# Forearc Basin Separation, Inner Wedge Structure, and Megathrust Segmentation of the Nankai Forearc, Japan

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The Nankai forearc, Japan, consists of inner and outer wedges with cover sediments. The forearc basin is separated into five subbasins based on topography: Enshu, Kumano, Muroto, Tosa, and Hyuga. The separation is linked to the rupture area of large earthquakes. Structural examination of the forearc basin and inner wedge off the Kii Peninsula suggests that thick cover sediments and underlying accretionary prism thrust on the landward hard basement of the igneous complex off Cape Shionomisaki. Uplift of the inner wedge due to oblique back-thrusting caused separation of the Kumano and Muroto forearc basins. The igneous complex basement is situated on the plate boundary megathrust of the hypocenters pertaining to the 1944 Tonankai and 1946 Nankai earthquakes. The denser rocks than the surrounding accretionary complex of the inner wedge might have worked as an upper plate keystone on the seismogenic megathrust and separated the rupture area of both the earthquakes. The geological heterogeneity of the upper plate partly contributes to the heterogeneous distribution of shallow, very low-frequency earthquakes. The geological composition of the Nankai forearc is a significant clue for revealing the forearc dynamics of subduction zones in general.

Keywords: accretionary wedge, Nankai trough, forearc basin, seismogenic zone, subduction zone, plate boundary

 