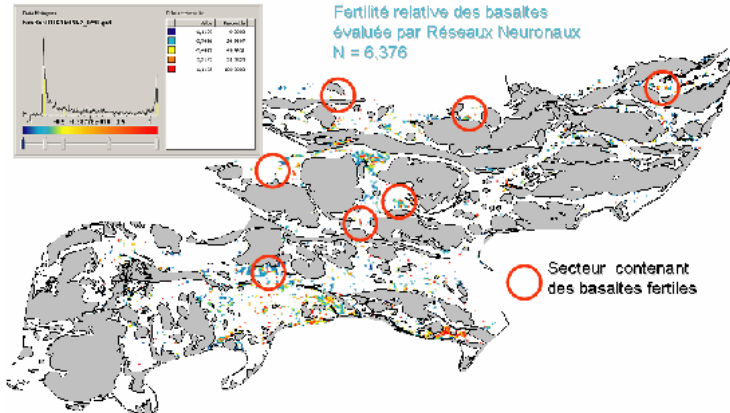


Project 2006-9: Recognition criteria for the fertility of mafic environments

The project on the fertility of mafic environments poses a major challenge since it addresses the problem that involves complex petrogenetic processes with the purpose of identifying the geochemical imprint of mafic volcanic sequences favourable to volcanogenic mineralisation. The CONSOREM method consists of using a classification based on petrogenetic processes such as the classification of De La Roche et al. (1980)¹. A database was created from the literature to compare environments known for their fertility and other environments known for their lack of fertility

The results obtained by discriminant factorial analysis and by the neural network method allowed the positive identification of rocks associated with volcanogenic mineralisation. This was achieved by using a selection of major and trace elements. A new identification tool, the mafic fertility index, represents a significant breakthrough in this field and deserves to be tested further for exploration.



Identification of favourable areas of the Abitibi Subprovince containing basalts with a high MFI (mafic fertility index), using the neural network method (classification of De La Roche et al. 1980).

Summary: Project 2006-9	
Objectives	<ul style="list-style-type: none"> To develop a method for classifying the fertility of mafic volcanics.
Results	<ul style="list-style-type: none"> Demonstration of the importance of defining basalt and andesite in the analysis and in selecting the De la Roche R1R2 method; Construction of a database of rock analyses from fertile and non-fertile environments (n=1116 analyses entered from the literature); Positive differentiation of fertile mafic environments using discriminant factorial analysis and neural network methods.
Innovations	<ul style="list-style-type: none"> New method for establishing the fertility of mafic environments: the mafic fertility index (MFI).

¹ De la Roche, H., Leterrier, J., Grandclaude, P. and Marchal, M. 1980. A classification of volcanic and plutonic rocks using R1-R2 diagrams and major element analyses – its relationship with current nomenclature. Chem. Geol., vol. 29, pp. 183-210.