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## Supplement of

## Sediment transport capacity response to variations in water discharge in pressurized subglacial channels

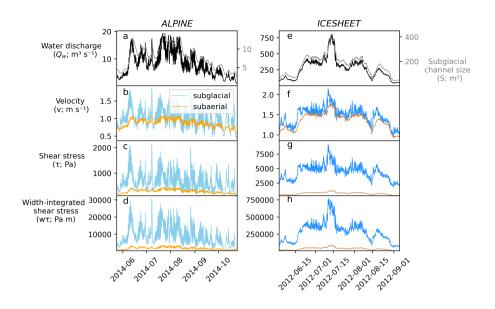
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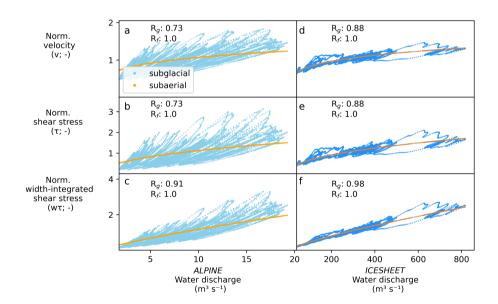
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**Table S 1.** As Table 3 but with the fractional exponents stated as rounded decimal numbers. For the subaerial regime the exponents are for displayed for the likely width-exponent  $\alpha = 1$ , as well as its end members 0 (slot canyon) and 1 (only width increases and not depth).

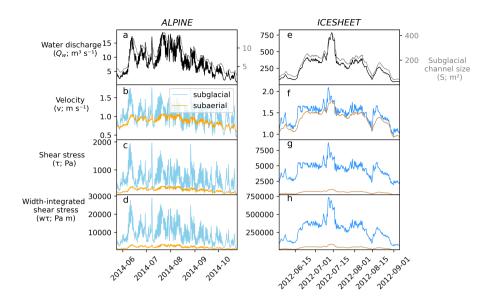
|                              | Width $\times \tau$          | MPM                         | EH                           | Bagnold                                       |
|------------------------------|------------------------------|-----------------------------|------------------------------|---|
|                              | w  	au                       | $Q_s \propto w  \tau^{3/2}$ | $Q_s \propto w  	au^{5/2}$   | $Q_s \propto w^{-1/2}  \Omega^{3/2} H^{-2/3}$ |
| Subaerial ( $\alpha = 0$ )   | $f^{0.7} Q^{0.7} \Psi^{0.7}$ | $f^{0.5}Q\Psi$              | $f^{0.8} Q^{1.7} \Psi^{1.7}$ | $f^{-0.2}Q^{1.1}\Psi^{1.7}$                   |
| Subaerial ( $\alpha = 0.3$ ) | $f^{0.7} Q^{0.8} \Psi^{0.7}$ | $f^{0.5}Q$ $\Psi$           | $f^{0.8}Q^{1.3}\Psi^{1.7}$   | $f^{-0.2} Q^{1.0} \Psi^{1.7}$                 |
| Subaerial ( $\alpha = 1$ )   | $f^{0.7}Q^{1.0}\Psi^{0.7}$   | $f^{0.5}Q~\Psi$             | $f^{0.8}Q^{0.7}\Psi^{1.7}$   | $f^{-0.2}Q^{1.0}\Psi^{1.7}$                   |
| R-channel                    | $f^{0.4}Q^{0.8}\Psi^{0.6}$   | $f^{0.5}Q\Psi$              | $f^{0.7}Q^{1.4}\Psi^{1.8}$   | $f^{-0.2}Q^{1.0}\Psi^{1.7}$                   |
| Pipe                         | $f  Q^2  S^{-1}$             | $f^{1.5} Q^3 S^{-2.5}$      | $f^{2.5}Q^5$ $S^{-4.5}$      | $f^{1.5} Q^{4.5} S^{-4.7}$                    |



**Figure S 1.** As Figure 2, with 1 hr aggregation.



**Figure S 2.** As Figure 3, with 1 hr aggregation.



**Figure S 3.** As Figure 2, with 6 hr aggregation.

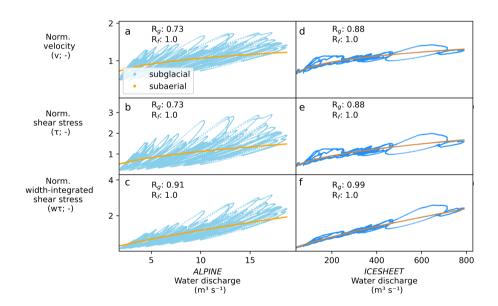


Figure S 4. As Figure 3, with 6 hr aggregation.

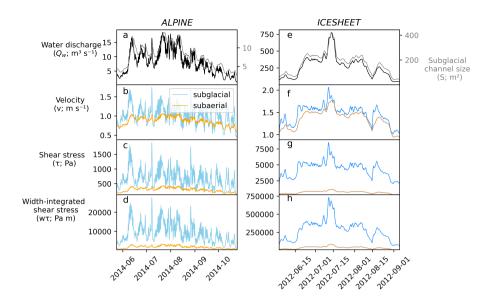


Figure S 5. As Figure 2, with 12 hr aggregation.

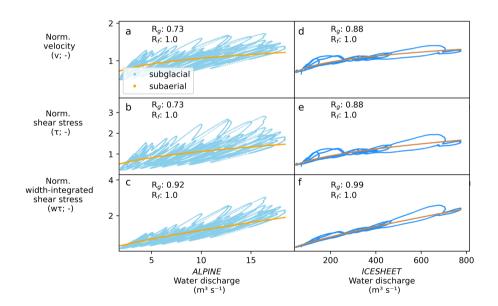


Figure S 6. As Figure 3, with 12 hr aggregation.

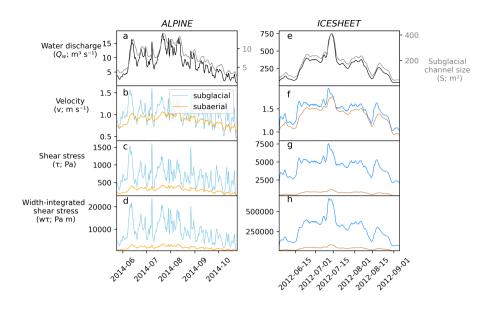


Figure S 7. As Figure 2, with 1 day aggregation.

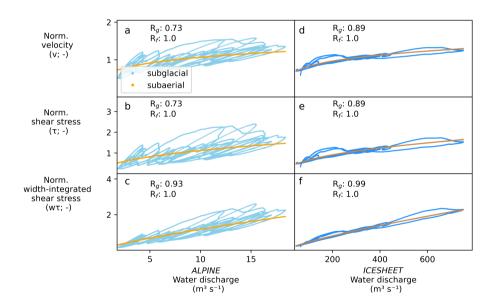


Figure S 8. As Figure 3, with 1 day aggregation.

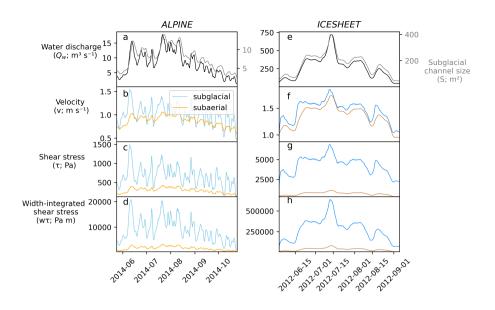


Figure S 9. As Figure 2, with 2 day aggregation.

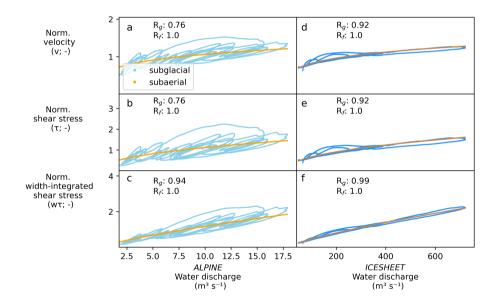


Figure S 10. As Figure 3, with 2 day aggregation.

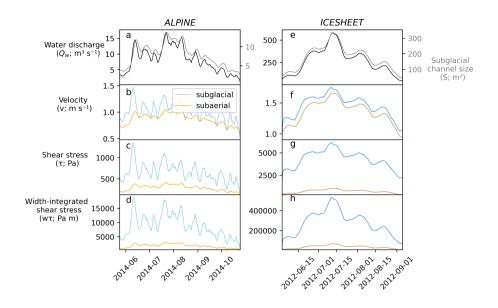


Figure S 11. As Figure 2, with 5 day aggregation.

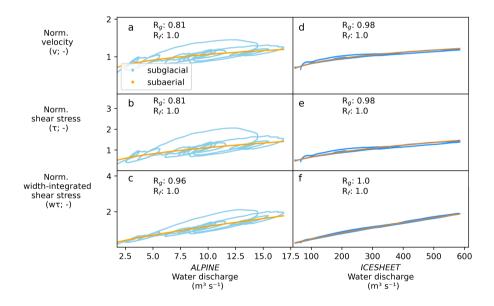


Figure S 12. As Figure 3, with 5 day aggregation.

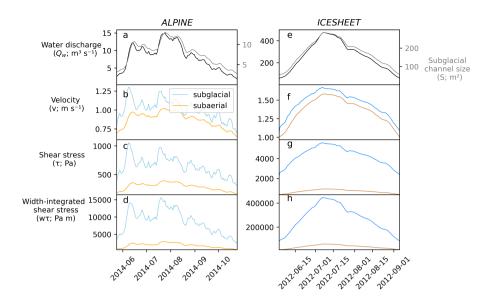


Figure S 13. As Figure 2, with 10 day aggregation.

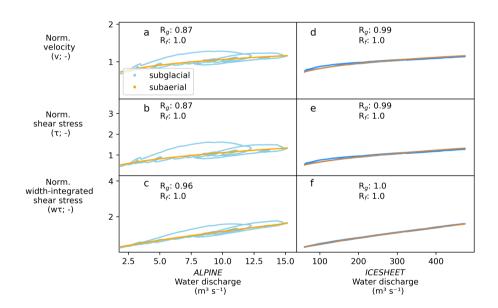


Figure S 14. As Figure 3, with 10 day aggregation.

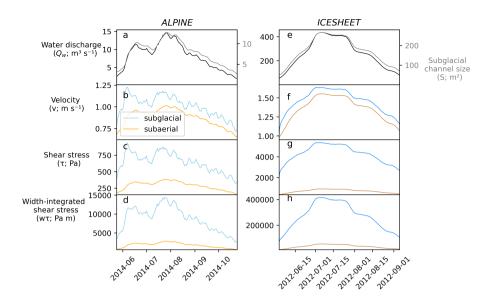


Figure S 15. As Figure 2, with 15 day aggregation.

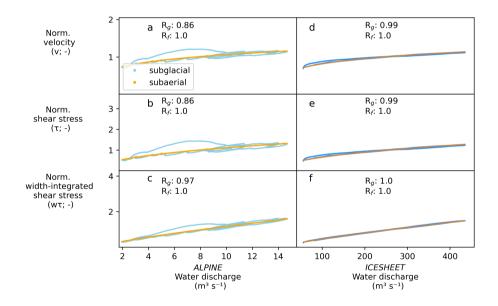


Figure S 16. As Figure 3, with 15 day aggregation.