

Final author response to referee RC1 Dr. Kunfeng Qiu on “Evolution of structures and hydrothermal alteration in a Palaeoproterozoic metasupracrustal belt: Constraining paired deformation-fluid flow events in a Fe and Cu-Au prospective terrain in northern Sweden” by Joel B. H. Andersson et al.

Dear Dr. Qui,

We were happy to receive your review of our manuscript submitted to Solid Earth (reference no. SE-2019-150) and thank you for taking the time to read the paper and critically appraise its content. We hope that the answers provided below will satisfactorily address your comments and lead to an improved, higher quality manuscript for publication in Solid Earth.

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Answers to major comments:

1. Comment from referee:

The authors have constrained the timing of deformation by previous geochronological data. In my opinion, the paper will be more attractive if the authors could add some basic geologic characteristics, geochronology, and time scale of mineralization in the figure 16 and section 6.4.1

Authors response:

We agree that adding the suggested types of information to Figure 16 and Section 6.4.1 would be useful ideal and we consider such a holistic understanding of the regional geology as the ultimate aim. However, in order to do that in a concluding figure and text we would prefer more evidence and better regional control. At this stage of geological research in the Western Supracrustal Belt (WSB) area, we can discuss absolute time constraints and we can construct hypotheses based on our new geological data and geochronological works presented by other scholars in adjacent areas.

In order to meet this referee comment, we will need to merge our own data with results from literature.

Author's changes in manuscript:

We will clarify Fig. 16 and section 6.4.1 by adding geochronological constraints on lithologies, mineralization and deformation based on available data in the literature.

Answers to general comments:

1. Comment from referee:

Please unify the labels of the figures (uppercase or lowercase) in text and figure and explain the abbreviations.

Authors response:

We will go through the manuscript and adjust accordingly.

Author's changes in manuscript:

Changes will be made according to the referee comment.

2. Comment from referee:

Figure 6: Add some spaces between the images

Authors response:

We agree.

Author's changes in manuscript:

Spaces will be added between images in Figure 6 in accordance to the other figures in the manuscript.

3. Comment from referee:

Figure 8d: Delete the extra box.

Authors response:

Definitely, thank you for pointing this out.

Author's changes in manuscript:

The extra box in Figure 8d will be deleted

4. Comment from referee:

I suggest the authors add the location (area) in the caption of figure 15. It is difficult to link the coordinates to the different key areas.

Authors response:

We agree that adding the areas in the caption of figure 15 will clarify figure 15.

Author's changes in manuscript:

In figure 15, each image will be linked to the area in which is the observation is made.

5. Comment from referee:

In section 6.4, the author mentioned hornblende + epidote + plagioclase assemblage in figure 15e. But there is no corresponding information in the figure.

Authors response:

The correct figure reference should be 15G and not 15E. We apologize for this typing error.

Author's changes in manuscript:

The typing error in section 6.4 will be corrected in the resubmitted manuscript.