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Interactive comment on “The boundary between the eastern and western domains of the Pyrenean Orogen: a Cenozoic triple junction zone in Iberia?” by S. Tavani

Anonymous Referee #2

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The Manuscript se-2012-10, entitled " The boundary between the eastern and western domains of the Pyrenean Orogen: a Cenozoic triple junction zone in Iberia?" presents an important amount of data, whose correct interpretation may represent a significant advance in the comprehension of the evolution of the Pyrenean orogen. However, after careful reading of this manuscript I have major observations to the presented work.

The main point I am concerned about is the lack of motivation of the presented work. In the introduction chapter, the author does not stress the main controversies or unsolved problems of the area that justify the undertaking of this work and the publication of its results. This problem remains in the background during the reading of the whole

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manuscript, where it is unclear what part of the information is already published. In addition, presentation and interpretation of data are often mixed and difficult to separate. As a consequence, after reading the whole manuscript the reader does not know to which extent this is a review paper or an original article. In addition, there are some striking references that have not been cited. Specially one of the most cited works in the geological literature of Iberia: Alvaro, Capote and Vegas, 1979: "Un modelo de evolución geotectónica para la Cadena Celtibérica" *Acta Geológica Hispánica*. 14, 172-177. These authors define an aulacogen that narrows towards the NW and a "triple junction" can be easily inferred from this idea but to towards the SE of the Iberian Chain. I have problems to understand the meaning of a triple junction in continental crust towards the NW.

So, if these hypotheses are based on previous works it should be more clearly specified. A similar observation can be made for most of the structural work presented in this manuscript, which is mostly unjustified by the presented data.

Another important question is the simplistic tectonic inversion proposed for the Pyrenees and the Iberian Chain (Fig. 21), since there are two periods of extension (Permian to Triassic and early Cretaceous) with different extensional axes and a very important component of wrench tectonics during the Cenozoic inversion that have not been considered.

For all the above reasons my recommendation would be "reject", although I would strongly encourage the author to resubmit the manuscript after some revision and making no reference to any kind of triple junction within the Cantabrian mountains. So, I recommend rewriting it and/or considering its publication in a more regional-oriented journal. As a general comment I suggest the authors to shorten text and figures, leaving the essential, and avoiding extensive references to geographic locations or stratigraphic formations that burden the text and make it hard to follow except for those I presume very familiar with the area.

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