Geophysical Research Abstracts
Vol. 19, EGU2017-11608, 2017
EGU General Assembly 2017

Subduction initiation without a prescribed weak zone: What's gonna happen?

Philippe Yamato (1) and Thibault Duretz (1,2)

(1) University of Rennes1, Géosciences Rennes, Rennes, France (philippe.yamato@univ-rennes1.fr), (2) ISTE Laboratory (UNIL), Lausanne, Switzerland

Subduction initiation is one of the main unclear aspect of plate tectonics. When studying subduction processes, subduction initiation is therefore generally avoided as it constitutes a problem in itself. The easiest way to avoid this problem in numerical models is to start the simulations with either a pre-existing subduction zone or a pre-existing weak suture zone. In the Wilson cycle, as subduction initiation is often supposed to correspond to the first stage when an oceanic lithosphere formed during extension turn in compression, we here present 2D thermo-mechanical models of continental rifting followed by compression. While some of the models evolve toward subduction(s), they often do not occur at the expected location. This poster aims to discuss the results obtained in such models and the consequences of prescribing initial weak suture zones in the numerical models.