

## GEODYNAMIC EVOLUTION OF SW EUROPE VARISCIDES

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On the basis of existing data, some of them recently obtained, the following geodynamic evolution for the SW Europe Variscides is proposed.

The Rheic Ocean starts to open at 500My splitting Avalonia and Armorica plates of near Gondwana origin. Cadomian basement and Cambrian cover are thinned by extension of lower crust, including high-pressure granulites and eclogites, belonging to a pre-existent Cadomian suture, and an upper crust of granitic composition. Rifting is expressed as a break-up unconformity ("Sardic phase *s.l.*") along with bimodal magmatism and high heat flow that led to the resetting of the older Cadomian ages at 500 to 480My

Initiation of subduction at the SE side of the wide Rheic Ocean induces the opening of a small back-arc basin, the Palaeotethys, between 430 and 390My, and splitting the Armorican plate from the Iberia plate. Both Armorica and Palaeotethys are cut by the Porto-Tomar(-Ferreira do Alentejo) (PTFA) dextral transform shear zone and the continental segment of Armorica terminates against this transform.

Hot obduction of the Palaeotethys oceanic lithosphere at 390My is immediately followed by collision of Armorica and Iberia, leading to the emplacement of the NW Iberia Allochthon, rooted in the South Armorica suture outlined by high pressure metamorphism at 390-370 My.

At the same time, to the west of PTFA transform, antithetic obduction of the Beja-Acebuches Ophiolite Complex takes place from the back-arc of Rheic, which is a lateral equivalent of Palaeotethys, but also obduction of the main Rheic ocean that leaves some klippen on the top of Ossa Morena Zone, the SW margin of Iberia plate. Below the obducted ophiolites, the development of high-pressure regional metamorphism is due to tectonic overpressure by a flake-double wedge mechanism, confirmed by recent image data of the Iberseis profile.

The tectonic setting of the Armorica-NW Iberia and of the SW Iberia transects differ in the fact that the intervening continental Armorica plate between the main ocean (Rheic) and a minor ocean (Palaeotethys) is only present in the NW Iberia but not in the SW Iberia transect.

Convergence continues after 390My by intracontinental deformation of Avalonia and Armorica-Iberia and progressive tightening of the Ibero-Armorican Arc (IAA) by dextral transpression of the Cantabrian Indentor as a promontory of Gondwana. This explains the increasing displacement and shortening from Iberia to Armorica as we move clockwise along the IAA.