# Project 2001-4: Targeting mineralisation using glacial dispersion in the Abitibi Subprovince

An understanding of glacial dispersal is an effective tool in mineral exploration. This project integrates and interprets more than 78 000 geochemical analyses of till samples from the Abitibi Subprovince. They were provided by Noranda Inc (now X-Strata), and Quebec and Ontario ministries.

Spatial distribution of till sample compositions, when combined with elements of the glacial flow, geophysics and recent geological maps from the Abitibi, can identify important new exploration targets. Since the analyses are from various sources, normalising the data is a major challenge.
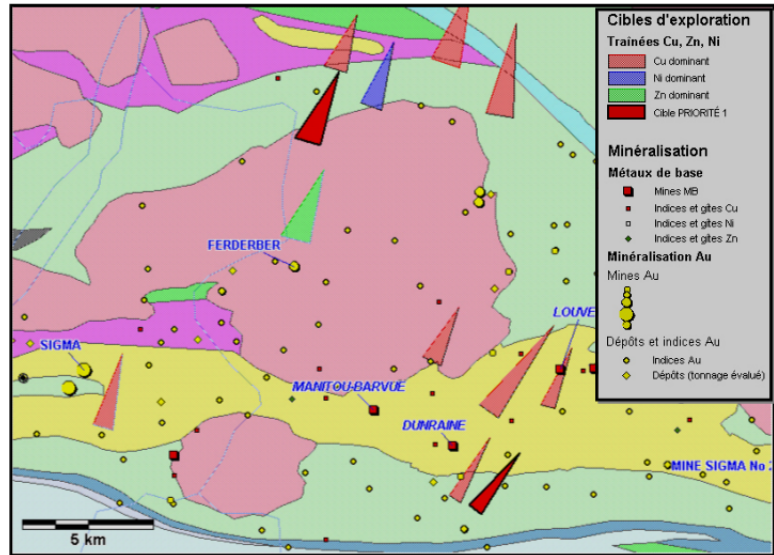


*An example of Cu exploration targets showing glacial dispersal trains and priorities, Val-d'Or region.*

Till data was interpreted for the mining camps and the southern areas of Chibougamau, Rouyn-Noranda, Val-d'Or and Normétal, and areas east and south of Timmins. To this end, glacial striation data were compiled and integrated into the glacial dynamics. A new method based on glacial dispersal was thus developed: glacial train modelling (length and orientation) based on dispersal curves and striae.

Lastly, exploration targets were defined after any anomalies were put into context with known geology and mineralisation. Targets could be ranked by the development of various methods that can prioritise anomalies. It consists of a threshold method and a method using the number of anomalous sampling sites in the dispersal train based on their maximum value (a weight is given to the number of anomalous samples).

| Summary: Project 2001-4 | |
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| Objectives | • To interpret data from available till databases for the following mining camps: southern Chibougamau; Rouyn-Noranda, Val-d'Or and Normétal; eastern and southern Timmins, Swayze.<br>• To interpret glacial striation data.<br>• To propose an approach that takes into account glacial dispersal: train length, size and orientation.<br>• To produce thematic maps for the following elements: Au, Cu, Zn, Pb, Ni, As, Cr and Co.<br>• To put the anomalies into perspective with geology and known mineralisation.<br>• To propose exploration targets and priorities. |

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| Results | • Interpretation of ice flow;<br>• Creation of thematic maps for specific elements;<br>• Identification of glacial trains for various anomalies: Au, Au-As, Cu, Cu-Zn, Cu-Ni;<br>• Processing and prioritisation of anomalies based not only on their significance, but also on their explained or unexplained relationship with known mineralisation. |
| Tools and Innovations | • Development of methods for prioritising the numerous targets identified;<br>• Addition of value to more than 78 000 geochemical analyses of till from a variety of sources;<br>• Identification of new exploration targets. |
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