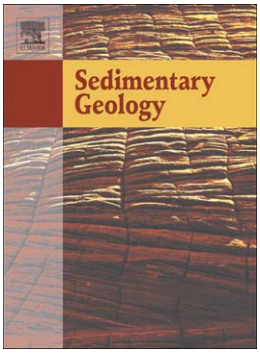

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Till formation under a soft-bedded palaeo-ice stream of the Scandinavian Ice Sheet, constrained using qualitative and quantitative microstructural analyses

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ABSTRACT

This study combines micro- and macroscale studies, laboratory experiments and quantitative analyses to decipher processes of till formation under a palaeo-ice stream and the nature of subglacial sediment deformation. Till micromorphology (grain lineations, grain stacks, turbate structures, crushed grains, intraclasts and domains), grain-size and till fabric data are used to investigate a basal till generated by the Vistula Ice Stream of the Scandinavian Ice Sheet during the last glaciation in north-central Poland. A comparison of microstructures from the *in situ* basal till and laboratory-sheared till experiments show statistical relationships between the number of grain lineations and grain stacks; and between the number of grain lineations and turbate structures. Microstructures in the *in situ* till document both brittle and ductile