

## ***Interactive comment on “ElectroMagnetic Music: a new tool for attracting people interest in Geosciences, while sensitizing them to planet sustainability” by Antonio Menghini et al.***

### **Anonymous Referee #1**

Received and published: 23 April 2020

The paper concerns a project aimed at converting Transient ElectroMagnetic Method (TEM) data, which provides information about the resistivity of rocks, into music. This is a topic which will be of interest to Geoscience Communication audiences. There is real potential in this manuscript to describe the process of how these sonifications and collaborations with musicians and/or composers occurred, however, at present the manuscript is incredibly confusing and lacking crucial details. In the interest of collegiality I raise a number of concerns which I hope the authors can address to improve what could ultimately be an interesting contribution to this emerging field.

The introduction does not adequately frame this work in the either the context of the

C1

wealth of sonification projects or in the field of TEM analysis. At present this section reads like an extended abstract, which is confusing to readers. While the authors do provide examples of datasets which have gone through sonifications, nowhere is a definition of sonification in general given neither is the diverse number of approaches to sonification (such as direct audification, mapping datapoints to MIDI instruments based on values, model- vs data-based sonification etc.) discussed. These are crucial aspects required in order to better understand the work presented.

Section 2 enables readers to better understand what the data behind this project actually represents. However, many questions still arise. Figure 3 is presented in the text as being standard TEM data, but appears in the figure and caption itself as a sonification. Could the authors provide the TEM data in the raw format that would be the usual for a scientific publication within the field, perhaps labelling so that those from other fields can understand it. Merging this figure with the sonification so early in the manuscript merely confuses the readers and perhaps two separate figures are required, or at least two different panels?

The process of the sonification itself is not adequately described. A flow chart would be very helpful in this regard along with technical details, any choices made by the authors and how these were justified. For example, what choices of maximum and minimum voltages were made and how were these determined? What are the limitations with these choices given known ranges of TEM events in the literature? And what audible frequencies / notes were these voltages mapped to? Were considerations made based on different musical instruments?

Interaction with musicians and composers seems like it deserves a section of its own. How were these collaborations established, what were their initial thoughts to the sonified TEM transients? Were they involved in the design of the sonification or only approached afterwards? These are important considerations within the scope of the journal.

C2

The sections devoted to events also lack a lot of required information. What the format/sessions within the EGU General Assembly are not currently clear, and for readers unfamiliar with this conference a discussion of the types of attendees and presentation methods is required (e.g. a PICO is not described). Further, how the different sessions operated is not explained. What were the purposes of the different sessions? Were the musical performances used to explain, or did they simply follow the explanations? Similar considerations are required with the other events described, where it is not clear who these sessions were aimed at (scientists, geoscience-interested publics, non-science audiences?), how they were targeted, and what different considerations to the presentations were made to be appropriate to these different audiences.

It is clear that no formal evaluation of the activities has been performed, which is a real shame. While the authors claim audiences "greatly appreciated" the events, without even a description of how professional observations were made these claims are unfounded. Instead I would urge the authors to be more honest and instead present their "feedback" section more as a critical reflection of their own practice and as future plans for this project, detailing how through evaluation they aim to understand the impact these sonifications may have on different audiences, because at present no claims can be made about this.

Similarly, the conclusions should not over-claim what has occurred and been shown to be effective in science communication or engagement. The sonification process of TEM data and how the authors have engaged with musicians would be suitable enough for publication in Geoscience Communication, whereas the impact on attendees and media is too weak at present to offer any firm conclusions.

---

Interactive comment on Geosci. Commun. Discuss., <https://doi.org/10.5194/gc-2020-7>, 2020.