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Timescales, processes and glacier dynamics

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Cover illustration Calving front of Kronebreen, Svalbard, depicting a chaotic tidewater glacier terminus. Photo taken 15 September 2016. Photo credit: Penelope How.

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PREFACE

Annals of Glaciology is a peer-reviewed thematic journal published by Cambridge University Press on behalf of the International Glaciological Society. The themes of this issue were the subject of the International Glaciological Society Symposium on Timescales, Processes and Ice Sheet Changes, held 3–8 June 2018 in Buffalo New York, which offered researchers a venue for presenting their work on the physical processes controlling glacier dynamics. New work was presented on process based ice-sheet model development, analysis of time series data in alpine glacier environments, debris cover and its effects, new paleoclimate/paleoglaciological data, processes contributing to the instability of Antarctic and Greenland ice-sheets, subglacial processes and environments, ice-ocean interactions, supraglacial hydrology, and cryoseismology. The recurring theme in these varied topics was the timescales the fundamental processes operate on. Moreover, the meeting brought new perspectives on glacial change due to members of the paleoclimate community, which due to historic ties to Buffalo, were present in good numbers. It was refreshing to consider change from both the very long term perspective of paleoclimate and paleoglaciology, as well as the shorter timescales processes are now being resolved on due to the explosion in high quality, remote sensed data.

Here, we present papers submitted for the conference. While the sample size is small, the submitted papers show some of the same diversity in subject matter shown by the work presented at the conference. In addition to revealing the dynamics of ice flow, the papers are practical in nature, demonstrating that basic observations can be used for new insight. In one case the relation between ice flow and surface elevation change is investigated (Ke), and in the other, bubbles found in ice cores are used to explore the history of strain at the location of the core (Fegyveresi).

Jesse Johnson
Cornelis van der Veen

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