

Metallogenic study and 3D modelling of the Cadillac Fault in the Rouyn-Noranda area

Marc Legault¹ and Olivier Rabeau²

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Abstract

The work carried out in 2005 was aimed at a geological and metallogenic inventory along the Cadillac Fault in order to update our geoscientific knowledge. The purpose of this project was to highlight to the Cadillac Fault area by developing new tools for gold exploration based on a regional metallogenic synthesis and 3D modelling. The compilation of the available geoscientific data in the Cadillac Fault area reveals some gaps in our geological knowledge. These gaps are particularly important in the western part of the Blake River Group in comparison to the eastern part. In the western part, the structural complexity is not well represented on the geological maps that are currently available.

Preliminary results from this study suggest the occurrence of several types of gold mineralization in the Cadillac Fault area. These types are especially 1) quartz-carbonate veins associated with shear zones, 2) mineralogical replacement with disseminated sulphides associated with shear zones, 3) Cu-Au-Mo porphyry, 4) quartz-carbonates veins or disseminated pyrite, associated with syenites, 5) quartz-carbonates veins or disseminated pyrite, associated with calcalkaline porphyries and 6) volcanogenic massive sulphides. However, nearly 85% of the showings studied during previous work belongs to type 1 or 2 and is clearly associated with first order shear zones which correspond to the Cadillac Fault or with second order ones such as the Francoeur Fault.

Finally, up to now 3D modelling work led to the definition of the thickness of the Cobalt Group Proterozoic sediments. Using to this modelling work, it became possible to localize the Cadillac Fault in depth, below the Proterozoic sediments.

1 - Ministère des Ressources naturelles et de la Faune

2 - URSTM-UQAT