

SEIZE/ SF	Structure of the Nicaragua/Costa Rica Subduction Zone: A Framework for the Subduction Factory and Seismogenic Zone Initiatives. US/German/Nicaraguan Collaborative Project	
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	1/1/2000 – 12/31/2002	OCE 99-05355
<ul style="list-style-type: none"> • Recorded deep penetration seismic reflection data across most of the Nicaragua margin, much of which had been previously unsurveyed. • Imaged subduction plate boundary from trench to depths of 20-40 km along most of margin. • Demonstrated that rotated fault blocks maintain their geometry during subduction. • Identified subducting seamounts in reflection images. • Correlated subducting seamounts with shallow seismogenic rupture and tsunami generation. • Identified frontal subduction erosion as an active process offshore Nicaragua. • Identified variations in Sandino forearc basin sediment thickness from 0 to as much as 15 km. • Recorded three refraction transects. • Documented high velocity igneous origin for most of margin wedge. • Documented low velocity upper mantle in the subducting plate, which is suggestive of serpentinization. • International cooperation. • GEOMAR provided instruments and acquired ocean bottom hydrophone refraction data. • GEOMAR student processed data and interpreted much of the refraction data. • Nicaraguan colleagues participated on board the <i>R/V Ewing</i> and in onshore instrument deployment for refraction data. • The seismic data set has provided a foundation and motivation for continuing margins research, including stratigraphic development in the forearc basin, the nature and distribution of seismicity offshore Nicaragua, and fluid flow and deformation processes related to seismogenic and aseismic movement on the subduction plate boundary. 		

Figures and Captions

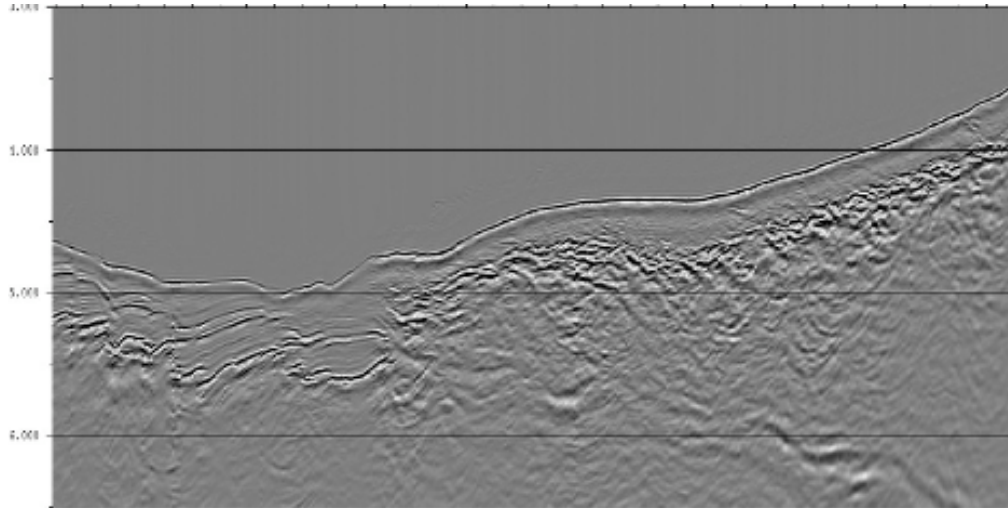


Figure 1: Depth image of the Middle America Trench offshore Nicaragua. The rotated fault blocks of the Cocos plate retain this geometry as they subduct beneath the western edge of the Caribbean plate.

Publications and Presentations

Publications:

Ahmed, I., Imaging the lower slope, offshore Nicaragua and Costa Rica using a new residual migration velocity analysis technique in the space-offset domain, Ph. D. Dissertation, University of Texas at Austin, 2003.

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