

Dear Melody,

We are pleased that our responses comply with the reviewer's comments. Thank you for your comments that helped to improve the clarity and quality of the paper. Our responses have been inserted in bold italics below your comments. Line numbers refer to those of the revised versions of the manuscript and SM. Changes to the manuscript are highlighted in the track-changes file.

- This is possibly only a technical correction but should the top half of equation 9 be  $\log(\text{measured}) - \log(\text{computed})$ ? Otherwise, this becomes problematic if you have a perfect simulation.

***You are right, the correct equation is  $(\log(\text{measured}) - \log(\text{computed})) / \log(\text{measured})$ . This was an error in the text. The calculations have been done correctly. Thank you for pointing out this error, which has been corrected in Equation 9.***

- Please could you clarify how you derive the % errors from Tables 3 and S3 in lines 404-440. It is difficult to see how the values given in the text relate to the values in the table (also reference in line 439 should be to Table S3 rather than Table 3).

***The relative errors calculated with Equation 9 and presented in Tables 3 and S3 take into account the logarithm of the values. This makes it possible to select the best set of mechanical parameters, taking into account the difficulty of reproducing the correlation length and the fact that the statistical indicators vary by several orders of magnitude. To give the reader a better idea of the differences between measured and calculated values, the classical relative errors (without logarithmic values) are presented in the text (lines 404-440 and 435-457). We are aware that this can be misleading and that there is sometimes a mixture between these two values (for instance in the abstract). To clarify this, we explicitly mention the relative logarithmic error in the text when referring to the values presented in Tables 3 and S3. Otherwise, we refer to the relative error. Some values presented have been corrected accordingly, as have a few typos. We have also added sentences to lines 405-407 and 433-434.***

***Table S3 has been referenced instead of Table 3 in line 439.***