

Review: “*Extensional reactivation of the Penninic Frontal Thrust 3 Ma ago as evidenced by U-Pb dating on calcite in fault zone cataclasite*” by **Bilau et al.**

General comments:

The paper gives constrain on the age of vein formation in (or near) the Penninic Frontal Thrust (=PFT). In addition, well performed stable isotopes of vein carbonates are used for reconstructing the fluid source of such veins. The data are all well performed and documented. The main problem may be a nomenclature problem. For many geologist, the name "PFT" is reserved for the thrusting of Pennine units on top of the foreland. This is not the topic of the paper. As you state in your abstract the vein formation and the extension is somehow related "High-Durance Fault System" (see also your Line 97). In contrast, the introduction gives more an overview on the PFT, but not on the High-Durance Fault System. In other words, the introduction should give higher relevance to the Pliocene/Pleistocene extensional tectonics (e.g., Sue et al. 2007) instead on the Oligocene thrusting. The spatial overlap of the PFT and the High-Durance Fault should be described in detail at the beginning.

Detail comments:

- Line 19: add “so called” or introduce somehow the “High Durance extensional fault”
- Line 29/30: This sentence may be to complex for most readers. “*Extension is caused by compression, which is propagating...*” ???
- Line 81: You may add “*Agard et al. (2002)*”
- Line 83: better see “*Rubatto and Hermann (2001)*”
- Line 90: The sentence is misleading. In Simon Labric et al. 2009 there is also white mica from the PFT itself.
- Line 96: see also constrains for the deformation history of the Briançonnais and Subbriançonnais in Ceriani and Schmid (2004) and related literature (Ceriani, Bucher etc)
- Line 113: please add a reference (or a figure)
- Line 299: FT ages only record cooling, which require somehow also erosion at the end. It is difficult to constrain the tectonics out of the FT data, specially if the ages are overlapping ages of both sides of the PFT.

This is nice little piece of work

Best Regards

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