

Special Call for IODP Exp 358:

This call is for **Geochemists** and **Sedimentologists/Lithostratigraphers**.

For Geochemists, we seek scientists with specific expertise in researching elemental tracers from deep geological formations and processes from riser drilling mud gases.

We are also seeking scientists with expertise in sedimentology and lithostratigraphy,

Deadline to apply: June 8, 2018

The NanTroSEIZE Complex Drilling Project is now reaching its penultimate phase: drilling and sampling the Plate Boundary at ~5200 mbsf, believed to be capable of seismogenic slip and locking, and where coseismic slip occurred during the 1944 Tonankai earthquake.

Primary objectives include continuous logging while drilling (LWD) data, analysis of mud gas and cuttings, and a regime of downhole measurements and tests. There is a limited coring program for the expected hanging wall and footwall of the plate boundary itself.

One special line of investigation concerns mud gas analysis via the onboard SciGas drilling mud gas monitoring system, which allows determination of hydrocarbons (methane, ethane, propane, *i*- and *n*-butane, propane), stable carbon isotopic composition of methane ($\delta^{13}\text{C}_{\text{CH}_4}$), and non-hydrocarbon (e.g., amongst others, O₂, N₂, Ar, H₂, Xe, He) gases (Hammerschmidt, et al., 2014).

IODP Exp 358 is targeting a subduction plate boundary fault system and its wall rocks in a seismogenic depth for the first time in science. Ultimately, this expedition will test hypotheses and the current understanding of the mechanics and geological/geochemical evolution of these kind of megathrust faults.

Who should apply:

- A. Geochemical specialists with expertise in isotopic tracer and elemental analysis as proxies for deep geological processes, and experts in the field of deep-seated fluid-rock interaction.
- B. Sedimentologists and Lithostratigraphers with expertise in deep-water marine clastic and hemipelagic sediments.

The scientists will work closely with downhole logging data, structural geology and lithology to more fully characterize the plate boundary fault system.

Reference:

Sebastian B Hammerschmidt, S.B., Wiersberg, T., Heuer, V.B., Wend, J., Erzinger, J., and Kopf, A. Real-time drilling mud gas monitoring for qualitative evaluation of hydrocarbon gas composition during deep sea drilling in the Nankai Trough Kumano Basin. *Geochemical Transactions* 2014**15**:15 doi.org/10.1186/s12932-014-0015-8