

Interactive comment on “Seismic gaps and intraplate seismicity around Rodrigues Ridge (Indian Ocean) from time-domain array analysis” by Manvendra Singh and Georg Rumpker

Anonymous Referee #2

Received and published: 19 July 2020

General comments: The authors use a temporary array on Rodrigues Island to detect and locate (mostly) intraplate earthquakes west of the Central Indian Ridge. This is an entirely new study, which makes the most out of a small array of seismic stations. The analysis is sound; the approach of using beam forming to estimate azimuth and S-P times to estimate distance is sensible.

Specific comments: It is not clear that these locations provide much new information about seismic gap 2, given the absence of detection of events from the adjacent Egeria FZ. The lack of small events could be attributed instead to poor propagation of Pn and Sn along the path to the array. There is no need for the direct effects of melt on

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attenuation along the paths; the attenuation is more likely attributable to the presence of thin lithosphere associated with the flow of hotter mantle to the spreading center from the hotspot.

Technical comments:

Lines 176-179 appear to be out of place, since they refer to “the event”, which is not introduced until lines 186-187. Also lines 186-191 suggest that array analysis of this example event is shown in figure 7, but that aspect of the event is not illustrated.

Can comparison of USGS event locations with the array locations be used to find a consistent P time correction for each station?

Since Figure 9 largely duplicates information shown in Figures 8 and 11, this figure could be used to show regions of uncertainty around each of the locations calculated from uncertainty in azimuth and scatter in S-P picks. P picks appear to be pretty clear, but S picks somewhat subjective. Are S picks on each seismogram made independently, or is there iteration between different picks for each event?

Cluster 4 is not shown in Figure 10, although it is mentioned in the caption.

Interactive comment on Solid Earth Discuss., <https://doi.org/10.5194/se-2020-56>, 2020.

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