Deformation at the toe of the Nankai Trough accretionary prism in the NanTroSEIZE Kumano transect area

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We report the results of recent commercial 2D multichannel seismic reflection and multibeam bathymetry data collected across the Nankai Trough and the toe of the Nankai accretionary prism in the

NanTroSEIZE transect off the Kumano Basin. Thick sediments of the

Nankai Trough are stripped off the descending Shikoku Basin plate and added to the toe of the accretionary prism. Landward of the deformation front, the seismic data image a clear proto-thrust zone within the deforming trench sediments. The protothrusts sole into a decollement. Below the decollement the underlying Shikoku Basin hemipelagic sediments are subducted beyond the toe of the prism. Multibeam bathymetry data show a large embayment in the lower trench slope associated with a large slump that was caused by the subduction of a seamount. The reflection data show that the seamount has recently passed beneath the toe of the prism and is still causing major deformation of the overlying prism strata. As the seamount subducts, the prism rides up over the landward margin of the seamount and slumps into the trench as the seaward slope passes by. This process of deformation by irregular topography entering the subduction zone is very common along the Nankai Trough as shown by several major slumps at the toe of the prism to the west of the NanTroSEIZE area.