

**Carmala N. Garzione**  
Curriculum Vitae – October 2014

**PRESENT POSITION**

Professor and Chair, Department of Earth and Environmental Sciences, University of Rochester

**PERSONAL INFORMATION**

Citizenship: U.S. Citizen  
Address: Department of Earth and Environmental Sciences, University of Rochester, Rochester, NY  
14627  
Telephone: 585-275-5713  
e-mail: carmala.garzione@rochester.edu

**RESEARCH INTERESTS**

Sedimentary basin evolution and tectonic history of mountain belts  
Interaction between climate and tectonics  
Stable isotopes in terrestrial paleoenvironmental studies  
Geochemical and petrologic provenance studies of siliciclastic sedimentary rocks

**EDUCATION**

2000 Ph.D. in Geoscience, University of Arizona, Tucson, AZ  
1996 M.S. in Geoscience, University of Arizona, Tucson, AZ  
1994 B.S. in Geology, University of Maryland, College Park, MD

**APPOINTMENTS**

2014 – present Director, Center for Energy and Environment, University of Rochester  
2013 – present Professor, Department of Earth and Environmental Sciences, University of Rochester  
2010 – present Chair, Department of Earth and Environmental Sciences, University of Rochester  
2006 – 2013 Associate Professor, Department of Earth and Environmental Sciences, University of Rochester  
2000 – 2006 Assistant Professor, Department of Earth and Environmental Sciences, University of Rochester  
2003 – 2004 Visiting Research Associate, CIRES, University of Colorado, Boulder  
1999 Chevron Internship, Asian Business Unit, Chevron Overseas Petroleum Inc., San Ramón, CA  
1998 Chevron Internship, South Texas Production Team, Houston, TX

**PROFESSIONAL SERVICES**

2013 co-Organized Continental Dynamics Annual Workshop on the Andes, Tucson, AZ  
2013 NSF EAR - Tectonics panel  
2012 Co-convenor (with Lara Wagner and Chris Poulsen) of session at American Geophysical Union: The Geodynamics of High Topography: Exploring the Interactions Between Solid Earth, Hydrosphere, and Atmosphere  
2012 Organized Continental Dynamics Annual Workshop on the Andes, Rochester, NY  
2011 Organized Continental Dynamics Annual Workshop on the Andes, Ann Arbor, MI  
2011 NSF EAR - Tectonics panel  
2009-2011 Editorial Board, Basin Research  
2010 NSF EAR - Continental Dynamics panel  
2008 Co-convenor (with Eric Kirby and Page Chamberlain at American Geophysical Union National Fall Meeting: Growth of the Tibetan Plateau and its influence on climate: Insights from integrated structural, stratigraphic, geomorphic, and isotopic studies  
2006 Co-convenor (with Peter Clift) of session at American Geophysical Union Fall Meeting: Sedimentary Records of Plateau Uplift and Climate Change  
2006 NSF EAR - Tectonics panel (early career panelist)  
2005 Co-convenor (with Andreas Mulch and Page Chamberlain) of session at American Geophysical Union Fall Meeting: Coupled Topographic and Climatic Evolution of Cenozoic Mountain Belts

2001 Chair of session at Geological Society of America National Meeting: Clastic Sediments: New Insights into Fluvial, Deltaic, and Shallow Marine Sedimentation

#### HONORS AND AWARDS

2010 Georgen Award for Excellence in Undergraduate Teaching  
2009 Blavatnik Award for Young Scientists, New York Academy of Sciences  
2008-2009 AAPG Distinguished Lecturer  
2008 Geological Society of America Fellow  
2007 Donath Medal, Geological Society of America Young Scientist Award  
2007 University of Maryland Geology Alumni Award  
2007 University of Arizona Geosciences Alumni Achievement Award  
2003 CIRES Fellowship, University of Colorado, Boulder  
1999 GeoDaze Symposium, Oral Presentation Award, University of Arizona  
1999 Chevron Fellowship Award, Department of Geosciences, University of Arizona  
1997 Wakonse Education Symposium Fellow  
1997 Outstanding Teaching Assistant Award, Department of Geosciences, University of Arizona  
1993 Phi Beta Kappa

#### SYNERGISTIC ACTIVITIES (SCIENCE EDUCATION AND OUTREACH)

2014-15 Calkins Road Middle School Science Olympiad Coach in Dynamic Planet Event  
2014 University of Rochester Salons in Baton Rouge and Houston; discussions of Energy and Environmental research and education at the U of R  
2014 Men in Transition talk and Q & A, Brighton New York; The rise of mountains and the fall in global temperatures: Why we live in a low CO<sub>2</sub> world  
2012 University of Rochester Salon in San Francisco, CA; discussions of Sustainability and Global Change research and education at the U of R  
2011 Science Café, Barnes and Noble, Rochester; The Rise of Large Mountain Belts and the Fall in Global Surface Temperatures: Why We Live in a Glacial World  
2011 Featured scientist for local 4<sup>th</sup> grade project on science careers  
2011 IOWA Juvenile Home for Girls; discussion on careers in Geology  
2011 University of Rochester Salons in Ann Arbor, Mi; Norfolk, VA; and Richmond, Va; discussions of Sustainability and Global research and education at the U of R; Rochester Forum Alumni Event: lecture on Global Sustainability: Understanding Climate Change in the Context of Geologic History  
2010-14 EES Department commencement presentation on "Geosciences in Today's World"  
2010 Seeds of Science/Roots of Reading Middle School Curriculum (NSF funded); helped develop units on my research in the Andes  
2009 University of Rochester Salon on Mountains and Their Profound Influence on Global Climate, Denver, CO  
2009 Interactive discussion at Jefferson Road Elementary School Kindergarten about fossils and evolution  
2009 NSF Highlight on Andes Research  
2008 NE Tibet research featured in 20 minute film for high school science students: *Upward and Outward: Scientific Inquiry on the Tibetan Plateau*  
2007-2008 Guest lecture on careers in geology at a Rochester inner city school, School Without Walls (sponsored by the Boy Scouts), give a yearly presentation  
2007-08 EES Department commencement presentation on "Geologists and Environmental Scientists in Today's World"  
2006 Lecture for prospective undergraduates and parents at the Research Rochester fair: Plate Tectonics and Mountain Building  
2006 Feature Article: Did Andes 'Pop Up' in Current Science (April 7, 2006), Weekly Reader's middle and high school science journal  
2005-2012 SIREAL lab hosts 1-2 high school summer interns  
2001 Guest lecture to Brighton boy scout troop - an interactive discussion on NY state geology  
2000 Geology and Earth Science Through Inquiry, taught 15-hour class for 4th-8th grade teachers in Tucson Unified School District

- 2000 Tucson Unified School District special lecturer: *The Scientific Process: How Does a Scientist Do It?* talk received at SAMEC teachers conference in Benson, AZ and Middle school Science and Math teachers conference in Tucson AZ, and the University of Arizona
- 1999-2000 Science Advisor to Tucson Unified School District D.E.S.E.R.T. Project

#### PROFESSIONAL AFFILIATIONS

American Geophysical Union  
Geological Society of America

#### PUBLICATIONS

\*student authored papers

##### Articles in preparation

- \*Auerbach, D.J., **Garzione, C.N.**, Smith, J.J., MacFadden, B.J., Anaya, F., and Croft, D.A., Middle-late Miocene paleoelevation estimates for the southern Altiplano, Bolivia: Evidence for diachronous plateau uplift: (in preparation).
- \*Li Lin, **Garzione, C.N.**, Pullen, A., Hong Chang, Molnar, P.H., Stepwise uplift and aridification of the north-central Tibetan Plateau since the late Eocene: stable isotope evidence from western Qaidam basin: (in preparation).
- \*Kar, N., **Garzione, C.N.**, Carlotto, V., Jaramillo, C., Moreno, F., Pullen, A., Eiler, J., Time transgressive south to north rapid surface uplift of the Altiplano plateau revealed by clumped isotope paleo temperature records: (in preparation).
- Chang Hong, Qiang, Xiaoke, Li Leyi, **Garzione, C.N.**, Pulles, A., Molnar, P. An Zhisheng, Magnetostratigraphy of Cenozoic sedimentary rock in the western Qaidam Basin and its implication for surface uplift of the northeastern margin of the Tibetan Plateau: (in review).

##### Articles in review

- Ghosh, N., Basu, A.R., Bhargava, O.N., Shukla, U.K., Ghatak, A., **Garzione, C.N.**, Ahluwalia, A.D., Geochemical – sedimentological observations of catastrophic environmental transition across the Permian-Triassic boundary in Spiti Valley, India Himalaya: Palaeogeography, Palaeoclimatology, Palaeoecology (in review).

##### Articles and books

- Hoke, G.D., Gambiagi, L.B., **Garzione, C.N.**, Mahoney, J.B., Strecker, M.R., Neogene paleoelevation of intermontane basins in a narrow compressional mountain range, southern central Andes of Argentina (in press).
- \*Hough, B.G., **Garzione, C.N.**, Lease, R.O, and Wang, Z., 2014, Timing and spatial pattern of basin segmentation and climate change in NE Tibet: Geological Society of America Special Paper (in press).
- Baker, P.A., Fritz, S.C., Dick, C.W., Eckert, A.J., Horton, B.K., Manzoni, S., Ribas, C.C., **Garzione, C.N.**, Battisti, D.S., 2014, The emerging field of *geogenomics*: constraining geologic problems with genetic data: Earth Science Reviews, v.145, p. 38-47
- \*Li Lin, Meng Qingren, Pullen, A., **Garzione, C.N.**, Wu,Guoli, Wang Yanling, Ma Shouxian, Duan Liang, 2014, Late Permian-early Middle Triassic back-arc basin development in West Qinling, China: Journal of Asian Earth Sciences, v. 87, p. 116-129.
- Hoke, G.D., Liu Jing, Hren, M., Wissink, G., and **Garzione, C.N.**, 2014, Stable isotopes reveal high southeast Tibetan Plateau margin since the Paleogene: Earth and Planetary Science Letters, v. 394, p. 270-278.
- Garzione, C.N.**, Auerbach, D., Smith, J.-S., Passey, B., Eiler, J., Rosario, J, and Jordan, T., 2014 Clumped isotope evidence for diachronous surface cooling of the Altiplano and pulsed surface uplift of the Central Andes, v. 393, p 173-181.
- Dao-Yang Yuan, Wei-Peng Ge, Zhen-Wei Chen, Chuan-You Li, Zhi-Cai Wang, Hui-Ping Zhang, Pei-Zhen Zhang, De-Wen Zheng, Wen-Jun Zheng, Craddock, W.H., Dayem, K.E., Duvall, A.R., Hough, B.G., Lease, R.O., Champagnac, J.D., Burbank, D.W., Clark, M.K., Farley, K.A., **Garzione, C.N.**, Kirby, E., Molnar, P., and Roe, G.H., 2013, The growth of northeastern Tibet and

- its relevance to large-scale continental geodynamics: A review of recent studies, v. 32, p. 1358-1370.
- Leier, A.L., McQuarrie, N., **Garzione, C.N.**, and Eiler, J.M., 2013, Stable isotope evidence for multiple pulses of rapid surface uplift in the Central Andes, Bolivia: *Earth and Planetary Science Letters*, v. 371-172, p., 49-58.
- Heermance, R.V., Pullen, A., Kapp, P., **Garzione, C.N.**, Bogue, S., Lin Ding, Peiping Song, 2013, Climatic and tectonic controls on sedimentation and erosion during the Pliocene-Quaternary in the Qaidam Basin (China): *Geological Society of America Bulletin*, v. 125, p. 833-856, doi:10.1130/B30748.1.
- \*Bershaw, J., Penny, S.M., and **Garzione, C.N.**, 2012, Stable isotopes of modern water across the Himalaya and Tibetan Plateau: Implications for estimates of paleoelevation and paleoclimate, *Journal of Geophysical Research, Atmospheres*, doi:10.1029/2011JD016132.
- \*Bershaw, J., **Garzione, C.N.**, Schoenbohm, L., Gehrels, G., and Li Tao, 2012, Cenozoic evolution of the Pamir plateau based on stratigraphy, zircon provenance, and stable isotopes of foreland basin sediments at Oytay (Wuyitake) in the Tarim Basin (west China): *Journal of Asian Earth Sciences*, v. 44, p. 136-148.
- Wang Zhicai, Zhang Peizhen, **Garzione, C.N.**, Lease, R.O., Zhang Guangliang, Zheng Dewen, Hough, B., Yuan Daoyang, Li Chuanyou, Liu Jianhui, and Wu Qinglong, 2012, Magnetostratigraphy and depositional history of the Miocene Wushan basin on the NE Tibetan plateau, China: Implications for middle Miocene tectonics of the West Qinling fault zone: *Journal of Asian Earth Sciences*, v. 44, p. 189-202.
- Nie Junsheng, Horton, B.K., Saylor, J.E., Mora, A., Mange, M., **Garzione, C.N.**, Basu, A., 2012, Caballero, V., Moreno, C.J., Parra, M., 2012, Integrated provenance analysis of a convergent retroarc foreland system: U-Pb ages, heavy minerals, and Nd isotopes, and sandstone compositions of the Magdalena Valley basin, northern Andes, Colombia: *Earth Science Reviews*, v. 110, p. 111-126.
- Pullen, A., Kapp, P., McAllister, A., Hong Chang, Gehrels, G.E., **Garzione, C.N.**, Heermance, R., and Lin Ding, 2011, Qaidam Basin and northern Tibetan Plateau as dust sources for the Chinese Loess Plateau and paleoclimate implications: *Geology*, v. 39, P. 1031-1034, doi:10.1130/G32296.1.
- \*Hough, B., **Garzione, C.N.**, Zhicai Wang, Lease, R.O., Burbank, D.W. and Yuan Daoyang, 2011, Stable isotope evidence for topographic growth and basin segmentation: Implications for the evolution of the NE Tibetan plateau: *Geological Society of America Bulletin*, v. 123, p. 168-185, doi: 10.1130/B30090.1.
- Giovanni, M.K., Horton, B.K., **Garzione, C.N.**, McNulty, B., and Grove, M., 2010, Extensional Basin Evolution in the Cordillera Blanca, Peru: Stratigraphic and isotopic records of detachment faulting and orogenic collapse in the Andean hinterland: *Tectonics*, v. 29: doi:10.1029/2010TC002666.
- \*Bershaw, J., **Garzione, C.N.**, Higgins, P., MacFadden, B.J., Anaya, F., and Alveringa, H., 2010, Spatial-temporal changes in Altiplano climate and elevation from stable isotopes of mammal teeth: *Earth and Planetary Science Letters*, v. 289, p. 530-538.
- Hoke, G.D., **Garzione, C.N.**, Araneo, D.C., Latorre, C., Strecker, M.R. and Williams, K.J., 2009, The stable isotope altimeter: Do Quaternary pedogenic carbonates predict modern elevations?: *Geology* v. 37, p. 1015-1018.
- Croft, D.A., Anaya, F., Auerbach, D., **Garzione, C.**, and MacFadden, B.J., 2009, An early to middle Miocene mammal fauna from Cerdas, Bolivia: *Journal of Mammalian Evolution*, DOI 10.1007/s10914-009-9115-0.
- Garzione, C.N.**, 2008, Surface uplift of Tibet and Cenozoic global cooling: *Geology*, v. 36, p. 1003-1004.
- Hoke, G.D., and **Garzione, C.N.**, 2008, Paleosurfaces, paleoelevation, and the mechanisms for the late Miocene topographic development of the Altiplano plateau: *Earth and Planetary Science Letters*, v.271, p. 192-201.
- Garzione, C.N.**, Hoke, G.D., Libarkin, J.C., Withers, S., MacFadden, B.J., Eiler, J.M., Ghosh, P., Mulch, A., 2008, Rise of the Andes: *Science*, v. 320, p. 1304-1307.
- Quade, J., **Garzione, C.N.**, and Eiler, J., 2007, Paleoelevation reconstructions using paleosol carbonates: *Reviews in Mineralogy and Geochemistry*, v. 66, p. 53-87.
- Garzione, C.N.**, Molnar, P., Libarkin, J.C., MacFadden, B., 2007, Reply to comment on "Rapid late Miocene rise of the Andean plateau: evidence for removal of mantle lithosphere" by Garzione et

- al. (2006), *Earth Planet. Sci. Lett.* 241 (2006) 543-556, *Earth and Planetary Science Letters*, v. 259, p. 630-633.
- Rowley, D.B. and **Garzione, C.N.**, 2007, Stable isotope-based paleoaltimetry: *Annual Review of Earth and Planetary Sciences*, v. 35, p. 463-508.
- Molnar, P. and **Garzione, C.N.**, 2007, Bounds on the viscosity coefficient of continental lithosphere from removal of mantle lithosphere beneath the Altiplano and Eastern Cordillera: *Tectonics*, v. 26, doi:10.1029/2006TC001964.
- Fan Majie, Dettman, D.L., Song Chunhui, Fang Xiaomin, and **Garzione, C.N.**, 2007, Climatic variation on the Linxia basin, NE Tibetan Plateau, from 13.1 to 4.3 Ma: The stable isotope record: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 247, p. 313-328.
- Eiler, J., **Garzione, C.**, and Ghosh, P., 2006, Reply to Comment on "Rapid Uplift of the Altiplano Revealed Through  $^{13}\text{C}$ - $^{18}\text{O}$  Bonds in Paleosol Carbonates": *Science*, v. 314, p. 760c.
- Garzione, C.N.**, Molnar, P., Libarkin, J.C., MacFadden, B., 2006, Rapid late Miocene rise of the Andean plateau: evidence for removal of mantle lithosphere: *Earth and Planetary Science Letters*, v. 241, p. 543-556.
- Ghosh, P., **Garzione, C.N.**, and Eiler, J., 2006, Paleothermometry of Altiplano paleosols: Implications for Late Miocene surface uplift of the Andean plateau: *Science*, v. 311, p. 511-515.
- Garzione, C.N.**, Ikari, M., and Basu, A., 2005, Source of Oligocene to Pliocene sedimentary rocks in the Linxia Basin in NE Tibet from Nd Isotopes: Implications for tectonic forcing of climate: *Geological Society of America Bulletin*, v. 117, p. 1156-1166.
- Garzione, C.N.**, Dettman, D.L., and Horton, B.K., 2004, Carbonate oxygen isotope paleoaltimetry: evaluating the effect of diagenesis on estimates of paleoelevation in Tibetan plateau basins: *Palaeogeography, Palaeoclimatology, Palaeoecology*, v. 212, p. 219-240.
- \*Saha, A., Basu, A.R., **Garzione, C.N.**, Bandyopadhyay, P.K., and Chakrabarti, A., 2004, Geochemical and petrological evidence for subduction-accretion processes in the Archean Eastern Indian Craton: *Earth and Planetary Science Letters*, v. 220, p. 91-106.
- Dettman, D.L., Fang Xiaomin, **Garzione, C.N.**, Li Jijun, 2003, Uplift-driven climate change at 12 Ma: a long  $\delta^{18}\text{O}$  record from the NE margin of the Tibetan plateau: *Earth and Planetary Science Letters*, v. 214, p. 267-277.
- Fang Xiaomin, **Garzione, C.N.**, Van der Voo, R., Li Jijun, Fan Majie, 2003, Flexural subsidence by 29 Ma on the NE edge of Tibet: magnetostratigraphy of Linxia Basin, China: *Earth and Planetary Science Letters*, v. 210, p. 545-560.
- Robinson, D.M., DeCelles, P.G., Pearson, O.N., **Garzione, C.N.**, Harrison, T.M., and Catlos, E.J., 2003, Reply to Comment: Kinematic model for the Main Central Thrust in Nepal: *Geology*, v. 31, e41.
- Garzione, C.N.**, DeCelles, P.G., Hodkinson, D.G., Ojha, T.P., and Upreti, B.N., 2003, East-west extension and Miocene environmental change in the southern Tibetan plateau: Thakkhola graben, central Nepal: *Geological Society of America Bulletin*, v. 115, p. 3-20.
- Robinson, D.M., DeCelles, P.G., **Garzione, C.N.**, Pearson, O.N., Harrison, T.M., and Catlos, E.J., 2003, Kinematic model for the Main Central thrust in Nepal: *Geology*, v. 31, p. 359-362.
- Robinson, D.M., DeCelles, P.G., Patchett, P.J., and **Garzione, C.N.**, 2001, The kinematic evolution of the Nepalese Himalaya interpreted from Nd isotopes: *Earth and Planetary Science Letters*, v. 192, p. 507-521.
- DeCelles, P.G., Robinson, D.M., Quade, J., Ojha, T.P., **Garzione, C.N.**, Copeland, P., Upreti, B.N., 2001, Stratigraphy, structure, and tectonic evolution of the Himalayan fold-thrust belt in western Nepal: *Tectonics*, v. 20, p. 487-509.
- Garzione, C.N.**, Quade, J., DeCelles, P.G., English N.B., 2000, Predicting paleoelevation of Tibet and the Himalaya from  $\delta^{18}\text{O}$  vs. altitude gradients of meteoric water across the Nepal Himalaya: *Earth and Planetary Science Letters*, v. 183, p. 215-229.
- Garzione, C.N.**, Dettman, D.L., Quade, J., DeCelles, P.G., and Butler, R.F., 2000, High times on the Tibetan Plateau: Paleoelevation of the Thakkhola Graben, Nepal: *Geology*, v. 28, p. 339-342.
- English, N.B., Quade, J., DeCelles, P.G., and **Garzione, C.N.**, 2000, Geologic control of Sr and major element chemistry in Himalayan rivers, Nepal: *Geochimica et Cosmochimica Acta*, v. 64, p. 2549-2566.
- Garzione, C.N.**, 2000, Tectonic and paleoelevation history of the Thakkhola graben and implications for the evolution of the southern Tibetan Plateau [Ph.D. dissertation], University of Arizona, Tucson, 146 p.

- Garzione, C.N.**, Patchett, P.J., Ross, G., and Nelson, J., 1997, Provenance of sedimentary rocks in the Canadian Cordilleran miogeocline: A Nd isotopic study: *Canadian Journal of Earth Sciences*, v. 34, p. 1603-1618.
- Vogel, T.A., Cambray, F.W., Feher, L., Constenius, K.N., Copeland, P.C., Flood, T., **Garzione, C.N.**, Gehrels, G.E., Hodkinson, D.G., Hanson, S.L., Holst, T.B., John, D.A., Layer, P.W., Petrochemistry and Emplacement History of the Wasatch Igneous Belt, Utah, 1997, *in* John, D.A., Ballantyne, G.H., eds., *Geology and Ore Deposits of the Oquirrh and Wasatch Mountains, Utah*, Society of Economic Geologists Guidebook Series, v. 29, p. 47-63.
- Wylie, A.G., Skinner, H.C.W., Marsh, J., Snyder, H., **Garzione, C.**, Hodkinson, D., Winters, R., and Mossman, B.T., 1997, Mineralogical features associated with cytotoxic and proliferative effects of fibrous talc and asbestos on rodent tracheal epithelial and pleural mesothelial cells: *Toxicology and Applied Pharmacology*, v. 147, p. 143-150.
- Garzione, C.N.**, 1996, Provenance of sedimentary rocks in the Canadian Cordilleran miogeocline: A Nd isotopic study: *Canadian Journal of Earth Sciences* [Masters Thesis], University of Arizona, Tucson, 59 p.

#### Invited lectures

- 2015 **University of Texas, Austin**
- 2015 **California Institute of Technology**
- 2015 **Brown University**
- 2014 Spatial-temporal evolution of topography of the central Andean plateau: implications for deep tectonic processes, **Case Western Reserve**
- 2014 Paleoclimate records of the spatial-temporal evolution of topography of the central Andean plateau: implications for deep tectonic processes, **University of New Hampshire**
- 2013 Spatial-temporal evolution of topography of the central Andes and implications for deep tectonic processes, **AGU Fall meeting**
- 2013 Spatial-temporal evolution of topography of the central Andean plateau: implications for deep tectonic processes, **University of Toronto, Mississauga**
- 2012  $\delta^{18}\text{O}$  and Clumped-Isotope Results from Northern Tibet and Implications for Paleoclimatology: **China Earthquake Admin., Chinese Academy of Sciences, Beijing**
- 2012 The Rise of Mountains and the Fall in Global Temperatures: Why We live in a Glacial World, **Laser Energetics Science and Technology Seminar, University of Rochester**
- 2011 Rising Seas and Impacts on Barrier Island Systems, **Alumni Salon talk in Norfolk, VA**
- 2011 The Rise of Large Mountain Belts and the Fall in Global Surface Temperatures: Why We Live in a Glacial World: **Science Café at Pittsford Barnes and Noble, Rochester**
- 2011 Global Sustainability: Understanding Climate Change in the Context of Geologic History: **Rochester Forum Alumni Event**
- 2011 Pulsed Surface Uplift of the Andes: Geodynamic Implications for the topographic growth of mountain belts, Seminar speaker at the **University of Calgary**
- 2010 Spatial-temporal evolution of sedimentary basin segmentation in NE Tibet: Implications for outward growth of the plateau margin, **AGU Fall meeting**
- 2010 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **special speaker at GEOTOP seminar series, McGill University**
- 2010 Making Mountains out of Mole Hills: The Humble Origins of Big Mountain Belts, **Provost Phelps Colloquium Series, University of Rochester**
- 2010 Rise of the Andes and the Geodynamics of Orogenic Plateaus, Seminar speaker at **Lehigh University**
- 2010 Diachronous Surface Uplift and Climate Change in the Bolivian Altiplano, **EOS lecture series, Duke University**
- 2009 Climate history in the Altiplano basin: A reflection of surface uplift or climate change?, Invited talk at **GSA Annual meeting**
- 2009 Diachronous Surface Uplift and Climate Change in the Bolivian Altiplano, **Cornell, INSTOC Workshop at Cornell University**
- 2009 Mountains and Their Profound Influence on Global Climate, **Buffalo State University, NY, Women in Science Speaker Series**

- 2009 Mountains and Their Profound Influence on Global Climate, **University of Rochester Salon, Denver, CO**
- 2009 Greenhouse Gas Emissions and Global Change, guest lecture in **Green Engineering, University of Rochester**
- 2009 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **AAPG Distinguished Lecturer, Kansas State University**
- 2009 Modern Rainfall and Climate Across NE Tibet: Climate Consequences of the Growth of the Tibetan Plateau, **AAPG Distinguished Lecturer, Purdue University**
- 2009 Modern Rainfall and Climate Across NE Tibet: Climate Consequences of the Growth of the Tibetan Plateau, **AAPG Distinguished Lecturer, Michigan State University**
- 2009 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **AAPG Distinguished Lecturer, Memorial University, Newfoundland**
- 2009 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **AAPG Distinguished Lecturer, Dalhousie University, Nova Scotia**
- 2008 Climate Change: Past Variations, Recent Observations, and Future Projections, **University of Rochester Two Schools, One Mission Symposium**
- 2008 Environmental Sustainability: Understanding Modern Climate Change in the Context of Geologic History, **University of Rochester Sustainability Lecture Series**
- 2008 Long-term records of latitudinal climate gradients in the central Andes from stable isotopes in fossil and sedimentary carbonates, Keynote Speaker at **EGU AVH4 meeting, Santiago, Chile**
- 2008 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **AAPG Distinguished Lecturer, Montana State University**
- 2008 Modern Rainfall and Climate Across NE Tibet: Climate Consequences of the Growth of the Tibetan Plateau, **AAPG Distinguished Lecturer, Northern California Geological Society**
- 2008 Rise of the Andes and the Geodynamics of Orogenic Plateaus, **AAPG Distinguished Lecturer, Rocky Mountain Section of SEPM**
- 2008 Modern Rainfall and Paleoclimate across NE Tibet: Climate Consequences of the Growth of the Tibetan Plateau, Seminar speaker at **Stanford University**
- 2008 Global Climate Change from 650 kyr before present to 100 years into the future, Invited speaker at **Focus the Nation event, organized by the UR Grassroots Coalition**
- 2007 Rise of the Andes: Punctuated Surface Uplift of Orogenic Plateaus, Seminar speaker at **Boise State University**
- 2007 Late Miocene Plateau-Wide Surface Uplift of the Central Andes and the Growth of Orogenic Plateaus, Invited talk at **AGS Ores and Orogenesis meeting in honor of Bill Dickinson, Tucson, AZ**
- 2007 Resolving the Uplift History of the Andes, **INSTOC Workshop at Cornell University**
- 2007 The Rise of the Andes: Pulsed Surface Uplift of Orogenic Plateaus, Seminar speaker at **Syracuse University**
- 2007 Surface Uplift History of the Central Andes: Implications for the Growth of Orogenic Plateaus at **Spring AGU Meeting, Acapulco, Mexico**
- 2007 Two talks: Paleoelevation and Geomorphic Constraints on the Late Miocene Rise of the Andes: Implications for the Growth of Orogenic Plateaus; Stable Isotope-based Paleoelevation at **Yale University**
- 2007 Sediment Accumulation and Surface Uplift in the Altiplano Basin: Geodynamic Implications for the Growth of Orogenic Plateaus, Keynote speaker at **GeoDaze Symposium, University of Arizona**
- 2007 Paleoelevation and Geomorphic Constraints on the Late Miocene Rise of the Andes: Implications for the Growth of Orogenic Plateaus, Seminar speaker at **University of Aberdeen**
- 2007 Paleoelevation and Geomorphic Constraints on the Late Miocene Rise of the Andes: Implications for the Growth of Orogenic Plateaus **Oxford University**
- 2007 The Rapid Rise of the Andes: Implications for Plate Tectonic Processes: Laboratory for Laser Energetics Science and Technology Seminar, **University of Rochester**

- 2007 Paleoelevation and Paleoclimate of Tibet and Surrounding Regions: Invited talk at the **Workshop on Evolution of Asian monsoon and desertification and growth of the Tibetan Plateau, Sanya, China**
- 2006 Sediment Accumulation and Surface Uplift in the Altiplano Basin: **Chevron Energy Technology Company, San Ramon, CA**
- 2006 Paleoeology and Paleoenvironment Inferred from Stable Isotopes of Ancient Soils and Fossil Teeth: Ecology and Evolutionary Biology Seminar, **University of Rochester**
- 2006 Sediment Accumulation and Surface Uplift in the Altiplano Basin: Invited talk at **GSA Annual meeting**
- 2006 Late Miocene Rise of the Andean Plateau: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **University of Maryland**
- 2006 Paleoelevation and Geomorphic Constraints on the Late Miocene Rise of the Andes: Geodynamic Implications for the Growth of Orogenic Plateaus: Invited keynote talk at **16<sup>th</sup> Annual Goldschmidt Conference, Melbourne, Australia**
- 2006 Growth of Northeastern Tibet and Associated Climate Change, Invited talk at the **Workshop on Climate-Tectonic drilling in SE Asia for planning IODP drilling in the Gulf of Tonkin and Xisha Trough, Kochi, Japan.**
- 2006 Late Miocene Rise of the Andean Plateau: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **University of Michigan**
- 2006 Oligocene-Miocene Rise of the Andean Plateau: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **University of Florida**
- 2006 Oligocene-Miocene Rise of the Andean Plateau: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **Florida State University**
- 2006 Late Miocene Rise of the Bolivia Altiplano: Implications for the Growth of Orogenic Plateaus, Seminar speaker at **University of Massachusetts, Amherst**
- 2006 Surface Uplift of the Andean Plateau: Implications for Andean Lithospheric Evolution, Seminar speaker at **Penn State University**
- 2005 Oligocene-Miocene Rise of the Andean Plateau: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **University of Chicago**
- 2005 Oxygen isotope paleoaltimetry from paleosol carbonates: an example from the northern Altiplano, Bolivia: Invited talk at **Paleoelevation workshop, Lehigh University**
- 2005 Surface Uplift History of the Bolivian Altiplano: Implications for Uplift Processes in the Andean Plateau, Seminar speaker at **Princeton University**
- 2005 Oligocene-Miocene Uplift of the Altiplano Basin: Geodynamic Implications for the Construction of Orogenic Plateaus, Seminar speaker at **Colorado State University**
- 2005 Surface Uplift History of the Bolivian Altiplano: Implications for Uplift Processes in the Andean Plateau: Seminar speaker at **Cornell University**
- 2005 Oligocene-Miocene Uplift and Climate Change in the Bolivian Altiplano: Geodynamic Implications for the Construction of Orogenic Plateaus: Department of Geology and Geophysics distinguished lecturer series, **University of Wyoming**
- 2005 Estimating the Elevation of Ancient Mountain Belts: Examples from Tibet and the Bolivian Altiplano: Laboratory for Laser Energetics Science and Technology Seminar, **University of Rochester**
- 2004 Oxygen Isotope Paleoaltimetry: Applications in the Tibetan Plateau and Bolivian Altiplano: G.A. Cooper lecture series at the **Colgate University**
- 2004 The effect of altitude on the isotopic composition of paleosols: examples from southern Tibet and the Bolivian Altiplano: Invited talk at **GSA Annual meeting**
- 2004 How did the Largest Plateaus on Earth Form?: Oxygen Isotope Records of the Uplift of Tibet and the Bolivian Altiplano: Science Today lecture series, **SUNY, Owego**
- 2004 Oxygen Isotope Paleoaltimetry: Applications in the Tibetan Plateau and Bolivian Altiplano: Seminar speaker at the **University of Colorado**
- 2002 The Paleoclimate and Tectonic History of Linxia Basin, NE Tibet: Seminar speaker at the **University of Minnesota, Duluth**
- 2001 Paleoelevation of the Southern Tibetan Plateau Inferred from the Sedimentology and Isotope Paleohydrology of the Thakkhola graben, Nepal: Seminar speaker at **SUNY, Buffalo**



- 2000 Surface Uplift of the Tibetan Plateau: What Can We Learn from Oxygen Isotopes of Modern and Paleo-meteoric Water?: Seminar speaker at **University of Syracuse**
- 2000 The Scientific Process: How Does a Scientist Do It?: Tucson Unified School District special lecturer, talk received at **SAMEC conference** in Benson, AZ; **Middle School Science and Math conference** in Tucson AZ; and **University of Arizona**
- 1999 Two talks: Paleoelevation and tectonic evolution of the Thakkhola graben in the southern Tibetan plateau; Provenance of sedimentary rocks in the Canadian Cordilleran miogeocline from Nd isotopes: Seminar speaker at **University of Rochester**

#### RESEARCH GRANTS

- Pending NRT DESE: Center for Energy and the Environment Data Science (CEEDS) graduate education initiative at the University of Rochester, NSF Research Traineeship, \$2,998,262 (P.I. Garziona, C.N., co-P.I.s Dwarkadas, S., Mort, B., Rich, D., Yates, M.)
- 2014-2017 RUI/Collaborative Research: Plio-Quaternary history of basin evolution, climate change, and fold-growth in the Qaidam basin- Investigating wind-enhance climate-tectonic feedback relationships, NSF Tectonics, \$367,538, UR budget – \$179,645 (P.I. Heermance, R., co-P.I. Garziona, C.N.)
- 2013-2017 FESD Type 1: The Dynamics of Mountains, Climate, and Landscape in the Distribution and Generation of Biodiversity of the Amazon/Andean Forest, NSF Frontiers in Earth System Dynamics, \$4,430,000, UR Budget = \$287,700 (P.I. Baker, P., co-P.I.s Battisti, D., Bush, M., Dick, C., Fritz, S., Garziona, C., Horton, B., Kay, R., Latrubesse, E., Manzoni, S., Porporato, A., Rigsby, C., Silman, M., Smith, S.)
- 2013-2016 Collaborative Research: Growth of the Tibetan Plateau and Eastern Asia Climate: Clues to Understanding the Hydrological Cycle (Phase 2), NSF-EAR Continental Dynamics, \$2,500,000, UR budget = \$328,738 (P.I. Molnar, P., co-P.I.s Battisti, D.S., Beck, J.W., Clark, M.K., Edwards, R.L., Fung, I., Garziona, C.N., Hai Cheng, Kutzbach, J.E., Zhengyu Liu, Niemi, N.A., Roe, G.)
- 2011-2014 Collaborative Research: Hypothesis testing of a Mediterranean-style closure of the Paleo-Tethys ocean, NSF-EAR Tectonics \$457,346, UR budget = \$232,489 (P.I. Pullen, A., co-P.I.s Basu, A., Garziona, C.N., and Weislogel, A.)
- 2010-2013 Collaborative Research: Basin evolution and elevation history of the SE margin of the Tibetan Plateau: constraints on the timing and mechanisms of surface uplift, NSF-EAR Tectonics, \$427,011, UR Budget = \$61,826 (P.I. Hoke, G.D., co-P.I. Garziona, C.N.)
- 2009-2012 Collaborative Research: Growth of the Tibetan Plateau and Eastern Asia Climate: Clues to Understanding the Hydrological Cycle (Phase 1), NSF-EAR Continental Dynamics \$3,000,000, UR budget = \$171,899 (P.I. Molnar, P., co-P.I.s Battisti, D.S., Beck, J.W., Clark, M.K., Edwards, R.L., Eiler, J.M., Fung, I., Garziona, C.N., Hai Cheng, Kutzbach, J.E., Zhengyu Liu, Niemi, N.A., Roe, G.)
- 2009-2013 Collaborative Research: CAUGHT: Central Andean Uplift and the Geodynamics of High Topography, NSF-EAR Continental Dynamics, \$2,545,967, UR budget = \$291,616 (P.I. Garziona, C.N., co-P.I.s Beck, S.L., Ducea, M.N., Ehlers, T.A., Horton, B.K., McQuarrie, N., Poulsen, C.J., Quade, J., Wagner, L.S., Zandt, G.)
- 2008-2010 Genetics and the Environment: How Do Plants Adapt to Dry Climate Conditions?, U of R Provost's Multidisciplinary Award, \$45,000 (P.I. Ramsey, J.M., co-P.I. Garziona, C.N.)
- 2008-2009 Peer-Led Laboratory Workshops: A New Approach to Learning in a Laboratory Setting, University of Rochester Center for Workshop Education, \$6,000 (P.I. Garziona, C.N.)
- 2007-2010 Collaborative Research: Surface Uplift and Climate Change in the Southern Altiplano: Evaluating Mechanisms for Surface Rise and the Effects of Tectonics on Climate, NSF-EAR Tectonics, \$429,675, UR budget = \$185,905 (P.I. Garziona, C.N., and co-P.I. Jordan, T.E)
- 2005-2010 Collaborative Research: Upward and Outward: Tibetan Plateau Growth and Climate Consequences, NSF-EAR Continental Dynamics, \$2,918,942, UR budget = \$279,000 (P.I. Molnar, P., co-P.I.s Burbank, D., Clark, M., Farley, K., Garziona, C., Kirby, E., Roe, G., and Zhang, P.)
- 2004-2005 Supplemental Funding: Acquisition of a Gas Source Isotope Ratio Mass Spectrometer for the Department of Earth and Environmental Sciences at the University of Rochester,

- NSF-EAR Instrumentation and Facilities, \$14,442 (P.I. Garzione, C.N., co-P.I.s Fehn, U. and Poreda, R.J.)
- 2004-2007 Supplemental Funding: Miocene-Pliocene Paleoelevation of the Bolivian Altiplano: NSF-EAR Tectonics, \$13,873 (P.I. Garzione, C.N.)
- 2003-2005 Acquisition of a Gas Source Isotope Ratio Mass Spectrometer for the Department of Earth and Environmental Sciences at the University of Rochester, NSF-EAR Instrumentation and Facilities, \$158,714 (P.I. Garzione, C.N., co-P.I.s Fehn, U., and Poreda, R.J.)
- 2003-2007 Collaborative Research: Miocene-Pliocene Paleoelevation of the Bolivian Altiplano: NSF-EAR Tectonics, \$186,077 (P.I. Garzione, C.N., and co-P.I. Libarkin, J.C.)
- 2002-2003 SGER: Oxygen and cosmogenic isotope approaches to paleoaltimetry of the Bolivian Altiplano, NSF-EAR Tectonics, \$9,300 (P.I. Garzione, C.N., and co-P.I. Libarkin, J.C.)
- 1999-2000 NASA Space Grant Fellowship for Science Education Outreach, \$19,350
- 1997-1998 Recent history of thrust faults in the Himalaya determined from foreland basin deposits in India: National Security Education Program Graduate Fellowship, \$20,000

#### GRADUATE STUDENTS

Matthew Ikari, M.S. 2002  
Yue Ziming, M.S. 2003  
David Auerbach, M.S., 2009  
Johanna Smith, M.S., 2009  
Brian Hough, Ph.D., 2010  
John Bershaw, Ph.D., 2010  
Yangling Wang, M.S. (co-advised with Asish Basu), expected 2014  
Nandini Kar, Ph.D., expected 2015  
Li Lin, expected 2015  
Lauren Williams, expected 2017  
Federico Moreno, expected 2018

#### POSTDOCTORAL ADVISEES

Gregory Hoke, 2005-2008  
Alex Pullen, 2010-2013

#### UNDERGRADUATE SENIOR THESES

Katherine Donhauser, 2001  
Stephen Duszlak, 2003  
Johanna Smith, 2008  
Kendra Williams, 2008  
Sheila Tripathy, 2009  
Hannah McDonough, 2010  
Mary Dzaugis, 2011  
Sarah Smith, 2012  
Jessica Ende, 2013

#### LANGUAGES

Italian, Spanish, Nepali