1 • Area of study. As Figure 1 shows, the area of study does not include the entire Alps. The majority of the Western Alps are left out, and the eastern termination are also left out. I find this is an issue as there are earthquakes in both of these areas and they would add to the rheological discussion as well. A broader, or different shape chosen for the study would justify the title and improve the discussion by a lot. The current map makes it awkward to really label this work "Alpine".

The study area utilised within this work is constrained by the limits of the structural and thermal models that it draws from (Spooner et al., 2019; Spooner et al., 2020). Presently high resolution datasets, that would allow for the inclusion of the small remaining portions of the very western and eastern Alps that are not included, are unavailable. In order to make this clearer, new sentences have been added at lines 105 – 109.

2 • Seismicity. The seismicity data shown in this paper is from the ISC catalogue. This catalogue is known to have drawbacks compared to more detailed local/regional/national catalogues in the Alpine area. This should be discussed in detail, uncertainties are a crucial element of such an analysis. I'm afraid the selection criteria chosen by the authors (lines 131 onwards) removed the majority of events from the map. Moreover, several events are close to the border of the study area – are there edge effects that affect the mechanical analysis? By the way, the majority of the 4405 chosen events are in the Apennines. To illustrate the problem of data selection, a question: can figure 9 (seismic density and maximum depth of events) be interpreted without discussing magnitude of completeness?

We understand the reviewer's concerns about the ISC catalogue. In response to these and the suggestions of other reviewers we have added a thorough analysis of the catalogue with comparison to local catalogues (figure 5), as well as an analysis of the catalogue completeness (figure 6) along with a new 'Seismicity Catalogue' section in the text from lines 137 – 167.

3 • Only incremental advance. By comparing the proposed figures to those in recent publications of the lead authors, there is a large overlap. Spooner et al. 2019 Solid Earth, as well as Spooner et al. 2020 Global and Planetary Change already include numerous figures of this study. Namely: figure 1, figure 2, figure 3, the data for figure 4, a precursor of figure 5, precursor of figure 6. Figure 9a is a representation of ISC data. Figure 10a is a new way of comparison but similar to the 2020 paper, figure 10b is from another paper. This leaves only Figures 7 and 8 as new. Is this sufficient to publish a paper?

This work does indeed build off of previous works that have constrained the structure and temperatures of the lithosphere in the region, such that lithospheric strength can now be calculated and discussed within this work. Should the figures of the study area, the crustal thicknesses and thermal field therefore remain excluded from this work, despite their clear relevance to the discussion of the manuscript? We and perhaps the majority of the geoscience community would say that is not the case. We would also argue that a figure that is 'a new way of comparison but similar' demonstrates a clear understanding of the scientific process and how findings improve and evolve as studies progress in a field. We also struggle to see what the reviewer could be referring to from our previous work as a 'precursor' of figure 5 (now figure 7) and figure 6 (now figure 8) given that these represent the entirely new strength results generated in this work. Most of the points made here by the reviewer seem to abjectly dismiss figures in this work, without due consideration (or understanding) of the value that they bring to the discussion. Nevertheless, as a result of the numerous constructive comments offered by two other reviewers, the manuscript has been significantly expanded with the addition of multiple new figures and sections in the text, to broaden the discussion and improve the scope of the manuscript.