

## ***Interactive comment on “Spatiotemporal history of fluid-fault interaction in the Hurricane fault zone, western USA” by Jace M. Koger and Dennis L. Newell***

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Dear Authors, your paper is really interesting, scientifically sound, and gives new insights into fault-fluid interaction in a fault hosting also active hydrothermal discharge. This is the best location where compare geochemical records of fossil fluids in veins with geochemical data from active springs and travertines.

I read your paper and I would like to suggest two points: -There are really good photos of outcrop structures of the Hurricane fault zone and mineralizations in the supplementary material. As in section 4.1 of the main text you describe in detail these structures, I suggest moving some of the figures from the supplementary material into the main

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text. -You describe also microstructures observed on thin sections, maybe it could be worth adding some photographs of thin sections in the main text. In section 4.1 the description is detailed bu not supported by documentation in the main text.

Overall, the discussion is straightforward and the final model is strongly supported by data. Finally, I would like to draw your attention to a paper (attached) that we recently published in EPSL where we dated (U-Th) calcite veins in a normal fault in Italy and proposed a fluid-circulation model comparable to that of the Hurricane fault zone. We found very young ages (Pleistocene) of veins precipitated at shallow depth and geochemical analyses (stable and clumped isotopes, and noble gases analyses) indicate the uprising of deep brines, mixing with meteoric fluids, and calcite precipitation at shallow depth (< 500 m). I hope that this can further strengthen your findings.

Thanks for your contribution.

Sincerely, Luca Smeraglia

Please also note the supplement to this comment:

<https://www.solid-earth-discuss.net/se-2020-69/se-2020-69-SC1-supplement.pdf>

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