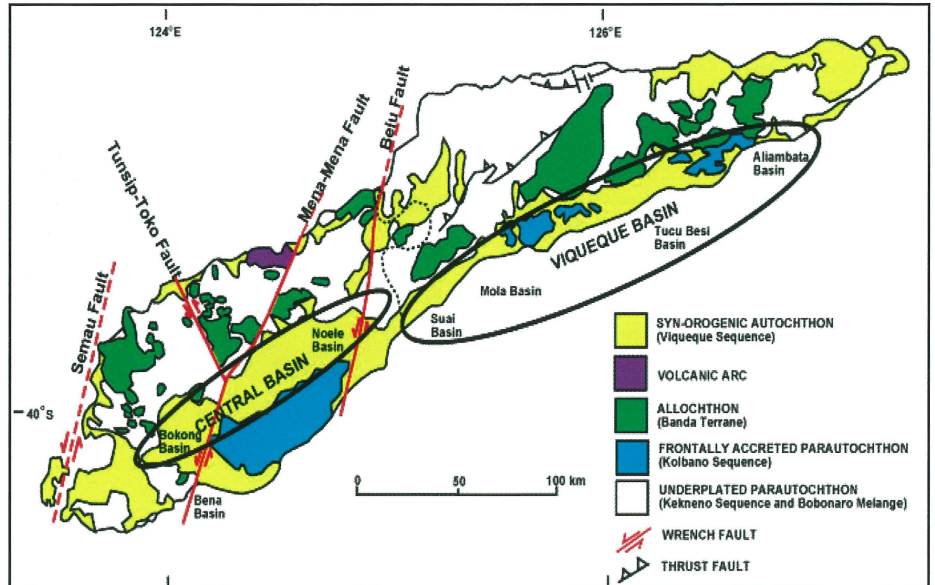


Complex Modified Thrust Systems Along The Southern Margin of East Timor

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The Mola-1 well in the Suai Basin of offshore southern East Timor (the only offshore well in East Timor) encountered a greater than 3 km-thick sequence of Plio-Pleistocene, clay-dominated lithologies. Reflection seismic data exists for three basins along the southern coast, the Suai, Beaco (Viqueque) and Aliambata basins. Seismic structural interpretation of this data reveals a complex deformation history dominated by intense thrust deformation within the Plio-Pleistocene sequence.

Our interpreted deformation sequences include a series of south-directed, low-angle thrusts (recognised by footwall- and hanging-wall cut-offs), creating extensive thrust piles and, in places, antiformal stacks, which can be identified along strike through the basins. These thickened piles exhibit later modification by crestal collapse, also extending the length of the basins. Rapid thickening destabilised the growing thrust packages, creating regional south-directed slumping of material into the Timor Trough. Regional-scale slumping disrupted thrust fronts, and caused significant offset at the sea floor. A final injection of intense shale diapirism re-used slump faults, in some cases re-elevating the hanging-walls of the slumps.



The offshore deformation style reflects onshore processes, with similar styles of shallow, south-directed thrusting forming some of the dominant ranges along the continental divide. Offshore, shale diapirism mimics that of the onshore Bobonaro Clay, which crops out

extensively across the island and whose origin is disputed. ■

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