



Mineralogical Association of Canada

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2010 MAC STUDENT TRAVEL AND RESEARCH GRANTS

MAC awarded 14 student travel and research grants in 2010 for a total of \$9450. Three grants were awarded to undergraduate students, 6 to MSc students, and 5 to PhD students. We congratulate these deserving students and present highlights of their reports.



Christine Austman (MSc student, University of Saskatchewan) attended a graduate student geological field course in the Himalayas of Nepal in May 2010, with help from her MAC grant. Each participating student was required to write a portion of the guidebook on a part of Himalayan geology he or she was interested in. Christine discussed migmatization, metamorphism, and melt generation in the core of the Himalayan Orogen.

The knowledge gained during the trip has helped her MSc thesis research on the topic "The Origin of Paleoproterozoic Pegmatite- and Leucogranite-Hosted U–Th–REE Mineralization at Fraser Lakes, Northern Saskatchewan, Canada (western margin of the Trans-Hudson Orogen)."



Michael Babechuk (MSc student, Laurentian University) visited the Pacific Centre for Isotopic and Geochemical Research (PCIGR) at the University of British Columbia in Vancouver to conduct Nd isotope ratio measurements using the multicollector inductively coupled plasma mass spectrometer (MC–ICPMS). The isotopic data were critical for the successful completion of his MSc thesis work (supervised by Dr. Balz Kamber), which was concerned

with ancient mantle depletion. The primary goal of the research was to better constrain the silicate differentiation history of the Earth by assessing the degree of elemental and isotopic depletion in the upper mantle by ca. 2.0 Ga using basalts from the Paleoproterozoic Flin Flon Belt.



Kristy-Lee Beal (MSc student, University of New Brunswick) attended the International Mineralogical Association conference in Budapest on August 21–27, 2010. She presented a portion of her MSc thesis (under the supervision of Profs. David Lentz and Chris McFarlane) in a poster titled "Uranium and Thorium Distribution in the Double S Zone of the Uraniferous Lac Turgeon Intrusive Complex, Quebec, Canada." The conference offered many

talks on accessory minerals, and this information will be helpful as her project grows to encompass the entire intrusive complex. She also attended a workshop titled "Raman Spectroscopy and Imaging: Applications in the Earth Sciences" and a postconference field trip in the Czech Republic on granitic pegmatites and mineralogical museums.



Sasha Blinova (PhD student, University of Alberta) presented preliminary results from her thesis project at the 41st Lunar and Planetary Science Conference in Woodlands, Texas. She is working with Dr. Chris Herd on the Tagish Lake meteorite, which fell on a frozen lake in northern British Columbia, Canada, in January 2000. Tagish Lake might be the most primitive, organic-rich meteorite studied to date. Detailed mineralogical and petro-

logical variations of this enigmatic meteorite are an important component of Sasha's research, which involves in situ analysis of oxygen isotopes and dating of extinct radionuclides in various primary components, such as chondrules. This conference gave Sasha a tremendous opportunity to present her results and get feedback from specialists.



Trevor Howard Brisco (BSc student, Acadia University) attended the GeoCanada 2010 Conference in Calgary, Alberta, where he gave an oral presentation about his undergraduate thesis research in the "Comparative Planetary Geology" session. He shared his evidence for a newly discovered multiple-impact crater site in southwestern Nova Scotia. He had the opportunity to attend oral and poster presentations on several facets of Earth

science, such as oil and gas reservoirs, carbon storage and climate change, and the rise of oxygen and early life on Earth.



Leah Chiste (BSc student, Acadia University) traveled to Chile in July 2010 to collect soil samples for her Honours research project entitled "The Partial Digestion Geochemistry of Pediment over the Toki Cluster Porphyry Copper Deposit, Atacama Desert, Chile." She took samples from six sites above or adjacent to the Toki Cluster mineralization, located approximately 5 km outside the city of Calama. Collecting her own samples and seeing the environ-

ment from which the samples were taken gave her a better idea of the geological context and will make the background writing of her thesis paper easier.



Thomas Chudy (PhD student, University of British Columbia) is doing a comprehensive mineralogical study of the tantalum-bearing Upper Fir carbonatite occurrence, northern British Columbia. His goal is to ascertain the petrogenesis of these rare and economically important magmatic rocks. He will address the mobility of high field strength and rare earth elements under high-grade metamorphic conditions in a tectonic setting similar to that of the Canadian Cordillera. He attended the IMA meeting in Budapest, where he gave an oral presentation. The sessions on carbonatites and alkaline rocks and on accessory phases (and their role in tracing magmatic, metamorphic, and metasomatic processes) provided valuable insights into relevant processes and microtextures.



Tashia Dzikowski (PhD student, University of British Columbia) attended the IMA meeting in Budapest, aided by her MAC grant. She presented her research on the origin of gem corundum deposits in marble to an international audience in the session "Gem Materials: Origins, Properties, and New Analytical Challenges." This advertised the occurrence of gem corundum deposits in Canada, which was unknown to many. She received con-

structive feedback from the audience during the question period following her presentation. She attended many informative talks but found the ones on metasomatism and gem deposits most useful. The knowledge gained will help with her future research and teaching. She also enjoyed learning about Hungarian culture.



Cole T. Edwards (MSc student, Acadia University) has completed his thesis on the subject "The Paleocology of Paleoproterozoic Microbial Communities in the Ferriman Group, Labrador Trough, Canada." His research required a multivariate approach in which he incorporated concepts of sedimentology, stratigraphy, geochemistry, and microbiology. Using new techniques, he was able to expand our understanding of some of Earth's

oldest life. He explored the role this life played in shaping and interacting with its paleoenvironment, specifically by addressing the importance of benthic microbial communities on the accumulation of Precambrian iron formation. It was a challenging and rewarding project, and he presented his results at GeoCanada 2010 in Calgary with the help of his MAC grant.



Mao Mao (PhD student, University of Saskatchewan) focuses his research on radiation-induced defects in layer silicates. Aided by a MAC student research grant, he sent hemimorphite crystals to Dr. Mark Nilges at the Illinois EPR Research Center, University of Illinois at Urbana-Champaign, for detailed EPR analyses at liquid-helium and liquid-nitrogen temperatures (39 K and 110 K). These EPR spectra have permitted quantitative analyses of a radiation-induced O_2-H radical in hemimorphite. Hemimorphite is known to undergo a phase transition involving hydrogen ordering at ~100 K. Comparison of EPR data on this O_2-H radical at 39 K and 110 K provides new insights into this phase transition. A manuscript based on these results is in preparation and will form a chapter of his thesis.



Aleksandra Mloszewska (PhD student, University of Alberta) presented a poster in the "Early Earth" session of the GeoCanada 2010 conference, Calgary, on preliminary results from her thesis project. She received very useful feedback from senior researchers and fellow graduate students, which will surely help with the further development of her project. She found the conference a pleasant and rewarding experience.



Tasca Santimano (PhD student, McMaster University), with the help of a MAC travel grant, went to the German Research Center for Geosciences (GFZ) in Potsdam, Germany, to learn more about analogue modeling and conduct experiments related to the geometry and network formation of fault zones. For her MSc thesis project, Tasca studied the kinematics of first-order faults in the eastern Cordillera of the Central Andes, where she determined the style of upper-crustal deformation near prominent faults,

as well as the influence of lithological heterogeneities and mineral composition on the mode of faulting. For her PhD, Tasca will study the effects of a humid climate on the mechanics of first-order faults in the upper crust with the help of analogue modeling.



Laura Schmitt (BSc student, University of Calgary) carried out an undergraduate research project aimed at understanding the origin of melanocratic mafic enclaves within trachydacite intrusions in the Lower Jurassic Elise Formation near Trail, British Columbia. Detailed petrographic study of the enclaves revealed a magmatic texture indicating crystallization from a relatively mafic magma compared to the host trachydacite. MAC helped

fund a detailed study of the enclaves using whole-rock and mineral chemistry, which demonstrated that the inclusions resulted from the mingling of mafic and felsic magmas.

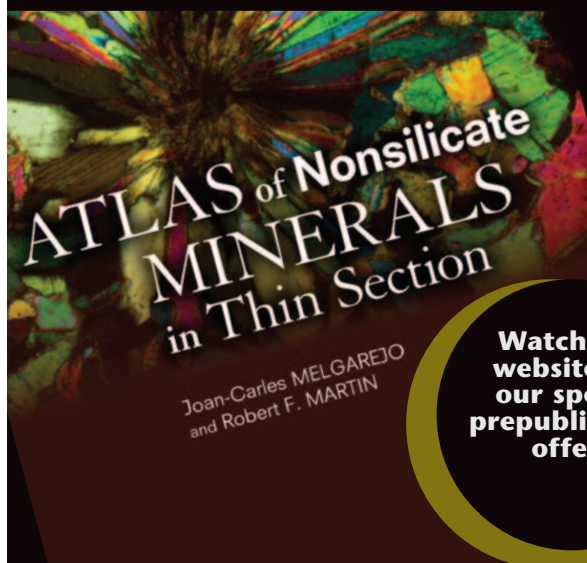


Michelle Stropky (MSc student, University of Nevada, Las Vegas) used a MAC grant to travel to the University of California, Los Angeles, to use the secondary ion mass spectrometer (SIMS). She is interested in zircon behavior during partial melting and the production of migmatites, which will provide insights for a new melt-segregation model. The SIMS was used for U-Pb dating of zircons from the leucosome and melanosome of Aspen Basin migmatites of the Santa Fe Range, northern Mexico, in order to determine segregation processes. Dating of zircons has revealed that the leucosome and melanosome contain zircons from two separate age populations. Dates for the two populations will allow her to delineate timing of migmatization.

determined the style of upper-crustal deformation near prominent faults,

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\$5000

Scholarships

The Mineralogical Association of Canada Foundation

will award two \$5000 scholarships to graduate students, one to a student enrolled in an MSc program and one to a student in a PhD program. The applicable fields of study are:

- Mineralogy
- Crystallography
- Geochemistry
- Mineral Deposits
- Petrology

Deadline to apply:
May 1st, 2011

Eligibility

- Students entering the second year of an MSc program or the second or third year of a PhD program at a Canadian university in September 2011.
- Canadian citizens enrolled in the above or equivalent programs at any university.

For more information, contact the business office:
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Application form available at www.mineralogicalassociation.ca