

## 2010-2011 Annual Report of Activities

### 1-Regular meetings, lectures

Our Student Chapter meets approximately once a month to organize the different activities, which include local and international field trips, short courses and conferences. Minutes of the meetings are prepared by the secretary and archived on the FTP site in collaboration with our academic sponsor, Dr. Georges Beaudoin.

### 2-Field trips

Several field trips have been conducted this year in which more than 20 of our members participated. Two local field trips have been organized in 2010-2011: 1) a visit of the Thetford Mine ophiolitic complex in the Appalachians (November 19th 2010) and 2) a visit of the Niobec mine (Iamgold Corp.) located in the Grenville Province, which is the only underground niobium mine in the world (April 15<sup>th</sup> 2011).

The annual international field trip has taken place in Bolivia this year. From May 1<sup>st</sup> to May 15<sup>th</sup> 2011, fourteen students and one geologist from the industry (Mr. Martin Demers from Aurizon Mines Ltd.) visited seven active mining sites in the country. The first mine was the Coop-operated Cerro Rico underground deposit (Ag, Zn, Sn) near the city of Potosi, which is one of the largest silver mine in the world. The vein-type Cerro Rico mineralizations are hosted by highly altered sediments and felsic sub-volcanic domes. Afterward, we visited the San Bartolome mine (Ag, Zn, Sn) owned by Coeur d'Alene Mines Corp., which is exploiting the quaternary sediments produced by the erosion of the Cerro Rico deposit itself and the old Coop's tailings (picture 1). We then visited the Salar de Uyuni which is the largest salt flat in the world. A lot of artisanal salt exploitations are operated in the Salar. The government-owned Comibol mining company is also working to develop a lithium exploitation in the Salar because it hosts the largest lithium reserves in the world. Subsequently, we visited the San Cristóbal open pit mine (Ag-Zn-Pb) which is owned by Sumitomo Corporation (a Japanese company) and is located 80 km south of the Salar. The vein-type San Cristóbal mineralizations are hosted by highly altered sediments and felsic sub-volcanic domes (picture 2). The next day, we visited the San Vicente (Ag-Zn±Cu) underground exploitation owned by Pan American Silver Corp. that is located 65 km west from the city of Tupiza. The vein-type mineralizations from the deposit are linked to a regional thrust fault which marks the limit of the Bolivian Altiplano Basin. The veins are hosted in highly altered fanglomerates, dacitic dykes and shales. We finally visited two open pit mines owned by Empresa Minera Inti Raymi S.A. near the city of Oruro: Kori Kollo and Kori Chaka mines. The Kori Kollo mine (Au-Ag±Zn-Cu-Bi) is an intrusion-related vein-type deposit hosted in a highly sericitised and pyritised dacitic intrusion emplaced in some Silurian clastic sedimentary rocks. The Kori Chaka mine (Au±Sb) is a typical shear zone-hosted orogenic quartz and gold veins deposit located in a deformed and metamorphosed slate belt.



**Picture 1.** Laval University/INRS-ETE Student Chapter visiting San Bartolome mine near Potosi, with the famous Cerro Rico mountain in the background.



**Picture 2.** Open-space filling textures in a sphalerite-galena vein network at San Cristobal mine.

### **3-Organization of conferences, workshops, short courses**

Since 2003, during the *Québec Exploration* mineral exploration/exploitation conference and trade show, the Laval University/INRS-ETE SEG Student Chapter organizes a short course presenting an aspect of the economic geology field of study. The November 22<sup>th</sup> 2010 short course was on the high-tech minerals (Zr, Li, Be, Y, Sc, REE). As the demand for these metals is growing each year and the Chinese are diminishing their part of the international market, there is a growing interest in the discovery of new resources worldwide. The course offered an overview of the geological features and origins of these types of deposits. The course instructors were Iain Samson (University of Windsor), Robert Linnen (University of Western Ontario) and Marc Constantin (Université Laval).

*Québec Exploration* is a popular convention attended by more than 2000 delegates that is held during 4 days and is a must-attend event for all mining exploration stakeholders and investors in eastern Canada, particularly from the Province of Québec. A lot of conferences are held during the event and it's a great opportunity to meet and share the latest developments in the mineral exploration industry.

It's possible to get additional information on *Québec Exploration* on their official website: <http://www.quebecexploration.qc.ca/english/home.asp>

### **4-Participation in conferences, workshops, short courses**

On March 18<sup>th</sup> 2011, during the *Journée des Sciences de la Terre et de l'Environnement* (JSTE), graduate students from Université Laval and INRS-ETE presented their research. The SEG Student Chapter sponsored the activity and awarded a prize of 100\$ for the best presentation on mineral deposits. (Winner: Alexandre Lekina, Post-doc at INRS)

### **5-Fund-raising programs**

The Laval University/INRS-ETE Student Chapter fund-raising programs are designed to sponsor the Student Chapter activities, in particular regional and international fieldtrips and accommodations for the lecturers. The revenues from the *Québec Exploration* short course are returned entirely to the Student Chapter, which makes it a major source of funding for us (15000\$ in 2010). The Chapter also solicits Canadian and International mining and exploration companies which are present at the *Québec Exploration* congress to sponsor its activities. In 2010-2011, the Student chapter received 1500\$ from Barrick Gold and 1000\$ from Agnico-Eagle Mines, Opinaca Mines and Osisko. We also received 1000\$ from the SEG itself as well as 500\$ from Corem, Nemaska Exploration, Université Laval and INRS-ETE and lastly 350\$ from Ressources Appalachies. Mr. Martin Demers from Aurizon Mines Ltd. came with us in Bolivia and contributed 5000\$ for the field trip. In addition, the fund of the "Office Québec-Amérique pour la jeunesse" sponsored 70% of the flight tickets for ten of the fifteen students going to the Bolivia field trip. Finally, the Student Chapter held a meet-and-greet/fund-raising night at a local pub, during the same week as *Québec Exploration* which gave us 500\$.

## **6-Future plans**

The Student Chapter has recruited, in 2011-2012, 22 local members so the Chapter is still highly active and healthy this year.

The Student Chapter will again organize a short-course during *Québec Exploration* congress. This year's topic is related to acquire an efficient way to use lithogeochemistry data for tectonic environment discrimination and geologic exploration. The workshop goal is to enable the participants to optimize their use of lithogeochemical data to guide their mineral exploration projects. The course instructor is Professor Steve Piercey from Memorial University of Newfoundland.

Secondly, the Student Chapter is planning to organize at least two regional field trips during the year. We will organize a one or two day tour of Bathurst mining camp and Brunswick #12 mine, which is one of the biggest VMS deposit ever found. Afterwards, the Student Chapter is planning to visit the Mont St-Hilaire quarry, recognized as among the top ten mineral-collecting sites in the world. Other field trips will probably be considered further this year.

Thirdly, for the 11<sup>th</sup> year in a row now, the Laval University/INRS-ETE Student Chapter is going to participate to the *Journée des sciences de la Terre* held in March 2012 and sponsor a prize for the best presentation on mineral deposits or exploration geology.

Also, the student Chapter plans to organize at least two major conferences during the year at INRS-ETE and/or Laval University. We would like, among others, to ask Mr. J. Hedenquist for a talk about epithermal deposits, Mr. G. Masterman for a talk about epithermal and porphyry deposits, Mr. M. Hannington for a talk about VMS and gold-rich VMS deposits and finally Mr. C. Li for a talk about Ni-Cu-(PGE) deposits.

At last, members of the Student Chapter are planning an international field trip in May 2012 to visit several mineral deposits in a foreign country. The destination is still unknown but we are considering visiting mining districts in Western North America, Southern America or Europe. The decision upon the location of the field trip will be voted later this fall.

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