

Dr. Kristin Marie Dorfler

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Education

Virginia Tech, Department of Geosciences *Blacksburg, VA*
Doctor of Philosophy *May 2014*

- **Dissertation:** On Ultra-High Temperature Metamorphism in the Mid-Lower Crust
- Principal Advisor: Dr. Robert J. Tracy

College of William and Mary *Williamsburg, VA*
Bachelor of Science *May 2009*

- B.S. in Environmental Geology, Minor in Chemistry
- **Senior Thesis:** An evaluation of the areal extent of andalusite-bearing rocks, and the timing of low-*P* contact metamorphism in the Hollister Shear Zone, Virginia

Professional Interests

Research

- Integration of field- and microscopic-scale measurements using advanced laboratory instrumentation to aid understanding of global-scale geologic processes
- Utilization of computer software to model and understand the petrogenesis of refractory materials in the Earth's crust

Teaching

- Undergraduate geology courses including: Introductory Geology and Geography; Igneous and Metamorphic Petrology; Mineralogy; Volcanology
- Undergraduate integrated science/art courses that develop a student's ability to read and write about science from a humanities perspective or vice versa (e.g. Volcanology and Human History)
- Outreach and community-sponsored science events for elementary–secondary school children

Related Experience

Teaching

Oberlin College, Geology Department *July 2014 – present* *Oberlin, OH*
Visiting Assistant Professor. My current duties include:

- Teaching three undergraduate geology courses (Mineralogy, Petrology and Volcanoes and Human History) and one upper-level seminar over the 2014-2015 school year
- Developing entire curriculum for the Volcanoes and Human History course and upper-level seminar on reading primary scientific literature
- Advise undergraduate research projects on mineralization, crystal chemistry, and subduction zone thermodynamics

Virginia Tech, Department of Geosciences *Blacksburg, VA*
Graduate Teaching Assistant *August 2009 – May 2014*

- Taught two undergraduate Igneous and Metamorphic Rocks laboratory sections, with 20 students per section (Spring 2010, 2011, 2012, 2013, 2014; see “Awards” section; copies of student reviews available upon request)
- Wrote an updated lab manual for the Igneous and Metamorphic Rocks laboratory and cataloged laboratory samples
- Wrote an enhanced lab manual for the undergraduate Physical Geology laboratory for declared majors (Fall 2010)
- Taught two undergraduate Physical Geology laboratory sections, 20 students per section (Fall 2009 and 2010)

Research

Virginia Tech, Department of Geosciences

Blacksburg, VA

Graduate Research Assistant

August 2009 – May 2014

- Analyzed rocks using a Cameca SX-50 electron microprobe to determine chemical content of minerals and evaluate the significance of mineral microtextures
- Provided instrument expertise to fellow colleagues and researchers
- Determined the process of formation of partially melted rock samples with thermodynamic-based computer modeling programs
- Wrote and published research results in leading geoscience peer-reviewed journals (see “Abstracts and Papers”)
- Organized and executed two field sessions in New York to collect rock samples, map sample locations, and directly supervise undergraduate assistants (Summer 2010 and 2012)

Collections Management

Virginia Tech, Museum of Geosciences

Blacksburg, VA

Petrology Collections Project Manager

May 2014 – July 2014

- Inventoried several hundred teaching and research rock samples within the Geosciences Department building
- Developed a protocol for imaging rock samples and initiated an electronic database of the petrology collection for Virginia Tech
- Developed and installed a protocol for organizing and archiving research sample collections for the Geoscience Department repository

Industry

BP

Integrated Geologist Intern

May 2013 – August 2013

Houston, TX

- Provided direct support to the Gulf of Mexico Exploration New Opportunities team
- Interpreted the structural features of the eastern Gulf of Mexico and produced a database of the timing of formation of each structure
- Integrated the structural geology with isopach and depositional environment maps to determine the movement of a prospective area over geologic time and how it influenced source deposition, reservoir development, trap formation timing and migration pathways

Department of Commerce, National Oceanic and Atmospheric Administration (NOAA)

Washington, DC

Summer Hire/Office Manager

June 2008 – August 2009

- Researched civil search and rescue capabilities for global space-based capability
- Provided direct support to the Director of the National Coordination Office for Space-Based Positioning, Navigation, and Timing
- Developed and executed a new office reorganization and records management plan for the Office of Space Commercialization

Abstracts and Papers

Dorfler, K.M., Caddick, M.J., Tracy, R.J., *accepted with minor revisions October 2014*, Thermodynamic modeling of crustal melting using xenolith analogs from the Cortlandt Complex, New York, USA: *Journal of Petrology*

Dorfler, K.M., 2014, On Ultra-High Temperature Metamorphism in the Mid-Lower Crust, PhD Dissertation, Virginia Polytechnic Institute and State University, p. 1-109.

Dorfler, K.M., Tracy, R.J., Caddick, M.J., 2014, Late-stage orogenic loading revealed by contact metamorphism in the Northern Appalachians, New York: *Journal of Metamorphic Geology*, vol. 32, p. 113-132

Dorfler, K.M., Caddick, M.J., Tracy, R.J., 2013, Formation of corundum-bearing residuum assemblages during rapid contact heating and extraction of high-Si melt from a pelitic xenolith, Cortlandt Complex, NY: *Geological Society of America Abstracts with Programs*, vol. 45, n 7

- Dorfler, K.M.**, Tracy, R.J., 2013, Preservation of regional metamorphic mineral compositions through a later high-T contact metamorphism, Westchester County, NY: Geological Society of America Abstracts with Programs, vol. 45, n 1, p. 128
- Dorfler, K.M.**, Tracy, R.J., Caddick, M.J., 2012, Melting of metapelitic xenoliths in mafic magma, melt removal, and residuum formation at 0.8 GPa: Geological Society of America Abstracts with Programs, vol. 44, n 7
- Owens, B.E., Tracy, R.J., **Dorfler, K.M.**, and Formento, P.E., 2012, Paleozoic high pressure metamorphism in the Maidens Gneiss, Goochland Terrane, VA: Evidence from Gneisses with Kyanite + K-feldspar Assemblages: Geological Society of America Abstracts with Programs, vol. 44, no. 7
- Dorfler, K.M.**, Tracy, R.J., Caddick, M.J., 2011, Extreme metasomatism during high-*P-T* contact metamorphism in southeastern NY, and its tectonic implications, 2011 Fall Meeting, AGU, San Francisco, Calif.
- Tracy, R.J. and **Dorfler, K.M.**, 2010, Contact overprinting of regional metamorphism, New York: *Geochimica et Cosmochimica Acta*, v. 74, p. A1052
- Dorfler, K.M.**, Tracy, R.J., Buchwaldt, R., Owens, B.E., 2009, Evidence for Ordovician-Silurian low-pressure regional metamorphism overprinted by an Alleghanian-age contact event, southeastern Virginia Piedmont: Geological Society of America Abstracts with Programs, vol. 41, no. 7, p. 635
- Dorfler, K.M.**, 2009, An evaluation of the areal extent of andalusite-bearing rocks in the eastern Piedmont of Virginia: Undergraduate thesis, College of William and Mary

Leadership Positions Held

Geological Society of America Student Advisory Council *Denver, CO*

Appointed Member *August 2014 – present*

- As a Charter Member (this Council was created August 2014), lay the foundation for the mission and organization guidelines for the Council for future years
- Provide input and guidance to Geological Society of America Council and Executive Committee on how to better serve the substantial and growing student membership

Geological Society of America Annual Program Committee *Denver, CO*

Appointed Student Representative *July 2013 – present*

- Evaluation of technical and scientific programs for the GSA annual and sponsored meetings, and development of plans to increase the quality of events. The largest of these conference meetings is now projected to include several thousand domestic and international participants
- Assisting in planning of short- and long-term logistics for all GSA meetings and sponsored events

Geological Society of America Southeastern Section

Student Volunteer Coordinator *Blacksburg, VA*
April 10-11, 2014

- Contacted and coordinated student volunteers across the southeastern section of the United States to help facilitate a two-day southeastern section meeting for over 750 meeting participants

Virginia Tech Geosciences Graduate Student Liaison Committee *Blacksburg, VA*

Committee Chair *August 2012 – May 2014*

Committee member *August 2011 – August 2012*

- Facilitated communication between Geosciences graduate students and professorial faculty
- Responsible for organizing and leading meetings each semester for elected student liaisons and professors

Virginia Tech Geosciences Student Research Symposium *Blacksburg, VA*

Abstract Book Committee Chair *Spring Semester 2010 and 2011*

- Lead a four-person committee in developing, editing, and producing an abstract book for a two-day, student-run symposium in which students present their current research to the Department of Geosciences and wider community

Invited Lectures

Oberlin College	March 6, 2014	Oberlin, OH
<i>Presentation title:</i> Deep Secrets: Uncovering Mysteries of Earth's Crust through Metamorphic Petrology		
Marshall University	April 19, 2013	Huntington, WV
<i>Presentation title:</i> It's Getting Hot in Here: Insights into High- <i>T</i> Processes Revealed from Metamorphic Petrology		
Colabaugh Pond Road Residential Group	August 4, 2012	Croton-On-Hudson, NY
<i>Presentation title:</i> The Geology in and around Colabaugh Pond Road: Revealing the exciting world underneath your feet		

Awards, Scholarships, and Special Recognition

• Geoscience Outstanding Graduate Services Award 2013-2014	May 2014
• Graduate Student Career Excellence Award	May 2014
• Southeastern Geological Society of America Travel Grant (\$100)	October 2013
• Geosciences Career Award for Sustained Excellence as a Graduate Teaching Assistant	May 2012
• David R. Wones Geological Scholarship (\$1000)	March 2012
• Aubrey Orange Endowed Award (2 mo. stipend)	March 2012
• Virginia Tech Graduate Student Assembly Travel Fund Program (\$230)	December 2011
• Multicultural Academic Opportunities Program Scholarship	Aug 2010 – Dec 2013
• Southeastern Geological Society of America Graduate Student Research Grant (\$500)	April 2011
• Graduate Teaching Assistant Excellence Merit Certificate	March 2011
• Tillman Teaching Excellence Award 2009-2010 (\$500)	May 2010
• Lowry Geosciences Graduate Research Award (\$1000)	April 2010
• Robinson-Holden Summer Fellowship (3 mo. stipend)	April 2010
• Southeastern Geological Society of America Graduate Student Research Grant (\$500)	April 2010

Professional Development

Short Courses

<u>DMG-MSA Workshop on The Application of Diffusion Studies for the Determination of Timescales in Geochemistry and Petrology</u> Selected student participant for one of 50 available positions	Bochum, Germany	October 2012
<u>MSA Short Course on Diffusion in Minerals and Melts</u> Attendee/Virginia Tech Representative	Napa, CA	December 2010
<u>GeoCanada Short Course on Theriak-Domino</u> Attendee/Virginia Tech Representative	Calgary, AB	May 2010

Conferences

<u>Geological Society of America Southeastern Section Meeting</u> Student Volunteer Coordinator	Blacksburg, VA	April 2014
<u>Geological Society of America Annual Meeting</u> First Author, Oral Presentation/Virginia Tech Representative	Denver, CO	October 2013
<u>Geological Society of America Northeastern Section Meeting</u> First Author, Oral Presentation/Virginia Tech Representative	Bretton Woods, NH	March 2013
<u>Geological Society of America Annual Meeting</u> First Author, Oral Presentation/Virginia Tech Representative	Charlotte, NC	November 2012
<u>American Geophysical Union Fall Meeting</u> First Author, Poster Presentation/Virginia Tech Representative	San Francisco, CA	December 2011

<u>3rd Annual Conference on Higher Education Pedagogy</u> Attendee/Virginia Tech Representative	<i>Blacksburg, VA</i>	<i>February 2011</i>
<u>Goldschmidt Conference</u> Second Author, Oral Presentation/Virginia Tech Representative	<i>Knoxville, TN</i>	<i>June 2010</i>
<u>Geological Society of America Northeast-Southeast Meeting</u> Virginia Tech Representative	<i>Baltimore, MD</i>	<i>March 2010</i>
<u>Geological Society of America Annual Meeting</u> Poster Presenter/Virginia Tech Representative	<i>Portland, OR</i>	<i>October 2009</i>
<u>Geological Society of America Southeastern Section Meeting</u> William and Mary Representative	<i>St. Petersburg, FL</i>	<i>March 2009</i>

Affiliations

- American Geophysical Union
- Geological Society of America
- VT Multicultural Academic Opportunities Program
- Association for Women in Geosciences
- Mineralogical Society of America
- Sigma Gamma Epsilon

Digital Software Expertise

- Microsoft Office
- Adobe Illustrator
- Adobe Photoshop
- ArcGIS10
- ImageJ (NIH)
- Perple_X (bespoke Unix-based thermodynamic program facilitating phase equilibria calculation)
- SeisWorks (Landmark's OpenWorks)