

Eocene plate reorganization and unstable fall of subducting slabs

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About 40-50 Ma ago there was a noticeable change in Earth activity named 'Eocene plate reorganization'. This event is indicative of an intermittent nature of mantle convection with a peak activity in the Eocene Epoch. We review the recent tomographic images of subducted slabs to understand what happened in plate subduction in the Eocene Epoch. Based on this review, we hypothesize that a subducted slab stagnant in the mantle transition region may sink into the deep lower mantle upon its gravitational instability and that such an instability happened and propagated along the Circum Pacific in the past to cause the Eocene plate reorganization.