

The Cryosphere Discuss., referee comment RC3
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Comment on tc-2021-389

Anonymous Referee #3

Referee comment on "Flexural and compressive strength of the landfast sea ice in the Prydz Bay, East Antarctic" by Qingkai Wang et al., The Cryosphere Discuss., <https://doi.org/10.5194/tc-2021-389-RC3>, 2022

For the landfast sea ice in the Prydz Bay of East Antarctica, the flexural strength and uniaxial compressive strength were measured in field and in cold lab considering the influence of ice temperature, ice crystal size, loading rate and loading direction. Moreover, the brittle-ductile transition of sea ice in the uniaxial compression tests were discussed based on the experimental data. The measured results were analyzed comprehensively and compared with the literatures well. Some valuable data were obtained and can be applied in the engineering.

Some comments and suggestions are listed below for considerations.

(1) Lines 153-154, How were the error propagations determined for the flexural strength, effective (elasticity) modulus, compressive strength and strain rate based on Eqs.(5) and (6)?

(2) "the effective modulus" should be "the effective Young's modulus" or "the effective modulus of elasticity".

(3) Lines 180-184, the minimum flexural strength of mixed ice (511.3kPa) is higher than that of columnar ice (305.3kPa). This is quite different to the maximum and mean values. What is the main reason for the measured results?

(4) In Eqs.(9) and (10), please listed the dimensions for ice thickness h , the effective beam length r and the radius of loaded area c . Please check the other equations.