

Adriana Raudzens Bailey

Atmospheric and Oceanic Sciences
Cooperative Institute for Research in Environmental Sciences
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Education

2009-present **Ph.D. Candidate**

Atmospheric and Oceanic Sciences
University of Colorado Boulder, Boulder, CO
Dissertation Topic: *An isotopic evaluation of the mechanisms controlling moisture transport between the convective boundary layer and free troposphere*

2010 **M.A. Physical Geography**

University of Colorado Boulder, Boulder, CO
Thesis: *Attribution of wintertime inversion frequencies to synoptic circulation in the U.S. Southwest*

2002 **B.Sc. Environmental Science with Honors**

Brown University, Providence, RI
Thesis: *Sensitivity to acidification of four alpine basins on different bedrock, Mt. Washington, N.H.*

Recent Professional Experience

2009-present Graduate Research Assistant
University of Colorado Boulder, Boulder, Colorado.

2006-2009 Science News Writer
Cooperative Institute for Research in Environmental Sciences, Boulder, Colorado.

Recent Teaching and Mentoring Experience

2008 Teaching Assistant
Mountain Geography, University of Colorado Boulder, Boulder, Colorado.

2008 Writing Mentor for SOARS*
*Significant Opportunities in Atmospheric Research and Science: a UCAR program to support minority undergraduates in conducting scientific research, Boulder, Colorado.

Recent Awards, Honors, and Fellowships

2013-2014 Ford Foundation Dissertation Fellowship (\$21,000)

2013-2014 NASA Earth and Space Science Fellowship (\$22,384)

2013 American Association of University Women (AAUW) Dissertation Fellowship (*declined*)

- 2013 Carol B. Lynch Graduate Fellowship (\$2500)
Awarded by the University of Colorado Boulder in recognition of a student in the sciences whose research interests are interdisciplinary.
- 2012-2013 CIRES⁺ Graduate Research Fellowship (~\$30,000)
⁺Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder. Stipend, tuition, and benefits for two semesters of study.
- 2012 Katrin Lehmann Award (Best Poster Presentation)
Awarded by the International Committee on Clouds and Precipitation at the 16th International Conference on Clouds and Precipitation, July 30-August 3, Leipzig, Germany.
- 2012 American Women in Science Educational Award (\$2930)
To attend the 16th International Conference on Clouds and Precipitation, Leipzig, Germany.
- 2009-2012 National Science Foundation Graduate Research Fellowship (~\$120,000)
Stipend (\$30,000/yr), tuition, and benefits for three years of graduate study.
- 2011 Outstanding Student Paper Presentation
Awarded by the Atmospheric Sciences section for an oral presentation at the Fall Meeting of the American Geophysical Union, December 5-9, San Francisco, California.
- 2010 ThinkSwiss Fellowship (CHF 1200/~\$1200)
To attend the 9th International NCCR Climate Summer School, “Adaptation and Mitigation: Responses to Climate Change,” August 29-September 3, Grindelwald, Switzerland.
- 2010 Best Student Oral Presentation
9th Symposium on the Urban Environment, American Meteorological Society, August 2-6, Keystone, Colorado.
- 2009 *Year of Science Zine-a-thon* Winner
Developed and produced a science news zine for middle schoolers that won in the category “Nature of Science.” Distributed 3,000 copies to local schools with NOAA’s support.
- 2009 First Annual Maurice L. Albertson Award (Best Student Poster)
Rocky Mountain Hydrologic Research Center Annual Meeting, October 9, 2009, Boulder, Colorado.
- 2009 CIRES⁺ Outstanding Service Award (\$2,000)
⁺Cooperative Institute for Research in Environmental Sciences, University of Colorado Boulder. Awarded in recognition of writing and outreach activities promoting university and NOAA science.

Additional Travel & Research Funding

Awarded more than \$10,000 in small grants for conference travel and research funding since 2009.

Invited Presentations

- 2013 Oct 16 Environmental Science Colloquium Series, Plymouth State University, NH.
“Fingerprinting moisture transport near Hawaii using stable isotopes in water”

- 2013 Hydrologic Sciences and Water Resources Engineering Seminar Series, University of Colorado Boulder, Boulder, Colorado.
“Stable isotope constraints on the vertical exchange of moisture in the convective boundary layer”
- 2011 Department of Atmospheric Science, University of Wyoming, Laramie, Wyoming.
“Tracking air mass mixing and moist processes in the Subtropics using stable isotopes in water”

Publications

Accepted

Bailey, A., L. Giangola, and M. Boykoff (2014), How grammatical choice shapes media representations of climate (un)certainty, *Environ. Comm.*

Published

Berkelhammer, M., J. Hu, **A. Bailey**, D. Noone, C. Still, H. Barnard, D. Gochis, G. Hsiao, T. Rahn, and A. Turnipseed (2013), The nocturnal water cycle in an open-canopy forest, *J. Geophys. Res.*, 118, doi:10.1002/jgrd.50701.

Bailey, A., D. Toohey, and D. Noone (2013), Characterizing moisture exchange between the Hawaiian convective boundary layer and free troposphere using stable isotopes in water, *J. Geophys. Res.*, 118, 8208-8221, doi:10.1002/jgrd.50639.

Noone, D., C. Risi, **A. Bailey**, M. Berkelhammer, D. P. Brown, N. Buenning, S. Gregory, J. Nusbaumer, D. Schneider, J. Sykes, B. Vanderwende, J. Wong, Y. Meillier, and D. Wolfe (2013), Determining water sources in the boundary layer from tall tower profiles of water vapor and surface water isotope ratios after a snowstorm in Colorado, *Atmos. Chem. Phys.*, 13, 1607-1623, doi:10.5194/acp-13-1607-2013.

Noone, D., J. Galewsky, Z.D. Sharp, J. Worden, J. Barnes, D. Baer, **A. Bailey**, D.P. Brown, L. Christensen, E. Crosson, F. Dong, J.V. Hurley, L.R. Johnson, M. Strong, D. Toohey, A. Van Pelt, and J.S. Wright (2011), Properties of air mass mixing and humidity in the subtropics from measurements of the D/H isotope ratio of water vapor at the Mauna Loa Observatory, *J. Geophys. Res.*, 116, doi:10.1029/2011JD015773.

Bailey, A., T. Chase, J. Cassano, and D. Noone (2011), Changing temperature inversion characteristics in the U.S. Southwest and relationships to large-scale atmospheric circulation, *J. Appl. Meteorol. and Climatol.*, 50, 1307–1323, doi: <http://dx.doi.org/10.1175/2011JAMC2584.1>.

Worden, J., D. Noone, J. Galewsky, **A. Bailey**, K. Bowman, D. Brown, J. Hurley, S. Kulawik, J. Lee, and M. Strong (2010), Estimate of bias in Aura TES HDO/H₂O profiles from comparison of TES and in situ HDO/H₂O measurements at the Mauna Loa Observatory, *Atmos. Chem. Phys.*, 11, 4491-4503, doi:10.5194/acp-11-4491-2011.

Conference Proceedings (Oral Presentations)

- Bailey, A., L. Giangola, M. Boykoff, and J. Rivas (2013), How grammatical choice shapes media representations of climate (un)certainty, 7th Graduate Climate Conference, Woods Hole, Massachusetts, Nov 1-3.
- Bailey, A. and J. Rivas (2013), How grammatical choice shapes media representations of climate (un)certainty, AGU Chapman Conference, Communicating Climate Science: A Historic Look to the Future, Granby, Colorado. Jun 8-13.
- Bailey, A., D. Noone, and D. Toohey (2012), Constraining vertical moisture transport with stable isotopes in water, 6th Graduate Climate Conference, Pack Forest, Washington. Oct 26-28.
- Raudzens Bailey, A., D. Noone, and D. Toohey (2011), Isotopic signatures of mixing processes and cloud detrainment in the subtropics, Fall Meeting of the American Geophysical Union, San Francisco, California. Dec 5-9.
- Bailey, A. and M. Berkelhammer (2011), Planes, towers, and automobiles: Tales of field-deploying a water isotope analyzer, 1st Front Range Isotope Day, University of Colorado Boulder, Boulder, Colorado. Aug 19.
- Bailey, A., D. Noone, and D. Toohey (2010), Detection of aerosol growth rate using a mass balance model constrained by water isotope measurements at Mauna Loa, Global Monitoring Conference, ESRL-NOAA, Boulder, Colorado. May 18-19.
- Bailey, A., T.C. Chase, J.J. Cassano, and D. Noone (2010), Changing temperature inversion characteristics in the U.S. Southwest and relationships to large-scale atmospheric circulation, 9th Symposium on the Urban Environment, American Meteorological Society, Keystone, Colorado. Aug 2-6.
- Raudzens, A. (2002), Sensitivity to acidification of four alpine basins, Mt. Washington, New Hampshire, Annual Hubbard Brook Cooperator's Meeting, North Woodstock, New Hampshire. Jul 9-10.

Conference Proceedings (Poster Presentations)

- Raudzens Bailey, A., D. Noone, J. Nusbaumer, and D. Toohey (2013), Determining dynamical controls on vertical motion near Hawaii using isotope ratios in water, Fall Meeting of the American Geophysical Union, San Francisco, California. Dec 9-13.
- Bailey, A., J. Nusbaumer, and D. Noone (2013), Two years of continuous vapor isotope ratio measurements at Mauna Loa: a new glimpse into humidity controls in the subtropics, ESRL Global Monitoring Conference, Boulder, Colorado. May 21-22.
- Bailey, A., D. Noone, and D. Toohey (2012), Vertical exchange of moisture and water cycle processing of aerosol in the convective boundary layer. 1st Pan-Global Atmospheric System Studies Meeting, "Advances in the Modelling of Atmospheric Physical Processes,"

National Center for Atmospheric Research, Boulder, Colorado. Sept 10-14.

Bailey, A., D. Noone, and D. Toohey (2012), The isotopic signature of moistening by low-level clouds, 2nd Front Range Isotope Day, University of Wyoming, Laramie, Wyoming. Aug 17.

Bailey, A., D. Noone, and D. Toohey (2012), The isotopic signature of moistening by low-level clouds, 16th International Conference on Clouds and Precipitation, Leipzig, Germany. July 30-Aug 3.

Bailey, A., D. Noone, M. Berkelhammer, and T. Rahn (2011), The stable water isotopic signature of ENSO: a new look at humidity controls, World Climate Research Programme Open Science Conference, Denver, Colorado. Oct 24-28.

Bailey, A., D. Noone, and D. Toohey (2011), Investigating signatures of large-scale advection and microphysical processes on vertical profiles of water vapor and aerosols near Mauna Loa and Mauna Kea, ESRL Global Monitoring Conference, Boulder, Colorado. May 17-18.

Raudzens Bailey, A., D. Noone, and D. Toohey (2010), Using stable water isotopes to distinguish aerosol chemistry from transport, Fall Meeting of the American Geophysical Union, San Francisco, California. Dec 13-17.

Bailey, A. and D. Noone (2010), Exploring thermodynamic and dynamic components of water vapor changes through stable water isotopes, 9th International NCCR Climate Summer School, "Adaptation and Mitigation: Responses to Climate Change," Grindelwald, Switzerland. Aug 29-Sept 3.

Raudzens Bailey, A. and T. Chase (2009), Air quality and changes in inversion characteristics in the Western United States, Fall Meeting of the American Geophysical Union, San Francisco, California. Dec 14-18.

Raudzens Bailey, A. and T. Chase (2009), Hydrological influences on air quality through changes in inversion characteristics in the Western United States, Rocky Mountain Hydrologic Research Center Annual Meeting, Boulder, Colorado. Oct 9.

Guest Lectures

2013

University of Colorado Boulder

- Weather and the Atmosphere (ATOC 1050)
- Our Changing Environment (ATOC 1060)
- Environmental Systems: Climate and Vegetation (GEOG 1001)

2012

University of Colorado Boulder

- Introduction to Atmospheric Dynamics (ATOC 5050)
- Weather and the Atmosphere (ATOC 1050)

Denver School of Science and Technology

- Middle School Science

- 2011 University of Colorado Boulder
- Principles of Climate (ATOC 3600)

Professional Development

- 2014 Professional Development Certificate for Preparing Future Faculty (*in progress*)
Graduate Teacher Program, University of Colorado Boulder, Boulder, Colorado.
- 2011 Community Earth System Model Tutorial
National Center for Atmospheric Research, Boulder, Colorado, Aug 1-5.

Professional Memberships

American Geophysical Union (AGU), American Meteorological Society (AMS), Association for Women in Science (AWIS), Graduate Women in Science (GWIS).

Community Outreach

- 2011-*present* Water Spotters, St. Vrain Valley School District MESA Program
Assisting with curriculum development, weather station installation, and website for K-12 science after-school program focused on water cycle and climate studies.
- 2013 Expanding Your Horizons Volunteer
One-day conference at the University of Colorado Boulder to encourage middle-school girls to pursue higher education in STEM fields.
- 2011 ICE-T Outreach
Participated in one-day public outreach day at San Juan International Airport and blogged about month-long field campaign on behalf of the National Center for Atmospheric Research.
- 2010 ASCENT[‡] Volunteer
[‡]Atmospheric Science Collaborations and Enriching NeTworks, a program supporting young female faculty and post-docs, Steamboat Springs, Colorado.
- 2006-2009 Climate Action Plan Citizen Advisory Group
Member of a formal advisory group of the City of Boulder, Colorado.
- 2003 Radio Host and News Reporter
KGNU Community Radio, Boulder, Colorado.
- 1999, 2001 Spanish Medical Interpreter
Rhode Island Hospital, Providence, Rhode Island.