Name: William J. Riley
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BIOGRAPHICAL SUMMARY

Bill focuses on modeling terrestrial ecosystems and their interactions with climate and climate change. He has a varied educational background, including degrees in mechanical and aerospace engineering, physics, and civil and environmental engineering. His published work includes development, testing, and application of numerical models that represent soil microbial dynamics, effects of abiotic processes such as mineral surface interactions, nutrient competition between microbes and plants, watershed-scale hydrological and biogeochemical processes, and climate-scale carbon and nutrient cycle processes.

EDUCATION

Ph.D. **Environmental Engineering,** University of California, Berkeley, 1996.
M.S. **Environmental Engineering,** University of California, Berkeley, 1993.
M.S. **Physics,** University of North Carolina, Chapel Hill, 1988.
B.S. **Aerospace Engineering,** Rensselaer Polytechnic Institute, 1984.

RESEARCH INTERESTS

Interactions between the soil, biosphere, and atmosphere that impact carbon and nutrient cycling, hydrological flows, leaching, and trace-gas fluxes important in climate change; environmental fluid mechanics and the interactions between fluid flows and biological processes that affect environmental quality; numerical modeling of coupled hydrological, biological, and atmospheric systems; use of carbon and oxygen isotopes in coupled hydrological and biological systems.

PROFESSIONAL EXPERIENCE

Senior Scientist, Lawrence Berkeley National Laboratory. 2016 – present.
Staff Scientist, Lawrence Berkeley National Laboratory. 2012 – 2016
Scientist, Lawrence Berkeley National Laboratory. 2000 – 2012.
Lecturer, U.C. Berkeley, Civil and Environmental Engineering Department. 1998 – 2006.
Postdoctoral Fellow with Pamela Matson, Stanford University and University of California, Berkeley. 1996 – 1999.
Graduate Research Assistant with William Nazaroff, University of California, Berkeley. 1993 – 1996.

Physics Graduate Research Assistant, University of North Carolina at Chapel Hill. 1986 – 1988.

Lecturer postions:

1. **UC Berkeley.** Spring, 2006. *Climate Change Mitigation* (CEE107).
2. **UC Berkeley.** Spring, 2003. *Introduction to Environmental Engineering* (CEE111).
3. **San Francisco State University.** Spring, 2001. *Air Quality Engineering* (ENGR 866)
4. **UC Berkeley.** Spring, 2000. *Elementary Fluid Mechanics* (CEE100).
5. **UC Berkeley.** Fall, 1999. *Introduction to Computer Programming for Scientists and Engineers* (E77N).
6. **UC Berkeley.** Spring, 1999 & Fall, 1998. *Elementary Fluid Mechanics* (CEE100).

SELECTED SYNERGISTIC AND PROFESSIONAL ACTIVITIES

Co-Lead Land Modeling Group, DOE Energy Exascale Earth System Model (E3SM), 2014 – 2018.

External co-chair, NCAR Community Land Model Working Group, 2013 – 2017.

Senior Science co-Lead and Co-PI, BGC-Climate Interactions SFA, 2014 – present.

Co-PI and Land Modeling co-Lead, NGEE-Arctic, 2012 – present.

Co-PI, Climate Feedback Uncertainties, 2009 – 2014.

Technical lead, Atmospheric Systems Research SFA, 2010 – 2014.

Contributing author, Intergovernmental Panel on Climate Change Fifth Assessment.

Co-convener and Co-chair, AGU sessions: Advances in understanding how fine-scale spatial hydrological heterogeneity influences climate-scale biogeochemical dynamics and fluxes, Fall Meeting 2015. ILAMB Town Hall, Fall Meeting 2015. Advances in spatial scaling of hydrological and biogeochemical processes, Fall Meeting 2013. Mechanistic representations of the temperature sensitivity of soil organic matter decomposition, Fall Meeting 2013. Integrating microbial processes into ecosystem models of carbon and nitrogen cycling, Fall Meeting 2012.

Modeling Session Lead, SOM6, The Sixth International Workshop on Soil Organic Matter Stabilization and Destabilization, Kiawa Resort, SC, October 2014.

Session Lead, Biogeochemical Feedbacks, DOE RGCM and CESM PI meeting, May 2014.

Contributor, DOE workshop on designing "Climate Change Experiments in High-Latitude Ecosystems".

Organizing Committee, Complex Soil Systems Meeting, September 2014, Berkeley, CA.

Lecturer at University of California, Berkeley and San Francisco State University, 1998 – 2006.

Mentoring:

Students Advisees: Heather Cooley, Katerina Georgiou, Brendan Rogers, Zack Subin, Ian Williams, Stephanie Lee, Nathan Guerney

Post Doctoral Advisees: Rose Abramhoff, Dipankar Dwivedi (LBNL), Bardan Ghimere (LBNL), Chuanhui Gu (Appalachian State Univ.), Federico Maggi (Univ. Sydney), Zelalem Mekonnen, Umakant Mishra (LANL), Lisa Murphy-Goes (Univ. Florida), Jie Niu (LBNL), Zack Subin, Jinyung Tang (LBNL), Huei-Jin Wang (LBNL), Ian Williams (LBNL), Xiyan Xu (LBNL), Qing Zhu (LBNL), Xudong Zhu (Xiamen University), Jing Zhou (LBNL)

Invited Presentations, see below.

Contributor, NSF Permafrost Research Coordination Network, 2011 – 2016.

Co-Organizer of Distinguished Speaker Series, LBNL, 2010 – 2012.
Member: NCAR Land-Model and Biogeochemistry Working Groups, 2007 – present.
Member: ARM cloud model working group
Proposal Reviewer: DOE, NSF, NOAA
Journal Reviewer: JGR-Biogeosciences, JGR-Atmospheres, Advances in Water Resources, Biogeosciences, Plant, Cell, and Environment, Global Biogeochemical Cycles, Geochemica et Cosmochimica Acta, Global Change Biology, Agricultural and Forest Meteorology, Tellus, Nature, …

IN REVIEW OR IN REVISION PUBLICATIONS

1. Abramoff, R. Z., M. S. Torn, K. Georgiou, J. Y. Tang, and W. J. Riley (2019), Minerals control organic carbon accumulation over decadal timescales: A modeling analysis, *in revision JGR-Biogeosciences*.
2. Bisht, G., and W. J. Riley (2019), Development and verification of a numerical library for solving global terrestrial multi-physics problems, *in revision JAMES*.
3. Bouskill, N. J., W. J. Riley, Q. Zhu, Z. A. Mekonnen, and R. F. Grant (2019), Inconsistent short- and long-term high-latitude carbon cycle responses from observations and models, *in review Nature Communications*.
4. Chen, J., Q. Zhu, W. J. Riley, Y. He, J. T. Randerson, and S. E. Trumebore (2019), Comparison with Global Soil Radiocarbon Observations Indicates Needed Carbon Cycle Improvements in the E3SM Land Model, *in revision JGR-Biogeosciences*, 2018, UWa9.
5. Grant, R. F., Z. A. Mekonnen, and W. J. Riley (2019a), Climate change impacts on permafrost thaw in an Arctic polygonal tundra depend on changes in vegetation and drainage, *in revision JGR-Biogeosciences*.
6. Grant, R. F., Z. A. Mekonnen, and W. J. Riley (2019b), Climate change impacts on CO_2 and CH_4 exchange in an Arctic polygonal tundra depend on changes in vegetation and drainage, *in review JGR-Biogeosciences*.
7. Holm, J. A., R. G. Knox, A. J. N. Lima, C. D. Koven, M. Longo, W. J. Riley, R. I. Negron-Juarez, A. C. d. Araujo, A. Manzi, L. M. Kueppers, P. R. Moorcroft, N. Higuchi, and J. Q. Chambers (2019), The Central Amazon forest sink under current and future atmospheric CO_2: Predictions from big-leaf and demographic vegetation models, *in revision JGR-Biogeosciences*.
8. Lawrence, D. M., …, W. J. Riley, and … (2019), The Community Land Model version 5: Description of new features, benchmarking, and impact of forcing uncertainty, *in review JAMES*.
9. Mekonnen, Z. A., W. J. Riley, J. T. Randerson, and R. F. Grant (2019), Fire and climate warming will drive expansion of high-latitude deciduous forests, *in review Nature Plants*.
10. Wang, F., G. Ni, W. J. Riley, J. Y. Tang, D. Zhu, and T. Sun (2019), Improvements of the lake module in WRF and its evaluation at a deep reservoir, *in revision Geophysical Model Development*.
11. Zhu, Q., W. J. Riley, J. Y. Tang, J. R. Randerson, N. Collier, F. M. Hoffman, X. Yang, and G. Bisht (2019), Representing nitrogen, carbon, and phosphorus interactions in the ELMv1-ECA Land Model: Model development and global benchmarking, *in revision JAMES*.

PEER-REVIEWED PUBLICATIONS

2019

1. Bisht, G., and W. J. Riley (2019), Development and verification of a numerical library for solving global terrestrial multi-physics problems, *in revision JAMES*.
2. Chang, K. Y., W. J. Riley, P. M. Crill, R. F. Grant, V. I. Rich, and S. R. Saleska (2019), Large carbon cycle sensitivities to climate across a permafrost thaw gradient in subarctic Sweden, *The Cryosphere*, *13*, https://doi.org/10.5194/tc-13-647-2019, 647-663.
3. LaCecilia, D., W. J. Riley, and F. M. Maggi (2019), Biochemical modeling of microbial memory effects and catabolite repression on soil organic carbon compounds, *Soil Biology and Biochemistry*, *128*, https://doi.org/10.1016/j.soilbio.2018.10.003, 1-12.
4. Liu, B. Y., Q. Zhu, W. J. Riley, L. S. Zhao, H. Ma, L. Larsen, and M. Van Gordon (2019), Using Information Theory to Evaluate Directional Precipitation Interactions Over the West Sahel Region in Observations and Models, *JGR-Atmospheres*, *124*, https://doi.org/10.1029/2018JD029160, 1463-1473.
5. Medvigy, D., G. Wang, Q. Zhu, W. J. Riley, A. Trielweiler, B. Waring, X. Xu, and J. Powers (2019), Observed variation in soil properties can drive large variation in forest functioning and composition during tropical forest secondary succession, *In revision New Phytologist*.
6. Muster, S., W. J. Riley, K. Roth, M. Langer, F. Cresto-Aleina, C. D. Koven, S. Lange, A. Bartsch, G. Grosse, C. J. Wilson, B. M. Jones, and J. Boike (2019), A universal statistical pattern for waterbody distributions in the Arctic *Frontiers in Earth Science*, *7*, doi: 10.3389/feart.2019.00005.
7. Riley, W. J., C. Sierra, J. Y. Tang, N. J. Bouskill, Q. Zhu, and R. Abramoff (2019), Next generation soil biogeochemistry model representations: A proposed community open source model farm (BeTR-S), in *accepted for Multi-scale Biogeochemical Processes in Soil Ecosystems: Critical Reactions and Resilience to Climate Changes*, edited by Y. Yang, M. Keiluweit, N. Senesi and B. Xing.
8. Tang, J. Y., and W. J. Riley (2019), A theory of effective microbial substrate affinity parameters in variably saturated soils and an example application to aerobic soil heterotrophic respiration, *in revision JGR-Biogeosciences*.

2018

9. Bisht, G., W. J. Riley, G. E. Hammond, and D. M. Lorenzetti (2018a), A variably saturated flow model for Earth System Models: Integration and testing at site, regional, and global scales, *accepted Geoscientific Model Development*.
10. Bisht, G., W. J. Riley, H. Wainwright, B. Dafflon, F. Yuan, and V. E. Romanovsky (2018b), Impacts of microtopographic snow-redistribution and lateral subsurface processes on hydrologic and thermal states in an Arctic polygonal ground ecosystem: a case study using ELM-3D v1.0, *Geoscientific Model Development*, *11*, https://doi.org/10.5194/gmd-11-61-2018, 61-76.
11. Collier, N., F. M. Hoffman, D. M. Lawwrence, G. Keppel-Aleks, C. D. Koven, W. J. Riley, M. Mu, and J. T. Randerson (2018), The International Land Model Benchmarking (ILAMB) System: Design, Theory, and Implementation, *accepted J. Advances in Modeling Earth Systems*.

12. Georgiou, K., J. Harte, A. Mesbah, and W. J. Riley (2018), A method of alternating characteristics with application to advection-dominated environmental systems, *Computational Geosciences*, doi.org/10.1007/s10596-018-9729-5.
13. Keenan, T. F., and W. J. Riley (2018), Greening of the Land Surface in the World's Cold Regions Consistent with Recent Warming, *Nature Climate Change*, *8*, doi:10.1038/s41558-018-0258-y, 825-828.
14. Maggi, F. M., F. H. M. Tang, and W. J. Riley (2018), The thermokinetic link between substrate, enzyme and microbial dynamics in Michaeli-Menten-Monod kinetics, *International J. of Chemical Kinetics*, DOI 10.1002/kin.21163.
15. Mekonnen, Z. A., W. J. Riley, and R. F. Grant (2018a), Accelerated nutrient cycling and increased light competition will lead to 21st century shrub expansion in North American Arctic tundra, *JGR-Biogeosciences*, *123*, https://doi.org/10.1029/2017JG004319.
16. Mekonnen, Z. A., W. J. Riley, and R. F. Grant (2018b), 21st century tundra shrubification could enhance net carbon uptake of North America tundra Arctic tundra under and RCP8.5 climate trajectory, *Environ Res Lett*, *13*, https://doi.org/10.1088/1748-9326/aabf28.
17. Negron-Juarez, R. I., J. A. Holm, D. M. Marra, S. W. Rifai, W. J. Riley, J. Q. Chambers, C. D. Koven, R. G. Knox, M. E. McGroddy, A. V. Di Vittorio, J. Urquiza-Munoz, R. Tello-Espinoza, W. A. Munoz, G. H. P. M. Ribeiro, and N. Higuchi (2018), Vulnerability of Amazon forests to storm-driven tree mortality, *Environ Res Lett*, *13*,WOS:000431453800004, May.
18. Riley, W. J., Q. Zhu, and J. Y. Tang (2018), Weaker land-climate feedbacks from nutrient uptake during photosynthesis-inactive periods, *Nature Climate Change*, https://doi.org/10.1038/s41558-018-0325-4.
19. Smith, P., S. Lutfalla, W. J. Riley, M. S. Torn, M. W. I. Schmidt, and J. F. Soussana (2018), The changing faces of soil organic matter research, *European Journal of Soil Science*, *69*,WOS:00042788190000623-30, Jan.
20. Sulman, B. N., J. A. M. Moore, R. Abramoff, C. Averill, S. Kivlin, K. Georgiou, B. Sridhar, M. D. Hartman, G. Wang, W. R. Wieder, M. A. Bradford, Y. Luo, M. A. Mayes, E. Morrison, W. J. Riley, A. Salazar, J. Y. Tang, and A. T. Classen (2018), Multiple models and experiments underscore large uncertainty in soil carbon dynamics, *Biogeochemistry*, https://doi.org/10.1007/s10533-018-0509-z(0123456789().,-volV()0123456789().,-volV).
21. Tang, J. Y., and W. J. Riley (2018), Predicted Land Carbon Dynamics Are Strongly Dependent on the Numerical Coupling of Nitrogen Mobilizing and Immobilizing Processes: A Demonstration with the E3SM Land Model, *Earth Interactions*, *22*,WOS:000433115400001, May.
22. Varadharajan, C., S. Cholia, C. Snavely, V. Hendrix, C. Procopiou, D. Swantek, W. J. Riley, and D. Agarwa (2018), A New Digital Archive Enables Community Use of Terrestrial and Subsurface Ecosystem Data Sets, *accepted EOS*.
23. Wan, J., T. K. Tokunaga, W. Dong, K. H. Williams, Y. Kim, M. E. Conrad, M. Bill, W. J. Riley, and S. S. Hubbard (2018), Deep Unsaturated Zone Contributions to Carbon Cycling in Semi-arid Environments, *JGR-Biogeosciences*, 10.1029/2018JG004669.
24. Xu, X., W. J. Riley, C. D. Koven, and G. Jia (2018), Observed and simulated sensitivities of spring greenup to preseason climate in northern temperate and boreal regions, *JGR-Biogeosciences*, *123*, 10.1002/2017JG004117.

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25. Angle, J. C., T. H. Morin, L. M. Solden, A. B. Narrowe, G. J. Smith, M. A. Borton, C. Rey-Sanchez, R. A. Daly, G. Mirfenderesgi, D. W. Hoyt, W. J. Riley, C. S. Miller, G. Bohrer, and K. C. Wrighton (2017), Methanogenesis in oxygenated soils is a substantial fraction of wetland methane emissions, *Nat Commun*, *8*,WOS:000415323700014, Nov 16.
26. Bisht, G., M. Huang, T. Zhou, X. Chen, H. Dai, G. Hammond, W. J. Riley, J. L. Downs, Y. Liu, and J. M. Zachara (2017), Coupling a three-dimensional subsurface flow and transport model with a land surface model to simulate stream-aquifer-land interactions (CP v1.0), *Geophysical Model Development*, *10*, https://doi.org/10.5194/gmd-10-4539-2017, 4539-4561.
27. Dwivedi, D., W. J. Riley, M. S. Torn, N. Spycher, and F. Maggi (2017), Mineralogical controls over soil carbon stocks and dynamics, *Soil Biology & Biochemistry*, DOI: 10.1016/j.soilbio.2016.12.019.
28. Georgiou, K., R. Z. Abramoff, J. Harte, W. J. Riley, and M. S. Torn (2017), Microbial community-level regulation explains soil carbon responses to long-term litter manipulations, *Nat Commun*, *8*,WOS:000414032200026, Oct 31.
29. Georgiou, K., J. Harte, A. Mesbah, and W. J. Riley (2017), A method of alternating characteristics with application to advection-dominated environmental systems, *accepted Computational Geosciences*.
30. Ghimire, B., W. J. Riley, C. D. Koven, J. Kattge, A. Rogers, P. B. Reich, and I. Wright (2017), A global trait-based approach to estimate leaf nitrogen functional allocation from observations, *Ecol Appl*, DOI:10.1002/eap.1542.
31. Grant, R. F., A. A. Mekonnen, W. J. Riley, B. Arora, and M. S. Torn (2017a), Microtopography Determines How CO_2 and CH_4 Exchange Responds to Changes in Temperature and Precipitation at an Arctic Polygonal Tundra Site: Mathematical Modelling with Ecosys, *JGR-Biogeosciences*, DOI: 10.1002/2017JG004037.
32. Grant, R. F., Z. A. Mekonnen, W. J. Riley, H. M. Wainwright, D. E. Graham, and M. S. Torn (2017b), Microtopography Determines How Active Layer Depths Respond to Changes in Temperature and Precipitation at an Arctic Polygonal Tundra Site: Mathematical Modelling with Ecosys, *JGR-Biogeosciences*, 10.1002/2017JG004035.
33. Keller, K. M., S. Lienert, A. Bozbiyik, T. F. Stocker, O. V. Churakova, D. C. Frank, S. Klesse, C. D. Koven, M. Leuenberger, W. J. Riley, M. Saurer, R. Siegwolf, R. B. Weigt, and F. Joos (2017), 20th century changes in carbon isotopes and water-use efficiency: tree-ring-based evaluation of the CLM4.5 and LPX-Bern models, *Biogeosciences*, *14*, 10.5194/bg-14-2641-2017, 2641-2673.
34. Maggi, F. M., and W. J. Riley (2017), Near activation and differential activation in enzymatic reactions, *International Journal of Chemical Kinetics*, doi:10.1002/kin.21076, 1-14.
35. Muster, S., K. Roth, M. Langer, S. Lange, F. C. Aleina, A. Bartsch, A. Morgenstern, G. Grosse, B. Jones, B. K. Sannel, Y. Sjöberg, F. Günther, C. Andresen, A. Veremeeva, P. R. Lindgren, F. Bouchard, M. J. Lara, D. Fortier, S. Charbonneau, T. A. Virtanen, G. Hugelius, J. Palmtag, M. B. Siewer, W. J. Riley, C. D. Koven, and J. Boike (2017a), PeRL: A Circum-Arctic Permafrost Region Pond and Lake Database, *Earth System Science Data*, *9*, 10.5194/essd-9-1-2017, 1-31.

36. Negron-Juarez, R. I., H. S. Jenkins, C. F. M. Raupp, W. J. Riley, L. M. Kueppers, D. M. Marra, G. H. P. Ribeiro, M. T. Monterio, L. A. Candido, J. Q. Chambers, and N. Higuch (2017), Windthrow Variability in Central Amazonia. Atmosphere, *Atmosphere, 8*, doi:10.3390/atmos8020028, 28.
37. Niu, J., C. Shen, J. Q. Chambers, J. M. Melack, and W. J. Riley (2017), Interannual Variation in Hydrologic Budgets in an Amazonian Watershed with a Coupled Subsurface - Land Surface Process Model, *J. Hydrometeorology*, 10.1175/JHM-D-17-0108.1.
38. Pandey, S., ..., X. Xu, W. J. Riley, and ... (2017), Enhanced methane emissions from tropical wetlands during the 2011 La Niña, *Sci Rep-Uk*, *7:45759*, 10.1038/srep45759.
39. Poulter, B., P. Bousquet, J. G. Canadell, P. Ciais, A. Peregon, M. Saunois, V. K. Arora, D. J. Beerling, V. Brovkin, C. D. Jones, F. Joos, N. Gedney, A. Ito, T. Kleinen, C. D. Koven, K. McDonald, J. R. Melton, C. Peng, S. Peng, C. Prigent, R. Schroeder, W. J. Riley, M. Saito, R. Spahni, H. Tian, L. Taylor, N. Viovy, D. Wilton, A. Wiltshire, X. Xu, B. Zhang, Z. Zhang, and Q. Zhu (2017), Global wetland contribution to 2000–2012 atmospheric methane growth rate dynamics, *Environ Res Lett*, *12*, https://doi.org/10.1088/1748-9326/aa8391.
40. Saunois, M., P. Bousquet, B. Poulter, A. Peregon, P. Ciais, J. G. Canadell, E. J. Dlugokencky, G. Etiope, D. Bastviken, S. Houweling, G. Janssens-Maenhout, F. N. Tubiello, S. Castaldi, R. B. Jackson, M. Alexe, V. K. Arora, D. J. Beerling, P. Bergamaschi, D. R. Blake, G. Brailsford, L. Bruhwiler, C. Crevoisier, P. Crill, K. Covey, C. Frankenberg, N. Gedney, L. Höglund-Isaksson, M. Ishizawa, A. Ito, F. Joos, H.-S. Kim, T. Kleinen, P. Krummel, J.-F. Lamarque, R. Langenfelds, R. Locatelli, T. Machida, S. Maksyutov, J. R. Melton, I. Morino, V. Naik, S. O'Doherty, F.-J. Parmentier, P. K. Patra, C. Peng, S. Peng, G. P. Peters, I. Pison, R. Prinn, M. Ramonet, W. J. Riley, M. Saito, M. Santini, R. Schroeder, I. J. Simpson, R. Spahni, A. Takizawa, B. F. Thornton, H. Tian, Y. Tohjima, N. Viovy, A. Voulgarakis, R. Weiss, D. J. Wilton, A. Wiltshire, D. Worthy, D. Wunch, X. Xu, Y. Yoshida, B. Zhang, Z. Zhang, and Q. Zhu (2017), Variability and quasi-decadal changes in the methane budget over the period 2000–2012, *Atmospheric Chemistry and Physics*, *17*, https://doi.org/10.5194/acp-17-11135-2017, 11135-11161.
41. Smith, P., S. Lutfalla, W. J. Riley, M. S. Torn, M. W. I. Schmidt, and J. F. Soussana (2017), The changing faces of soil organic matter research, *European Journal of Soil Science*, doi: 10.1111/ejss.12500.
42. Tang, J. Y., and W. J. Riley (2017), SUPECA kinetics for scaling redox reactions in networks of mixed substrates and consumers and an example application to aerobic soil respiration, *Geoscientific Model Development*, *10*, https://doi.org/10.5194/gmd-10-3277-2017, 3277-3295.
43. Zhu, Q., W. J. Riley, and J. Y. Tang (2017), A new theory of plant and microbe nutrient competition resolves inconsistencies between observations and models, *Ecol Appl*, DOI:10.1002/eap.1490.

2016

44. Ghimire, B., W. J. Riley, C. D. Koven, M. Mu, and J. T. Randerson (2016b), Representing leaf and root physiological traits in CLM improves global carbon and nitrogen cycling predictions, *JAMES*, 10.1002/2015MS000538.

45. Pau, G. S. H., C. Shen, W. J. Riley, and Y. Liu (2016), Accurate and efficient prediction of fine-resolution hydrologic and carbon simulations from coarse-resolution models, *Water Resources Research*, 10.1002/2015WR017782.
46. Paudel, R., N. M. Mahowald, P. G. M. Hess, L. Meng, and W. J. Riley (2016), Attribution of changes in global wetland methane emissions from pre-industrial to present using CLM4.5-BGC, *Environmental Reserach Letters*, *11*, doi:10.1088/1748-9326/11/3/034020.
47. Saunois, M., ..., W. J. Riley, ..., X. Xu, and e. al. (2016), Global Methane Budget: 2000-2012, *Earth System Science Data*, *8*, doi:10.5194/essd-8-697-2016, 697-751.
48. Shen, C., W. J. Riley, K. M. Smithgall, J. M. Melack, and K. Fang (2016), The fan of influence of streams and channel feedbacks to simulated water and carbon fluxes, *Water Resources Research*, 10.1002/2015WR018086.
49. Tang, J. Y., and W. J. Riley (2016b), Technical Note: A generic law-of-the-minimum flux limiter for simulating substrate limitation in biogeochemical models, *Biogeosciences*, *13*, doi:10.5194/bg-13-723-2016, 723-735.
50. Williams, I. N., Y. Q. Lu, L. M. Kueppers, W. J. Riley, S. C. Biraud, J. E. Bagley, and M. S. Torn (2016), Land-atmosphere coupling and climate prediction over the US Southern Great Plains, *Journal of Geophysical Research-Atmospheres*, *121*,WOS:000388293100025121 25-12144, Oct 27.
51. Williams, I. N., W. J. Riley, L. M. Kueppers, S. C. Biraud, and M. S. Torn (2016), Separating the effects of phenology and diffuse radiation on gross primary productivity in winter wheat, *Journal of Geophysical Research-Biogeosciences*, *121*,WOS:000382581900013 1903-1915, Jul.
52. Xu, X., W. J. Riley, C. D. Koven, D. P. Billesbach, R. Y. W. Chang, R. Commane, E. S. Euskirchen, S. Hartery, Y. Harazono, H. Iwata, C. E. Miller, W. C. Oechel, B. Poutler, N. Raz-Yaseef, M. S. Torn, S. C. Wofsy, and D. Zona (2016a), A multi-scale comparison of modeled and observed seasonal methane emissions in northern wetlands, *Biogeosciences*, doi:10.5194/bg-13-5043-2016.
53. Xu, X., F. Yuan, P. J. Hanson, S.D.Wullschleger, P. E. Thornton, W. J. Riley, X. Song, D. E. Graham, G. Song, and H. Tian (2016b), Reviews and syntheses: Four Decades of Modeling Methane Cycling in Terrestrial Ecosystems, *Biogeosciences*, *13*, doi:10.5194/bg-13-3735-2016, 3735-3755.
54. Zhu, Q., C. M. Iversen, W. J. Riley, I. Slette, and H. Vander Stel (2016a), Root traits explain observed tundra vegetation nitrogen uptake patterns: Implications for trait-based land models, *JGR-Biogeosciences*, *121*, doi:10.1002/2016JG003554, 3101-3112.
55. Zhu, Q., W. J. Riley, J. Y. Tang, and C. D. Koven (2016c), Multiple soil nutrient competition between plants, microbes, and mineral surfaces: Model development, parameterization, and example applications in several tropical forests, *Biogeosciences*, *13*, doi:10.5194/bg-13-341-2016, 341-363.

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OTHER PUBLICATIONS

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2. Noone, DC, CJ Still, and WJ Riley, 2002: A global biophysical model of ^{18}O in terrestrial water and CO_2 fluxes. Research Activities in Atmospheric and Oceanic Modelling, Report No. 32, World Meteorological Organization, 4.19-4.20
3. TL Thatcher, TE McKone, WJ Fisk, MD Sohn, WW Delp, WJ Riley, RG Sextro (2002) Factors affecting the concentration of outdoor particles indoors (COPI): Identification of data needs and existing data, Lawrence Berkeley National Laboratory, Berkeley, CA. (LBNL-49321)
4. Matson, PA and WJ Riley (1997 and 1998) Nitrogen trace-gas emissions from soil: Testing and development of process models for agricultural regions, Kearney Foundation of Soil Science, University of California, Berkeley, CA.
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CONFERENCES & OTHER PRESENTATIONS

2019

2018

1. Bolton, R., Helene, G., Lara, M., Romanovski, V., Riley, W.J. (2018) Simulation of Landscape Changes on the Alaskan Arctic Coastal Plain with the Alaska Thermokarst Model, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
2. Holm, J. A., R. I. Negrón-Juárez, R. Knox, C. Koven, R. Fisher, W. J. Riley, B. Faybishenko, and J. Q. Chambers (2018) Demographic modeling and Landsat sensitivity to forest recovery following tropical clear-cuts and boreal heat-driven forest mortality events, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
3. Hoyt, A., Beem-Miller, J., Sierra, C., Stoner, S., Ahrens, B., Zhu, Q., Riley, W.J., Lawrence, C., Monroe, G., Trumbore, S. (2018) Respired Radiocarbon: Insights into decadal soil carbon cycling, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
4. Iversen, C.E., …, Riley, W.J., … (2018) Characterizing rooting depth distribution and nitrogen acquisition by dominant tundra plant species, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
5. Levine, P.A., Randerson, J.T., Zhu, Q., Riley, W.J., Hoyt, A., Trumbore, S., Shi, Z., Allison, S.D., Hoffman, F.M. (2018) Global carbon-14 observations constrain rates of soil organic matter decomposition in the Energy Exascale Earth System Model, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.

6. Mekonnen, Z.A., William J. Riley, W.J., Randerson, J.T., Grant, R.F. (2018) Fire driven vegetation dynamics and rapid carbon turnover cause a decline in high-latitude carbon stocks under future climate, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
7. Morin T.H., Riley W.J., Rey-Sanchez A.C., Bohrer G., Mekonnen Z.A., Stefanik K.C., Wrighton K.C (2018) Seasonal water level strongly affects CH_4 emissions in a natural estuarine wetland: Current and future predictions using a mechanistic model, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
8. Riley, W.J., Mekonnen, Z.A., Grant, R.F., Tang, J.Y., Bouskill, N.J., Zhu, Q. (2018) Non-growing season plant nitrogen uptake affects losses and carbon budgets in tundra and boreal systems, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
9. Tang, J.Y., Riley, W.J. (2018) A method to predict, rather than prescribe, soil heterotrophic respiration responses to soil moisture, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
10. Woo, D.K., Liu, X., Blancaflor, E., Wu, Y., Riley, W.J. (2018) Influence of Climate and Plant Structural Traits on Winter Wheat Aboveground and Belowground Allocation and Growth, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
11. Wrighton, K., Rodriguez, J., Borton, M., Angle, J., Smith, G., Solden, L., Narrowe, A., Villa, J., Betancur, Daly, R., Miller, C., Riley, W., Morin, T., Bohrer, G. (2018) It takes a village: Metatranscriptomics resolves a trophic network that sustains methanogenesis in oxic soils, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
12. Xu, L., Randerson, J.T., Chen, Y., Mahowald, N., Riley, W.J., Zhu, Q., Mackey, K. (2018) Global phosphorus emission and deposition from wildfires, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
13. Zhu, Q., Riley, W.J., Tang, J.Y., Bisht, G., Cai, X., Lei Zhao, L. (2018) Data assimilation strategy for E3SM land model carbon-nitrogen-phosphorus cycles, American Geophysical Union (AGU) Fall Meeting (December 10 - 14, 2018), Washington, DC.
14. Abramoff RZ, Torn MS, Georgiou K, Tang J, Riley WJ, A tale of four models, or Spatial gradients can hide the temperature sensitivity of soil organic matter to warming. Enviro-Lunch Seminar, UC Merced, April 2018
15. Abramoff RZ, Torn MS, Georgiou K, Tang J, Riley WJ, Zhalnina K, Karaoz U, Brodie E. Flash Talk: Modeling microbial temperature responses. DOE ESS PI Meeting, May 1-3, 2018
16. Abramoff RZ, Riley WJ , Georgiou K, Tang J, Torn MS, Steady State Gradients versus Microbe-Mineral Modeling Predict Different Temperature Responses of Upland Soils: Model Evaluation in the LBNL TES SFA. DOE ESS PI Meeting, May 1-3, 2018
17. Bouskill NJ, Zhu Q, Riley. Incorporating the nitrogen and phosphorus cycles in global land models. Breakout session. ESS-PI annual meeting. May 2. 2018. Invited.
18. Georgiou K., Abramoff R. Z., Riley W. J., Torn M. S. Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability. ESS PI Meeting, Potomac, MD, May 1-3, 2018.

19. Georgiou K., Abramoff R. Z., Harte J., Riley W. J., Torn M. S. Microbial community-level regulation explains carbon responses to long-term litter manipulations. ESS PI Meeting, Potomac, MD, May 1-3, 2018.
20. Nico P., Porras R., Georgiou K., Brodie E. L., Tas N., Abramoff R. Z., Riley W. J., Hicks Pries C., Torn M. S. LBNL TES SFA on Belowground Biogeochemistry: Highlights on long-term stabilization. ESS PI Meeting, Potomac, MD, May 1-3, 2018.
21. Riley W. J., Abramoff R., Georgiou K., Tang J., Torn M. S. Modeling the biotic and abiotic interactions controlling soil organic matter dynamics at site to climate scales. ESS PI Meeting, Potomac, MD, May 1-3, 2018.
22. Georgiou K., Abramoff R. Z., Riley W. J., Torn M. S. Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability. EGU Meeting, Vienna, Austria, 2018.
23. Mekonnen, Z.A., W.J. Riley, J.T. Randerson, R.F. Grant (2018). Modeling the Impacts of Fire on Surface Energy and Land-atmosphere Carbon Exchange across Alaska, ESS PI Meeting (May 1 – 2, 2018), Bethesday, MD.
24. Torn MS, Brodie E, Nico P, Riley WJ, Abramoff RZ, Castanha C, Georgiou K, Porras RC, Soong J, Berkeley Lab Terrestrial Ecosystem Science SFA (LBNL TES SFA) on Belowground Carbon Cycling. DOE ESS PI Meeting, May 2018
25. Abramoff RZ, Torn MS, Georgiou K, Tang JY, Riley WJ, Controls on SOC across space and time: Models with different acclimation schemes make similar spatial predictions but divergent warming predictions. AGU, December 2017
26. Zhu Q., N. Bouskill, W.J. Riley, (2018) Global C-N-P cycles modeling and benchmarking. May 1-3, DOE ESS PI meeting, Potomac, MD

2017

27. Mekonnen, Z.A., W.J. Riley, R.F. Grant, V.G. Salmon, C.M. Iversen, S.C. Biraud, and A.L. Breen (2017). Modeling hydrological controls on vegetation distribution across topography in Seward Peninsula, Alaska. American Geophysical Union (AGU) Fall Meeting (December 11 – 15, 2017), San Francisco, California.
28. Abramoff, RZ, …, W.J. Riley, et al. (2017) Managing for soil carbon sequestration: a modeling framework for decision-making, EGU Fall Meeting, Vienna, Austria, April 23-28.
29. Abramoff R. Z., Georgiou K., Riley W. J., Torn M. S. Controls on SOC across space and time: Models with different acclimation schemes make similar spatial predictions but divergent warming predictions. AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
30. Angle, J.C., …, W.J. Riley, et al. (2017) Microbial Feedbacks to Climate Change: Current Status, Challenges and Future Perspectives, ASM Microbe, June 1-5, New Orleans LA.
31. Bogie, N. A. Asefaw Berhe, M.V. Schaefer, C. Christine E. Avila, M. Abernathy, E.A. Dubinsky, A.R. Marklein, D. Rath, E.L. Brodie, S.J. Parikh, W.J. Riley, K.M. Scow, M.S. Torn, P.S. Nico, S.C. Ying, T.A. Ghezzehei (2017) Drought resilience in agricultural systems: interplay of Cover Cropping and Drip Irrigation to improve Soil Aggregation and Hydro-Physical Properties, *Soil Science Society of America* Annual Meeting, Tampa, FL, October 22-25.

32. Bouskill NJ, Mekonnen Z, Grant R, Riley WJ. Acute warming experiments cannot predict the response of Arctic ecosystems to changing climate. NGEE-Arctic Annual Meeting. New Orleans. Dec. 10. 2017.
33. Bouskill NJ, Zhu Q, Riley. Coupled nutrient cycles determine tropical forest trajectory under elevated CO_2. Annual meeting of the American Geophysical Union. New Orleans. Dec. 15. 2017.
34. Bouskill NJ, Zhu Q, Riley. Coupled nutrient cycles determine tropical forest trajectory under elevated CO_2. Ecological Society of America. Annual meeting. Portland, Oregon, Aug. 10th. 2017. Invited.
35. Bouskill NJ, Zhu Q, Riley. Coupled nutrient cycles determine tropical forest trajectory under elevated CO_2. NGEE-Tropics annual meeting. February, 14. 2017.
36. Cai, X., W.J. Riley, and Q. Zhu, 2017: Representation of deforestation impacts on climate, water, and nutrient cycles in the ACME earth system model (poster). Abstract GC43C-1086 presented at 2017 Fall Meeting, American Geophysical Union, 11-15 December, New Orleans, LA, USA.
37. Georgiou K. et al. (2017) Representing organo-mineral associations in soil carbon models: implications for carbon storage and vulnerability, EGU, August 2017.
38. Georgiou, K, RZ Abramoff, J Harte, WJ Riley, MS Torn (2017) Density-dependent microbial turnover improves soil carbon model predictions of long-term litter manipulations, EGU Fall Meeting, Vienna, Austria, April 23-28.
39. Georgiou K., Abramoff R. Z., Riley W. J., Torn M. S. The role of organo-mineral interactions on the capacity of soils to store carbon. AGU Fall Meeting, New Orleans, LA, 2017 (Poster).
40. Georgiou K., Abramoff R., Harte J., Riley W. J., Torn M. S. Microbial community-level regulation explains carbon responses to long-term litter manipulations. SOM Symposium, Harpenden, UK, 2017 (Oral). *Awarded Best Student Oral Presentation in Session & Overall
41. Keenan, T. F., …, W.J. Riley, et al. (2017) Enhanced terrestrial carbon uptake: global drivers and implications for the growth rate of atmospheric CO_2. EGU Fall Meeting 2017, Vienna, Austria, April 23-28.
42. Keller, K. M., Lienert, S., Bozbiyik, A., Stocker, T. F. [1], Churakova, O. V. [2], Frank, D. C. [3,4], Klesse, S., Koven, C. D., Leuenberger, M., Riley, W. J., Saurer, M., Siegwolf, R., Weigt, R. B., and Joos, F (2017) 20th century changes in carbon isotopes and water use efficiency: tree-ring-based evaluation of the CLM4.5 and LPX-Bern models, ICDC 10, August 21-25, Interlaken, Switzerland.
43. Maoyi Huang, Xingyuan Chen, Gautam Bisht, William Riley, Glenn Hammond, Heping Liu, Xuesong Zhang, Yilin Fang and Jesus Gomez-Velez (2017) Quantifying Stream-Aquifer-Land Interactions along a large dam-regulated River Corridor using Integrated Modeling and Observations, CMWR2018.
44. Marklein, Alison R, William J Riley, Robert F Grant, Symon Mezbahuddin, Zelalem Amdie Mekonnen, Yaning Liu and Samantha Ying (2017) Modeling applications for precision agriculture in the California Central Valley, AGU Fall Meeting 2017, New Orleans, LA.
45. Mekonnen, Z.A., W. J. Riley [1], R. F. Grant (2017) Modeling shrub expansion under changing climate across Arctic tundra of North America, Ameriflux Annual Meeting, Bethesday, MD, March 27 – 30.

46. Negron-Juarez, R., J. A. Holm, B. Faybishenko, D. M. Marra, J.K. Shuman, D. A. Roberts, S. W. Rifai, G. Ribeiro, W. J. Riley, N. Higuchi, J. Q. Chambers. "*Landsat sensitivity to recovery from burning and clearcuts in Amazonia*", DOE ESS PI Meeting, Potomac, Maryland, April 25-26, 2018.
47. Negron-Juarez, R., D. Marra, J. A. Holm, G. Derroire, B. Herault, E. Rutishauser, B. Burban, D. Bonal, D. Christianson, M. Detto, S. Rifai, A. Araujo, C. J. Peterson, A. Lima, N. Higuchi, W. J. Riley, J. Q. Chambers (2017) *Forest dynamics and severe convection in Amazonia*, AGU 2017 Fall meeting, December 11-15, New Orleans, LA.
48. Riley (2017) Coupled Carbon and Nutrient Dynamics in Earth System Models, Biogeochemistry and Environmental Sciences and Sustainability (BESS) program, NSF IGERT program in 'Cross-scale Biogeochemistry and Climate', and the Atkinson Center for a Sustainable Future, Cornell University, May 2017. **Invited.**
49. Schaefer, M.V., C. Christine, E. Avila, M. Abernathy, N. Bogie, E.A. Dubinsky, A.R. Marklein, D. Rath, A.A. Berhe, E.L. Brodie, T.A. Ghezzehei, S.J. Parikh, W.J. Riley, K.M. Scow, M.S. Torn, P.S. Nico, S.C. Ying (2017) Impact of cover crop and irrigation method on soil organic matter composition and distribution, *Soil Science Society of America* Annual Meeting.
50. Schmidt, M.W.I., W.J. Riley, M.S. Torn (2017) Soil organic matter (de)stabilization – new experiments needed to inform soil biogeochemistry modules in earth system models, EGU Fall Meeting 2017, Vienna, Austria, April 23-28.
51. Tang J.Y. and W. J. Riley, Modeling the hysteretic moisture and temperature responses of soil carbon decomposition resulting from organo-mineral interactions, AGU, Fall annual meeting, New Orleans, 2017

2016

52. Abramoff, RZ, K Georgiou, J Tang, MS Torn, WJ Riley (2017) The role of minerals and mean annual temperature on soil carbon accumulation: A modeling analysis, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
53. Bouskill, N.J., W.J. Riley, Z. Mekonnen, R.F. Grant (2017) Sensitivity of soil permafrost to winter warming: Modeled impacts of climate change, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
54. Chen, J., Q. Zhu, W.J. Riley, M.S. Torn, Y. He, J.T. Randerson (2017) Towards improved predictions of global radiocarbon ($\Delta^{14}C$) through comparison between site observations and climate model outputs, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
55. Georgiou, K., RZ Abramoff, J Harte, WJ Riley, MS Torn (2017) (A)biotic processes control soil carbon dynamics: quantitative assessment of model complexity, stability and response to perturbations for improving ESMs**,** *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
56. Huang, M., G. Bisht, T. Zhou, X. Chen, H. Dai, G. Hammond, W. Riley, J. Downs, Y. Liu, J. Zachara (2017) Coupling a three-dimensional subsurface flow model with a land surface model to simulate stream-aquifer-land interactions**,** *American Geophysical Union Annual Meeting*, San Francisco, CA, December.

57. Knox, R.G., C.D. Koven, R. Fisher, B. Andre, G. Bisht, M. Vertenstein, W.J. Riley, W. Sacks, E. Kluzek, D.L. Lawrence (2017) Software and Process Developments in the Functionally Assembled Terrestrial Ecosystem Simulator (FATES)**,** *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
58. Maggi, F.M. and W.J. Riley (2017) The Differential Gibbs Free Energy of Activation and its Implications in the Transition-State of Enzymatic Reactions, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
59. Mekonnen, Z.A., W.J. Riley, R.F. Grant (2017) Modeling shrub expansion under changing climate across Arctic tundra of North America, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
60. Morin T.H., Rey-Sanchez A.C., Bohrer G.,Riley W.J., Angle J., Grant R.F.,Mekonnen Z.A., Stefanik K.C., Wrighton K.C. (2017) Utilizing patch and site level greenhouse-gas concentration measurements in tandem with the prognostic model ecosys**,** *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
61. Negron Juarez, R., Holm, J., Chambers, J.Q., Riley, W.J., Di Vittorio, A., Marra, D., Rifai, S.W., Koven, C.D., Knox, R.G., McGroddy, M., Urquiza Munoz, J., Tello, R., Muñoz, W.A., Ribeiro, G.H.P.M., Niro Higuchi, N. (2017) Amazon storm-driven tree mortality**,** *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
62. Riley, W.J., Grant, R.F., Bouskill, N.J., Dafflon, B., Graham, D., Mekonnen, Z. Moon, J., Tang, J.Y., Torn, M.S., Wainwright, H.M. (2017) Early and late season warming affects nitrogen dynamics in a polygonal tundra landscape: Analyses using *ecosys* and NGEE-Arctic observations in Barrow, Alaska, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
63. Riley, W.J. (2016) Next Generation Representation of Coupled Carbon and Nutrient Dynamics in Earth System Models, Presentation at Duke University WISENET seminar series, April 2015, **Invited.**
64. Riley, W.J., Zhu, Q., Tang, J.Y. (2016) Comparisons with observational and experimental manipulation data imply needed conceptual changes to ESM land models, *American Geophysical Union Annual Meeting*, San Francisco, CA, December. **Invited.**
65. Schmidt, M.W.I., M.S. Torn, W.J. Riley (2016) Soil organic matter (de)stabilization – new experiments needed to inform soil biogeochemistry modules in Earth System Models, *American Geophysical Union Annual Meeting*, San Francisco, CA, December. **Invited.**
66. Tang, J.Y. and W.J. Riley (2017) Non-robust numerical implementations impact global carbon and water cycle simulations: a demonstration with two ESM land models, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
67. Zhu, Q., Riley, J.Y., Hoffman, F., Mu, M., Randerson, J.T. (2017) Representing carbon, nitrogen, and phosphorus interaction in the ACME Land Model v1: model development and global benchmarking, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.

2015

68. Riley, W.J., D. Dwivedi, B. Ghimire, F.M. Hoffman, C.D. Koven, G.S.H. Pau, J.T. Randerson, C. Shen, J.Y. Tang, Q. Zhu (2015) Improving predictions of large scale soil carbon dynamics: Integration of fine-scale hydrological and biogeochemical processes, scaling, and benchmarking, *American Geophysical Union Annual Meeting*, San Francisco, CA, December. **Invited.**
69. Abramoff, R.Z. and W.J. Riley (2015) Effects of substrate stoichiometry on microbial carbon use efficiency, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
70. Bisht, G.B. and W.J. Riley (2015) Measurement and Modeling of Root-Zone Processes Influencing Water and Nutrient Cycles at Various Scales, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
71. Georgiou, K., R. Z. Abramoff, C. D. Koven, W. J. Riley, M. S. Torn (2015) Soil carbon vulnerability to land-cover change and implications for the global carbon cycle, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
72. Ghimire, B., W.J. Riley, C.D. Koven, and R.F. Grant (2015) Future vegetation dynamics and associated land surface feedbacks from 2010 to 2100 in the high latitudes under a changing climate, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
73. M. Huang, G. Bisht, X. Chen, G. Hammond, J. Zachara, W.J. Riley, J. Downs, Y. Liu (2015) The Role of Groundwater and River water Interactions in Modulating Land Surface and Subsurface States and Fluxes: A Local-Scale Case Study along the Columbia River Shoreline, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
74. Negrón-Juárez, R.I., J.A. Holm, J.Q. Chambers, D.M. Marra, S.W. Rifai, R.G. Knox, W.J. Riley, C.D. Koven, M.E. McGroddy, J.D. Urquiza-Muñoz, R. Tello-Espinoza, W. Alegria-Muñoz, G.H.P.M. Ribeiro, N. Higuchi (2015) Amazon forests sensitivity to convective storms and modeling forest response to increased wind disturbance, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
75. Niu, J., W.J. Riley, J. Melack, and C. Shen (2015) Temporal and spatial relationships between hydrologic and carbon budgets in an Amazonian watershed: Application of a coupled Subsurface - Land Surface Process Model, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
76. Pau, G.S.H., C. Shen, W.J. Riley (2015) An Efficient Scaling Technique For Predicting Fine Resolution Terrestrial Hydrologic And Carbon Dynamics, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
77. Subin, Z.M., G.S.H. Pau, Y. Liu, W.J. Riley, C.D. Koven (2015) Application of Reduced-Order Modeling to Uncertainty in the Vulnerability of Permafrost Carbon to Climate Change, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
78. Tang J.Y. and W.J. Riley (2015) Implementation ambiguity: The fifth element long lost in uncertainty budgets for land biogeochemical modeling, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.

79. Xu, X., F. Yuan, P.J. Hanson, S.D.Wullschleger, P.E. Thornton, W.J. Riley, H. Tian, X. Song, D.E. Graham, C. Song (2015) Four decades of modeling methane cycling in terrestrial ecosystems: Where we are heading? , *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
80. Xu, X., W.J. Riley, C.D. Koven (2015) Influences of vegetation phenology shifts on water and energy cycle, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
81. Zhu, Q., W.J. Riley, J.Y. Tang, C.D. Koven (2015) Soil nutrient competition in earth system models: an important but underappreciated driver of plant responses to nutrient fertilization, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
82. Zhu, X., J.Y. Tang, W.J. Riley, M. Wallenstein (2015) Explicit representation of microbes, mineral surfaces, and enzymes and ^{14}C helps explain soil carbon decomposition and priming, *American Geophysical Union Annual Meeting*, San Francisco, CA, December.
83. Zhu, X., J.Y. Tang, W.J. Riley, M.D. Wallenstein (2015) Expicit representation of microbes, enzymes, mineral surfaces, and isotopic tracers helps explain soil organic carbon decomposition and priming, *Ecological Society of America Meeting*, Baltimore, MD.
84. Riley, W.J., Q. Zhu, J.Y. Tang (2015) Implementing ECA kinetics and advection improves nitrogen loss predictions, *CESM Annual Meeting*, Breckenridge, CO.
85. Holm, J.A., R.G. Knox, C.D. Koven, W.J. Riley, R.A. Fisher, S. Muszala, J.Q. Chambers, N. Higuchi (2015) Using CLM(ED) as a basis for reprsenting carbon cycling dynamics in tropical forests, *Land Model Working Group Meeting*, Boulder, CO.
86. Xu, X., W.J. Riley, C.D. Koven, C.E. Miller (2015) Seasonal cycle of methane emissions in Alaskan wetlands, *Land Model Working Group Meeting*, Boulder, CO.
87. Bisht, G., W.J. Riley (2015) Use of composable solvers to represent multiphysics hydrologic and thermal processes in CLM, *Land Model Working Group Meeting*, Boulder, CO.
88. Subin, Z.M., G. Pau, Y. Liu, W.J. Riley, G. Bisht, C.D. Koven, C. Shen (2015) Reduced order techniques for terrestrial models, *Land Model Working Group Meeting*, Boulder, CO.
89. Georgiou, K., W.J. Riley, M.S. Torn (2015) Response of soil carbon storage to temperature and carbon input variability in Earth System Models, *COP21 Paris climate change conference*, Paris, France.

2014

90. Riley, W.J., J.Y. Tang, D. Dwivedi, M.S. Torn, F. Maggi, M. Kleber (2014) Emergent SOM dynamics considering interactions between microbial physiology, microbial competition, mineral interactions, vertical transport, and temperature, *American Geophysical Union Annual Meeting*, San Francisco, CA, December. **Invited.**
91. Riley, W.J., J.Y. Tang (2014) Interactions between mineral surfaces, substrates, enzymes, and microbes result in hysteretic temperature sensitivities and microbial carbon use efficiencies and weaker predicted carbon-climate feedbacks, *American Geophysical Union Annual Meeting*, San Francisco, CA, December. **Invited.**

92. Lawrence, D.L., J. Randerson, M. Mu, W.J. Riley, et al., (2014) Development and application of a benchmarking system for land models, GEWEX 2014.
93. Riley, W.J., F.M. Maggi, M. Kleber, M.S. Torn, J.Y. Tang, D. Dwivedi, N. Guerry (2014) Long residence times of deep and rapidly decomposable soil organic matter are consistent with aqueous transport and mineral sorption, *Goldschmidt Conference*, May 8-13, Sacramento, CA. **Invited**.
94. Riley, W.J., J. Tang, G. Bisht, C.D. Koven, B. Ghimire, G. Pau (2014) Subsurface Biogeochemical Process Representaion in ESM Land Models *The 247th American Chemical Society National Meeting*, Dallas, March 16-20, Dallas, Texas, **Invited**.
95. Pau, G.S.H., Bisht, G., and Riley, W.J., Application of POD Mapping Method in Land Surface Models: A multiscale Reduced-Order Method for Integrated Earth System Modeling (2014), Climate Modeling PI Meeting, May, Potomac, MD, **Invited**.
96. Riley, W.J., J.Y. Tang, J. Niu (2014) Impacts of root hydraulic redistribution on global evapotranspiration in a climate-scale land model, *Ecological Society of America Meeting*, August 11-15, Sacramento, CA. **Invited**.
97. Koven, C.D., D.M. Lawrence, W.J. Riley, Permafrost-carbon feedback: Sensitivity to deep soil decomposability and nitrogen cycle (2014). Carbon Pools in Permafrost (CAPP) conference, May, Stockholm, Sweden, **Invited**.
98. Riley, W.J., F.M. Maggi, M. Kleber, M.S. Torn, J.Y. Tang, D. Dwivedi, N. Guerry (2014) Long residence times of deep and rapidly decomposable soil organic matter are consistent with aqueous transport and mineral sorption, *CESM PI Meeting*, May 12 - 14, Potomac, MD.
99. Shen, C., W.J. Riley (2014) Investigating soil moisture spatial scaling using Reduced Order Models and analysis of fractal temporal evolution patterns, *RGCM PI Meeting*, May 12 - 14, Potomac, MD.
100. Riley, W.J., J. Tang (2014) Impacts of incorporating root hydraulic redistribution on global evapotranspiration predictions using CLM4.5, *RGCM PI Meeting*, May 12 - 14, Potomac, MD.
101. Bouskill, N.J., Cheng Y, Williams KH, Karaoz U, King E, Tang J, Brodie EL, Riley WJ (2014) A genome informed emergent biogeographical model of microbial nitrogen cycling. *Gordon Research Conference 'Unifying Scales in Ecology'*. University of New England, Biddeford, Maine. July 20 - 25th.
102. Dwivedi, D., W.J. Riley, B. Ghimire, G. Bisht, J.Y. Tang, M.S. Torn (2014) Modeling controls on the decomposition of Soil Organic Matter, *TES PI Meeting*, May 6 - 7, Potomac, MD.
103. Bisht, G., G.S.H. Pau, W.J. Riley (2014) Development of reduced order models to capture sub grid-scale soil moisture dynamics in a polygonal tundra landscape, *TES PI Meeting*, May 6 - 7, Potomac, MD.
104. Shen, C., …, W.J. Riley (2014) Characterizing watershed soil moisture heterogeneity using fine-scale simulations and temporal evolution of soil moisture fractal, European Geosciences Union General Assembly 2014, 27 April – 02 May, Vienna, Austria.
105. Riley, W.J., G. Bisht, G. Pau, C. Shen (2014) Spatial structure of near-surface soil moisture follows clear dynamic patterns related to topography and soil properties: Applications with CLM coupled with PAWS, *CESM Annual Meeting*, June 16-20, Breckenridge, Colorado.

106. Tang, J.Y., W.J. Riley (2014) Modeling root hydraulic redistribution in CLM4.5: Pitfalls and gains, *Land Model and Biogeochemistry Working Group Meeting,* February 24-27, Boulder, CO.
107. Riley, W.J., G. Bisht, G. Pau (2014) Approaches to represent spatial heterogeneity in CLM, *Land Model and Biogeochemistry Working Group Meeting,* February 24-27, Boulder, CO.
108. Riley, W.J., C.D. Koven, J.Y. Tang (2014) New capabilities for CLM, *Land Model and Biogeochemistry Working Group Meeting,* February 24-27, Boulder, CO.
109. Pau, G.S.H., G. Bisht, W.J. Riley, Y. Liu (2014) Application of POD mapping method in land surface models, *International Conference on Spectral and High Order Methods,* June 23-27, Salt Lake City, UT
110. Brodie, E.L., E. King, J.Y. Tang, Y. Cheng, U. Karaoz, S. Molins, W.J. Riley, N.J. Bouskill (2014) Genome informed traitbased models for improved prediction of microbial dynamics and biogeochemical rates, *Ecological Society of America Meeting,* August 11-15, Sacramento, CA.
111. Bisht, G., Riley, W.J., Progess towards development of a variably saturated subsurface model for CLM (2014), Climate Modeling PI Meeting, Potomac, MD, May.
112. Ghimire B., W.J. Riley and C. Koven, Improving nitrogen cycling in CLM. CESM Land Model and Biogeochemistry Working Group Meetings (2014) Boulder, Colorado. February.

2013

113. Lawrence, D.M.; J. T. Randerson; M. Mu; F. M. Hoffman; W. J. Riley; C. D. Koven; K. E. Todd-Brown; G. Keppel-Aleks (2013) Development and application of a benchmarking system for land models, H32G-01. American Geophysical Union, San Francisco, CA, December.
114. Mu, M.; F. M. Hoffman; D. M. Lawrence; W. J. Riley; G. Keppel-Aleks; J. T. Randerson (2013) Design and development of a community carbon cycle benchmarking system for CMIP5 models, H33B-1356. American Geophysical Union, San Francisco, CA, December.
115. Bisht, G. and W.J. Riley (2013) Scaling of soil moisture in presence of polygonal ground features in Arctic ecosystem, *American Geophysical Union*, December 15-19, San Francisco, CA.
116. Dwivedi, D., W. J. Riley, and G. Bisht (2013) Mechanistic representation of soil C dynamics: for Arctic Ecosystems, *American Geophysical Union*, December 15-19, San Francisco, CA.
117. Ghimire, B., W.J. Riley, C.D. Koven (2013) Improving representation of nitrogen uptake, allocation, and carbon assimilation in the Community Land Model, *American Geophysical Union*, December 15-19, San Francisco, CA.
118. Hubbard, S., …, W.J. Riley, … (2013) Improved Climate Prediction through a System Level Understanding of Arctic Terrestrial Ecosystems: Next Generation Ecosystem Experiments (NGEE-Arctic), *American Geophysical Union*, December 15-19, San Francisco, CA.
119. Karaoz, U., Cheng Y, Bouskill NJ, Tang JY, Riley WJ, Beller HR, Brodie EL (2013) Genome Informed Trait-Based Models, *American Geophysical Union*, December 15-19, San Francisco, CA.

120. Mills, R., …, W.J. Riley, … (2013) Development of a Process-Rich Modeling Framework for Arctic Ecohydrology Using the Open-Source PFLOTRAN and CLM models, *American Geophysical Union*, December 15-19, San Francisco, CA.
121. O'Halloran, T.L., J.G. Barr, B.I. Cook, M. Goeckede, L.M. Kueppers, W.J. Riley, B.E. Law (2013) Predicting diffuse light-enhancement of GPP from plant functional traits: A multi-site synthesis, *American Geophysical Union*, December 15-19, San Francisco, CA.
122. Riley W.J. and C. Shen (2013) Predicting fine-scale watershed-scale soil moisture heterogeneity using surrogate and coarse model simulations, *American Geophysical Union*, December 15-19, San Francisco, CA.
123. Tang J.Y., W.J. Riley, N.J. Bouskill, E.L. Brodie (2013) Let the microbes explicitly carry out the reactions: a new paradigm to the modeling of soil carbon-nutrient dynamics, *American Geophysical Union*, December 15-19, San Francisco, CA.
124. Tang J.Y. and W.J. Riley (2013) The emergent temperature sensitivity of decomposition from interactions between microbes, substrates, and the soil environment, *American Geophysical Union*, December 15-19, San Francisco, CA.
125. Wang, H.J., W.J. Riley, W.D. Collins (2013) Evaluating terrestrial ecosystem model performance: An application of uncertainty of eddy covariance CO_2 flux measurements, *American Geophysical Union*, December 15-19, San Francisco, CA.
126. Williams, I.N., M.S. Torn, W.J. Riley, M.F. Wehner, W.D. Collins (2013) Climate extremes and ecosystem productivity in global warming simulations, *American Geophysical Union*, December 15-19, San Francisco, CA.
127. Bozbiyik, A., F. Joos, T. Stocker, W.J. Riley, C.D. Koven, E. Brady, B. Otto-Bliesner (2013) Implementation of ^{13}C in the CLM4.5 Land Component of the Community Earth System Model, *Conference on Isotopes of Carbon, Water, and Geotracers in Paleoclimate Research*, August 26 – 28, University of Bern, Bern, Switzerland.
128. Bouskill, N.J., J.Y. Tang, W.J. Riley, E. Brodie (2013) Developing a soil carbon and nitrogen biogeochemical model with a focus on trait-based modeling of the biological nitrogen cycle, *American Society for Microbiology Annual Meeting*, May 18-21, Denver, CO.
129. Riley, W.J., C. Steefel, E. Brodie, G. Bisht, J. Tang, N. Bouskill, C. Shen (2013) Scaling of coupled hydrology and biogeochemistry from genomes to landscapes, presented at the *TES/SBR Joint Investigators Meeting*, May 14 – 15, 2013, Potomac, MD.
130. Bisht, G., W.J. Riley, D. Dwivedi, G. Hammond (2013) Development of a Sub-meter Resolution Modeling Framework for Arctic Ecosystem: Coupling of CLM and PFLOTRAN and Spatial Scaling Results, CESM Annual Meeting, June 20-23, Breckenridge, Colorado.
131. Wullschleger, S.D., D.E. Graham, L.D. Hinzman, S.S. Hubbard, L. Liang, R.J. Norby, A. Rogers, J.C. Rowland, P.E. Thornton, M.S. Torn, W.J. Riley, C.J. Wilson (2013) Improved climate prediction through process-rich understanding of Arctic terrestrial ecosystems, presented at the *TES/SBR Joint Investigators Meeting*, May 14 – 15, 2013, Potomac, MD.

132. Wilson, C.J., D.E. Graham, L.D. Hinzman, S.S. Hubbard, L. Liang, R.J. Norby, W.J. Riley, A. Rogers, J.C. Rowland, P.E. Thornton, M.S. Torn, S.D. Wullschleger (2013) Process studies and observations in the Arctic to inform a hierarchical scaling framework for improved climate predictability, presented at the *TES/SBR Joint Investigators Meeting*, May 14 – 15, 2013, Potomac, MD.
133. Riley, W.J., J.Y. Tang, C.D. Koven, Z.M. Subin (2013) Development, evaluation, and application of a BGC transport and reaction capability for CLM4.5 (CLM4-BeTR), *Land-Model Working Group Meeting*, May 13-15, Boulder, Colorado.
134. Tang, J.Y. and W.J. Riley (2013) The CLM4 stomatal conductance calculation revisited: the empirical Ball-Berry equation and its relationship to relative humidity and vapor pressure deficit, *Land-Model Working Group Meeting*, May 13-15, Boulder, Colorado.
135. Mishra, U., W.J. Riley, C.D. Koven (2013) Topographic controls, spatial heterogeneity, and prediction accuracies of SOC stocks across geospatial and earth system models, *Soil Science Society of America*, November 3-6, Tampa, FL.
136. Tang, J.Y., W.J. Riley, C.D. Koven, Z.M. Subin (2013) A Reactive Transport Module of Land Biogeochemistry in the Community Land Model: Description, Evaluation, and Application, *Soil Science Society of America*, November 3-6, Tampa, FL.
137. Bouskill, N.J., J.Y. Tang, W.J. Riley, E.L. Brodie (2013) Developing a high-latitude soil carbon cycle model with a focus on trait-based representation of decomposition, 98th Ecological Society of America Annual Meeting, August 4-9, Minneapolis, MN.

2012

138. Bouskill, N.J., J.Y. Tang, W.J. Riley, E.L. Brodie (2012) Developing a high-latitude soil carbon and nitrogen cycle model with a focus on trait based modeling of the biological nitrogen cycle, *American Society of Microbiology*, June 16-24, San Francisco, CA.

2011

139. Guerry, N., W.J. Riley, F. Maggi, M.S. Torn, M. Kleber (2011) Using a Mechanistic Reactive Transport Model to Represent Soil Organic Matter Stabilization and Climate Sensitivity, *American Geophysical Union*, December 5-9, San Francisco, CA.
140. Hubbard, S.H., L. Hinzman, D. Graham, L. Liang, R. Norby, W.J. Riley, A. Rogers, J. Rowland, P. Thornton, M.S. Torn, C. Wilson, S. Wullschleger (2011) Next Generation Ecosystem Experiment: Quantification and prediction of coupled processes in the terrestrial Arctic System, *American Geophysical Union*, December 5-9, San Francisco, CA.
141. Koven, C.D., W.J. Riley, Z. Subin, J. Tang, M.S. Torn, D. Lawrence, G. Bonan, S. Swenson (2011) Permafrost C and N dynamics in CLM4, *American Geophysical Union*, December 5-9, San Francisco, CA.
142. Mishra, U. and W.J. Riley (2011) Spatial variability of soil depth and organic carbon stocks of Alaska, *American Geophysical Union*, December 5-9, San Francisco, CA.

143. Murphy, L.N., W.J. Riley, W.D. Collins (2011) Impact of afforestation with Loblolly Pines (*Pinus taeda L.*) in the Southeastern US on regional and global climate, *American Geophysical Union*, December 5-9, San Francisco, CA.
144. Riley, W.J., J.Y. Tang, C.D. Koven (2011) Climate impacts on belowground N cycling, N_2O fluxes, and N leaching: Development of a mechanistic N reactive transport model in CLM, *American Geophysical Union*, December 5-9, San Francisco, CA.
145. Still, C.J., J. Hu, M. Berkelhammer, H. Barnard, T. Rahn, G. Hsiao, A. Bailey, F. Dominquez, W.J. Riley, D.C. Noone (2011) Rapid in situ identification of source water and leaf water in a variety of plant species and functional types, *American Geophysical Union*, December 5-9, San Francisco, CA.
146. Subin, Z.M., F. Li, L.N. Murphy, C. Bonfils, W.J. Riley, S. Lee, S.M. Kang, W.D. Collins (2011) Atmospheric responses to changes in boreal lake distribution and to idealized extratropical terrestrial surface forcing propagate to the tropics and the Southern Hemisphere, *American Geophysical Union*, December 5-9, San Francisco, CA.
147. Tang, J.Y., W.J. Riley, C.D. Koven (2011) The effect of priming on soil carbon dynamics: Development and investigation with a vertically-resolved reactive transport framework in CLM, *American Geophysical Union*, December 5-9, San Francisco, CA.
148. Williams, I.N., W.J. Riley, M.S. Torn, S.C. Biraud, J.A. Berry (2011) Challenges in constraining surface trace gas exchanges from observations, *American Geophysical Union*, December 5-9, San Francisco, CA.
149. Riley, W.J., Z.M. Subin, D.M. Lawrence, S.C. Swenson, M.S. Torn, L. Meng, N.M. Mahowald, P. Hess (2011) Barriers to Predicting Changes in Global Terrestrial Methane Fluxes: Analyses Using CLM4Me, a Methane Biogeochemistry Model Integrated in CESM, CESM Annual Meeting, June 20-23, Breckenridge, Colorado.
150. Riley, W.J., J. Tang, D.C. Noone (2011) Isotopes (CLMiso) and Reactive Transport in CLM4, CESM Annual Meeting, June 20-23, Breckenridge, Colorado.
151. Riley, W.J., Z.M. Subin, D.M. Lawrence, S.C. Swenson, M.S. Torn, L. Meng, N.M. Mahowald, P. Hess (2011) CLM4Me, a Methane Biogeochemistry Model Integrated in CESM, Land-Model Working Mroup Meeting, June 20-23, Breckenridge, Colorado.
152. Subin, Z.M., W.J. Riley, L. Murphy, F. Li, C. Bonfils, D. Mironov (2011) Update on New Lake Model for CLM, Land-Model Working Mroup Meeting, June 20-23, Breckenridge, Colorado.
153. Sulman, B., Desai, Saliendra, Lafleur, Flanagan, Sonnentag, Mackay, A. Barr, L. Murphy, W.J. Riley, NACP Site Synthesis Participants (2011) Ecological controls and model bias on peatland carbon dioxide fluxes, 3rd NACP All-Investigators Meeting, Jan 31 – Feb 4, 2011, New Orleans, LA.
154. Williams, I.N., W.J. Riley, M.S. Torn, J.A. Berry, S.C. Biraud (2011) Using boundary layer equilibrium to reduce uncertainties in CO_2 flux inversions, 3rd NACP All-Investigators Meeting, New Orleans, LA.
155. Eluszkiewicz, J., A. Maher, T. Nehrkorn, J. Henderson, Y. Xiao, S.C. Biraud, M.L. Fischer, W.J. Riley, M.S. Torn (2011) High-Resolution CO_2 Simulations at the ASR-SGP Site With the WRF-STILT-ISOLSM Model, 3rd NACP All-Investigators Meeting, New Orleans, LA.

156. Schaeffer, K., …, W.J. Riley, … (2011) Results from the NACP Site-level Interim Synthesis
(NACP Site Synthesis), NACP 3rd All-Investigators Meeting, January 31 - February 4 2011, in New Orleans, LA USA.

2010 <u>and</u> before

157. Riley W.J. (2010) Terrestrial CH_4 emissions over the 21st century: Model predictions and observations required to improve model performance. DOE Climate Change Experiments in High-Latitude Ecosystems, October 13-14, Fairbanks, AK. **Invited**.
158. Buenning, N., D. Noone, W.J. Riley, C.J. Still, J.T. Randerson (2010) The influence of hydrological changes on the ^{18}O content of atmospheric CO_2. ESRL Global Monitoring Annual Conference, Boulder, Colorado.
159. Riley W.J. (2010) Developing a prognostic methane biogeochemical model in the CESM, Oak Ridge National Laboratory, January 31, Oak Ridge, TN. **Invited.**
160. Subin, Z.M., W.J. Riley, C. Bonfils (2010) Developing a new lake model in CLM, Land Model and Biogeochemistry Working Group Meeting, February 9, Boulder, CO.
161. Riley, W.J., Z.M. Subin, M.S. Torn, D.M. Lawrence (2010) Methane emissions from high-latitude systems: Model development, testing, and application, *Land Model and Biogeochemistry Working Group Meeting*, February 9, Boulder, CO.
162. Riley, W.J., Z.M. Subin, M.S. Torn, D.M. Lawrence (2010) Developing a Prognostic Methane Biogeochemistry Model in the CCSM: Model Evaluation and Regional Predictions, *Berkeley Atmospheric Sciences Center Symposium*, Date, Berkeley, CA.
163. Riley W.J. (2010) Mechanisms, observations, and testing a prognostic methane biogeochemical model, *Joint Genome Institute*, April 14, Walnut Creek, CA.
164. Maggi, F.M. and W.J. Riley. 2009. Modeling Non-Steady Isotopologue and Isotopomer Speciation and Fractionation during Denitrification in Soils, *American Geophysical Union*, December 10–14, San Francisco, CA. **Invited.**
165. Williams, I.N., W.J. Riley, J.A. Berry, M.S. Torn, S.C. Biraud (2009) Boundary Layer CO_2 budgets at long timescales, *American Geophysical Union*, December 10–14, San Francisco, CA.
166. Riley, W.J., Z.M. Subin, M.S. Torn, D.M. Lawrence (2009) Developing a Prognostic Methane Biogeochemistry Model in the CCSM: Model Evaluation and Regional Predictions, *American Geophysical Union*, December 10–14, San Francisco, CA.
167. Gu, C., W.J. Riley, T.J. Perez, L. Pan (2009) Simulation of land-atmosphere gaseous exchange using a coupled land surface-biogeochemical model, *American Geophysical Union*, December 10–14, San Francisco, CA.
168. Bonfils, C., T.J. Phillips, W.J. Riley, W.M. Post, M.S. Torn (2009*)* Simulations of Vegetation Impacts on Arctic Climate, *American Geophysical Union*, December 10–14, San Francisco, CA.
169. Lai, C.T., W.J. Riley, K. Schaefer, C.J. Still (2009) Stable Carbon Isotope Ratios of Atmospheric CO_2 and Ecosystem Respiration in NACP Site Synthesis Study, *American Geophysical Union*, December 10–14, San Francisco, CA.

170. Biraud, S.C., W.J. Riley, I.N. Williams, M.S. Torn (2009) A Multi-Year Record of Airborne Continuous CO_2 in the U.S. Southern Great Plains: Observations and Mixing Across the PBL, *American Geophysical Union*, December 10–14, San Francisco, CA.

171. Buenning, N.H., D.C. Noone, C.J. Still, W.J. Riley (2009) Interannual variations in $\delta^{18}O$ of Atmospheric CO_2 and its correlation to hydrological changes, *American Geophysical Union*, December 10–14, San Francisco, CA.

172. Torn, M.S., S.C. Biraud, C.J. Still, W.J. Riley, M.L. Fischer, J.A. Berry (2009) Long-term Trends In Regional $^{13}CO_2$ Fluxes in the U.S. Southern Great Plains, *American Geophysical Union*, December 10–14, San Francisco, CA.

173. Subin, Z.M., W.J. Riley (2009) Integrating a 1D Thermal Lake Model into a Global and Regional Climate Model: Model Evaluation and Regional Climate Simulation, *American Geophysical Union*, December 10–14, San Francisco, CA.

174. Kueppers, L.M., Z. Subin, J. Jin, W. Riley, D. Christianson, and M. Torn (2009) Feedbacks between climate change and plant distribution: Some initial model results. National Center for Ecological Analysis and Synthesis, Santa Barbara, California.

175. Riley W.J. (2009) Using Radiocarbon Measurements and Modeling to Constrain CA's Fossil-Fuel CO_2 Emissions and Transport, Berkeley Atmospheric Sciences Center, April 28, University of California, Berkeley. **Invited.**

176. Riley W.J. and ZM Subin (2009) CH_4 Biogeochemistry in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.

177. Subin, Z.M. and W.J. Riley (2009) Thermokarst Lake Dynamics in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.

178. Riley, W.J., M.S. Torn, Z. Subin, C. Bonfils, T. Phillips, M. Post, D. Lawrence (2009) Abrupt Climate Change in the Boreal/Arctic: CH_4 Biogeochemistry and Thermokarst, *CCRP Meeting*, Dates, Location.

179. Biraud, S.C., W.J. Riley, I.N. Williams, M.S. Torn (2009) A Multi-Year Record of Airborne Continuous CO_2 in the U.S. Southern Great Plains: Observations and Mixing Across the PBL, *International Conference on Carbon Dioxide*, Sept. 13-19, Jena, Germany.

180. Riley, W.J. and Z.M. Subin (2009) CH_4 biogeochemistry and thermokarst lake dynamics in CLM. *Land-Model Working Group Meeting*, Date, Boulder, CO.

181. Subin Z.M., J Jin, L.M. Kueppers, W.J. Riley, D.S. Christianson and M.S. Torn (2009) Coupling WRF3 and CLM3.5 for Regional Climate Simulation and Understanding Interactions between Land Cover and the Atmosphere. *WRF Users Workshop, NCAR*, June 23-26, Boulder, Colorado.

182. Gu C., F.M. Maggi, W.J. Riley, T. Xu, C. Oldenburg, N. Miller (2008) A Coupled Land Surface-Subsurface Biogeochemical Model for Aqueous and Gaseous Nitrogen Losses, *American Geophysical Union*, December 10–14, San Francisco, CA.

183. Maggi F.M., W.J. Riley (2008) Modeling Non-Steady Isotopic Effects Caused by Biological Kinetic Transient Complexation During Denitrification in Soils, *American Geophysical Union*, December 10–14, San Francisco, CA.

184. Subin, Z.M., J. Jin, L.M. Kueppers, W.J. Riley, D.M. Svehla, M.S. Torn (2008) Ecosystem Feedbacks to Climate Change in California: Integrated Climate Forcing from Vegetation Redistribution, Using a New Regional Climate Model Configuration, *American Geophysical Union*, December 10–14, San Francisco, CA.

185. Riley, W.J., I.N. Williams, M.S. Torn, S.C. Biraud, M.L. Fischer, J.A. Berry (2008) Bottom-Up and Equilibrium Top-Down Estimates of Regional Ecosystem Carbon Exchange in the Southern Great Plains, *American Geophysical Union*, December 10–14, San Francisco, CA.
186. Gaudinski, J.B., W.J. Riley, M.S. Torn, T.E. Dawson, S.E. Trumbore, J.D. Joslin, H. Majdi, P.J. Hanson, C. Swanston (2008) Carbon cycling in fine roots of several mature forests: results using either locally-derived or bomb-derived radiocarbon enrichment, C, *American Geophysical Union*, December 10–14, San Francisco, CA.
187. Knohl, A., K.P. Tu, V. Boukili, P.D. Brooks, S. Mambelli, W.J. Riley, T.E. Dawson, and the MIBA-US site participants MIBA-US (2007) Temporal and Spatial Variation of Water Isotopes in Terrestrial Ecosystems Across the United States, *American Geophysical Union*, December 10–14, San Francisco, CA.
188. Riley, W.J., F. Maggi, C. Gu (2007) Mechanistic Representation of the N Isotope Composition of Pools and Fluxes in a Coupled Soil and Plant System: Model Development, Testing, and Application, *American Geophysical Union*, December 10–14, San Francisco, CA.
189. Zhao, C., M.L. Fischer, W.J. Riley (2007) Predicting Atmospheric Methane Signals from Regional Scale Emissions in California: Toward Inverse Model Analysis, *American Geophysical Union*, December 10–14, San Francisco, CA.
190. Biraud, S.C., M.S. Torn, W.J. Riley, M.L. Fischer, D. Billesbach, J.A. Berry, A. Hirsch, M. Lowenstein, J. Lopez, R. Avissar, (2007) Regional carbon fluxes and atmospheric carbon dynamics in the Southern Great Plains during the 2007 CLASIC intensive, *American Geophysical Union*, December 10–14, San Francisco, CA.
191. Torn, M.S., W.J. Riley, S.C. Biraud, M.L. Fischer, D. Billesbach, J.A. Berry (2007) Regional Ecosystem Carbon Exchange in the Southern Great Plains: Measurements, Modeling, and Scaling, *American Geophysical Union*, December 10–14, San Francisco, CA.
192. Maggi, F.M., C. Gu., W.J. Riley, C.M. Oldenburg (2007) Nitrogen Cycle Modeling: a Mechanistic Estimate of N-losses From Agricultural Fields Over the Seasonal Time Period, *American Geophysical Union*, December 10–14, San Francisco, CA.
193. Gu, C., F.M. Maggi, W.J. Riley, C.M. Oldenburg (2007) Lime and soil moisture effects on nitrogen loss following application of fertilizers, *American Geophysical Union*, December 10–14, San Francisco, CA.
194. Riley, W.J., D. Hsueh, J.T. Randerson, M.L. Fischer, J. Hatch, D. Pataki, M. Goulden (2007) Measuring and modeling atmospheric fossil CO_2, *Ameriflux Annual Meeting*, October, Boulder, CO.
195. Zhao, C., W.J. Riley, A.I. Hirsch, P. Tans, M.L. Fischer (2007) Characterizing atmospheric CH_4 concentrations in California: a CALGEM Project, *Berkeley Atmospheric Sciences Conference*, October 4–5, Berkeley, CA.
196. Fischer, M.L., W.J. Riley, A.I. Hirsch, and P. Tans (2007) A California Greenhouse Gas Emission Measurement Project (CALGEM), *CEC Fourth Annual Climate Change Conference*, September 10–13, Sacramento, CA.

197. Riley, W.J., D.Y. Hsueh, J.T. Randerson, M.L. Fischer, J.G. Hatch, D.E. Pataki (2007) Where do Fossil Fuel Carbon Dioxide Emissions from the Western U.S. Go? An Analysis Based on an Atmospheric Model Validated Using Radiocarbon Observations (A Component of NACP-W), *U.S. North American Carbon Program Investigators Meeting*, January 22-24, Boulder, CO.
198. Fischer, M.L., W.J. Riley, A.I. Hirsch, and P. Tans (2007) A California Greenhouse Gas Emission Measurement Project (CALGEM), *U.S. North American Carbon Program Investigators Meeting*, January 22-24, Boulder, CO.
199. Berry, J.A., W.J. Riley, S.C. Biraud, M.L. Fischer, M.S. Torn (2007) Spatially Distributed CO_2, Sensible, and Latent Heat Fluxes Over the Southern Great Plains, *ARM Science Team Meeting*, March 27 - 31, Monterrey, CA.
200. Riley, W.J., J.A. Berry, S.C. Biraud, M.L. Fischer, M.S. Torn (2007) Spatially distributed CO_2, sensible, and latent heat fluxes over the Southern Great Plains, *ARM Science Team Meeting*, March 27 - 31, Monterrey, CA.
201. Welp L.R., J.W.C. White, J.T. Randerson, P.P. Tans, C.J. Still, B. Vaughn, D.C. Noone, N. Buenning, W.J. Riley (2006) A decreasing seasonal cycle amplitude of $d^{18}O$-CO_2 as a metric of high latitude temperature increases, *American Geophysical Union*, December 5-9, San Francisco, CA.
202. Buenning, N., D.C. Noone, W.J. Riley, C.J. Still, J.T. Randerson, L. Welp, J.W.C. White, B. Vaughn, J. Miller, P. Tans (2006) Modeling inter-annual variability of $\delta^{18}O$ value of atmospheric CO_2 and its dependence on humidity and isotope hydrology, *American Geophysical Union*, December 5-9, San Francisco, CA.
203. Still, C.J., D.C. Noone, N. Buenning, J.T. Randerson, L. Welp, J.W.C. White, B. Vaughn, W.J. Riley (2006) What controls the global value of Oxygen-18 in atmospheric CO_2?
American Geophysical Union, December 5-9, San Francisco, CA.
204. J.A. Berry, J.N. Arinibar, W.J. Riley, B.R. Helliker, J.R. Ehleringer (2006) Combining meteorology, eddy fluxes, isotope measurements, and modeling to understand environmental controls of carbon isotope discrimination at the canopy and regional scale, *American Geophysical Union*, December 5-9, San Francisco, CA.
205. I.N. Williams, W.J. Riley, J.A. Berry, M.S. Torn, M.L. Fischer (2006) Observed and theoretical seasonal and diurnal cycles of regional surface CO_2 flux over the Southern Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.
206. M.S. Torn, M.L. Fischer, W.J. Riley, T.J. Jackson, R. Avissar, S.C. Biraud, D.P. Billesbach, C. Sweeney, P.P. Tans, J.A. Berry (2006) Regional carbon fluxes and atmospheric carbon dynamics in the Southern Great Plains during the 2007 mid-continent intensive of NACP, *American Geophysical Union*, December 5-9, San Francisco, CA.
207. M.L. Goulden, Y. Jin, J.T. Randerson, S. Trumbore, D. Hsueh, A. Fellows, R. Anderson, A. McMillan, D. Roberts, W.J. Riley, P. Dennison (2006) Mechanisms controlling annual, interannual, and decadal changes in California's carbon budget, *American Geophysical Union*, December 5-9, San Francisco, CA.
208. D.Y. Hsueh, W.J. Riley, J.T. Randerson, M.L. Fischer, D.E. Pataki, M.L. Goulden (2006) Using radiocarbon measurements of annual plants to determine the flow of fossil fuel CO_2 in California, BIOGEOMON 2006, *5th International Symposium on Ecosystem Behavior*, June 25-30, 2006, University of California - Santa Cruz, Santa Cruz, CA.

209. IN Williams, WJ Riley, JA Berry, MS Torn, and ML Fischer (2006) Regional Scale Surface CO_2 Exchange Estimates Using a Boundary Layer Budget Method over the Southern Great Plains, *Annual ARM meeting*, March 27 - 31, Albuquerque, NM.
210. WJ Riley, JA Berry, SC Biraud, ML Fischer, MS Torn (2006) Spatially Distributed CO_2, Sensible, and Latent Heat Fluxes Over the Southern Great Plains, Presentation at the *Annual ARM meeting*, March 27 - 31, Albuquerque, NM.
211. E.R. Smith, M. MacLeod, W.J. Riley, T.G. Nettesheim, and T.E. McKone (2006) Modeling Transport and Deposition of Level 1 Substances to the Great Lakes, *IAGLR conference on Great Lakes*, May 22-26, University of Windsor, Windsor, Ontario, Canada.
212. Riley W.J. (2005) Estimating Surface CO_2 and Energy Fluxes with Top-Down and Bottom-Up Approaches, *Environmental Engineering Seminar*, October 14, University of California, Berkeley, CA. **Invited.**
213. WJ Riley, JT Randerson, ML Fischer, D Hsueh, J Hatch (2005) Relating the $\Delta^{14}C$ Value of Annual Grasses to Spatially and Temporally Distributed Fossil Fuel Emissions in California, *California Energy Commission*, September 14 – 16, Sacramento, CA.
214. SC Biraud, WJ Riley, ML Fischer, MS Torn, JA Berry (2005) Spatially Distributed CO_2, Sensible, and Latent Heat Fluxes over the Southern Great Plains, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
215. N Buenning, DC Noone, CJ Still, WJ Riley, JT Randerson, L Welp (2005) The expression of global dimming on $\delta^{18}O$ of atmospheric CO_2, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
216. M. Cuntz, WJ Riley, GD Farquhar (2005) Impact of soil-surface fluxes and night-time leaf respiration on the global composition of ^{18}O in atmospheric CO_2, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
217. WJ Riley, CJ Still, R Vachon, J Welker, J White, D Noone, SC Biraud, JA Berry (2005) Mechanisms Impacting Inter-annual Variations in Regional $C^{18}OO$ Isofluxes: Model Estimates with Regional Meteorological and Isotope Forcing Data, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
218. MS Torn, ML Fischer, SC Biraud, WJ Riley, L Jin, JA Berry (2005) Down and Dirty: Using a continental, not-so-tall tower to study trends in local, regional, and global atmospheric CO_2 concentrations, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
219. CJ Still, WJ Riley, SC Biraud, D. Noone, N. Buenning, J Welker, R Vachon, J White, JT Randerson, L Welp, JA Berry, GD Farquhar (2005) The impact of clouds on ecosystem $CO^{18}O$ isofluxes in the Great Plains, *International Conference on CO_2 (ICDC)*, September 25 - 30, Boulder, CO.
220. A Sellers, K Yoshimura, M Fischer, I Aleinov, P Irannejad, K McGuffie, WJ Riley, G A Schmidt, K Sturm (2005) Modeling Stable Water Isotopes Exchanges Between the Land and the Atmosphere, *American Geophysical Union*, December 5-9, San Francisco, CA.
221. CJ Still, WJ Riley, SC Biraud, DC Noone, JA Berry (2005) The Impact of Clouds on Ecosystem-Atmosphere $C^{18}OO$ Exchanges in the U.S. Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.

222. WJ Riley, D Hsueh, JT Randerson, ML Fischer, J Hatch, D Pataki (2005) Where do Fossil Fuel Carbon Dioxide Emissions from the Western U.S. Go? An Analysis Based on an Atmospheric Model Validated Using Radiocarbon Observations (A Component of NACP-W) *American Geophysical Union*, December 5-9, San Francisco, CA.
223. IN Williams, W J Riley, J A Berry, M S Torn, M L Fischer (2005) Regional-Scale Surface CO_2 Exchange Estimates Using a Boundary Layer Budget Method Over the Southern Great Plains, *American Geophysical Union*, December 5-9, San Francisco, CA.
224. S.C. Biraud, W.J. Riley, M.L. Fischer, M.S. Torn, and H.S Cooley (2004) Estimating Regional CO_2 Exchange over the Southern Great Plains, *American Geophysical Union*, December 12-18, San Francisco, CA.
225. W.J. Riley and J.T. Randerson (2004) The Influence of Terrestrial Ecosystems and Topography on Coastal CO_2 Measurements: A Case Study at Trinidad Head, CA, *American Geophysical Union*, December 12-18, San Francisco, CA.
226. S.R. Tonse, M.L. Fischer, W.J. Riley (2004) Design of an Atmospheric Observing Strategy for California's Carbon Cycle, *American Geophysical Union*, December 12-18, San Francisco, CA.
227. J.N. Aranibar, J.A. Berry, W.J. Riley, D.E. Pataki, B.E. Law, D. Bowling, and J. R. Ehleringer (2004) Modeling Carbon and Water Vapor Fluxes and Carbon Isotope Discrimination at the Canopy Scale in a Semi-arid Pine Forest, *American Geophysical Union*, December 12-18, San Francisco, CA.
228. Gaudinski JB, Riley WJ, Torn MS, Joslin JD (2003) Refinement of Isotopically Derived Fine Root Lifespans Using A Locally Released Radiocarbon Label in Oak Ridge, TN. Eos Trans. AGU, 84(46) Fall Meet. Suppl., *American Geophysical Union*, Abstract B32D-03.
229. W.J. Riley and C.J. Still (2003) Constraints on the use of ^{18}O in CO_2 as a tracer to partition gross carbon fluxes *American Geophysical Union*, December 10-14, San Francisco, CA.
230. M.S. Torn, W.J. Riley, M.L. Fischer, and J.A. Berry (2003) Characterizing Diurnal CO_2 Cycles in the Continental Boundary Layer Using Precise Concentration Measurements and a Simple Numerical Model, *American Geophysical Union*, December 10-14, San Francisco, CA.
231. H. Cooley, W.J. Riley, and M.S. Torn (2003) Agricultural practices and regional climate interactions in a coupled regional climate model, *American Geophysical Union*, December 10-14, San Francisco, CA.
232. W.J. Riley (2003) Impact of the $\delta^{18}O$ value of near-surface soil water on the $\delta^{18}O$ value of the soil-surface CO_2 flux, SIBAE/BASIN Conference, Orvieto, Italy.
233. Riley W.J. (2003) Water isotope modeling: Land surface and plant exchanges, NCAR working group, Boulder, CO. **Invited.**
234. Torn, M.S., M.L. Fischer, W.J. Riley, I. Pesenson, J.A. Berry, L. Giles, and D.P. Billesbach (2003) Carbon Cycling in the Southern Great Plains: The ARM/LBNL Carbon Project. The North American Carbon Program PI Meeting, Washington DC. (LBNL-52811)
235. Cooley, H.S., W.J. Riley, and M.S. Torn (2003) Effect of harvest on regional climate and soil moisture and temperature, in Chapman Conference on Ecosystem Interactions with Land Use Change, Santa Fe, NM. (LBNL-53039)

236. Cooley, H.S., W.J. Riley, and M.S. Torn (2003) Interactions Between Land Cover Change and Climate in a Coupled Regional Climate Model, in 88th Ecological Society of America Annual Meeting, Savannah, GA. (LBNL-53055)
237. Riley, W.J. H.S. Cooley, Y. He, and M.S. Torn, Coupling MM5 with ISOLSM: Development, testing, and application (2003) PSU/NCAR Mesoscale Modeling System Users' Workshop, Boulder, CO, June 10 - 11. (LBNL-53018)
238. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2003) Spatial Heterogeneity in Ecosystem-Atmosphere Carbon Exchange Near the ARM Central Facility During Spring 2003, *2003 ARM Science Team Meeting*, Denver, CO. (LBNL-52810)
239. Riley WJ, Hubal EAC, and McKone TE (2002) Linking dermal modeling and loading data to predict long-term doses from intermittent dermal contact, *ISEA conference*, Epidemiology, **13**: 230.
240. Torn, M.S., M.L. Fischer, W.J. Riley (2002) From crops to boundary layer and back: The ARM/LBNL Carbon Project in the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-51834)
241. Riley, W.J., M.S. Torn, M.L. Fischer, C.J. Still, and J.A. Berry (2002) Impacts of drought stress on $C^{18}OO$ ecosystem fluxes in an agricultural field: Measurements and modeling, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-51785)
242. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2002) Spatial heterogeneity and inter-annual variation in ecosystem-atmosphere CO_2/H_2O exchange in the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-52812)
243. Berry, JA, B Helliker, P Bakwin, D Billesbach, J Birks, K Davis, S Denning, J Ehleringer, M Fisher, M Jensen, J Miller, W Riley, K Schulz, M Torn, (2003) Daily CO_2 and isotopic gradients in the lower atmosphere, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-53037)
244. Marshall, J.D., W.J. Riley, T.E. McKone, and W.W. Nazaroff (2002) Population, proximity, and persistence: Incorporating exposure into life-cycle assessment, *International Society for Exposure Analysis*, August 11-15, Vancouver, BC. (LBNL-53038)
245. Riley, W.J., E.A. Cohen Hubal, and T.E. McKone (2002) Linking dermal modeling and loading data to predict long-term doses from intermittent dermal contact, *International Society for Exposure Analysis*, August 11-15, Vancouver, BC. (LBNL-53017)
246. McKone, T.E., T.L. Thatcher, W.J. Fisk, R.G. Sextro, M.D. Sohn, W.W. Delp, and W.J. Riley. "Factors affecting the concentration of outdoor particles indoors: Existing data and data needs". In Indoor Air 2002 - The 9th International Conference on Indoor Air Quality and Climate; Monterey, CA; June 30 - July 5, 2002. 2002. LBNL-49570
247. Riley W.J., C.J. Still, M.S. Torn, and J.A. Berry (2002) Mechanistic modeling of oxygen isotopic fluxes from differing ecosystem types: Sensitivity analysis of biological and biophysical factors controlling net ecosystem $H_2{}^{18}O$ and $C^{18}OO$ exchanges, *Stable Isotopes and Biosphere-Atmosphere Interactions*, May 12-14, Alberta, Canada.

248. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2002) Mid-summer Fluxes of Carbon, Water and Energy in Agricultural Plots Near the SGP Central Facility, *ARM Science Team Meeting*, April 7-9, St Petersburg, FL.
249. Torn, M.S., J. A. Berry, W. J. Riley, M.L. Fischer. D. Billesbach, B. Helliker, L.Giles (2002) From Crops to Boundary Layer and Back Down Again: The ARM/LBNL Carbon Project in the Southern Great Plains. *ARM Science Team Meeting*, April 7-9, St. Petersburg, FL.
250. Riley, W.J., D.C. Noone, M.S. Torn, J.A. Berry, and C.J. Still (2001) Integrating and testing a mechanistic model of $H_2{}^{18}O$ and $C^{18}OO$ ecosystem fluxes in a coupled land surface and global climate model, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-50330)
251. Fischer, M.L., D.P. Billesbach, W.J. Riley, J.A. Berry, and M.S. Torn (2001) Measured midsummer spatial heterogeneity in ecosystem-atmosphere CO_2 and H_2O exchange for selected crop systems of the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA.
252. Noone, D.C., C.J. Still, W.J. Riley (2001) Influence of land use change on the ^{18}O in atmospheric CO_2: a comparison of pre-industrial, modern and future scenarios, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-50310)
253. Noone, D.C., W.J. Riley, C.J. Still, and J.T. Randerson (2001) Diagnosing impacts of changes in the biosphere by modeling ^{18}O in atmospheric CO_2 with a general circulation model, *The 6th International CO_2 Conference*, July 6-10, Sendai, JP. (LBNL-50311)
254. M.L. Fischer, J.A. Barry, D.P. Billesbach, W.J. Riley, and M.S. Torn (2001) Carbon Cycle Measurements DOE- ARM Southern Great Plains Site, *Ameriflux Meeting*, Argon, Il.
255. Venterea, R.T., W.J. Riley, and D.E. Rolston (2001) Mechanistic modeling of nitrification, denitrification, soil hydrology, and N losses in an agricultural system, *Ecological Society of America, 86th Annual Meeting*, August 5-10, Madison, WI. (LBNL-50274).
256. Riley, W.J., T.E. McKone, E.J. Furtaw, and C.C. Dary (2001) Modeling absorbed doses from intermittent dermal contact, *International Society of Exposure Analysis*, July, Charleston, SC.
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258. Riley, W.J., C.J. Still, B.R. Helliker, M.S. Torn, and J.A. Berry (2001) Modeling the ^{18}O composition of CO_2 as a tracer of soil and plant carbon fluxes: Integration into a land surface model for coupling with GCMs, *Global Change Open Science Conference*, July 10-13, Amsterdam, the Netherlands. (LBNL-50329)
259. McKone, T.E., W.J. Riley, E. Cohen-Hubal, E. Furtaw Jr, and C. Dary (2001) Dermal uptake of pesticides during exposure events with intermittent surface contact: Malathion case study *Annual Meeting of the Society of Toxicology*, March 25-29, San Francisco, CA. LBNL-50303

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261. Riley, W.J., T.E. McKone, and W.W. Nazaroff (2000) Estimating indoor exposures to particles of outdoor origin: Development of a modeling framework, *International Society of Exposure Analysis*, October 24-27, Monterey, CA. (LBNL-50331)
262. Asner, G.P., J.C. Neff, W.J. Riley, R. Jackson, and P.A. Matson, (2000) Dissolved Organic Carbon and Nutrient Modeling in Terrestrial Ecosystems, *Ecological Society of America*, *85th Annual Meeting*, August 6–10, Snowbird, CO. (LBNL-50316)
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264. Riley, W.J., I. Ortiz-Monasterio, and P.A. Matson (1999) Applying a mechanistic model of nitrogen cycling (NLOSS) to reduce N losses in an intensive agricultural system, *The Ecological Society of America*, *84th Annual Meeting*, August 8-12, Spokane, WA.
265. Riley, W.J. and P.A. Matson (1998) A mechanistic model (NLOSS) of biogenic nitrogen trace-gas effluxes from soil during nitrification and denitrification, *American Geophysical Union (Special Session on Trace-Gas Emissions), 1998 Fall Meeting*, December 6 - 10, San Francisco, CA.
266. Riley, W.J., I. Ortiz-Monasterio, and P.A. Matson (1998) Nitrogen leaching in an irrigated wheat system in northern Mexico, *The Ecological Society of America, 83nd Annual Meeting*, August 2-6, Baltimore, MD.
267. Riley, W.J. and P.A. Matson (1997) A mechanistic model of soil denitrification including microbial dynamics, trace-gas transport, and soil emission, *The Ecological Society of America*, *82nd Annual Meeting*, August 7-10, Albuquerque, NM.
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HONORS AND AWARDS

National Energy Research Super Computer (NERSC) Achievement Award for High Impact Science, 2016.
American Western Universities Graduate Student Fellowship, 1996.
Air and Waste Management Association Academic Scholarship, 1995.
Sigma Pi Sigma - National Physics Honor Society, 1987.
Graduated Cum Laude from Rensselaer Polytechnic Institute, 1984.
Tau Beta Pi - National Engineering Honor Society, 1981.
Sigma Gamma Tau - National Aerospace Engineering Honor Society, 1981.

CURRENT GRANTS

1. Co-PI: Biogeochemical Cycles and Climate Interactions Scientific Focus Area, DOE BER 2015 – 2018.
2. Co-I: Next Generation Ecosystem Experiments - Arctic Phase 2, DOE BER 2015 – 2018.
3. Co-I, LBNL POC: Accelerated Climate Model for Energy, DOE BER 2013 – 2018.
4. Co-PI: Determining climate-carbon feedbacks in Arctic tundra ecosystems: Will increased labile carbon inputs stimulate decomposition of soil organic matter or increased formation rates?, DOE BER 2015 – 2017.
5. Co-PI: Scale-aware, improved hydrological and biogeochemical simulations of the Amazon under a changing climate, DOE BER 2015 – 2017.
6. Co-PI: Applying PFLOTRAN+CLM to the Hanford Site, 2015 – 2016.
7. Co-I: TES SFA on Soil C cycling, 2014 – 2017.

PREVIOUS GRANTS

1. Co-I: DOE, Next Generation Ecosystem Experiments - Arctic Phase, 2011 – 2015.
2. Co-I: DOE, Terrestrial Ecosystem Science SFA, 2015 – 2018.
3. Co-I: DOE, Climate Science for a Sustainable Energy Future, 2009 – 2014.
4. Co-I: DOE, Investigation of the Magnitudes and Probabilities of Abrupt Climate Transitions (IMPACTS), 2008 – 2013.
5. Co-I: DOE, Improving the simulation of natural feedbacks in the earth system: non-CO_2 greenhouse and reactive gas emissions from soils, wetlands and rice paddies, 2011 – 2014.

6. Co-PI: LDRD, Coupled modeling of Hydrology, Nutrient Cycling, and Vegetation, 2006 – 2007.
7. Co-I: NASA, 2005 – 2008.
8. PI: CEC, 2005-2006.
9. Co-I: EPA, Modeling Transport and Deposition of Level 1 Substances to the Great Lakes 2004 – 2005.
10. Co-I: CEC, Observation of CH_4 and other Non-CO_2 Green House Gas Emissions from California 2003 – 2004.
11. Co-I: NOAA, Linking the $CO^{18}O$ budget to global change processes, 2002 – 2005.
12. Co-I: DOE, ASR and ASR SFA 2002 – 2015.
13. PI: LDRD LBNL, Applying a Coupled Climate-Land Surface Regional Model to Deduce Trends in Soil Moisture from Available Temperature Data, 2001 – 2003.
14. Co-I: NSF, 2001 – 2004.