



Mediterranean accelerated slab retreat; subduction instability in stalled continental collision

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The Mediterranean region captures at a highly fortuitous moment in the time, a lucid picture of the fate of foundering old oceanic lithosphere that has been landlocked in a stalled (almost) continental collision. This is evident from numerous geological spatial and temporal data of stretched crust as well as the 3D distribution of old (Mesozoic) Abyssal plains and new oceanic lithosphere segments in concert with: heat flow, palaeomagnetic, & geodetic velocity data, earthquake hypocentre distributions, and seismic tomography. We see that subducting slabs are forced to retreat at the various internal plate boundaries characterised by limited net plate convergence that come into being with the disbursal and segmentation of the foundering landlocked ocean. The length of active subduction at these boundaries gradually diminishes with the progression to a complete consumption of old oceanic lithosphere; the arrival of continental lithosphere causing a termination of the system and probably promoting a tearing, that is along strike laterally propagating break-off, of the slab. As the active subduction boundaries length diminishes with time, this retreat dramatically accelerates. We suggest that the Mediterranean region offers a series of snapshots of accelerated slab retreat that is globally unique as the only present day example of intra continental-collisional oceanic subduction.