Earth Syst. Sci. Data Discuss., referee comment RC1
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Comment on essd-2021-441

Catherine de Groot-Hedlin (Referee)

Referee comment on "International Monitoring System infrasound data products for atmospheric studies and civilian applications" by Patrick Hupe et al., Earth Syst. Sci. Data Discuss., https://doi.org/10.5194/essd-2021-441-RC1, 2022

The paper "International Monitoring System infrasound data products for atmospheric studies and civilian applications" by Hupe et.al describes data products derived from infrasound data at 53 IMS (international monitoring system) stations. Aside from the primary purpose of the IMS network – to detect clandestine nuclear tests - infrasound records from this globally distributed network have broader scientific application, including meteorite detection, volcano warnings, and assessing atmospheric models. However, the data at most of these stations are available only to specific user groups. By contrast, these data products, which summarize observable infrasound signals over a broad frequency range, are being made available to the broader scientific community.

The data products involve the application of the Progressive Multi-Channel Correlation (PMCC) method to infrasound records from arrays operated by the IMS. PMCC is used to detect signals over a range of frequencies ranging from 0.2-3 Hz, which covers phenomena ranging from low frequency mountain associated waves (MAWs) and microbaroms up to higher frequencies signals generated by sources including volcanoes and industrial explosions. The choices made as to whether to declare a signal detection are well explained and the lengthy list of available parameters (Table 1) are well described. The broad availability of this data product makes it useful and significant to the scientific community, in part because the infrasound waveforms on which it is based are not easily accessible and in part because much of the time-consuming processing has been applied.

I recommend that this paper be published after consideration of some minor edits. I have several main points and then some minor points involving grammar and standard English usage.

Specific comments:

- 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? 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?
- 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.
- 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.

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

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

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" ?

Line 37: has been established --> was established

Line 39: composing of ---> composed of