

Interactive comment on “Magnetic signature of large exhumed mantle domains of the Southwest Indian Ridge: results from a deep-tow geophysical survey over 0 to 11 Ma old seafloor” by A. Bronner et al.

Anonymous Referee #2

Received and published: 12 February 2014

This is a very important study into a topical and controversial area that should absolutely be published. The authors have undertaken a thorough analysis of the magnetic nature of exhumed mantle with the aim of determining if and how this exhumed mantle records magnetic anomaly reversals. They have used an appropriate combination of datasets to conduct their study. Their finding, that exhumed mantle does not record magnetic reversals is a very important result that has significant implications for tectonic reconstructions of the ocean basins, but perhaps even more so for continent-ocean transitions on magma-poor passive margins.

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Overall, the paper is well written and clearly argued. Although, I concur with the comments of the first reviewer regarding the figures, in that they are difficult to understand with the present small labels and color schemes. Reviewer 1 has made numerous comments about how to improve these and has also done a thorough job of noting technical changes to the manuscript, so I add only the following.

In section 9.1 you discuss that regions of mantle exhumation are expected to form from asymmetric detachment faulting but that they also are not separated by a discontinuity from neighboring volcanic regions. Could you expand on this slightly to discuss what the possible mechanism that allows for this is? Do they not show discontinuity with neighboring volcanic regions because the scale of the blocks of exhumed mantle are not of a sufficient size to cause an offset with normally spreading crust?

The parts of figure 1 could be larger – this would make seeing all the different features much easier. Perhaps fading the bathymetry a little would make the overlying information easier to see.

Could you plot a line showing the location of the ridge axis that you used, please, on figures 3 and 4.

The excessive lat-long labeling on the figures is distracting. Labeling two axes is sufficient, with only one decimal place.

Delete ‘an’ in the first line of the abstract

Spell out oct in the section heading 9.5

Interactive comment on Solid Earth Discuss., 5, 2449, 2013.

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