

Numerical simulations of the formation of a dynamic decollement

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Decollements are often weak sedimentary layer that are deformed preferentially to form the base of an accretionary prism. However, in the Nankai Trough there is no clear evidence of a particular precursory layer. In this contribution, we discuss the mechanical conditions which can lead to the formation of a near horizontal thrust that acts as the basal shear zone of an accretionary prism. We performed numerical simulations of the deformation of a visco-elasto-plastic material with sandbox-type boundary conditions. We show that the imposed kinematic boundary condition lead to a stress state that allow for both the development of Andersonian fault that develop from the surface and non-andersonian, near horizontal fault that propagate from the indenter. Results from this simple numerical experiment are discussed in the light of available stress data from the Nankai accretionary prism.

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