The paper by Hrubcova and coauthors aims to constrain source characteristics, and deep propagation properties by using online macroseismic questionnaires collected after two recent earthquakes.

Despite the efforts are appreciable, there are many questionable points in the actual release, for which I suggest a major revision, or resubmission. They are listed below.

We would like to thank the reviewer for his valuable comments, and we appreciate his effort in trying to improve our manuscript. We accepted all comments, their detail explanation is below in red and the changes are highlighted in yellow in the enclosed manuscript.

In the text, we also emphasized that the two main achievements of this study extend beyond the identification of macroseismic intensities themselves, namely the considerable public response to the earthquakes and the geological insights derived from the spatial distribution of the observations.

- Despite occurring in a region generally considered seismically non-active and characterized by relatively sparse population density, both earthquakes attracted significant public attention, resulting in a high number of completed questionnaires. We need to acknowledge this.
- The spatial distribution of macroseismic observations proved highly informative and showed a clear correlation with major geological structures.

We feel that this helps to justify our work. We also revised the title to better reflect the scope and focus of our work. The new title is: *Public Response to Two Rare Earthquakes: Crowdsourcing Constraints on Crustal Structure in South Bohemian Massif*

Major points:

1) About the Tectonic and structural context (lines 56-68, 171-202), text and figures are poorly informative of the actual expected tectonic seismicity: I suggest shrinking the description of the large scale-long time evolution of the orogenic belt in favour of a more detailed qualification of the present seismicity (actually lines 70-76): fig 1 is not sufficiently readable, consider to combine the geological panel with a physical map showing main events from CZEQ catalogue, station locations (e.g. moving the inset of Fig.2) showing for example the country's border, as common reference line.

Thank youy for this comment. The geological context is essential for interpreting the upper-crust structural control on the macroseismic observations. However, we realized that in its previous form it was too extensive. To improve clarity, we simplified the geological section. As suggested, we also revised Figure 1 to make it clearer and added country borders for reference. We moved the focal mechanism to the new Figure 2.

We prepared a new Figure 2 showing sparse seismicity across Czechia, and included the few documented seismotectonic lines in central and southern Bohemia. As noted, seismic activity in the country is generally sparse, and in south Bohemia it is nearly absent. This made a sufficiently strong, widely felt earthquake an unusual and highly attention-drawing event. We also included the cross-correlated waveforms of the two earthquakes pointing to similar location and mechanism.

Moreover, we have clarified the objective of the paper to better emphasize its main contribution. Specifically, we demonstrated that earthquakes occurring in South Bohemia, an area typically considered seismically non-active, generated significant public attention and engagement, despite its low population density. This is reflected in the high number of completed questionnaires. Furthermore, the spatial distribution of these responses showed a clear correlation with geological structures. We feel that together, these results demonstrate the value of crowdsourcing for understanding geological processes, even in regions with low seismic activity and without dense local seismic station coverage. This point has been explicitly emphasized in the paper.

And, in this respect, we also revised the title to better reflect the scope and focus of our work. The new title is: *Public Response to Two Rare Earthquakes: Crowdsourcing Constraints on Crustal Structure in South Bohemian Massif*

2) About the selected earthquakes (lines 95-128), no reference is given for the solutions proposed, no details are provided about the location method, accuracy of the solutions and depth control with such a limited station coverage in the surroundings of the epicenter.

We improved this section, added the details and reference for location method, accuracy of the solution, number of stations and velocity model. We provide information on how data on the source location is obtained, along with the corresponding reference.

We also included modified Figure 2 (we removed the older Figure 2) and we included stations used for location and focal mechanism calculations referencing different networks and documenting various sources for seismic interpretation. In this figure, we also included the cross-correlated waveforms of the two earthquakes pointing to similar location and mechanism.

We added seismicity in Czechia and seismotectonic lines for southern and central Bohemia to document the aseismic character of the Bohemian Massif (see also the answer for Rev. RC1).

Searching on ISC bullettins, the solutions provided in the manuscript nearly coincides with the ones given by national agency IPEC The Institute of Physics of the Earth; quite a lot of mining events are listed by ISC, close in space (epicenters) and time to the two mentioned tectonic events: if true, they deserve to be mentioned; a table of the identified aftershock is more informative than the actual Tab 1 (that anyway has to be mentioned in the block of focal mechanism description -lines 122-128).

As stated above, we included modified Figure 2 (we replaced the older Figure 2) and we included stations used for location and focal mechanism calculations referencing different networks and documenting various data (stations from various networks) for seismic interpretation.

About bulletins, we have to clarify that the shared IPEC bulletins only list readings from broadband stations of the CZ network. However, for location, the best solution from all available relevant stations is used, comprising also local industry networks. A map of regional ML ≥ 0.5 seismic activity is available via the link to the CZEQ catalog, which is compiled in collaboration of both national agencies and which we consider to be the most reliable one. We included seismicity from this catalog into the Figure 2. Moreover, this catalog distinguishes events considered to be verifiably induced. For these reasons, we can distinguish tectonic events and in the Figure 2 we only plot earthquakes that are of tectonic origin.

We added a reference to Table 1 within the focal mechanism section.

Consider to add a cross-correlation graph/ waveform comparison of the two events at the same station in the inset of Fig 2, to support they are co-located and with the same source mechanism.

In Figure 2, we included a cross-correlation comparison of the waveforms from the two earthquakes to demonstrate that they share similar mechanisms and originate from the same location, within the limits of location uncertainty.

Some considerations concerning the theoretical radiation pattern of S-waves have to be added too.

In terms of theoretical radiation pattern, the reviewer is right that the S-wave radiation pattern (radiating in the SW and NE directions) can partly be responsible for the observed distribution of data. And for completeness, we have included this comment to the text. However, the sharp cut-off of observations along boundaries (especially the Barrandian-Moldanubian contact in the west) delineated by two tectonic

features, independent of population density, indicate a strong structural control on seismic wave propagation.

3) last but the most important: I find critical and not properly presented the criteria used to assign the macroseismic degree from the questionnaires (basically described only at line 148-154). The literature in Europe on this subject is wide, but basically not quoted. Considering the formulation of questions provided in English in the Annex questionnaire, I believe the indicators of the "strength" of the shakings are still vague (for example the "observer's feelings and reactions" do not include the doubt/surprise, no fear or reaction that is usually associated with degrees II-III), and the final assignment of degrees III, IV and IV-V may overestimates the intensity. A better representation of the population density and description of the engagement of population for the compilation of questionnaires is welcome.

Yes, the reviewer is right, and we followed his suggestions. Our primary focus was on the correlation between the observations and the major geological structures, and as a result, we initially underestimated the importance of providing a more detailed explanation of this aspect. We have now clarified this part of the manuscript.

We expanded the intensity assessment, included the information on the description of the engagement of population, included overall density population of the area in Figure 4, quality of responses, corrections applied. We also clarified how qualitative terms such as “few,” “many,” and “most” were treated by assigning three not-overlapping ranges (0–20%, 20–60%, and 60–100%), enabling a more quantitative assessment. We also referenced relevant literature. Reports indicating that the earthquake was “not felt” were associated with the perception of sounds resembling transport heavy vehicles (in 13% of all cases) and were assigned an intensity of III. We stated this in the text. In this view, the reviewer is right that the resulting values may be slightly overestimated given the above constraints. As a consequence and a conservative approach, we did not assign intensity II. However, both events were consistently reported as widely felt across a large area despite the sparse population density. We therefore consider the assigned intensities as constrained given the available data.

Minor points:

a) magnitude 3.1-3.5 cannot be defined as moderate earthquakes (usually 4.0-5.5), but light ones

The reviewer is right, this was wrong term. These earthquakes were considered rare for the region and we reformulated the text in this respect.

b) line 54, Cifelli et al not in reference list

We included the reference.

c) line 73 and 389 CZEQ catalogue reference lacks the date

We corrected the reference.

d) references starting at lines 331, 365, 386 and 393 are not cited in the text

e) mistype at lines 407-409

Corrected

f) wrong date? at reference starting at line 422, in the text quoted without a,b

We corrected the reference in the text.