Author's Answer to editor's comments

Dear Editor,

We are glad of your decision to accept our manuscript for publication.

Concerning your comments:

- We meant no disrespect. This point was already covered in our earlier review and we should perhaps have repeated it here again for the sake of completeness. What we meant is that we are missing bi-axial test of granular material. The studies cited below are all for tri-axial tests but given that sea ice can "escape" in the third dimension, it is not clear that they are directly applicable to a 2D granular material like sea ice. We clarify this point in the manuscript and add a reference to Schulson (2006) per your suggestion:
    - **We add "Note that some of these last experiments are tri-axial tests, and that bi-axial tests of 2D granular sea ice might yield different results as sea ice can "*escape*" in the vertical direction. Bi-axial tests on sea ice samples show that small confinements lead to coulombic shear faults fractures with a similar internal friction coefficient and similar fracture angle. However, larger confinements lead to a spalling raft-like behavior with a broader range of fracture angles Schulson et al. (2006a)." on L114**
- The other 3 comments were corrected as suggested.
- There exists two main types of fracture, brittle and ductile fracture. Both are observed in granular media and in sea ice. Brittle behavior and granular nature are not excluding each other. Brittle fracture is typically accompanied by crack propagation. In a VP model, we have (brittle) fracture with crack propagating at infinite speed (a VP model is almost an ideal plastic material). One could also argue that "instantaneous crack propagation" means "no crack propagation" and that the VP model really displays ductile fracture (i.e. fracture after large plastic deformation). We interpret the fracture in VP model with option #1 above, but this is still be unclear. However, we have clarified the terms used in the manuscript:
    - **We add "We use the term *fracture* as the failure of a compact assemblage of floes and define the *fracture angle* as half of the angle between intersecting LKFs." on L42**

Best wishes,
Damien Ringeisen
On behalf of the three authors