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A Revised Plate Tectonic Model for the Western Tethys from Paleozoic to Cretaceous

In the light of a broad array of new data going from deep seismic to detailed field work , we reconsidered the geodynamic evolution of the Adria and Apulia micro-continents in space and time. This evolution has been described in many ways so far, rich with controversies, but recent approaches have shown that more could be added, mainly in the field of plate tectonics, supported by new geophysical datasets. The main concern is the Late Palaeozoic and Mesozoic evolution of terrains that were separated and united several times, but always with a large component of lateral displacement.

A key point is the age of the East Mediterranean-Ionian sea basin, and the nature of the sea-floor in this area. This, in turn, influences the way that continental re-assembly for the Mesozoic can be done (fig.1 & 2). An agreement is now emerging about the Permo-Triassic age of the E-Mediterranean-Ionian sea floor and its direct connection with the Neotethys (fig 2) . A new continental fit was built up in an attempt at reconciling plate tectonics with geophysical data, it differs significantly from previous proposed models, mainly regarding the position of Adria. This new model is based on the necessity for having already a close to the present day position of Adria versus Apulia already since Late Triassic times (fig. 2 & 3). This, in turn influences the scenario for the opening and closing of the Alpine Tethys, keeping in mind that Iberia followed the wander path of Africa during most of the Cretaceous period (fig. 4 & 5).

References

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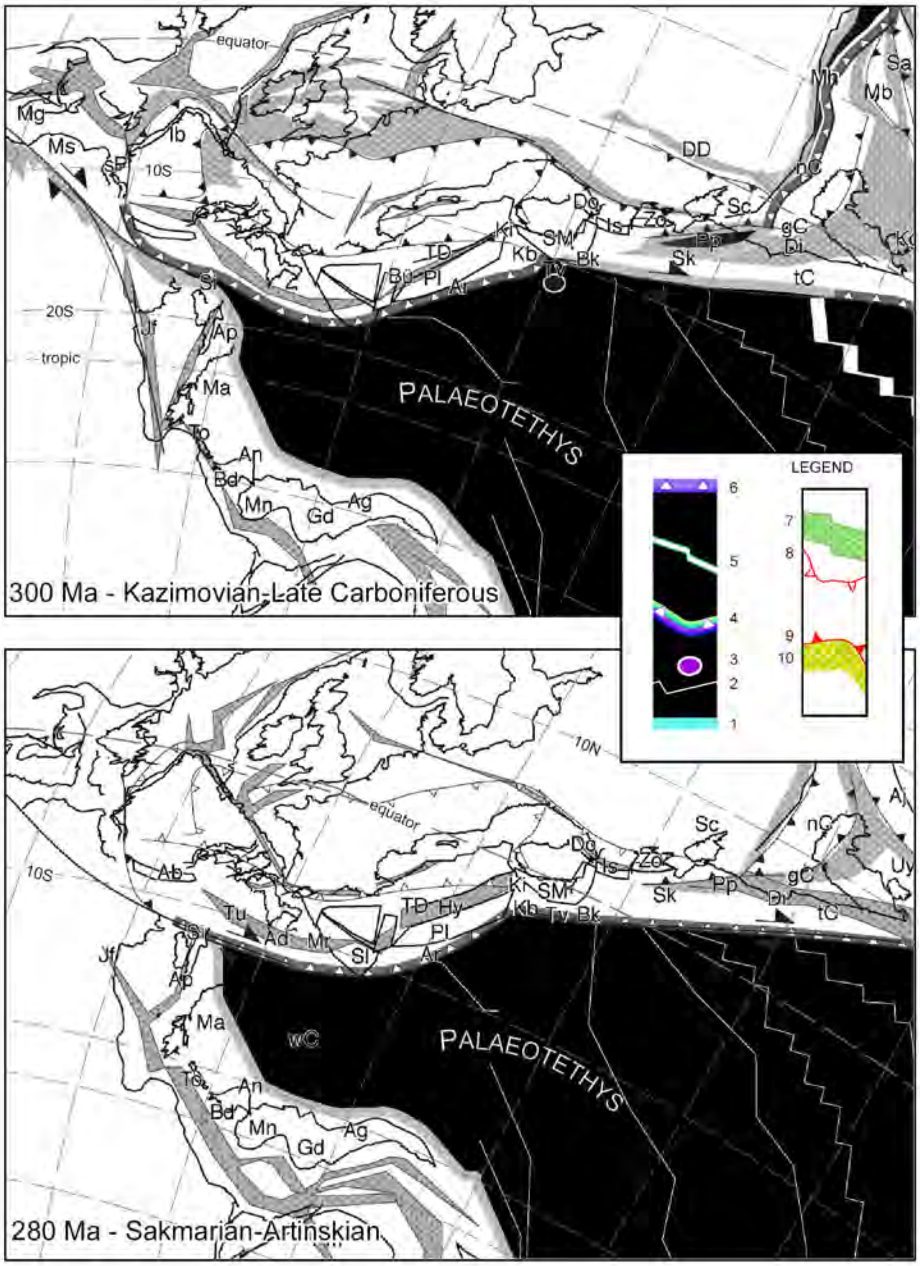
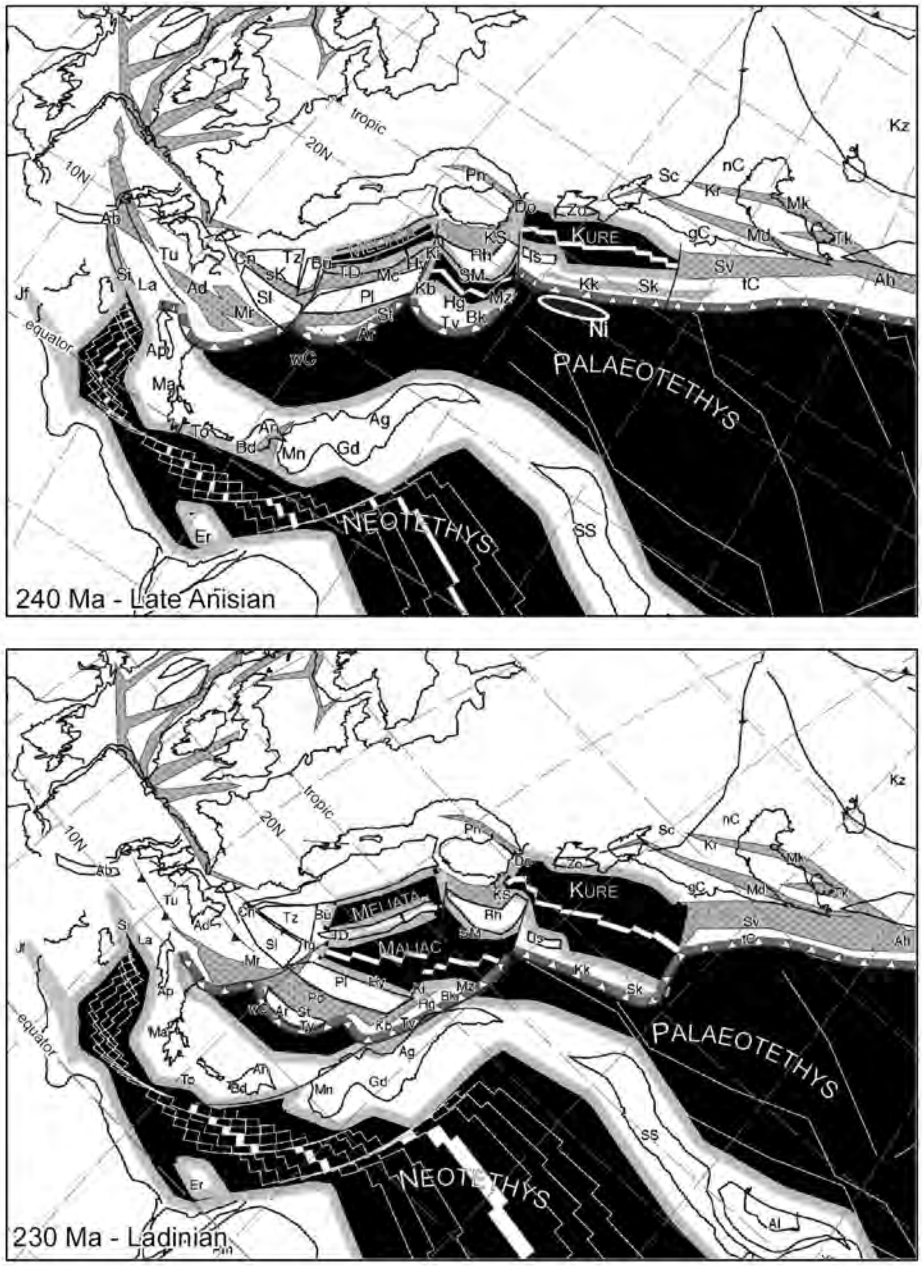
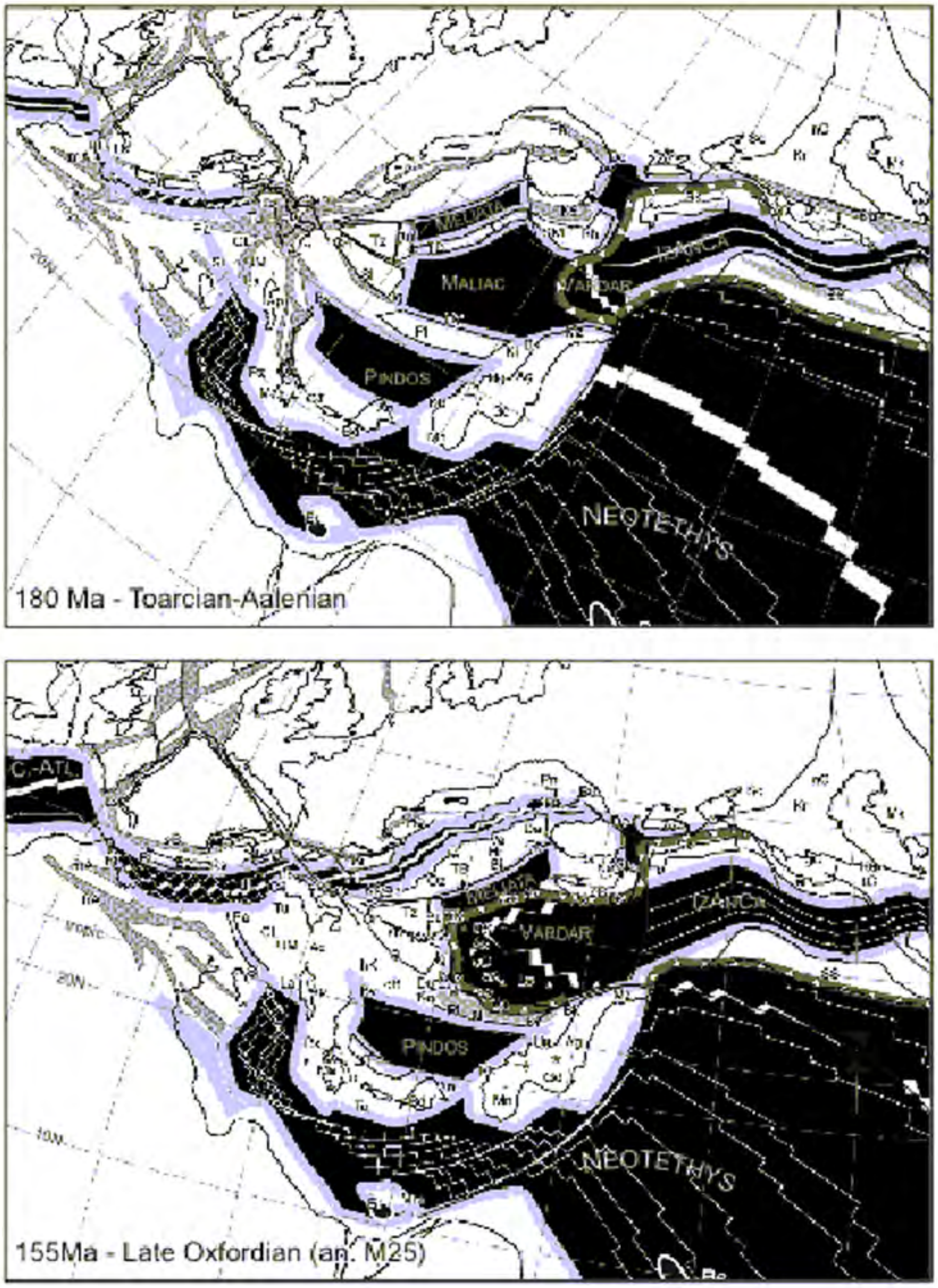


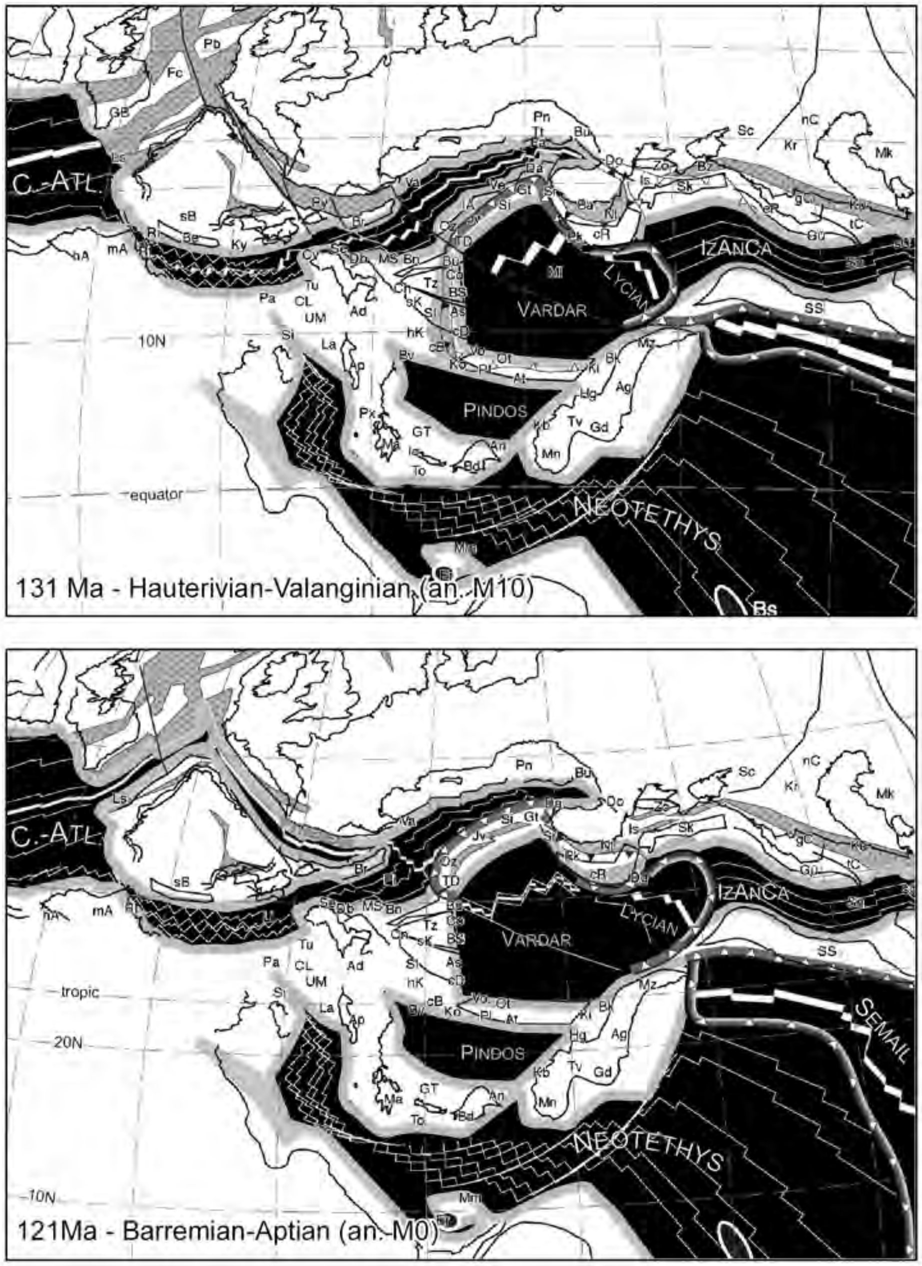
figure 1: Western Tethys reconstructions for the Late Carboniferous and Early Permian, modified from Stampfli & Borel (2002). 1- passive margin; 2- magnetic anomalies or synthetic anomalies; 3- seamount; 4- intraoceanic subduction/arc complex; 5- spreading ridges; 6-subduction zone; 7- rifts; 8- sutures; 9- active thrusts; 10- foreland basins.



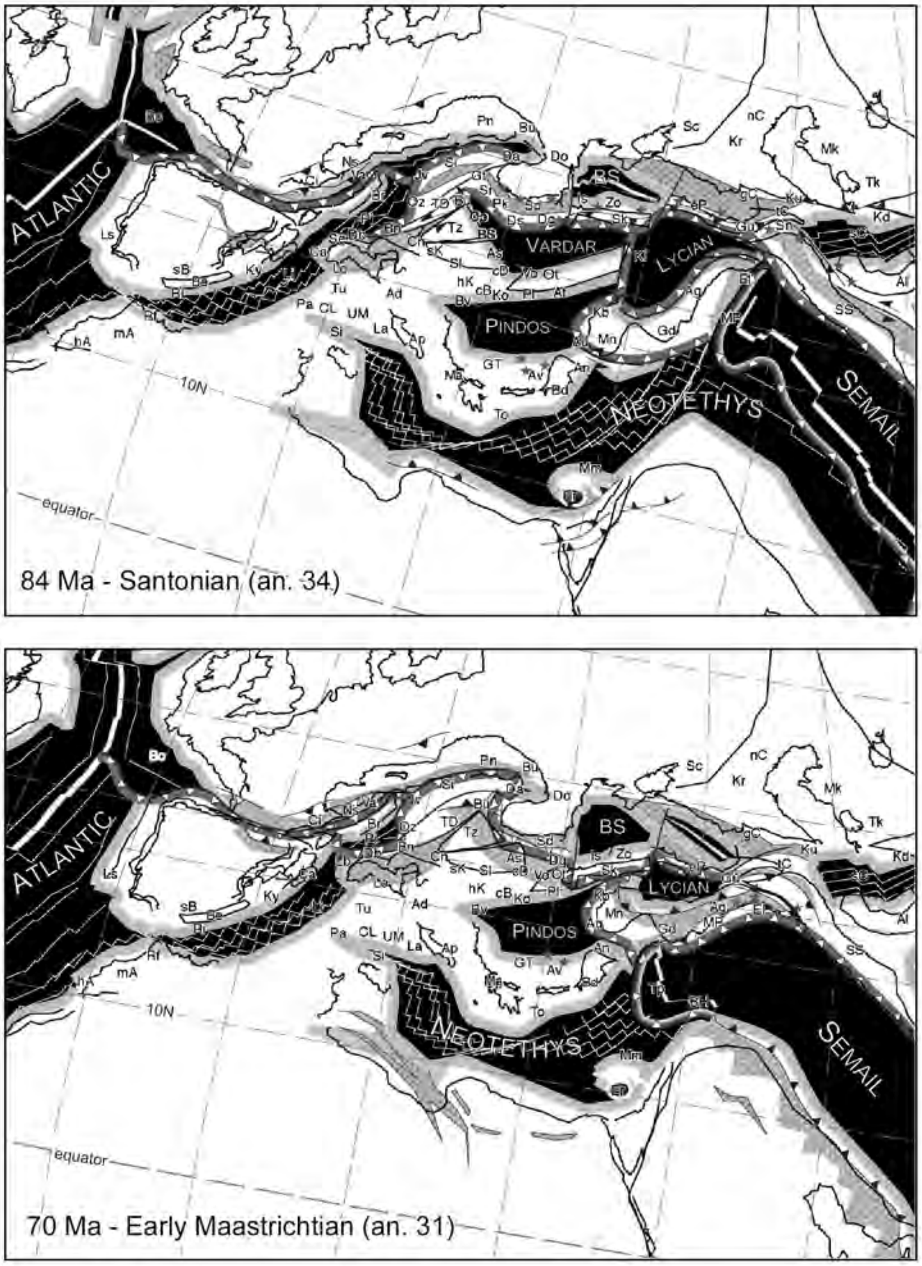
- figure 2: Western Tethys reconstructions for the Early and Middle Triassic, modified from Stampfli & Borel (2002). For legend see figures 1.



- figure 3: Western Tethys reconstructions for the Middle and Late Jurassic, modified from Stampfli & Borel (2002). For legend see figures 1.



- figure 4: Western Tethys reconstructions for the Early Cretaceous, modified from Stampfli & Borel (2002). For legend see figures 1.



- figure 5: Western Tethys reconstructions for the Late Cretaceous, modified from Stampfli and Borel (2002). For legend see figures 1.