



The Mentawai forearc sliver off Sumatra: A model for a strike-slip duplex at a regional scale

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At the Sumatran convergent margin the Mentawai Fault and Sumatran Fault zones accommodate most of the trench parallel component of strain in a highly oblique setting. These faults bound the Mentawai forearc sliver that extends from the Sunda Strait to the Nicobar Islands. Based on multi-channel reflection seismic data, swath bathymetry and high resolution sub-bottom profiling we identified a set of wrench faults obliquely connecting the two major fault zones. These wrench faults separate at least four horses of a regional strike-slip duplex forming a forearc sliver. Each horse comprises an individual basin of the forearc with differing subsidence and sedimentary history. Duplex formation started in Late Miocene southwest of the Sunda Strait. Initiation of new horses propagated northwards along the Sumatran margin over 2000 km until Early Pliocene. These results directly link strike-slip tectonics to forearc evolution and may serve as a model for basin evolution in other highly oblique subduction settings.