

# Response to Report #1 by Anonymous Referee #2

Dear Anonymous Referee #2,

thank you kindly for your second review of our resubmitted manuscript. The comments have helped us polish our manuscript.

We now follow with a point-by-point response to your report. All line numbers in this response refer to the marked-changes file “Ziebarth\_von\_Specht\_REHEATFUNQ\_diff.pdf” of the last review round.

## Discussion

*It is good that the authors put more of the technical details in appendix, it clears out the main content of the text.*

- *I took the opportunity of a refreshed look at the manuscript, to take again the viewpoint of a random reader. And while the idea of the section “Workflow Cheat Sheet” is valuable, it is not where it should be. I was confused by all variables and abbreviations that had not been introduced at this point. Hence, I suggest putting the section and its figure in appendix and referring in relevant part of the manuscript to which phase of the workflow in the appendix is being detailed (because I noticed that this section had not been referred anywhere in the manuscript).*
  - We have moved the section to the appendix. To fulfill the role that the early cheat sheet was intended to fulfill (i.e. to give geoscientist readers from different backgrounds a quick overview about which parts of the manuscript may be relevant for them), we have appended an outline paragraph to the introduction.
    - We have referred to steps of the workflow in the manuscript where appropriate.
    - We have slightly reordered independent points of the listed workflow
    - We have moved the figure to the new section “3.4.1 Providing heat transport solutions”, which is the location that it is first referenced in the revised manuscript.
- *RGRDC needs to be introduced in the text since the abbreviation is now explained in the appendix otherwise, I suggest putting it in legend of Figure 2 (heat flow data).*
  - Introduced in the legend of Figure 2.
- *Section 3.2 is two lines. It needs to be absorbed in another section.*
  - These two lines plus the (definition) equation were absorbed to section 3.
- *Appendix C needs to be placed back in the text.*
  - We worked Appendix C into section “4.3.1 A combined gamma model”.
- *Line 449: “optimziation”*

- Corrected.
- *I believe paragraph of line 638 should not exist anymore, because the section was removed.*
  - Thank you for drawing our attention to this paragraph, and, in fact, the whole introductory paragraphs l. 634–649 to section 5. For some reason, all section references therein to the preceding section 4 were hand-written (other than all remaining section references in the manuscript).
    - We have removed the paragraph of line 638. The appendix describing the RGRDCs is cited where needed.
    - We have replaced the fixed section numbers with latex label references.
- *Line 714 should not mention results obtained in future sections.*
  - The paragraph l. 710–716 answers to the following comment

*“p. 23 l. 480: What is the consequence of the regional aggregate heat flow not following a gamma distribution? This is later explained but it would be important to provide here already a brief explanation and a reference [...].”*

of RC1 of the previous review round. Anticipating the result of the analysis performed in the later section 5.2.2 is required to answer the question “What is the consequence [...]?” (lines 710-714 discuss only what *could be* the consequences).

We agree, though, that an anticipation of the results of section 5.2.2 is not required for the manuscript’s arc and have hence

- removed the last sentence of that paragraph.
- *Paragraph of line 720 needs to come at line 710.*
  - It is true that the paragraph of line 720 is not an optimal end of section 5.1.1. This paragraph discusses ancillary results of Figure 10 – the section 5.1.1 can be improved by ending with a discussion of its most important finding: the rejection rate is elevated in a way that cannot be described by data uncertainty alone. However, moving the paragraph of line 720 to line 710 is not optimal. All text beginning from “A striking observation” (l. 700) up until line 719 is a continuous discussion of the issue of the elevated rejection rate. Inserting paragraph l. 720 at line 710 breaks this arc and distracts with the ancillary results. In our opinion, the following edit better addresses your comment:
    - insert paragraph of line 720 into the paragraph of line 700 (start the results listing with the ancillary results)
    - break the paragraph of line 700 at “A striking observation” (continue and end the section with the discussion of the main result)
- *References to sections and figures should be consistent (Sec. and Fig. or Section and Figure?) and need to be checked, as well as the ones to appendix. I would advise introducing LaTeX*

*labels to point to sections, some seem to be done manually at the moment which could explain why mistakes were left out.*

- We kept “section” homogeneous.
- We have homogenized the labeling of “Figure” and “Equation” to be abbreviated in-sentence and written out at sentence beginnings. Figure and Equation are capitalized.
- We have performed a dedicated reading of the manuscript focusing only on inter-manuscript references, and updated some references that have undetectedly pointed to wrong markers after previous revisions.