

Response to the comments posted on 5 May 2021 by anonymous Referee 2

Benchmarking microbarom radiation and propagation model against infrasound recordings: a vespagram-based approach

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Dear Topical Editor Dr Stober,

Many thanks for your time and for overseeing the resubmission processing and review. Please see below for our edits made in response to the reviewer report. In addition to these modifications, we have made a few minor typographic fixes and wording corrections in Sect. 2.2. which are also visible in our track changes PDF [lines ~145; line 165; line 168].

Dear Referee 2,

Thank you very much for your constructive review of the revised manuscript. We have made edits according to your comments and suggestions. Below, you can find our point-by-point reply to your report.

Specific comments

1) L. 166: *“a more accurate simulation” – compared to what? (semi-empirical attenuation law, I guess, but this is mentioned in the next sentence)*

The phrase “a more accurate simulation” has been changed to “an accurate simulation” to avoid comparison in the sentence.

2) L. 173: *I suggest to add “... (HRES) model [analysis]...” in order clarify that neither a reanalysis nor a HRES forecast is used here; also in L. 175: “... ECMWF HRES [analysis] is 6 h”*

We clarified the atmospheric model specification used in the study.

3) L. 176, *rather just a remark: a discrepancy can also be caused by the assumption of constant wind/temperature over 6 hours.*

Thank you for the remark.

4) L. 202: *“not so stable” – in which sense? direction?*

We clarified the sentence in line 202.

5) *Figs. 2, 3: b)-d) add the unit Pascal to the colorbar, f)-g) same colorbar as in e)?*

The unit label has been added to the relevant colorbars of Figs. 3 and 4. The caption of Fig. 3 has been changed to clarify that panels b) – d) have a common colorbar, the same applies to panels e) – g).

6) L. 240/241: *How much greater? (distances of ~8000 km?)*

We clarified the sentence in lines 240/241.

7) L. 293: *only "from reanalysis data"? (according to my understanding, you do not use reanalysis data in your study), maybe you can write "from (re-)analysis data"*

Corrected following your suggestion.

8) Fig. 6: *This figure is nice, better than before! I suggest adding one colorbar (for the vespa) and changing the backazimuth to 0-360° (as you did in the text).*

Fig. 6 has been changed according to your suggestions.

Technical corrections

- L. 127: *wavefront -> wave front (as elsewhere in the manuscript)*

Corrected.

- L. 148: *You start three subsequent sentences with "This ...". The second sentence could be rephrased, e.g.: "Here, we use ..." (or passive mode)*

The paragraph has been rephrased.

- L. 168/169: *"this law" (2x)*

Corrected.

- L. 177: *"... is [an] acoustic spectra attenuated ..."*

Corrected.

- L. 182: *"on how realistic [a] spectrum is needed for..." (?)*

The quality of spectrum simulated depends on number of sources taken into account. Shorter cut-off distance – fewer sources considered – less realistic spectra are obtained. To compare the model with the vespa processing we need to obtain as accurate spectra as possible. Previous studies demonstrated that 5000 km limit is the best candidate for that.

- L. 198: *a difference -> differences*

Corrected.

- L. 221-222: *"accompanied by the semi-empirical wave attenuation law" – here, I recommend using "combined with" or "complemented by" as you use "accompanied by" a few sentences earlier in a completely different context (where it fits better in my opinion)*

The part "accompanied by" has been changed to "combined with" following your suggestion.

- L. 223: *"... between day[s] 200 and 210, [when] the modelled amplitude [is] much lower ..."*

Corrected.

- L. 234/235, rephrase: *“However, the maximum power is sometimes also observed from north-easterly and south-easterly directions in summer”*.

The sentence has been rephrased.

- L. 247: *“... and has values [close to] one, ...”*

Corrected.

- Fig. 5 caption, suggestion for better readability: *“day 1 – 00 UTC, day 4 – 00 UTC, etc.”*

Corrected.

- Fig. 5: *“depending on [the] year”*

Corrected.

- L. 301: *“[does] not always characterize”*

Corrected.

- L. 303: *difference[s]*

Corrected.

- L. 323/333: *disturbances instead of irregularities?*

The word “irregularities” has been replaced with “disturbances”.

Thank you again for taking the time to review our submission, we believe that your advice has helped to clarify the manuscript.

Your sincerely,

Ekaterina Vorobeva, on behalf of all authors