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Solid Earth Discussions

Interactive comment on "Near-surface Palaeocene fluid flow, mineralisation and faulting at Flamborough Head, UK: new field observations and U-Pb calcite dating constraints" *by* Nick M. W. Roberts et al.

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"This paper reports an important scientific contribution to the developing recalibration of the Cenozoic tectonic history of Britain and Ireland. As we currently understand this history, it is driven by two far-field processes, separated in time and only loosely linked kinematically: a) to the northwest, a mantle plume impinging on the developing rift zone destined to become the North Atlantic Ocean; b) to the south, later north-south shortening resulting from the Alpine and/or Pyrenean continental collisions. It is important to assign to one or the other driver the various Cenozoic structures in Britain.

This new work by Roberts et al. demonstrates convincingly that calcite vein formation in the well-studied Flamborough Head Fault Zone dates from the Paleocene, and is therefore linked to the North Atlantic Igneous Province and to the opening of the North Atlantic, rather than to Eocene and later Pyrenean or Alpine events. The science in this paper is sound, and it is presented clearly both in the text and the figures. There are a number of mostly minor suggestions for improvement of the text in the attached annotated pdf. The only substantial suggestion is (at line 52) to discriminate between – as I understand it – the entirely Paleogene Pyrenean collision phase and the mainly Oligocene-Neogene Alpine collision phase."

We thank the reviewer for his positive comments on our study and manuscript.

All minor edits (which related to grammar of terminology, and were only a dozen or so) that Nigel suggested on the pdf are adjusted in the revised version, including this comment on Line 52 where we now discriminate between the Pyrenean and Alpine collision.

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