# 2008-06: Exploration strategies for zinc in the Grenville Province

The main objective of project 2008-06 was the reassessment of several models or concepts about the origin of zinc mineralisation in the Grenville in order to propose new exploration tools and strategies. Among the most promising models, the SEDEX-type mineralisation is considered to have a great potential. This type of mineralisation environment is proposed for zinc mineralisation hosted in marbles (Balmat-Edwards, Franklin, Cadieux, etc.). Therefore, marble units are the metallotects to search for in the Grenville.
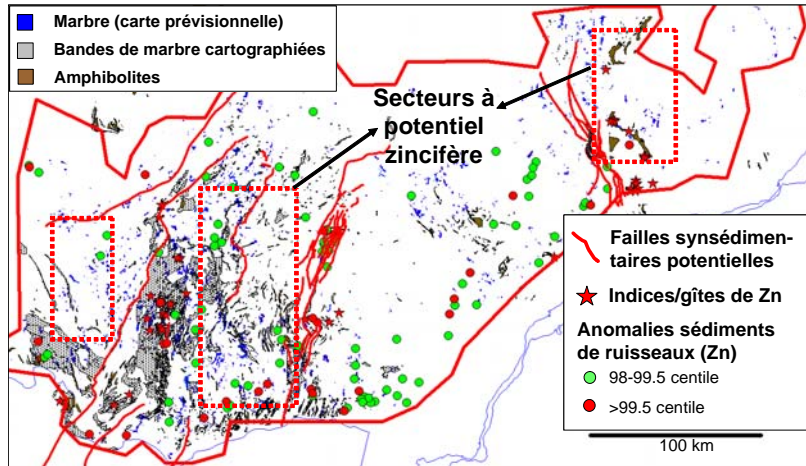
Summary map showing the results of project 2008-06.

However, in several areas the marble units are poorly defined or simply not identified, which is a major difficulty. Thus, a method of predictive mapping using neural networks and fuzzy logic was developed to be specifically applicable in the search for marbles in the Grenville area of southern Quebec. The method can target small, 2 to 5 km long marble layers, but not smaller ones. The criteria used are the difference between the measured elevation and the average elevation (DEM), to magnetic plateaus (vertical derivative), stream sediment geochemistry (heavy minerals and silts). On the other hand, a variety of tests were carried out on some criteria, for example the interpretation of synsedimentary faults.

Using stream sediment anomalies, the predictive map and the position of synsedimentary faults, 7 sectorial targets were identified in the Mont-Laurier, Montauban and Wakeham areas.

Project 2008-06: Summary	
Objectives	• To test known tools and verify their applicability in the Grenville. • To propose new exploration tools and exploration strategies for zinc in the Grenville.
Results	• Predictive mapping of marble layers in the Grenville. • Identification of potential synsedimentary faults. • Identification of 7 sectorial exploration targets.
Innovations	• New method for predictive mapping of marble layers in the Grenville. • Predictive model of zinc mineralisation in the southwestern Grenville.