PRACTICAL INFORMATION

OPENING HOURS OF THE REGISTRATION DESK

Sunday: 6:00 p.m. to 8:00 p.m.
Monday: 7:30 a.m. to 7:00 p.m.
Tuesday: 8:00 a.m. to 7:00 p.m.
Wednesday: 8:00 a.m. to 7:00 p.m.
Thursday: 8:00 a.m. to 4:00 p.m.

FOLLOW QUÉBEC MINES IN THE SOCIAL MEDIA

Facebook: www.facebook.com/QuebecMines
LinkedIn: linkd.in/19b0ITc
Flickr: www.flickr.com/photos/quebecmines
YouTube: https://www.youtube.com/channel/UCOEtGSXNEeEppUj8tJRX2hw
Twitter: www.twitter.com/MERN_Quebec, #quebecmines

SUSTAINABLE TRANSPORTATION

During the Congress, we invite you to use sustainable transportation methods, such as walking, cycling, car-pooling, taxi-sharing and the public bus service.

OPENING HOURS OF EXHIBITION ROOM

Tuesday: November 18 9:00 a.m. to 5:00 p.m.
Wednesday: November 19 9:00 a.m. to 5:00 p.m.
Thursday: November 20 9:00 a.m. to 4:00 p.m.

Exhibition room maps and exhibitors’ list, page 33
A WORD FROM THE MINISTER FOR MINES

It is a pleasure for me to welcome you to Québec Mines 2014, Crossroads of geoscience and mineral resources.

Québec Mines is a privileged time not only to share knowledge, but also to exchange information on the industry good practices. The social acceptability of mining projects is a major challenge of high concern to me, and Québec Mines is the right place to address this issue from several angles. Sharing expertise and geoscience information will be part of the program as well as an initiation to the mining world through the Québec Mines Discovery component.

This meeting is the occasion to demonstrate that Québec is a valued place for investment in responsible mining development. Québec Mines is a networking platform with its commercial exhibition and diverse networking activities. Numerous actors of northern development in Québec will also attend the meeting, so take advantage of this opportunity to enlarge your horizons.

Québec’s mining community and the actors of northern development will be there. I hope to see you too!

Luc Blanchette
Minister for Mines
Ministère de l’Énergie et des Ressources naturelles
MESSAGE FROM THE ASSOCIATE DEPUTY MINISTER FOR MINES

It is a great pleasure for me to welcome you to Québec Mines 2014.

The Crossroads of Geoscience and Mineral Resources organized by the Ministère de l’Énergie et des Ressources naturelles is celebrating 35 years of meetings between all players involved in mining development in Québec. To mark the occasion, Québec Mines has put together a special program! All aspects of mining development will be covered, by speakers from a range of complementary backgrounds. Current topics such as the Plan Nord, sustainable mining development and the place of Aboriginal communities in mining development in Québec will, of course, be given pride of place. Activities with an international focus will open up new horizons. There will be numerous opportunities for discussion and networking. In short, Québec Mines 2014 will be an unmissable event for the mining sector.

I would like to highlight the fact that this major convention has received support once again this year from the Canadian Institute of Mining, Metallurgy and Petroleum, the Québec Mining Association, the Institut national des mines du Québec, the Comité sectoriel de main-d’œuvre de l’industrie des mines, Groupe MISA, 48e Nord, Aboriginal Affairs and Northern Development Canada, Québec International, the Association des économistes québécois and the organizers of Les Entretiens Jacques-Cartier. The outstanding quality of the Québec Mines program reflects the quality of their input for the benefit of all convention participants.

The convention’s component for young people and the general public, Québec Mines Découverte, will be visited by over 3,000 young people and adults. They will be able to learn more about, and appreciate, the key role played by mining development in their daily lives and, above all, to meet some of the passionate people who work in the industry.

I hope you enjoy the convention!

Line Drouin
Associate Deputy Minister, Mines Sector
Ministère de l’Énergie et des Ressources naturelles
Québec Mines, the crossroads of geoscience and mineral resources, is intended for everyone who has a direct or indirect interest in Québec’s mining sector.

MINERAL RESOURCES TO TRANSFORM THE WORLD
Who could imagine a world without aircraft, medical imaging, cars, telephones, computers or something as simple as a pencil? The theme of Québec Mines 2014 highlights the key role played by mine development in the evolution of modern lifestyles. It helps us to realize the tremendous responsibility involved in exploring and extracting our resources sustainably, so that we can transform the world of today and prepare the world of tomorrow.

INTERNATIONAL
With its INTERNATIONAL component, Québec Mines’ program invites convention participants from a range of countries to see Québec’s expertise in the field of mineral exploration and mining development.

The activities of this component are marked: [QM INTERNATIONAL]

Québec Mines Discovery, the youth and public component of Québec Mines, is an ideal place for the public in general, and schoolchildren in particular, to discover the mining sector. Come and see which mineral resources have helped transform the world, and find out more about the importance of the mining sector in daily life!

The activities of this component are marked: [QM Discovery]
QUÉBEC MINES TEAM

ORGANIZING COMMITTEE
Christian Fortin (Coordinator)
Robert Giguère
Charlotte Grenier
Jean-Yves Labbé

LOGISTIC
AND COMMUNICATION TEAM
Andrea Amortegui
Yan Carette
Gladys Chamberland
André Cloutier
Diane Devault
Marie Dussault
Marie-Josée Hudon
Mariève Jean
Marie-Eve Lagacé
Sonia Montambault
Caroline Nadeau
Sylvie Otis
Catherine Poulin
Pierre-Thomas Poulin
Danny Simard
Gaétan Simard
André Tremblay

TECHNICAL PROGRAM
Michel Jébrak
Jean-Yves Labbé
Marcel Laflamme
Jean Vavrek

ORGANIZING COMMITTEE
QUÉBEC MINES DISCOVERY
Julie Gagné
Charlotte Grenier
Julie Lépine
(Mining Matters)
Sylvie Otis (coordonnatrice)
Catherine Poulin
Lucie Vincent (ICM)

ORGANIZING COMMITTEE
QUÉBEC MINES INTERNATIONAL
Robert Giguère
Chantal Guertin
Mariève Jean
Nicole McKinnon

PARTNERS
Aboriginal Affairs and Northern Development Canada
Association minière du Québec
Association des économistes québécois
Centre Jacques Cartier
Comité sectoriel de main-d’œuvre de l’industrie des mines
Groupe MISA
Canadian Institute of Mining, Metallurgy and Petroleum
Institut national des mines
Ministère de l’Économie, de l’Innovation et des Exportations
Ministère des Relations internationales et de la Francophonie
Québec International
48e Nord International
THE MINISTRY WANTS TO THANK THE FOLLOWING PERSONS FOR THEIR SPECIAL CONTRIBUTION TO THE ORGANIZATION OF THE EVENT

Séphane Baribeau
Noémie Beaupré
Diane Bélanger
Denis Blanchette
Marlène Bouchard
Julie Côté
Daniel Dubé
Clément Gaudreau
Nathalie Germain
Daniel Faustino Silvestre
Alexa Harvey
Terry McKinnon
Joanne Nadeau
Marie-France Rioux
Michaël Roy
Jérémi S. Pressé
Anne Veilleux
Émilie Villeneuve
SUMMARY

QUÉBEC MINES
Short Courses and Workshops

Evening
Icebreaker

[QM INTERNATIONAL]

Afternoon
Workshop
  ▸ Public Framework for Mining Development in Québec
SHORT COURSES

9:00 a.m. The Geology of the Abitibi Subprovince: Recent Mapping and Future Prospects
Pierre Pilote, Jean Goutier, François Leclerc (MERN)
Length: Full-day session
[Room 309B]

9:00 a.m. Technological Breakthroughs in Mineral Exploration: An Overview of CONSOREM’s 2013-2014 Findings
Stéphane Faure, Silvain Rafini, Lucie Mathieu, Ludovic Bigot, Dominique Genna and Réal Daigneault (CONSOREM)
Length: Full-day session
[Room 309A]

9:00 a.m. Electronic Microscopy, Microanalysis and Applied Mineralogy: An Introduction for Geologists
Réjean Girard and Valérie Lecomte (IOS Services Géoscientifiques)
Length: Full-day session
[Hilton, Courville Room]

9:00 a.m. Triple the Results of Your Exhibitions
Face à Face Marketing
Length: Half-day session
[Room 308A]

9:00 a.m. Mines 101
Louis Bienvenu, Marcel Tremblay (MERN), Suzanne Durand, Michel Gilbert (Chaire en entrepreneuriat minier UQAT-UQAM)
Length: Half-day session
[Room 307B]

1:30 p.m. New SIGÉOM Applications
Guillaume Allard, Caroline Thorn, Julie Gagné, Charles Roy (MERN)
Length: Half-day session
[Room 308A]
1:30 p.m. **Introducing New Technologies in the Mining World**  
Robert Brouillette (Brouillette/Associés), Alexandre Cervinka (Newtrax Technologies), Michel Massé (Simsmart Technologies)  
Length: Half-day session  
[Room 307B]

WORKSHOPS

10:00 a.m. **The Mining Industry and the Education Sector: A Winning Synergy**  
Institut national des mines du Québec  
Length: Full-day session  
[Room 306B]

3:00 p.m. **Public Framework for Mining Development in Québec**  
Ministère de l’Énergie et des Ressources naturelles  
Length: 2 hours  
[Room 302AB] [QM INTERNATIONAL]

ACTIVITY

5:00 p.m. **Icebreaker**  
[Foyer 4 - Loggia]
Stirred milling

Turbulent fluid flow induced screw stirred mills

VANTAGE® MILL® (VTM)

Tower mill™

General characteristics

- Low mass flows
- High media to charge ratio
- Low tip speed

Media: 5 mm steel balls

Photo: Roch Théroux for MERN
SUMMARY

QUÉBEC MINES

Morning
Official opening

Plenary session
  ▸ Mine Development in the North, As Seen By...the North and the South

Business and Networking
  ▸ Optics & Photonics projects seeking integrators

Workshop
  ▸ Cultural Diversity in Mining: "Les Saisons des peuples 2"

Silent Auction – Beginning
Plan Nord Networking Lunch

Afternoon

Conferences sessions
  ▸ International and Regional Economic Prospects for the Mining Sector: Towards a New Mining Cycle?
  ▸ Mine Engineering Challenges
  ▸ A Broader View of Québec's Geological Domains and New Exploration Horizons

Evening

Geococktail
CIM Gala Celebration

[QM INTERNATIONAL]
Korea-Canada Energy Forum
<table>
<thead>
<tr>
<th>Time</th>
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<tr>
<td>9:00 a.m.</td>
<td>Official opening</td>
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<td>[Foyer 4 - Loggia]</td>
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<td><strong>CONFERENCES</strong></td>
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### ECONOMY, ENVIRONMENT AND SOCIETY

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>10:30 a.m.</td>
<td>Plenary – Mine Development in the North, As Seen By...</td>
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<td>the North and the South</td>
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<td>[Room 301] [QM INTERNATIONAL]</td>
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**INTERNATIONAL AND REGIONAL ECONOMIC PROSPECTS FOR THE MINING SECTOR: TOWARDS A NEW MINING CYCLE?**

Presented by the Association des économistes québécois  
Chairs: Jean Labbé, Imad Rherrad and Jean-Philippe Brosseau (ASDEQ)

[Room 301]

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<tr>
<th>Time</th>
<th>Event</th>
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<tbody>
<tr>
<td>2:00 p.m.</td>
<td>The global economy and outlook for the mining sector</td>
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<td>John Mothersole (IHS Global Insight)</td>
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<td>Presentation in English</td>
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<tr>
<td>2:50 p.m.</td>
<td>No quick fix: The state of mineral exploration financing in Canada</td>
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<td>Nadim Kara (PDAC)</td>
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<td>3:15 p.m.</td>
<td>Economic impact of mines in Québec</td>
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<td>Jean-Thomas Bernard (Université d’Ottawa)</td>
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### MINE OPERATIONS

**MINING ENGINEERING CHALLENGES**

Chairs: Claude Ferland (AMQ) and Marcel Laflamme (UL)

[Room 302]

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<tr>
<th>Time</th>
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<tbody>
<tr>
<td>2:00 p.m.</td>
<td>The Renard diamond mining project: Development challenges</td>
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<td>Ghislain Poirier (Stornoway Diamonds)</td>
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</tbody>
</table>
2:25 p.m. Mine development at the Raglan Mine Qakimajurq project
Martin Verreault and Danny Frenette (Glencore)

2:50 p.m. Meadowbank: Engineering challenges in developing an integrated mining plan in an arctic environment
Stéphane Fréchette and Pierre McMullen (Agnico Eagle Mines)

3:15 p.m. Bypassing diesel in northern mines and communities: Wind-LNG alternatives
Pierre Rivard (TUGLIQ)

3:40 p.m. Stability of large-scale underground mine openings, the CCCP concept
Jean Garant and Philippe Belzile (Glencore)

4:05 p.m. Electric equipment: the Atlas Copco green line
Jamie Tomporowski (Atlas Copco)
Presentation in English

4:30 p.m. Process optimization in the mining value chain: opportunities and challenges
Mohamad Sabsabi (National Research Council Canada)
Presentation in English

GEOLOGY AND EXPLORATION

A BROADER VIEW OF QUÉBEC’S GEOLOGICAL DOMAINS AND NEW EXPLORATION HORIZONS

Chairs: Patrice Roy (MERN) and David Corrigan (CGC)

[Room 303]

2:00 p.m. Overview of recent geological work by the MERN and new exploration targets in Québec
Patrice Roy, Guillaume Allard, Mehdi Amine Guemache, Daniel Bandyayera, Pénélope Burniaux, Jean Goutier, Hanafi Hammouche, Isabelle Lafrance, François Leclerc, Abdelali Moukhsil, Pierre Pilote and Fabien Solgadi (MERN)

2:25 p.m. The Southern Appachians in Québec: Present state of knowledge and implications for mineral exploration
Alain Tremblay (UQAM)
2:50 p.m. Overview of chrome, nickel and vanadium occurrences in the Baie-James region in a “Ring of Fire”-type metallogenic setting
Michel Houlé (GSC-Q), Jean Goutier (MERN), C. Michael Lesher (Laurentian University), Anne-Aurélie Sappin (GSC-Q), Riku Metsaranta (OGS) and Vicki McNicoll (GSC-O)

3:15 p.m. Supracrustal rocks of the Les Escoumins area: A well-preserved Pinwarian back-arc setting in Québec’s central Grenville Province
Pierre-Arthur Groulier, Aphrodite Indares (Memorial University of Newfoundland), Abdelali Moukhsil (MERN), Greg Dunning and Stephen J. Piercey (Memorial University of Newfoundland)

3:40 p.m. The Labrador Trough: Present state of knowledge and outlook
Carl Bilodeau (MERN) and Thomas Clark (UQAT-MERN)

4:05 p.m. Alkaline magmatism and REE resources: A European overview, and links to Canada
Kathryn Goodenough*, Eimear Deady (British Geological Survey), Adrian Finch (St Andrews University), Richard Shaw, Paul Lusty (British Geological Survey) and Frances Wall (University of Exeter)

*Keynote speaker  Presentation in English

WORKSHOPS

8:30 a.m. Optics & Photonics projects seeking integrators
Groupe MISA and Cercle de l’industrie de l’optique-photonique
Length: Full-day session
[Room 309B]

9:00 a.m. Cultural Diversity in Mining: “Les Saisons des peuples 2”
Anne-Marie Coulombe (UQAT)
Length: Full-day session
[Room 307A]
ACTIVITIES

9:00 a.m.  Korea-Canada Energy Forum  
[Room 308AB]  [QM INTERNATIONAL]

9:00 a.m.  School visit M4S exhibition  
[Exhibition room]  [QM Discovery]

11:00 a.m.  Silent Auction - Beginning  
[Foyer 4]

Noon  Plan Nord Networking Lunch  
[Room 310]  [QM INTERNATIONAL]

1:30 p.m.  Annual General Meeting of the First Nations of Québec and Labrador Economic Development Commission  
[Room 304AB]

4:00 p.m.  Geococktail  
[Exhibition room]

6:30 p.m.  CIM Gala Celebration  
[Hilton, Ballroom]
SUMMARY

QUÉBEC MINES

Morning
Conferences sessions
- Mines and Northern Aboriginal Communities: Something for Everyone
- Mining Projects in Québec: Ore Processing Challenges
- Mineral Exploration: From Satellite to Drone

Québec Mines EXPLO Challenge

Business and Networking
- Environment/Mines Networking

Tour
- Québec, A City of Rock and Stone

Workshop
- SIGÉOM and GESTIM

Afternoon
Conferences sessions
- Sustainable Development Challenges in the Mining Industry
- Mining Geomechanics: From Feasibility Study to “Post-Mine”
- Use of Geophysical and Geological Data from Different Sources in Mineral Exploration

True North Treasure Initiative
- Opening Plenary Session

Evening
Scotch and flavours networking activity - CIM Evening

[QM Discovery]
Open house
Workshop
- Mining development jobs and the required skills

[QM INTERNATIONAL]
Seminar on opportunities in the mining sector in Sweden and Scandinavia
ECONOMY, ENVIRONMENT AND SOCIETY

MINES AND NORTHERN ABORIGINAL COMMUNITIES: SOMETHING FOR EVERYONE

Chairs: Jean-Marc Séguin (Makivik) and Youcef Larbi (CMEB)

[Room 301]

9:00 a.m.  Nunavik Inuit mining policy
Jobie Tukiapik (Makivik)
Presentation in English

9:25 a.m.  Cree Mineral Exploration Board: Mining development in Eeyou Istchee, Québec
Alfred Loon (Cree Mineral Exploration Board)
Presentation in English

9:50 a.m.  Cree mining business in the Québec history: Hopes and facts
Reggie Mark (Wemindji community)
Presentation in English

10:15 a.m.  The long relation of Aupaluk and the mining development
David Angutinguak (Mayor of Aupaluk)
Presentation in English

10:40 a.m.  Uashat mak Mani-utenam – Mining experience to this day!
Ricky Fontaine (ITUM)

MINE OPERATIONS

MINING PROJECTS IN QUÉBEC: ORE PROCESSING CHALLENGES

Chairs: Nadia Ouellet (Corem) and Sylvain Caron (Soutex)

[Room 302]

9:00 a.m.  Processing quality and cost challenges at the Lac à Paul phosphorus mining project
Ghislain Goyette (Arianne Phosphate)

9:25 a.m.  The Lac Knife development project: High-purity flake graphite for green technologies
Don Baxter (Focus Graphite)
9:50 a.m.  **Nemaska Lithium: Green and innovative**  
Jean-François Magnan and Gary Pearse (Nemaska Lithium)

10:15 a.m.  **Extracting value from low grade ultramafic nickel deposits**  
Johnna Muinonen (Royal Nickel Corporation)  
*Presentation in English*

10:40 a.m.  **Overview of the Crevier project: A new source of critical metals in Québec**  
Claude Dufresne (MDN)

11:05 a.m.  **Development of the Strange Lake alkalic Complex: Addressing logistics, processing and environmental challenges**  
Dirk Naumann, Yemi Oyediran and Mike Robart  
(Quest Rare Minerals)  
*Presentation in English*

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**GEOLOGY AND EXPLORATION**

**MINERAL EXPLORATION: FROM SATELLITE TO DRONE**

Chairs: Michel Rheault (Effigis) and Mario Hinse (MERN)  
*[Room 303]*

9:00 a.m.  **Observing Earth from space: An overview of more than 40 years of expertise**  
Robert Saint-Jean (Canadian Space Agency)

9:25 a.m.  **Remote sensing for mineral exploration: A comparison of hyperspectral, ASTER & WorldView-3 data**  
Lori Wickert (consultant), Jan M. Peter, Jeff R. Harris (CGC),  
Bill Baugh (DigitalGlobe) and David Coulter  
(Geospectral Analytics)  
*Presentation in English*

9:50 a.m.  **Airborne hyperspectral remote sensing as an efficient exploration tool in northern territory**  
Benoit Rivard (University of Alberta) and Derek Rogge  
(German Remote Sensing Data Center)

10:15 a.m.  **High-resolution satellite imagery to support mining operations: A user’s opinion**  
Marc Deschênes (Lafarge)
10:40 a.m. Characteristics of drones and potential applications in the mining sector
Yacine Bouroubi and Michel Rheault (Effigis Geo-Solutions)

11:05 a.m. Mine surveying and drones: A marriage of convenience
Marcel Laberge (Geomatech)

ECONOMY, ENVIRONMENT AND SOCIETY

SUSTAINABLE DEVELOPMENT CHALLENGES IN THE MINING INDUSTRY

Colloque Entretiens Jacques Cartier
Chairs: Alain Rouleau (UQAC) and Johan Yans (U. de Namur, Belgique)

[Room 301] [QM INTERNATIONAL]

1:30 p.m. Mines and sustainable development: How do we square the circle?
Claude Villeneuve*, Olivier Riffon and David Tremblay (UQAC)
*Keynote speaker

2:20 p.m. Responsible development of Québec’s mining industry: A lifecycle perspective
Édouard Clément (Quantis Canada) and Jean-Michel Couture (Groupe AGÉCO)

2:45 p.m. Arianne Phosphate: Developing a mine in Saguenay–Lac-Saint-Jean
Jean-Sébastien David (Arianne Phosphate)

3:10 p.m. Creating a monitoring committee in an evolving social setting
Michel Gilbert and Sylviane Legault (Osisko Monitoring Committee)

3:35 p.m. The social risk index: A new mining project evaluation tool accessible to all stakeholders
Kristina Maud Bergeron and Michel Jébrak (UQAT-UQAM)
## MINE OPERATIONS

### MINING GEOMECHANICS: FROM FEASIBILITY STUDY TO “POST-MINE”

Chairs: Martin Grenon (UL) and Patrick Frenette (Mine Canadian Malartic)

[Room 302]

<table>
<thead>
<tr>
<th>Time</th>
<th>Session Title</th>
<th>Presenter(s)</th>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Lapa Mine - Ground control practices in squeezing ground</td>
<td>Frédéric Mercier-Langevin and Devin Wilson (Agnico Eagle Mines)</td>
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<tr>
<td>1:55 p.m.</td>
<td>Review of rock bursts to improve ground support effectiveness at the LaRonde mine</td>
<td>Pascal Turcotte (Agnico Eagle Mines)</td>
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<tr>
<td>2:20 p.m.</td>
<td>Interpretation of stresses adjacent to the Cadillac Fault</td>
<td>Denis Labrie (CanmetMINES) and Steve D. McKinnon (Queen's University)</td>
</tr>
<tr>
<td>2:40 p.m.</td>
<td>Impact tests on anchor bolts: Results and interpretation</td>
<td>François Charette (Normet Canada)</td>
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<tr>
<td>3:00 p.m.</td>
<td>Use of paste backfill at the Goldex mine</td>
<td>Chantale Doucet (Agnico Eagle Mines)</td>
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<tr>
<td>3:20 p.m.</td>
<td>Management of historical underground openings in an open pit mine</td>
<td>Patrick Frenette (Canadian Malartic Mine)</td>
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<tr>
<td>3:40 p.m.</td>
<td>LIDAR monitoring and retro-analysis of an slope failure: The case of the LAB Chrysotile mine</td>
<td>Martin Grenon and Philippe Caudal (Université Laval)</td>
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## GEOLOGY AND EXPLORATION

### USE OF GEOPHYSICAL AND GEOLOGICAL DATA FROM DIFFERENT SOURCES IN MINERAL EXPLORATION

Chairs: Michel Chouteau (École Polytechnique) and Rachid Intissar (MERN)

[Room 303]

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<tr>
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<tbody>
<tr>
<td>1:30 p.m.</td>
<td>Geophysical expressions of ore systems: Our current understanding</td>
<td>Ken Witherly (Condor Consulting)</td>
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**Keynote speaker** Presentation in English
<table>
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<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>2:20 p.m.</td>
<td>Exploration for magmatic Ni-Cu deposits: Strengths and limitations of Mag and EM surveys</td>
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<td>Circé Malo-Lalande and Clément Dombrowski (Anglo American Exploration Canada)</td>
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<tr>
<td>2:45 p.m.</td>
<td>The importance of integrating geophysics and geology for successful exploration: the example of</td>
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<td>Raglan Mine</td>
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<td>Mathieu Landry (Glencore)</td>
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<td>3:10 p.m.</td>
<td>Integration and interpretation of geophysical data using structural geology: A case study of the</td>
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<td>Lalor volcanicogenic massive sulphide deposit, Snow Lake, Canada</td>
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<td></td>
<td>Pejman Shamsipour, Ernst Schetselaar and Gilles Bellefleur (GSC-O)</td>
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<td>Presentation in English</td>
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<tr>
<td>3:35 p.m.</td>
<td>Integrating airborne geophysics with Landsat TM imagery and geology for assessing the mineral</td>
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<td>potential of the Iullemmeden Basin, Niger</td>
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<td>Nasreddie Bournas, Jean Legault (Geotech), Djibo-Maïga Abdoul-Wahab (Ministry of Mines and</td>
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<td>Industrial Development of Niger), Karl Kwan, Marta Orta, Geoff Plastow, Alex Prikhodko, Shaolin</td>
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<td>Lu and Keeme Mokubung (Geotech)</td>
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<tr>
<td>4:00 p.m.</td>
<td>Defining a framework for the integration of geological and geophysical data</td>
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<td>Gervais Perron, John McGaughey, Glenn Pears (Mira Geoscience) and Peter Fullagar (Fullagar</td>
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<td>Geophysics)</td>
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**WORKSHOPS**

<table>
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<tr>
<th>Time</th>
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<tr>
<td>8:30 a.m.</td>
<td>Environment/Mines Networking</td>
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<td>Groupe MISA and Réseau Environnement</td>
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<td>Length: Full-day session</td>
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<td>[Room 309B]</td>
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<td>9:00 a.m.</td>
<td>SIGÉOM and GESTIM Training</td>
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<td>Julie Gagné and Ian O’Gallagher (MERN)</td>
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<td>Length: Half-day session</td>
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<td>[Room 307A]</td>
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12:30 p.m. Mining development jobs and the required skills:
2:00 p.m. How to feature your skills and find employment in the mining sector
3:30 p.m. 
Length: 1 hour
[Room 304A] [QM Discovery]

TOUR

10:00 a.m. Québec, A City of Rock and Stone:
Jeanne d’Arc Garden and Grande Allée Est
Length: 2 hours
Registration required, guide book included
[Main Hall, departure in front of the registration desk]

ACTIVITIES

8:00 a.m. Québec Mines EXPLO Challenge
[Foyer 4 - Loggia]
8:00 a.m. Seminar on opportunities in the mining sector in Sweden and Scandinavia
Export Québec
[Room 307B] [QM INTERNATIONAL]
9:00 a.m. School visit M4S exhibition
[Exhibition room] [QM Discovery]
11:00 a.m. Silent Auction - Beginning
[Foyer 4]
Noon Open house
[QM Discovery]
1:30 p.m. True North Treasure Initiative – Opening Plenary Session
[Room 308AB]
7:00 p.m. CIM Evening – Scotch and flavours networking activity
[College Hall, Morrin Centre]
SUMMARY

QUÉBEC MINES

Morning

Conferences sessions
- Industrial Experience of Sustainable Mine Development in French-Speaking Africa
- Mine Site Restoration Challenges
- Gold Mineralizations and Deformations Along the Cadillac Fault in Abitibi

True North Treasure Initiative
- Workshops

Awards Ceremony

Afternoon

Conferences sessions
- Sustainable Mine Development in French-Speaking Europe
- Innovation at the Service of Workplace Health and Safety
- New Targets for Intrusion-Related Mineralizations

True North Treasure Initiative
- Closing Plenary Session
CONFERENCES

ECOLOGY, ENVIRONMENT AND SOCIETY

INDUSTRIAL EXPERIENCE OF SUSTAINABLE MINE DEVELOPMENT IN FRENCH-SPEAKING AFRICA

Colloque Entretiens Jacques Cartier
Chairs: Mostafa Benzaazoua (UQAT) and Jean Vavrek (CIM)

[Room 301 ] [QM INTERNATIONAL]

9:00 a.m. Mining Development in West Africa for Québec
Jean Charest (McCarthy-Tétrault)

9:25 a.m. Present and future perspectives
Representatives from Burkina Faso, Côte-d’Ivoire and/or Sénégal chambers of mines

9:50 a.m. Projects by the Canadian International Institute for Extractive Industries and Development in French-speaking Africa
Richard Simon (École Polytechnique de Montréal)

10:15 a.m. Sustainable mine development in French-speaking Africa: The case of the Essakane mine in Burkina Faso
Annie Blier (IAMGOLD)

10:40 a.m. Key scientific advances derived from 5 years of canadian-moroccan cooperation in the mining environment field
Rachid Hakkou (Université Cadi Ayaad, Marrakech) and Mostafa Benzaazoua (UQAT)

11:05 a.m. Local purchase and economic development in Africa
Émile Bangraogo Kaboré (UEMOA)

MINE OPERATIONS

MINE SITE RESTORATION CHALLENGES

Chairs: Nathalie Tremblay (AMQ) and Sophie Trudel (MERN)

[Room 302]

9:00 a.m. Single-layer cover with elevated water table to control AMD from tailings ponds: Design principles and methodology
Bruno Bussière (UQAT) and Michel Aubertin (Polytechnique de Montréal)
9:30 a.m.  Approach and studies for the rehabilitation of abandoned mine sites  
Martine Paradis, Jean Dionne and Philippe-André Lafrance (MERN)

10:00 a.m.  Tailings rehabilitation in northern climates: The case of Meadowbank mine, Nunavut  
Thomas Lépine and Erika Voyer (Agnico Eagle Mines)

10:55 a.m.  Study and overview of rehabilitation concepts at the Raglan Mine tailings pond  
Louis Marcoux and Mélanie Côté (Glencore)

GEOLOGY AND EXPLORATION

GOLD MINERALIZATIONS AND DEFORMATIONS ALONG THE CADILLAC FAULT IN ABITIBI

Chairs: Réal Daigneault and Stéphane Faure (CONSOREM)  
[Room 303]

9:00 a.m.  The Larder Lake-Cadillac Break: A historical overview  
Howard Poulsen (ATIAT)  
Keynote speaker  Presentation in English

9:50 a.m.  The Larder Lake-Cadillac Fault, an Ontarian perspective and a comparison with the Ridout Fault  
Bruno Lafrance (Laurentian University)

10:15 a.m.  Architecture of the Malartic, Piché and Cadillac groups and of the Cadillac Fault, Abitibi Subprovince: geological revision, new dates and interpretations  
Pierre Pilote (MERN), Réal Daigneault (CERM-UQAC), Jean David (MERN) and Vicki McNicoll (GSC-O)

10:40 a.m.  Typology of gold mineralization along the Cadillac Fault  
Silvain Rafini (CONSOREM)

11:05 a.m.  Structural evolution of the Cadillac Fault, relationship with orogenic gold occurrences, and characterization of the Piché Group, Abitibi Subprovince, Québec  
Pierre Bedeaux (UQAC), Pierre Pilote (MERN), Silvain Rafini and Réal Daigneault (UQAC-CONSOREM)
ECONOMY, ENVIRONMENT AND SOCIETY

SUSTAINABLE MINE DEVELOPMENT IN FRENCH-SPEAKING EUROPE

Colloque Entretiens Jacques Cartier
Chairs: Dominique Gasquet (U. de Savoie, France) and Bruno Bussières (UQAT)

[Room 301] [QM INTERNATIONAL]

1:30 p.m. Commodity requirements for the energy transition
Olivier Vidal (Université de Grenoble) and Bruno Goffé
(Université d’Aix-Marseille)

1:55 p.m. Sustainable management of mineral resources in Wallonia (Belgium): A few lines of thought to promote better integration
Johan Yans (Université de Namur-NAGRIDD)

2:20 p.m. Environmental impacts and management of abandoned mines scattered in the French Alps
Magali Rossi and Dominique Gasquet (Université de Savoie)

2:45 p.m. Occurrence of Rare Earth Elements in ecosystems and assessment of their ecological impacts: research approaches used in the French programme Labex Ressource 21
Laure Giamberini, Corinne Leyval and Veronica Gonzales (Université de Lorraine)

3:10 p.m. Strategy, tools and environmental policy of Variscan Mines in France: The sustainable mine
Michel Bonnemaison (Variscan Mines), Éric Marcoux (Université d’Orléans), Jack Testard and Patrick Lebret (Variscan Mines)

MINE OPERATIONS

INNOVATION AT THE SERVICE OF WORKPLACE HEALTH AND SAFETY

Chairs: Tanguy Paquot (AMQ) and Marcel Laflamme (UL)

[Room 302]

1:30 p.m. The safety side effect: Things supervisors do that, coincidentally, improve employee safety
Mike Allen (USA)
Presentation in English
2:30 p.m. The contribution of morphology recognition technology in the prevention of machine-pedestrian collisions
Franck Gayraud (ARCURE, France)

3:15 p.m. Development of the Visi+ camera
Fabien Miller (INN-OXX)

3:45 p.m. TopVu™ eTag Board
Marc Brunet (K4 Integration)
Presentation in English

4:15 p.m. Health and safety aspects to consider for drilling and blasting operations
Christian Roy (Canadian Malartic Mine)

GEOLOGY AND EXPLORATION

NEW TARGETS FOR INTRUSION-RELATED MINERALIZATIONS
Chairs: Michel Jébrak (UQAM) and Claude Dion (MERN)
[Room 303]

1:30 p.m. Elements of a porphyry Cu (Au-Mo) deposit: Formation and preservation
Richard Tosdal (PicachoEx)
Keynote speaker Presentation in English

2:20 p.m. Reduced intrusion-related gold deposits (RIRG): A common Paleozoic perigranitic gold deposit model?
Michel Jébrak (UQAM) and Éric Marcoux (Université d’Orléans)

2:45 p.m. Searching for subalkaline Cu-Au porphyries in high-grade metamorphic terrains in Québec: Geochemical criteria and exploration targets
Stéphane Faure (CONSOREM)

3:10 p.m. The Bachelor Lake gold mine: A new plutonic model for the Abitibi
Noémie Fayol, Michel Jébrak (UQAM) and Lyall B. Harris (INRS-ETE)

3:35 p.m. Hydrothermal alteration at the Canadian Malartic mine: Distribution, mineralogy, and geochemistry of a complex multiphase Archean gold system
Stéphane De Souza, Benoît Dubé, Céline Dupuis, Patrick Mercier-Langevin (GSC-Q) Vicki McNicoll (GSC-O) and Robert Creaser (University of Alberta)
WORKSHOPS

9:00 a.m.  True North Treasure Initiative Workshops
Labour and the Challenges of the Mining Industry  
[Room 307AB]

Aboriginal Entrepreneurship Potential and the Mining Industry  
[Room 309B]

The Generation of Sustainable Revenues Related to Northern Development  
[Room 309A]

1:30 p.m.  True North Treasure Initiative Findings and Workshop Reports  
[Room 308AB]

ACTIVITIES

9:00 a.m.  School visit M4S exhibition  
[Exhibition room]  [QM Discovery]

11:00 a.m.  Silent Auction – End at 3:00 p.m.  
[Foyer 4]

11:30 a.m.  Awards Ceremony
  ▶ AQUEST scholarships
  ▶ Québec Mines EXPLO Challenge
  ▶ Le marteau d’or (golden hammer)
  ▶ Outstanding Merit Award  
[Foyer 4 - Loggia]
GEOSCIENTIFIC SPACE, PROSPECTORS SPACE AND INNOVATION SPACE MAP

G1  G2  G3  G4  G5  G6  G7  G8  G9  G10  G11  G12

G25 G26 G27 G28 G29 G30
G42 G41 G40 G39 G38 G37 G36 G35 G34 G33 G32 G31

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P10 P9  P8  P7  P6

P9  P10  P11  P12  P13

C2  C3  C4  C5  C6  C7  C8  C9  C1

Service area

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INNOVATION SPACE
321 à 330 Québec International et Groupe MISA

GOVERNMENT HUB
Centre d'expertise en analyse environnementale du Québec (MDDELCC)
Ministère de l’Économie, de l’Innovation et des Exportations
Ministère de l’Énergie et des Ressources naturelles
  - Direction générale de Géologie Québec
  - GESTIM/SIGÉOM
  - Direction générale du Développement de l’industrie minière
  - Direction de l’information géographique
  - Direction générale de la gestion du milieu minier
  - Réseau régional
Ministère du Développement durable, de l’Environnement et de la Lutte contre les changements climatiques
Ministère des Forêts, de la Faune et des Parcs
  - Direction des inventaires forestiers
  - Direction de la faune aquatique
Ministère de la Santé et des Services sociaux
Ministère des Transports
Secrétariat au Plan Nord

PROSPECTOR’S SPACE
P1 Jean-Louis Tremblay, prospecteur
P2 Jacques Tremblay, prospecteur
  (Association des prospecteurs de la Haute-Côte-Nord)
P3 Edwin Gaucher, prospecteur
P4 Association des prospecteurs de la Mauricie/Haute-Mauricie
P5 Rémi Belley, prospecteur, Cristal du Lac
P6 Olivier Ayotte, prospecteur
P7 Gregory Hryniw, prospecteur
P8 Gilles Bouchard, prospecteur
P9 Denis Bouchard, prospecteur
  Horizon03@oricom.ca
P10 Gracien Harvey, prospecteur
P11 Association des prospecteurs de la Manicouagan
P12 Michel Gendron, prospecteur,
  Mountain Mike Minerals
P13 Gaston St-Pierre, prospecteur
P14 Association des prospecteurs du Nord du Québec

KNOWLEDGE LOUNGE
Chaire de recherche industrielle CRSNG-Agnico-Eagle en exploration minière
Chaire en entrepreneuriat minier UQAT-UQAM
Chaire en éco-conseil de l’UQAC
Chaire de recherche du Canada en Métallogénie magmatique
Institut de recherche en mines et en environnement (IRME) UQAT-Polytechnique
GEOSCIENTIFIC SPACE

G01 Diamond, a precious resource in Québec
Fanny Lachapelle (Cégep de l’Abitibi-Témiscamingue)

G03 Québec: the search for kimberlites
Philippe Emmanuel Aurélien Ngando Moukala (Cégep de Thetford Mines)

G04 GT 2014-02 Minerals, their composition and everyday use

G05 GT 2013-02 Simplified geology of Québec

AND

G06 GT 2013-04 Québec minerals

G07 New publications at the Ministère de l’Énergie et des Ressources naturelles – 2014

G08 Examine – Document collection

G09 Update of the Fe-Ti-V potential in the Chibougamau area
Patrick Houle (MERN) and Claude Larouche (geological consultant, Ontario)

G10 2014-2015 programming at the Bureau de la connaissance géoscientifique du Québec (BCGQ)

G11 2014-2015 programming at the Bureau de la connaissance géoscientifique du Québec (BCGQ)

G12 New targets for mineral exploration – 2014 geoscience projects
Mehdi Guemache (MERN)

G13 Architectural stone in the Portneuf, Lac-Saint-Jean, Eastern Townships, and Côte-Nord regions
N’golo Togola and Ricardo Escobar (MERN)

G14 Knowledge acquisition project focussing on granites, mineral occurrences, and geochemistry in the Saint-Félicien area, Saguenay–Lac-Saint-Jean (NTS 32A08, 32A09 and 32A10)

G15 Base and precious metal mineralization in the Les Escoumins volcano-sedimentary Belt, Central Grenville, Côte-Nord
Pierre-Arthur Groulier (Memorial University of Newfoundland), Abdelali Moukhsil (MERN), Aphrodite Indares, Greg Dunning, and Stephen J. Piercey (Memorial University of Newfoundland)

G16 Geology of the Lac Waconichi (NTS 32J01) and Lac des Canots (NTS 32I04) areas
François Leclerc, Francis Talla Takam (MERN), Yannick Daoudene, and Christine Vézina (UQAM)

G17 Geology of the Lac Waconichi (NTS 32J01) and Lac des Canots (NTS 32I04) areas
François Leclerc, Francis Talla Takam (MERN), Yannick Daoudene, and Christine Vézina (UQAM)

G18 Tectonometamorphic evolution of the Abitibi-Opatica contact zone: Contributions from 40Ar/39Ar thermochronology
Yannick Daoudene, Alain Tremblay (UQAM), Gilles Ruffet (Université de Rennes 1 et CNRS, France), Jean Goutier, and François Leclerc (MERN)

G19 Structural analysis of the Rivière France shear zone and its gold occurrences, Chibougamau area, Québec
Christine Vézina, Yannick Daoudene, Alain Tremblay (UQAM), and François Leclerc (MERN)

G20 Canada’s first continental crust
Christophe Azevedo, Michel Jébrak (UQAM), Andrea Amortegui (MERN), and Jean-François Moyen (Université Jean Monnet)

G21 Revision of geological maps in the Labrador Trough using high-resolution geophysical maps and RapidEye images
Thomas Clark (URSTM-UQAT) and Kathleen O’Brien (MERN)

G22 Potential for orogenic gold occurrences in the Baie-James region
Guillaume Allard and Daniel Lamothe (MERN)
Exhibition room maps and exhibitors

G23 Geological compilation of the Lac Mitis area, Bas-Saint-Laurent
Robert Thériault, Claude Dion, and Stéphane Beauséjour (MERN)

G24 Geological compilation of Silurian-Devonian rocks in the Connecticut Valley-Gaspé Synclinorium, southern Appalachians of Québec
Morgann Perrot and Alain Tremblay (UQAM)

G25 Glacial drift prospecting in the Southeastern Churchill Province: Combined sampling of glacial and fluvioglacial sediments – Preliminary results from the Lac Safray (NTS 24G), Lac Henrietta (NTS 24H), and Lac Brisson (NTS 24A) areas
Hugo Dubé-Loubert (MERN-UQAM), Virginie Daubois, (MERN) and Martin Roy (UQAM)

G26 Geology and economic potential of the Lac Brisson area, Southeastern Churchill (NTS 24A)
Daniel Bandyayera, Isabelle Lafrance and Carl Bilodeau (MERN)

G27 Geology and mineral potential of the Lac Dalmas area (NTS 23E05, 23E12, 33H08, and 33H09), Baie-James
Pénélope Burniaux, Mehdi Guemache, Josphine Gigon, and Jean Goutier (MERN)

G28 Geology of the western Malartic Group: The Lac de Montigny area (NTS 32C04-NW), phase 4
Pierre Pilote, Pierre Lacoste, Véronique Lafrance, Jean David (MERN), Vicki McNicoll (GSC-O), and Réal Daigneault (CERM-UQAC)

G29 Geology of the Parent area, western Grenville, Québec (NTS 31O09, 31O10, 31O15, 31O16, 32B01, and 32B02)
Abdelali Moukhsil, Fabien Solgadi (MERN), Abdelaziz Elbasbas, Saïd Belkacim, and Thomas Clark (URSTM-UQAT)

G30 Potential for silica mineralization in Québec
N’golo Togola (MERN)

G31 Mapping Quaternary deposits in the Chibougamau region (NTS 32H12, 32H13, 32J01 and 32J08): Preliminary results
Mohamed El Amrani (MERN) and Olivier Lamarche (UQAM)

G32 Status of new geoscience compilations in Québec

G33 Presentation of geophysical data published in 2014
 Rachid Intissar and Siham Benahmed (MERN)

G34 Geology and mineral potential of the Lac Holmes area (NTS 32C15): Preliminary results
Hanafi Hammouche (MERN) and Abdelali Kharis (URSTM-UQAT)

G35 Structural and metamorphic study of the Attic Complex (Phase 1): The Lac Holmes area, Lebel-sur-Quévillon, Québec
Nicolas Revelli, Yannick Daoudene (UQAM), Hanafi Hammouche (MERN), and Alain Tremblay (UQAM)

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THE QUÉBEC MINES EXPLO CHALLENGE CONTEST

Teams of three students, representing different universities, have 12 hours to produce an exploration program proposal. Each team is assigned a specific research sector, and must use ArcGIS tools, along with geological and geophysical data from SIGÉOM, to target a mining property and develop a detailed exploration program based on the geology of the land and favourable substances, along with a detailed report on their program. The winning team, i.e. the one whose program is judged to be the most promising, will receive a $3,000 scholarship from SIDEX.

YOUNG SCIENTISTS’ CONTEST: MINERAL RESOURCES TO TRANSFORM THE WORD

Students from 4th, 5th and 6th years Elementary and High schools in Québec have been invited to enter the science contest Mineral resources to transform the word.

Participants must submit a scientific research paper describing and explaining one of the following geological phenomena: erosion and sedimentation, volcanic activity and plate tectonics, or folds and faults. All the projects entered for the contest will be displayed in the main hall.

The awards given to contest winners are provided by Association minière du Québec.
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