Solid Earth Discuss.,
doi:10.5194/se-2016-21-RC2, 2016
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Solid Earth
Discussions

Interactive comment on "Geophysical evidence of pre-sag rifting and post-rifting fault reactivation in the Parnaíba basin, Brazil" *by* D. L. de Castro et al.

Anonymous Referee #2

Received and published: 1 March 2016

Dear Editor of Solid Earth,

please find below my review of the paper Geophysical evidence of pre-sag rifting and post-rifting fault reactivation in the Parnaíba basin, Brazil by De Castro et al., submitted to Solid Earth.

De Castro and co-workers analysed a multidisciplinary dataset (air-magnetic and gravity data, seismic line data, well log data) to reveal the tectono-sedimentary evolution of the intracratonic Parnaiba basin, one of the largest Palaeozoic basin in NE Brazil and south America. The subject of intraplate deformation, basin formation and multiple reactivation of inherited structures in cratonic areas is certainly worth to document, with important implications for both academic and industrial purposes. The value of the present paper is that different geophysical data are integrated and

discussed in the framework of the overall tectonic evolution of NE Brazil. Furthermore, the Parnaiba basin is a very large basin which lies in a remote area where, evidently, the systematic acquisition of large filed-based datasets is still in progress. In this view, the present paper provides further insights to understand the overall long-lasting tectono-sedimentary evolution of NE Brazil. Despite geophysical data analyses and modelling presented in this paper is not my primary expertise, I found the figures clear and explicative. The authors propose a multistage model in which sag basin sedimentation was preceded by an Early Palaeozoic rift stage, possibly linked with brittle reactivation of previously formed crustal-scale lineaments. The proposed model is sound and supported by data presented. For these reasons, I recommend the paper for publication in SE. I have found, however, some typos throughout the manuscript, which are highlighted in the annotated PDF copy of the manuscript together with some comments and suggestions (mainly on terminology used). Kind regards.

Please also note the supplement to this comment:
http://www.solid-earth-discuss.net/se-2016-21/se-2016-21-RC2-supplement.pdf

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