

Dear Dr. Grecu and coauthors,

Thank you for submitting your revised manuscript and for addressing in detail all comments of the reviewers, particularly also clarifying the choice of frequency band used.

I have to say that I agree with the main comment of reviewer 2 about the earthquake detectability, that the comparison performed is not entirely fair. Not necessarily the time of day, but the fact that the pre-lockdown event is on a Thursday and the post-lockdown event is on a Saturday, makes a difference. Looking at the 24-hour clock plots provided, this means that the drop in seismic noise you are considering is larger than that due to lockdown (e.g. a change of 25 nm at station GISR, (from 60 nm on Thursdays 13h pre-lockdown to 35 nm Saturdays 19h post-lockdown), rather than a drop of about 5-10 nm due to lockdown for a particular time/day).

I have noted that some text was already altered following the reviewers suggestion, but I ask the authors to adapt the text in the Discussion and Conclusions further. While I agree there is an improved SNR, this is not conclusively due to the lockdown and thus requires further investigation. Perhaps rephrase the text to just mention that there is possibility for improved capability, as reported in other studies.

In addition to the description in the Introduction (third paragraph) of the lockdown measures in Romania, it would be helpful to have this in a Table perhaps, as aid to the reader.

Finally, I have given the manuscript a read-through myself and I have some minor technical comments (mostly rewording of text) as listed below. I would be grateful if you could make these changes in your revised version of the manuscript as well (which I estimate would not take much time). I hope these changes are clear as I could not refer to line numbers.

Given the comments listed above, I recommend that your manuscript is accepted after these minor corrections are done.

Thank you again for your manuscript, and wishing you a good remainder of the summer.

Best wishes,

Paula Koelemeijer

Minor technical comments:

- Consider rephrasing the use of "the COVID-19" everywhere to just "COVID-19" or "the COVID-19 pandemic" if appropriate.

Abstract:

- Consider changing the phrase "mobility and activity in Romania due to the Romanian measures against COVID-19" to "mobility and activity due to the Romanian measures against COVID-19"

Introduction:

- First paragraph, page 1: "seismic noise has natural origin" → "seismic noise has a natural origin,"

- Second paragraph, page 2: "an unprecedented disruption in anthropic activities in many cities around the globe"

- Consider removing "in many cities" as I would think activities were affected everywhere, not just in cities.

- Second paragraph, page 2: "coronavirus disease (COVID-19) and having a direct effect on seismic noise recorded by seismic stations." → "coronavirus disease (COVID-19), having a direct effect on seismic noise recorded by seismic stations."

- Third paragraph, page 2: "and starting with May 15, 2020 gradual relaxation measures (opening of some shops, museums, etc.) were resumed" → "and from May 15, 2020 gradually some activities (opening of some shops, museums, etc.) were resumed"

- Third paragraph, page 2: "still needed for limiting the spread of the COVID-19" → "are still needed for limiting the spread of COVID-19"

Data and methods

- Third paragraph, page 3: "We choose the above frequency intervals taking into account different contributions that the anthropogenic noise sources have in a wide frequency range"

Consider rephrasing to "We choose the above frequency intervals to take into account different contributions from anthropogenic noise sources in a wide frequency range"

- Fourth paragraph, page 3: "only strong motion instruments and in addition"

Consider starting a new sentence before "In addition", e.g. "only strong motion instruments. In addition"

Results

- Section 3.1, second paragraph: Consider using numerals for numbers larger than 10, to help readability.

- Section 3.1, fourth paragraph: "reaches the minimum during the 2020 Easter (April 17-20, 2020). Alternatively, the reduction of noise" → "reaches the minimum during the 2020 Easter weekend (April 17-20, 2020). In contrast, the reduction of noise"

- Section 3.1, fourth paragraph: "during 2019 holidays, except for the Orthodox Easter in 2020."
Do the authors mean the 2019-2020 holidays?

- Section 3.2.1, third paragraph: "After the quarantine law, a slight decrease in seismic noise is observed" →
After the quarantine law came into place, a slight decrease in seismic noise is observed"

- Section 3.2.3, second paragraph: "The noise level gradually increases before the lockdown is lifted, and after the state of alert is declared it reaches the noise level observed before the lockdown". Do the authors mean to say, "after the state of alert is lifted, it reaches"?

- Section 3.2.3, second paragraph (and repeated in the third paragraph): "This drop is associated with the start of the campaign for the local elections in Bucharest." Why does the start of this campaign lead to decreased noise levels? Could the authors please clarify this?

- Section 3.2.3, fourth paragraph: The authors describe in the pattern of seismic noise variations in a lot of detail, and mention what causes the variations in Band 2. I wonder whether the authors could add some statements on what causes the variations in Band 1 as well, or is this the same?

- Section 3.2.3, last paragraph: "The seismic noise started to decrease with the closing of the schools on March 11, 2020, and remained at the lowest level between the stay-at-home and the state of alert orders". Are there schools located in the vicinity of the hotel or is there another reason the seismic noise starts to decrease when the schools closed?

- Section 3.3, second paragraph: “mainly the staff working there is using the building.” → “mainly the staff uses the building”
- Section 3.3, second paragraph: “several mountain bike trails existing also in the area” → “with several mountain bike trails existing also in the area”
- Section 3.3, second paragraph: “at station CJR combine the noise” → “at station CJR are a combination of the noise”

Discussion

- Second paragraph, page 11: “their effects are clearly emphasized by the recordings of many stations of RSN” → “their effects are clearly observed in the recordings of many stations of RSN”
- Fourth paragraph, page 12: “those located in buildings.” → “those located in office buildings.”
- Fifth paragraph, page 12: “preferred by the inhabitants of Bucharest and which at the end of the week is very crowded” → “preferred by the inhabitants of Bucharest, which gets very crowded at the end of the week”

Data availability

- “the authors have used data provided by the NIEP’s Data Center and are available upon request” → “the authors have used data provided by the NIEP’s Data Center, which are available upon request”

Figures

- Temporal evolution plots of seismic noise (e.g. Fig. 3, 7, 8, 10, 11 etc): the titles in these plots are quite small. Please consider enlarging them.
- Figure 2: Would the authors please consider not using green and red symbols to denote different percentage changes, to aid the readability for readers that are colour blind?
- Figure 4: It would be helpful to add the time periods used in the clock plots in the caption