## 2008-07: Support tools for processing geochemical alteration data

The objective of project 2008-07 was the development of standardised methods or manuals for processing alteration data to optimise the process for mining exploration companies. It aims to identify the right indicators / processing methods for optimising data processing time, and to ensure quality, validity and the proper use of the results. It is the basis for developing a new standardised processing tool that will be developed in project 2009-01.

The following aspects were addressed during the 2008-2009 program: 1) applicability of the methods to the available data; 2) data processing; and 3) determining the anomaly thresholds for individual samples.
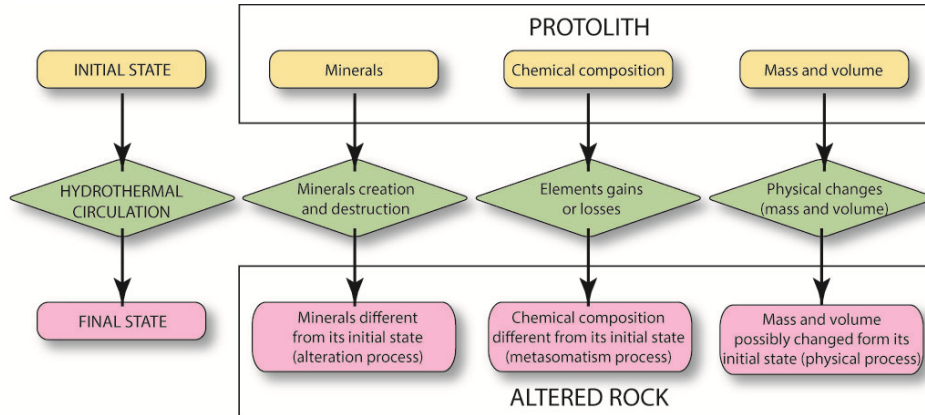
Simple conceptual model for the alteration process and metasomatism of a rock.

In order to better assess the various alteration indicators, a lithogeochemical database was created for volcanic rocks that could be considered to be fresh. The most common indicators were compiled and analysed from the database. A collection of methods and underlying theory was also built to guide the user to appropriate practices. A new method for determining the degree of alteration was generated in this project. This method relies on the precursor modelling of each sample by using a sequence of elements considered to be immobile. The modelled result is used to calculate the mass balance for elements sensitive to alteration processes.

Project 2008-07: Summary	
Objectives	• To develop a practical processing guide for each commonly used alteration indicator / method. • To propose a method for determining anomaly thresholds for samples suitable for each alteration indicator commonly used.
Results	• Significant study summarising the use of hydrothermal alteration in mineral exploration. • Basis for the development of a new processing tool for alteration data.
Innovations	• Analysis of a variety of alteration indicators to define the limits of their application. • Innovative approach in the processing of alteration data using a new method for precursor modelling in mass balance calculations.