

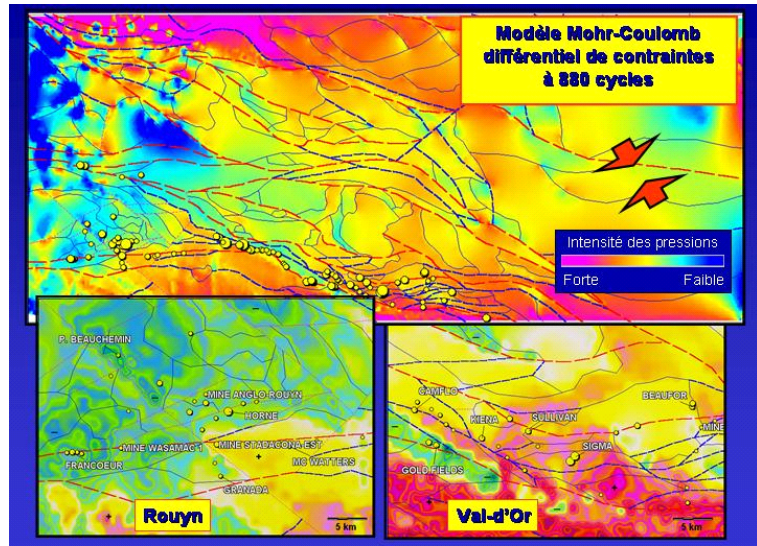
Project 2001-11: Modeling of paleopressure in the southern volcanic zone of the Abitibi Subprovince: a predictive tool for exploration

Modelling paleopressure zones is particularly useful in the context of orogenic gold mineralisation, where low pressure areas can be considered as potential zones of favourable mineralisation traps.

The southern section of the Abitibi Subprovince was selected for this study. The geomechanical modeller UDEC was used to locate hydrothermal discharge zones. The main lithological units and faults were examined in the model which simulates infinitesimal deformation of a final geological architecture representing a realistic condition for orogenic mineralisation.

By comparing discrete pressures found in the mines of the Val-d'Or region with the pressure distribution over the entire region, areas favourable for mineralisation can be targeted.

In the Val-d'Or area, the mean pressure interval around orogenic gold deposits is around 240 MPa. A 1 km buffer zone was drawn around this pressure interval, generating a surface area equal to 22% of the territory and encompassing 19 of the 26 mines in the area.



Pressure intensity around the mines varies from medium to high.

Considering the limitations of modelling and simulation, and setting the limits of the chosen model carefully, it is possible to propose areas of favourable paleopressure that include, statistically, most of the gold mines. Using the geomechanical modeller UDEC in the southern Abitibi helped reveal a favourable paleopressure interval that explains the position of most of the mines in the area (73%) and most of the gold produced in the Val-d'Or camp (84%). The chosen favourable paleopressure surface in this study is an essential level of information for the SPCPM.

Summary: Project 2001-11	
Objectives	<ul style="list-style-type: none"> To establish the stress distribution using the geomechanical modeller UDEC to locate hydrothermal fluid discharge zones in the Abitibi Subprovince.
Results	<ul style="list-style-type: none"> Target areas favourable for mineralisation were identified in the Val-d'Or region. A favourable paleopressure interval was identified that explains the position of most of the mines in the area (73%) and most of the gold produced in the Val d'Or mining camp (84%).
Tools and Innovations	<ul style="list-style-type: none"> Application for SPCPM (project for the production of a mineral potential map for Quebec).