

SWEDEN

April 29 - May 13, 2007



Highlights:

Working mines including:

- * Type-example and world class *Kiruna magnetite-apatite deposit*
- * Giant Aitik *Fe-oxide/Cu-porphyry hybrid deposit*
- * Classic *VHMS deposits*
- * *Stratiform base metal sulphide deposits*

Examples of Sweden's mining history including:

- * Several *pegmatites* and a REE mineral type-locality at Ytterby
- * *Cu-deposit with a >1000 year mine life*

As well as Sweden's rich cultural and natural history:

- * *Royal palaces and Viking exhibitions*
- * *UNESCO World Heritage sites*
- * *Beautiful arctic landscapes and national parks*

Itinerary

Date	Location	Activities	Possible mine tours
Day 1-2	Vancouver/Stockholm	Arrive in Sweden; sightseeing, Walpurgis Night festival	
Day 3	Stockholm	Sightseeing; Viking exhibition at The Museum of National Antiquities	Ytterby pegmatite site
Day 4-6	Falun	Drive to Falun	Falun stratiform Cu-Zn-Pb (UNESCO site) Lovisagruvan stratiform Zn-Pb Garpenberg stratiform Zn-Pb-Ag
Day 7-9	Skellefteå	Drive to Skellefteå	Svartliden VHMS Au Kristineberg VHMS Zn-Cu-Au-Ag
Day 10	Luleå	Gammelstad Church Town (UNESCO site)	
Day 11-13	Kiruna	'Ore Train' to Kiruna Visit Abisko National Park or Jukkasjärvi Ice Hotel	Kiruna magnetite-apatite Fe-REE Aitik Fe-oxide/Cu-porphyry hybrid
Day 14	Stockholm	Fly to Stockholm; sightseeing, Treasury with Crown jewels, Ferry to archipelago islands	
Day 15	Stockholm/Vancouver		

Overview:

Sweden has a long mining history stretching back to the 7th century. The fine craftsmanship and artistry of Viking iron swords and armour, and ancient silver coinage illustrate the importance of metals in early Swedish society. Today the mining and industrial application of Cu, Fe, Zn, Pb, Au and Ag continue to play an intrinsic role in the country's economic strength. Our tour will examine all the major mineralization styles in Sweden by visiting the three premier mining districts, Bergslagen, Skellefte, and Norrbotten. We also hope to incorporate important historic sites to broaden our understanding of the economic impact of centuries of mining.



Entryway to the Icehotel in Jukkasjärvi north of Kiruna.

Sami (or Laplanders) with a reindeer sleigh.



The Cu-Zn-Pb and Zn-Pb stratiform base metal sulfide and Fe-Mn oxide deposits in the **Bergslagen** district (200 km NW of Stockholm) district occur in a meta-volcanosedimentary sequence and are associated with calc-alkaline intrusive rocks. This area also has a rich history; the Falun copper mine operated for >1000 years and is now an UNESCO World Heritage Site, the Sala mine produced silver for 500 years, and the first European cast iron production occurred here c. 1200 AD.

The **Skellefte** district 800 km to the north hosts several is well known for its metavolcanic-hosted massive sulfide (VHMS) Cu, Zn, Au and Ag deposits. A series of gold-rich deposits, notably Boliden, Björkdal and Svartliden, form what is known as the 'Gold Line' in this productive polymetallic area.

The **Norrbotten** district lies well within the Arctic Circle, and includes the world-class magmatic Fe-REE deposits at Kiruna, the type locality for magnetite-apatite iron oxide deposits. The nearby Aitik deposit, one of the largest Cu mines in Europe, originally containing >1000 Mt of Cu-Au-Ag ore, shares characteristics with both porphyry copper deposits and some iron oxide Cu-Au deposits and has been proposed as a possible hybrid of the two.



Kiruna iron mine.



Langholmens prison now serves Stockholm as a hostel.

Estimated industry price: \$4000

For more information visit our website at <http://www.mdru.ubc.ca/home/resources/2007se.php> or email seg.ubc@gmail.com.



Viking longship



Stockholm

Recent field trips organized by the UBC SEG Student Chapter have focused on relatively young deposits and the environments in which they form. This year's trip to Sweden will provide an excellent opportunity to observe Paleoproterozoic deposits that have been complicated by metamorphism, and overprinting mineralisation events. The industry price will include return airfares to Sweden, ground transportation and accommodation, and will help subsidize the cost of the trip for students.