

## Education

### **Ph.D., ACTIVE TECTONICS AND GEOMORPHOLOGY, VIRGINIA TECH, VA (2010)**

Dissertation: Evaluation of Coupled Erosional Processes and Landscape Evolution in the Teton Range, Wyoming. Dr. James A. Spotila, Advisor

### **M.S., STRUCTURAL GEOLOGY, UNIVERSITY OF ILLINOIS URBANA-CHAMPAIGN, IL (2005)**

Thesis: Subsurface Structure and Tectonic Subsidence Across the Illinois Basin and Ozark Dome Boundary. Dr. Stephen Marshak, Advisor

### **B.A., GEOLOGY, MINOR IN ANTHROPOLOGY, LAWRENCE UNIVERSITY, APPLETON, WI (2002)**

## Appointments

- Assistant Professor, Department of Geography-Geology, Illinois State University (Aug. 2010-present)
- Graduate Research Assistant, Department of Geosciences, Virginia Tech, VA (2006-2010)
- Teaching Assistant, Department of Geosciences, Virginia Tech, VA (2005-2010)
- Visiting Scholar, Institute of Geography, University of Edinburgh, Scotland (Fall 2008)
- Earth Scientist Intern, Chevron MidContinent-Alaska Business Unit, Houston, TX (Summer 2008)
- Course Lecturer, Department of Geosciences, Virginia Tech, VA (Spring 2008)
- Earth Scientist Intern, Chevron San Joaquin Valley Business Unit, Bakersfield, CA (Summer 2007)
- Graduate Research Assistant, Department of Geology, University of Illinois Urbana-Champaign, IL (2003-2005)
- Teaching Assistant, Department of Geology, University of Illinois Urbana-Champaign, IL (2003-2005)
- Research Assistant/Technician, Geology Department, Lawrence University, WI (Summer 2001)

## Current Research Interests

### **RATES & CONTROLS ON ALPINE LANDSCAPE EVOLUTION**

Examining the evolution of mountain landscapes and drainage basins as a result of interactions between tectonic, geomorphic and climatic processes. Reconstructions of erosional and tectonic histories in bedrock and recent sedimentary systems include applications of apatite (U-Th)/He thermochronometry, cosmogenic nuclides, and talus mapping.

### **CONNECTIONS BETWEEN GEOMORPHOLOGY & STRUCTURAL GEOLOGY**

Evolution of, and relationships between tectonic (large-scale), structural (small-scale), and geomorphic patterns in ancient and active tectonic settings. Studies include investigations of fractures, faults, and rock strength on the development of talus, rapid erosion rates, and drainage systems. The interactions between faults, rock strength, and knickpoints are also examined.

## Grants Funded

- Illinois Geographical Society, Research Grant Award, *Spatial evaluation of stream erosion and knickpoint evolution using detrital apatite minerals* (2015; \$500).
- Pre-tenure Faculty Initiative Grant (PFIG), College of Arts and Sciences, Illinois State University, *Evaluation of Apatite Age Distributions Between Gravel and Sand Sediments in Glacial and Fluvial Deposits* (2014; \$3500).
- Association of American Geographers Research Grant, *Quantifying variable erosion rates of surface processes in the Teton Range*, (2014; \$1,000)
- Undergraduate New Investigator, American Chemical Society Petroleum Research Fund, *Using Cosmogenic Nuclides to Evaluate Uplift and Erosion of the Guadalupe Mountains, New Mexico*, (2014-2016; \$50,000)
- Early Career Researcher, British Society for Geomorphology, *Evaluation of knickpoint erosion using detrital apatite thermochronology*, (2014; £5000 British pounds)

- Undergraduate Research Fellowship, Research and Sponsored Programs, Illinois State University, *Apatite Quality and Bedrock Distribution in the Guadalupe and Sacramento Mountains, New Mexico*, Awarded to Monica Mustain (2013; \$1000)
- Teaching Development Travel Grant, Center for Teaching and Learning, Illinois State University, (2013; \$200)
- New Faculty Initiative Grant (NFIG), College of Arts and Sciences, Illinois State University, *Measuring rockwall retreat and mass wasting hazards in Grand Teton National Park, Wyoming*, (2011; \$3500).
- D.R. Wones Summer Fellowship, Virginia Tech, *Evaluation of Coupled Erosional Processes and Landscape Evolution in the Teton Range, Wyoming*, (2010; \$1513).
- Geological Society of America Structural Geology and Tectonics Division Student Travel Grant to attend GSA Annual Meeting (2009; \$250).
- Geological Society of America Southeastern Section Student Travel Grant to attend GSA Annual Meeting (2005, 2007, 2009; \$310).
- T.T. Jeffries Summer Fellowship, Virginia Tech, *Relief history and coupling of erosional processes in the Teton Range, Wyoming* (2009; \$3026).
- Wallace D. Lowry Geosciences Endowed Graduate Scholarship Fund, Virginia Tech (2007, 2008, 2009; \$2500).
- Multicultural Academic Opportunities Program, Graduate Student Scholars Program Award, Virginia Tech (2006, 2007, 2008, 2009; \$27,765).
- Graduate Research Development Program Grant, Virginia Tech (2006, 2007, 2008; \$1350).
- Geological Society of America Graduate Research Grant (2007; \$1500).
- Travel Fund Program Grant, Virginia Tech (2007, 2009; \$800).
- D.R. Wones Geology Scholarship Fund, Virginia Tech, *Relief history and coupling of erosional processes in the Teton Range, Wyoming* (2006; \$1000).
- Roscoe Jackson Graduate Research Award, University of Illinois at Urbana-Champaign, *Subsurface Structure and Tectonic Subsidence Across the Illinois Basin and Ozark Dome Boundary* (2005; \$2800).
- Morris M. and Ada B. Leighton Graduate Research Award, University of Illinois, Urbana-Champaign (2004; \$1000).
- Sigma Xi, Grants in Aid of Research (2004; \$1000).

## Publications <sup>†</sup>Indicates undergraduate student co-authors, <sup>\*</sup>Indicates graduate student co-authors

### PEER REVIEW PUBLICATIONS

- Tranel, L.M.** and <sup>†</sup>Strow, M.L., Analysis of cosmogenic nuclides in amalgamated talus fan cobbles to study alpine erosion in the Teton Range, Wyoming, *Geosphere*, v. 13, no. 1. 10.1130/GES01297.1, in press.
- <sup>\*</sup>Ritchie, A.J. and **Tranel, L.M.**, 2016, The Effects of Variable Precipitation on Discharge and Sediment Transport in Streams in the Teton Mountain Range, Wyoming, USA, *International Journal of Environmental and Agriculture Research*, v. 2, n. 6, 119-129.
- Wagle, J., Malone, D.H., Peterson, E.W., **Tranel, L.M.**, 2016, Porosity Controls on Secondary Recovery at the Loudon Field, South-Central Illinois, Interpretation.
- Tranel, L.M.**, Spotila, J.A., Binnie, S.A., Freeman, S.P.H.T., 2015, Quantifying variable erosion rates to understand the coupling of surface processes in the Teton Range, Wyoming, *Geomorphology*, v. 228, 409-420.
- Malone, D.H., Craddock, J.P., **Tranel, L.M.**, and <sup>†</sup>Mustain, M.R., 2014, Age and Provenance of Eocene Volcanic Rocks and Hominy Peak, Northern Teton Range, WY: Implications for the Emplacement of the Heart Mountain Slide, manuscript in press at *The Mountain Geologist*, v. 57, n. 4.
- Tranel, L.M.**, Spotila, J.A., Kowalewski, M.J., and <sup>†</sup>Waller, C.M., 2011, Spatial variation of erosion in a small, glaciated basin in the Teton Range, Wyoming, based on detrital apatite (U-Th)/He thermochronology, *Basin Research*, v. 23, 571-590.

### REPORTS AND FIELD GUIDES

- Nelson, R.S., **Tranel, L.M.**, and Malone, D.H., 2016, Teacher's Guide to the Rocks and Resources of the Starved Rock State Park and Wedron Areas, Illinois, Illinois Association of Aggregate Producers Teachers' Workshop: Rocks, Minerals, and Mining in Today's Society, July 11-13.
- <sup>\*</sup>Ritchie, A.J. and **Tranel, L.M.**, 2012, "Sediment Transport and Bedload Lithology in Streams of the Teton Range, Wyoming," *University of Wyoming National Park Service Research Center Annual Report: Vol. 35, Article 23*. Available at: [http://repository.uwyo.edu/uwnpsrc\\_reports/vol35/iss1/15](http://repository.uwyo.edu/uwnpsrc_reports/vol35/iss1/15)
- Tranel, Lisa M.**; <sup>\*</sup>Ritchie, Amber; and <sup>†</sup>Strow, Meredith, 2011, "Investigation of Postglacial Sediment Storage and Transport in Garnet Canyon, Teton Range, Wyoming," *University of Wyoming National Park Service Research Center Annual Report: Vol. 35, Article 15*. Available at: [http://repository.uwyo.edu/uwnpsrc\\_reports/vol34/iss1/23](http://repository.uwyo.edu/uwnpsrc_reports/vol34/iss1/23)
- Tranel, Lisa**; Brown, Summer; and Spotila, James, 2008, "Uplift and Denudation of the Teton Range, Wyoming," *University of Wyoming National Park Service Research Center Annual Report: Vol. 31, Article 24*. Available at: [http://repository.uwyo.edu/uwnpsrc\\_reports/vol31/iss1/24](http://repository.uwyo.edu/uwnpsrc_reports/vol31/iss1/24)

**Tranel, Lisa** and Spotila, James, 2006, "Relief History and Coupling of Erosional Processes in the Teton Range, Wyoming," *University of Wyoming National Park Service Research Center Annual Report: Vol. 30, Article 27*. Available at: [http://repository.uwyo.edu/uwnpsrc\\_reports/vol30/iss1/27](http://repository.uwyo.edu/uwnpsrc_reports/vol30/iss1/27)

## MEETING ABSTRACTS

- Tranel, L.M.**, †Schaefer, K., †Rothschild, T.J., and \*Happel, A.A., (2016), Spatial patterns of catchment erosion on the Rio Grande Rift margin, Guadalupe Mountains, Texas and New Mexico, *Eos, Transactions, American Geophysical Union*, v.96, no. FALL MEETING SUPPL., Abstract EP54A-02
- †Csanda, D. and **Tranel, L.M.**, (2016), The effects of glacial and fluvial transport on detrital apatite minerals, *Abstracts with Programs-Geological Society of America*, v. 48.
- Tranel, L.M.**, (2016), Stream morphology and sediment transport in Garnet Canyon, Teton Range, Wyoming, *Abstracts with Programs-Geological Society of America*, v. 48.
- \*Schoenmann, S., **Tranel, L.M.**, †Garber, K.L., †Neundorff, J.A., †Schaefer, K.N., (2016), Evaluating relationships between rock strength and landscape evolution in the southern Guadalupe Mountains, Texas, *Abstracts with Programs-Geological Society of America*, v. 48.
- \*Happel, A.A., **Tranel, L.M.**, †Neundorff, J.A., †Garber, K.L., †Schaefer, K.N., †Babin, J.T., and †Cremer, C., (2016), Evaluating fault line escarpment exposure in the Guadalupe Mountains of West Texas and New Mexico, *Abstracts with Programs-Geological Society of America*, v. 48.
- †Salinas, C. and **Tranel, L.M.**, (2016), Investigating recently active faults based on the geomorphology of ephemeral channels in the Guadalupe and Brokeoff Mountains, West Texas and Southeastern New Mexico, *Abstracts with Programs-Geological Society of America*, v. 48.
- Tranel, L.M.** and Garber, K., (2016), Spatial Evaluation of Stream Erosion and Knickpoint Evolution using Detrital Mineral Tracers and Rock Strength, *Illinois Geographical Society Annual Meeting*.
- †Salinas, C. and **Tranel, L.M.**, (2015), Investigating recently active faults using geomorphic analyses of ephemeral channels in the Guadalupe Mountains, West Texas and New Mexico, *Abstracts with Programs-Geological Society of America*, v. 47.
- †Csanda, D. and **Tranel, L.M.**, (2015), Evaluation of apatite age distributions between gravel and sand sediments in glacial and fluvial deposits, *Abstracts with Programs-Geological Society of America*, v. 47.
- †Garber, K. and **Tranel, L.M.**, (2015), Using rock strength analysis to determine the spatial distribution of erosion and evolution of knickpoints in a stream channel within the Sacramento Mountains, NM, *Abstracts with Programs-Geological Society of America*, v. 47.
- Tranel, L.M.**, (2014), Using cosmogenic nuclides from amalgamated talus cobbles to assess alpine erosion in the Teton Range, *Eos, Transactions, American Geophysical Union*, v.94, no. FALL MEETING SUPPL., Abstract EP53B-3648
- Tranel, L.M.**, †Swanson, B.S., †Strow, M.L., Bannister, R.A., (2013), Quantifying alpine valley wall erosion rates using cosmogenic nuclides and volumetric estimates of talus deposits, Teton Range, Wyoming, *Abstracts with Programs-Geological Society of America*, v. 45.
- †Zawacki, E.E., \*Ritchie, A.J., Hoffman, L.L., **Tranel, L.M.**, (2013), Transport of detrital sediments in low-gradient stream sections in the Teton Mountain Range and the Guadalupe and Sacramento Mountains, *Abstracts with Programs-Geological Society of America*, v. 45.
- \*Hoffman, L.L., and **Tranel, L.M.**, (2013), Spatial variability of exhumation along the eastern margin of the Rio Grande Rift, *Abstracts with Programs-Geological Society of America*, v. 45.
- Tranel, L.M.**, (2013), Incorporating Service Learning in a Geographic Information Systems Class, *ESRI Education GIS Conference*, Paper 1305, July 6, 2013.
- Tranel, L.M.**, (2012), Evaluation of lithologic controls on ridge erosion rates in the Teton Range, Wyoming, *Eos, Transactions, American Geophysical Union*, v.92, no. FALL MEETING SUPPL., Abstract EP41C-0813 Dec. 2012.
- Tranel, L.M.**, †Strow, M.L., †Luevano, J.A., †Swanson, B.S., (2012), Spatial variability in ridge erosion since the Last Glacial Maximum in the Teton Range, Wyoming, *Abstracts with Programs-Geological Society of America*, v. 44, no. 7, p. 461.
- Tranel, L.M.**, (2012), Rock Mass Strength Controls on Erosion in the Teton Range, Wyoming, *43<sup>rd</sup> Annual Binghampton Geomorphology Symposium*, September 21-23, 2012.
- Tranel, L.M.**, Ritchie, A.J., and †Morgan, S., (2011), The impact of stream and hillslope interactions on sediment transport in Garnet Canyon, Teton Range, Wyoming, *Eos, Transactions, American Geophysical Union*, v.91, no. FALL MEETING SUPPL., Abstract EP34A-08 Dec. 2011.
- Tranel, L.M.**, Using Online GIS Resources to Teach Natural Disasters, *Abstracts with Programs-Geological Society of America*, v. 43, no. 5, p. 403.
- Spotila, J.A., Rodriguez, R., and **Tranel, L.M.**, Exploring approaches to field characterization of bedrock erodibility: Revisiting the Selby Rock-Mass-Strength System, *Eos, Transactions, American Geophysical Union*, v.91, no. FALL MEETING SUPPL., Abstract EP41D-0737 Dec. 2010.

- Spotila, J.A., Kennedy, L.M., Durden, A., DePew, K., Smithka, I., Cunningham, C., Marshall, J.S., Prince, P.S., and **Tranel, L.M.**, 2010, Paleoseismic investigations of the Middle America Trench on the Nicoya Peninsula, Costa Rica: a feasibility study of the Tamarindo Estuary, Abstracts with Programs-Geological Society of America, v. 42, no. 5, p. 594.
- Tranel, L.M.**, Spotila, J.A., Binnie, S.A., 2009, Assessment of Ridge Denudation Using Cosmogenic Radionuclides and Hillslope Deposits in the Teton Range, Wyoming, Eos, Transactions, American Geophysical Union, v.90, no. FALL MEETING SUPPL., Abstract EP51B-0599 Dec. 2009.
- Tranel, L.M.**, Spotila, J.A., Binnie, S.A., 2009, Evaluation of erosion variability and drainage basin relief using detrital apatite thermochronology in the Teton Range, Wyoming, Abstracts with Programs-Geological Society of America, v. 41, no. 7, p. 306.
- Brown S.J., Spotila, J.A., **Tranel, L.M.**, Krugh, W.C., Carrapa, B., Thigpen, J.R., 2009, Combining apatite (U-Th)/He and fission track dating: implications for differential uplift of the Teton Range and initiation of the Teton Fault, Wyoming, Abstracts with Programs-Geological Society of America, v. 41, no. 7, p. 54.
- Brown, S.J., Spotila, J.A., Thigpen, J.R. and **Tranel, L.M.**, 2008, Refining the Temporal and Spatial Evolution of the Teton Range, Wyoming, from Integrated Apatite (U-Th)/He and Structural Analyses, Abstracts with Programs-Geological Society of America, v. 40, no. 6, pp.148-149.
- Tranel, L.M.**, 2008, Effects of coupling glacial valley and hillslope erosion on relief history in the Teton Range, Wyoming, 13th Annual Virginia Tech Geosciences Student Research Symposium, Feb. 28-29, Blacksburg, VA.
- Tranel, L.M.**, Spotila, J.A., †Dennen, R.L., †Hetland, B.R., †Morgan, S.A., and †Waller, C.M., 2007, Relief History and Coupling of Glacial Valley and Hillslope Erosion in the Teton Range, Wyoming, Eos, Transactions, American Geophysical Union, v.88 , no. FALL MEETING SUPPL., Abstract C41A-0053, Dec. 2007.
- Tranel, L.M.**, and Spotila, J.A., 2007, Uniformity of drainage basin erosion and relief based on detrital thermochronometry and landscape analysis of the Teton Range, Wyoming, Abstracts with Programs-Geological Society of America, v. 39, no. 6, p. 107.
- Tranel, L.M.**, 2007, Effects of glacial and fluvial erosion on relief history, Teton Range, Wyoming, 12th Annual Virginia Tech Geosciences Student Research Symposium, Mar. 1-2, Blacksburg, VA.
- Tranel, L.M.**, 2006, Effects of glacial and fluvial erosion on relief history using detrital apatite (U-Th)/He dating techniques, Teton Range, Wyoming, 11th Annual Virginia Tech Geosciences Student Research Symposium, Mar. 2-3, Blacksburg, VA.
- Marshak, S., Brown, S.R., and **Tranel, L.M.**, 2005, Ideas on the origin and evolution of intracratonic plateau uplifts: insight from studies of the Ozark Plateau (USA Midcontinent), Abstracts with Programs-Geological Society of America, v. 37, no. 7, p. 378.
- Tranel, L.M.**, 2005, Subsurface Model of the Ozark Plateau and Illinois Basin, Midcontinent USA, in Abstracts, Fourth Annual UIUC Earth Research Review, University of Illinois at Urbana-Champaign, Departments of Geology, Geography, & Atmospheric Sciences.

## Advising of Student Research

### ILLINOIS STATE UNIVERSITY GRADUATE

- Monique Rutte, (Masters: 2016-Present)
- Audrey Happel, Evaluating Fault Line Escarpment exposure in the Guadalupe Mountains of West Texas and New Mexico (Masters: 2015- Present)
- Samuel Schoenmann, Evaluating Relationships between Rock Strength and Landscape Evolution in the Southern Guadalupe Mountains, Texas, (Masters: 2015- Present)
- Anas Rabie (Masters: Summer 2013- November 2013)
- Lauren Hoffman, Spatial Distribution of Erosion Patterns Along the Eastern Margin of the Rio Grande Rift (Masters: 2012-2014)
- Amber Ritchie, The Effect of Channel Morphology and Lithology on Sediment Transport in Streams of the Teton Mountain Range, Wyoming USA (Masters: 2011-2012)

### ILLINOIS STATE UNIVERSITY UNDERGRADUATE

- Nicole Axtolis, Boulder Lichen Growth (Undergraduate: Fall 2016-current)
- Jeremy Babin, (Undergraduate: Spring 2016-current)
- Jeremy Neundorff, (Undergraduate: Spring 2016-current)
- Kacey Garber, Using rock strength analysis to determine the spatial distribution of erosion and evolution of knickpoints in a stream channel within the Sacramento Mountains, NM (Undergraduate: Sumer 2015-current)
- Dakota Csanda, Evaluation of apatite age distributions between gravel and sand sediments in glacial and fluvial deposits (Undergraduate: Fall 2014-current)
- Christine Salinas, Evaluation of stream long profiles in the Guadalupe Mountains (Undergraduate: Fall 2014-current)
- Tyler Rothschild, (Undergraduate: Fall 2014-Summer 2015)
- Kirsten Schaefer, (Undergraduate: Spring 2015 and 2016)
- Elena Topping, Evaluation of stream long profiles in the Teton Mountains (Undergraduate: Fall 2014)

- Monica Mustain, Apatite Quality and Bedrock Distribution in the Guadalupe and Sacramento Mountains, New Mexico (Undergraduate: Fall 2013)
- Abigail Martens, Evaluation of Apatite Quality (Undergraduate: Fall 2013)
- Emily Zawacki, Transport of detrital sediments in low gradient stream sections in the Teton Mountain Range and the Guadalupe and Sacramento Mountains (Undergraduate from Lawrence University: Summer 2013)
- Brad Swanson, Creating talus surfaces and volume estimates in GIS (Undergraduate: Summer & Fall 2012)
- Jonathan Luevano, Assessing rock mass strength in the Teton Range (Undergraduate: Summer & Fall 2012)
- Meredith Strow, Ridge erosion and talus weathering (Undergraduate: Spring 2012)
- Joshua Groth, Sediment transport in glaciers and streams (Undergraduate: Spring 2012)

#### **VIRGINIA TECH UNDERGRADUATE**

- Sally Morgan, Stream characteristics in Garnet Canyon (Undergraduate: 2008)
- Claire Waller, Examination of distribution and quality of apatite in the Teton Range, WY (Undergraduate: 2007)
- Sally Morgan, Measurements and interpretations of joints in the Tetons (Undergraduate: 2007)
- Robert Dennen, Quartz weathering in Garnet Canyon (Undergraduate: 2006)
- Brianna Hetland, Jenny Lake Moraine clast provenance (Undergraduate: 2006)

## **Academic & Teaching Honors**

- Geosciences Outstanding Service Recognition Award, Virginia Tech (2009-2010)
- Alternate, American Association of University Women American Fellowships Program (2009 – 2010)
- Honorable Mention, Penelope Hanshaw Scholarship from Association for Women Geoscientists Potomac Chapter of the AWG Foundation (2006)
- Incomplete List of Teachers Ranked as Excellent by their Students, University of Illinois, Office of Instructional Resources (Spring, 2004)
- Franklin Field Camp Scholarship, University of Illinois, Urbana-Champaign (2004)
- Dean's Honor List, Lawrence University (2001-2002)
- NCAA Division III Midwest Conference, Academic All Conference for Track, Lawrence University (2001, 2002)
- NCAA Division III Midwest Conference, Academic All Conference for Cross Country, Lawrence University (2001)
- Jo Daviess County Association Home and Community Education Scholarship, Jo Daviess County, Illinois (2001)
- Eloise Frick Cherven Memorial Fund Award, Lawrence University (2001)
- Charles A. Stark Scholarship, Lawrence University (2000)

## **Teaching Experience**

#### **INTRODUCTORY-LEVEL COURSES**

- Minerals, Rocks, Fossils and Maps (Fall and Spring 2013-2016)
- Natural Disasters (Fall 2010-2013, Spring 2012, 2016)
- Physical Geology (Course instructor, Spring 2008; Teaching assistant, Fall 2003, Spring 2004, Spring 2005, Fall 2005, Spring 2006)
- Geology of National Parks (Teaching assistant, Spring 2005)

#### **UPPER-LEVEL COURSES**

- Geomorphology (Spring 2014-Present)
- Sedimentology (Fall 2010-2011)
- Field Camp (May-June 2011-2013, 2015)
- Geographic Information Systems (Spring 2011-2013, Fall 2014-Present)
- Geology of Illinois: Teaching Rocks, Minerals, and Mining (Summer 2013-Present)
- Geology Field Observations (Teaching & field assistant; Spring 2007, Spring 2009)
- Structural Geology (Teaching assistant responsible for laboratory curriculum; Fall 2004)

## **Research & Professional Experience**

#### **DEPARTMENT OF GEOGRAPHY-GEOLOGY, ILLINOIS STATE UNIVERSITY, NORMAL, IL**

- Mapped hillslope deposits with field and digital elevation models.
- Investigated outcrop rock mass strength properties.

- Advised graduate investigations on stream discharge, sediment transport, knickpoint analyses and thermochronology.
- Analyzed bedrock for cosmogenic nuclide erosion rates with assistance from Purdue University PRIME Lab.

#### **DEPARTMENT OF GEOSCIENCES, VIRGINIA TECH, BLACKSBURG, VA**

- Measured bedrock and sediment ages with apatite (U-Th)/He thermochronometry.
- Analyzed apatite grains using scanning electron microscopy (SEM) and cathodoluminescence microscopy (CL).
- Defined stream networks and drainages and created surface maps with GIS.
- Mapped geomorphic features in the field and collected bedrock and sediment samples.

#### **INSTITUTE OF GEOGRAPHY, UNIVERSITY OF EDINBURGH, SCOTLAND**

- Cosmogenic nuclide laboratory work with <sup>10</sup>Be and <sup>26</sup>Al sample preparation.

#### **CHEVRON MIDCONTINENT-ALASKA BUSINESS UNIT, HOUSTON, TX**

- Seismic interpretation and attribute computation from amplitude data using Seisworks to map carbonate sequence stratigraphy and reservoir characteristics.

#### **CHEVRON SAN JOAQUIN VALLEY BUSINESS UNIT, BAKERSFIELD, CA**

- Reservoir characterization using Openworks and Geolog to correlate well log data and calculate formation porosity, permeability, volume and saturation.

#### **DEPARTMENT OF GEOLOGY, UNIVERSITY OF ILLINOIS, URBANA, IL**

- Subsurface modeling of the Illinois Basin using Landmark Graphics Z-Map+ and Powermodel.
- Modeled bedrock surfaces using well log information in GIS.
- Analyzed rates of subsidence in the Illinois Basin.

#### **GEOLOGY DEPARTMENT, LAWRENCE UNIVERSITY, APPLETON, WI**

- Monitored groundwater wells in a wetland on the shore of Lake Winnebago, WI.
- Performed hydrometer and loss of ignition tests on soils.

## **Professional Development**

- *Introduction to Structure from Motion (SfM) Photogrammetry for Earth Science Research and Education* Geological Society of America Short Course (September 24, 2016).
- *Innovative Approaches to Teaching Sedimentary Geology, Geomorphology, and Paleontology*, On the Cutting Edge Professional Development Program, National Association of Geoscience Teachers, University of St. Thomas, St. Paul, MN (2014).
- *Competitive Research & Curriculum Grant Writing Workshop*, Illinois State University Office of Research and Sponsored Programs and the Grants and Foundation Relations Office at Illinois Wesleyan University (September 14, 2013)
- *Symposium on Teaching and Learning*, Center for Teaching, Learning, and Technology (CTLT), Illinois State University (January 2012-2013, 2015)
- *Introduction to Remote Sensing*, Geological Society of America Short Course (November 4, 2012).
- *Virtual GIS Workshop*, Science Education Resource Center (March 2011-February 2012)
- *New Faculty Orientation*, Illinois State University (2010).
- *Teaching, Research, and Managing Your Career Workshop for Early Career Geoscience Faculty*, On the Cutting Edge Professional Development Program, College of William and Mary, Williamsburg, VA (2010).
- *Establishing an Undergraduate Research Program Workshop*, Council on Undergraduate Research, Geological Society of America Annual Meeting in Portland, Oregon (2009).
- *Writing Successful Grants and Strategies for Success Workshop*, Faculty Development Institute at Virginia Tech (2009).
- National Science Foundation ADVANCE VT graduate student workshops for women in sciences and engineering (2006 – 2009).
- Preparing the Future Professoriate Certificate Program: Coursework offered through the Graduate School at Virginia Tech to prepare graduate students for faculty positions. Courses included: *Preparing the Future Professoriate* (2006), *Contemporary Pedagogy* (2006), *Computational Science Workshop* (2007), *Citizen Scholar* (2008), and *Global Perspectives* (2010).
- *Center for Interactive Smart Oilfield Technologies (CiSoft) Academy*. Two-day workshop offered to Chevron interns through the University of Southern California Viterbi School of Engineering, Los Angeles, CA (2007).
- *Using GPS Technology Effectively for Field Research*, Virginia Tech Outreach and International Affairs (2007).
- *The Crash Course in Log Analysis, An EXCEL Spreadsheet Workshop*, Sponsored by the Midwest Region Petroleum Technology Transfer Council and the Illinois Geological Society, Grayville, IL (2004).

## **Academic & Professional Service**

- North Central Section Delegate, Association of Women Geoscientists (2016-Present)
- North Central Section Alternate Delegate, Association of Women Geoscientists (2011-2016)
- Outstanding Student Paper Award Judge, American Geophysical Union Annual Meeting (2011)
- Student Volunteer, Geological Society of America Annual Meeting, Portland, Oregon (2009)
- Judge for the Earth Science Division at the Blue Ridge Highlands Regional Science Fair (2009)
- Gamma Beta Phi Service and Honor organization, Virginia Tech (2007 – 2009)
- President, Women in Geosciences at Virginia Tech (Fall 2007, Spring 2008)
- Presentation to the Roanoke Valley Mineral and Gem Society (2008)
- Student Volunteer, Geological Society of America Annual Meeting, Denver, Colorado (2007)
- Geosciences Student Research Symposium Planning Committee, Virginia Tech (2006 – 2007)
- Geosciences Graduate Student Recycling Coordinator, Virginia Tech (2006 – 2007)
- Student Volunteer, Geological Society of America Annual Meeting, Philadelphia, Pennsylvania (2006)
- Student Volunteer, Geological Society of America Annual Meeting, Salt Lake City, Utah (2005)
- Fourth Annual UIUC Earth Research Review Planning Committee, University of Illinois at Urbana-Champaign (2005)

## **Service in the Community**

- Illinois State University Mentors for Kids Stream Table Presentation, October 2013 and March 2014. Mentored students who lead activities Fall 2014.
- Assisted the Illinois Association of Aggregate Producers Public Information and Education Workshop for Teachers, July 2013-2014.
- Stream table collaboration with Friends of Kickapoo Creek.
- Mapping Neighborhoods for Habitat for Humanity Trick or Treat Fundraising Events, Organized student projects in Geographic Information Systems classes to assess number of houses and demographic information for successful fundraising.
- Nature Hike Field Trip Leader, VT-STARS academic program for junior high/high school students (2005)
- Naturalist Intern, Allegheny County Parks, South Park, PA, Student Conservation Association/AmeriCorps Internship, Summer (2003)
- Boosting Alcohol Consciousness Concerning the Health of University Students, Lawrence University (1998 – 2002); President (1999 – 2000)
- Lantern Community Service, Lawrence University (1998 – 2001); Secretary (1999 – 2000)
- Habitat for Humanity, Lawrence University (1999 – 2001)

## **Professional Membership**

- Geological Society of America (GSA)
- American Geophysical Union (AGU)
- Association for Women Geoscientists (AWG)
- American Association of Petroleum Geologists (AAPG)
- Association of American Geographers (AAG)
- The American Quaternary Association (AMQUA)
- Illinois GIS Association (ILGISA)
- Illinois Association of Aggregate Producers – Public Information and Education Committee (IAAP-PIE)
- National Association of Geoscience Teachers (NAGT)
- British Society for Geomorphology (BSG)