

Progress and perspective of drilling plans that elucidate modification of oceanic plate just prior to subduction

*Tomoaki Morishita¹, Makoto Yamano², Gou Fujie³, Asuka Yamaguchi⁴, Shigeaki Ono³

1. School of Natural System, College of Science and Technology, Kanazawa University, 2. ERI, University of Tokyo, 3. JAMSTEC, 4. AORI, University of Tokyo

It is essential for understanding of the plate boundary earthquake in the subduction zone and elemental input through the subducting oceanic plate to elucidate the nature and conditions of the subducting oceanic plate. One of the most important discoveries in ocean floor sciences in the last decade is the extensive hydration along plate-bending induced normal faults in the oceanic plate just prior to subduction. We have already submitted a pre-proposal for International Ocean Discovery Program for plate bending-induced normal fault hydration in the northwest Pacific region where the old, therefore cold, oceanic plate is subducting. It is very important to note that the northwest Pacific region may be facing a special geological stage that suffers extensive deep hydration by the 2011 off the Pacific coast of Tohoku Earthquake. In order to decide the drilling site in the northwest Pacific region, the difference in angle between the direction of paleo mid-ocean ridge and the trench. In addition, it has recently suggested that petit spot volcanism activity on the old oceanic plate in the northwest Pacific region (Hirano et al., 2006 Science) could modify physical property of the oceanic plate. A new science drilling program (Chikyu Shallow Core Program: SCORE) using drilling vessel "Chikyu" has been launched and a new drilling proposal on modification of top surface of the oceanic plate by petit spot magmatic activity has been applied for the SCORE. In the presentation, we will introduce the recent research progress and future prospects for these drilling programs on incoming plate.

Keywords: Plate bending induced normal faults, Modification of oceanic plate, Hydration of oceanic plate, northwest Pacific region, Ocean Drilling Program