

GLACIAL FACIES OBSERVED IN VIDEO IMAGES OF BASAL ICE OF ICE  
STREAM C IN WEST ANTARCTICA

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Video cameras in a Borehole Camera System were deployed into hot-water drilled boreholes in Ice Stream C in the 2000-2001 Antarctic field year to record basal conditions in order to better understand processes leading up to the recent shutdown of streaming behavior. The video images depict basal debris entrained in the ice in several classes of distributions, or facies, basal water movement, ice grain boundaries, and, on the shoulder of a "sticky spot," a small water-filled cavity. Observed debris near the bed is the consequence of basal accretion from a subglacial aquifer enabled by the sedimentary nature of the bed and an upglacier water supply; the debris distribution, which includes ice lenses as well as zones of varying but substantially uniform distribution, is indicative of basal heat fluxes and water pressure, bearing in mind that this stratification may contain unconformities. The interpretation of these facies is an aid in understanding the history of the ice stream in the context of its temperature gradient and basal conditions. Clearly, Ice Stream C basal hydrology has had a complex history reflected in its basal accreted layers, and interpretation of these layers can contribute constraints and data on processes of the past.

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