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Geoscientific Instrumentation Methods and Data Systems Discussions

Interactive comment on "Muography as a new tool to study the historic earthquakes recorded in ancient burial mounds" *by* Hiroyuki K. M. Tanaka et al.

Anonymous Referee #2

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General comments

The paper describes the application of muography, a field which developed considerably in the recent decade, on a very interesting target: identifying remnant structures from an earlier earthquake on a burial mound. The subject widens the scope of muography, and helps the community with better understanding both the methodology, as well as the scientific possibilities offered for archeological studies. The results are clearly worth publishing.

Specific comments

Fig. 1 is a very relevant figure for the measurement environment, however it is too

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Discussion paper

dense. E.g. l.150 says Scalps A and B in Figure 1, which is not identifiable to me. Figure caption refers to "solid curves", which are probably with matching color with the viewing directions (red and blue), but otherwise there are a lot of solid curves on the figure (e.g. landslides). It would be important to make the captions precisely matching with the figure (e.g. the image is now gray below the explanatory lines and writing; on the left bottom caption "Landslides" are with gray shaded area and black line. Figure has no black lines. (also later l.266 says "scalps (arc-shaped lines in Figure 1)".)

It may be a possibility to split the image into two, one more for the existing geometry, the other for the interpretation (indicacing Cracks / Scalps, observation direction elevations, etc).

The interpretation of the geometry is a bit complicated, in the text with references to Trench F, Crack A and B, Scalp A, etc. These may be indicated on the relevant muogram images?

l.326 argues for significance "was overall more than 1 sigma", which is not too convincing. To me it looks more like 2-3 sigmas, in multiple independent measurement points.

l.325 says "angle range between 264-424 mrad", which seems the combination of Crack A and B, however, l.327 says "associated with the same scalp (Scalp A). Please clarify.

Technical comments

There seems a confusion on figure numbering, now there are two different Figure 3-s, probably the colored muogram around l.273 is Figure 3, and around l.300 (Azimuthal distribution...) is Figure 4. On this latter, indicate panels A, B and C.

l. 323 refers to Figure 6, which is non-existent, but must be the Figure 5.

Please check carefully the figure numbering and its consistence in the text references.

l.20: "... recorded in this historical heritage sites." Here "sites" should be singular (heritage site).

(Introduction: the word "however" is used a bit too often (l.31, l.33, l.40, l.62), breaking the argumentation line. Consider replacing some by re-wording, if seems appropriate)

l.148: Conversely, It was... ("it" should not be with capital)

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