

Interactive comment on “High-resolution shear wave reflection seismics as tool to image near-surface subsosion structures – a case study in Bad Frankenhausen, Germany” by Sonja Wadas et al.

Anonymous Referee #1

Received and published: 9 August 2016

I have read your paper with great interest. You present a case study where you use shear wave reflection seismic to image near-surface subsosion structures. New data are presented resulting in a subsurface model that could explain the inclination of the church tower. The manuscript is well organized and the authors followed the journal guidelines. The used methodology is sound, valid and clearly outlined. The analysis and findings support the type of publication (case study) in fields (geophysics, structural geology, and tectonics) that are in the scope of SE.

Overall it is an interesting, well elaborated and solid case study. Therefore I recommend

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the manuscript for publication with minor revision.

The following comments are suggestions and I hope you find them useful in improving the quality of your manuscript:

Specific Comments:

While it is interesting and might for some readers be appealing, some parts of the manuscript are written in great detail and a bit repetitive. The manuscript could gain much from more conciseness.

The manuscript seems a bit over-referenced, especially the introduction and geological setting chapters are highly fragmented by numerous references, some of them repeated several times. Further to that more than 20% of the references are in German which for an international audience is of no use.

I missed an explanation how the velocity analysis was done. That doesn't need to be a big paragraph but maybe just stating the type of analysis that was used to gain the velocity field.

For critique on the figures please refer to the next paragraph.

Technical Corrections:

Please be careful with the use of 'seismics' as opposed to seismic. 'Seismics' it is not a noun and often only used in the informal language or colloquial speech (probably check with the desk editor in which way it is used in the journal).

Ulriksen in text – Ullriksen in bibliography

'Knoth & Schwab, 1972' in bibliography but not in text, same for 'Polom, 2013'

Figures: A few figures suffer from small annotation. While it is fine to have them on screen, for the printed journal they seem to be too small (Figs 1, 2, 4 and 7, please also see annotated manuscript).

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Figure 10 and 11: A seismic interested person would certainly like to see the seismic data in a larger display. Both figures could gain from: - not showing all data down to 1200ms or 150m - omitting some of the repeated time and depth axis and annotations - less gaps between the panels

Figure 11: I personally think that the interpreted results should be overlaid on the seismic. I find it very hard to transfer the faults and especially the depressions from 11c to 11b and therefore hard to follow the interpretation at all.

For a few others suggestions please see also annotated manuscript.

Please also note the supplement to this comment:

<http://www.solid-earth-discuss.net/se-2016-91/se-2016-91-RC1-supplement.pdf>

Interactive comment on Solid Earth Discuss., doi:10.5194/se-2016-91, 2016.