

Interactive comment on “A first estimation of the contraction related to vertical axis rotation: the case of the Ibero-Armorican Arc formation” by Josep Maria Casas et al.

Anonymous Referee #1

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This manuscript is related with the Ibero-Armorican Arc and its title suggests that estimations of the contraction related to vertical axis rotation would be presented. This sound very interesting, nevertheless, it fails as –in my opinion– these estimations are very, very rough and are not presented rigorously. Moreover, the manuscript is not well structured, discussion is mixed with geological setting and the data are not clearly presented. Specific comments are summarized below: “1. Introduction (Lines 27 to 60)”: Unless the lector know very well the cited papers, the introduction is difficult to follow. The authors should summarize in a few words what is necessary to know for the manuscript understanding. I am surprised that the term of “progressive arc” does not appear at any moment of the introduction, as it is one of the main models of arc

formation, together with orocline and primary arc models. “2. Geological setting of the Iberian Massif (lines 61 to 138)”: Again, it is very difficult to follow the manuscript; many of the terms are not localized and there are a lot of details which are not useful for the remaining of the manuscript. I would suggest to the author to make a table with summarized of the characteristics, both lithostratigraphic and structural, of each one of the arc (or arcs, if they include the second arc some authors propose, the Central Iberian Arc of Martínez-Catalan et al. 2014). That really would help the lector to understand the controversy and to distinguish what is the contribution of the authors to solve it. “3. Proposed models for the arc formation (Lines 139 to 194)”: In this epigraph, previous models are discussed. The problem is that they are discussed before the new data are presented in the manuscript. I would propose to the authors to distinguish between: a) the observations with which everybody agree and to put them in the geological setting, and b) those which are not accepted by the scientific community, which should be discussed in a discussion epigraph, after the presentation of the author data. “4. The amount of contraction required by the different proposed models (Lines 195 to 222)”: The “simplified way to estimate the amount of contraction” (line 196) is so oversimplified that it is not serious enough (see also figs. 3 and 5). This is a rough estimation that one can write on a piece of paper, but not in a scientific manuscript. My suggestion is that this rough estimation, which can be a nice introduction to more precise data should be accompanied by more precise estimations which include not only the type of structures and the shortening due to each set of structures, but also the timing of these latter. This is a key point which should be addressed. “5. The geological data (lines 223 to 318)”: In this paragraph, we come back to the geological setting (from lines 224 to 262 and 269 to 318) accompanied with a few data (lines 263 to 268) based on an unlocalized map (or does it corresponds with the square with Figure 5 label in Figure 1?). The authors must absolutely follow the classical structure of any scientific manuscript, differentiating clearly geological setting, methodology, results, discussion. “6. Discussion (lines 319 to 401)”: At the beginning of the discussion (lines 321 to 323), as far as I understand, the authors wonder about the existence of the Ibero-Armorican

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Arc. In that case, I don't understand why they are making estimation of the contraction related to vertical axis rotation. They should have begun with the discussion of these correlation problems. This is very confused. The remaining discussion is also difficult to follow, as they cite of a lot of localities and case studies not localized in the manuscript figures. "7. Conclusions": In my opinion, according to what I exposed in the previous paragraphs, the conclusions are not supported by the data.

For all these reasons, the manuscript should be rejected in its present form and be totally rewritten and reorganized following the comments I made, if possible.

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