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Preliminary results of IODP Expedition 334, Costa Rica Seismogenesis Project (CRISP)

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The Costa Rica Seismogenesis Project (CRISP) is designed to understand the processes that control nucleation and seismic rupture of large earthquakes at erosional subduction zones. CRISP involves the only known erosional end-member of convergent margins within reach of scientific drilling. With a low sediment supply, fast convergence rate, abundant seismicity, subduction erosion, and a change in subducting plate relief along strike, CRISP offers excellent opportunities to learn causes of earthquake nucleation and rupture propagation. This project investigates the seismogenic processes common to most faults and those unique to erosional margins. Integrated Ocean Drilling Program Expedition 334 is based on a part of CRISP Program A, which is the first step toward the deep riser drilling through the seismogenic zone. Scientific objectives of this expedition include constraining the architecture and evolution of the plate boundary megathrust and role of fluids, as well as the nature of the upper plate in a tectonically erosive margin along a drilling transect at two slope sites. These slope sites might also serve as pilot holes for potential future proposed riser drilling to reach the aseismic/seismic plate boundary. We will present preliminary results of Expedition 334 that is conducted on March 15-April 13, 2011.