

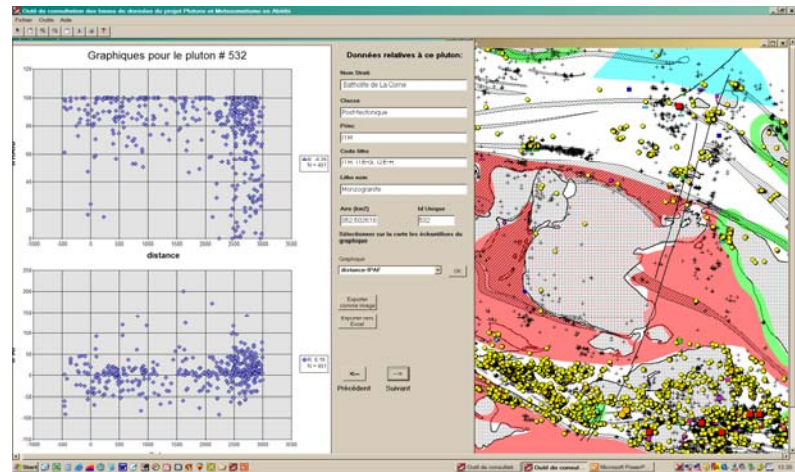
Project 2005-1: Mineralisation and metasomatism associated with plutons of the Abitibi Subprovince

The relationship between intrusions and mineralisation is a continuous subject of study in all geological environments around the world; the Abitibi Subprovince is no exception. Whereas the small, mostly calc-alkaline and alkaline intrusions are commonly associated with gold mineralisation, either as host rocks or in a genetic association, no relationship has been demonstrated for large plutonic bodies that occupy close to 40% of the surface area in the Abitibi. The plutons are even ignored in exploration. However, significant gold mineralisation has been identified in similar Archean cratons such as the Yilgarn Province in Australia.

Since only a limited amount of data is available about these large intrusions, the working hypothesis was developed that their role in the mineralising process should be expressed in their country rocks by a variety of signals (geophysical, geochemical and mineralisation).

The purpose of project **2005-1** was to evaluate the role of large plutonic bodies in controlling some of the mineralisation. The evaluation was to be carried out using several databases (SIGÉOM, companies and CONSOREM). The challenge taken on was more methodological in nature. A tool had to be created for evaluating spatial relationships between the plutons and the entire data set.

Therefore, the first phase of the project consisted in standardising and organising the databases containing over a million entries. The database was built to characterise the environment of the 630 plutons recorded in the Abitibi. A software tool for spatial analysis with user-friendly interface is the main outcome of this project. The tool allows one to search and display the data in terms of their distance from the plutons.



An example the spatial analysis software tool showing the result of a request for indications of metasomatic alteration in the post-tectonic LaCorne batholith, using Normat IFrais and IPAF indices.

Summary: Project 2005-1	
Objectives	<ul style="list-style-type: none"> To look for and interpret geochemical and mineralogical signals that can characterise metamorphic and metasomatic phenomena bordering intrusive bodies. To review and evaluate the mineralisation potential of the plutonic bodies in the Abitibi.
Results	<ul style="list-style-type: none"> Construction of a database containing over 1 million entries using databases from SIGÉOM (outcrops, drilling and deposits), companies and CONSOREM; User-friendly interface facilitating spatial analysis of data and observation of signs of metamorphism and metasomatism surrounding 630 plutons in the Abitibi.
Tools and Innovations	<ul style="list-style-type: none"> New software tool (beta version) for spatial analysis to look for, compare and validate signs of metasomatism around the synvolcanic and syntectonic plutons in the Abitibi.
Note	<ul style="list-style-type: none"> This project continues in 2006-2007 (project 2006-2).