

SSS019-12

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Complex thrusting at the toe of the Nankai accretionary prism, NanTroSEIZE Kumano transect

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Seismic reflection data collected over the past 10 years by the Institute for Research on Earth Evolution (IFREE) of Japan Agency for Marine Earth Science and Technology (JAMSTEC) image a zone of complex thrusting at the toe of the Nankai accretionary prism south of Kii Peninsula, Honshu, Japan.

The frontal part of the Nankai prism west of Shionomisaki Canyon (SC) at about 136 degrees E, including the Muroto and Ashizuri Transects off Shikoku, is generally formed of imbricate thrusts with spacing of 1-3 km that dip 25-35 degrees landward and sole into a prominent decollement. Out-of-sequence thrusts (OOSTs) are usually restricted to the landward margin of this imbricate thrust zone.

East of SC, in the Kumano Transect area, the imbricate thrust zone is bounded on its seaward edge by a frontal thrust block that is 5-6 km wide and consists of several OOSTs. The frontal thrust dips 5-10 degrees under this ~2-4 km thick block, emplacing this thrust sheet over the trench floor. The number and character of thrusts within the frontal thrust block vary laterally along strike.

The 2006 Kumano 3D seismic data set images details of one segment of this complex frontal thrust block. Out-of-sequence faulting has led to underplating of several smaller thrust slices and movement along oblique ramps has led to a complex pattern of faulting that cannot be recognized in even closely-spaced 2D seismic lines.

The frontal thrust block is further modified by subduction of seamounts and ridges that have caused large slumps of material from the block.

Keywords: Nankai Trough, Subduction zone, Kumano Transect