

# Matthew CrossJungers

DEPARTMENT OF EARTH & ENVIRONMENTAL SCIENCES  
DENISON UNIVERSITY  
100 WEST COLLEGE ST GRANVILLE, OH 43023  
jungersm@denison.edu

## EDUCATION

---

2014	Arizona State University <b>PhD—Geology</b>	Tempe, AZ
2008	University of Vermont <b>MS—Geology</b>	Burlington, VT
2003	Williams College <b>BA—Geosciences</b>	Williamstown, MA

## PROFESSIONAL EXPERIENCE

---

2016–present	Denison University – <b>Assistant Professor</b> <ul style="list-style-type: none"><li>• <i>Geomorphology</i> – lecture and lab</li><li>• <i>Planet Earth</i> – introductory geosciences lecture and lab</li><li>• <i>Environmental Hydrology</i> – lecture and lab</li><li>• <i>Applied GIS for Earth and Environmental Sciences</i> – lecture and lab</li><li>• <i>Soils and Civilizations</i> – topical introductory lecture and lab</li><li>• <i>Landscapes of Time</i> – writing workshop (W101) for first-year students</li></ul>	Granville, OH
2015 – 2016	Washington & Lee University – <b>Visiting Assistant Professor</b> <ul style="list-style-type: none"><li>• <i>Geomorphology</i> – lecture and lab</li><li>• <i>Hydrology</i> – lecture and lab</li><li>• <i>Water Resources</i> – intro level lecture</li><li>• <i>Environmental Field Methods</i> – Four-week, field-based course focused on applied approaches to solving environmental problems.</li></ul>	Lexington, VA
2014 – 2015	Oberlin College – <b>Visiting Assistant Professor</b> <ul style="list-style-type: none"><li>• <i>Applied GIS</i> lecture and lab</li><li>• <i>Living on Borrowed Water?</i> – 100-level intro science class comparing and contrasting the sustainability of water resources in the Great Lakes Basin vs. the Colorado River Basin</li><li>• <i>Earth Surface Processes</i> lecture and lab</li><li>• <i>Oxford-style Tutorial on Earth Surface Processes</i> – intensive reading and writing seminar (for more information on the spirit of Oxford-style tutorials: <a href="http://www.williams.edu/academics/tutorials">http://www.williams.edu/academics/tutorials</a>)</li></ul>	Oberlin, OH
2008 - 2014	Arizona State University – <b>Teaching &amp; Research Assistant</b> <ul style="list-style-type: none"><li>• <i>Solving Environmental Problems</i> – Capstone class for School of Earth and Space Exploration seniors (<a href="http://goo.gl/vcMjVQ">http://goo.gl/vcMjVQ</a>)</li><li>• <i>Water Planet</i> lecture and lab (<a href="http://goo.gl/gMzS4C">http://goo.gl/gMzS4C</a>)</li><li>• <i>Geomorphology</i> lecture and lab</li><li>• <i>Introduction to Geology</i> lecture and lab</li></ul>	Tempe, AZ
2007	University of Vermont – <b>Lecturer</b> <ul style="list-style-type: none"><li>• <i>Natural Hazards</i> lecture, lab, and curriculum development</li></ul>	Burlington, VT

2004 - 2007	University of Vermont – <b>Teaching Assistant</b>	Burlington, VT
	<ul style="list-style-type: none"> <li>• <i>Introductory Geology</i> lab</li> <li>• <i>Natural Hazards</i> lecture and lab</li> </ul>	
2001 - 2003	Williams College – <b>Teaching Assistant</b>	Williamstown, MA
	<ul style="list-style-type: none"> <li>• <i>Geomorphology</i> lecture and lab</li> <li>• <i>GIS and Remote Sensing</i> lab</li> <li>• <i>Introduction to Asian Art</i></li> </ul>	
2000 - 2003	Williams College – <b>PE Instructor</b>	Williamstown, MA
	<ul style="list-style-type: none"> <li>• <i>Nordic skiing</i></li> <li>• <i>Canoeing</i></li> </ul>	

## **PUBLICATIONS**

---

\*Denotes student co-author

### *Refereed Papers*

**Jungers M.C.**, Heimsath A.M. 2022. 5.03 - Mountain and Hillslope Geomorphology | Processes, Transport, Deposition and Landforms: Controls on Rates of Soil Creep. In *Treatise on Geomorphology (Second Edition)*, Shroder J. (F (ed). Academic Press: Oxford; 33-45

**Jungers, M.C.** and Heimsath, A.M., 2019. Transverse canyon incision and sedimentary basin excavation driven by drainage integration, Aravaipa Creek, AZ, USA. *Earth Surface Processes and Landforms*. doi: 10.1002/esp.4556

Pfeiffer, M., Latorre, C., Santoro, C.M., Gayo, E.M., Rojas, R., Carrevedo, M.L., McRostie, V.B., Finstad, K.M., Heimsath, A., **Jungers, M.C.** and De Pol-Holz, R., 2018. Chronology, stratigraphy and hydrological modelling of extensive wetlands and paleolakes in the hyperarid core of the Atacama Desert during the late quaternary. *Quaternary Science Reviews*, 197, pp.224-245.

**Jungers, M.C.** and Heimsath, A.M., 2015, Post-Tectonic Landscape Evolution of a Coupled Basin and Range: Pinaleno Mountains and Safford Basin Southeastern Arizona. *Geological Society of America Bulletin*. doi:10.1130/B31276.1

Oerter, E., Amundson, R., Heimsath, A., **Jungers, M.**, Chong, C., and P. Renne, Early to Middle Miocene climate in the Atacama Desert of Northern Chile, *Palaeogeogr. Palaeoclimatol. Palaeoecol.* (2015), <http://dx.doi.org/10.1016/j.palaeo.2015.10.038>

**Jungers, M.C.**, Heimsath, A.M., Amundson, R., Balco, G., Shuster, D., and G. Chong, Active erosion deposition cycles in the hyperarid Atacama Desert of Northern Chile. *Earth and Planetary Science Letters* (2013), <http://dx.doi.org/10.1016/j.epsl.2013.04.005>

Heimsath A.M., and **Jungers M.C.** (2013) Processes, Transport, Deposition, and Landforms: Quantifying Creep. In: John F. Shroder (ed.) *Treatise on Geomorphology*, Volume 7, pp. 138-151. San Diego: Academic Press.

**Jungers, M. C.**, P. R. Bierman, A. Matmon, K. Nichols, J. Larsen, and R. Finkel, 2009, Tracing hillslope sediment production and transport with in situ and meteoric <sup>10</sup>Be, *Journal of Geophysical Research – Earth Surface*, 114, F04020, doi:10.1029/2008JF001086.

Cox, R. Bierman, P., **Jungers, M.C.**, and Rakotondrazafy. M., 2009, Erosion rates and sediment sources in Madagascar inferred from <sup>10</sup>Be analysis of lavaka, slope, and river sediment, *Journal of Geology*, volume 117, p. 363–376, doi:10.1086/598945.

Abstracts

- Jungers, M.C.** 2022, *Drainage Reorganization Driven by Proglacial Lake Spillover Along the Wisconsinan and Illinoian Ice Margins of Central and Southeastern Ohio*, Geological Society of America Abstracts with Programs. Vol. 54, No. 4 doi: 10.1130/abs/2022NC-375818
- \*Gunther, D. and **Jungers, M.C.** 2021, *Quantifying the Role of Tree Throw in Hillslope Processes of the Western Appalachian Plateau*, Geological Society of America Abstracts with Programs. Vol. 53, No. 6 doi: 10.1130/abs/2021AM-367651
- Jungers, M.C.**, \*Van Horn, B., \*O'Bryan, S., \*Das-Toke, S., \*Granke, S., and Persico, L., 2020, *Beaver-Induced Changes to Reach-Scale Geomorphology in the Adirondack Mountains, New York*, Geological Society of America Abstracts with Programs. Vol. 52, No. 6 doi: 10.1130/abs/2020AM-359675
- \*Van Horn, B., **Jungers, M.C.**, Klemetti, E.W. and Kent, A.J., 2020, December. Reconstructing Tumalo Volcanic Center (Central Oregon Cascades, USA) Eruption Volumes Using ArcGIS. In *AGU Fall Meeting Abstracts* (Vol. 2020, pp. V009-08).
- Jungers, M.C.**, \*Kortnerud, C., and \*Worm, T. 2019, *Origin and Evolution of Waterfalls in Ohio's Hocking Hills: From Pro-Glacial Lake Spillover to Present*, Geological Society of America Abstracts with Programs. Vol. 51, No. 5 doi: 10.1130/abs/2019AM-338753
- Jungers, M.C.**, \*Van Horn, B., \*O'Bryan, S., \*Das-Toke, S., \*Granke, S., and Persico, L., 2018, *The Impact of Beaver on Watershed-Scale Sediment and Carbon Budgets in the Adirondack Mountains, New York*, Geological Society of America Abstracts with Programs. Vol. 50, No. 6 doi: 10.1130/abs/2018AM-322945
- Jungers, M.C.**, Heimsath, A.M., Amundson, R., Balco, G., and Shuster, D., 2017, *Confoundingly Complex Exposure Histories Revealed by  $^{21}\text{Ne}$  and  $^{10}\text{Be}$  Abundances in Alluvial Deposits of the Atacama Desert, Northern Chile*, Geological Society of America Abstracts with Programs. Vol. 49, No. 6 doi: 10.1130/abs/2017AM-301338  
**(Invited Presentation)**
- \*Das-Toke, S., **Jungers, M.C.**, Persico, L.P., \*Granke, S.B., and \*O'Bryan, S., 2017, *Quantitatively Analyzing the Geomorphic Parameters of Suitable Beaver Habitat, Adirondack Mountains, NY*, Geological Society of America Abstracts with Programs. Vol. 49, No. 6 doi: 10.1130/abs/2017AM-296710
- Jungers, M.C.** and Heimsath, A.M., 2016, *Pace and Pattern of Late Cenozoic Drainage Integration on the Gila River, AZ and NM*, Geological Society of America Abstracts with Programs. Vol. 48, No. 7 doi: 10.1130/abs/2016AM-285421
- Jungers, M.C.** and \*Bladen, A., 2015, *Post-glacial Drainage Development and Fluvial Geomorphology of the Tug Hill Plateau, New York*, Geological Society of America Abstracts with Programs.
- Jungers, M.C.** and Heimsath, A.M., 2014, *Post-Tectonic Landscape Evolution of a Coupled Basin and Range: Pinaleño Mountains and Safford Basin Southeastern Arizona*, Geological Society of America Abstracts with Programs. Vol. 46, No. 6, p.241
- Jungers, M.C.** and Heimsath, A.M. (2013). *Climate and Tectonics Need Not Apply: Transient Erosion Driven by Drainage Integration, Aravaipa Creek, AZ* Eos Trans. AGU, Fall Meet. Suppl.
- Jungers M.C.**, Heimsath A.M., Amundson R., Balco G., Shuster D.L., Chong G., 2012. *Mid-Pleistocene erosion-deposition cycles in the hyperarid Atacama Desert of northern Chile*. AGU Fall Meeting, EP51E-03.
- Bell III, J.F., M. C. Malin, M.A. Caplinger, M.A. Ravine, A. S. Godber, **M. C. Jungers**, M. S. Rice, and R. B. Anderson. (2012). *Mastcam Multispectral Imaging on the Mars Science Laboratory Rover: Wavelength Coverage and Imaging Strategies at the Gale Crater Field Site*. Lunar and Planetary Science Conference.

**Jungers, M.C.** and Heimsath, A.M. (2011). Putting the "Basin" Back in Southeastern Arizona's Basin and Range *Eos Trans. AGU*, 92, Fall Meet. Suppl., Abstract T13F-2478.

**Jungers, M.C.**, Amundson, R., Heimsath, A., Christensen, P., and C. Edwards, 2010, "Ancient and Modern Salars of the Atacama Desert, Chile: A Terrestrial Analog for Evaporite Formation on Mars". *EOS*, Transactions of the American Geophysical Union.

**Jungers, M.** and Bierman, P. R., (2009). "In Situ-produced vs. Meteoric  $^{10}\text{Be}$  in Hillslope Soils: One Isotope, Two Tracers, Different Stories". *EOS*, Transactions of the American Geophysical Union.

**Jungers, M.C.**, Bierman, P.R., Matmon, A., Nichols, K.K., Larsen, J., and Finkel, R.C., 2007, Accepting our differences: The power of amalgamation and  $^{10}\text{Be}$  as a geomorphic tracer for hillslope soil transport: Geological Society of America Abstracts with Programs, v. 39, p. 513.

**Jungers, Matthew, C.**, Bierman, Paul, R., Matmon, Ari, Cox, Ronadh, Pavich, Milan, Larsen, Jennifer, and Finkel, R.C., 2006. "Tracking soil transport downslope using in situ-produced  $^{10}\text{Be}$ ." Geological Society of America Abstracts with Programs, v. 38, no. 7.

Bierman, P.R., Nichols, K.K., **Jungers, M.**, Larsen, J., and Finkel, R., 2006. "More than Rates or Dates: the Power of Amalgamation when Tracing Landscape-scale Processes with  $^{10}\text{Be}$ ." 16th Annual V.M. Goldschmidt Conference.

Lazarus, Eli D., Dethier, David P., **Jungers, Matthew C.**, and Remsen, Karl S., 2004. "Geomorphic analysis of regolith thickness in the Boulder Creek catchment, Front Range, Colorado." Geological Society of America Abstracts with Programs, vol. 35, no. 6.

Dethier, David P., **Jungers, Matthew C.**, Remsen, Karl S., and Lazarus, Eli, 2003. "Geomorphic Inferences from Regolith Thickness Near the Glacial Limit, Boulder Creek Catchment, Colorado". Geological Society of America Abstracts with Programs, vol. 35, no. 6.

## **SYNERGISTIC ACTIVITIES**

---

- 2022 Co-convended a topical session with Dylan Ward (University of Cincinnati) and Jason Dortch (Kentucky Geological Survey) at the joint North-Central-Southeastern Section Regional Geological Society of America Meeting  
Session title: *Landscape Evolution in Mid-Continental Settings*
- 2019 (October) Intro to Low-Tech Process-Based Restoration of Riverscapes (workshop), Utah State University
- 2018 Co-convended a topical session with Karen Gran (University of Minnesota, Duluth) and Amanda Schmidt (Oberlin College) at the Geological Society of America Fall Meeting.  
Session title: *Fluvial Geomorphology of Post-glacial Rivers*
- 2014 Co-convended a topical session with Ronadh Cox (Williams College) at the Geological Society of America Fall Meeting.  
Session title: *Landscape Evolution through the Lens of Cosmogenic Nuclides*
- 2013 (August) Summer Institute on Earth-Surface Dynamics, National Center for Earth-Surface Dynamics  
<http://www.nced.umn.edu/2013-summer-institute>
- 2012 (Fall) ASU/NASA Space Grant Fellow  
Developed curriculum and teaching materials for School of Earth and Space Exploration senior capstone class, *Solving Environmental Problems*. Worked with Dr. Kip Hodges and modeled class after his past success teaching *Solving Complex Problems* at MIT  
<http://www.sciencemag.org/content/338/6111/1164.full.pdf>

- 2012 (Spring) ASU/NASA Space Grant Fellow  
Developed online teaching modules for distribution to Arizona middle school teachers.
- 2011 Co-convened a session at the American Geophysical Union Fall Meeting with Frances Cooper, Christopher Edwards, and Matthew Rossi.  
Session Title: *Practical Applications of Visible and Infrared Spectroscopy to Terrestrial Geologic Studies*
- 2011 (Summer) Research Assistant for Dr. Jim Bell at Arizona State University  
Developed algorithms in IDL and Python to process calibration data for the MastCam camera on the Mars Science Laboratory rover, 'Curiosity'.
- 2010 Henry Mountains, UT, Friends of the Pleistocene Field Trip  
Helped organize and lead the 2010 FoP trip for the Rocky Mountains cell.  
[http://www.public.asu.edu/~mjungers/FOP\\_HenryMountains.html](http://www.public.asu.edu/~mjungers/FOP_HenryMountains.html)
- 2004–Present Reviewed manuscripts for *Geology, JGR-Earth Surface, Quaternary Research, Geomorphology and Earth Surface Processes and Landforms, Basin Research, and SOIL*

### **INVITED LECTURES**

---

- 2018 Miami University  
2018 Kent State University  
2017 University of Akron  
2015 Northwestern University  
2015 William and Mary  
2014 Williams College

### **AWARDS AND HONORS**

---

- 2019-2020 Bartlett Family Pre-Tenure Fellow, Denison University  
2016 Keck Geology Consortium Research Grant (\$18,750)  
2015 Sigma Xi, full membership  
2013 Outstanding Student Paper Award (OSPA), EPSP Focus Group, 2012 AGU Fall Meeting  
2013 1<sup>st</sup> Place, Arizona Geological Society's Doug Shakel Memorial Student Research Symposium  
2012 ASU/NASA Space Grant Graduate Fellowship  
2011 2<sup>nd</sup> Place, Student Poster Awards – AAPG Rocky Mountain Rendezvous  
2010 Troy L. Péwé Vision Fellowship in Quaternary Studies – Arizona State University  
2010 Honorable Mention for the J. Hoover Mackin Award – Geological Society of America  
2010 Geological Society of America Research Grant  
2006 NCALM Seed Grant Recipient – National Center for Airborne Laser Mapping  
2003 1960 Geosciences Scholar – Williams College  
2000 Center for Environmental Studies Summer Research Grant Recipient – Williams College

### **INSTITUTIONAL SERVICE (Denison University)**

---

- Starting Fall 2022 General Education Competency Committee  
2021-Present Readiness and Inclusion in Science Education (RAISE) Committee  
2020-Present June-O Faculty Advisor  
2019-Present Data Analytics Program Committee  
2019-Present Student Commencement Speaker Selection Committee  
2019 (Spring) Denison Tuesday Lunch Series Coordinator  
2018-2020 Faculty Development Committee (Chair, AY 2019-2020)  
2018, 2019, 2022 Anderson Scholarship for Excellence in Science Committee  
2017-2018 Denison Science Association (DSA), Seminar Co-Coordinator  
2018, 2019, 2022 Anderson Scholarship for Excellence in Science Committee  
2017-Present Denison Canoe Orientation (DCO)