

## **Analogue modeling of friction variation along the decollement zone of the Nankai Trough at Muroto Transect, Southwest Japan**

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Nankai Trough is one of the active tectonic plate margins. It is located geographically south of the Japanese Islands Arc. Geologically, it traces the site where the Philippine Sea plate sinks underneath Southwest Japan. This zone has recorded large earthquakes ( $M = 8$ ) and may generate more hazardous ones in the future.

In this study we aimed to simulate the development of the geological structure of a portion of the accretionary prism. We carried out four experiments using scaled analogue models based on the friction variation from northwest to southeast on top of the subducting Philippine Sea plate, with referring to other seismic reflection data along the Muroto Transect, we attempted to reconstruct this zone with sandbox models. Apparatus base setting of three different frictional sectors (high, medium and low friction) gave us a better understanding on the development of thrusting faults and the related structures developing in this subducting zone. This analogue model result with integration with other data collected in this area can be explored to understand the functioning of the Seismogenic zone laying down beneath South Japan. Also the progressive development of the geological structures observed in our models may be useful for explorations searching for alternative source of energy (methane hydrate) that might be stored in this area. The methane hydrate formation is closely or even directly related to geological structures and the process behind them.