



Skaergaard Intrusion, Greenland: Modal Layering, Upper Zone a, Layered Series



Bird River Sill, Manitoba: Upper Main Group Chromitites, Chromitiferous Zone, Ultramafic Series

Petrography of Mafic Layered Intrusions

Geological Association of Canada Short Course, Winnipeg, Manitoba, Canada

Date: Tuesday, May 21, 2013

Location: Department of Geological Sciences, University of Manitoba, 240 Wallace Building, 125 Dysart Road, University of Manitoba, Winnipeg, MB R3T 2N2 Canada, Phone: (204) 474-9371 Fax: (204) 474-7623

Contact: James Scoates, University of British Columbia (e-mail: jscoates@eos.ubc.ca), and Jim Miller, University of Minnesota Duluth (e-mail: mille066@d.umn.edu)

Registration: Can be made through the GAC-MAC Winnipeg 2013 website at: www.gacmacwinnipeg2013.ca

Instructors: James Scoates (University of British Columbia)
Jim Miller (University of Minnesota Duluth)

Overview: This hands-on workshop is designed for professional geologists and geology students who are working on mafic layered intrusions. The main focus will be to establish a robust foundation of descriptive terminology for rocks in layered intrusions through observations of a large suite (>200) of hand samples and thin sections from a variety of classic mafic layered intrusions (e.g., Skaergaard, Stillwater, Bushveld, Duluth, Muskox). The workshop will review the basic terminology, nomenclature, and classification schemes applied to mafic layered intrusions, with special emphasis on the mineralogy and textures commonly observed in thin sections and possible petrologic interpretations. Geological maps and virtual field trips of the intrusions will be used to place the sample suites in context. Examples of mineralization hosted in mafic layered intrusions will also be examined (e.g., stratiform chromitites, reef-type platinum group element deposits).

Required Background: Basic familiarity with mineral identification in hand sample and using a petrographic microscope and with basic igneous processes that operate during the crystallization and cooling of mafic intrusions.

Cost: \$300, including lunch and course notes; **\$150** for students (prices include 5% GST and 7% PST; short-course participants who do not also register for the Annual Meeting must pay an additional handling fee of \$56, including taxes). Participants are responsible for making their own accommodation, breakfast, and dinner arrangements. Bus transportation between hotels downtown and the University of Manitoba is straightforward and recommended (additional information on bus routes and times to follow); visitor parking for a fee is available on-campus.

Participants: Max. 25 participants; max. 5 students

Schedule:

0830-0845: Welcoming comments and introduction to workshop goals

0845-0945: Lecture 1: Igneous Stratigraphy and Layering Characteristics of Mafic Layered Intrusions

0945-1000: Coffee Break

1000-1100: Lecture 2: Nomenclature and Classification of Mafic Layered Intrusions

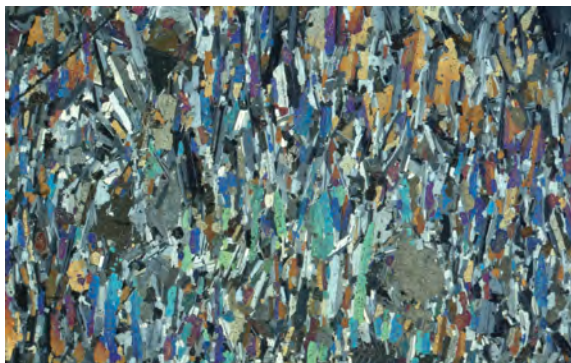
1100-1200: Lecture 3: Virtual Field Trips of Mafic Layered Intrusions - Skaergaard, Sonju Lake, Stillwater, Bushveld, and Muskox

1200-1300: Lunch

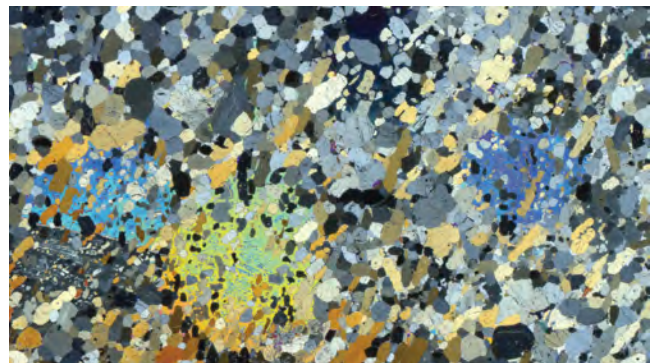
1300-1430: Lab 1: Closed-system Tholeiitic Intrusions: Skaergaard (East Greenland); Sonju Lake (Minnesota)

1430-1500: Coffee Break

1500-1630: Lab 2: Open-system Ultramafic-Mafic Intrusions: Stillwater (Montana), Bushveld, (South Africa), Muskox (Nunavut)



Stillwater Complex, Montana: Gabbronorite, GN3 Zone, Upper Banded Series (scanned thin section in XPL)



Stillwater Complex, Montana: Peridotite, Top of Bronzite Zone, Ultramafic Series (scanned thin section in XPL)