

Sediment transport capacity response to variations in water discharge in pressurized subglacial channels (Revision 1)

Author(s): Delaney and others

General comments

The revised manuscript is improved and, while the multivariate nature of the analysis prevents the main findings from being expressed as clearly and succinctly as I would consider ideal, I have no substantial issues. As well as a few very minor comments below, I have two more general suggestions. First, many of the Figures still need attention in terms of consistent font and case, use of colours (especially font on a coloured background), and accurate and consistent labelling and captioning. Second, the point made in lines 17 – 19 of the Abstract is still a bit bland. If possible, I would rather make an explicit point that (since sediment transport capacity and competence are more variable, and therefore include higher peaks, for a given discharge in subglacial settings) former subglacial discharge reconstructed from the texture of remnant ‘flood’ deposits may well be far too high. Perhaps this could even be quantified and presented as a headline figure (peak τ is 1M higher in ICESHEET subglacial than subaerial in Fig. 2g, no?). Or just note this as ‘For example...’.

Specific comments

Line/Location	Comment/Suggestion
Fig 1	Fill and font colours don’t work very well; axis legend capitalization is inconsistent with elsewhere
Fig. 1 caption	‘Sketch of...’
57	‘Yet, continually evolving channel size can...’ Incidentally, I’d check all uses of ‘evolve/evolving’ through the ms and look to replace some with ‘change/changing’ (e.g., I would use changing here [and e.g., line 154]).
95	I would replace ‘upon’ with ‘on’. Check elsewhere too.
109	Italicise ‘n’?
136	Delete ‘the’ (twice) as both are names/proper nouns.
139	Delete ‘thickness’
Fig. 2 caption	Last line doesn’t make sense (but the grey band along e – h does need explanation).
205	‘...occurs because diurnal...’. In fact, I think I’d combine to “...increase in correlation (Figure 4), reflecting the reduced diurnal variability”
Fig. 3	Axis legend capitalization
Fig. 3 caption	‘Relationships between...’ Also, insert a space between ‘15’ and ‘min’
Y axis	I’d note that the axis is logarithmic (here and elsewhere). The issue arises because there are no intermediate ticks here and only two major markers so the reader does not know whether the axis scale is normal or log. Maybe just insert minor tick marks (as is done, albeit variably, elsewhere).
208-9	This sentence is really difficult to follow...
212	‘...higher ... than...’ (not ‘...higher ... compared to...’ (elsewhere too)
Figure 5	There are 9 dots on each plot but only 8 values noted in the caption (2 d missing from the latter?) Comma missing after ‘6 hr’ in the caption too.

226	'...shear stress, which can...'
227	'...stress, but...'
Figure 6 caption	I'm pretty sure 'left' and 'right' are the wrong way around here... Also, '...show the range...'
321	'...transport capacity and water discharge...'
330	'The last of these can remain relatively stable over years...'
333	'...likely largely represents...' (?)
362-3	'...melt is too short for the channel to reach steady state' needs rewriting. Maybe '...when high-frequency variability in melt rate is too great for...'
366	'Thus, fluctuations in discharge...'
369	'...these variations in sediment transport capacity are far larger than those...'
374	'...or the threshold at which...'
287	Delete 'exists'
389	Replace 'as' with 'because'
400	Replace 'its' with 'channel'
406 and 417	I'd remove reference to objectives and begin with 'We established the conditions under which...' etc
408	'...and an ice sheet...'
410	'...a variable relationship exists between water discharge and ...'
411	I'd delete 'potentially'
412	'...even when those records are smoothed...'
418	It is not clear what variables are higher than what else.
420	'...variations, as in the...'