

Wind Energ. Sci. Discuss., referee comment RC1
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Comment on wes-2022-3

Anonymous Referee #1

Referee comment on "Reduction of wind-turbine-generated seismic noise with structural measures" by Rafael Abreu et al., Wind Energ. Sci. Discuss.,
<https://doi.org/10.5194/wes-2022-3-RC1>, 2022

This paper carries out different numerical simulations to investigate the influence of different ground/soil structural changes (so called the seismic metamaterials according to this paper) around a wind turbine on the seismic wave-path between the wind turbine and the seismic station. It's a very interesting and meaningful research in the reviewer's opinion. The authors investigate four main types of different metamaterial scenarios including cross-shaped holes, half circular trenches at short distances, empty half circular trenches at large distances, and different topographic effects. The research is new, the discussion is insightful, and the English writing is clear and straightforward.

Three minor thoughts the reviewer would like to share:

1. It seems this paper only studies the seismic signal emitted from one wind turbine. Will the investigated structural changes have similar influence on the seismic wave-path due to multiple wind turbines (or a wind farm)? It will probably make the research much more complex, but it may be worth discussing more, especially for the case of empty half circular trenches at large distances. Usually there is a wind farm at a large distance from a seismic station (or seismic stations).
2. If we think in a different way, will the structural changes help mitigate noise if these structural changes are close to the seismic station but not the wind turbine.
3. Is it safe for a wind turbine if digging a 5-20m depth trench which is only 10 m distance from the wind turbine? Well, this may be beyond the scope of this research. It is only the reviewer's curiosity.

Some technical corrections:

1. It may need to change the "windturbine" to "wind turbine" in the title;

2. Page 3, line 83, "distributed in a within" should be "distributed within";

3. Page 7, line 157, "of the WT as a point sources" should be "of the WT as a point source"?

4. In the fourth line of the caption of Figure 6, there are two "is".

5. Page 12, line 249, "This in is contrast" should be "This is in contrast".