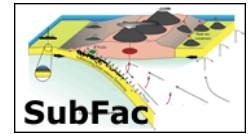


The TICO-CAVA Seismic Experiment



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The TICO-CAVA (Transects to Investigate the Composition and Origin of the Central American Volcanic Arc) project is a seismic reflection/refraction study funded by the NSF-MARGINS initiative. It is a fundamental part of the Subduction Factory initiative's Central American focus site. The project has five principal aims: (1) constrain the composition and flux of the primary magma that formed the Costa Rican volcanic arc; (2) investigate the lateral heterogeneity in crustal structure along the arc; (3) test and constrain recent results indicating that lithospheric faults produce serpentinized upper mantle in the Cocos plate that, in turn, influences the "slab signature" of the Central American arc lavas; (4) assess the degree to which low upper-mantle velocities are due to anisotropy rather than serpentinization; and (5) determine the crustal structure of the provinces that comprise the upper plate of the arc in Costa Rica and Nicaragua with transects in the Caribbean back-arc. Our highly successful field work took place in two field seasons: an onshore explosion seismic refraction study in 2005, and a principally marine campaign in 2008. The marine surveys included the first two cruises on R/V Marcus G. Langseth and one cruise of R/V New Horizon. Analysis of this substantial data set is ongoing, and we anticipate successfully achieving our scientific objectives.

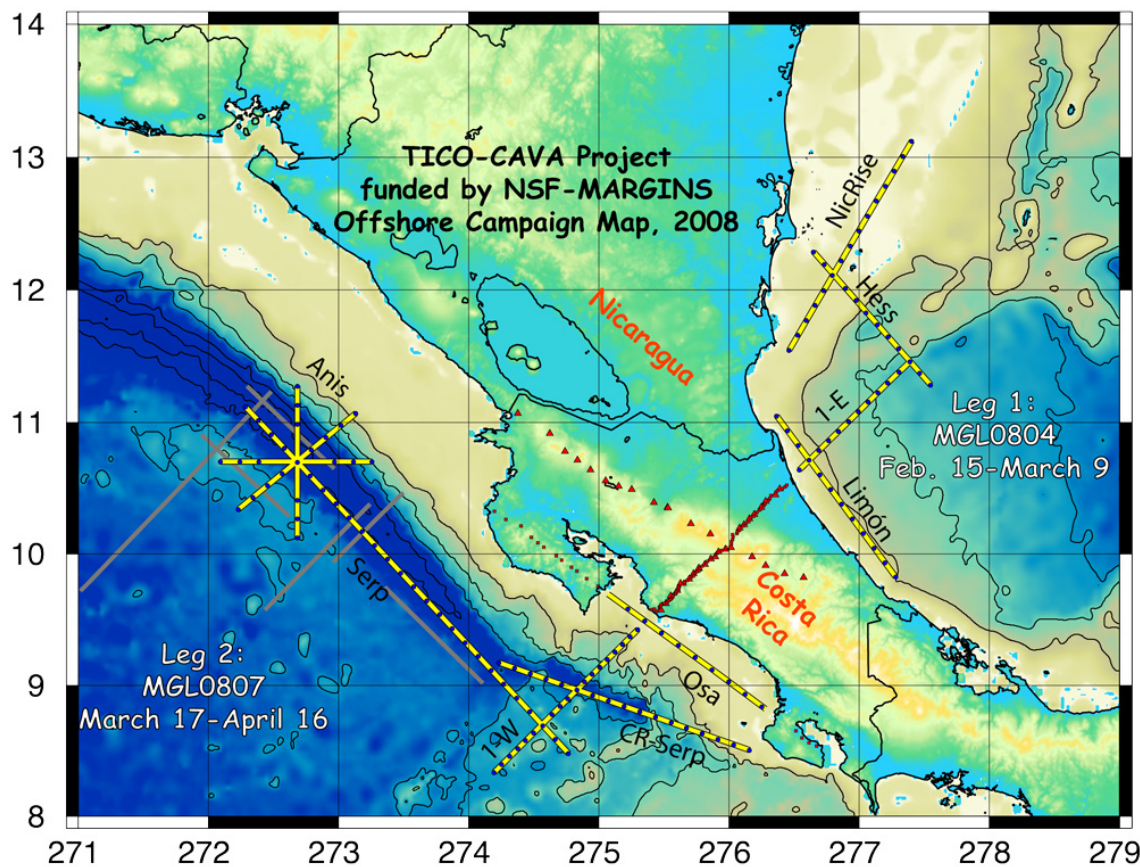


Figure: Map showing major transects of the TICO-CAVA project, focusing on data acquired during the 2008 offshore field season. Seismic data were acquired in two legs of R/V Langseth, separated by a transit of the Panama Canal. Blue circles offshore show locations of ocean-bottom seismometers; small squares onshore show locations of Reftek seismometers that recorded onshore-offshore seismic arrivals. Triangles onshore show locations of explosions fired during the 2005 onshore explosion-refraction survey, which acquired data on the main arc-crossing transect and an along-arc transect (for clarity, the locations of the 1600 seismometers deployed during the explosion work are not shown). Map coordinates in degrees.

