



## **Characterisation of a NE Greenland ice stream and the assessment of the driving factors behind the initiation of fast flow**

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Ice sheet stability and sensitivity to atmospheric and oceanic interactions is influenced by subglacial hydrology. This study assesses the role of subglacial hydrology in determining the pattern, location and temporal evolution of fast flow on a major north-east Greenland ice stream. Fast flow features on Greenland convey ice from the centre to the ice margins and currently account for between one-third to 40% of ice sheet mass loss, making it vital to understand controls on their flow and their response to climate warming. Here, we use MEaSURES and GoLIVE velocity datasets to quantify velocity variations on our study ice stream, over seasonal to decadal time scales. We compare the spatial extent of fast flow, and its onset zone, to water routing and bed characteristics, derived from radar data. This will provide important information on the factors controlling fast flow on a previously unstudied Greenland ice stream.

Key words: Greenland Ice Sheet, ice streams, subglacial hydrology, basal water pressure, outlet glaciers