NSF Award Abstract - #0203650

Collaborative Research: Imaging the Mantle in the Central American Subduction Factory

NSF Org	OCE
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Award Instrument	Standard Grant
Program Manager	Rodey Batiza OCE DIVISION OF OCEAN SCIENCES GEO DIRECTORATE FOR GEOSCIENCES
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Expires	March 31, 2005 (Estimated)
Expected Total Amount	$478134 (Estimated)
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NSF Program	1620 MARINE GEOLOGY AND GEOPHYSICS

Field Application 0204000 Oceanography
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Abstract

This award is for an 18 month deployment of 43 PASSCAL broad band seismometers in Nicaragua and Costa Rica to seismically image the mantle "subduction factory" of the Central American volcanic arc in the region. In addition to the PASSCAL instruments, the PIs will also collaborate with Costa Rican and Nicaraguan seismologists to use data from existing short period and broadband instruments. The experiment will image the mantle wedge with receiver functions and other converted waves, together with regional waveform inversions. Tomographic imaging will be used to try to map the region of slab dewatering (and intermediate depth earthquake generation), melt generation and melt migration in the mantle wedge. Patterns of mantle flow will be interpreted from shear wave splitting data, and crustal structure will be inferred from receiver functions. Overall, the idea is to infer the workings of the subduction factory by combining seismic images of the crust and mantle with the modeled interpretations of large observed differences in magma composition along strike in the arc volcanoes.

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