

Dr. David E. Reed
Assistant Professor
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<https://sites.google.com/view/climate-science-lab>

Positions

2020 – Present

Assistant Professor of Environmental Science
University of Science and Arts of Oklahoma

2017 – 2020

Research Assistant Professor
Center for Global Change and Earth Observations, Michigan State University
Advisors: Jiquan Chen and Kyla Dahlin

2015 – 2017

NSF Postdoctoral Fellowship, Atmospheric and Geospace Sciences
Department of Atmospheric and Oceanic Sciences, University of Wisconsin – Madison
North Temperate Lake Long Term Ecological Research Station, University of Wisconsin – Madison
Advisor: Ankur R. Desai

2014 – 2015

Visiting Assistant Professor
Department of Physics & Astronomy, Dickinson College

Education

2014 Ph.D. University of Wyoming

Program in Ecology, Department of Atmospheric Science

Co-Advisors: Robert D. Kelly and Brent E. Ewers

Dissertation Title: *Observing and diagnosing biological fluxes and canopy mechanisms with implications for climate change and ecosystem disturbance*

2008 M.S. University of Michigan

Atmospheric Science, Department of Atmospheric Oceanic and Space Science

2007 B.S.E. University of Michigan

Climate Physics, Department of Atmospheric Oceanic and Space Science

Minor, Oceanography, Department of Geology

Publications (April 2021: h-index: 11, 438 Total Citations)

(Undergrad students denoted by *)

(22) **Baldocchi A K***, **D.E. Reed**, L Loken, E Stanley, **H Huerd**, A R Desai. (2020) Comparing Space and Time Variation of Lake-Atmosphere Carbon Dioxide Fluxes using Multiple Methods. *Journal of Geophysical Research: Biogeosciences*: e2019JG005623.

(21) Dahlin K, D Akanga, D Lombardozi, **D.E. Reed**, G Shirkey, C Lei, M Abraha, J Chen. (2020) Challenging a Global Land Surface Model in a Local Socio-Environmental System. *Land* 9.10: 398.

(20) **Poe J***, **D.E. Reed**, M Abraha, J Chen, A R Desai. (2020) Geospatial Coherence of Land-Atmosphere Fluxes in the Upper Great Lakes Region. *Agriculture and Forest Meteorology* doi.org/10.1016/j.agrformet.2020.108188

- (19) Pastorello, G. and 286 co-authors. (2020) The FLUXNET2015 dataset and the ONEFlux processing pipeline for eddy covariance data. *Scientific Data* DOI : 10.1038/s41597-020-0534-3
- (18) Helbig, M. and 60 co-authors. (2020) Increasing contribution of peatlands to boreal evapotranspiration in a warming climate. *Nature Climate Change* DOI : 10.1038/s41558-020-0763-7
- (17) **Reed D.E.**, J Chen, M Abraha, G P Robertson, K Dahlin. (2020) Shifting role of mRUE in regulating ecosystem production. *Ecosystems* DOI: 10.1007/s10021-019-00407-4
- (16) **Reed D.E.**, A R Desai, **Whitaker, E C***, **H Nuckles***. (2019) Evaluation of Low-Cost, Automated Lake Ice Thickness Measurements. *Journal of Atmospheric and Oceanic Technology*. DOI: 10.1175/JTECH-D-18-0214.1
- (15) Chu, H., D. D. Baldocchi, C. Poindexter, M. Abraha, A. R. Desai, G. Bohrer, M. Altaf Arain, T. Griffis, P. D. Blanken, T. L. O'Halloran, R. Q. Thomas, Q. Zhang, S. Burns, J. M. Frank, D. Christian, S. Brown, T. A. Black, C. M. Gough, B. E. Law, X. Lee, J. Chen, **D. E. Reed**, W. J. Massman, K. Clark, J. Hatfield, J. Prueger, R. Bracho, J. M. Baker, T. A. Martin. (2018) Temporal dynamics of aerodynamic canopy height derived from eddy covariance momentum flux data across North American Flux Networks. *Geophysical Research Letters* DOI:10.1029/2018GL079306
- (14) **Reed D.E.** (2018) Six Steps for Cultivating Successful Undergraduate Research. *The Bulletin of the Ecological Society of America* DOI:10.1002/bes2.1453
- (13) **Reed D.E.**, HA Dugan, **AL Flannery***, AR Desai. (2018), Carbon sink and source dynamics of a eutrophic deep lake using multiple flux observations over multiple years. *Limnology and Oceanography Letters*
- (12) **Reed D E**, B E Ewers, E Pendall, H Kwon, K Naithani, R D Kelly. (2018), Biophysical factors and canopy coupling controlling ecosystem fluxes of sagebrush semi-arid ecosystems. *Rangeland Ecology and Management* <https://doi.org/10.1016/j.rama.2018.01.003>
- (11) **Pugh, C.A.***, **Reed, D.E.**, Desai, A.R., Sulman, B. N. (2018), Wetland flux controls: how does interacting water table levels and temperature influence carbon dioxide and methane fluxes in northern Wisconsin?. *Biogeochemistry* 137.1-2 (2018): 15-25.
- (10) **Reed, D.E.**, B.E. Ewers, E. Pendall, J. Frank, and R. Kelly. (2018). Bark beetle-induced tree mortality alters stand energy budgets due to water budget changes. *Theoretical and Applied Climatology* doi:10.1007/s00704-016-1965-9
- (9) **Reed, D.E.**, Frank J. M., Ewers B. E., Desai A. R. (2018), Time dependency of eddy covariance site energy balance, *Agricultural and Forest Meteorology*, ISSN 0168-1923, <http://dx.doi.org/10.1016/j.agrformet.2017.08.008>.
- (8) Millar D J, B E Ewers, D S Mackay, S Peckham, **D E Reed**, and A Sekoni (2017), Improving ecosystem-scale modeling of evapotranspiration using ecological mechanisms that account for compensatory responses following disturbance, *Water Resources Research*, 53, doi:10.1002/2017WR020823.
- (7) **Whitaker, E.C.***, **Reed, D.E.** and Desai, A.R. (2016), Lake ice measurements from soil water content reflectometer sensors. *Limnology and Oceanography Methods*. doi:10.1002/lom3.10083

(6) Biederman, J.A., T. Meixner, A.A. Harpold, **D.E. Reed**, E.D. Gutmann, J.A. Gaun, and P.D. Brooks (2016), Riparian zones attenuate nitrogen loss following bark beetle-induced lodgepole pine mortality, *Journal of Geophysical Research: Biogeosciences*, 121, 933–948, doi:10.1002/2015JG003284.

(5) Biederman, J. A., P.D. Brooks, A.A. Harpold, D.J. Gochis, E. Gutmann, **Reed, D.E.**, E. Pendall, and B.E. Ewers (2014), Multiscale observations of snow accumulation and peak snowpack following widespread, insect-induced lodgepole pine mortality. *Ecohydrology*, 7: 150–162. doi: 10.1002/eco.1342

(4) Biederman, J. A., A.A. Harpold, D.J. Gochis, B.E. Ewers, **D.E. Reed**, S.A. Papuga, and P.D. Brooks (2014), Increased evaporation following widespread tree mortality limits streamflow response, *Water Resources Research*, 50, 5395–5409, doi:10.1002/2013WR014994.

(3) **Reed D.E.**, M. Lyford. (2014). Science Courses for Non-science Majors: How Much Impact Can One Class Make?. *Bulletin of the American Meteorological Society*. 95, 1209–1212. doi:http://dx.doi.org/10.1175/BAMS-D-13-00003.1

(2) **Reed D.E.**, B.E. Ewers, E. Pendall. (2014). Impact of mountain pine beetle induced mortality on forest carbon and water fluxes. *Environmental Research Letters*. 9 105004 doi:10.1088/1748-9326/9/10/105004

(1) Pendall E, B E Ewers, U Norton, P Brooks, W J Massman ,H Barnard, **D.E. Reed**, T Aston, J Frank. (2010), Impacts of beetle-induced forest mortality on carbon, water and nutrient cycling in the Rocky Mountains. *Fluxletter* 3(1): 17-21

Publications In-Review

Taebel Z*, **D.E. Reed**, A R Desai. Evaluating Surface Energy Balance Uncertainty in Lake Models. In-Review at *Journal of Hydrometeorology*

Reed D.E., C Lei, W Baule, G Shirkey, J Chen, K P Czajkowski, Z Ouyang. Impacts of an urban density gradient on land-atmosphere thermodynamic fluxes across seasonal timescales. In-Review at *Theoretical and Applied Climatology*

Reed D.E., **J Poe***, M Abraha, J Chen. Modeled Surface-Atmosphere Fluxes from Paired Sites in the Upper Great Lakes Region Using Neural Networks. In-Review at *Journal of Geophysical Research: Biogeosciences*

Reed D.E., G Z Jones. The Importance of First Semester Seminars for At-Risk Students: Analysis of Student Skills and Preparation. In-Review at *The Journal of Assessment and Institutional Effectiveness*

Talib A, A R Desai, J Huang, T J Griffis, **D.E. Reed**, J Chen. Ensemble learning methods for forecasting evapotranspiration in irrigated and non-irrigated agricultural regions of the Midwest U.S. In-Review at *The Journal of Hydrology*

Teaching Experience

University of Science and Arts of Oklahoma, Chickasha, OK

Courses Taught

- Environmental Science 2003 Earth System Science
- Interdisciplinary Studies 2023 Foundations of Life Science
- Interdisciplinary Studies 2011 Foundations of Life Science Lab
- Natural Science 2102 Scientific Writing

- Biology 1201 Principals of Biology Lab
- Biology 4501 Principals of Ecology Lab

Dickinson College, Carlisle, PA

Courses Taught

- Physics 102 Meteorology
- Science 101 Explorations in Physics
- Physics 132 Introductory Physics
- Physics 361 Physical Climate Modeling (duel listed with Earth Science)
- Physics 392 Junior Seminar (Co-taught)

Guest Lecturing

- Environmental Studies 340 Forest Ecology and Applications
- Physics 141/142 Physics for the Life Sciences I and II
- Latin 243 Lucretius

University of Wyoming, Laramie, WY

2008-2010 Teaching Assistant

2010-2014 Primary Instructor

Courses Taught

- Life 1002 Discovering Science (Primary Instructor, Course Development)
- Engineering Science 1060 Engineering Problem Solving (Primary Instructor)
- UWYO 1450 Engineering a Career: Beyond Expectations (Primary Instructor, Course Development)
- UWYO 1450 Tools for Success, College to Career (Co-Instructor, Course Development)
- UWYO 1450 Climate Change in a Changing World 1450 (Instructor, Course Development)
- Life 1010 General Biology (TA)
- Field Data Acquisition Techniques (Course Development)

Yanayacu Biological Research Station, Napo Province, Ecuador

2012 Invited Lecture, Tropical Cloud Forest Climate and Weather

University of Michigan, Ann Arbor, MI

2007-2008 Teaching Assistant

2008 Lecturer

Courses Taught

- AOSS 102 Extreme Weather (TA)
- ASTRO 102 Introduction to Astronomy (Lecturer, TA)
- AOSS 305 Atmospheric Thermodynamics (TA)
- AOSS 280 Radiative Transfer (TA)

Students Mentored

- Jeralyn Poe**, Michigan State University Undergrad Research Assistant summer 2018
Sarah Obianuju, Michigan State University Undergrad Research Assistant summer 2018
Zachary Taebel, University of Wisconsin-Madison Undergrad, REU student summer 2017
Hayley Huerd, University of California-Merced Undergrad, REU student summer 2017
Elisabeth Cartwright, Verona High School Student, summer 2017
Robyn Roberts, University of Wisconsin-Madison Undergrad, Research Assistant summer 2017
Angela Baldocchi, University of Wisconsin-Madison, REU Research Assistant summer 2017

Carolyn A. Pugh, University of Virginia Undergrad, REU student summer 2016
Amelia Flannery, University of Virginia Undergrad, REU student summer 2016
Henry Nuckles, U of Wisconsin-Madison Engineering Undergrad, Research Assistant Spring 2016
Emily Whitaker, Dickinson College Undergrad, REU Student Summer 2015
Emily Kaplita, Dickinson College Undergrad, Research assistant for Pre-College Science Experiences project
Katherine Roy, Dickinson College Undergrad, Co-advised senior project and physics honors thesis
Andrew Chen, Dickinson College Undergrad, Co-advised senior project
Gage McKeag, U of Wyoming Undergrad, Peer-mentor for UWYO 1450 Climate Change in a Changing World

Fellowships, Grants and Awards

Total Awards: \$252,000

2016 NSF Bioscience Research Experience for Undergraduate Travel Grant, Advised Amelia Flannery (\$1,000)
 2016 Research Experience for Undergrads at UW-Madison Travel Grant, Advised Amelia Flannery (\$5,000)
 2016 Undergraduate Research Network at University of Virginia Grant, Advised Carolyn Pugh (\$200)
 2016 Undergraduate Research Network at University of Virginia Grant, Advised Amelia Flannery (\$200)
 2016 Research Experience for Undergrads at UW-Madison, Advised Carolyn Pugh (\$5,000)
 2016 Research Experience for Undergrads at UW-Madison, Advised Amelia Flannery (\$5,000)
 2015 Dickinson College Kenderdine Grant, Advised Emily Kaplita (\$1,000)
 2015 Dickinson College Kenderdine Grant, Advised Emily Whitaker (\$1,000)
 2015 Research Experience for Undergrads at UW-Madison Travel Grant, Advised Emily Whitaker (\$500)
 2015 Research Experience for Undergrads at UW-Madison, Advised Emily Whitaker (\$5,000)
 2015 Center for Sustainability Education at Dickinson College, Research Assistant Grant (\$1,600)
Pre-college experiences shape attitudes of science
 2014 NSF Atmospheric and Geospace Sciences - Postdoctoral Research Fellowship
 (\$172,000, co-funded by the Physical and Dynamic Meteorology and the Hydrological Sciences Programs)
Observing and diagnosing mechanisms of energy balance in temperate freshwater systems
 2012 AGU Fall Meeting Outstanding Student Paper Award
 2012 Wyoming NASA Space Grant Graduate Research Fellowship (\$20,000)
Implementing Bayesian approaches to incorporate canopy gaps in models of carbon and water cycling
 2011 Program in Ecology Teaching Fellowship (University of Wyoming EPSCoR Grant, \$19,500)
 2010 Program in Ecology Teaching Fellowship (University of Wyoming EPSCoR Grant, \$19,500)
 2009 Advanced Study Program Summer Colloquium, Exploring the Atmosphere: Observational Instruments and
 Techniques, National Center for Atmospheric Research
 2003 Eagle Scout, Boy Scouts of America

Student Fellowships, Grants and Awards

Total Awards: \$213,500

2020 Jeralyn Poe: National Science Foundation, Graduate Research Fellowship, \$48,000/year for three years
 (\$138,000 total)
 Jeralyn Poe: Northern Arizona University's Presidential Fellowship, \$9,000/year for four years (\$36,000
 total)
 Jeralyn Poe: T3 Fellowship Award for Ecological and Environmental Informatics, 34,000/year for two
 years (\$68,000 total)
 Jeralyn Poe: NASA ABoVE Carbon Synthesis Data Analysis Summer Internship
 2019 Jeralyn Poe: Research Experience for Undergrad at the University of Idaho Advised by Dr. Tara Hudiburg
 (\$5,000)
 2016 Carolyn Pugh: American Geophysical Union Fall Meeting Student Travel Grant, (\$500)

Student Led Oral Presentations

(Undergrad students denoted by *)

Chen A*, K Roy*. Demonstrations in Ultrasound Imaging Concepts for Undergraduate Students. Physics Senior Capstone Presentations, Dickinson College, 2015

Student Led Poster Presentations

(Undergrad students denoted by *)

J Poe*, D Reed, M Abraha, J Chen, A R Desai. Spatial coherence of carbon flux towers in Midwest ecosystems AGU Annual Meeting, Washington DC, 2018

Z Taebel*, D Reed, A R Desai. Melting and Freezing Lake Ice: Getting Phase Transitions Correct in Lake Models. AMS Annual Meeting, Austin, TX, 2018

A Baldocchi*, D Reed, A R Desai, L Loken, P Schramm, E Stanley. A Spatial-Temporal Comparison of Lake Mendota CO₂ Fluxes and Collection Methods. AGU Annual Meeting, New Orleans, LA, 2017

Flannery A L*, D Reed, A R Desai, J E Thom. Seasonal and Yearly Carbon and Water Flux Changes Over Lake Mendota. AGU Annual Meeting, San Francisco, CA, 2016

Pugh C A*, D Reed, A R Desai, B N Sulman. Wetland Resiliency: How does multi-year water table level decline and recovery influence carbon dioxide and methane fluxes? AGU Annual Meeting, San Francisco, CA, 2016

Nuckles H*, D Reed, A R Desai. Measuring Ice Thickness on Lake Mendota Using Soil Water Content Sensors. AOS Community Poster Reception, Madison, WI, 2016

Kaplita E C*, D Reed, D McKenzie, R Jones, L W. May. Pre-college Science Experiences; Timing and Causes of Gender Influence Science Interest Levels. AGU Annual Meeting, San Francisco, CA, 2015

Whitaker E*, D Reed, A R Desai. Soil Water Content Sensors As a Method of Measuring Ice Depth. AGU Annual Meeting, San Francisco, CA, 2015

Richey-Yowell T*, J Gardner*, Z Wolf*, D Reed. Heat Transfer in the Atmosphere of Saturn Using Multiple Models. Central Pennsylvania Consortium Annual Astronomers Meeting, Dickinson College, 2015

Chen A*, K Roy*, B Pearson, D Reed. Demonstrations in Ultrasound Imaging Concepts for Undergraduate Students. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Roy K*, B Pearson, D Reed. Beam Steering of Ultrasound Using Phased Arrays. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Layman M*, D Gaby*, M Patterson*, D Reed. Global Climate Model Prediction of Ocean Temperature and Carbon Levels. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Burgunder M*, J Gardner*, J Root*, D Reed. Modeling Land Surface Temperatures and Carbon Cycles using MATLAB. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Koltz B*, T Richey-Yowell*, Z Wolf*, D Reed. Solar Radiation Input for a Global Climate Model. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Chen A*, W Kochtizky*, D Reed. Modeling Polar Processes. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Chowdhury R*, C Fritz*, Z Zeng*, D Reed. A Basic Model of the Atmosphere. 30th Annual Science Student Research Symposium, Dickinson College, 2015

Oral Presentations

(Undergrad students donated by *)

Knowles J, J Frank, J Biederman, **Reed D** Bark Beetle Impacts on Forest Evapotranspiration and its Partitioning. (To Be Presented At) AGU Annual Meeting, Online, 2020

Reed D, A Desai, A Baldocchi*, H Dugan, A Flannery*, H Huerd*, L Loken, H Nuckles*, E Stanley, Z Taebel*, E Whitaker* Lake-atmosphere fluxes: What eddy covariance sensors can add to the conversation. ASLO-SFS Meeting, Madison WI, 2020 (Meeting Canceled)

Reed D, C Lei, W Baule, G Shirkey, J Chen, K Czajkowski. Impact of urbanization on land-atmosphere heat fluxes. AGU Annual Meeting, San Francisco, 2019

Desai, A (Invited), **D Reed**, B Butterworth, P Stoy, Z Taebel, J Mineau Inland water bodies as surface energy hotspots. AGU Annual Meeting, San Francisco, 2019

Dahlin KM (Invited), D Akanga, D Lombardozzi, **D Reed**, G Shirkey, M Abraha, & J Chen A watershed-scale approach to understanding socio-ecological systems: Combining multiple data streams to assess a land surface model. Annual Meeting, San Francisco, 2019

Helbig, M. and 60 co-authors. Peatland-dominated boreal ecoregions at risk of drying in a warmer climate. AGU Annual Meeting, San Francisco, 2019

Elvira de Eyto and 36 co-authors. DC-FLUX – a GLEON initiative to measure CO₂ fluxes in the still of the night, across the world. GLEON 21, Ontario, Canada, 2019

Reed D (Invited). Connections between biophysical carbon measurements with socioeconomic data across the Kalamazoo River watershed. Earth and Environmental Science Seminar Series, Wayne State University, 2019

Reed D, J Poe*, M Abraha, J Chen. Fluxes from Across the Street: Using Artificial Neural Networks to Model Carbon Cycling from Paired Flux Sites AGU Annual Meeting, Washington DC, 2018

Frank J M, M Bretfeld, W J Massman, B E Ewers, K A Dwire, P J Fornwalt, L S Huckaby, J L Korfmacher, J F Negrón, M G Ryan, D Beverly, A Parsekian, **D E Reed**. Recovery of subalpine forest ecosystems following insect and fire disturbance. Amerifuel Annual PI Meeting, Bloomington IN 2018

Desai A R, **D Reed**, H Dugan, E Stanley, L Loken, A Baldocchi*, H Huerd*, R Roberts*, Z Taebel*, G Golub, P Hanson, P Schramm. Advancing approaches for multi-year high-frequency monitoring of temporal and spatial variability in carbon cycle fluxes and drivers for freshwater lakes AGU Annual Meeting, New Orleans, LA, 2017

Reed D (Invited). Lake Mendota Fluxes: The Engineering and the Science in Madison's Backyard. Climate, People and the Environment Program Seminar, Madison, WI, 2016

Millar D (Invited), B Ewers, D S Mackay, B Borkhuu, A Sekoni, S Peckham, **D Reed**, J Frank, W Massman, E Pendall, U Norton. Vegetation dynamics lead to compensatory responses in ecosystem-scale water fluxes in forests affected by beetle mortality. ESA Annual Meeting, Fort Lauderdale, FL, 2016

Reed D, E Kaplita, D McKenzie, R Jones, M Lyford. Student interest in science during the transition from K-12 to college and after taking a single science course. Earth Educators' Rendezvous, Madison, WI, 2016

Reed D. Faculty Positions at Liberal Arts Schools: What these jobs are and how to put yourself in a position to get one. Department of Atmospheric and Oceanic Sciences Seminar Series, UW-Madison, 2015

Reed D (Invited). Round pegs, square holes and graduate school: Thoughts about how to succeed as an interdisciplinary scientist. Rush Hour Seminar Series, Dickinson College, 2015

Reed D. Physical Climate Modeling: A new project-based, climate modeling course at Dickinson College. Teaching About Climate Change Meeting, Susquehanna University, 2015

Mackay David S, B E Ewers, J S Sperry, J M Frank, **D Reed**. On the transient role of plant xylem impairment over optimal root area and root depth distribution. AGU Annual Meeting, San Francisco, CA, 2014

Ewers B E, S Peckham, D S Mackay, E Pendall, J M Frank, W J Massman, **D Reed**, B Borkhuu. A Tale of Two Forests: Simulating Contrasting Lodgepole Pine and Spruce Forest Water and Carbon Fluxes Following Mortality from Bark Beetles. AGU Annual Meeting, San Francisco, CA, 2014

Biederman J, P Brooks, A Harpold, D Gochis, **D Reed**, B E Ewers, R Scott. Hydrologic partitioning response to severe forest disturbance quantified by eddy covariance, streamflow, snow surveys and stable isotope fractionation. American Meteorological Society – Agriculture and Forest Meteorology Meeting, Portland, OR 2014

Reed D. Eddy covariance fluxes and canopy mechanisms within bark beetle impacted ecosystems. WyCEHG Student Symposium, Laramie, WY 2014

David S Mackay, B E Ewers, S Peckham, P Savoy, **D Reed**, J Frank. Towards scaling interannual ecohydrological responses of conifer forests to bark beetle infestations from individuals to landscapes. AGU Annual Meeting, San Francisco, CA, 2013

Joel Biederman, P Brooks, A Harpold, D Gochis, B E Ewers, **D Reed**, E Gutmann. Compensatory vapor loss and biogeochemical attenuation along flowpaths mute the water resources impacts of insect-induced forest mortality. AGU Annual Meeting, San Francisco, CA, 2013

Paul Brooks (Invited), A Harpold, J Biederman, D Gochis, M Litvak, B E Ewers, P Broxton, **D Reed**. Non-linear Feedbacks Between Forest Mortality and Climate Change: Implications for Snow Cover, Water Resources, and Ecosystem Recovery in Western North America. AGU Annual Meeting, San Francisco, CA, 2013

Biederman J, P Brooks, A Harpold, D Gochis, B E Ewers, **D Reed**, E Gutmann (Invited). Headwater catchments respond to insect-induced forest mortality with reduced streamflow and rapid attenuation of carbon and nitrogen. Geological Society of America Annual Meeting. Denver Colorado. 2013

Brooks P, J Biederman, P Broxton, A Harpold, D Gochis, B E Ewers, **D Reed**. Climate Change, Insect Infestations, and Forest Fires: Implications for Snow Cover, Water Resources, and Ecosystem Recovers in a Non-Stationary World. Geological Society of America Annual Meeting. Denver Colorado. 2013

Ewers B, D S Mackay, S Peckham, E Pendall, **D Reed**, J Frank. Causes and consequences of bark beetle-induced mortality on water, carbon, and nitrogen cycling. ESA Annual Meeting, Minneapolis, MN, 2013

Reed D (Invited). Bark Beetle Ecology. University of Wyoming Life 1003 Guest Lecture. Laramie, WY. 2013

Reed D (Invited). Academic Success: A New Start At UW. University of Wyoming Freshman Orientation. Laramie, WY, 2013.

Biederman, Joel A., Harpold, A.A., Gochis, D.J., **Reed, D.** and Brooks, P.D. Water balance in a warmer world: Will forest die-off help us beat the heat? School of Earth and Environmental Sciences Earth Week Plenary Session. University of Arizona. 2013

Reed D, M Lyford. Can one science class make a difference? Getting non-science majors comfortable with science. Program in Ecology Darwin Day Seminar, Laramie, WY, 2013

Reed D, M Lyford, LO Schmidt, M Bowles-Terry. An analysis of factors that lead to better learning in an integrated and interdisciplinary course on climate change. AGU Annual Meeting, San Francisco, CA, 2012

Reed D, B E Ewers, E Pendall, R Kelly, U Norton, F Whitehouse. Mountain pine beetle epidemic changes ecosystem flux controls of lodgepole pine. ESA Annual Meeting, Portland, OR, 2012

Ewers B, D S Mackay, E Pendall, J Frank, **D Reed**, W Massman, T Aston, J Angstmann, K Nathani, B Mitra. Use of plant hydraulic theory to predict plant controls over mass and energy fluxes in response to changes in soils, elevation and mortality. ESA Annual Meeting, Portland, OR, 2012

Mackay DS (Invited), J Frank, **D Reed**, B E Ewers, E Pendall, W Massman, J Sperry, F Whitehouse. Modeling evapotranspiration based on plant hydraulic theory can predict spatial variability across an elevation gradient and link to biogeochemical fluxes. EGU General Assembly, Vienna, Austria, 2012

Brooks P (Invited) H Barnard, J Biederman, B Borkhuu, S Edburg, B E Ewers, D Gochis, E Gutmann, A Harpold, J Hicke, E Pendall, **D Reed**, A Somor, P Troch. Water, Carbon, and Nutrient Cycling Following Insect-induced Tree Mortality: How Well Do Plot-scale Observations Predict Ecosystem-Scale Response? AGU Annual Meeting, San Francisco, CA, 2011

Ewers BE (Invited), E Pendall, **D Reed**, H Barnard, F Whitehouse, J Frank, W Massman, P Brooks, J Biederman, A Harpold, K Naithani, B Mitra, D Mackay, U Norton, B Borkhuu. Use of Plant Hydraulic Theory to Predict Ecosystem Fluxes Across Mountainous Gradients in Environmental Controls and Insect Disturbances. AGU Annual Meeting, San Francisco, CA, 2011

Reed D (Invited) B E Ewers. Physical Ecology: Eddy Covariance and Bark Beetles. Wyoming Program in Ecology Lunch Seminar Series, Laramie, WY, 2011

Ewers BE, E Pendall, U Norton, **D Reed**, J Frank, T Aston, F Whitehouse, H Barnard, P Brooks, J Angstmann, W J Massman, D Williams, A Harpold, J Biederman, S Edburg, A Meddens, D Gochis, J Hicke. The Rocky Mountain Epidemic of Bark Beetles and Blue Stain Fungi Cause Cascading Effects on Coupled Water, C and N cycles. AGU Annual Meeting, San Francisco, CA, 2010

Brooks P, A Harpold, A Somor, P Troch, D Gochis, B E Ewers, E Pendall, J Biederman, **D Reed**, H Barnard, F Whitehouse, T Aston, B Borkhuu. Quantifying the Effects of Mountain Pine Beetle Infestation on Water and Biogeochemical Cycles at Multiple Spatial and Temporal Scales. AGU Annual Meeting, San Francisco, CA, 2010

Gochris D, P Brooks, A Harpold, B E Ewers, E Pendall, H Barnard, **D Reed**, P Harley, J Hu, J Biederman. Measuring and Modeling Changes in Land-Atmosphere Exchanges and Hydrologic Response in Forests Undergoing insect-Driven Mortality. AGU Annual Meeting, San Francisco, CA, 2010

B E Ewers (Invited) E Pendall, **D Reed**, F Whitehouse, J Frank, T Aston, J Angstmann, D Williams, H Barnard, W J Massman, U Norton. Bark beetle effects on forest hydrology of Southern Wyoming. Wyoming Weather Modification Ground School. Laramie, WY, 2010.

B E Ewers (Invited) E Pendall, **D Reed**, F Whitehouse, J Frank, T Aston, J Angstmann, D Williams, H Barnard, W J Massman, U Norton. Impacts of a Bark Beetle Epidemic on Forest Hydrology. Wyoming Water Forum, Cheyenne, WY, 2010.

B E Ewers (Invited) E Pendall, **D Reed**, F Whitehouse, J Frank, T Aston, J Angstmann, D Williams, H Barnard, W J Massman, U Norton. Hydrological Impacts of bark beetles on Rocky Mountain Forests. Wyoming Water Association Annual Meeting, Laramie, WY, 2010.

Ewers B, U Norton, **D Reed**, E Pendall, H Barnard, J Angstmann, T Aston, D Williams. The Rocky Mountain Epidemic of Bark Beetles and Blue Stain Fungi Cause First Order Effects on Evapotranspiration and Second Order Effects on Other Greenhouse Gas Forcing. ESA, Pittsburgh, PA 2010

Barnard H, J Angstmann, T Aston, P Brooks, B E Ewers, J Frank, A Harpold, W J Massman, U Norton, E Pendall, **D Reed**, D Williams. Response of Evapotranspiration and Greenhouse Gas Emissions to the Bark Beetle and Blue Stain Fungus Epidemic in Rocky Mountain Forests. Western Water Annual Meeting, Boulder, CO, 2010

Reed D, R D Kelly, B E Ewers, E Pendall. 2009. Intercomparison of High and Low Elevation Sagebrush Steppe Carbon and Water Growing Season Fluxes. UWYO Grad Symposium, Laramie, WY, 2009

Pendall E, U Norton, **D Reed**, B E Ewers, H Barnard. Ecosystem Consequences of Bark Beetle Mortality in Southern Wyoming Forests. Colorado State University Bark Beetle Meeting, Fort Collins, CO 2009

Poster Presentations

(Undergrad students donated by *)

Reed D, **J Poe***, M Abraha, J Chen, A Desai. Geospatial Coherence and Modelling of Land-Surface Fluxes. Annual Meeting, San Franciscot, 2019

Shirkey G, **D Reed**, R John, P Sciusco, L Cooper, K Watson, J Chen. Transposing Socioeconomic and Qualitative Research into a Historical, Landscape-scale Assessment of Carbon Stock in Agricultural-Forestland. AGU Annual Meeting, Washington DC, 2018

D Reed, A R Desai, **H Kuckels***, J E Thom, C H Wu, C Enos. Lake Ice Observations and Modeling: Case Study of Lake Mendota Winter 2015-2016 AGU Annual Meeting, San Francisco, CA, 2016

Gilber L A, E Marin-Spiotta, L LeMay, **D Reed**, A R Desai, H Macdonald. A new Model for the Preparing for an Academic Career in the Geosciences Workshop AGU Annual Meeting, San Francisco, CA, 2016

Desai, A R, M Golub, **D Reed**, [A Flannery*](#), [H Nuckles*](#), J Thom, E Stanley, P Hanson. Five years of direct carbon and water cycle measurements and research over Lake Mendota. Water@UW Meeting, Madison, WI, 2015

Reed D, [Kaplita E C*](#), D McKenzie, R Jones, L W. May. Pre-college experiences in and out of the classroom lead to first-year barriers. AGU Annual Meeting, San Francisco, CA, 2015

Millar D, B E Ewers, J Frank, **D Reed**. Modeling compensatory responses of ecosystem-scale water fluxes in forests affected by pine and spruce beetle mortality. AGU Annual Meeting, San Francisco, CA, 2015

Reed D, A R Desai. A new year-round temperate lake flux project; Opportunity for collaboration. Ameriflux Annual Meeting, Washington DC, 2015

Reed D, B E Ewers, S Peckham, E Pendall, R Kelly. Canopy structure of sagebrush ecosystems leading to differences in carbon and water fluxes. AGU Annual Meeting, San Francisco, CA, 2013

Reed D, G Jones, A Heaney. Using data to help increase STEM retention rates for at-risk students; Student expectations and skill building. AGU Annual Meeting, San Francisco, CA, 2013

Peckham S, B E Ewers, D S Mackay, E Pendall, J Frank, W Massman, **D Reed**. Simulating stand-level water and carbon fluxes in beetle-attacked conifer forests of the Western U.S. AGU Annual Meeting, San Francisco, CA, 2013

Ewers B, U Norton, B Borkhuu, **D Reed**, S Peckham, J Biederman, A King, P Brooks, A Harpold, J Frank, W Massman, S Mackay, E Pendall. Bark beetle impacts on ecosystem processes are over quickly and muted spatially. AGU Annual Meeting, San Francisco, CA, 2013

Biederman, Joel A., Harpold, A.A., Gochis, D.J., **Reed, D.**, Ewers, B. and Brooks, P.D. Multiscale observations of water balance response to insect-induced pine forest die-off in headwater catchments. Gordon Research Conference on Catchment Science. Andover, NH, 2013.

Reed D, B E Ewers, E Pendall, H Kwon, Contrasting ecosystem drivers of mass and energy fluxes at upper and lower elevation sagebrush steppe sites. AGU Annual Meeting, San Francisco, CA, 2012

B E Ewers, D S Mackay, C Guadagno, S Peckham, E Pendall, B Borkhuu, T Aston, J Frank, W Massman, **D Reed**, Y Yarkhunova, C Weing. Nonstructural carbon dynamics are best predicted by the combination of photosynthesis and plant hydraulics during both bark beetle induced mortality and herbaceous plant response to drought. AGU Annual Meeting, San Francisco, CA, 2011

Reed D, B E Ewers, E Pendall, R D Kelly, Mountain Pine Beetle epidemic effects on the carbon, water, and energy fluxes of lodgepole pine ecosystems. AGU Annual Meeting, San Francisco, CA, 2011

Gochis D, E Gutmann, P Brooks, **D Reed**, B E Ewers, E Pendall, J Biederman, A Harpold, H Barnard, J Hu, Diagnosing the influence of model structure on the simulation of water, energy and carbon fluxes on bark beetle infested forests. AGU Annual Meeting, San Francisco, CA, 2011

Biederman J, A Harpold, E Gutmann, **D Reed**, D Gochis, P Brooks, The Impacts of Pine Tree Die-Off on Snow Accumulation and Distribution at Plot to Catchment Scales. AGU Annual Meeting, San Francisco, CA, 2011

Mackay D S, B E Ewers, D Roberts, N McDowell, E Pendall, J Frank, **D Reed**, W Massman, B Mitra, A coupled carbon and plant hydraulic model to predict ecosystem carbon and water flux responses to disturbance and environmental change. AGU Annual Meeting, San Francisco, CA, 2011

Reed D, R D Kelly, B E Ewers, E Pendall, Energy Closure of a Heterogeneous Forest Canopy. Ameriflux Annual Meeting, New Orleans, LA 2011

Reed D, R D Kelly, B E Ewers, E Pendall. Energy Storage Terms Across a Heterogeneous Forest Canopy. AGU Annual Meeting, San Francisco, CA, 2010

Biederman J, A Harpold, D Gochis, **D Reed**, P Brooks. Variability in Snowpack Accumulation and Ablation Associated with Mountain Pine Beetle Infestation in Western Forests, AGU Annual Meeting, San Francisco, CA, 2010

Reed D, Pendall E, Ewers B, Norton U. Biogeochemical Cycling During Disturbance: Mountain Pine Bark Beetle in Lodgepole Pine. Ameriflux Annual Meeting, Washington DC, 2010

Reed D, Ewers B, Pendall E, Kelly R, Leon D. Intercomparison of High and Low Elevation Sagebrush Steppe Carbon Dioxide and Water Vapor Growing Season Fluxes. Ameriflux Annual Meeting, Boulder, CO 2009

Peer-Review Journal Articles and Proposal Review

- Journal of Geophysical Research: Biogeosciences (6), Agricultural and Forest Meteorology (4), Ecosystems (2), Biogeosciences (1), Limnology and Oceanography (1), Journal of Geophysical Research: Atmospheres (1), Boundary Layer Meteorology (1), Hydrological Processes (1), Ecohydrology (1), Journal of Environmental Management (1), Remote Sensing of Environment (1), Environmental Research Letters (1), NSF Ad Hoc Review (2)
- AGU Student Travel Grants and Fellowship Reviewer 2016
- NSF Graduate Research Fellowship Program 2015 Review Geoscience Panel

Professional Service

- High School Engineering & Design Outreach (Omro, Wisconsin) “Ultrasonic Transducers to Measure Ice Thickness” Via Nepris.com, Finalists in Samsung Solve for Tomorrow Contest
- Earth Educators' Rendezvous, 2016 Convened Career Prep Workshop
Co-Conveners; Ankur R. Desai and Erika Marín-Spiotta (University of Wisconsin-Madison), Lynsey LeMay (Thomas Nelson Community College), Lisa Gilbert (Williams College, Mystic Seaport)
- 2016 Madison Middle School Science Symposium
Mentor to Daniel Amelinez-Robles, Harrison Lehmann, Aijalon Scott, Alec Hayes; Project: Growing Radish's Under Varying Amounts of CO₂
Mentor to Maggie Najdowski, Nongnah Her; Project: Recipe to Make the Best Chocolate Chip Cookies
- Dickinson College Engineering Curriculum Change, Created a “Physics Engineering” degree track within the Physics Department
- Dickinson College Physics Outreach Series, October 2014, “The Physics of Cooking”
- Program in Ecology Career Workshop Series, April 2014
Hosted Workshop: “Teaching Faculty Careers: Improving Odds of Making the Short List”
- Women In Science event, volunteer section leader, May 2013 University of Wyoming.
- AGU Fall Meeting 2016 Convened Session: “Semi-arid Shrublands under Changing Climates”
Co-Conveners; Joel Biederman (US Department of Agriculture), John Kim (US Forest Service), Ellen Esch (University of California San Diego)
- AGU Fall Meeting 2015 Convened Session: “Inland Waters as Dynamic Foci in Climate Systems: Hydrodynamic and Biophysical Controls on Variability” Co-Conveners; Sally MacIntyre (University of California Santa Barbara), Sam Dunn (Colorado State University), Patrick Crill (Stockholm University)

- AGU Fall Meeting 2013 Convened Session: “Vulnerability, Disturbance Impacts, and Responses”
Co-Conveners; Alistair Smith (University of Idaho)
- AGU Fall Meeting 2012 Convened Session: “Disturbance Impacts and Responses”
Co-Conveners; Alistair Smith (University of Idaho), Christopher Gough (Virginia Commonwealth University) and Beth Newingham (University of Idaho)
- AGU Fall Meeting 2011 Convened Session: “Biological Disturbance and Biogeochemical Cycling”
Co-Conveners; Paul Stoy (Montana State University) and Brian McGlynn (Montana State University)

Career Development

Dickinson College Faculty Development Workshop, “Teaching the Writing Course”

Dickinson College Faculty Development Workshop, “Advancing Quantitative Reasoning”

Professional Membership

American Geophysical Union

Ecological Society of America

American Meteorological Society

American Society of Limnology & Oceanography

Union of Concerned Scientists