

Christine Smith 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

Current Position

- Professor of Geology 2009 to present

Honors

- Thomas M. McKee Professor in the Natural Sciences, Colorado College, 2016-19.
- Fellow, Geological Society of America, elected 2009.
- John D. and Catherine T. MacArthur Assistant Professor, Colorado College, 1998-2000.
- Fulbright International Post-doctoral Fellow, Università di Siena [Italy], 1995-96.
- Antarctic Service Medal, 1993.

Research metrics [Research Gate](#) [Google Scholar](#)
Media coverage: [Nature Careers](#) [Science News](#) [Wikipedia](#)
 [ArsTechnica](#) [2015 Geodesign Summit](#)

Current Research

- Collaborative Research: A systems approach to understanding the Ross Ocean and ice Shelf Environment, and Tectonic setting Through Aerogeophysical surveys and modeling, \$ 155,138. With R. Bell, K. Tinto, L. Padman. H. Fricker,, S. Springer, and I. Das.
- International Ocean Discovery Program (IODP) Amundsen Sea West Antarctic Ice Sheet History Expedition 379.
- SCAR Action Group on the Geological Mapping Update of Antarctica
- Basement-hosted Sand Injectites

Selected Publications, 2010 to present

- Spatio-temporal variability of processes across Antarctic ice-bed-ocean interfaces, *Nature Communications*, DOI: 10.1038/s41467-018-04583-0 (*accepted May 12*) 2018
- The Geology of West Antarctica, in Kleinschmidt, G., *ed.*, *Geology of the Antarctic Continent*, *Gebrüder Borntraeger Verlagsbuchhandlung*, Stuttgart: (*submitted, invited chapter*). 2018
- Basement-hosted sandstone injectites of Colorado: A vestige of the Neoproterozoic revealed through detrital zircon analysis, *Lithosphere*, v. 6, p. 403-408, [Media synopsis](#) 2014
- Anatectic reworking and differentiation of continental crust along the active margin of Gondwana: a zircon Hf–O perspective from West Antarctica, Geological Society of London Special Publication, doi: 10.1144/SP383.7. 2013

- Microplate motion, *Nature Geoscience*, doi:10.1038/ngeo835. 2010

Other co-Authored Publications, 2010 to present

- Geologic slip rate estimates for the Alpine Fault at Maruia River (Calf Paddock), New Zealand, by Langridge et al., *NZ Journal of Geology & Geophysics*, 10.1080/00288306.2016.1275707. 2017
- From source to sink: Petrogenesis of Cretaceous anatectic granites from the Fosdick migmatite–granite complex, West Antarctica, by Brown *et al.*, *J. Petrology*, <https://doi.org/10.1093/petrology/egw039>. 2016
- Mid-Cretaceous oblique rifting of West Antarctica: emplacement and rapid cooling of the Fosdick Mountains migmatite–cored gneiss dome, by McFadden R. *et al.*, *Lithos*, doi:10.1016/j.lithos.2015.07.005. 2015
- Paleozoic evolution of West Marie Byrd Land, West Antarctica: Geological Society of America Bulletin, doi:10.1130/B31136.1, by Yakymchuk et al., *GSA Bulletin*, <dx.doi.org/10.1016/j.gr.2012.08.002>. 2015
- Crustal Structure of the Bighorn Mountains Region: Precambrian Influence on Laramide Shortening and Uplift, by Worthington et al., *Tectonics*, doi:10.1002/2015TC003840. 2015
- 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), doi: 10.1007/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
- Tectonic implications of a Proterozoic mid-crustal section, Wet Mountains, Colorado, U.S.A., by Jones et al., *Lithosphere*, v. 2, p. 119-135, doi:10.1130/L78.1. 2010
- Oblique dilation, melt transfer, and gneiss dome emplacement, by McFadden R. *et al.*, *Geology*, doi: 10.1130/G30493.1. 2010

Extramural Research Grants – past 5 years

- Collaborative Research: A systems approach to understanding the **R**oss **O**cean and ice **S**helf **E**nvironment, and **T**ectonic setting **T**hrough **A**erogeophysical surveys and modeling (ROSETTA-ICE), \$ 155,138, 36 mo. NSF-AISS-1443497. 2015
- ACM Seminar in Advanced Interdisciplinary Learning (SAIL): “Mediterranean Trivium: Earth, Sea and Culture.” With S. Ashley & S. Thakur, \$106,000, 24 mo. 2013

Invited academic lectures – a selection from the past 5 years

- Ross Ice Shelf, Antarctica: Airborne Geophysical Data for Bathymetry, Crustal Structure and sub-Shelf Ocean Circulation [Colorado State University] Nov. 2, 2017
- A hematite (U-Th)/He minimum age for Cryogenian Tava sandstone, Colorado, and variations in detrital zircon provenance that illuminate the paleogeography of the region [GSA Annual mtg] Sept. 28, 2016
- Laurentia paleogeography illuminated by detrital zircon age spectra from Neoproterozoic sandstones in Colorado [New Mexico Tech] September 2, 2015
- A window on terrestrial paleo-environments of Rodinia, provided by sandstone injectites in Colorado [University of Colorado] April 8, 2015
- [Geodesign in undergraduate education: An optimal platform](#) for inquiry and action [Lightning Talk, Esri Geodesign Summit] 23 January 2015
- On the trail of Colorado's newest, oldest sedimentary rock formation: Eluded at every turn by the Tava sandstone [[DMNS](#)] 17 December 2014

Research Positions, past 10 years

- Shipboard Core Description, [IODP 379](#) Amundsen Sea.
- Visiting scientist, Universita di Aldo Moro di Bari, (Italy) Fall, 2016
- Principal investigator, U.S. Antarctic Program/NSF (7 awards) 1996 to present
- Principal investigator, NSF EarthScope program 2010 - 2013
- Research School Visitor, Australian National University 2008

Courses taught at present

- Structural Geology, GY315
- Field Analysis of Geological Structures, GY316
- Introduction to Geodesign, GY250/EV260
- Regional Studies capstone, GY445 [e.g. Oaxaca, New Zealand, California, Scotland]
- Physical Geology, GY140 [taught annually, once taught in Tuscany]
- Undergraduate research mentoring, GY405: (diverse topics & methods)

Professional Service and Development since 2010

- Co-leader, Seminar on Academic Interdisciplinary Leadership, Associated Colleges of the Midwest [in Italy] 2013

Affiliations/Memberships

- Geological Society of America, elected Fellow in 2009. 1984 -
- American Geophysical Union 1986 -
- Association of Women Geologists 1996 -
- Rocky Mountain Association of Geologists 2009 -

Research Interests

- Tectonic development of West Antarctica and New Zealand within Gondwana
- Migmatites and the role of melt in crustal deformation
- Rocky Mountains geological structures, with a current emphasis on Neoproterozoic fault initiation
- GIS for Earth Sciences investigation for solutions for Society and Environment, including Geodesign
- Proterozoic geology of western North America
- Consequences of catastrophic geological events upon past civilizations
- Geodesign as a platform for undergraduate geospatial/urban environment preparation

Academic / Professional Service

Colorado College

- 2007-10 Chair, Geology Department (3 year term).
- 2003-05 Natural Sciences Division Executive Committee (Chair in 2004-05).

Leadership, Professional Organizations and Polar Research

- 2016-19 Member-at-Large, GSA Penrose / Thompson Field Forums Committee
- 2015 Antarctic Earth Science review panel, National Science Foundation
- 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 External member, PhD committees of Jaquie Baughman & Cailey Condit, U.Colorado, Chris Yakymchuk, U. Maryland; Rory McFadden, Univ. Minnesota; Jamie Levine, Univ. Texas.
- 2009-12 Associate Editor, Geological Society of America Bulletin (3-year term).
- 2005-10 Integrated Solid Earth Science steering committee. Co-organizer for ISES graduate summer schools at Colorado College.

- **Current Collaborators**

- Alexis Ault, Utah State University
- Robin Bell, Lamont Doherty Earth Institute, Columbia University
- Andrea Brogi, Università di Aldo Moro di Bari, (Italy)
- Florence Colleoni, Istituto Nazionale di Oceanografia Sperimentale, Italy
- Simon C. Cox, GNS Science, New Zealand
- Helen Fricker, Scripps Institution of Oceanography
- Domenico Liotta, Università di Aldo Moro di Bari, (Italy)
- Giuseppe Palladino, University of Aberdeen, Scotland
- Laurence Padman, Earth and Space Research Institute, Oregon
- Peter Reiners, University of Arizona
- Christian Teyssier, University of Minnesota
- Basil Tikoff, University of Wisconsin
- Kirsty Tinto, Lamont Doherty Earth Institute, Columbia University