

# Christine Siddoway

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## Education

- B.A. Carleton College, Northfield, Minnesota, 1984
- M.Sc. University of Arizona, 1989
- Ph.D. University of California-Santa Barbara, 1995

## Honors

- Fellow, Geological Society of America, elected 2009.
- John D. and Catherine T. MacArthur Assistant Professor, Colorado College, 1998-2000.
- Fulbright International Post-doctoral Fellow, 1995-96.

## Experience

- Professor of Geology 2009 to present
- Chair, Department of Geology, Colorado College 2007 - 2010
- Associate Professor of Geology, Colorado College 2001 - 2007
- Visiting Scientist, Lamont-Doherty Earth Obs., Columbia University 2006
- Visiting Professor, Dept. Geosciences, University of Minnesota 2002 - 2003
- Assistant Professor, Colorado College 1996 - 2001

## Selected Publications

- Basement-hosted sandstone injectites of Colorado: A vestige of the Neoproterozoic revealed through detrital zircon provenance analysis, *Lithosphere*, doi: 10.1130/L390.1, see <http://news.sciencemag.org/earth/2014/09/strange-formation-colorado-rockies-sheds-light-earths-past>. 2014
- Anatectic reworking and differentiation of continental crust along the active margin of Gondwana: a zircon Hf-O perspective from West Antarctica, in Harley et al. (eds.), *Antarctica and Supercontinent Evolution*, Geological Society of London Special Publication, doi: 10.1144/SP383.7. 2013
- Strata, structures and enduring enigmas: A 125th Anniversary appraisal of Colorado Springs geology: Boulder, CO, Geological Society of America Field Guides, v.33, Chapter 13, doi:10.1130/2013.0033(13). 2013
- Relationship between syndeformational partial melting and crustal-scale magmatism and tectonism across the Wet Mountains, central Colorado, *Lithosphere*, doi: 10.1130/L287.1. 2013
- Microplate motion, *Nature Geoscience*, doi:10.1038/ngeo835. 2010

- Paleozoic tectonism on the East Gondwana margin: Evidence from SHRIMP U–Pb zircon geochronology of a migmatite–granite complex in West Antarctica, *Tectonophysics*, doi:10.1016/j.tecto.2009.04.021. 2009
- Tectonics of the West Antarctic rift system: New light on the history and dynamics of distributed intracontinental extension (invited paper) *in Antarctica: A Keystone in a Changing World*, National Academy of Sciences, Washington, D.C., pp. 91-114. 2008
- Kinematic history of the Marie Byrd Land terrane, West Antarctica: Direct evidence from Cretaceous mafic dykes, *in Terrane Processes at the Margin of Gondwana*, Geological Society of London, Special Publication 246, p. 417-438. 2005
- Ross Sea mylonites and the timing of intracontinental extension within the West Antarctic rift system, *Geology*, v. 32(1), p. 57-60. 2004

### Co-Authored Publications, 2010 to present

- Petrogenesis of Cretaceous mafic intrusive rocks, Fosdick Mountains, West Antarctica: melting of the sub-continental arc mantle along the Gondwana margin, *by Saito, S., Brown, M., Korhonen, F.J., McFadden, R.R., and Siddoway, C.S., Gondwana Research*, dx.doi.org/10.1016/j.gr.2012.08.002. 2013
- Geological Heritage beyond Natural Spaces: The Red Rocks Amphitheatre (Morrison, Colorado, U.S.A.), an example of syncretism between Urban Development and Geoconservation, *by Carreras, J., Druguet, E., & Siddoway, C. GeoHeritage Journal (Springer Verlag), DOI10.1007/s12371-012-0062-4.* 2012
- Organizing Melt Flow Through the Crust, *by Brown, M., Korhonen, F.J. & Siddoway, C.S., Mineralogical Association of Canada, Elements*, v. 7, 261–266. 2011
- Separating polymetamorphic events in the Fosdick migmatite–granite complex, West Antarctica, *by Korhonen, F.J., Brown, M., Grove, M., Siddoway, C.S., Baxter, E.F., & Inglis, J.D., Journal of Metamorphic Geology, DOI: 10.1111/j.1525-1314.2011.00961.x.* 2011
- Cretaceous oblique extensional deformation and magma accumulation in the Fosdick Mountains migmatite-cored gneiss dome, West Antarctica, *by McFadden R., C.S. Siddoway, C. Teyssier, & C.M. Fanning, Tectonics*, 10.1029/2009TC002492. 2010
- Tectonic implications of a Proterozoic mid-crustal section, Wet Mountains, Colorado U.S.A., *by Jones III, James V., Siddoway, Christine S. & Connelly, James N., Lithosphere*, v. 2, p. 119-135, doi:10.1130/L78.1. 2010
- Multiple generations of granite in the Fosdick Mountains, Marie Byrd Land, West Antarctica: Implications for polyphase intracrustal differentiation in a continental margin setting, *by Korhonen, F.J., S. Saito, M. Brown, C.S. Siddoway, & Day, J., Journal of Petrology*, 51 (3) 627-670, doi:10.1093/petrology/egp093. 2010

- Modeling multiple melt loss events in the evolution of an active continental margin, *by* Korhonen, F.J., S. Saito, M. Brown, & C.S. Siddoway, *Lithos*, 2010  
10.1016/j.lithos.2009.09.004.
- Oblique dilation, melt transfer, and gneiss dome emplacement, *by* McFadden R., C. Teysier, C. S. Siddoway, D. Whitney, & C. M. Fanning, *Geology*, doi: 2010  
10.1130/G30493.1.

### Extramural Research Grants – past 5 years

- Collaborative Research: A systems approach to understanding the Ross Ocean and ice Shelf Environment, and Tectonic setting Through Aerogeophysical surveys and modeling (ROSETTA), \$ 155,138, 48 mo. (*in review*, Antarctic Integrated Systems Science) 2014
- ACM Seminar in Advanced Interdisciplinary Learning (SAIL): “Mediterranean Trivium: Earth, Sea and Culture.” With S. Ashley & S. Thakur, \$106,000, 24 mo. 2013
- Collaborative research: Polyphase orogenesis and crustal differentiation in West Antarctica, \$145,260. With M. Brown, University of Maryland. NSF-OPP-0944600 2010
- Research at Undergraduate Institutions: Development of an on-line GIS repository of geological data from the Ford Ranges, Marie Byrd Land, and application to Cenozoic paleogeography reconstruction, \$49,545, 24 months. NSF-OPP-0944777 2010
- Collaborative Research: Formation of basement-involved foreland arches: An Integrated structural and seismic EarthScope experiment, \$ 134,440. With M. Anderson (Colorado College), E. Erslev (U. Wyoming), Anne Sheehan (CU-Boulder), and Kate Miller (UTEP). NSF-EAR- 0843889. 2009

### Invited academic lectures – past 5 years

- On the trail of Colorado's newest, oldest sedimentary rock formation: Eluded at every turn by the Tava sandstone [Denver Museum of Nature and Science] 17 December 2014
- A vestige of the Neoproterozoic in the Front Range? Sandstone dikes and source rocks along the Ute Pass fault [van Tuyl Lecture, Colorado School of Mines] 21 November 2013
- Change from wrench to transtension along the Cretaceous Gondwana margin, recorded in isotopic characteristics of zircon in syntectonic anatectic granites in West Antarctica [Univ. Maryland] 13 April 2012
- A look at the structure of the Rocky Mountain foreland in Wyoming: EarthScope's Bighorns Arch Seismic Experiment [Univ. Calgary] April 8, 2011
- Structural geology of the Garden of the Gods: fault linkage zones in contractional setting [van Tuyl Lecture, Colorado School of Mines] February 4, 2010

## Research Experience

- Principal investigator, NSF EarthScope program 2010 - 2013
- Principal investigator, U.S. Antarctic Program/NSF (six awards) 1996 to present
- Research School Visitor, Australian National University 2006, 2008
- Visiting Scientist, Lamont-Doherty Earth Observatory, Columbia University, New York 2006
- Geologist, National Antarctic Program of Italy research expedition 1996
- Geologist, German National Antarctic Expedition, GANOVEX VII 1992 - 1993

## Teaching Experience, 1996 to present

- Structural Geology, GY315
- Field Analysis of Geological Structures, GY316
- Introductory Metamorphic Petrology, GY313
- Introduction to Geodesign, GY250/EV260
- Digital Mapping : Applications of Earth Sciences for Society, GY400
- Rocks & Ruins: Natural Catastrophes & Mediterranean Culture, GY250
- Regional Studies capstone, GY445 [e.g. Oaxaca, New Zealand, California]
- Antarctica: Geological records of global change [GY100 and GY250]
- Physical Geology, GY140
- Undergraduate research mentoring, GY405: 53 senior and 16 other undergraduate research projects (titles available upon request)

## Professional Development

- Co-leader, Seminar on Academic Interdisciplinary Leadership, Associated Colleges of the Midwest [in Italy] 2013
- Joint Technical Program Committee, Geological Society of America 2011 - 13
- Associate Editor, Geological Society of America Bulletin 2009 - 12
- Director, Keck Geology Consortium Junior Research project in WY 2010 - 11
- Faculty member, Keck Geology Consortium Junior Research projects 1997 - 1998

## Affiliations/Memberships

- Geological Society of America, elected Fellow in 2009. 1984 -
- American Geophysical Union 1986 -
- Association of Women Geologists
- Rocky Mountain Association of Geologists 2009 -

## Research Interests

- Tectonic evolution of Antarctica and continental growth upon the active margin of East Gondwana
- Migmatites and the role of melt in crustal deformation
- Rocky Mountains geological structures
- GIS for Earth Sciences investigation for solutions for Society and Environment, including Geodesign
- Precambrian geology of western North America
- Consequences of catastrophic geological events upon past civilizations

## Academic / Professional Service

### Colorado College

- 2012-13 Co-Chair, Strategic Planning Sub-Committee.
- 2011- 14 Chair, Academic Events Committee.
- 2007-10 Chair, Geology Department (3 year term).
- 2008-10 Committee on Assessment.
- 2003-05 Natural Sciences Division Executive Committee (Chair in 2004-05).
- 2004-05 Committee on Instruction; Summer Session Committee.

### Earth Sciences and Polar Research

- 2012-14 Joint Technical Program Committee, Geological Society of America. Representative for Structural Geology and Tectonics Division for 125th Anniversary meeting of the GSA in Denver CO.
- 2005-13 Doctoral committee member for Chris Yakymchuk, University of Maryland; Rory McFadden, University of Minnesota; Jamie Levine, University of Texas.
- 2009-12 Associate Editor, Geological Society of America Bulletin (3-year term).
- 2005-10 Integrated Solid Earth Science steering committee.
- 2005-2008 Co-organizer for ISES graduate summer schools at Colorado College.
- 1996 -- Reviewer: GSA Bulletin, Geology, Tectonics, Tectonophysics, J. Metamorphic Geology, Earth & Planetary Science Letters, and NSF grant proposals.
- 2004-07 Organizing Committee, 10th Int'l Symposium on Antarctic Earth Sciences [ISAES X], Univ. California-Santa Barbara, [www.isaes2007.geol.ucsb.edu/Committees.html](http://www.isaes2007.geol.ucsb.edu/Committees.html).

### Collaborators/ Past 5 Years

- Robin Bell, Lamont Doherty Earth Institute, Columbia University
- Mike Brown, University of Maryland
- Elena Druguet, Dept. Geologia, Universitat Autònoma de Barcelona, Spain
- C. Mark Fanning, Australian National University
- Elisa Fitz Díaz, Universidad Nacional Autónoma de México
- Helen Fricker, Scripps Institution of Oceanography
- Fawna Korhonen, Geological Survey of West Australia, Perth
- Seth Kruckenberg, Boston College
- Rory McFadden, Salem State University
- Kate Miller, Texas A&M University
- Paul Morin, University of Minnesota
- Laurence Padman, Earth and Space Research Institute, Oregon
- Mike Petronis, University of New Mexico – Highlands
- Anne Sheehan, University of Colorado
- Christian Teyssier, University of Minnesota
- Basil Tikoff, University of Wisconsin
- Chris Yakymchuk, University of Waterloo, Canada