

Interactive comment on “Experimental evidence that viscous shear zones generate periodic pore sheets that focus mass transport” by James Gilgannon et al.

James Gilgannon et al.

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Dear Editor,

Please find below our replies to the referees’ comments and a revised manuscript that incorporates changes based on the feedback received.

The main change to the manuscript is the inclusion of an expanded discussion about the relationship between the porous anisotropy we observe in our experiments and the mechanics of mylonites. Referee 1 found that there was a logical gap in our previous text when it came to how and when the pore sheets would have a mechanical impact.

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This was echoed by several questions and comments from Referee 2. We agreed with the referees' perspectives and have provided a larger discussion. We kindly thank the referees for their constructive comments and hope that they find our expanded discussion is a more complete treatment.

Minor changes include a new figure (formerly fig. 3g) and some clarifications over what we are suggesting to be reappraised. In the initial submission we think that we worded some sentences poorly and gave the wrong impression about what our opinions were in relation to the constitutive models of irreversible physical deformation in rocks. Additionally, some of the consequences of including creep cavities in the general shear zone model that were formerly included within the text (and a few more examples) have now been given their own section. We have also relabelled the minerals in the new figure after some new analysis conducted since the initial submission (we have now included this in the appendix).

We have attempted to remain in keeping with the nature of a short communication and we hope that you feel that the revised manuscript achieves this while addressing the referees' concerns.

Best wishes, James Gilgannon

Please also note the supplement to this comment:

<https://se.copernicus.org/preprints/se-2020-137/se-2020-137-AC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2020-137>, 2020.

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