

## "METAMORPHIC EXTRAVAGANZA" IN CALGARY



Short course participants

A "metamorphic extravaganza" was held in Calgary between May 8 and 16, 2010, in association with the GeoCanada 2010 meeting. Sponsored by the Mineralogical Association of Canada, it consisted of three events:

- a two-day premeeting short course on the "Theriak-Domino" phase equilibrium modeling software, presented by its developer, Christian de Capitani of the University of Basel, Switzerland
- a two-day special session entitled "Interplay between Thermodynamics, Kinetics and Deformation in Metamorphism"
- a four-day field trip to metamorphic localities in southeastern British Columbia entitled "Metamorphism and Tectonics in the Southern Purcell Anticlinorium and Kootenay Arc, Southeastern British Columbia"

The Theriak-Domino short course, organized by Dave Pattison and Fred Gaidies, was held at the Department of Geoscience, University of Calgary. It was attended by 35 geoscientists, over half of whom were students (see photo). Christian de Capitani ("Capi," as he is known by many) led attendees through the calculation of pressure-temperature isochemical phase diagram sections (often referred to as "pseudosections") for different bulk compositions; various types of isolines (e.g. isopleths, modal and density contours) on these sections; log-activity diagrams; temperature-log-activity diagrams; binary and ternary diagrams; "pixel maps" allowing rapid visualization of hundreds of compositional and physical parameters in a given phase diagram section; and a number of specialized applications available in the software. The attendees were enthusiastic about the rapidity, flexibility, and ease of use of the software, and by the possibilities it affords to experiment with different chemical systems and bulk compositions. A senior attendee after the first day said, "I am filled with joy," and after the second day said, "I wish I were starting my career in metamorphic petrology over again." Attendees got a taste of Canada's national spring ritual when they gathered for a lively group meal at a pub with televisions on all sides showing the Stanley Cup playoffs (ice hockey for the uninitiated).

The two-day special session, "Interplay between Thermodynamics, Kinetics and Deformation in Metamorphism," was organized by Dave Pattison, Fred Gaidies, and Ed Ghent. It was the largest individual session at the GeoCanada 2010 meeting, a pleasant surprise given that it was a metamorphic session held within a generalist geoscience meeting in the center of Canada's hydrocarbon industry. Twenty-eight talks and eight posters were presented by individuals from eleven countries. The geographic diversity was represented by the three invited speakers: Rainer Abart from the University of Vienna ("Chemical mass transfer in polycrystals and polycrystalline aggregates"), Dave Hirsch from Western Washington University ("An experimental inquiry into grossular nucleation: First results"), and Dave Waters from the University of Oxford ("Equilibrium calculations and real metamorphic processes: Scenes from a troubled relationship"). The session was well attended and featured much discussion. Following the session, another lively group meal ensued at a different pub, this time without any hockey (except for those who snuck upstairs to check the scores...).



Field trip participants. **BACK ROW:** Joel Cubley, Dave Waters, Peter Nabelek, Ben Collins, Sam Morfin, Dave Pattison, Ed Sawyer, Ron Uken, Ian Fitzsimons, Linc Hollister, Chris Daniel, Barb Dutrow, David Moynihan, Sergey Malyshev. **FRONT ROW:** Darrell Henry, Chris McFarlane, Melanie Meyer, Chris Harrison, Julie Baldwin, Brett Hamilton, Leanne Smar, Stephanie Moore, Tania Martins, Chris Coueslan, Yoonsup Kim (above Chris Coueslan), Felix Gervais, Andrei Khudoley

The four-day postmeeting field trip, "Metamorphism and Tectonics in the Southern Purcell Anticlinorium and Kootenay Arc, Southeastern British Columbia," led by Dave Pattison, David Moynihan, and Chris McFarlane, took 27 participants across the leading edge of the Canadian Cordilleran orogen, through the famous Rocky Mountain fold and thrust belt, and into the metamorphic-magmatic orogenic hinterland, the southern Omineca belt. The trip took the group through the towns of Cranbrook, Creston, and Nelson. A theme of the trip was the varying character of, and interfaces between, Barrovian-type and Buchan-type metamorphic domains ranging in age from Mesoproterozoic to Cretaceous. Participants saw this beautiful part of British Columbia at its finest, under sunny skies and pleasant temperatures. The diverse backgrounds of the participants (see photo) made for excellent outcrop discussions.

A lasting impression left by the events at the "metamorphic extravaganza" was the vitality, enthusiasm, internationality, and high scientific calibre of the younger attendees, broadly including graduate students, recent PhDs, and new faculty in petrology positions at various institutions across the globe. This, combined with the range of novel techniques being brought to bear on metamorphic petrology and the application of metamorphic techniques in numerous other areas of Earth science, speak to a discipline that is flourishing and forward-looking.

**David Pattison**, University of Calgary



Field trip leaders and helpers in the Canadian Rockies: Chris McFarlane, David Moynihan, Joel Cubley, Brett Hamilton, Dave Pattison. PHOTO COURTESY OF BARB DUTROW