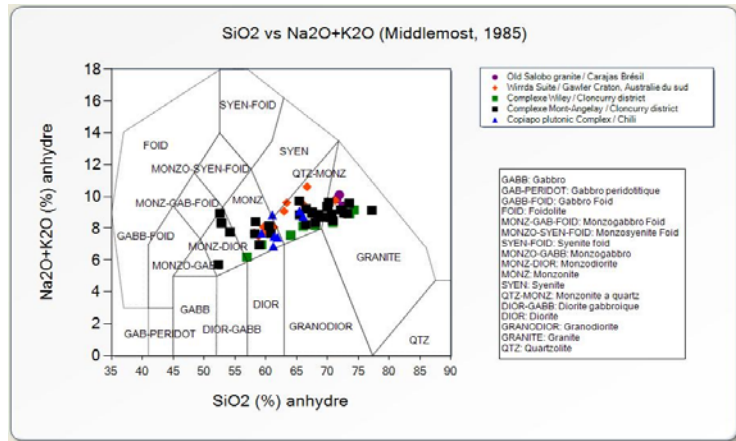


## 2009-05 : Plutons as a tool for the exploration of IOCG : Implications for the Abitibi

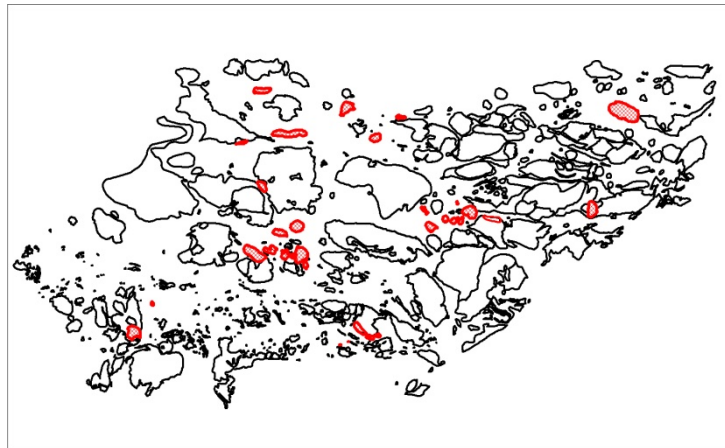
The aim of this project was to develop a method for the exploration of polymetallic Iron-Oxydes-Copper-Gold (IOCG) ores in Québec. A multi-scale approach has been developed with different exploration guides for the geological province of Abitibi, and for districts and other more focused sectors. The project mostly concentrated on the development of an exploration guide that can be applied at a regional scale for the search of all type of IOCG. To do so, the geochemical characteristics of the plutonic rocks genetically associated to the IOCG have been investigated.

The compositions of plutonic rocks of Olympic Dam, Cloncurry, Salobo and from Chile have been compiled from the scientific literature. This compilation shows that these intrusions are particular and can be distinguished with geochemical data (Figure A). Thus, the presence of rocks from the intrusive suite “monzodiorite-monzonite-quartz monzonite-granite” is considered a favorable criterion for the presence of IOCG at a regional scale. This project has also enable the comparison between IOCG and Cu-porphyrines, which are affiliated ores often mixed up. The results suggest that the plutonic rocks associated to IOCG and Cu-Au alkaline porphyres are geochemically similar.

This new exploration guide based on the geochemistry of intrusions has been applied in Abitibi to target favorable areas. To do so, the CONSOREM litho-geochemical data base for the Abitibi (data from the members of the CONSOREM) has been processed. A total of 882 litho-geochemical analyses have thus been isolated. These analyses have then been spatially related to several multi-scale criteria: 1) geology of the Abitibi; 2) magnetic map; 3) faults; 4) magnetite and hematite occurrence; 5) Na and K mass gain in the volcanic rocks; 6) Cu-Au indices. This analyses lead to the identification of 33 intrusions or part of intrusions that are favorable to IOCG or Cu-porphyre type of mineralisation in Abitibi (Figure B).



**A - Geochemical composition of plutonic rocks genetically associated to IOCG ores in the sectors of Olympic Dam and Cloncurry (Australia), Salobo (Bresil) and Candelaria (Chile). The data compiled are only from areas where the genetic link between intrusions and IOCG formation has been well established.**



**B - Map displaying the location of the 33 intrusions or part of intrusions that are favorable to IOCG or Cu-porphyre type of mineralisation in Abitibi.**

<b>Project 2009-05 : Summary notes</b>	
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• Developing new exploration guides for IOCG in Québec.</li> <li>• Targeting fertile areas.</li> <li>• Establishing discrimination criteria between IOCG and porphyres.</li> </ul>
<b>Results</b>	<ul style="list-style-type: none"> <li>• Geochemical characterisation of intrusions associated and favorable to IOCG ores.</li> <li>• Identification of 33 favorable areas in Abitibi.</li> </ul>
<b>Innovations</b>	<ul style="list-style-type: none"> <li>• New exploration guide based on the geochemistry of plutonic rocks.</li> <li>• Processing of the data base compiled with the software for the processing of litho-geochemical data developed by the CONSOREM (project 2009-01).</li> </ul>