[EJ] Evening Poster | S (Solid Earth Sciences) | S-CG Complex & General

[S-CG58]Investigation of inputs to subduction zones: Influence of tectonic processes on the incoming plate

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Various tectonic processes occur on the seaward side of the trench associated with bending of the incoming oceanic plate, e.g., fracturing of oceanic crust, infiltration of water, and intraplate volcanism. Investigation of these processes and their influence on the incoming plate provides important information on the boundary condition at the trench, inputs to subduction zones. We welcome contributions from a broad range of earth science (geophysics, geology, petrology, and so on) discussing topics related to inputs to subduction zones such as occurrence of tectonic processes due to bending of the incoming plate, modification of the incoming plate by the processes, relationship between the processes and the inherited structure of the incoming plate, and influence of the processes on the subduction plate interface. We hope discussions are made on studies of a variety of subduction zones, including the Japan Trench and the Nankai Trough, and comparative studies among different subduction zones.

[SCG58-P05]Regional distribution of the incoming sediments along the Nankai Trough and its implications for the megathrust fault behavior

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The Nankai Trough is formed by subduction of the Philippine Sea plate to the northwest beneath the Eurasian plate at a rate of ~4 cm/y (Seno et al. 1993). Historically, large earthquakes along the Nankai subduction zone have occurred with a recurrence interval of 100-200 years. The reflection polarity of plate-boundary fault (i.e., decollement) has a regional variation along the entire Nankai Trough (Park et al., 2014): for example, reverse for Muroto transect, and normal for Kumano transect. This may be attributed to variations of subduction inputs composed of oceanic crust and overlying sediments of the Philippine Sea plate. Since incoming sediments may constrain strength of the upper plate and subsequent seismogenesis at depth, a study of the sedimentary structure and physical properties of the Nankai Trough sediments is crucial to figure out a mechanism of megathrust earthquake generation along the Nankai subduction zone.

In order to figure out structural and stratigraphic variations of incoming sediments along the entire Nankai Trough, we interpreted a number of 2D and 3D seismic reflection data that have been acquired by JAMSTEC since 1997. For lithologic and age controls of each seismic reflection unit, we used Ocean Drilling Program and Integrated Ocean Drilling Program NanTroSEIZE drilling results. Based on seismic reflection characteristics, we could identify five major seismic units from top to bottom: (1) trough turbidite fill, (2) upper Shikoku Basin sediments consisting of hemipelagic mud and volcanic ash, (3) middle Shikoku Basin sediment of volcaniclastics, (4) lower Shikoku Basin sediments consisting of

turbidities and hemipelagic mud, and (5) oceanic crust of basalt. In particular, we recognize four different turbidite sediments underthrusting along the shallow decollement immediately beneath the Nankai accretionary wedge: eastern turbidite, central eastern turbidite, eastern upper eastern turbidite, and eastern lower eastern turbidite. Deep sea turbidite subduction may affect the decollement formation and Seismo-tsunamigenic behavior of the fault. In this study, we will show the regional distribution of the incoming sediments along the Nankai Trough and discuss its implications for the plate-boundary fault behavior.