

## ***Interactive comment on “Unravelling the origins and P-T-t evolution of the allochthonous Sobrado unit (Órdenes Complex, NW Iberia) using combined U-Pb titanite, monazite and zircon geochronology and REE geochemistry” by José Manuel Benítez-Pérez et al.***

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»Overall quality of the discussion paper ("general comments"):

The manuscript by title: Unravelling the origins and P-T-t evolution of the allochthonous Sobrado unit (Órdenes Complex, NW Iberia) using combined U-Pb titanite, monazite and zircon geochronology and REE geochemistry by José Manuel Benítez-Pérez et al. introduces interesting age data and discussion regarding the Paleozoic evolution of the

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Sobrado unit.

The new data are of paramount importance in the understanding of this local tectonic setting as well in the general (global) framework of the Paleozoic geology.

Since this paper addresses such a general question, it somehow needs to better introduce the general geology and associated data, as age and PT conditions. It is partly attempted in the background chapter but still needs a clearer (simpler?) presentation. As a non-expert in the regional geology, I've found myself lost through the text when trying to put the data at the right place in space (map), time (age), and former position (P-T conditions). Check out and simplify the use of different terms and subdivisions (e.g., units, horses, slices, etc...).

»Individual scientific questions/issues ("specific comments")

1) Age Interpretations chapter needs profound changes (see notes on the pdf file)  
2) Figures need some work; here a few details as well other on the pdf. Figures, in general, should be re-think and make them better fitting in the manuscript. Here some notes about the figures.

2.1) I really miss images of the rock, thin sections images where the mineral assemblage is shown, microstructural relations are discussed, and analyzed mineral are located in the microstructural frame. Forging the base of the interpretation of the ages.  
2.2) I also think that the geological background data, in terms of P-T conditions and available ages, it may be conveniently shown in a synoptic diagram, which will turn useful for successive inclusion of your novel data and general discussion.

2.3) Figure1. I love the details on the map, BUT probably they are too much for this contribution. Don't you think? ==> within the three horses of the Sobrado, the map details different lithologic types (hard to distinguish on the map, by the way) and tectonic contacts with cinematic and so on. Those are not further used in the manuscript, either in the geological background or the discussion. It would probably be more useful and

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handy a simplified map. > check the consistency between FIGURE 1 and Geological background.

2.4) FIGURE 2 It is used in two steps: first, at the mineral description paragraph, describing morphologies and zoning patterns; second, when discussing ages and their relations with the zircon patterns. The figure mirrors this double use (age groups and morphologies) but not the captions, too poor. Besides, depending on the size of the image in the final manuscript, several grains might result in small. So resize accordingly to your ideal print size.

3) some suggested references for general background and discussion: Manzotti et al. 2012 - *Lithos* 146–147 (2012) 276–292 Roda et al 2018 - *Lithos* 310-311 (2018) 31–49 Manzotti et al 2017 - *Swiss J Geosci* - DOI.10.1007/s00015-017-0284-1 Jouffray et al. 2020 -> *International Journal of Earth Sciences* - <https://doi.org/10.1007/s00531-020-01848-2>

» compact listing of purely technical corrections at the very end ("technical corrections": typing errors, etc.) The noted pdf file reports several technical corrections along with scientific questions.

Please also note the supplement to this comment:

<https://www.solid-earth-discuss.net/se-2020-38/se-2020-38-RC2-supplement.pdf>

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Interactive comment on *Solid Earth Discuss.*, <https://doi.org/10.5194/se-2020-38>, 2020.