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**Modelling channelization under ice shelves** MICHAEL DALLASTON, IAN HEWITT, University of Oxford — Ice-ocean interactions represent one of the greatest sources of uncertainty in climate model predictions, particularly sea-level rise. It has recently been observed that the undersides of many ice shelves have large incised channels, which has implications for ice sheet stability and mass balance. We describe a mathematical model that captures the growth of these channels from initial perturbations in ice thickness or meltwater flux at the grounding line. Our aim is to use this model to help understand aspects of recently reported observations and numerical experiments. One key finding is that the deformation of ice alone does not prevent the arbitrarily large growth of small wavelength channels, and so dissipative effects (e.g. eddy diffusion) within the ocean/meltwater layer must play a large role in the selection of channel spacing.

Michael Dallaston
University of Oxford

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