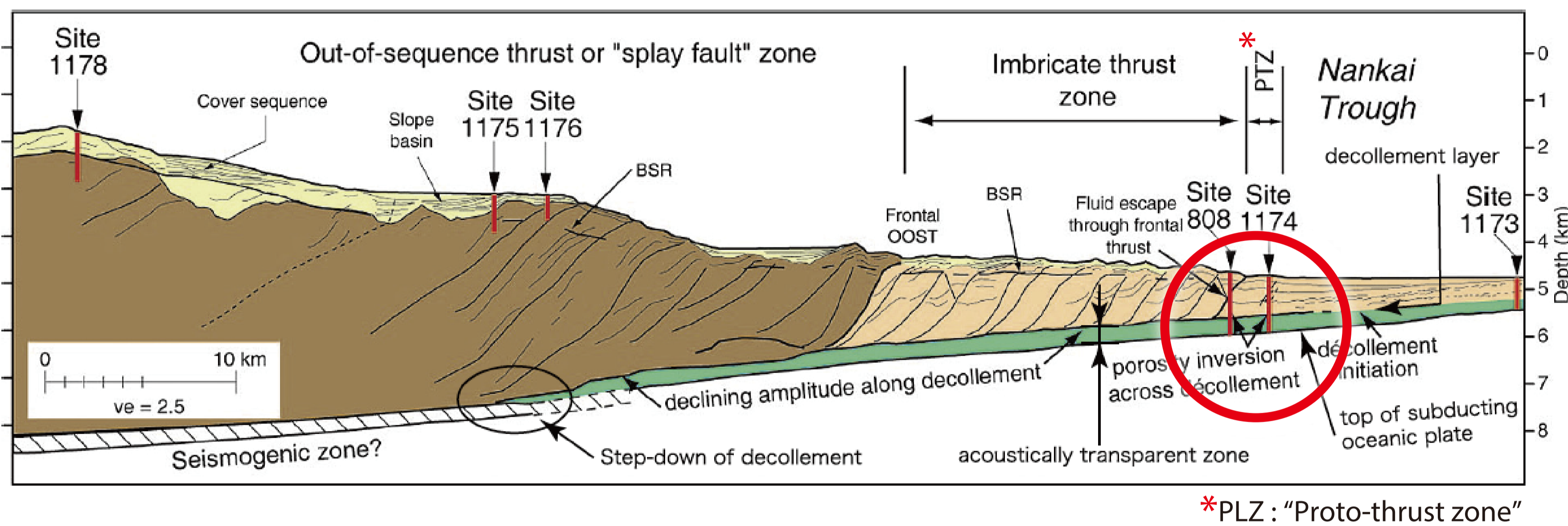
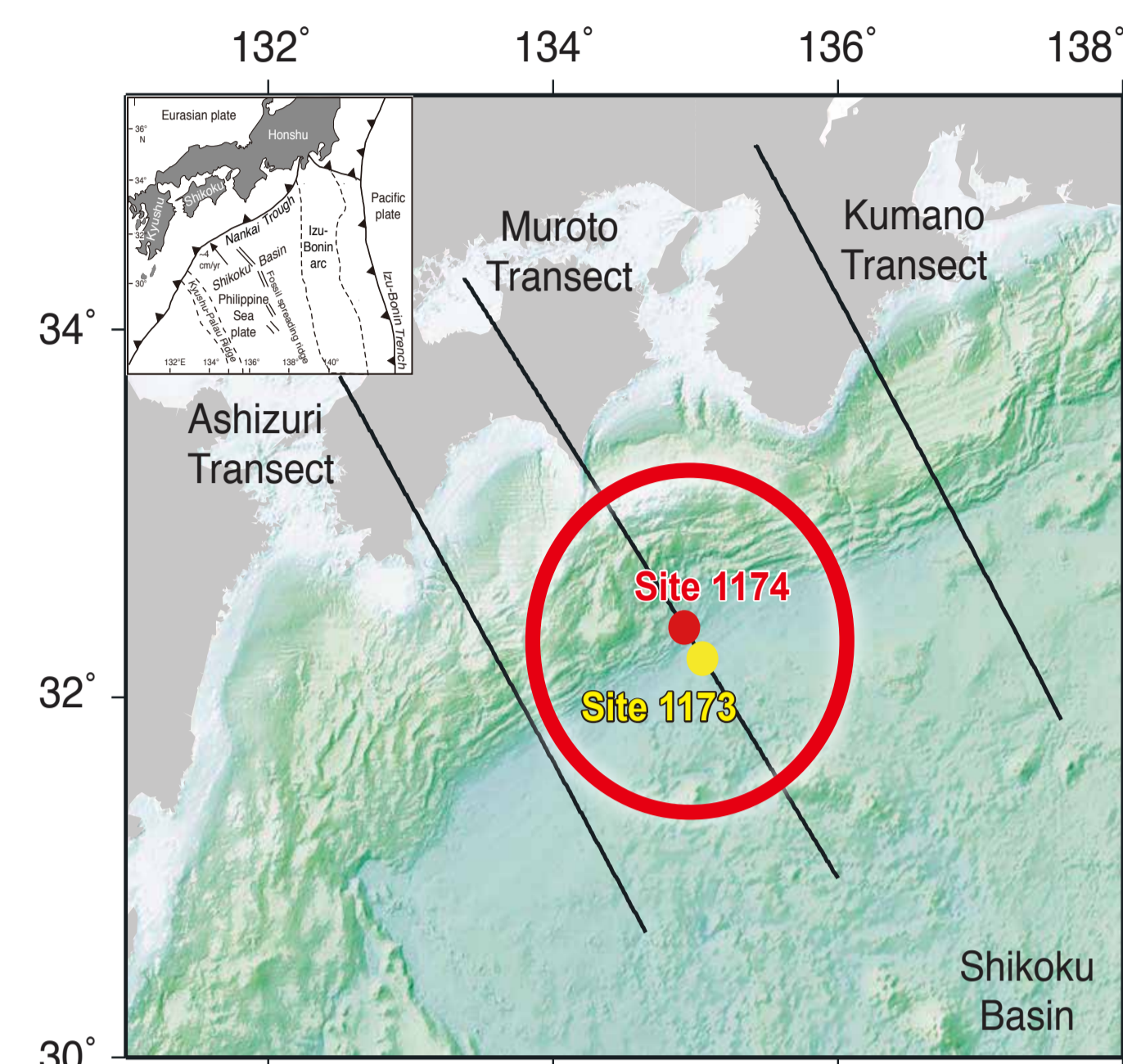
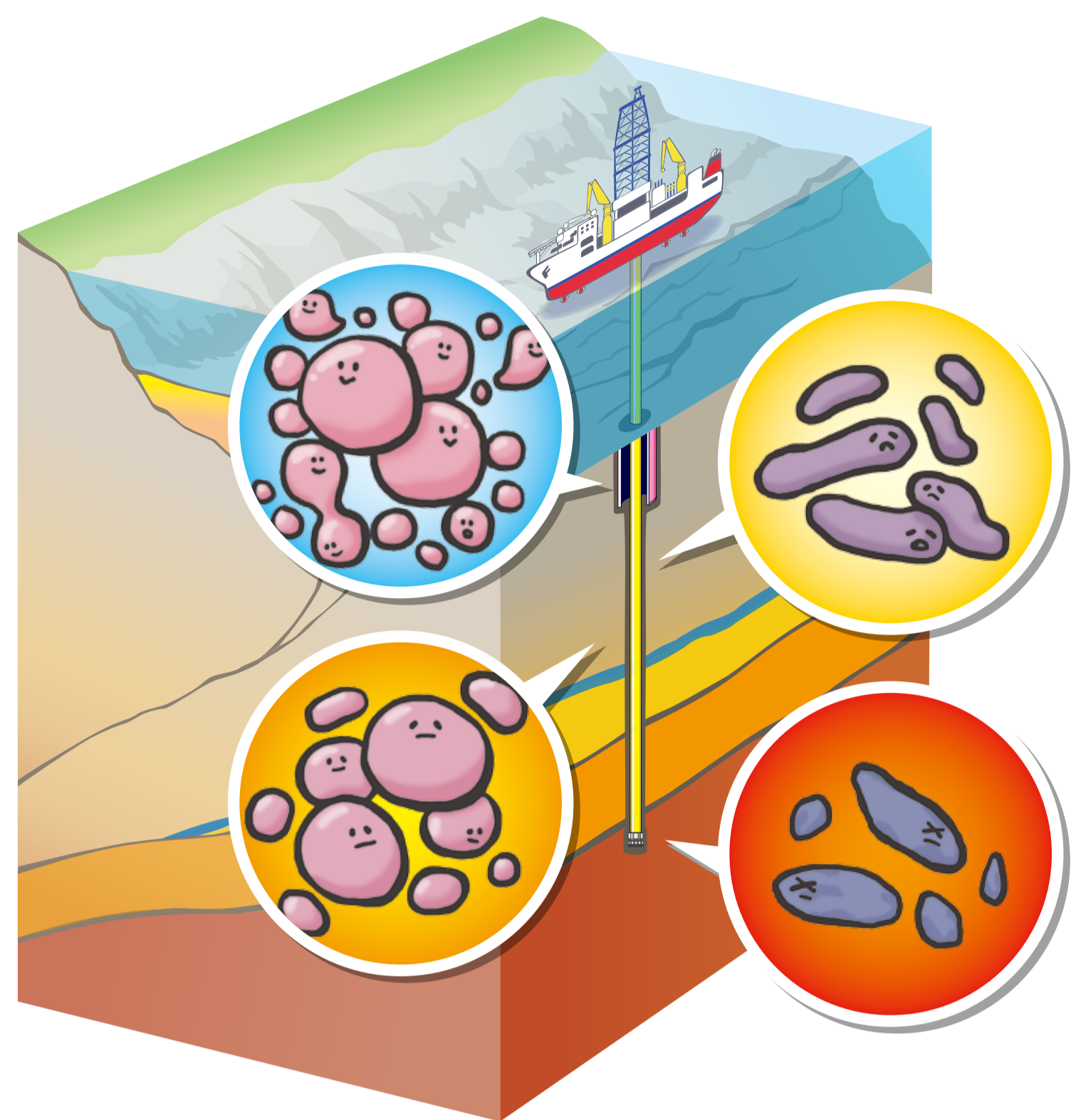


# T-Limit of the Deep Biosphere off Muroto

IODP Exp. 370 Planned period : 10 September - 11 November 2016

## Goals:

1. Identify the factors that control biomass, diversity and activity of deep microbial communities in a temperature window that likely encompasses the biotic-abiotic transition zone,
2. Understand the relationship between habitability of deep subseafloor life and thermogenic release of potential substrates for energy and nutrients,
3. Characterize chemical and physical environments in sediments and basement rock for deep subseafloor microbial habitats in a plate subduction zone



In Expedition 370, we will drill a new hole in the immediate vicinity of Ocean Drilling Program Site 1174, off Cape Muroto, in the central Nankai Trough. Anomalously high heat flow results in the temperature of 110°C to 140°C at the sediment/basalt interface (1190 mbsf). Coring operation will be followed by installation of temporary temperature observatory.



Three co-chief scientists will lead the science party, which is composed of shipboard and shore-based team working concurrently. Samples will be transported by helicopter to Kochi Core Center for extensive microbiological analysis.

# NanTroSEIZE IODP Exp. 365 Implementation period : 26 March - 27 April 2016

# Shallow Megasplay LTBMS



D/V Chikyu revisited Site C0010 on the slope of the Nankai trough off the Kii Peninsula and re-covered the temporary GeniusPlug observatory set during Exp 332 in 2010. After recovering the GeniusPlug, a new long-term borehole monitoring system (LTBMS) was installed in Hole C0010A to 654 m below sea floor. Data from the GeniusPlug included signals from not only the 2011 Tohoku earthquake, but also the 1 April 2016 earthquake off Shingu, Japan. This is the 2nd LTBMS installed off the Kii Peninsula, giving unprecedented precision, real-time, access to the deep subsea floor accretionary prism and megasplay/plate boundary fault systems and the Tonankai plate boundary 6 km below the sensors.



The observatory includes several sensors; pressure ports, a strainmeter, a seismometer, a tiltmeter, geophones, accelerometers, and a thermometer array to monitor local microearthquakes, VLF earthquakes, and the largest potential earthquake slips ~6 km along the subducting plate.

The deep observatory network, showing the deep-sea cabled DONET system and the LTBMS installations. The Site C0010 observatory location is depicted by the yellow circle. Site C0002 is where the first LTBMS is located, and current plans potentially include installing another LTBMS at Site C0006.

