

Fast Preview

Note: This is not exactly what the published abstract will look like

Flow pattern and rheology of marine ice from Nansen Ice Shelf, Antarctica: constraints for modeling

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Antarctic ice sheet stability is largely controlled by dynamics of transition zones such as ice shelves. These zones are e.g. acting as confining walls for grounded ice flowing towards the ocean. Marine ice, which is an important by-product of ice-shelf/ocean interactions, is a poorly-known component of ice shelves, although it is supposed to play a major role on their dynamics. In order to integrate more realistic mechanical data of marine ice into ice flow models, rheological, crystallographic and geochemical studies have been carried out on marine ice samples from ice cores extracted near the grounding line of Nansen Ice Shelf (NIS), Terra Nova Bay, Antarctica. Preliminary results indicate that NIS marine ice 1) is deforming slower than isotropic ice under similar pure shear conditions, and 2) that Nansen Ice Shelf dynamics are not in agreement with commonly considered stress fields in ice shelves, as revealed by highly contrasted fabric patterns observed in the cores. It is shown that the topographical settings (margins and pinning points) might play an important role as the grounding line activity on the dynamics of the ice shelf. The NIS flow pattern and rheological characteristics are discussed here with a view to provide physical constraints for modeling small to medium-scale ice shelves in the context of global change.

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Student rate:

Not Applicable

Willing to chair a session:

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C - Cryosphere

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C01 - Cryosphere General Contributions

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Material presented:

0%

Contributed

Poster presentation requested:

Assign by PC

Scheduling request: