

ABSTRACTS OF PAPERS PRESENTED AT THE SYMPOSIUM BUT NOT PUBLISHED IN FULL IN THIS VOLUME

SUBGLACIAL, ENGLACIAL, AND SUPRAGLACIAL SEDIMENT DIFFERENTIATION AND EROSION IN GLACIAL BASINS

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ABSTRACT. If sediments being transported by glaciers in subglacial, englacial, and supra-glacial situations can be differentiated on the basis of their textural characteristics, some potential exists for interpreting the relative importance of subglacial and sub-aerial periglacial processes in the excavation of glacial valleys, by examining the sediments in abandoned or active terminal moraines. Caution should be used with compound glacial valleys where subglacially eroded debris may become englacial as ice streams merge, be subsequently transported passively, and in terminal moraine deposits appear to represent sub-aerially derived sediments.

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THE NATURE OF THE ICE-ROCK INTERFACE: THE RESULTS OF INVESTIGATION ON 20 000 m² OF THE ROCK BED OF TEMPERATE GLACIERS

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ABSTRACT. This paper reviews the results of ten years study of the only four subglacial sites which are permanently accessible thanks to the work of hydro-electrical companies. All the sites occur beneath temperate ice. The first part is devoted to the study of the rock-ice interface as a glaciological phenomenon. The dynamic conditions for separation of the ice from the rock bed are considered. This cavitation phenomenon occurs when $\tan \alpha > V_i/H_i$. "Regressive cavitation" explains the existence up-stream of large permanent cavities and of a series of small cavities which, although they are not permanent, are fundamental because they control sub-glacial water drainage. The second part analyses the sliding movement of ice on a rock bed. Indeed the deformation of the cavities depends mainly on the variations in the velocity of the glacier. The sliding velocity measured at the interface accounts for 60 to 80% of the surface movement of the glacier. 80 to 90% of the surface velocity is attained a few metres above the glacier-bed interface. The third part describes the characteristics of sub-glacial drainage which are necessary to understand the nature of the ice-rock interface. The fourth part is devoted to the precise description of the different types of interface as they appeared in the subglacial sites.

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