

AN: **G51A-12**

TI: GPS Monitoring of Subduction Zone Deformation in Costa Rica

AU: P Lundgren

EM: paul@dagobah.jpl.nasa.gov

AU: M Protti

AU: E Hernandez

AU: R Van der Laat

EM: jprotti@una.ac.cr

AU: A Donnellan

AU: M Heflin

AU: D Jefferson

AU: M Smith

EM: andrea@cobra.jpl.nasa.gov

AB: The subduction of the Cocos plate beneath Costa Rica is among the highest convergence rates in the world. The high subduction rate and nearness of the Nicoya Peninsula, Costa Rica to the Middle America Trench (MAT) provide a unique opportunity to map variations in interseismic strain of the crust above the seismogenic zone in response to variations in seismic coupling. We have Global Positioning System (GPS) measurements since 1991 over a subnetwork and since 1994 we have monitored the Costa Rica (CORI) network of 24 GPS sites. The entire CaRI network was measured in 1994 and 1996 with additional measurements of half the network made in April 1997. The GPS data have been analyzed using the GIPSY-OASIS 11 software. Significant deformation is found throughout the network. In the southern half of the network sites are moving to the east, relative to interior northern Costa Rica sites, as part of the Panama Block. In addition to motion of the Panama Block, the Caribbean Sea coast is experiencing considerable transient deformation related to the 1991 M 7.7 Limon earthquake. The southern Pacific coast is experiencing additional interseismic strain along the MAT. In northern Costa Rica rapid convergence along the MAT produces large interseismic deformation along the west coast of the Nicoya Peninsula (up to 20 mm/yr of subsidence) and large surface displacements parallel the MAT of the forearc sliver. Important spatial variations parallel to and perpendicular to the strike of the MAT suggest considerable complexity along the seismogenic zone.

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