

## ACORK off Muroto: Tidal response and overpressure observed from borehole pore pressure monitoring in the Nankai Trough

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Pore pressure and hydrological properties play key roles in governing coupling and slip behavior along the subducting plate interface. During the KR12-17 cruise, five dives were completed using ROV KAIKO onboard R/V KAIREI during Nov. 4-8, 2012, to retrieve pore pressure data and interstitial fluid samples from ACORKs at ODP Holes 808I and 1173B situated landward and seaward of the deformation front in the Nankai Trough off Cape Muroto. Since their deployment during ODP Leg196 in 2001, we now have over 11-year-long continuous pressure records. Data from most monitoring depths show systematic variations in average pressure, and in formation pressure response to seafloor tidal loading.

In 2005 and 2009, we observed significant decrease in the amplitudes of pressure response to semi-diurnal tidal loading at Hole 808I. We suggest that this is due to the reduction of hydraulic diffusivity around ACORK casing.

Venting of fluid from ACORK mouth at Hole 808I (up to 1 L/min.), coming from the decollement, has been continuing for long, but was terminated by closing the valve in 2011. As opposed to our expectation the pressure decreased instantaneously by a few kPa, followed by a slow pressure recovery. Termination of the flow could also have terminated the supply of advective heat, resulting in the thermal contraction of the casing and thus in the pressure decrease. This inference is supported by the 2-D cylindrical numerical simulation.

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