GREGORY DUMOND

Date of Birth: May 21, 1975
Place of Birth: Edmonston, New Brunswick, Canada
Marital Status: Married – wife Jacqueline, son Joseph Philip
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OBJECTIVE

Obtain tenure-track position pursuing:

- Field-based research in tectonics linking structural geology, metamorphic petrology, and monazite/zircon geochronology.
- Establishment of the Micro-Tectonics Laboratory (MTL) facility – a center for cutting edge research and high-resolution data acquisition aimed at *in situ* characterization and analysis of rock microstructure, monazite, and zircon.
- Undergraduate- and graduate level education in physical geology, structural geology, metamorphic and igneous petrology, field methods, and tectonics.
- Public/geologic community outreach and service.

RESEARCH INTERESTS

- Nature of partitioning in time and space of deformation, magmatism, and metamorphism.
- Micro- to continent-scale tectonic evolution of high-grade metamorphic terranes.
- Linking growth of monazite and zircon to microstructures and metamorphic reactions.
- Establishing field-based constraints on rheology of continental crust.
- Ascent of magma, magma chamber construction, and petrogenesis in continental crust.

EDUCATION

University of Massachusetts-Amherst, Ph.D. Geosciences, expected May 2008.
Emphasis: structural geology, metamorphic petrology, *in situ* electron microprobe monazite geochronology
Dissertation: *"Tectonic and petrogenetic evolution of sub-horizontal granulite-grade fabric in lower continental crust: Constraints on lower crustal flow from the western Canadian Shield"*
Advisors: Michael L. Williams, Samuel A. Bowring, Michael J. Jercinovic, Sheila J. Seaman

Texas Tech University, M.S., August 2002.
Major: *Geosciences* GPA: *3.85*
Emphasis: structural geology, igneous petrology
Thesis: *"Magma chamber construction in the middle crust: Insights from the Sausfjellet pluton, Bindal batholith, Norway"*
Advisors: Calvin G. Barnes and Aaron S. Yoshinobu

University of Texas at El Paso, B.S. cum laude, May 2000.
Major: *Geological Sciences* Minor: *Chemistry* GPA: *3.89*
Independent Study: *"Kinematic analysis of the Torpedo-Bennett fault zone, Organ Mountains, south-central New Mexico"*
Senior's Thesis: *"Characterization of pegmatite bodies in the Sugarloaf Peak quartz monzonite porphyry, Organ batholith, south-central New Mexico"*
Advisors: Christopher L. Andronicos, Philip Goodell, and Thomas J. Williams

PUBLICATIONS

Williams, M.L., Karlstrom, K.E., **Dumond, G.,** and Mahan, K.H., Accepted pending revisions July 2007, *Perspectives on the architecture of continental crust from integrated studies of exposed isobaric sections.* in Miller, R.B., and Snoke, A.W., Geological Society of America Special Paper XXX Crustal Cross Sections from the Western North America Cordillera and Elsewhere - Implications for Tectonic and Petrologic Processes, XXX-XXX.

Dumond, G., Mahan, K.H., Williams, M.L., and Karlstrom, K.E., 2007, *Crustal segmentation, composite looping pressure-temperature paths, and magma-enhanced metamorphic field gradients: Upper Granite Gorge, Grand Canyon, USA*. Geological Society of America Bulletin, vol. 119, no. 1/2, 202-220.

Dumond, G., Yoshinobu, A.S., Barnes, C.G., 2005, *Mid-crustal emplacement of the Sausfjellet pluton, central Norway: Ductile flow, stoping, and in situ assimilation.* Geological Society of America Bulletin, vol. 117, no. 3/4, 383-395.

Barnes, C.G., **Dumond, G.,** Yoshinobu, A.S., Prestvik, T., 2004, *Asymmetric zoning of a middle crustal pluton in the Norwegian Caledonides: Selective assimilation of host rocks.* Lithos, vol. 75, no. 3-4, 389-412.

MANUSCRIPTS IN PREPARATION

Dumond, G., Williams, M.L., Goncalves, P., McLean, N., Bowring, S.A., and Jercinovic, M.J., In preparation, *Sub-horizontal fabric in exhumed continental lower crust and implications for lower crustal flow: Athabasca Granulite Terrane, Western Canadian Shield.* For submission to tectonics.

Dumond, G., McLean, N., Williams, M.L., Bowring, S.A., and Jercinovic, M.J., In preparation, *High-resolution dating of deformation in continental lower crust and implications for accessory phase petrogenesis in granite*. For submission to Chemical Geology: Special Issue – Accessory Minerals, eds. Harlov, D.E., and Finger, F.

FUNDING

National Science Foundation Grant EAR #0609935 - $183,389.00, July 1, 2006-June 30, 2008. *"Collaborative Research: Lower Crustal Flow, Shallow Fabric Development, and Craton Assembly -East Athabasca Granulite Terrane, Canada"* funded through NSF-GEO-EAR-Tectonics. Co-wrote and illustrated successfully funded grant under PIs Michael L. Williams (UMass) and Samuel A. Bowring (MIT).

Mineralogical Society of America Grant for Student Research in Mineralogy and Petrology - $5,000, 2006. *"Linking Zircon Growth to Metamorphic Reactions in High-Pressure Mafic Granulites."*

Geological Society of America Graduate Student Research Grant - $1,200, 2005. *"Shallow Fabric Development in an Exposure of Lower Continental Crust: Implications for Lower Crustal Flow From the Snowbird Tectonic Zone, Canada."*

PROFESSIONAL DEVELOPMENT AND SERVICE

Session Convener – American Geophysical Union 2007 Fall Meeting. Co-convener with colleagues Rebecca M. Flowers and Kevin H. Mahan (University of Colorado-Boulder) of session V04 entitled: "Linking Precise Dates to Accurate Ages in Continental Tectonics." Sponsored by the Volcanology, Geochemistry, and Petrology Section and co-sponsored by the Tectonophysics Section. San Francisco, CA. December 2007.

EarthScope "GeoFrame" Workshop. Selected as one of five sponsored student attendees of the a workshop designed to develop an integrated geologic framework for EarthScope's USArray. St. Louis, MO. February 3-5, 2006

ISES Forum III "Growth of a Continent in Space and Time." NSF-sponsored workshop to facilitate discussion towards development of an integrated geologic framework for the USArray seismograph network of EarthScope. San Francisco, CA. December 2005.

Geodynamic Modeling Short Course. Introduction to geodynamic numerical modeling by Chris Beaumount and the Dalhousie Geodynamics Group, Geological Association of Canada-Mineralogical Association of Canada Annual Meeting, Halifax, Nova Scotia. May 2005.

EBSD Workshop. Introduction to techniques and applications of electron backscatter diffraction (EBSD), Dave Prior – Keynote Speaker. Bowdoin College, ME. April 2005.

Rocky Mountain EarthScope Workshop 1. NSF-sponsored workshop to develop hypotheses, models, and collaborations for utilizing EarthScope funding and equipment to study the Rocky Mountain region. September 2004. Socorro, NM.

"elle" Microdynamic Simulation Workshop. Introductory training in "elle" numerical modeling program for studying grain-scale processes applied to deformation and metamorphism. Presented by program developer Mark Jessell at University of Maine. April 2004.

Student Supervisor, Rock Preparation Laboratory. Supervised training and maintenance of rock saws and thin-sectioning equipment for Department of Geosciences, University of Massachusetts-Amherst. Spring 2004-Present.

TEACHING EXPERIENCE

University of Massachusetts, Amherst, Massachusetts.
Vermont Slate Belt Field Trip Leader for undergraduate structural geology. Spring 2007.
Teaching assistant and lab instructor for undergraduate structural geology. Spring 2003.

Texas Tech University, Lubbock, Texas.
Teaching assistant and lab instructor for undergraduate structural geology. Fall 2000 and 2001.

Hanks High School, El Paso, Texas.
Tutored math, science, and English for at-risk high school students; Assisted primary teacher in facilitation of computer-integrated classroom. October 1993-December 1993, 1995, September 1996-1998, and September 1999-May 2000.

LABORATORY EXPERIENCE

Electron probe microanalysis. Wavelength- and energy dispersive spectrometry with the Cameca SX-50 and Cameca SX-100 Ultrachron with specific emphasis on optimized trace element analysis, background modelling, and interference correction.

Micro-structural analysis. Qualitative X-ray mapping, back-scattered electron imaging, scanning electron microscopy, reflected-light, plane-light and cross-polarized-light optical petrography.

Digital image analysis. Digital image analysis utilizing NIH-Image J, Adobe Photoshop, and ERMapper software.

Thermodynamic modelling. Pseudo-section construction via Gibbs Free Energy minimization with ***Perple_X*** to explore phase relationships in metamorphic rocks. Thermobarometric approximations with ***THERMOCALC*** and ***TWEEQU***.

Rock sample preparation. Probe-quality thin-section manufacture, rock crushing /powdering, Wilfley table mineral concentration, heavy liquid and magnetic mineral separation techniques.

FIELD EXPERIENCE

Logistical planning and multi-person deployment, field mapping, sample collection, remote back country camping and hiking in:

1) Western Canadian Shield, Saskatchewan and Northwest Territories, Canada.
2) Caledonides, north-central Norway.
3) Precambrian basement – Grand Canyon, Arizona, USA.
4) Precambrian basement – New Mexico, USA.
5) Laramide and Rio Grande Rift structures – Colorado, New Mexico, and Texas, USA.

ACHIEVEMENTS

Leo M. Hall Memorial Prize for Research: University of Massachusetts-Amherst, 2003-2005, 2007.
Research Review Best Poster Prize: University of Massachusetts-Amherst, 2006.
Gloria Radke Memorial Prize for Research: University of Massachusetts-Amherst, 2004.
Southwestern Bell Chancellor's Fellowship, Texas Tech University, 2000-2001.
National Science Foundation-Model Institutions for Excellence Undergraduate Research Stipend, University of Texas at El Paso (UTEP), 1998-2000.
Department of Geological Sciences, D. B. Smith Memorial Scholarship, UTEP, 1997-2000.
UTEP Outstanding Senior Geological Sciences Major, 1999 and 2000.
Honor Staff Member, Hanks High School, El Paso, Texas, Spring 1998.
College of Science, Dean's List, UTEP, 1997-2000.

PROFESSIONAL AFFILIATIONS

American Geophysical Union.
Geological Society of America.
Mineralogical Society of America.
Mineralogical Association of Canada.