

Interactive comment on “Kinematics and extent of the Piemont-Liguria Basin – implications for subduction processes in the Alps” by Eline Le Breton et al.

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Any attempt to reconstruct the motion of plates or microplates in the Mediterranean domain is welcome. As a co-author of Hinsbergen et al. (2020) I am perfectly aware that the reconstruction we presented is just one possibility amongst others and hence alternative scenarios are more than welcome. Some of the potential problems were discussed in that paper.

However the introduction of a Mid-Adriatic Transform Fault in order to solve compatibility problems regarding Sardinia-Corsica 200 Ma ago as a consequence of the input into their reconstruction is totally unsound and not supported by any geological or geo-

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physical evidence whatsoever. The authors take this Mid-Adriatic Transform Fault with 230km!!!! strike slip displacement as a precursor of what they call "Mid Atlantic Ridge". The name ridge is totally inappropriate and the amount of displacement at 200 Ma is, in my view, an invention in order to save a problem arising from their reconstruction.

The authors cite d'Agostino et al. (2008) in this context who stated that "We suggest that the present-day microplate configuration follows a recent fragmentation of the Adriatic promontory that during the Neogene rigidly transferred the Africa motion to the orogenic belts that now surround the Adriatic region." There is indeed seismic evidence for some complex movements with absolutely subordinate strike-slip displacements; clearly the primary role of this only very recently active fault array is to accommodate differential rotations of northern and southern Adria that take place at the present day according to solid and undisputed GPS analyses. There is no evidence available in terms of activity of this fault in the more distant past. In the contrary, the reconstruction of Triassic seaways and platforms (e.g. Bernoulli 2001, and many others) shows a perfect fit of the paleogeographic features for Triassic times across the Adriatic Sea from Albania to the Marche in Italy. The supposed lateral movement by 230km at 200 Ma (end of Triassic) would have severely disrupted this simple paleogeographic scheme and would not have been left undetected in the seismic sections across the Adriatic Sea by the Italian (CROP Atlas) and Croatian colleagues, that show undisturbed Mesozoic cover across the Adriatic Sea, except for a complex fault array that is responsible for the present-day neotectonic activity monitored by GPS-analysis.

I suggest to the authors to be more honest and acknowledge that their reconstruction, like any other one, like for example that of Hinsbergen et al (2020), has severe shortcomings resulting in incompatibilities. These shortcomings need to be discussed. Inventing manifestly inexistent "fake"-strike slip movements of this order of magnitude is dishonest in my view.

Fig. 2: scheme of the Peri-Adriatic area for the Triassic of Bernoulli 2001,

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Please also note the supplement to this comment:

<https://se.copernicus.org/preprints/se-2020-161/se-2020-161-SC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2020-161>, 2020.

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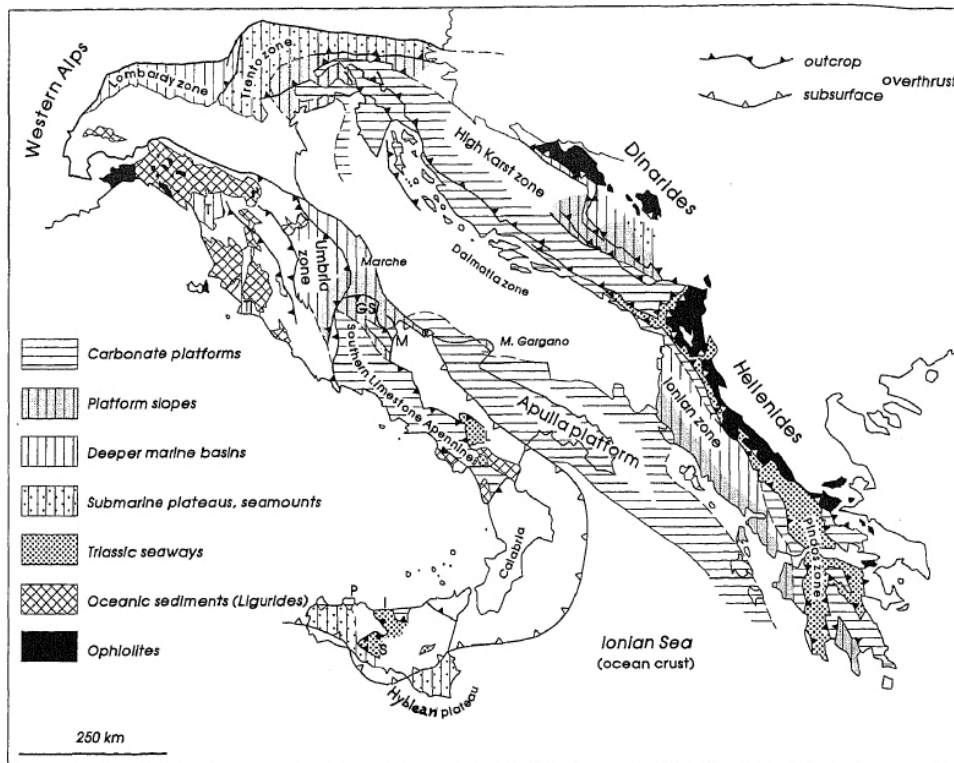


Figure 18.1 Tectonic units and late Jurassic palaeogeography in the peri-Adriatic area. No palinspastic correction was made (after Bernoulli, 1972; with additions from Cati *et al.*, 1987 and Argnani *et al.*, 1996). (GS, Gran Sasso d'Italia; I, Imerese basin; L, Lagonegro basin; M, Montagna della Maiella, P, Panormic platform; S, Sicani basin; T, Toscanides; the Umbria seamounts are too small to be indicated at this scale).

Fig. 1. Figure from Bernoulli 2001

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