

Interactive comment on “Influence of basement heterogeneity on the architecture of low subsidence rate Paleozoic intracratonic basins (Ahnet and Mouydir basins, Central Sahara)” by Paul Perron et al.

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Perron et al. describe a study into the role of inherited structures in intracratonic basins in the Central Sahara using a combination of seismic interpretation, various GIS analyses, stratigraphy and geochronology. In my opinion the background information is adequate (just requiring a few minor amendments), the analyses appear to have been appropriately conducted and the discussion and conclusions appear to suitably draw upon the results. In addition, the figures are generally of high quality and should be commended. However, at times some sections seem longer than required and there

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is potentially some repetition of information. The study is of current relevance with a number of recent papers also addressing similar topics, including a paper in Solid Earth (Phillips et al., 2018). Thus, Solid Earth seems like a suitable place for publication. I would therefore like to recommend publication if the relatively minor points suggested here and in the other comments are appropriately addressed. These minor points should not be too arduous, but I think that they will improve the manuscript. I hope you find these suggestions useful and I look forward to seeing a final version of the paper. If you would like clarification of any of my suggestions feel free to contact me.

First, I felt that it was not clear from the abstract what the purpose, aims and main findings of the study were. The reason for this appears to be that much of the abstract (and introduction to some extent) is devoted to regional background information. Although such information is obviously important I suggest more clearly outlining the main findings and study aims in the abstract. In addition, I think the introduction would benefit from a short but general overview of structural inheritance, including information from geological settings from beyond the present study to demonstrate the significance of such processes. Moreover, particularly in the abstract but also in the introduction, it is not always clear what is a finding of this study and what information is from previous work. I suggest Perron et al. clarify these sections with this in mind.

Related to the previous point is that the introduction contains a lot of material that would likely be better placed in the subsequent dedicated ‘Geological setting’ section. An example of this is the material in lines 59-75. I think that moving such information into the geological setting and using the introduction to better set up the aims and rationale would be better.

In addition to the previous points I think that the ‘Data and methods’ section requires additional information to be of more use to readers. For example ‘Geographic Information System analysis (GIS)’ (Line 124) is very ambiguous as this could mean any one of a number of approaches. Also minimal details are provided regarding the seismic

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data or the methods deploying in its interpretation. I suggest that Perron et al. consider adding additional technical information regarding their data sets and the analyses used. Some of these details are provided later in various sections but I think they would be better placed here in the dedicated section.

The descriptions of results in sections 4-6 are generally very good. In particular, good use of the figures is made in the text. However, I found that in section 7 there is an abundance of material that might be better placed in the 'Geological Setting' or the 'Data and Methods' sections. Some examples of this are noted below but I suggest Perron et al. reconsider the location of some of the material in this section.

Other minor points include:

- Line 32 – This line is quite awkward. Suggest rewording.
- Line 35 – Replace 'activated' with 'reactivated'?
- Lines 59-60 – I don't quite understand this sentence.
- Line 89 – Figure 3 appears to be called before figure 2.
- Lines 89-93 – This opening paragraph of the geological setting feels like it needs references.
- Lines 130-132 – This reads more like results. Consider moving it.
- Line 145 – Suggest providing more details of the seismic data.
- Line 171 – 'oval' has been mentioned quite a few times before this. Is it really necessary to mention it this often?
- Line 258 – Suggest clarifying why the Devonian deposits are sensitive to such processes.
- Lines 534-538 – This paragraph reads more like geological setting.
- Lines 539-549 – This description of the analyses would be better placed in the 'Data

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and methods' section.

- Lines 551-554 – The geological setting section might be more appropriate for this information.

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2018-50>, 2018.