Review comment for "Seismic noise characterisation for the Budduso-Ala dei Sardi wind park (Sardinia, Italy) and its impact on the Einstein Telescope candidate site, submitted by Diaferia et al.

This paper evaluates data from a temporary seismic array deployed to study the seismic noise emissions caused by a wind farm in Sardinia, which is located at approximately 20 km distance from the Sardinian candidate site for the Einstein Telescope (ET), a proposed new gravitational wave detector. In addition to the linear WINES array, surface and deep borehole recordings from two permanent seismic stations at the vertices of the proposed telescope area are evaluated.

By analysing spectrograms, power spectral densities (PSDs) and polarization at stations that are close to the wind park, the study identifies several spectral peaks that can be clearly linked to noise from the wind turbines. The behaviour of these peaks with rotation rate of the blades and their decay with distance is then investigated to evaluate the impact of seismic noise from the wind park on the ET candidate site.

The impact of wind noise on observatories is an important question for the Earth Science community and beyond. Therefore, I believe that this manuscript will find many interested readers. I have mostly minor comments, however, I am confused as to the conclusions. It appears to me that the seismic noise generated by the wind park is measurable at the vertices of the ET site, i.e. not absent, and potentially affects a large amount of observation times.

Major comments:

The abstract states that "the borehole sensors remain unaffected by the seismic noise[...] small residual spectral peaks at 3.4 Hz and between 4 – 6 Hz remain detectable" → this is contradictory, if the noise is detectable then the borehole sensors are not unaffected. See also lines 290 ff, which, if I understand well, suggest that the high-rotation rate conditions could prevail in 2/3 of cases; see also conclusion 5.

In terms of the 1/sqrt(N) correction for the amplitude, I checked the reference to Schofield (2001) and they use this with the intention of modeling the amplitude at locations where data are not available. What I find a bit problematic with regard to how it is used here and in previous studies is that the cutoff distance of "visible turbines" is somewhat arbitrary, here 15 km are chosen, while in another study 10 km are chosen and so on. To make damping exponents more easily comparable, I suggest to include e.g. in the supplement the results for the damping without the 1/sqrt(N) correction (i.e. directly comparable to Zieger's results and more easily comparable to other results without choosing a distance threshold).

There are sharp, seemingly quasi-monochromatic peaks in the noise spectra e.g. at P3 between 2 and 3 Hz, or at both P2 and P3 between 8 and 9 Hz and between 9 and 10 Hz. Given that the study is preoccupied with the seismic noise at the site, I wish these were also described and discussed, and eventually included in conclusion 1. The peak between 8 and 9 Hz, for example, appears to be visible at multiple stations and could be related to another source of anthropogenic noise.

Minor comments:
- there are several unopened or unclosed parenteses; I hope that the typesetting will spot these, e.g. line 151
- several references are missing the parentheses, e.g. line 121, line 126, line 238
- line 45: instead of an inline URL citation, I suggest to include a proper URL reference in the reference list with last accessed date
- line 124, aerially scattered – I was not sure if this means scattered in the air, or scattered in an area (areally?), please clarify for the readers
- line 127 "divide by N^(-1/2)" should be "divide by N^(1/2)"?
- line 190 For the case of BRR ... this sentence may be missing a verb
- line 200 "panel d)" → should be panel e?