Author reply to RC1 (essd-2021-441)

Dear Catherine de Groot-Hedlin,

we appreciate that you took the time to carefully read and review our manuscript. Thank you very much for your positive recommendation. We reply to your specific comments below. We also provide guidance for accessing the downloadable data sets through produktcenter.bgr.de.

Yours sincerely,

Patrick Hupe on behalf of all co-authors

Comment: Data availability. I tried clicking on the produktcenter.bgr.de link but could not gain
access. Is the site experiencing broad technical difficulties or does it block certain areas of the world?

Reply: We cannot find out if or why the link https://produktcenter.bgr.de was inaccessible. We verified again that the link works on all common internet browsers (e.g., Firefox, Chrome, Edge).

Are the data available through that link or the doi.org links listed on about line 660? I could not find the icon "show datasets" as described on line 656. Will these become available when the paper is published?

The products are already available! There are two options to find the data products:

1) Through the landing page https://produktcenter.bgr.de, where you can search for the products. By typing, e.g., "infrasound products", a list appears that shows all related data series (e.g., "Higher frequency data products of the International Monitoring System's infrasound stations") and data sets (e.g., "hf_2003"). The product search can be refined by typing "*maw* product", "*mb_lf* product", "*mb_hf* product", or "*hf* product" for more specific lists of the respective products.
The data sets provide the actual download links ["Access" -> "Further information (Data)"], whereas the data series describe these data sets and metadata.
2) Through the doi.org links provided in the paper, which directly open the corresponding product series page in BGR's product center. The following four steps (with screenshots for the "*mb_lf*" product) explain how to find the download links of the data sets.

Step 1: Landing page for the "mb_lf" DOI. Close the popup window to find the related data sets.

Step 2: The list of results in the background of the popup window (Fig. 1) shows the data series entry. Click on the icon "show datasets" to open a list of the data sets per year.

Step 3: Select the data set of interest by clicking on the title in the list. A new popup window will appear. (N.B.: the indicated icon directs you back to the data series entry).

Step 4: In the new popup window, the download link of the product's zip file can be found through the "Access" tab (line "Further information (Data)").

We will check if we can add to the "Access" tab of each data series a link that directs to a list of all corresponding data sets. We will expand on this in line 656 of the manuscript in the final version.

Appendix Table A1. It would be helpful to include the year of installation or certification. This information is included in Figure 1, it should be included here too.

We added the "certification" column that provides the year of certification.

Table B1; lists data availability. It is not clear here what availability means. Presumably there are some gaps in data availability. As shown in Figure 1, not all stations are available for all 18 years. Does a product availability of 2.7 (for instance) mean that 2.7% that signals were present for 2.7% of the time that data were available? Or does it indicate that signals were present for 2.7% of the total 18 years. Some more description would be useful.

In general, an availability of 2.7% means that signals were present for 2.7% of the total 18 years (2003-2020). More precisely, a product is available for this portion of all time steps considered; e.g., with 30 min temporal resolution for the *maw* product, the number of time steps amounts to 315,600 over 18 years – 2.7% would be 8,521 time steps with non-NaN parameters available for a station. The data availability rate thus depends on multiple factors such as the operational time of a station, data gaps, the actual arrivals of coherent signals, and PMCC performance – to name the most relevant here.

We will better clarify the "data availability" in the table caption and Section 4.3.

Grammar/standard English usage:
There are some awkwardly worded sentences in this manuscript. Although they're

understandable, they sound awkward, and it would be helpful for a native English speaker to go over the manuscript carefully to catch them. I list a few below.

We will examine the document for such issues when incorporating all changes requested by both reviewers in the final version.

Line 12 and in the atmosphere --> or in the atmosphere

Fixed

Line 25 ...., each four products for 53 IMS infrasound stations were derived. Not sure what this means, does it mean ..., four products were derived for each of 53 IMS infrasound stations" ?

Indeed, "From the comprehensive detection lists, four products were derived for each of the 53 IMS infrasound stations."

Line 37: has been established --> was established

changed

Line 39: composing of ---> composed of

fixed