



EGUsphere, referee comment RC2
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Comment on egusphere-2022-164

Alireza Malehmir (Referee)

Referee comment on "Geophysical analysis of an area affected by subsurface dissolution – case study of an inland salt marsh in northern Thuringia, Germany" by Sonja H. Wadas et al., EGU sphere, <https://doi.org/10.5194/egusphere-2022-164-RC2>, 2022

This is an interesting work combining various geophysical methods and boreholes to study sinkholes and their potential hazards. The work is quite complete and the interpretations are sound.

My main issue is the lack of details on the seismic data and the processing works. While the P-wave sections have good quality and show distinct and promising reflections, the SH sections are rather poor and risky to rely on. It would be good to spot any of the reflectivity in the shot gathers and show where they have ended up in the final sections. I am otherwise afraid to say that the SH sections have failed where the much of introduction attempts to say it would provide high-resolution images of the subsurface. Following this, I think much of the SH section interpretations are overdone or mainly based on the P-wave and gravity modelling work, which is fine but then the text and introduction should be adjusted.

As for the text:

Some sharpening of the text should be needed like

P-wave and SH-wave, can be P- and S-wave ...

Avoid using get and replace with "obtain"

what is 5 km² "sink"? Looks strange wording.

As for extreme slow S-wave velocity please also note our works presented recently at NSG-EAGE 2021 with S-wave reflections imaged in the vertical component data when spatial and temporal sampling was done in a great resolution (Malehmir, 2019 and 2021). You may also look into our work where we combined a similar approach for fault mapping in Sweden: Post-glacial reactivation of the Bollnäs fault, central Sweden – a multidisciplinary geophysical investigation (Solid Earth, 2016)

Avoid naming so many commercial names and software in the main text and move them to the acknowledgments.

You mean 3 repeated shot records vertically stacked?

It is NMO corrections (plural) and static corrections

Use of semicolon between references looks a bit odd as it breaks the sentence.