

Interactive comment on “Fluid-mediated, brittle-ductile deformation at seismogenic depth: Part II – Stress history and fluid pressure variations in a shear zone in a nuclear waste repository (Olkiluoto Island, Finland)” by Francesca Prando et al.

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Attached is the manuscript with detailed comments.

I have not read the complete manuscript because in its present form it is not particularly well written and organized. It reads as it is part of a larger study that has been cut and pasted in such a way as to reduce the length.

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I would like to see clear sections such as (1) early history ductile deformation (mylonite zone) and associated quartz veins (without the effects or relationships with the cataclasisite) and (2) later brittle history (cataclasisites, damage zone and pseudotachylite). In a few instances the damage zone is described before the mylonite and had me confused at the beginning. Once a clear structure is established, the manuscript will be easier to read and then I can form a more informed opinion on the discussion section.

Other comments:

The Raman and chlorite thermometry results are overinterpreted.

In its present form, I don't see how there is a continuum through time between ductile and brittle deformation. Mylonitization process occurred during D4 (1.81-1.79 Ga) while brittle fracturing occurred at ~1.75 Ga. This is a gap of ~40 Ma.

Please also note the supplement to this comment:

<https://www.solid-earth-discuss.net/se-2019-142/se-2019-142-RC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2019-142>, 2019.

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