

Interactive comment on “The enigmatic curvature of Central Iberia and its puzzling kinematics” by Daniel Pastor-Galán et al.

Anonymous Referee #1

Received and published: 8 May 2020

The manuscript presents the main geological features of the Variscan belt in the Iberian Peninsula, in order to discuss the characteristics and origin of the double-arc geometry it presents. Based mainly on stratigraphic, structural and paleomagnetic data, the authors conclude that, unlike the Cantabrian Orocline, the Central Iberian curve is *strictu sensu* not an orocline, but it shows rather a primary geometry at its core, while the characteristics of its external zone are due to superposed folding and the effects of the Alpine tectonics.

In my opinion, the work as a whole is excellent, and I recommend its publication in Solid Earth with minor modifications. In this case, the unorthodox format of the manuscript should not be an obstacle. It is not strictly a review paper, nor does it present original data. Instead, it makes a synthetic tour (without pretending to be exhaustive from the

C1

bibliographic point of view) through the main characteristics of the Variscan belt in the center and western realms of the Iberian Peninsula. It also takes the essential data from the most recent relevant bibliography in order to show the non-oroclinal nature of the Central Iberian curve. From my point of view, the presented (and the available) structural information is not so relevant as to rule out that option (perhaps this should be better highlighted in the manuscript, as it is done with the paleocurrent data), but the paleomagnetic evidence is undoubtedly very robust. The interpretation presented by the authors in figure 13 is the most consistent with the available paleomagnetic information. For all those reasons, the article deserves to be published in this issue of Solid Earth.

I recommend some minor changes, mostly typing mistakes, grammar error in other cases. I indicate them in the annotated version of the manuscript that accompanies this report. There may be other errors, so I ask the authors to review the manuscript very carefully to remove them. Concerning the contents, I have included some comments in the annotated manuscript. I would like to stress here the importance of making a somewhat more important change. It refers to figure 11 (structural analysis of mullions ...). This figure is puzzling for several reasons. To begin with, the scale difference between figure 11 (study of a small outcrop) in relation to the large scale of all the other figures is very striking. Note that there also a great difference between figure 11 and the large scale on which the interpretation of the tectonic evolution of the studied region is focused. But, even more important is the fact that the data shown in that figure 11 are not original from this work. In addition, the information of a single outcrop is presented, instead that of a set of stations strategically located throughout the arch (as is done in the manuscript with the paleomagnetic or stratigraphic data). Furthermore, the structural argument that the figure tries to illustrate is presented quite clearly in the main text, together with the necessary reference to the original source of the data. Therefore, I strongly recommend deleting figure 11. It would be possible to make that change without any modification in the text (which proves that it is an avoidable figure), implying only a reorganization in the numbering of the following two

C2

figures.

Please also note the supplement to this comment:

<https://www.solid-earth-discuss.net/se-2020-51/se-2020-51-RC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2020-51>, 2020.