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# Deciphering subglacial hydrological processes from a subglacial carbonate record – an isotopic and elemental geochemical perspective

Stefan W. Vogel (1), Slawek Tulaczyk (2), Reed Scherer (1)

(1) Analytical Center for Climate and Environmental Change (ACCEC) Dept. of Geology and Environmental Sciences, Northern Illinois University, DeKalb

(2) Dept. of Earth Sciences, University of California – Santa Cruz

Subglacial hydrology and the basal thermal regime play a key role in the dynamic of ice sheets. High geothermal fluxes in West-Antarctica allow enhanced basal melting in its interior. Basal water flowing in the subglacial hydrological system towards the ocean lubricates the ice sheet base allowing the fast motion in West-Antarctic ice streams and providing a habitat for life. Changes within the thermal regime at the base of the ice sheet can reduce or increase the amount of basal water in the system and in this way influence the dynamic of the ice sheet and its ice stream. Due to its secluded location beneath the ice very little is known about the subglacial hydrological system and its influence on ice stream dynamics.

However a variety of subglacial processes, geological, hydrological and biological, influence basal water and pore water chemistry and leave their signature in sedimentary deposits in the subglacial environment. For example we have found carbonate deposits in subglacial sediment, which have clearly formed in the subglacial environment. We are currently further investigating these subglacial carbonates to decipher subglacial environmental conditions beneath West Antarctic ice streams and changes therein.