Geologic structures and post Late Miocene tectonics related to Izu-Bonin Arc collision: For South Kanto Asperity drilling project

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The Miura and Boso peninsulas locate the eastern margin of the arc-arc collision zone where the Izu-Bonin Arc has been collided with the Honshu Arc. This area suffered tectonic rotation and rapid uplifting associated with the collision. We are proposing the KAPS project to the Integrated Ocean Drilling Program (IODP) and intend to drill and do down hole measurement. This presentation intend to summarize geologic structure and collision related tectonics that was derived from the onland geological survey, because late Miocene accretionary prism, the possible basement of Kanto Asperity area and its cover sediments have exposed onland.

The sedimentary basins in the Miura and Boso Peninsulas are broadly divided into two categories; one is forearc basin, northern part from the Hayama Mineoka Tectonic Belt, the other is trench-slope basin and accretionary prism in the south. The Miura-Boso accretionary prism is divided into three parts based on the mode of deformation and structural features: an upper coherent unit, a thrust unit, and an imbricate thrust. The accretion style represented by the Miura-Boso accretionary prism is presumed to be off-scraping, as shear strain is localized within the lower two parts (thrust unit and imbricate thrust); in contrast, the uppermost part (upper coherent unit) shows no evidence of accretion-related shear strain and the sequence is capped by trench-slope sediments. Two stages of tectonic rotations were revealed by recent paleomagnetic and structural studies. The first rotation occurred during 6.80-3.75 Ma apparently associated with Tanzawa Block collision, while the second is confidently correlated with the 1 Ma Izu Block collision.

The Miura-Boso accretionary prism mainly consists of volcaniclastic materials, quite different from the Nankai accretionary complex composed of siliceous sediments. Two main advantages: one is we can compare the plate boundary deformation and related physical information with the Nankai example; the other is valuable information for reconstruction of collision-related tectonics is preserved in this area, will be emphasized in this presentation.