

Matthew Cross Jungers

DEPARTMENT OF GEOSCIENCES
DENISON UNIVERSITY
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EDUCATION

- 2014 Arizona State University Tempe, AZ
PhD—Geology
- PhD research: Post-tectonic landscape evolution of sedimentary basins in southeastern Arizona's Basin and Range province and the Atacama Desert of northern Chile. Comparing late stage basin fill deposition rates with paleoerosion rates of upland sources; evaluating the pace and pattern of regional drainage integration; quantifying rates of incision through basin fill during the Quaternary. Advisor: Dr. Arjun Heimsath
- 2008 University of Vermont Burlington, VT
MS—Geology
- MS research: Using ^{10}Be to determine sediment production and transport rates on steep hillslopes in varied tectonic and climatic settings. Advisor: Dr. Paul Bierman
- 2003 Williams College Williamstown, MA
BA—Geosciences
- Honors thesis research: Chemical weathering and erosion rates of the Colorado Front Range west of Boulder, CO. Advisor: Dr. David Dethier

PROFESSIONAL EXPERIENCE

- 2016 – *present* Denison University – **Assistant Professor** Granville, OH
- *Geomorphology* – lecture and lab
 - *Planet Earth* – introductory geosciences lecture and lab
 - *Water Resources* – intro level lecture
- 2015 – 2016 Washington & Lee University – **Visiting Assistant Professor** Lexington, VA
- *Geomorphology* – lecture and lab
 - *Hydrology* – lecture and lab
 - *Water Resources* – intro level lecture
 - *Environmental Field Methods* – Four week, field-based course focused on applied approaches to solving environmental problems.
- 2014 – 2015 Oberlin College – **Visiting Assistant Professor** Oberlin, OH
- *Applied GIS* lecture and lab
 - *Living on Borrowed Water?* – 100-level intro science class comparing and contrasting the sustainability of water resources in the Great Lakes Basin vs. the Colorado River Basin
 - *Earth Surface Processes* lecture and lab
 - *Oxford-style Tutorial on Earth Surface Processes* – intensive reading and writing seminar (for more information on the spirit of Oxford-style tutorials: <http://www.williams.edu/academics/tutorials>)

- 2008 - 2014 Arizona State University – **Teaching & Research Assistant** Tempe, AZ
- *Solving Environmental Problems* – Capstone class for School of Earth and Space Exploration seniors (<http://goo.gl/vcMjVQ>)
 - *Water Planet* lecture and lab (<http://goo.gl/gMzS4C>)
 - *Geomorphology* lecture and lab
 - *Introduction to Geology* lecture and lab
- 2007 University of Vermont – **Lecturer** Burlington, VT
- *Natural Hazards* lecture, lab, and curriculum development
- 2004 - 2007 University of Vermont – **Teaching Assistant** Burlington, VT
- *Introductory Geology* lab
 - *Natural Hazards* lecture and lab
- 2001 - 2003 Williams College – **Teaching Assistant** Williamstown, MA
- *Geomorphology* lecture and lab
 - *GIS and Remote Sensing* lab
 - *Introduction to Asian Art*
- 2000 - 2003 Williams College – **PE Instructor** Williamstown, MA
- *Nordic skiing*
 - *Canoeing*

PUBLICATIONS

*Denotes student co-author

Refereed Papers

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 ¹⁰Be, *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 ¹⁰Be analysis of lavaka, slope, and river sediment, *Journal of Geology*, volume 117, p. 363–376, doi:10.1086/598945.

Manuscripts in Preparation

Jungers, M.C. and Heimsath, A.M., *in prep*, Drainage Integration as a Driver of Transient Erosion, Aravaipa Creek, AZ.

Abstracts

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*.

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: Pinaleno 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}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}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}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}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

- 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-convended 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
- 2004 – Present Reviewed manuscripts for *Geology*, *JGR-Earth Surface*, *Quaternary Research*, *Geomorphology* and *Earth Surface Processes and Landforms*

INVITED LECTURES

- 2015 Northwestern University
2015 William and Mary
2014 Williams College

AWARDS AND HONORS

- 2015 Sigma Xi, full membership
2013 Outstanding Student Paper Award (OSPA), EPSP Focus Group, 2012 AGU Fall Meeting
2013 1st Place, Arizona Geological Society's Doug Shakel Memorial Student Research Symposium
2012 ASU/NASA Space Grant Graduate Fellowship
2011 2nd 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