

Dear Dr.Horgan,  
thank you a lot for the detailed proofreading and the list of corrections. All of them are integrated into the text.

=====

Minor corrections:

L15 'constantly losing mass' to 'losing mass' (accuracy)

L19 'the mass loss...' to 'mass loss...' (definite article usage)

L30 'the ice albedo' to 'ice albedo' (definite article usage)

L32 'The surface runoff...' to 'Surface runoff...' (definite article usage)

L39 'the ice dynamics.' to 'ice dynamics.' (definite article usage)

L39 'computes the effective...' to 'computes effective...' (definite article usage)

L40 'relates the basal...' to 'relates basal...' (definite article usage)

L66 'the effective...' to 'effective...' (definite article usage)

L67 'As for the subglacial hydrology, because...' to 'Because...' (Concise language)

L70-71 'so that the models' to 'so models' (Concise language)

L75 'In real applications, models' to 'Models...' (Concise language)

L84 '...now includes..' to '...now include...'

L96 'At the same...by temporal' Awkward sentence, consider changing to 'Temporal variations of basal hydrology have been addressed by several studies using inferred...'

L98 'the effective pressure' to 'effective pressure' (definite article usage)

L98 'Thus, the main...' Non-sequitar, change to 'The main...'

L104 'the studied region' to 'the study region'

L113 'We address the questions of how' to 'We address how' (Concise language)

L117 'we conclude on...' to 'we conclude with'

L124 'east-wast' to 'east-west'

L129 'is applied on' to 'is applied to'

L130 'that they can' to 'that the product can' (remove ambiguity)

L132 'the noise' to 'noise', 'the spatial coverage' to 'spatial coverage'

L137 'extremes, thus' to 'extremes. Thus...' (run-on sentence)

L143 'estimation' to 'estimate'

L153 'speed magnitudes' to 'speed'

L162-163 'Therefore, the y-component...' Check the logic of this sentence. If the east-west component was very small also, then this would be true but not as currently stated.

L170 'suppose' to 'assume'

L171 'affected: the' to 'affected. The...' (run-on sentence)

L175 ', the ice flow' to ', ice flow'

L183-184 'Russell basin' to 'Russell Sector' for consistency

L184 'and infer it for the ' to 'infer the'

L189 'as well, the' to 'either. The' (run on sentence)

L193 'In this section' to 'In the remainder of this section...'

L216 '...on the bed...' to 'in the bed...'

L221 'As for the..., they are....' to 'The...are...' (concise language).

L247 'done in...' to 'from...'

L251 ', certainly' 'This is likely...' (run-on sentence and exactness of language.)

L264 'E: to validate.' to 'E. To validate' (run-on sentence).

Table 1 caption. 'The list of...' to 'List of....'

L270 'distances higher' to 'distances greater'

L280 'deformation of ice column occurring further across the inland...' to 'deformation of the

ice column occurring in the inland...'

L281 'Along with that, we...' to 'We...'

L281 'results few' to 'results a few'

L293 'norm of of'

L296 'choice of the friction law' to 'choice of friction law'

L300 'Inverting the' to 'Inverting for the'

L324 'For that, the' to 'The...' (ambiguity)

L327 'Based on that, ' remove ambiguity.

L336 'is generally below 5%' be precise 'is below X%' or 'is below 5% in XX% of cases'

L345 ', certainly because...' to 'likely because' (exact language).

L345 'of the friction' to 'of friction'

L346 'could be the underestimation' to 'could be due to underestimation'

L350 'increase up to' (which would mean 40-30--45-65) or 'increase to up to?'

L367 ', being higher on...' to ', it being higher on...'

L388 'be-monthly' 'twice-montly' (bi-monthly is ambiguous)

L397 '...with the initial...' to 'when compared with the initial...'

L397 'stagnates' word choice, perhaps 'stabilises'

L403-404 '...velocity maps are indeed the most important for these periods, often exceeding' to 'velocity, often exceeds...' (most important how?)

L405 'remains' to 'is'

L429-430 Concatenate single line paragraph to next paragraph.

L436 'and absolute' to 'and an absolute'

L441 "deformation" to 'deformation'

L487 'clear correlation' to 'clear anti-correlation between friction and sliding speed'

L492 'Such effect,' to 'Such an effect,'

L518 'without cavity' to 'without cavities' or 'without cavitation'

L529 'provide good fit' to 'provide a good fit'

L535 'to invert the' to 'to invert for the'

L540 'law, what is described further' to 'law.' Concise language

L568 'Properly saying, the..' to 'The...'

L570 'basal melting water' to 'basal melt water'

L571 'inferred at the mesh...' to 'at the mesh..'

L575 'It also' Our ASW estimate also has...' (remove ambiguity)

L578 'with a low' to 'with low...'

L585 'would certainly lead' to 'would lead'

L586 'is the uncertainties on Asw estimated as' 'is the uncertainty in Asw estimated by..., computed as:'

L603 'would be not valid' to 'would be invalid'

L604 'that it is' 'than otherwise'

L605 'we stay limited' to 'we are limited'

L607-610. This long run-on sentence is hard to follow. Break it up and clarify.

L640 '...as from the defined boundaries for Eq. 13 CN is always positive, meaning..' to 'as Eq. 13 shows CN is always positive, meaning...'

L641 '...margin, similarly to the...stat...' to '...margin. This is similar to the modelling of the water routing system in steady state..., suggesting an increased...'

L650 '...to conclude from our inversions on' to 'from our inversions to draw conclusions on

L655 'winter almost half of inferred by us.' to 'winter that are almost half those inferred by us.'

L658 'Fig. A5' to 'Fig. A6'

L659 'two profiles' to 'three profiles'

L661 'it shows' ambiguous, clarify.

L663 'in the Weertman law' to 'in Weertman's law..'

L671 'picks' to 'peaks'

L682 'it would be' to 'this is...'

L682 'by the basal melting water' to 'by basal melt water'

L686 'is probably a mix between point A.....adjusting....' to 'is probably a mix between point A, where local variations of water pressure occur, and point B, which responds to non-local longitudinal stresses.' or similar.

L691 ', we probably approach a Coulomb-like behavior where...' to ', Coulomb-like behavior is likely approached, where...'

L693 'consistent with important cavitations' important how? 'consistent with cavitation, and...'

L726 'since some moment the' to 'the...' either remove or be precise.

L736 'and in' to 'and'

L746 'we can conclude' to 'we conclude'

L749 'the water pressure at the base' to 'basal water pressure'.

L751 'at a much higher...' quantify 'that can now be obtained at a time resolution of ...allowing... This offers the...'

L766 "'ridges" would correspond...' to 'while the ridges correspond..'

L768 concatenate small paragraph to previous paragraph.

L771 'would still be needed' 'is still needed...'

L773 concatenate small paragraph to previous paragraph.

L785 'appear small' to 'are small'

L803 Include GIMP data source.