Flat slab subduction dynamics in a mantle reference frame: Examples from the Andes, Mexico, and Tibet

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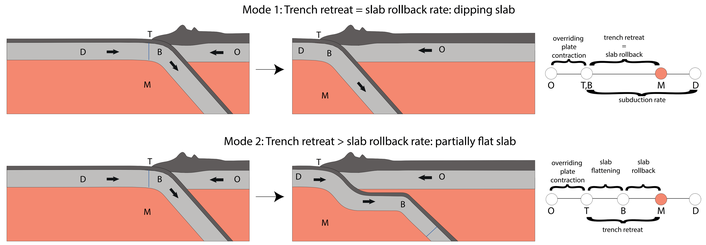
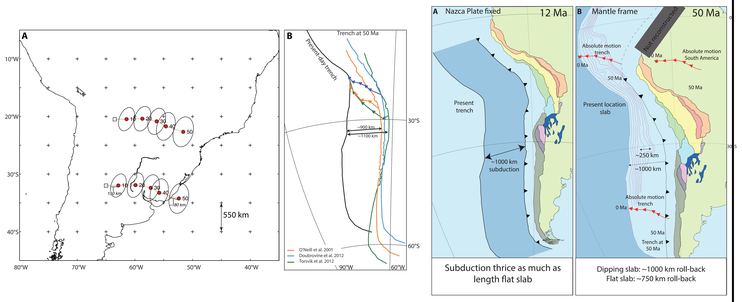
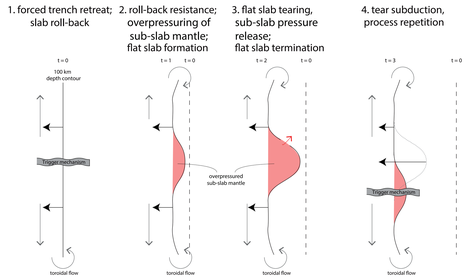
South America (Andes):

transient flat subduction episodes during times of mantle-stationary subduction with upper plate advance; No flat slab when slab roll-back keeps pace with upper plate advance



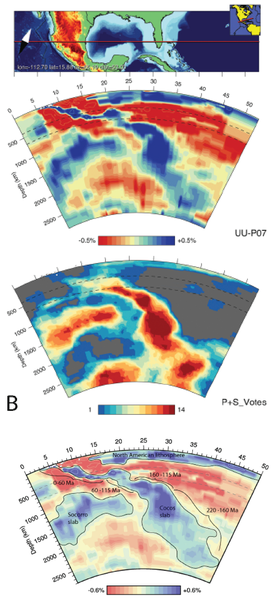


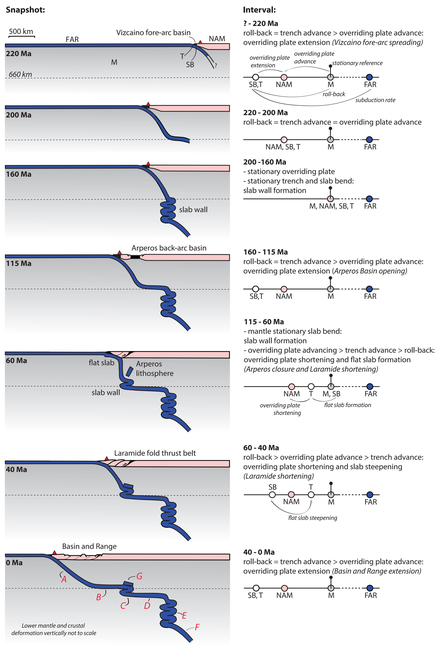


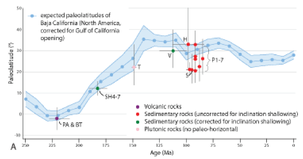
Schepers, G., van Hinsbergen, D.J.J., Spakman, W., Kosters, M.E., Boschman, L.M., McQuarrie, N., 2017, South American plate advance and forced trench retreat as drivers for transient Andean flat subduction episodes, ***Nature Communications*** *8, 15249*

North America (Mexico):

flat subduction episodes during times of mantle-stationary subduction with upper plate advance; steep subduction and upper plate extension during slab roll-back



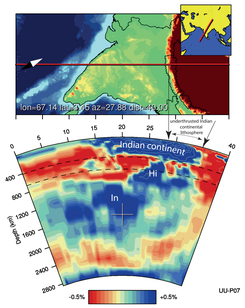


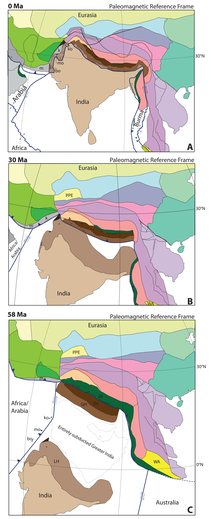


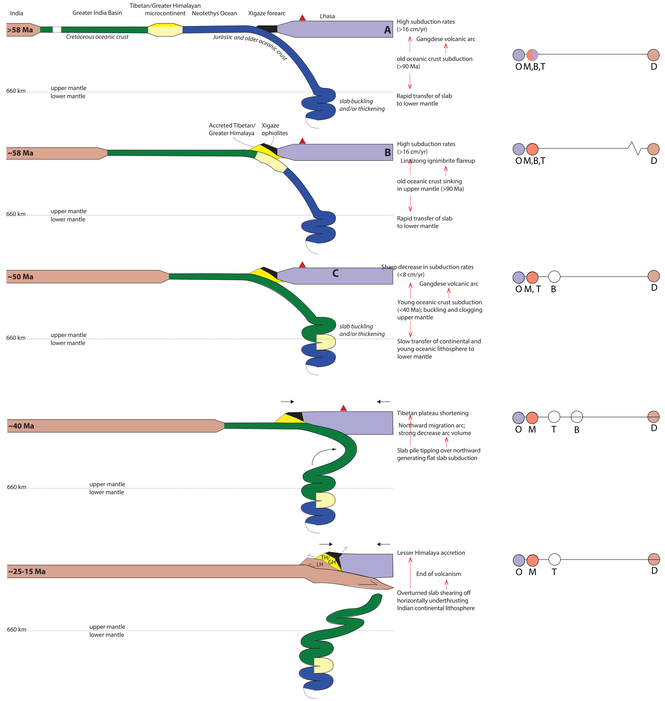
Boschman, L.M., van Hinsbergen, D.J.J., Kimbrough, D.L., Langereis, C.G., and Spakman, W., 2018, 220 Myr of Farallon Plate subduction below Mexico, ***Geochemistry, Geophysics, Geosystems****, accepted pending revision*

Asia (Himalaya-Tibet):

flat subduction episodes with nearly mantle-stationary upper plate during slab advance and overturning due to resistance against lower mantle subduction.







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