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.

We would like to thank the reviewer their nice words and for their helpful comments. We provide clarifications below.

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).

R: In principle, it is expected that we will observe similar results for multiple WTs. The idea is to place the circular trench at each WT and in direction of the seismic station. The question, however, is how two wind turbines with two trenches would reduce the noise.
To answer this, we have created a new scenario where two WTs are placed separated by a distance of 200m. In front of each WT we place a circular trench of 5 x 15 m (width-depth). The numerical model has a total dimensions of 2.5 x 0.8 x 1 km (length-width-depth) and it has an increasing velocity with depth, just like in the previous scenarios. Results in the Fig. below show that we are still able to efficiently attenuate the seismic energy at large distance. We have added a paragraph in the main text.

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.

R: Seismological stations are often placed in strategic locations in order to do seismic monitoring of , e.g. a dam or similar structures, or to record earthquake signals comming from all around the world and many other activities. Placing the structural changes close to the seismic stations would then filter the WT turbine noise but it will also filter the rest of the seismic signals the seismic station is supposed to record. Therefore, the trench must be close to 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.

R: The distance between the circular trench and the WT will depend on many technical details. In our study we aimed to place the WT close to the trench in order to observe the effects. We also tried scenarios with larger structures and different distances. When, for technical reasons this distance is not safe and/or cannot be fulfilled for any other reason, then it is possible to place the trenches in other locations, purely from a noise reduction point of view. For this we would then have to carry out more numerical experiments. Question about the stability of a windturbine would have to be tested by the engineers.

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”.

R: Than you, we have corrected them.

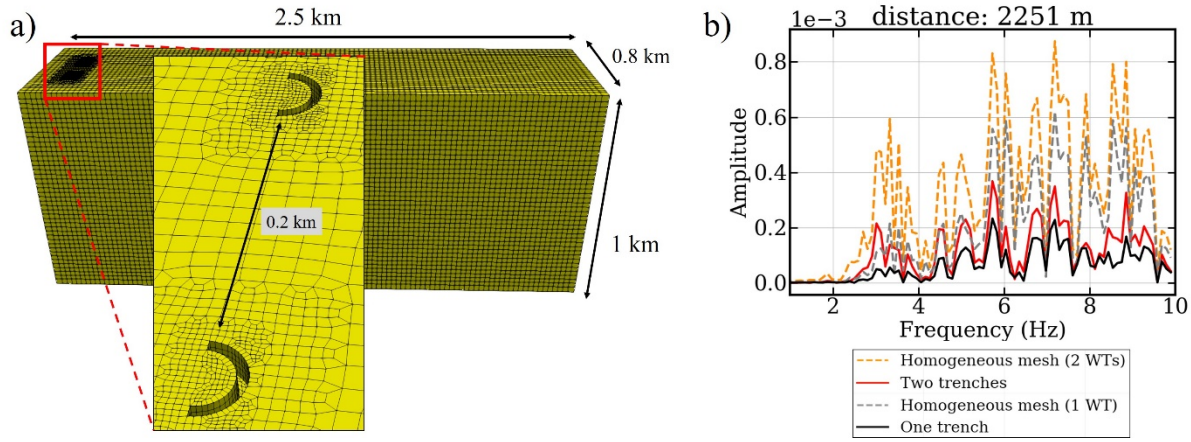

Figure: a) Setup with two wind turbines, each with a trench in the direction of the seismic station. b) The spectra of the model without trenches (dashed lines) and with trenches (solid lines). The orange/red lines indicate the case of two wind turbines, the grey/black lines those of one wind turbine.