

EFFECT OF NORMAL PRESSURE ON GLACIER SLIDING (Abstract only)

by

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ABSTRACT

Mercury is used to force a block of ice, measuring 0.20 x 0.45 m in area and 0.20 m in height, over an irregular bed. Normal and shear stresses on the bed can be varied up to 15 and 3×10^5 Pa respectively, so the apparatus permits a full-scale simulation of sliding of a 150 m thick glacier over irregularities a few tens of millimeters in height.

Preliminary results of an experiment in which ice slid over a bed consisting of two streamlined bumps, roughly 15 mm in height, suggest that sliding velocity is independent of normal pressure in the absence of cavitation. This is consistent with existing theoretical models of glacier sliding (Weertman 1964, Kamb 1970, Lliboutry 1979), but is not consistent

with the experimental results of Budd and others (1979). Further studies are needed to determine the reasons for this disagreement.

REFERENCES

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