

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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Received and published: 4 January 2021

Response to Review #2 by Andrea Argnani

We thank Andrea Argnani for the constructive comments and suggestions. We know that the model we choose for Sardinia-Corsica (and Iberia) is debated. We have made significant changes to the manuscript to address this issue, present alternative scenarios and arguments to support our kinematic model. The main argument is that other models based on paleo-magnetic data such as the recent one of Van Hinsbergen et al. (2020) would predict more than 500 km convergence between Iberia and Sardinia, of which there is absolutely no geological evidence. To avoid this, we rather overesti-

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mate the amount of strike-slip along existing strike-slip faults. Following your review, we changed the location of the fault within Adria to the Mattinata Fault, to follow strictly the proposed model of Schettino & Turco (2011; see answer to your specific comment on that point attached). We acknowledge that the 230 km of strike-slip fault is very likely an overestimation. Future work should look at more diffuse intraplate deformation within Adria, as well as Iberia, which may help solve the debate on the paleo-magnetic data.

Despite this limitation in our kinematic reconstructions, we would like to stress that this motion of Iberia (post-145 Ma, opening of Bay of Biscay) and within Adria (100-40 Ma) does not influence the opening of the PL Basin which is earlier (200-145 Ma) and therefore does not change our main results and interpretations.

Please find attached a detailed response to all comments.

Sincerely

Eline Le Breton, on behalf of all co-authors

Please also note the supplement to this comment:

<https://se.copernicus.org/preprints/se-2020-161/se-2020-161-AC3-supplement.pdf>

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

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