

DEFORMATION AND FLUID FLOW IN SUBDUCTION ZONES: TOWARD AN UNDERSTANDING OF THE SEISMOGENIC ZONE

Dr. Gregory Moore, University of Hawaii

Most of Earth's great earthquakes occur in fault zones where one tectonic plate subducts beneath another. Recent ODP drilling and seismic reflection surveys provide exciting new results on the initial processes that deform weak sediment in the shallow parts of the fault zone, releasing large amounts of fluids. Future surveys and drilling will focus on the deeper portions of the fault zones where sediments have been physically transformed into brittle rocks that are capable of producing earthquakes (seismogenesis). By integrating ODP drilling results with seismic reflection data, Dr. Moore will discuss the current state of knowledge about the deformation of sediments, the associated expulsion of pore fluids, and how ODP drilling contributes to our understanding of the seismogenic zone. Dr. Moore sailed on ODP Legs 131 (Nankai Trough), 156 and 171A (Barbados) as a geophysicist/logging scientist, and will be the co-chief scientist on upcoming Leg 190 (Nankai Trough).