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**Geoscientific knowledge, exploration targets  
and advanced rare-metal projects in Québec**

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Géologie Québec's mandate consists in acquiring, processing and distributing geoscientific knowledge on Québec's mineral resources, in order to assess and promote its mineral potential. With the establishment of the Fonds du patrimoine minier (mining heritage Fund), the Bureau de l'exploration géologique (BEGQ) now disposes of roughly 12 M\$/year to acquire new data in the province. For instance, seventeen projects were conducted in 2010–2011 into four large geoscience fields: bedrock geology, Quaternary geology, geophysics, and geochemistry.

Bedrock geology surveys engage most human resources and keep on being BEGQ's top expertise. Six projects were accomplished at scales ranging from 1/250 000 to 1/20 000 in the Superior, Grenville and Churchill provinces. An innovative bedrock and Quaternary survey is actually being conducted in the Abitibi Clay Belt, which is covered by thick Quaternary deposits. This project aims to drill and study both surficial deposits and basement rocks to gain a better knowledge in an area that retain high gold mineralization potential. Traditional Quaternary geology surveys are also a significant part of BEGQ activities, as maps of surficial deposits are produced to gain insights on aquifers of municipalized areas. Geophysical and

geochemical surveys did occupy important financial resources in the recent years. Following an ambitious airborne geophysical program initiated in 2007, the James Bay territory continues to be the object of broad high-definition aeromagnetic surveys (some including spectrometry data), where a complete coverage is expected within the next two years. Furthermore, the Geological Survey of Canada carried out an aeromagnetic survey to the West of Kuujjuaq within the framework of the GEM program. This survey is aimed at supporting the next geological surveys planned to begin in the summer of 2011. The update of the lake-bottom sediments database, launched in 2007, goes forward with a regional survey that now completes the coverage of the Grenville Province North of latitude 47°22'30". With the recent reanalysis of archived samples from the James Bay territory and Churchill Province, the lake-bottom sediments database now holds more than 65% of its samples being analysed by ICP-MS for a suite of 53 elements. A major outcome of BEGQ activities is the yearly proposal of new exploration targets. For instance, 46 of the 91 targets proposed in 2010 were designated by mining exploration companies for further investigations. In addition, the statistical treatment of lake-bottom sediment data, and the assessment of the mineral potential for given commodities, further enlightens the mineral potential of Québec in delivering close to 3000 possible targets to include in exploration programs.

Finally, Québec holds several favourable geological environments for the discovery of rare metal mineralization (Nb, Ta, Li, Be, Zr, Hf, rare earths, Y, and Sc). The renewed interest for these commodities has triggered an updated compilation of showings, prospects and deposits at the scale of the province. Advanced projects have calculated resources compliant with the National Instrument 43-101, which makes Québec amongst the next potential producers for some of these strategic substances.