1) **Scientific objectives, drill sites, and strategies for CHIKYU Hard-Rock Drilling proposal aimed at Bend-Fault Hydrology in the Old Incoming Plate (H-ODIN)**
2) **Arc root evolution corresponding to subduction initiation to arc maturing: Insights from peridotites from the Izu-Bonin-Mariana forearc and ophiolites**

报 告 人：

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Hydration due to plate bending-induced normal faults (bend-faults) in the region between the trench axis and outer rise (outer rise) has recently drawn considerable attention (e.g., Grevemeyer et al., 2007 EPSL; Fujie et al., 2013 GRL). Ideally, comparing subduction zones in several contrasting geodynamic states (e.g. Old plate vs Young plate, bend-faults being reactivated abyssal hill faults vs. newly formed horst-and-graben faults, etc.) is likely to be the most promising exploration approach to expand our knowledge of bend-fault hydration processes. In order to deepen our understanding of bend-fault hydration, an IODP pre-proposal: Bending fault hydrology of the Old Incoming Plate (H-ODIN) was developed. The off-Tohoku region provides a rare opportunity to study a place where the local stress state is likely to have changed significantly since the 2011 Tohoku Earthquake. The Japan Trench site seems best for understanding links between bend-induced hydration and the outer rise seismic cycle. In the presentation, we will present more details on H-ODIN coupled with relation to Mantle Drilling Project.

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Compared with comprehensive studies on arc-related volcanic rocks (Reagan et al., 2010 G-cubed) there have been still few studies of the lower crust/mantle evolution related to igneous activity in the earliest stages of subduction initiation. We examine peridotites recovered from an exhumed crust/mantle section exposed along the landward slopes of the northern Izu-Bonin Trench and peridotite bodies from ophiolites such as, the Mirdita ophioite, Albania, and Talkeetna Massif, Alaska. The wide range of variation in peridotites from the IBM forearc and the uppermost section of ophiolites probably reflects changing melt compositions from MORB-like melts to boninitic melts in the forearc setting due to an increase of slab-derived hydrous fluids/melts during subduction initiation. Ultramafic rocks above the mantle section of ophiolites, such as ultramafic-mafic layered sequence and late ultramafic intrusions in gabbros can be also explained by crystallization from hydrous MORB-type and boninitic compositions. Observations from ophiolites indicate that arc magmatisms significantly modify the pre-existing oceanic MOHO.