

## **A Near Field Study of a Seismogenic Zone: the Nicoya, Costa Rica, Segment of the Middle America Trench**

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The US National Science Foundation has funded a large project to map the upper and lower limits of the seismogenic zone along the Nicoya segment of the Middle American Trench in Costa Rica, where the Cocos plate subducts under the Caribbean plate, and to study the parameters controlling these limits. This project is funded under the SEIZE initiative of the MARGINS program. Large earthquakes have occurred in this segment in 1853, 1900 and 1950. Without significant slip since 1950, with a convergence rate close to 85 mm/y and an area ranging from 5000 to 10000 km<sup>2</sup>, the Nicoya segment represents a seismic gap with a potential to generate an earthquake with magnitude above 7.5. Given its high seismic potential, the available data and especially the fact that the Nicoya peninsula extends over large part of the rupture area, this segment was selected as one of the two sites for a SEIZE experiment.

As part of this project a 20 station land digital seismic and a 14 station ocean bottom seismic network were installed in and off the Nicoya peninsula in December 1999. The land network has a spacing of 15-20 km between stations and sits right over the lower portion of the seismogenic zone; it consists of 10 broadband and 10 short period sensors, all with Reftek digitizers and GPS clocks. The marine network consists of broadband OBSs and it lies in the central part of the Nicoya segment extending from the trench to where the plate interphase in about 10 km deep.