Japan Geoscience Union Meeting 2011
(May 22-27 2011 at Makuhari, Chiba, Japan)

SSS033-04 Room:105 Time:May 23 15:00-15:15

Structure and fate of subducting Izu-Bonin Arc at Sagami Trough

Saneatsu Saito[1*], Narumi Takahashi[1], Toshitsugu Yamazaki[2], Yoshihiko Tamura[1], Yasuhiro Yamada[4], Yuzuru Yamamoto[1], Reiji Kobayashi[3]

[1]JAMSTEC, [2]AIST, [3]Kyoto University, [4]Kagoshima University

One of the primary objectives of Kanto Asperity Project (KAP) is to understand why three different type of asperities, Genroku, Taisho, and slow-slip events (SSE) off the east coast of Boso, are developed side by side in the same depth beneath Kanto district. A possible hypothesis is that the distribution of asperities is related to characteristics of upper part of subducted Philippine Sea plate. Unlike Nankai Trough where simple backarc basin is subducting, it is notable that the subducting plate at Sagami Trough is structurally complicated Izu-Bonin arc-forearc system. Distinct topographic, geologic, and geophysical features are identified along the eastern side of Philippine Sea plate. An along-arc zonal structure is well documented by magnetic anomalies (Yamazaki & Yuasa, 1998). Three major zones are composed of, from west to east, 1) Izu-Bonin volcanic front (low-K tholeite); 2) Izu-Bonin remnant arc composed of Paleogene volcanics (calc-alkaline, high-Mg andesite, and boninite), subducting beneath the southern part of Miura-Boso area; and 3) serpentinite seamounts subducting beneath off the east coast of Boso Peninsula. To verify a working hypothesis that the across-arc variation in crustal structure of the northern Izu-Bonin arc may control the distribution of different type of asperities beneath Kanto area, it is important to drill at the input area and recover volcanic basement rocks as initial materials to be delivered into the seismogenic zone. Characterization of rock mechanics and hydrologic properties of serpentinite may be a key to understand the mechanism of SSE.

Keywords: IODP, KAP, Izu-Bonin arc, Philippine Sea plate, Seismogenic zone