

Dear Dr Maciel,

Many thanks for your thorough review of our article – I have included your original text below in black along with our responses in green.

1 General comments

Reading this work led me to two papers that I find very interesting, and I would like to share it with the authors:

- a) Urban Seismology: On the origin of earth vibrations within a city, November 2017, Scientific Reports 7(1), DOI: 10.1038/s41598-017-15499-y

I read the Urban Seismology paper and attempted some of their analysis for 2 separate weeks of data - a week in May and one in December. I do not report this analysis in the paper because the trend that we observed was somewhat different from what they reported where weekends are quieter than weekdays. As demonstrated in figures 4 to 6, weekend activity near the university appears to be higher than weekday activity. The data also showed no significant activity around New Years that could have been interpreted as fireworks. Regarding the regularity in the signal that they observed (~2 minutes on/30 seconds off) that they observed, we also don't see something similar in our dataset – for us, the nearest train station is about 1 km away from the seismic station and the track runs ~ E-W at that location. It's difficult to discern anything that coincides with the train times in our dataset.

- b) Seismometers Within Cities: A Tool to Connect Earth Sciences and Society, Front. Earth Sci., 05 February 2020 | <https://doi.org/10.3389/feart.2020.00009> (Jordi Diaz , Martin Schimmel, Mario Ruiz and Ramon Carbonell) – will review.

When I first read the paper, I thought (by the abstract) that it would be a paper on urban seismology, something in the line that Díaz et al (2020) had done in their work about urban seismic noise in Barcelona. If this was the case, I would have missed a discussion on the physics that underlies the bell-ringing due to ground shaking, and a more refined exploration of different urban sources that were identified in the seismogram.

But in my opinion, the main contribution of this research is the interdisciplinary aspects of urban monitoring, which is indeed very interesting, but it is not what the abstract emphasizes. I suggest the authors to emphasize that this paper is interdisciplinary research that will investigate human connection to seismic vibrations under the point of view of music, poems, theatre and geophysics. And I agree with Paul Denton's comment that more reflection on the collaboration with artists would be very welcome. We will work on incorporating your suggestions in the abstract.

2 Specific comments

L190 It would be nice to draw an arrow or a square showing the events of the bell-ringing in Figure 4. Specially because this paper might be read by non-geophysicists. I think the bell signals are very clear in the 10 pm spectrogram (especially in the frequency bands that I mention) and there would be too many arrows on the Charter Day chime which would make the figure too busy.

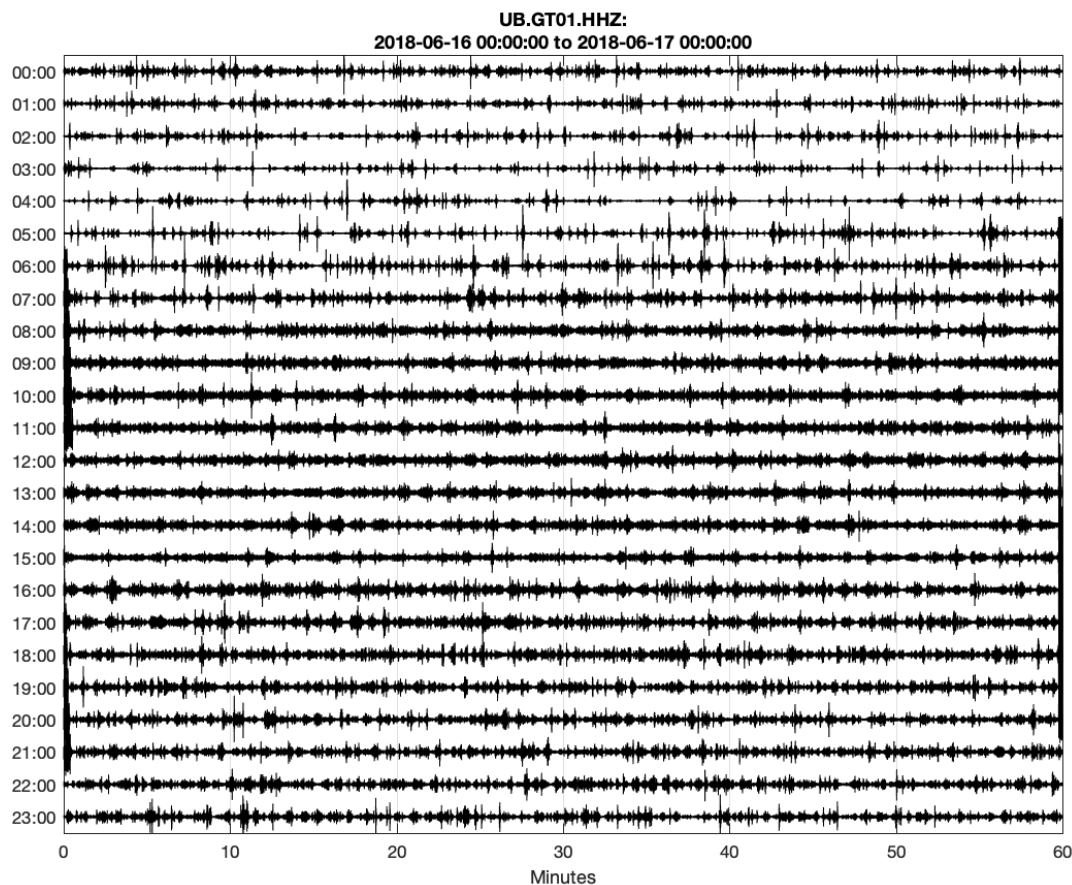
L255 Missed reference for the Indonesian tsunami, that is present in the references list. I'm not sure what you mean – Goda 2019 is cited both in the text and listed in the references

L245 I suggest to specify the station name -added

L255 Where is Market Rasen? We will include the county plus latitude/longitude for Market Rasen in the revised manuscript.

L313 Where the authors put: “A look at the data. . .” I suggest to indicate a Figure - Specific figures are referred to in the subsequent paragraph but the introductory paragraph introduces the topic so I’m not sure that referring to a specific figure here is appropriate.

Figure 5 The plot shows the whole band (0.01 to 50Hz) or you used a filter? I would like to suggest the plot of a filtered version of this Figure, for the band 15Hz to 25 Hz, in which the authors observed the Great George peaks (or I would give a try to 20-30Hz band, by Figure 6). Maybe the other events that are visible in Figure 5 would vanish, or appear in some other frequency range? There are some peaks that seems to be regular, would they be subway noise, or something like that? - There does not appear to be a significant difference in the helicorder record filtered between 15 - 30 Hz band from the unfiltered data when looking at a full day (see the figure below which shows the same data as in figure 5b now filtered between 15-30 Hz). I really do not observe any regularity in the pattern like Diaz saw in his data set. This is probably because the closest train station is ~ 1 km away from the site and there are no underground systems in Bristol. Further, while the tower sits between two traffic lights (less than 100 m away from either light), I have not observed any true regularity to the length of the traffic lights and hence in the data. The Bristol City Council uses an automated traffic light system that manages the traffic lights in real time based on the traffic approaching junctions and crossings; as such, I believe the length of the traffic lights is variable throughout the day as traffic volume changes.



3 Technical corrections

Please note that I am not an English native speaker, and my English is brazilian biased. I will point out some typos that I found, and give some suggestions that I kindly ask the authors to evaluate if they are pertinent. I put in red what I think should be erased, and in blue new words or letters that should be included. **We will incorporate the majority of the changes that you have suggested here.**

L10,L195 I think “bell-ringing” has a hyphen **corrected**

L14 nearly continuous, or near-continuous instead of near continuous - **corrected**

L19 earth-shaking events (add a hyphen) **corrected**

L20 Replace “in order to” with only “to” **corrected**

L53 the authors had already used the expression “daily basis”, so I suggest changing to “ground shaking daily” **corrected**

L66 remove comma “in a different and more connected way” **corrected**

L73 “others in minutes and **in** millions of years” **corrected**

L77 “partly from professional activities but also **from** personal trajectories” **corrected**

L196,L334 I think “zoomed-in” has a hyphen **corrected**

L196 remove “clearly” **corrected**

L200 Change “there are three noteworthy features that are” to “three noteworthy features are” **corrected**

L220,L249 “high-frequency” has a hyphen **corrected**

L250 “often requires” **corrected**

L258 “The P-wave and S-wave arrivals are **clearly** visible at station LMK” **While we are aware that stating that something is “clear” to see is a bit of a sticky subject, we use the term clearly to signify how much stronger the signal appears on the nearby station as opposed to ours. We do go through the exercise of explaining what P and S waves are so I think that the non-geophysicist would be aware of what to look for and not have a hard time finding the signal “clear” to see**

L286 “there are **a number of many** current research endeavours to study these more exotic signals.” **corrected**

L295 I think “Modern-day” seismologists has a hyphen **corrected**

L302 “signal is **clearly** visible above the regular activity near the tower (see Fig. 10)” – **removed**

L303 “the Greece event occurred closer to Bristol and was, therefore, more **clearly** visible.” (add commas) **corrected**

L321 “amplified in tall buildings particularly, when they are impacted by low” (remove comma) corrected

L358 “This calculation shows that there is clearly a large amount of energy” corrected

L403 “presents these sounds via three subwoofers and...” corrected

L421 “media player will outlast the 21st-century” corrected

L535 “geothermal activity, or other catastrophes” (plural) – corrected

L543 formations that contain gas trapped in and impermeable” corrected

L584 “use a MEMS (micro-electro-mechanical-systems)” corrected

L586 “and there are currently more that than 50 Raspberry Shake” corrected

L617 “where the waves travel around the inside of the Earth are is” corrected

L618 “Reciprocally In a reciprocal way, such realizations” corrected

L625 “by expanding the reach of our hearing and extending our own auditory map” corrected

L643 “vibrations travelling through” - corrected

L652 “Acknowledgements” -corrected

L669 “The numbers in the upper right corner of each trace indicates” - corrected

L683 Spectograms - corrected

L690 “between signal duration on bother” corrected

L379 (Blakeborough, 2001) check citing format

L436 (see also Nicols(2014)) check citing format