

**Award Abstract #0505789****Inputs to the Nankai Trough Seismogenic Zone: Effects of Large-scale Lateral Variations in Basement Topography and Sediment Thickness**

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ABSTRACT

A set of regional 2-D and 3-D seismic reflection data across the Nankai Trough accretionary prism is being analyzed to characterize one of the type examples of a tectonic setting that globally generates most of Earth's largest and most destructive earthquakes and tsunamis. This work is a major component of the integrated Nankai Trough Seismogenic Zone

Experiment (NanTroSEIZE) that will build its solid science base, especially for the shallow non-riser drilling and the deep riser drilling planned through the Integrated Ocean Drilling Program (IODP). With ground-truth from drilling in two existing and one planned transect, this seismic data set will provide unprecedented illumination of a plate boundary fault system to visualize its geometry, history, and associated rock properties, as it evolves down dip into a seismogenic zone. Large-scale thrust packages in more landward parts of the prism are being characterized and correlated along strike. This analysis not only provides the regional stratigraphic and structural framework of the Nankai Trough, it also allows us to assess globally-important subduction processes such as the affect of seamount subduction/collision on accretionary prism evolution. This project is a collaborative effort among the University of Hawaii and two Japanese institutions (JAMSTEC and University of Tokyo Ocean Research Institute). JAMSTEC has already provided us with thousands of kilometers of regional seismic lines. Our analysis of these data seaward of the Nankai Trough has revealed remarkable variations in oceanic basement topography and sediment thickness and type. Our analysis is being extended to track the deformation of the Nankai accretionary prism as the ridges and troughs of the Shikoku Basin are subducted. We are mapping the associated folds and faults that develop above the subducting basement topography.

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