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ISSN en ligne : 1499-383X

## New vitality in the Val-d'Or mining camp

Pierre Pouliot and James Moorhead  
Bureau de l'exploration géologique du Québec

The interest of prospectors in the Val-d'Or area dates back to the early 1900s. Following the discovery of gold veins at the western extremity of the Bourlamaque Batholith in 1911 (Sullivan mine, operated from 1934 to 1967), there was a real gold rush in the area. Several other gold showings were soon discovered, including:

- Greene-Stabell (1914)
- Siscoe (1915)
- Lamaque (1923, mined from 1932 to 1985)
- Sigma (1933, mined from 1936 to the present).

Prospecting activities in the Val-d'Or area, historically known as the "Valley of Gold" by prospectors, have increased considerably over the past few years, after being sluggish for a while. At this time, the total combined gold production from the Val-d'Or and Malartic mining camps exceeds 25 million ounces.

### The winning combination!

A combination of factors explains this renewed interest in the area. The price of an ounce of gold has more than doubled since 2002 and stands today at about US\$600/ounce. This increase was also accompanied by historic highs in base metal prices: silver at US\$11.40/ounce, copper at US\$3.50/lb, zinc at US\$1.70/lb and nickel at US\$15.00/lb. Emerging markets in Southeast Asia, particularly the Chinese market, are largely responsible for these sustained increases.

These high gold and metal prices have generated and sustained vigorous exploration in Québec's traditional mining regions, including Abitibi and, more particularly, the "Valley of Gold". They have also encouraged a reassessment of formerly uneconomic deposits.

The implementation of new mining and processing techniques (processing large volumes of low-grade ore, open pit operations) has also made it possible to reconsider developing previously known deposits. In the Val-d'Or area, production startup at Agnico-Eagle Mines' Goldex deposit and development of the Herbin Lake gold deposit by Alexis Minerals Corporation are examples.



At Agnico-Eagle Mines' Goldex project, sinking of a concrete-lined shaft will provide access to reserves of 21 million tonnes of low-grade ore containing more than 1.6 million ounces of gold. Annual production is estimated at 170,000 ounces over a minimum of 10 years.

## Activities resume

The Kiena gold mine, operated by Westdome Gold Mines, officially resumed activities on August 18<sup>th</sup> after a temporary shutdown that made it possible to identify new reserves. Similarly, the Sigma Mine, closed in 2003, resumed open pit operations in early 2005 under the management of Century Mining Corporation. Promising exploration work is also being carried out in the vicinity of the old Louvicourt Mine by Alexis Minerals Corporation. North of Val-d'Or, the Ag and Zn potential of the Abcourt-Barvue property, held by Abcourt Mines, increased significantly following a recent reassessment of measured and indicated resources (7 million tonnes at 61.17 g/t Ag and 3.33% Zn).



In the Malartic area, several old gold deposits are being re-evaluated in light of new mining techniques or new geological data. These include Osisko Exploration's open pit project, the East Amphi Mine, operated by Richmond Mines, and the Midway project, under the management of Northern Star Mining Corporation. The latter is currently building a headframe.



All these projects suggest that the "Valley of Gold" has many more surprises in store. Even the economic characteristics of deposits formerly considered depleted or unprofitable can rapidly change for the better. This is due, on the one hand, to current favourable economic conditions (high price of gold and metals) and to technological innovations in the mining industry. On the other, this revitalization is also related to an increase in our geological knowledge over the past few years and a better understanding of the various large families of gold and volcanogenic massive sulphide deposits that make up the "Valley of Gold". The bottom line is that improvement in our geological knowledge contributes significantly to the development and application of innovative exploration models, which are instrumental to the mining industry's success in Abitibi.



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## High mineral potential in the Nord-du-Québec Region: a promising future

By Patrick Houle  
Ministère des Ressources naturelles et de la Faune,  
Mines Sector, Nord-du-Québec Region

In 2005, the Nord-du-Québec Region ranked first for exploration expenditures outside a mine site, which amounted to more than \$88 million. The region continues to generate significant new mineral discoveries such as:

- Canadian Royalties' nickel project South of the Raglan Mine
- Goldcorp's gold project north of Opinaca reservoir
- The Ashton Mining of Canada–SOQUEM joint venture's diamond project north of the Otish Mountains.

The Nord-du-Québec Region is currently a major exploration pole because of its high potential for new discoveries and due to numerous types of mineralization in different host rocks. The region occupies nearly a third of the Superior Province, recognized worldwide for its many copper, gold, zinc, nickel and silver deposits.

Even though the mature Chapais-Chibougamau and Joutel-Matagami mining camps have experienced more than 50 years of success in exploration and mining, the southern part of the James Bay territory, which is part of the Abitibi Subprovince, continues to be a choice target in the search for vein-type gold deposits and volcanogenic massive sulphide (VMS) deposits.

In addition to taking advantage of Québec's attractive investment climate, mining companies can benefit from a [tax credit relating to resources](#) of up to 45% in Québec's Near North or Far North.

### The James Bay Territory

Easily accessible by way of a provincial network of roads and airports, the James Bay territory contains a large number of small greenstone belts with numerous metal showings (Au, Ag, Cu, Zn, Pb, Ni, Mo, Li, Fe). This extensive territory remains relatively unexplored except for the Chapais-Chibougamau and Joutel-Matagami mining camps. Moreover, the territory has significant potential for gold, especially along certain regional structures that have characteristics in common with the recent gold discoveries in the Cadillac Tectonic Zone, in Abitibi, such as the eastern extension of the Detour Lake Deformation Zone, northwest of Matagami.

Several areas are highly prospective for **volcanogenic massive sulphide (VMS) deposits**, including:

- The Grevet-Mountain Complex, east of Lebel-sur-Quévillon
- The Joutel area
- The eastern extension of the Matagami mining camp
- The Lemoine and Scott members in the Chapais-Chibougamau area
- The Fecteau and Chanceux Formations in the eastern part of the Urban-Barry Belt.

In the Near North ([PDF format, 345 kb](#)), which includes the Frotet-Evans, Eastmain and La Grande volcanosedimentary belts, deposits associated with very promising new geological settings are being developed. The discovery of the Roberto system of gold mineralization on the Éléonore property (Goldcorp) and the Eau Claire deposit (Eastmain Resources) confirm the Near North's potential for high-grade **gold mineralization**. There are prospective areas for the discovery of highly auriferous mineralization along the contact between two lithostratigraphic domains (sedimentary and volcanic rocks), along the contact zone between the La Grande and Opinaca subprovinces, or on the periphery

of synvolcanic igneous intrusions.

In addition to being prospective for precious and base metals, Québec's Near North also has potential for rare metals (Y, Zr, Nb, Ta, Be, Li and REE). Known mineralized showings occur in peraluminous monzogranitic plutons and granitic pegmatites either along the contacts between the La Grande Subprovince and the Opinaca and Nemiscau subprovinces, or in the Frotet-Evans Belt.

As for **diamonds**, the Desmaraisville, James Bay lowland, Wemindji, Caniapiscau reservoir and Otish Mountain areas appear to be the most prospective so far. The joint venture formed by Ashton Mining of Canada Inc. and SOQUEM inc. estimates that the Renard 2, 3, 4 and 9 kimberlitic bodies contain from 18.6 to 22.0 million carats of diamonds within 23.2 to 27.5 million tonnes of kimberlitic material on the Foxtrot property, north of the Otish Mountains.

Finally, the surge in the price of **uranium** has revitalized exploration to a point unequalled since the mid-1980s. Various outliers of the Sakami Formation, the Rupert River area and the sedimentary sequences of the Otish Mountain basin are highly prospective areas for the discovery of uranium.

### **The Nunavik Territory**

The New Québec (Labrador Trough), Torngat and Ungava (Cape Smith Belt) orogens occupy a large portion of the Far North.

In the [New Québec Orogen](#), Clark and Wares, 2004 catalogued 393 showings, primarily:

- Iron formations with or without gold
- Nickel-copper ± PGE showings
- Uranium showings
- Copper-zinc-silver (VMS) showings.

The sandstones near Otelnuc and Portage lakes and the Chioak Formation are prospective for uranium. The Retty and Gerido lake areas are likely targets for VMS deposits. As for copper and nickel, there are several similarities between the Qarqasiaq sector (NTS 25 D/01), at the northern extremity of the Labrador Trough, and the Cape Smith Belt.

**The Cape Smith Belt** (Ungava Trough) is known for its deposits of copper, nickel, cobalt and platinum group elements (Raglan mining camp). The western portions of the ultramafic rocks of the Chukotat Group and of the Raglan-type sills in the Povungnituk Group remain relatively unexplored, as does the Belt's North Domain. The Raglan Mine remains the area's jewel. In operation since 1998, the mine produced nearly 6,300 metric tons (mt) of copper, 22,900 mt of nickel and 450 mt of cobalt in 2005.

The Saindon-Cambrien structural corridor, the Aigneault Lake sector and the Torngat Mountains area are highly prospective for diamonds.

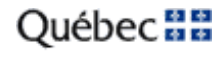
Several greenstone belts of the Minto Subprovince as well as the eastern part of the Ashuanipi Subprovince, west of Shefferville, are interesting targets for the discovery of gold and VMS-type base metal mineralization.

### **Reference**

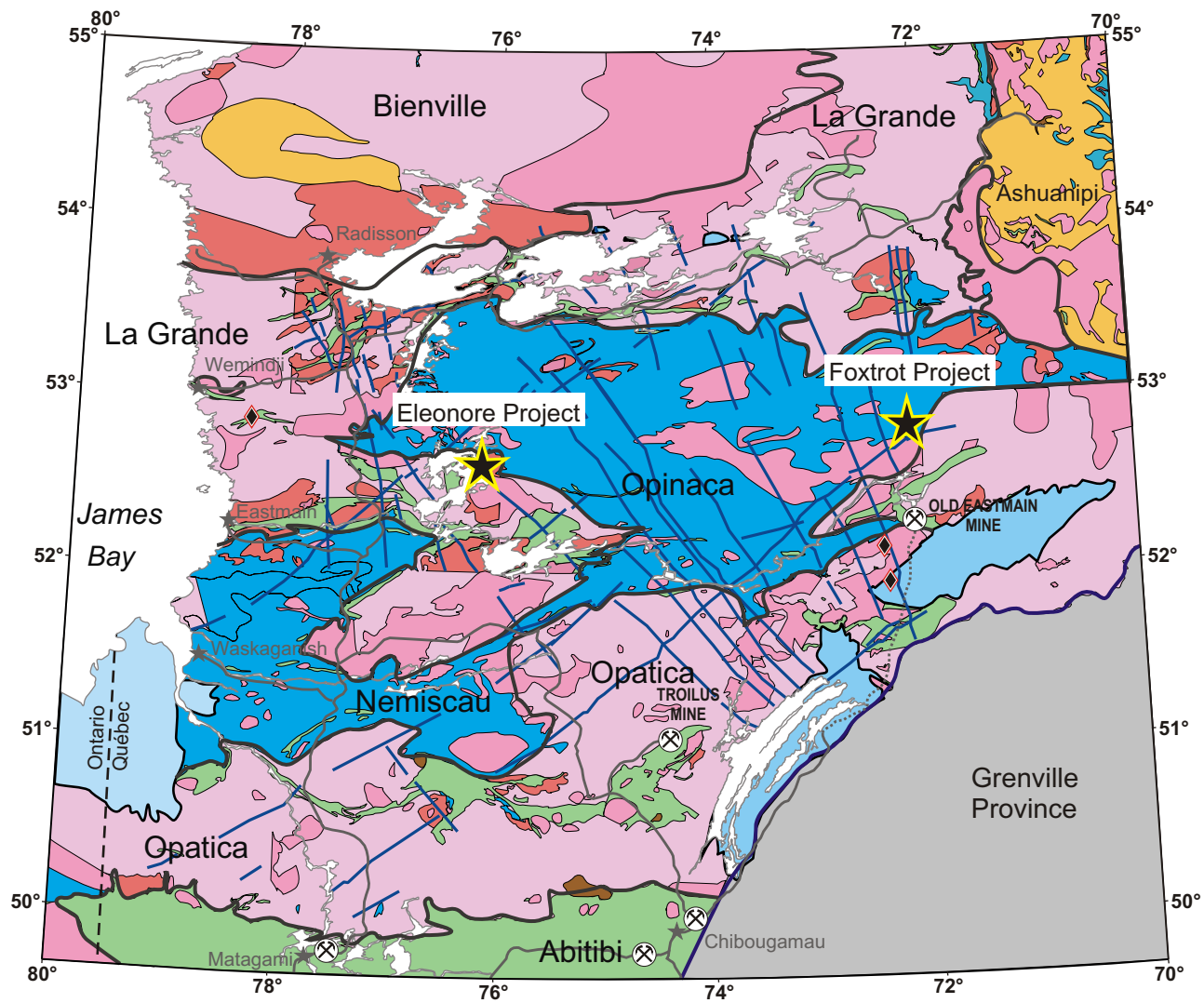
Clark, T.- Wares, R. 2004 – Lithotectonic and Metallogenic Synthesis of the New Québec Orogen (Labrador Trough). Ministère des Ressources naturelles, de la Faune et des Parcs, Québec; DP-2004-02, CD-ROM accompanied by a map at a scale of 1:500,000 and the catalogue of mineral deposits.



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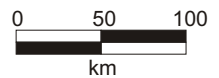
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**Paleozoic**

 Sedimentary rocks


 Kimberlitic rocks




**Proterozoic**

 Clastic and dolomitic sedimentary rocks

 Mines


 Diabase dykes

**Archean**

 Granite and paragneiss

 Paragneiss

 Tonalite, monzodiorite and monzonite

 Gabbro and diorite

 Volcanosedimentary sequence

 Granulite

 Gneissic tonalite

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## New showings in the Côte-Nord Region

Pierre Lacoste, Abdelali Moukhsil, Martin Simard and Serge Perreault  
Bureau de l'exploration géologique du Québec

The summer 2006 mapping program has now been completed. The area studied covers map sheets 22F/07, 22F/08, 22F/09, 22F/15 and 22F/16. The program was conducted in conjunction with an extensive regional synthesis of the Grenville Province (figure of geological provinces ([PDF Format, 135 Ko](#))), which will be carried out over a five-year period.

The area immediately north of Baie-Comeau was selected primarily because of a lack of geoscience data and the presence of a little-known mineral. The 2006 mapping program will also broaden geological knowledge on a regional scale and link up with the work carried out in the Lac Varin area (22F/10) in 2004.

The area contains several known Cu-Ni and Fe-Ti showings ([MB 91-31](#), [RP 2006-1](#)). From 1986 to 2005, various mining companies or prospectors did a significant amount of work on most of these showings.

The summer 2006 work brought to light new oxide-type (Fe and Ti) showings associated with the Vallant Anorthositic Suite, as well as Ni-Cu and Pt-Pd mineralization associated with mafic to ultramafic rocks that had not been published by mining companies. Architectural stone sites were also identified and could have significant potential, especially those within the Varin Plutonic Suite.

The rising price of uranium has led many small mining companies to acquire land positions in the Côte-Nord Region since 2003. Hopefully, the ongoing mapping project in the Baie-Comeau area will make it possible to develop prospective sectors for uranium exploration.

The results of the summer 2006 mapping program will be available at [Québec Exploration 2006](#), in November.



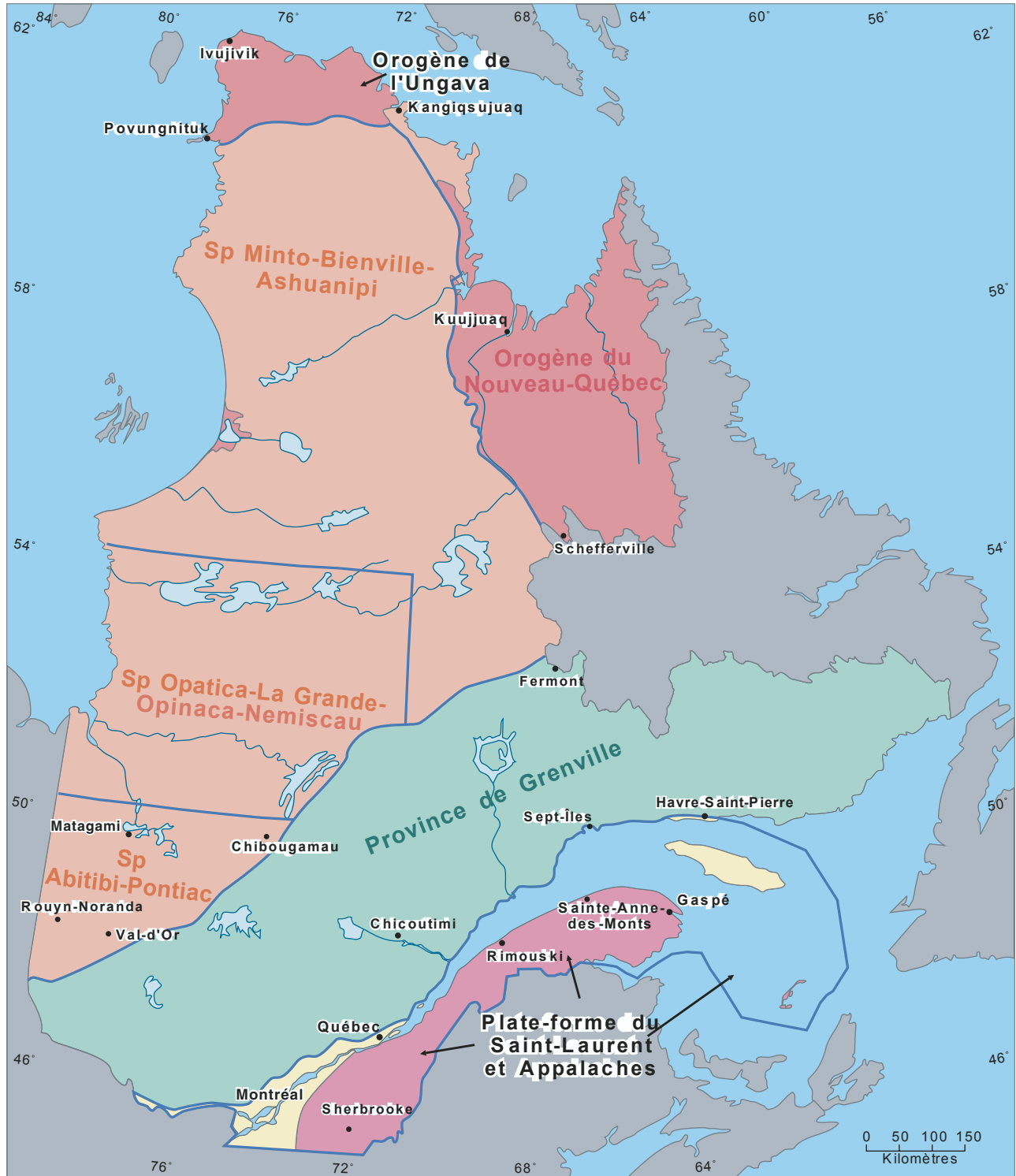
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# Les provinces géologiques



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## Seven million for restoration of abandoned mine sites

The Québec Government will be investing \$7 million in 2006-2007 to restore abandoned mine sites.

In the Estrie Region, \$1.5 million has been granted to initiate restoration work on the **Eustis site**. A second instalment of \$1.5 million will make it possible to complete site restoration next year.

Assistance of \$5 million has been allocated for restoration of the **Manitou site**. Also this year, \$500,000 will be used to prepare plans for restoration work on the **Aldermac site**, in the Abitibi-Témiscamingue Region.



During the fall, a working group will issue proposals for a funding strategy for the restoration of abandoned mine sites and for legislative amendments to reduce the risk of the Government becoming responsible for the sites again.

It should be noted that measures have been taken to ensure that future generations will not have to bear the economic and environmental costs related to restoring abandoned mine sites. In fact, mining companies have to prepare restoration plans for active tailings impoundments and restore them. They are also obliged to provide a financial guarantee for the work.

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## Québec Exploration 2006 An invitation to experience exploration at its best!

The 4<sup>th</sup> annual Québec Exploration event will be held from November 20 to 23, 2006. This key mineral exploration industry meeting will bring together roughly 1 500 participants from the mining and oil and gas sectors, as well as from the business community and scientific and academic circles.

Under the honorary chairmanship of Mr. Ian Telfer, (Goldcorp Inc.), Québec Exploration 2006 will give participants the chance to discover the best business and investment opportunities as well as the most promising projects.

On the program:

- The most recent recommendations and forecasts by mineral investment specialists
- The most recent mining discoveries and promising showings in Québec and across Canada.
- A high-calibre technical program
- A major trade show and geoscience exhibit

And much more!

For further information about the program or to register, visit [www.QuebecExploration.qc.ca](http://www.QuebecExploration.qc.ca).

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## Québec Mines is forging links...

You probably noticed the new link that has been added to the bulletin's right-hand menu. It leads directly to GEOLOG, the Geological Association of Canada's online newsmagazine, which is published four times a year.

The Geological Association of Canada is a scientific society with more than 2 000 members from across Canada and abroad. Since last May, Mr. Robert Marquis, Director of the *Bureau de l'exploration géologique du Québec*, has been president of the GAC.

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Here is the list of recent publications available from Géologie Québec.

N° document	Title	Auteur	Price	
			Paper	Numerique
DP-2006-01	Données numériques des levés géophysiques aéroportés versés aux travaux staturaires, région du Grenville et des Basses-terres du Saint-Laurent (à l'ouest de la longitude 68°) données numériques des levés	D.J. Dion	-----	30,00 \$
DP-2006-02	Données numériques des levés géophysiques aéroportés versés aux travaux staturaires, région de l'Abitibi	D.J. Dion, Loncol-Daigneault, D.	-----	30,00 \$
DP-2006-04	Données numériques des levés géophysiques aéroportés versés aux travaux statutaires - Région Opitica-La Grande	D.J. Dion Loncol-Daigneault, D.	-----	30,00 \$
DP-2006-05	Levé aéromagnétique du nord-est de la partie centrale de la péninsule de la Gaspésie, Québec (1998 et 2004)	Dumont, R. Potvin, J.	-----	90,00 \$
DP-2006-06	Données numériques des levés géophysiques aéroportés versés aux travaux statutaires - GM 58000 à GM 58500	Dion, D.J. Loncol-Daigneault, D.	-----	90,00 \$
EP 2006-02	Assessment of the Potential for Orogenic Gold Deposits in the Abitibi	Lamothe, D. Harris, J.R.	-----	30,00 \$
ET 2006-01	Évaluation du potentiel en minéralisations de type orogénique des roches archéennes de l'Abitibi	Lamothe, D. Harris, J.R.	5,40 \$	-----
RG 2005-04	Geology of the Lac Montrochand Area (33O)	Roy, P. Turcotte, S Sharma, K.N.M. David, J.	25,50 \$	-----
RP 2006-01(A)	Geology of the Lac Varin Area (22F/10)	Gobeil, A. Simard, M. Clark, T. Hébert, C. Leclair, A.	0,25 \$	-----
RP 2006-02(A)	Geology of the Lac Rohault and Lac Bouteroue Area (32G08-200-0101 and 32G08-200-0102)	Roy, P. Caderon, S.	0,25 \$	-----

RP 2006-03(A)	Metallogenic Study and 3D Modelling of the Cadillac Fault in the Rouyn-Noranda Area	Legault, M. Rabeau, O.	0,25 \$	-----
RP 2006-03	Étude métallogénique et modélisation 3D de la Faille de Cadillac dans le secteur de Rouyn-Noranda	Legault, M. Rabeau, O.	2,00 \$	-----
RP 2006-04	Datations U-Pb effectuées dans la Sous-province de l'Abitibi à la suite des travaux de 2004-2005	David, J. Dion, C. Goutier, J.	5,50 \$	-----

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