First off, I found this an interesting paper.

I want to write a brief comment about the conclusions of the authors, and in particular, how the authors relate their work to Koziol and Arnold (2018) [which I'll refer to as KA2018]. Note, I am the Koziol part of that publication.

Lines 746-749 of the conclusions present a contrast between KA2018 and Bougamont et al (2014), where the former is said to conclude a general power sliding law is best suited while the latter is stated as concluding a Coulomb Law is best suited. The authors then present their work as showing that a regularized Coulomb Law as providing a complete description encompassing both.

This framing misses important context in KA2018. KA2018 never make an unequivocal assertion that the general power sliding law is 'best suited'. Indeed we state that w.r.t the to the Schoof/Gagliardini sliding law there is "... comparable fit to measured velocities for large segments of the velocity time series", as well as that the generalized power law has practical value but "the form and parameters of the sliding law remain uncertain". The full quotations are at the end of this document.

KA2018 avoided the conclusion that one sliding law was 'best' for a few reasons. The first was that the aim of our study was not to investigate which sliding law is correct, but to gain insight about future ice sheet velocities in the context of increased melting. Secondly, we don't have strong evidence from the predicted time series against either of the sliding laws. Here it's important to keep in mind that discrepancies between the recorded and predicted time series can arise from a multitude of data and modelling considerations (e.g. the accuracy of the melt volume and timing, the mathematical formulation of the subglacial hydrological components, the lack of an elastic ice sheet response, the parameters used, ...).

I'd like to encourage the authors to reconsider their conclusions in this light, as I don't think KA2018 supports the clear assertion the authors make that KA2018 conclude that power law form is 'best suited'; further, although KA2018 didn't proceed with Schoof/Gagliardini sliding law, I believe our outputs supports its use in the region.

Minor Comments
Line 495-499 should be amended to reflect the fact that KA2018 used both a Schoof/Gagliardini sliding law (i.e. your equation 12) and Budd sliding law, not exclusively the latter as it presently reads.

The two quotes from KA2018 referenced above:

Section 3.2 "The Schoof and Budd sliding laws result in model output of comparable fit to the measured velocities for large segments of the velocity time series. However, during periods of high velocities, the Schoof law can overpredict the magnitude of the velocity by a factor of 3. Model output with the Schoof sliding law is also observed to have a sharper and higher magnitude summer speedup, as well as a slight increase in velocity variability. Since the Budd sliding law results in an overall better match to the measured velocities, the analysis of the velocity time series in the remainder of the paper focuses on those results.

Section 4.2: "Simulation results show the Budd sliding law with standard exponent values has practical value in simulations. However, the form and parameters of the sliding law remain uncertain, and the Schoof law has greater theoretical support (Hewitt, 2013)."