002P was left suspended, with steel casing in place holding the borehole open to 2922 meters below the sea floor (mbsf). The primary seismic reflector target interpreted as the main plate boundary fault zone was estimated to lie at a little more than 5000 mbsf, necessitating a plan to re-enter that hole and then add about 2000 meters of new depth drilling to reach and cross it.

Drilling commenced with a sidetracking operation to establish Hole C0002Q, which was advanced to 3263 mbsf, but operational difficulties precluded going any deeper. Two more attempts were made to advance the riser hole over many weeks, but ultimately did not result in further progress toward the objective. At the time of this writing, coring operations are ongoing at the site at a depth of about 2900 mbsf, in deformed and steeply-dipping mid-Miocene age inner accretionary wedge rocks. There are plans to end riser operations at Site C0002 at the end of February 2019 despite not reaching the primary target, and instead commence drilling at a new site to target the frontal thrust portion of the plate boundary near previous IODP Site C0006. First results from the expedition will be reviewed in this presentation, and a preliminary assessment of the scientific outcomes will be made.

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