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Ph.D candidate

Constraining the intra-oceanic subduction initiation causes and processes with high spatial and temporal resolutions thermo-mechanical numerical simulations.

Description:

Even after almost fifty years of active research on the possible causes of the initiation of subduction zones there is still some unanswered questions about this geodynamic phenomenon and the related scientific debate is still ongoing and lively. One method to study this subduction initiation conundrum is by the use of thermo-mechanical numerical simulations that aim to model the physics and thermodynamics of the subduction processes with the best possible realism that is allowed by the huge numerical computing power that is available now.

For this Ph.D. thesis, I will use this computing power to constrain the causes and processes that lead to intra-oceanic subduction zones initiation with high temporal and 2D and 3D spatial resolutions thermo-mechanical numerical simulations that will have a particular emphasis on the physical and metamorphic processes that occur at the narrow interface between the top of the subducting slab and the inferior part of the overriding oceanic crust and lithosphere and also with sub-lithospheric mantle materials.