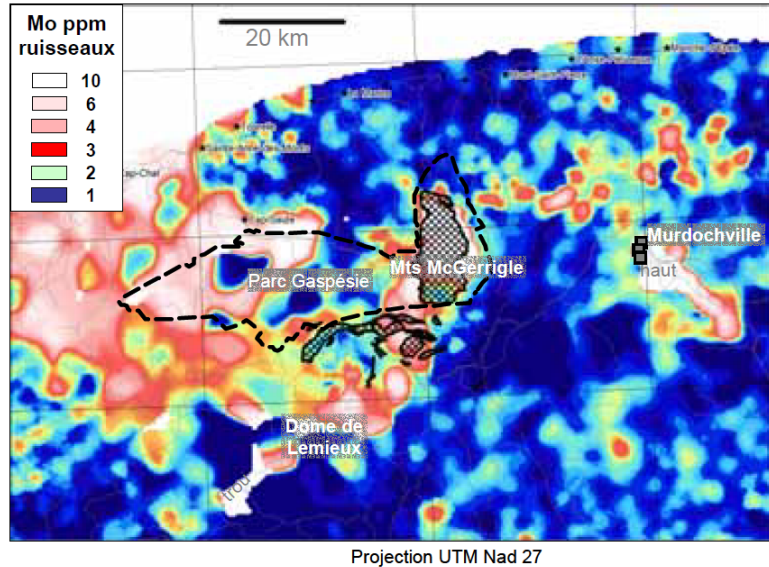


Project 2005-9: Opportunity for Mo mineralisation in Gaspé Region

The price of molybdenum has increased dramatically since 2004, creating a very positive context for the exploration and exploitation of molybdenum deposits. The vast majority of molybdenum produced worldwide comes from large deposits with low concentrations, either from porphyry copper deposits (where Mo is a by-product), or from rift-type Mo porphyries. Rift-type deposits are characterized by low levels of Cu, sometimes exploitable concentrations of Sn and W, a presence of fluorine minerals, an association with highly evolved intraplate magmatism and an extensional tectonic context. The other type of porphyry Mo deposit, the arc-type, is rarely exploited because of its very low Mo content. It contains more Cu than rift-type deposits, little or no Sn and W, is low in fluorine and is associated with magmatic arcs containing calc-alkaline magmas.



Map of molybdenum in stream sediments to the north central Gaspé Region with the location of several anomalies in the vicinity of Devonian granitoids (oblique grid pattern).

This study was primarily mandated to examine mineralisation opportunities in the Quebec

Appalachians where molybdenum is the main component. The study focused on the Gaspé Peninsula, an area with known potential for porphyry-type Cu-Mo mineralisation, but may also be favorable for rift-type porphyry molybdenum if the geochemistry of the felsic igneous rocks can be believed. Positive Mo anomalies are also observed in stream sediments in the McGerrigle Mountains and the Lemieux Dome area in particular. It must however be mentioned, that there is currently no listing in SIGEOM for molybdenum without copper in the Gaspé Region.

An interesting exploration strategy for porphyry molybdenum deposits in the Gaspé Region could be to look for buried evolved intrusions, in association with the geochemistry of outcropping felsic rocks (plutons, dikes and lava domes) and the geochemistry of stream sediments. Exploration for buried intrusions could be carried out using a combination of methods (geophysics, illite crystallinity and clay mineralogy of Gaspé Belt sedimentary rocks, etc.).

Other than in the Gaspé Region, the Estrie-Beauce region is another area that may hold a potential for molybdenum in the Quebec section of the Appalachians. Two Cu-Mo porphyries are located in northern Maine within the Chain Lakes massif. This massif continues into Quebec, where a small porphyry-type Cu-Mo showing has been identified, possibly the same age as the two ore bodies in Maine (Silurian). The Devonian magmatism in the Estrie-Beauce region could be even more interesting: the Copper Stream-Frontenac porphyry Mo-Cu deposit (probable reserves of 0.6 Mt @ 0.54% Mo, a good content), along the St Cecilia/San Sebastian intrusion, remains the best example of this region's potential.

Summary: Project 2005-9

Objectives	<ul style="list-style-type: none">• To assess new opportunities for Mo mineralisation in the Gaspé Region.
Results	<ul style="list-style-type: none">• Potential for a new setting: rift-type of molybdenum porphyries identified from the geochemical signature of felsic igneous rocks.• Exploration targets should be buried intrusions in association with the geochemistry of outcropping felsic rocks (plutons, dikes, lava domes) and the geochemistry of stream sediments.
Tools and Innovations	<ul style="list-style-type: none">• New Mo exploration model is proposed for the Appalachians.
Note	<ul style="list-style-type: none">• Project carried out by Pierre-Simon Ross.