

Dear Kaitlin,

Thank you for carefully reading the manuscript and for your corrections and comments. We implemented all the changes you suggested. Please find below your corrections/comments pasted in black and our replies in blue. Note also that we corrected the double entry of petrenko and whitworth citation.

Kavitha Sundu (on behalf of the authors)

Thank you for the submission of your revised manuscript. We will be pleased to publish your manuscript after the following corrections and comments are addressed (line numbers given below are in reference to the tracked-changes version of the manuscript):

L3: 'give'
changed
P1 L3 in the track change version.

L39: '...estimation of...'
done
P2 L35 in the track change version.

L51: remove 'and this'
changed
P2 L47 in the track change version.

L57: 'moduli'
done
P2 L53 in the track change version.

L62: either 'parameterizations... exist...' or 'parameterization...exists...'
changed
P3 L57 in the track change version.

L82, 84, 85: spell out 'Section'
done
P3 L76, 77, 78 in the track change version.

L82: and 'the' before 'parameterization'
changed
P3 L76 in the track change version.

L84: 'were not captured'
done
P3 L77 in the track change version.

L90: add 'the' before 'representative'
changed
P3 L83 in the track change version.

L126: replace 'They' with 'These parameters' to be clearer


done
P5 L117 in the track change version.

L128: add 'an' before 'optimization'
done
P5 L119 in the track change version.

L140: change to '...and apply to ice...'
done
P5 L131 in the track change version.

L168: add 'an' before 'optimization'
changed
P6 L158 in the track change version.

L193: remove 'notably'
done
P7 L182 in the track change version.

L221: remove 'Given'  'Further, since the modulus increases...'
changed
P8 L209 in the track change version.

L252: space needed before '(SVD)'
done
P11 L240 in the track change version. (Unfortunately not marked by the diff application)

L264: in Sections 1 and 2 (and also later in the manuscript) the authors use 'FE simulations' instead of 'FEM simulations' defined here. It would be clearer if the same acronym is used throughout the manuscript.

done
L 75, 114, 118,119, 159, 172, 250,254,328,333,419,420, in the track change version.

L292: remove 'first'
done
P12 L277 in the track change version.

L310: should be 'parameterizations' here
done
P14 L294 in the track change version.

L320: should be 'parameterizations' here
done
P14 L304 in the track change version.

L351: 'elastic' should be 'elasticity'
changed
P17 L318 in the track change version.

L352, L356, L357, L363, L365: 'on' should be 'in'
changed

P17 L319, 323, 324, 330, 332 in the track change version.

L438: and 'from' before 'Srivastava'
changed
P21 L401 in the track change version.

L444: remove parentheses
done
P21 L407 in the track change version.

L451: add 'a' before 'similar'
changed
P21 L414 in the track change version.

L457: '...', we considered ice-volume fraction and correlation function data provided by...'
done
P21 L416, 417 in the track change version.

L480: one more ')' needed here; 'are' should be 'is'
changed
P22 L440, 441 in the track change version.

L531: 'persist'; '...close-off depth, and how concurrent fabrics (geometrical and crystallographic) will elastically interact in bubbly ice is yet to be investigated.' (or some similar phrasing)
changed accordingly
P23 L484, 485, 486 in the track change version.

Table 1: consider putting 'this work' or 'Sundu et al. (this work)' for the samples without a citation here, or any other appropriate reference to the source of those data
changed accordingly
P10 Table 1 in the track change version.

Figure 2 caption: remove 'as a function of' before 'HS upper bound'
done
P13 Figure 2 in the track change version.

Section 3.4 discussion of RVE analysis of samples: Are the 8% of samples that did not fulfill the Wautier et al (2015) RVE requirements still part of the dataset used in this work, or were they excluded? Add clarification about how those 8% of samples were treated to the description of the RVE analysis here.

We have clarified in the text that the samples that fall below the Wautier et al. (2015) REV criterion were still kept in our dataset. Our reason for that is that these samples do not appear as outliers in our results. Moreover, we have recomputed the fit of our proposed parametrisation and found that excluding these samples did not significantly modify it.

P11 L267, 268 in the track change version.

Figure 6 caption: 'Comparison of... to the parameterization C_{33}^{PW} from the present work for (a) ...'; should be 'uncertainty in...' throughout caption
changed accordingly

P18 Figure 6 caption in the track change version.

All the best,
Kaitlin