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Interactive comment on "Fault evolution in the Potiguar rift termination, Equatorial margin of Brazil" *by* D. L. de Castro and F. H. R. Bezerra

Anonymous Referee #2

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The Autors provide a significant improvement of the understanding of the Potiguar Basin, along the N-NE margin of South America that faces the main transform zone that separates Northern versus Southern Atlantic. New geophysical data, coupled with existing one, allowed improving the geologic framework of this basin and the finding of new structures that highlights the presence of post-rift tectonics. This is of great importance both for the studied basin and to unravel the meaning and role of major transform fault far from being considered just accommodations between rift offsets. If on the one hand data are well presented and discussed, the representation of the geological picture that derives is somehow partly incomplete and unclear. Few corrections and clarifications will allow the wider reader audience to fully understand the work with its important implications. The impact of this work could better understood by readers if some discussion/comparison on the role of transform fault development, their re-use of

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pre-existing regional discontinuities, and their active role to accommodate plate drifting. Specifically, the tectonic framework at transform terminations has been proposed and discussed in other locations (e.g. Balleny and Tasman Fracture zones in the Southern Ocean between Australia and Antarctica, Salvini et al, JGR, 1997; Storti et al., EPSL, 2007; Lesti et al, JGR, 2008). A somehow brief discussion would frame results in the general discussion and attract the interest of a large portion of the geological community. Another area of improvement is the little discussion on the geometry of the faults ascribed to be responsible of the found half-graben structures. Although these are determined by geological profiles from geophysical data, their possible trajectory is never presented in the figures (even just as dashed lines) or their immersion mentioned, as it could be easily derived from them by experienced readers and leaving the non-specialist without their geometry. The authors might refer to papers where, using geological reference layers as the ones presented, it has been possible to propose a reliable model for their geometry (e.g. Cianfarra et al., GJI, 2009). This will surely strengthen the presented interpretation of the depocenters. Along the annotated version of the manuscript suggestions to improve Text and Figure captions are provided. As a conclusion, my suggestion is that the manuscript deserve publication with minor revisions.

see attached file for annotated version of the manuscript Sincerely,

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/6/C1348/2014/sed-6-C1348-2014-supplement.pdf

Interactive comment on Solid Earth Discuss., 6, 2885, 2014.