[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

convener:Makoto Yamano(Earthquake Research Institute, the University of Tokyo), Tomoaki Morishita(School of Natural System, Colleage of Science and Technology, Kanazawa University), Gou Fujie(海洋研究開発機構)

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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-P06]IODP Expedition 375: Hikurangi Subduction Margin – first chronostratigraphic constraints derived from shipboard palaeomagnetic analyses

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The Hikurangi margin, located offshore the eastern coast of the Central North Island in New Zealand is the site of oblique convergence between the Pacific and Australian Plates. It has recently received a considerable amount of public and scientific attention due to periodic re-occurrence of so-called slow-slip or low frequency earthquakes, which are believed to be triggered by the slow release of strain.

Subduction initiation along the Hikurangi margin is believed to date back to ca. 20 - 25 Myrs ago. The entire margin is known to have experienced significant clockwise rotation, which was probably initiated approximately 2 Myrs ago in association with the onset of subduction of the buoyant and Mesozoic aged Hikurangi Plateau at its southern end, which resulted in coupling between the underlying Pacific and overriding Australian plates.

Partitioning between margin normal and parallel strain significantly affected the whole-sale evolution of the Central North Island and the geometry of the accretionary complex. The onshore expressions of the

Hikurangi margin are generally well studied. In contrast, to date all studies of the accretionary history and structure of the offshore margin were limited to the interpretations of active and passive source seismic surveys, thus providing little absolute chronological information.

Expedition 375 of the International Ocean Discovery Program (March &April, 2018) targets four drill sites along a transect that encompasses the upper slope, frontal thrust and sediments of the incoming plates with inferred ages spanning the Cenozoic.

In this presentation I will briefly introduce the key expedition objectives and achievements. I will then focus on the chronostratigraphic constraints provided from the shipboard palaeomagnetic investigations. The results may provide a first insight into the accretionary and deformation history along the upper slope, timing of seismic slip along a major frontal thrust fault and depositional history of the Pacific Plate.

Highlights and pitfalls of the palaeo- and rock magnetic analyses will be outlined and avenues for further research discussed.