PROJECTS RELATED TO IRON ORE

James Conliffe

Geological and Metallogenic Studies of Iron Ore in Labrador

In 2013, research continued on iron-ore deposits in western Labrador, as part of a multi-disciplinary project. This region is prominent as a world-class iron-ore district, but there is limited scientific information on these deposits. Regional variations, genesis and controls on iron-ore mineralization are included in this research. This project now has an interprovincial aspect in that it will include the acquisition of comparative data from deposits in adjacent Québec, with the cooperation of Géologie Québec.

Field work in 2013 was completed mostly in the areas around Labrador City and Wabush in southwestern Labrador and around Schefferville on the Québec-Labrador border. Samples are currently being prepared for laboratory investigations, including geochemical (trace element and REE) and isotopic analysis. These data will be used to assess variations in their geology and geochemistry and various models for the processes involved in generating these world-class iron deposits.

Folded metataconite with bands of specularite and iron silicates

Overview of James, Gill and Ruth mines and Silver Yards Processing Facility, Schefferville, with train being loaded with iron ore

Origin of “hard” high-grade direct shipping ores (DSO) in Labrador

Aerial view of Sawyer Lake deposit

High-grade blue hematite iron ore (DSO) from Sawyer Lake

“Hard” high-grade (>55% Fe) iron-ore deposits represent a potential additional resource in the Labrador Trough. The type locality of this deposit type is the Sawyer Lake deposit, approximately 65 km southeast of Schefferville. A similar iron-ore deposit has recently been discovered by Mamba Minerals Limited on their nearby Snelgrove Lake Project. These deposits differ from the “soft” direct shipping ores of the Schefferville area in that the ore is very hard, dense, blue hematite, with little or no goethite and no sign of supergene enrichment, Similar hard high-grade iron-ore deposits are important sources of iron in Australia and Brazil, and they represent a new exploration target in Labrador.

In 2013, field work was aimed at determining the character and genesis of these deposits. This included logging of diamond-drill holes and mapping of outcrops and exposed trenches around the Sawyer Lake deposit and near Snelgrove Lake, and collection of samples for petrographic, geochemical and isotopic analysis. These results will be compared with data from a number of deposits with characteristics of both “hard” and “soft” DSO deposits (e.g. Houston, Joyce Lake) to determine if hydrothermal processes were important in their formation. A preliminary discussion of these new data will appear in Current Research 2014.