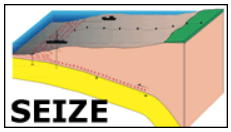
DRAFT

Three-Dimensional Seismic Data Defines Splay Fault Geometry in Nankai Trough



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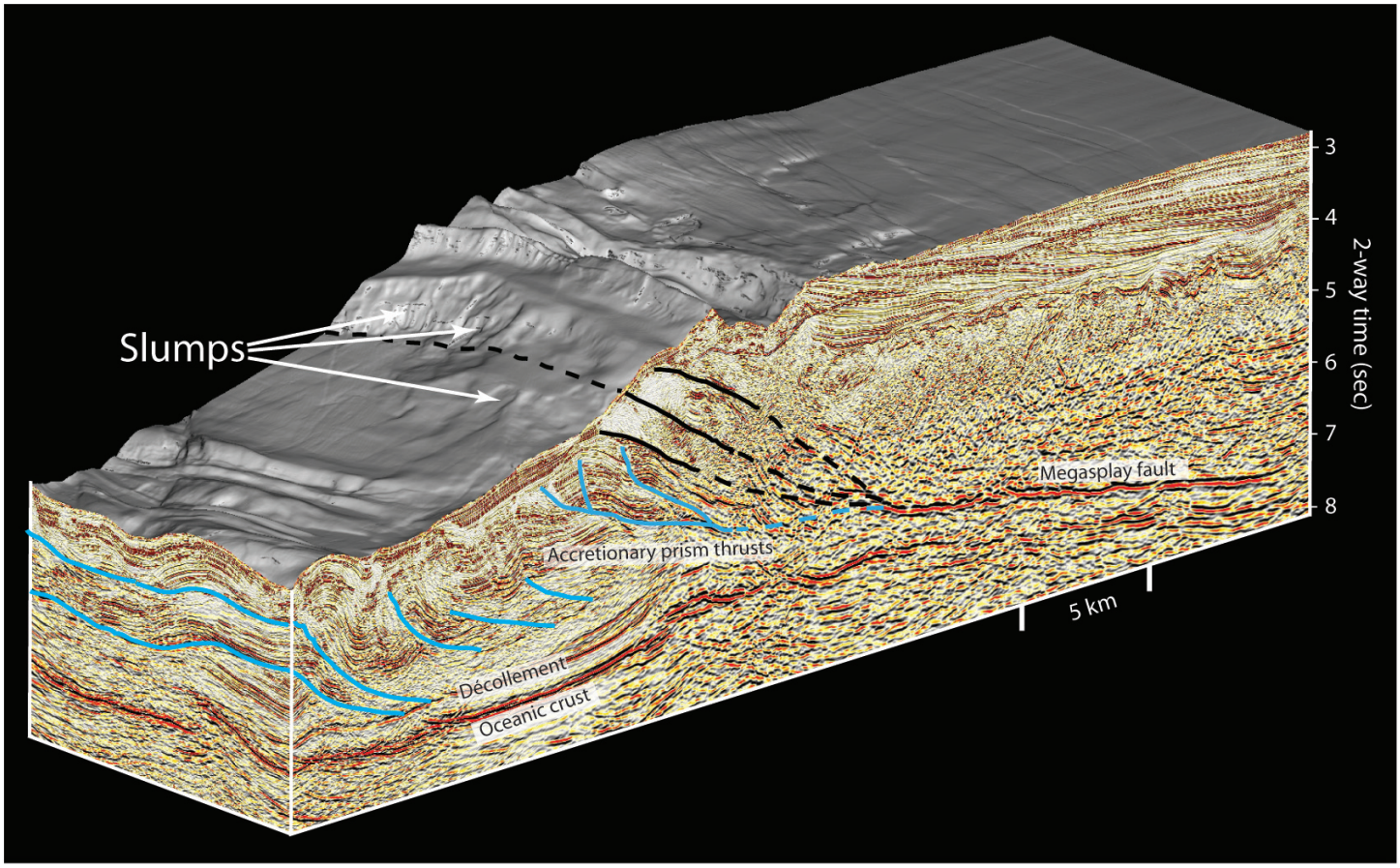
This grant provided funds to contract the first-ever commercial marine 3D seismic data set acquired for scientific research (Moore et al., 2007). The 3D volume imaged the megasplay thrust system in the Nankai Trough Kumano Transect area, allowing us to map the splay fault geometry and lateral continuity. The megasplay is continuous from the main plate interface fault upwards to the seafloor, where it cuts older thrust slices of the frontal accretionary prism that have been deformed along oblique thrust ramps. The thrust geometry and evidence of large-scale slumping of surficial sediments shows that the fault is active. The high-resolution 3D dataset images details of the frontal thrust, megasplay tip and forearc basin, and was used to located drill sites for the NanTroSEIZE drilling campaign on D/V Chikyu during late 2007-early 2008.

Figure: NanTroSEIZE 3D seismic data volume showing the location of the megasplay fault (shown in black line) and its relationship to older in-sequence thrusts of the frontal accretionary prism (shown in blue lines). Note steep seafloor topography and numerous slumps above the splay fault.



Moore, G.F., Bangs, N.L., Taira, A., Kuramoto, S. Pangborn, E., and Tobin, H.J., 2007, Three-dimensional splay fault geometry and implications for tsunami generation: Science, v. 318, p. 1128-1131.