
NSF Org OCE

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Award Instrument Standard Grant

Program Manager Bruce T. Malfait
OCE DIVISION OF OCEAN SCIENCES
GEO DIRECTORATE FOR GEOSCIENCES

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Expected Total Amount $300134 (Estimated)

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NSF Program 5720 OCEAN DRILLING
Recommended project is for a multidisciplinary investigation of the thermal state of the subducting lithosphere offshore of the Costa Rica margin. Heat flow measurements will be undertaken in two cruises covering oceanic lithosphere portions offshore of the Nicoya Peninsula that differ in makeup and tectonic style, with the northern portion formed at the East Pacific Rise and the southern portion, separated by an abrupt change in relief, formed at the Cocos-Nazca spreading center. These measurements will be accompanied by seismic and swath bathymetric study, as well as a coring program that will examine changes in porewater chemistry associated with fluid flow in the sediments overlying the crust. These field programs will be accompanied by two numerical modeling exercises that will examine the thermal state of the subduction zone as these two portions of lithosphere subduct. The goals will be to determine the comparative thermal state of the subducting lithosphere in these regions, the associated heat and fluid fluxes responsible for the subducting slab thermal states, and how these variable affect subduction zone processes, including chemical flux rates.
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