Quaternary geology and glacial history of Labrador: an overview

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This presentation focused on the Quaternary environment of Labrador, particularly as it applies to mineral exploration. Despite the long history of exploration in Labrador, real progress in understanding the glacial history has only occurred recently, largely as a result of the 1984-89 Canada-Newfoundland Mineral Development Agreement.

Much of Labrador has evidence for at least two phases of ice movement. These are probably related to shifting Late Wisconsinan dispersal centres. Towards the coast, ice movement was topographically controlled during late glacial stages. In the Melody Lake area, for instance, there is strong evidence for east-flowing valley glaciers post-dating northeast-flowing ice on surrounding highlands.

Glacial sediments are common. Till is generally thin, discontinous and of local provenance. Till characteristics are commonly related to the underlying bedrock. Glaciofluvial sands and gravels fill major valleys that were conduits for glacial meltwater or drainage channels for proglacial lakes. Below marine limit, which is up to about 130 m a.s.l., marine silts and clays are common.

The complex flow patterns and the variable sediment types with their individual geochemical characteristics mean that mineral exploration in drift covered areas of Labrador should undertake Quaternary orientation studies on the property level. Results should be assessed within the frameworks developed by regional Quaternary mapping to determine the most suitable exploration strategy.