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## A slip law for glaciers on deformable beds

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Slip of marine-terminating ice streams over beds of deformable till is responsible for most of the contribution of the West Antarctic Ice Sheet to sea-level rise. Flow models of the ice sheet and till-bedded glaciers elsewhere require a law that relates slip resistance, slip velocity, and water pressure at the bed. We present results of the first experiments in which pressurized ice at its melting temperature is slid over a water-saturated till bed. Steady-state slip resistance increases with slip velocity owing to sliding of ice across the bed, but above a threshold velocity till shears at its rate-independent, Coulomb strength. These results motivate a generalized slip law for glacier-flow models that combines processes of hard-bedded sliding and bed deformation.

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