

Interactive comment on “Developing the hertz art-science project to allow inaudible sounds of the Earth and Cosmos to be experienced” by Graeme J. Marlton and Juliet Robson

Anonymous Referee #1

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The manuscript concerns a project which enabled infrasounds from various sources on Earth to be experienced through a multisensory artistic exhibit. The article focuses primarily on the development process of the exhibit, a collaboration between an artist and scientists. This is relevant to the journal Geoscience Communication and would be of interest to those thinking of similar projects or approaching art-science collaborations. I do, however, have a number of concerns over the information presented which I detail here.

Main issues:

The introduction could do with much more of the broader context of science commu-

C1

nication and public engagement that concerns this area of science or uses a similar method in order to properly frame this project. At present the motivations that people need to re-establish links with the natural environment come across as merely the opinions of the authors and not backed up by any published research or public dialogues. Only with this wider context is it possible to better consider the successes of this project.

The main contribution that this article makes to the literature is arguably the development process of the exhibit. I applaud the authors for writing this in an accessible way, however, interested technical readers may want more detailed information. I suggest the authors provide this in an appendix, e.g. giving precise parameters used in their processing so that others may be enabled to convert similar infrasound datasets.

The evaluation data and its presentation in section 4 are rather lacking unfortunately. There is little to no detail of how "feedback" was collected, what specific questions were asked of participants, and how the qualitative data has been analysed. To this latter point the authors seem to have simply classified whether or not it was positive and provide, seemingly cherry-picked, example quotes. This work calls out for a thematic analysis to better understand what participants' responses to this experience were, what common themes emerged and how do they relate to the aims of the project and compare with other similar efforts? Can any conclusion be made linking back to the aims of the project, e.g. did it reconnect participants back with the Earth?

While the review of the collaboration is also interesting, more discussion and conclusions need to be drawn from the quotes provided.

Specific comments:

Throughout the term "resonance" seems to be used slightly carelessly. It is not clear to this reviewer whether it is truly resonances which lead to many of the infrasounds considered (indeed many of them seem to be rather broadband rather than peaking at well-defined frequencies), nor is it clear whether the transducers' vibrations are caus-

C2

ing waves which are resonating within the human body. I would suggest the authors consider carefully each usage of this word and only include it where appropriate (e.g. its usage in describing asteroseismology is correct) and provide references, otherwise other terms such as sound, vibrations etc. should be used.

Line 98: Arguably the enhanced infrasound power goes to a much lower frequency than 0.1Hz in Figure 2, approximately 0.02Hz.

Line 99: LT as Local Time needs to be introduced in the text.

Line 105: There is no visible power enhancement at 1Hz in Figure 4, instead the biggest peaks appears to be around 0.03Hz.

Line 106: This sentence is confusing. You need to specify what quantity you are referring to exactly and whether you are comparing the two events to one another of the reference in the previous sentence.

Line 123: "documented by smart phone" comes across as though the authors made notes using a smart phone, whereas I understand from later sentences they used an audio recording app on the phone. This should be made clearer.

Line 137: It is not clear how the amplitude was measured and used to modulate tones. The authors may want to keep such technical detail to the suggested appendix though.

Lines 143-160: Polyphonic seems to be the wrong term here, since this is defined as "a type of musical texture consisting of two or more simultaneous lines of independent melody" whereas the authors describe modulated pink noise which is not musical or melodious. What the authors describe is surely more of a cacophony than symphony. It would be very helpful to provide sound clips of the different processed versions of the infrasound for the readers to be able to interpret. Furthermore on this point, the authors' descriptions of the sounds come across as a little hyperbolic and would benefit from some other viewpoints.

Line 167: "practicalities of access needs" are raised but no description or discussion

C3

of what these were are given.

Line 179-180: "further positive media coverage" is mentioned but no quotes or analysis of the material are presented.

Lines 247-253: It needs to be stated how all of these were measured.

Lines 271-26: The numbers quoted here are rather meaningless without benchmarking against similar efforts. Furthermore, qualitative analysis of any tweets about the exhibit (not merely retweets or likes) could provide insight into audiences' responses, which is currently lacking.

Line 308: This should say Figure 1.

Line 316: It is not clear who did the interviewing.

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