



Investigating discontinuous recrystallization in cold basal ice from an Antarctic glacier

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Basal ice processes play an important role in glacier and ice sheet dynamics in that they control most of the displacement of the entire ice mass. The amplitude of this displacement is a function of a variety of parameters in the basal zone. Among these parameters, ice fabrics in particular have long been recognized as crucial. Crystallographic data are however lacking in basal ice, and the reasons why ice fabrics fluctuate and the role played by these fluctuations on the ice dynamics are still poorly constrained. In order to gain insight into these fields, we investigate here, through the analysis of ice crystal textures and lattice orientation, the causes for discontinuous recrystallization (DR) in the cold basal zone of an Antarctic glacier. The results are compared with different glacier conditions. The potential effects of DR on basal ice mass flow are also discussed.