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Reply on CC1

Laurent Jolivet et al.

Author comment on "Interactions of plutons and detachments: a comparison of Aegean and Tyrrhenian granitoids" by Laurent Jolivet et al., Solid Earth Discuss.,
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Reply to the comment of Papeschi et al.

Dear colleagues

thaks for your comments and your positive appreciation of the Aegean part of our paper. As for your full disagreement with the Tyrrhenian part of it, which is actually the main focus of the paper, we face a difficult issue as we fully disagree with your understanding of the geology of that area. There has always been two schools of though in this region. One considering that the Northern Tyrrhenian Sea results from the same back-arc extensional process that has been active since the Oligocene in the back-arc region of the Apennines subduction and one claiming a mostly compressional history until recent time. We deliberately place our study in the first league. Probably we should have extended the geological setting of the Elba MCC to better account for diverging ideas, which we will do in the revised version. Then, we persist in considering that the context is mainly extensional and that two main extensional detachments have been active in Elba since the Late Miocene up to the Pliocene. The Zuccale Fault is a major low-angle detachment with a contrasting P-T evolution between the footwall and the hangingwall. The HP-LT parageneses recently described there are found only in the hangingwall and they are older than the motion along the detachment and the intrusion of the Porto Azzuro pluton, just like in the Aegean. This shows that the hangingwall units have not seen the high-temperature conditions and the effects of the plutons recorded by the footwall, hence the different evolutions. Then, the E-W general stretching and flow direction in the Monte Capanne pluton have been described a long time ago and we seen no reason to come back on it. The contact metamorphism along the northeast contact, associated with the skarn deposit is clearly syn-kinematic of the E-W stretching and the top-east sense of shear, a situation exactly similar to that of the Aegean MCC, such as Serifos for instance. The progressive transition from syn-magmatic flow to sub-solidus mylonitic shearing is also very similar to what we observe in the Cyclades. We thus stick to our conclusions and will modify the paper to better inform the reader of the curren and long-lasting debate about the evolution of the northern Tyrrhenian Sea.

Yours, sincerely

Laurent Jolivet