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EDUCATION:

1998-2003 **Ph.D. Earth Sciences**, University of California, Santa Cruz

1994-1998 **B.A. Geosciences and Mathematics**, Williams College
Summa Cum Laude and Highest Honors

ACADEMIC POSITIONS:

2012-present **Associate Director, Science Education**, Council on Science and Technology, Princeton University

- Work with faculty to develop and teach science courses accessible to all students, including intensive long-term collaboration on specific courses and organization of community of practice for faculty teaching large-enrollment classes
- Design workshops in collaboration with the McGraw Center for Teaching and Learning for faculty across disciplines on topics including course design, teaching with technology, and inclusive teaching
- Develop and teach courses in environmental studies, including Water and the Environment (first-year seminar); labs for Fundamentals of Environmental Studies; The Science and Art of Mapping the World (first-year seminar); Invention and Innovation: Intersections of Art and Science (first-year seminar)
- Collaborate on interdisciplinary projects with groups on campus, including the Princeton University Art Museum and the Office of Sustainability
- Participate in geoscience education research community as a certified observer in the Classroom Observation Project using RTOP to evaluate teaching styles across geoscience classrooms, as a leader in the Traveling Workshop Program for strengthening Earth science departments across North America, and as a member of the planning team for the 2017-2018 Earth Educators' Rendezvous

2008-2012 **Assistant Professor**, promoted to Associate Professor with Tenure in Spring 2012, Biology Department and Environmental Studies and Sustainability Program, Drew University

- Developed and taught courses in environmental science, geosciences, and geographic information systems
- Advised students on independent research, including coordinating and supervising summer fieldwork
- Created and oversaw the Drew Spatial Data Center, including managing part-time mapping specialist
- Managed budgets for NASA and NSF grants for work in mapping and environmental science

2007-2008 **Lecturer**, Department of Geology, Bryn Mawr College

2004-2007 **Keck Foundation Postdoctoral Fellow**, Department of Geology, Bryn Mawr College

2003-2004 **Visiting Assistant Professor**, Department of Geology, Colby College

PRINCIPAL EDUCATION RESEARCH INTERESTS:

1) Impact of student-active pedagogies on STEM engagement and learning, 2) The role of institutional culture in shaping teaching decisions, 3) The effectiveness of efforts to create more inclusive classrooms

EDUCATION RESEARCH EXPERIENCE:

- 2017-present **National Geoscience Faculty Survey**
Analysis of four years of survey data from US geoscience faculty on teaching practices
- 2017-present **Evaluation of First-Year Engineering Courses**
Analysis of pre- and post-semester survey data and student performance data
- 2014-present **Classroom Observation Project**
Annual certification using the RTOP protocol for classroom observations
Periodic geoscience classroom observations across US
- 2013-2015 **Princeton University Physics 103/104 Experiment**
One-on-one interviews with students after taking ISLE-based section of intro physics
Analysis of pre- and post-semester survey data from the class
- 2013-2016 **Princeton University Freshman Scholars Institute**
One-on-one interviews with students during summer bridge program and through their sophomore year
Classroom observations using the COPUS protocol
Analysis of survey data from the summer term and Institutional Research
- 2012-2015 **Princeton University ST Attitudes Survey**
Development of pre- and post semester survey of students in ST courses
Analysis of survey data and development of data visualization techniques

PRINCIPAL GEOSCIENCE RESEARCH INTERESTS:

1) Sensitivity of surface processes to climate fluctuations, 2) GIS and numerical modeling of landscape evolution, 3) Real-time measurements of glacial environments, 4) Cosmogenic and thermochronologic constraints on landform ages

GEOSCIENCE RESEARCH EXPERIENCE:

- 2005-present **Glacier National Park, Montana**
Real-time measurements of glacier surface velocity using differential GPS
Lake-coring to document glacial erosion rates
- 2005-2018 **Powder River Basin, Wyoming**
(U-Th)/He dating of clinker
Numerical modeling of stream incision and climate change
- 2008-2011 **Lake Tahoe, Nevada and California**
Water quality sampling from stream water column and floodplain
Suspended sediment concentrations and grain-size distribution from water samples
Numerical and GIS modeling of effects of stream restoration projects
- 1998-2011 **Rocky Mountains, Wyoming, Colorado, and Montana**
Cosmogenic radionuclide dating of terraces
Numerical modeling of stream incision and flexural isostasy
- 1999-2002 **Bench Glacier, Alaska**
Real-time measurements of glacier surface velocity using differential GPS and theodolite
Sediment and water discharge measurements
Meteorology station programming and installation

GEOSCIENCE RESEARCH GRANTS:

- 2010 **Keck Geology Consortium.** Total grant \$42,000. For Geomorphologic and paleoenvironmental change in Glacier National Park, Montana. Grant to support fieldwork at Glacier National Park and subsequent labwork for 7 undergraduates. Collaborator: Kelly MacGregor, Macalester College
- 2010-2012 **National Science Foundation.** Total grant \$130,000. For Acquisition of Instrumentation for the Interdisciplinary Drew Sedimentology Facility. Collaborators: Ryan Hinrichs and Maria Masucci, Drew University
- 2010-2013 **NASA.** Total grant \$1,100,000. For The Drew University Environmental Sciences Initiative. Collaborators: Ryan Hinrichs, Drew University
- 2007-2009 **US Forest Service.** Total grant \$111,245; Bryn Mawr share is \$10,000. For Methodology to predict total and fine sediment load reductions as a result of channel restoration in Lake Tahoe streams. Collaborator: Nicole Beck, 2NDNATURE, LLC
- 2005-2008 **National Science Foundation.** Total grant is \$150,000; Bryn Mawr share is \$32,000. For Collaborative Research: Clinker Geochronology and Geomorphic Evolution of the Powder River Basin, Wyoming. Collaborator: Peter Reiners, University of Arizona
- 2005 **American Philosophical Society.** \$4,000 for Glaciology and geomorphology in Glacier National Park. Collaborator: Kelly MacGregor, Macalester College

PROFESSIONAL AFFILIATIONS:

American Geophysical Union, Geological Society of America, Sigma Xi, National Association of Geoscience Teachers

HONORS:

- 2004-2007 Keck Foundation Postdoctoral Fellowship, Bryn Mawr College
- 1999-2002 NSF Graduate Fellowship
- 1998-1999 University of California Regents Fellowship
- 1998 Phi Beta Kappa
- 1998 Sigma Xi
- 1998 Freeman Foote Award, Department of Geosciences, Williams College
- 1998 National Association of Geosciences Teachers Student Fellowship
- 1997 Council on Undergraduate Research Summer Research Fellowship

PUBLICATIONS: (*undergraduate author)

Conley, G., Beck, N., **Riihimaki, C. A.**, and Madill, C. (submitted), Improving stormwater trash reduction tracking with spatially distributed Bayesian uncertainty estimates, *Environmental Science & Technology*.

Riihimaki, C. A., and Viskupic, K. (in review), Motivators and inhibitors to change: why and how do geoscience faculty modify their course content and teaching methods, *Journal of Geoscience Education*.

Heffern, E. L., **Riihimaki, C. A.**, and Reiners, P. W. (2018), Modern and ancient coal fires in the Powder River Basin, Wyoming and Montana, in Stracher, G. (ed.), *Coal and Peat Fires: A Global Perspective, Volume 5: Case Studies - Advances in Field and Laboratory Research*, New York: Elsevier.

- Laffey, E. H., **Riihimaki, C. A.**, Durst, P. A., and Zheng, M. C. (2018), The development and evaluation of a series of new first-year engineering courses, *2018 Frontiers in Education Conference Proceedings*, paper 1570429599.
- Visnjic, K., **Riihimaki, C. A.**, Sealfon, C., and Laffey, E. (2015), ISLE-inspired design laboratory transformation at Princeton University: Year two results, *2015 Physics Education Research Conference Proceedings*, 347-350, doi:10.1119/perc.2015.pr.082.
- Sewall, J. O., **Riihimaki, C. A.**, and Kadegis, J.* (2015), Orbital control, climate seasonality, and landscape evolution in the Quaternary Rocky Mountains, *Geomorphology*, 250, 89-94, doi:10.1016/j.geomorph.2015.08.020.
- Schachtman, N.*, MacGregor, K. R., Myrbo, A., Hencir, N. R., **Riihimaki, C. A.**, Thole, J., Bradtmiller, L. I. (2015), Lake core record of Grinnell Glacier dynamics during the Late Pleistocene and Younger Dryas, Glacier National Park, Montana, U.S.A., *Quaternary Research*, doi:10.1016/j.yqres.2015.05.004.
- Lawrence, K. T., Sigman, D. M., Herbert, T. D., **Riihimaki, C. A.**, Bolton, C. T., Martinez-Garcia, A., Rosell-Mele, A. and Haug, G. H. (2013), Time-transgressive North Atlantic productivity changes upon Northern Hemisphere glaciation, *Paleoceanography*, 28, 740–751, doi:10.1002/2013PA002546.
- Riihimaki, C. A.**, and Reiners, P. W. (2012), Deducing the fingerprints of climate change in long-term landscape evolution, *Journal of Geophysical Research, Earth Surface*, 117, F02007, doi:10.1029/2011JF002137.
- Reiners, P. W., **Riihimaki, C. A.**, and Heffern, E. L. (2011), Clinker geochronology and landscape evolution of the Powder River Basin, *GSA Today*, 21(7), doi: 10.1130/G107A.1.
- MacGregor, K. R., **Riihimaki, C. A.**, Myrbo, A., Shapley, M. D., and Jankowski, K.* (2011), Geomorphic and climatic change over the past 12,900 years at Swiftcurrent Lake, Glacier National Park, Montana, *Quaternary Research*, 75, doi:10.1016/j.yqres.2010.08.005.
- Riihimaki, C. A.**, Reiners, P. W., and Heffern, E. L. (2009), Quaternary coal fires correlate with climate fluctuations, Powder River basin, Wyoming and Montana, *Geology*, 37, 255-258.
- Riihimaki, C. A.**, and Libarkin, J. C. (2007), Terrestrial cosmogenic nuclides as paleoaltimetric proxies, *Reviews in Mineralogy and Geochemistry*, 66, 269-278.
- Riihimaki, C. A.**, Anderson, R. S., and Safran, E. B. (2007), Impact of rock uplift on rates of late Cenozoic Rocky Mountain river incision, *Journal of Geophysical Research, Earth Surface*, 112, F03S02, doi:10.1029/2006JF000557.
- Riihimaki, C. A.**, Anderson, R. S., Safran, E. B., Dethier, D. P., Finkel, R. C., and Bierman, P. R. (2006), Longevity and progressive abandonment of the Rocky Flats surface, Front Range, Colorado, *Geomorphology*, 78, 265-278.
- Stock, G. S., **Riihimaki, C. A.**, and Anderson, R. S. (2006), Age constraints on cave development and landscape evolution in the Bighorn Basin of Wyoming, USA, *Journal of Cave and Karst Studies*, 68, 76-84.
- Anderson, R. S., **Riihimaki, C. A.**, Safran, E. B., and MacGregor, K. R. (2006), Facing reality: Late Cenozoic evolution of smooth peaks, glacially ornamented valleys and deep river gorges of Colorado's Front Range, *GSA Special Publication*, 398, 397-418.
- Riihimaki, C. A.**, MacGregor, K. R., Anderson, R. S., Anderson, S. P., and Loso, M. G. (2005), Sediment evacuation and glacial erosion rates at a small alpine glacier, *Journal of Geophysical Research, Earth Surface*, 110, F03003, doi:10.1029/2004JF000189.
- MacGregor, K. R., **Riihimaki, C. A.**, and Anderson, R. S. (2005), Spatial and temporal evolution of sliding velocity on a small alpine glacier: Bench Glacier, Alaska 1999 and 2000, *Journal of Glaciology*, 51, 49-63.
- Anderson, R. S., Anderson, S. P., MacGregor, K. R., Waddington, E. D., O'Neel, S., **Riihimaki, C. A.**,

and Loso, M. G. (2004), Self-defeating unsteady sliding of an alpine glacier, *Journal of Geophysical Research, Earth Surface*, 109, F03005, doi:10.1029/2004JF000120.

FIRST-AUTHOR MEETING ABSTRACTS: (*undergraduate author)

- Riihimaki, C. A., White, V. M. and Schmitt, D. M. (2018), The motivations and impacts of an art-science collaboration at Princeton University, *American Geophysical Union, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., and White, V. M. (2016), Enhancing science literacy and art history engagement at Princeton through collaboration between the University Art Museum and the Council on Science and Technology, *American Geophysical Union, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A. (2015), Long-term partnerships work best: lessons from transforming classrooms through the Princeton Science and Engineering Education Initiative, *Geological Society of America, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., Caylor, K. K., and Wilcove, D. S. (2014), Planetary boundaries and environmental citizenship: enhancing environmental science through the Princeton University Science and Engineering Education Initiative, *American Geophysical Union, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., Schwalm, J. A., Sealfon, C. D., and Leonard, N. E. (2013), Lessons from the Princeton Science and Engineering Education Initiative: assessing science and technology literacy across the campus, *Geological Society of America, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., Sealfon, C. D., Paine, E. N., and Bassler, B. L. (2013), Princeton Science and Engineering Education Initiative: Creating Scientifically Literate Students Across the Campus, *American Association for the Advancement of Science Annual Meeting, Abstracts with Program*.
- Riihimaki, C. A., Sealfon, C. D., Paine, E. N., O'Donnell, F. C., Caylor, K. K., and Wilcove, D. S. (2012), Princeton Science and Engineering Education Initiative: Revising Undergraduate Environmental Science Courses, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., Sewall, J., Kadegis, J.*, and Reiners, P. W. (2011), Modeling the connection between orbital parameters, precipitation, and landscape evolution in the Rocky Mountains, USA, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., MacGregor, K., Myrbo, A., Bradtmiller, L., Brady, K., Oddo, P. C.*, and Griffith, J.* (2011), Undergraduate lacustrine research focusing on environmental change at Glacier National Park, Montana, *Geological Society of America, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A. (2011), Using GIS to teach natural disasters (and vice versa) to non-geology students, *Geological Society of America, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., and Gasparini, N. M. (2010), Transience beyond the catchment: large-scale evolution of the Hawaiian landscape, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A. (2009), Is dynamic topography driving landscape evolution in central Rocky Mountains? *Fall American Geophysical Union Meeting, Abstracts with Program*, Invited talk.
- Riihimaki, C. A., Reiners, P. W., and Heffern, E. L. (2009), Deducing climate signals in Quaternary landscape evolution in the central Rocky Mountains, *Geological Society of America, Fall National Meeting, Abstracts with Program*.
- Riihimaki, C. A., Reiners, P. W., and Heffern, E. L. (2008), Evidence for climatic control on Quaternary landscape evolution in the central Rocky Mountains, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., Reiners, P. W., and Heffern, E. L. (2007), Rates of Late Cenozoic landscape evolution constrained by (U-Th)/He dating of clinker, Powder River basin, Wyoming and Montana, *Geological*

Society of America, Fall National Meeting, Abstracts with Program.

- Riihimaki, C. A., Anderson, R. S., and Safran, E. B. (2006), Modeling the impact of epeirogenic rock uplift on late Cenozoic river incision in the central Rocky Mountains, *Fall American Geophysical Union Meeting, Abstracts with Program*, Invited talk.
- Riihimaki, C. A., and MacGregor, K. R. (2005), Source-to-sink study of erosion at Grinnell Glacier, Glacier National Park, Montana, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., Anderson, R. S., and Safran, E. B. (2004), Testing the impact of late Cenozoic rock uplift on the topography of the Rocky Mountains, *Geological Society of America, Fall National Meeting, Abstracts with Program*, Invited talk.
- Riihimaki, C. A., MacGregor, K. R., Anderson, R. S., Anderson, S. P., and Loso, M. G. (2003), Interpretation of fine and coarse sediment yield from Bench Glacier, Alaska, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., Anderson, R. S., and Safran, E. B. (2002), Age and Mechanics of Formation of the Rocky Flats and Analogous Surfaces Bounding Laramide Ranges in Northern Colorado and Wyoming, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., Anderson, R. S., and Safran, E. B. (2002), Morphology of the Granite Mountains, Wyoming, as an Analogue for Pre-exhumation Laramide Ranges, *Geological Society of America, Fall National Meeting, Abstracts with Programs*.
- Riihimaki, C. A., Anderson, R. S., and Safran, E. B. (2001), Modeling of Non-Uniform, Late Cenozoic Exhumation of the Laramide Landscape Using Proposed Geophysical and Climatic Forcing Mechanisms, *Fall American Geophysical Union Meeting, Abstracts with Program*.
- Riihimaki, C. A., MacGregor, K. R., Anderson, R. S., and Anderson, S. P. (2000), Fine and Coarse Sediment Evacuation and Subglacial Channel Network Evolution at the Bench Glacier, Chugach Range, Alaska, *Geological Society of America, Fall National Meeting, Abstracts with Programs*.
- Riihimaki, C. A., MacGregor, K. R., Anderson, R. S., and Anderson, S. P. (1999), Sediment yield of the Bench Glacier, Alaska, during the 1999 melt season, *Fall American Geophysical Union Meeting, Abstracts with Programs*, 80, F426-F427.
- Riihimaki, C. A.*, and Dethier, D. P. (1998), Rates of Holocene aggradation and pedogenesis, southeastern Puye Quadrangle, New Mexico, *Geological Society of America, Northeastern Section, 33rd Annual Meeting, Abstracts with Programs*, 30, 70.

PROFESSIONAL DEVELOPMENT WORKSHOPS:

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| 2017-2018 | North American Geoscience Teachers Traveling Workshop Program Leader Training |
| 2015-2018 | Earth Educators' Rendezvous |
| 2014 | Qualitative Research: A Course for Beginners, AERA Annual Meeting |
| 2013 | Summit on the Future of Undergraduate Geoscience Education |
| 2010 | Using GIS and Remote Sensing to Teach Geoscience in the 21 st Century |
| 2008 | Teaching Geomorphology in the 21 st Century
Submitted assignment rated "exemplary" by peer review |
| 2005 | Preparing for an Academic Career in the Geosciences |
| 2005 | Math-Science Partnership of Greater Philadelphia: Formative Assessment |

INVITED SEMINAR LECTURES:

2017	Kenyon College	2007	Vanderbilt University
2011	University of Delaware	2007	Earlham College
2011	Tulane University	2006	Philadelphia Mineralogical Society
2010	2ndNature, LLC	2006	University of Pennsylvania
2008	Lafayette College	2006	Lafayette College
2008	University of Minnesota	2005	University of Delaware
2008	Drew University	2005	Bryn Mawr College
2008	Dartmouth College	2004	Bryn Mawr College
2008	Bentley College	2003	Colby College
2007	<i>Paleoaltimetry</i> Short-course, GSA		

SERVICE:

2018-present	<i>At-Large Member</i> , Executive Committee, National Association of Geoscience Teachers		
2018-present	<i>Committee Member</i> , Classroom Committee, Princeton University		
2018-present	<i>Committee Member</i> , Classroom Initiatives Committee, Princeton University		
Ongoing	<i>Reviewer</i> , National Science Foundation, NASA, Journal of Geophysical Research-Earth Surface, Canada Foundation for Innovation, Geochimica et Cosmochimica Acta, Journal of Geoscience Education		
Ongoing	<i>Co-chair, Topical Session</i> , Geological Society of America and American Geophysical Union, Fall National Meetings		
2015-2016	<i>Committee Member</i> , New Jersey Higher Education Partnership for Sustainability, Education Committee		
2013-2014	<i>Representative</i> , Council of the Princeton University Community		
2011-2012	<i>Representative</i> , Admissions and Financial Aid Advisory Committee, Drew University		
2011-2012	<i>Representative</i> , University Budget Committee, Drew University		
2011	<i>Representative</i> , Strategic Planning Working Group 2, Drew University		
2011	<i>Representative</i> , Banner Implementation Advisory Group, Drew University		
2010-2011	<i>Representative</i> , Honors Committee, Drew University		
2010-2012	<i>Representative</i> , Science Building Advisory Committee, Drew University		
2009-2012	<i>Faculty Advisor</i> , Drew Environmental Action League (DEAL), Drew University		
2009-2011	<i>Representative</i> , Academic Computing Advisory Committee, Drew University		
2009-2012	<i>Co-leader</i> , Sustainability Committee, Drew University		
2009	<i>Representative</i> , Quantitative Literacy Working Group, Drew University		
2008-2012	<i>Associate Editor</i> , Lithosphere, Geological Society of America		
2007	<i>Co-leader</i> , Undergraduate field trip to Hawaii, Bryn Mawr College		
2006	<i>Leader</i> , Undergraduate field trip to Santa Cruz, CA, Bryn Mawr College		
2005-2008	<i>Faculty representative</i> , Environmental Studies Steering Committee, Bryn Mawr College		
2005-2008	<i>Co-organizer and participant</i> , Math-Science Partnership of Greater Philadelphia		
2005-2008	<i>Representative</i> , Science Computer Committee, Bryn Mawr College		
2005	<i>Co-leader</i> , Undergraduate field trip to the Bahamas, Bryn Mawr College		
2004	<i>Co-organizer</i> , Tri-College Mellon Modeling Group, Bryn Mawr College		
2004	<i>Co-leader</i> , Undergraduate field trip to Canadian Rockies, Bryn Mawr College		
2001-2003	<i>Graduate Student Representative</i> , Earth Sciences Department, UC-Santa Cruz		