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Sailing for the Earth, Diving for Science

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Elucidating Submarine Earthquake and Volcanic Conditions and Future Predictions for Disaster Reduction

The Research Institute for Marine Geodynamics in JAMSTEC consists of:

- [Subduction Dynamics Research Center](#)
- [Research and Development Center for Earthquake and Tsunami Forecasting](#)
- [Volcanoes and Earth's Interior Research Center](#)

These three research centers collaborate to advance research and development, and provide information to the government and related organizations to reduce the impacts of natural disasters.

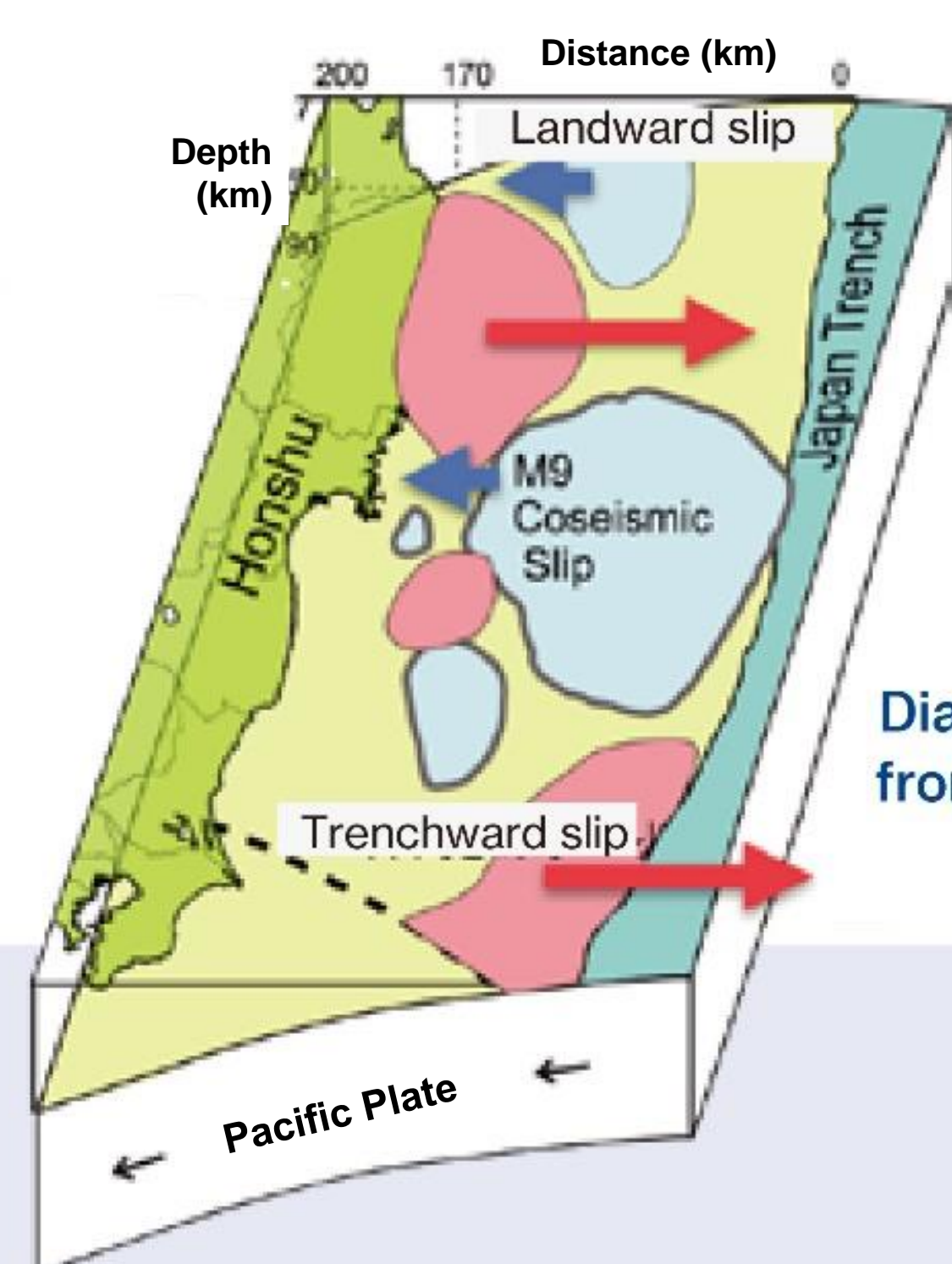
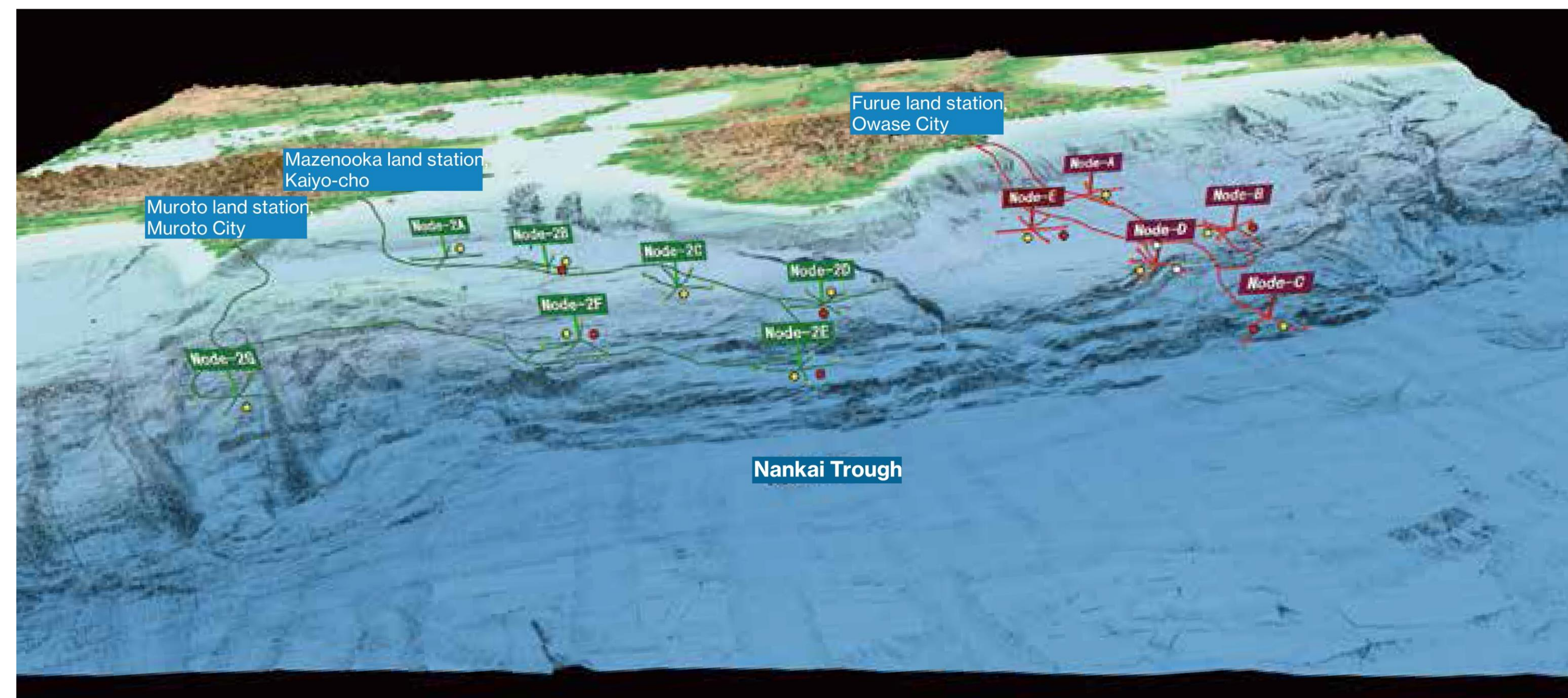
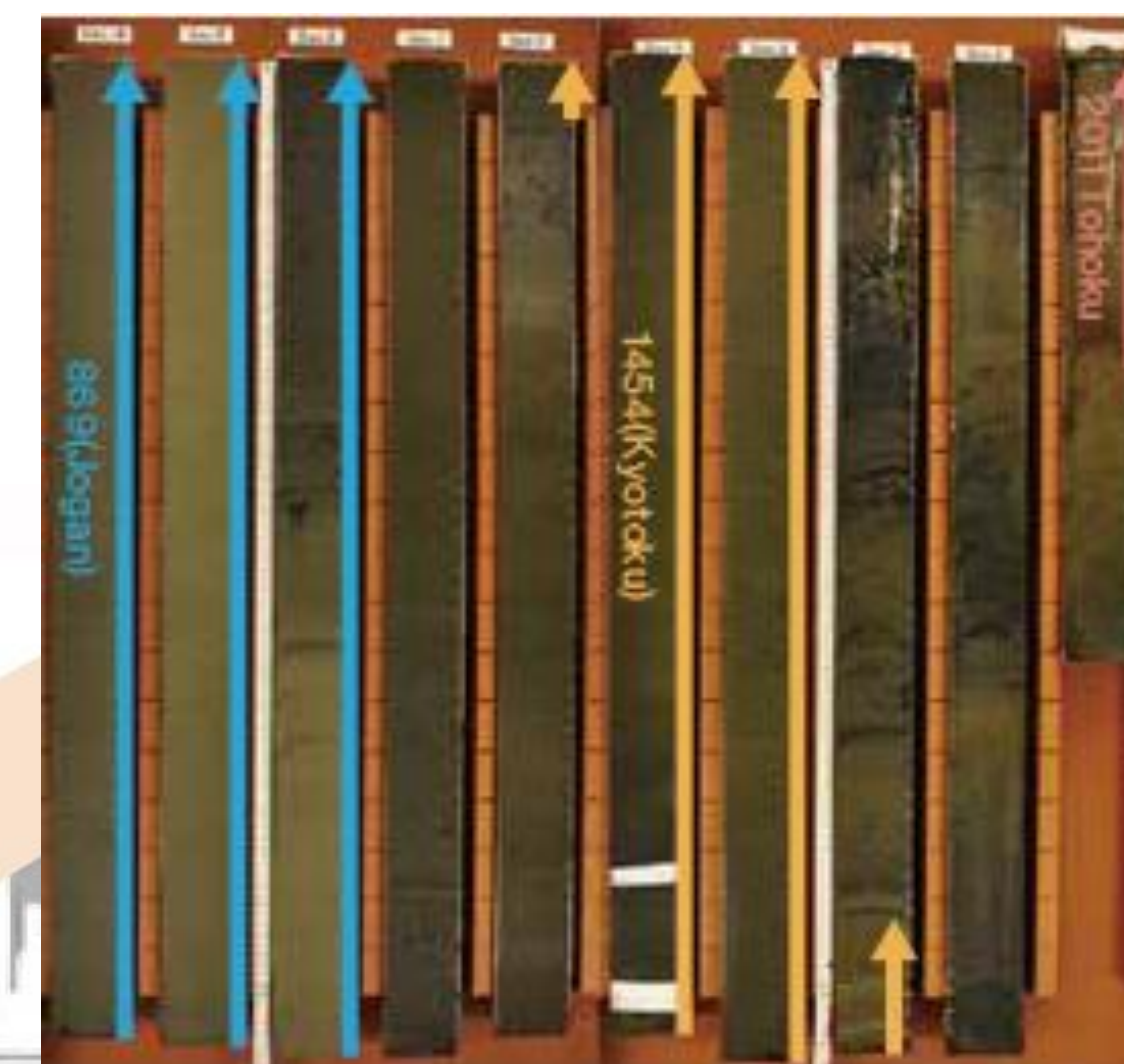


Diagram of post-seismic slips
from 4/23/2011-12/10/2011.

Research and Development Center for Earthquake and Tsunami Forecasting

The Research and Development Center for Earthquake and Tsunami Forecasting is developing a system to continuously monitor seafloor crustal deformation at the bottom of the Nankai Trough. We will also capture data (e.g., from surveys by the Subduction Dynamics Research Center of subsurface structures), build a model on a supercomputer that reproduces earthquakes and tsunamis, and predict the near-future state of the seismogenic zone.

- Continuous seafloor crustal deformation monitoring
- and earthquake/tsunami forecasting



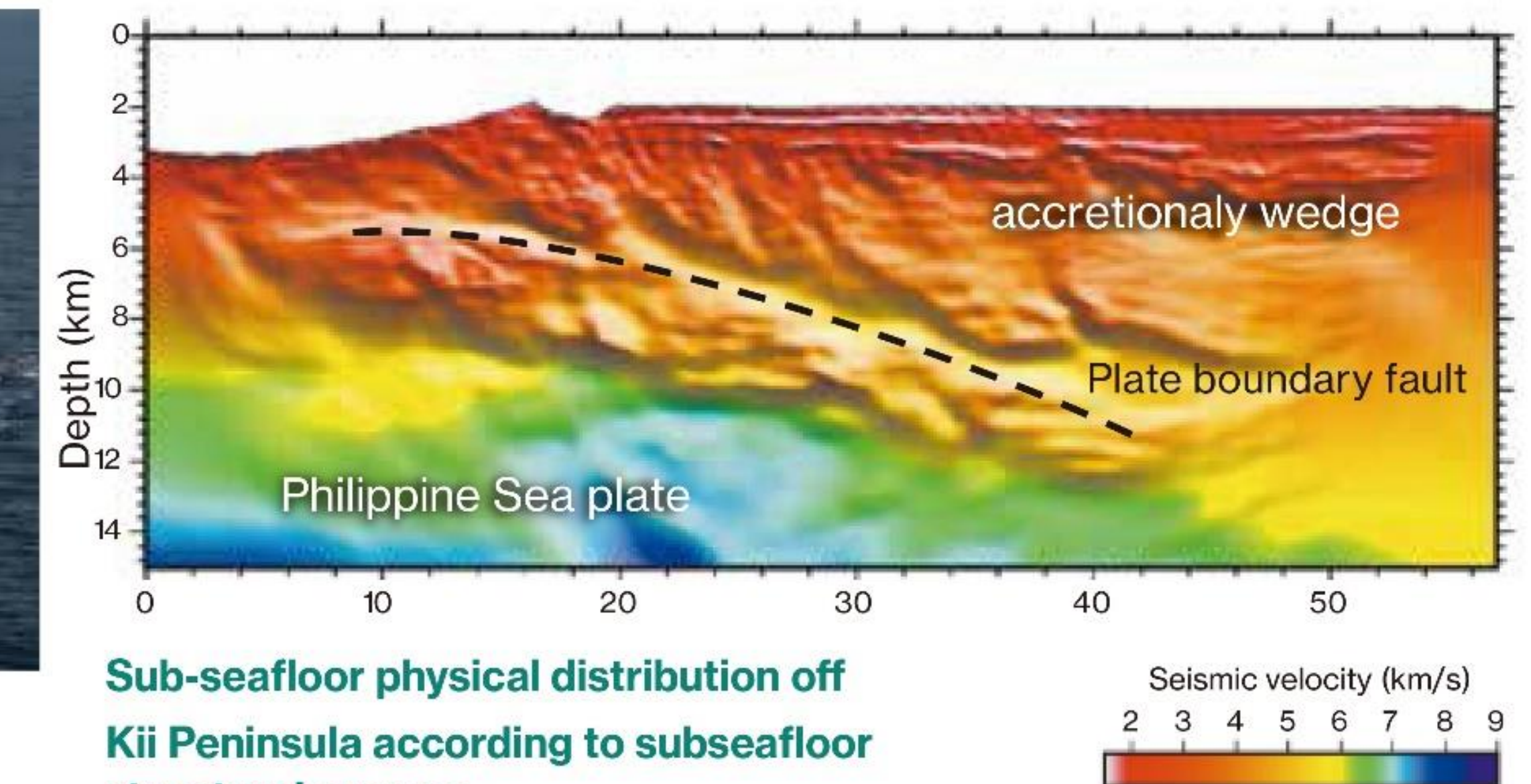
Sediment cores at the Japan Trench.

Research vessel: KAIMEI.

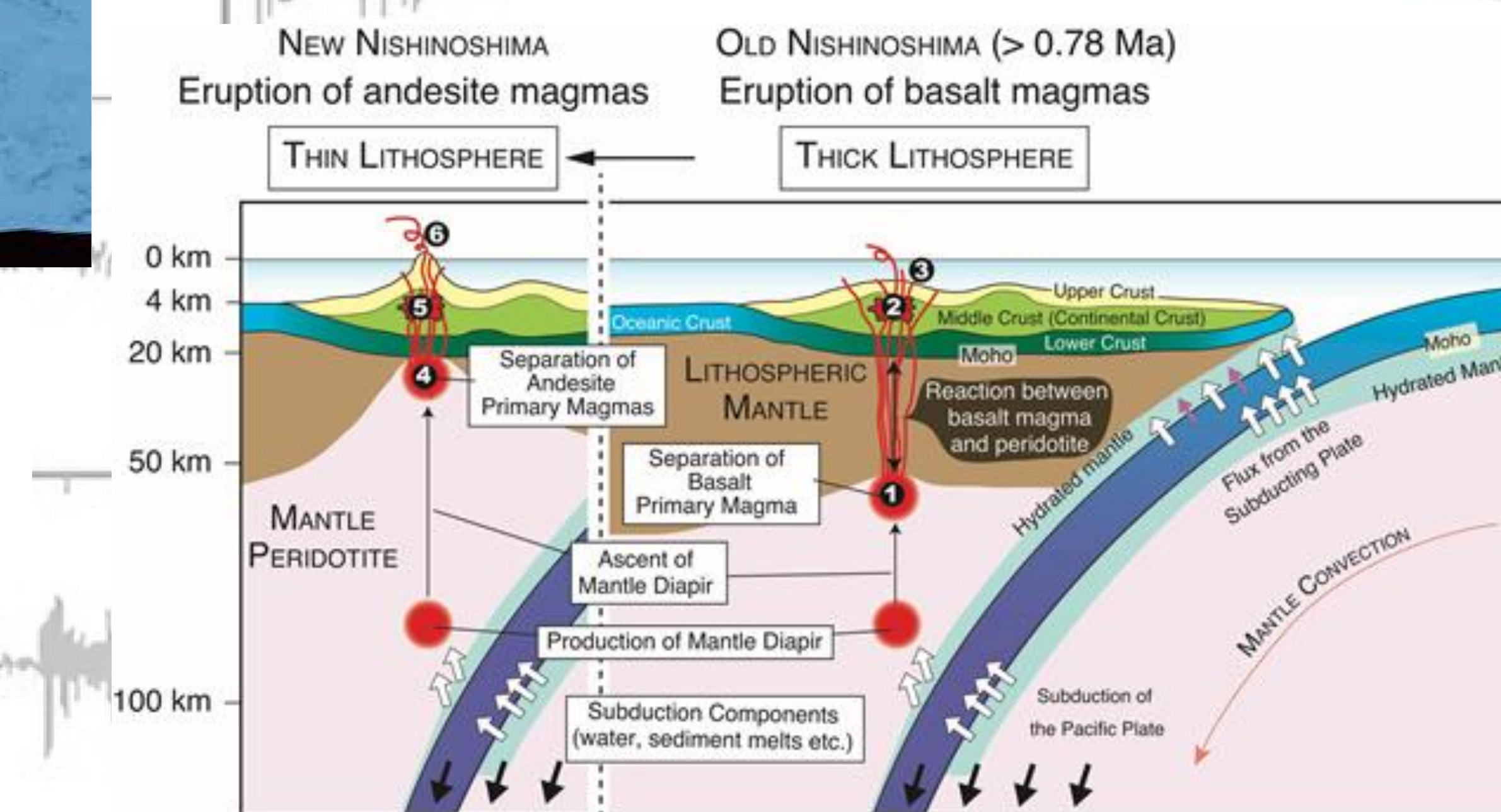
Subduction Dynamics Research Center

- Elucidating conditions in the seismogenic zone
- via observational studies

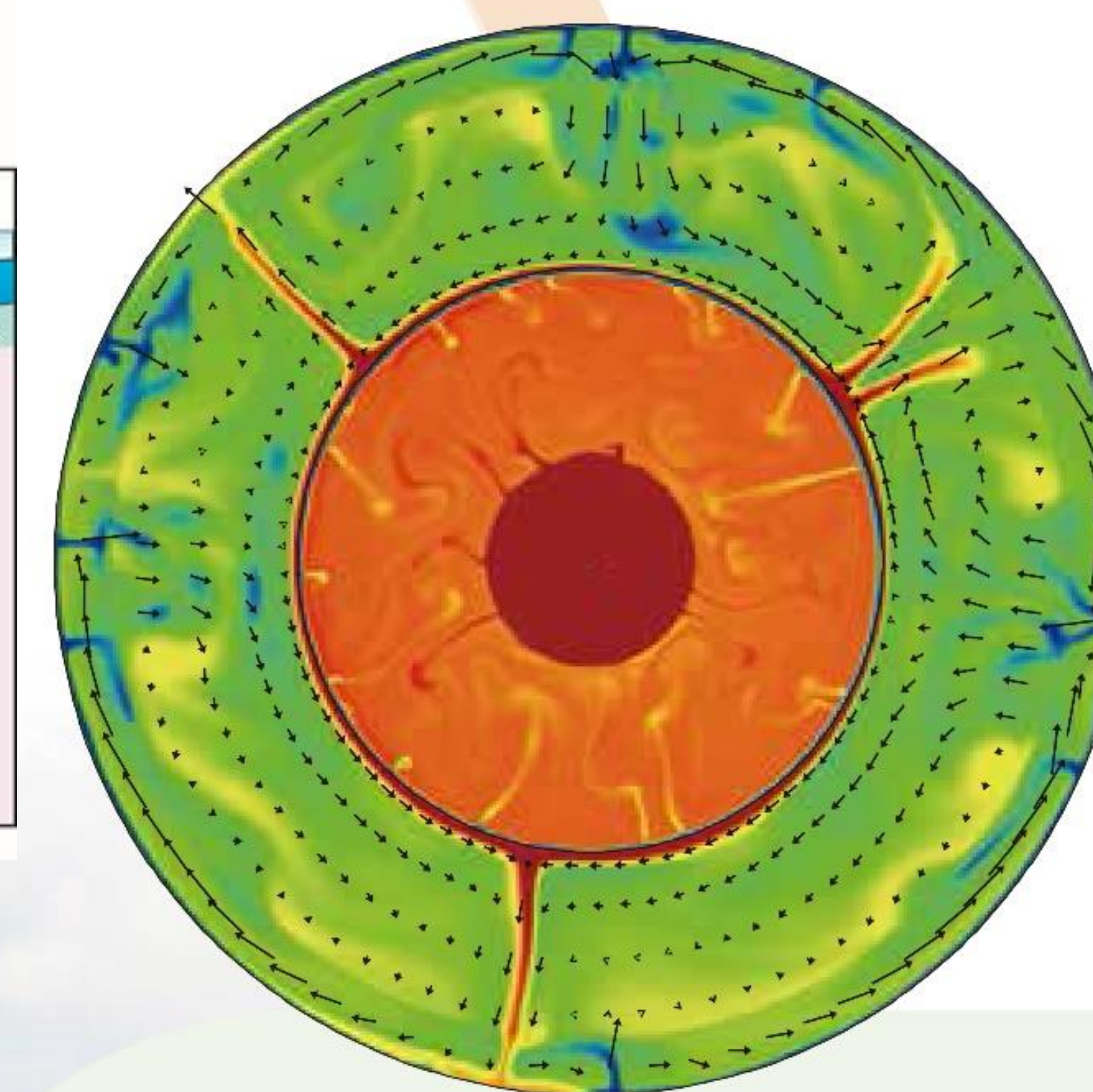
At the Subduction Dynamics Research Center, we use wide-area seabed research vessels such as KAIMEI to investigate the properties of the subsurface faults and rocks of the Nankai Trough, Japan Trench, and Kuril Trench. The history of previous earthquakes and tsunamis in addition to the present situation of the seismogenic zone are also investigated. Furthermore, we collaborate with Asian and Pacific countries to construct and operate a participatory global earthquake and tsunami observation network.



Sub-seafloor physical distribution off
Kii Peninsula according to subseafloor
structural surveys.



The change of magma formation in Nishinoshima.



Coupled thermal convection in the whole Earth
(mantle, outer core, and inner core) by a new
high-resolution numerical simulation technique.

Volcanoes and Earth's Interior Research Center

- An integrated understanding of volcanic activity
- and Earth's interior

The Volcanoes and Earth's Interior Research Center, in collaboration with the other two centers, is advancing sea floor research and developing a further understanding of the actual conditions of volcanic islands and submarine volcanoes. We are also elucidating the internal circulation of materials and conducting research to gain a comprehensive understanding of Earth's interior and volcanic activity.



Laser ablation inductively coupled plasma
mass spectrometer (LA-ICP-MS) uses to
determine rock compositions.