William J. Riley

Earth Sciences Division
Lawrence Berkeley National Laboratory
One Cyclotron Road, MS 90-1106
Berkeley, CA 94720, USA

Tel: (510) 486-5036
Fax: (510) 486-7070
e-mail: wjriley@lbl.gov

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; and impacts of intensive agriculture; development and testing of mechanistic and probabilistic models of human exposures to environmental contaminants.

PROFESSIONAL EXPERIENCE

Scientist, Lawrence Berkeley National Laboratory. 2000 through present.
Lecturer, U.C. Berkeley, Civil and Environmental Engineering Department. 1998 – 2006.
Postdoctoral Fellow with Pamela Matson, Stanford University and University of California, Berkeley. 1996 through 1999.
Ph.D. Dissertation Research with William Nazaroff, University of California, Berkeley and Lawrence Berkeley National Laboratory. 1993 through 1996.
Physics Graduate Research Assistant, University of North Carolina at Chapel Hill. 1986 through 1988.

LECTURER POSITIONS

1. **University of California, Berkeley.** Spring, 2006. *Lecturer* for the upper division class *Climate Change Mitigation* (CEE107).
2. **University of California, Berkeley.** Spring, 2003. *Lecturer* for the upper division class *Introduction to Environmental Engineering* (CEE111).
3. **San Francisco State University.** Spring, 2001. *Lecturer* for the graduate level class *Air Quality Engineering* (ENGR 866)
4. **University of California, Berkeley.** Spring, 2000. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).
5. **University of California, Berkeley.** Fall, 1999. *Lecturer* for the lower division class *Introduction to Computer Programming for Scientists and Engineers* (E77N).
6. **University of California, Berkeley.** Spring, 1999. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).
7. **University of California, Berkeley.** Fall, 1998. *Lecturer* for the upper division class *Elementary Fluid Mechanics* (CEE100).

SYNERGISTIC AND PROFESSIONAL ACTIVITIES

External co-chair, NCAR Community Land Model Working Group, 2013 – present.
Technical lead, Terrestrial Earth-System Processes and Energy-Climate Interactions in the Climate and Earth System Modeling SFA, 2009 – present.
Technical lead, Atmospheric Systems Research SFA, 2010 – present.
Contributing author, Intergovernmental Panel on Climate Change Fifth Assessment, 2011 – Present.
Member, NSF Permafrost Research Coordination Network, 2011 – present.
Participant, International Land Model Benchmarking Project, 2011 – present.
Proposal Reviewer: DOE, NSF
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
Member: NCAR Land-Model and Biogeochemistry Working Groups, 2007 – present.
Member: ARM cloud model working group
Contributor: DOE workshop on designing "Climate Change Experiments in High-Latitude Ecosystems"

PEER-REVIEWED PUBLICATIONS

Submitted and In Review

Bisht, G., and W. J. Riley (2014), Topographic controls on soil moisture scaling properties in polygonal ground, *submitted Hydrology and Earth System Science.*

Bouskill, N. J., W. J. Riley, and J. Y. Tang (2014), Meta-analysis of high-latitude nitrogen-addition and warming studies imply crucial ecological mechanisms overlooked by land models, *submitted Biogeosciences.*

Georgiou, K., C. D. Koven, W. J. Riley, and M. S. Torn (2014), Faster decomposition under increased atmospheric CO_2 limits soil carbon storage, *submitted Nature*.

Koven, C. D., D. M. Lawrence, and W. J. Riley (2014), Permafrost-carbon feedback: Sensitivity to deep soil decomposability and the nitrogen cycle, *submitted Proceedings National Academy of Sciences*.

Negron-Juarez, R. I., C. D. Koven, W. J. Riley, R. G. Knox, and J. Q. Chambers (2014), Observed tropical forest productivity, biomass, and allocation patterns are not accurately predicted by CMIP5 models, *submitted Geophysical Research Letters*.

Negrón-Juárez, R. I., W. J. Riley, C. D. Koven, R. G. Knox, P. G. Taylor, and J. Q. Chambers (2014), The rainfall sensitivity of tropical net primary production in CMIP5 20th and 21st century simulations, *submitted J. Climate*.

Tang, J. Y., and W. J. Riley (2014), Implementing Root Hydraulic Redistribution in CLM4.5: Pitfalls and gains, *submitted HESS*.

Wang, H. J., W. J. Riley, and W. D. Collins (2014), Statistical uncertainty of eddy covariance CO_2 fluxes inferred using a residual bootstrap approach, *submitted Agricultural and Forest Meteorology*.

In Press or Accepted

Tang, J. Y., and W. J. Riley (2014b), Weaker carbon-climate feedbacks resulting from microbial and abiotic interactions, *accepted Nature Climate Change*.

Williams, I. N., M. S. Torn, W. J. Riley, and M. F. Wehner (2014), Impacts of climate extremes on gross primary production under global warming, *accepted Environmental Reserach Letters*.

2014

1. Pau, G. S. H., G. Bisht, and W. J. Riley (2014), A reduced-order modeling approach to represent subgrid-scale hydrological dynamics for land-surface simulations: Application in a polygonal tundra landscape, *Geoscientific Model Development*, *7*, doi:10.5194/gmd-7-2091-2014, 2091-2105.
2. Buenning, N., D. Noone, J. Randerson, W. J. Riley, and C. Still (2014), The response of the O-18/O-16 composition of atmospheric CO_2 to changes in environmental conditions, *Journal of Geophysical Research-Biogeosciences*, *119*,WOS:000333164700005, Doi 10.1002/2013jg002312, 55-79.
3. Mishra, U., and W. J. Riley (2014), Active-layer thicknesses across Alaska: comparing observation-based estimates with CMIP5 Earth System Model Predictions, *Soil Science Society of America Journal*, doi:10.2136/sssaj2013.11.0484.
4. Riley, W. J., F. M. Maggi, M. Kleber, M. S. Torn, J. Y. Tang, D. Dwivedi, and N. Guerry (2014), Long residence times of rapidly decomposable soil organic matter: Application of, a multi-phase, multi-component, and vertically-resolved model (BAMS1) to soil carbon dynamics, *Geoscientific Model Development*, *7*, doi:10.5194/gmd-7-1335-2014, 1335-1355.
5. Riley, W. J., and C. Shen (2014), Characterizing coarse-resolution watershed soil moisture heterogeneity using fine-scale simulations and reduced-order models, *Hydrology and Earth System Science*, *18*, doi:10.5194/hess-18-2463-2014, 2463-2483.
6. Tang, J. Y., and W. J. Riley (2014), Simple formulations and solutions of the dual-phase diffusive transport for biogeochemical modeling, *Biogeosciences*, *11*, doi:10.5194/bg-11-3721-2014, 3721-3728.
7. Williams, I. N., W. J. Riley, M. S. Torn, S. C. Biraud, and M. L. Fischer (2014a), Biases in regional carbon budgets from covariation of surface fluxes and weather in transport model inversions, *Atmospheric Chemistry and Physics*, *14*, doi:10.5194/acp-14-1571-2014, 1571-1585.

2013

8. Biraud, S. C., M. S. Torn, J. R. Smith, C. Sweeney, W. J. Riley, and P. P. Tans (2013), An Eight-Year Record of Airborne CO_2 Observations in the U.S. Southern Great Plains, *Atmospheric Measurement Techniques*, *6*, 10.5194/amt-6-751-2013, 751-763.
9. Koven, C. D., W. J. Riley, Z. M. Subin, J. Y. Tang, M. S. Torn, W. D. Collins, G. B. Bonan, D. M. Lawrence, and S. C. Swenson (2013), The effect of vertically resolved soil biogeochemistry and alternate soil C and N models on C dynamics of CLM4, *Biogeosciences*, *10*,WOS:000327814700023, Doi 10.5194/Bg-10-7109-2013, 7109-7131.
10. Koven, C. D., W. J. Riley, and A. T. Stern (2013), Analysis of permafrost thermal dynamics and response to climate change in the CMIP5 Earth System Models, *J. Climate*, *26*, 10.1175/JCLI-D-12-00228.1, 1877-1900.
11. Melton, J. R., R. Wania, E. Hodson, B. Poulter, B. Ringeval, R. Spahni, T. Bohn, C. A. Avis, D. Beerling, G. Chen, A. V. Eliseeve, S. N. Denisov, P. Hopcroft, D. P. Lettenmaier,

W. J. Riley, J. O. Singarayer, Z. M. Subin, H. Tian, S. Zurcher, V. Brovkin, P. M. vanBodegom, T. Kleinen, Z. C. Yu, and J. O. Kaplan (2013), Present state of global wetland extent and wetland methane modelling: Conclusions from a model inter-comparison project (WETCHIMP), *Biogeosciences*, *10*, doi:10.5194/bg-10-753-2013, 753-788.

12. Mishra, U., J. D. Jastrow, R. Matamala, G. Hugelius, C. D. Koven, J. W. Harden, C. L. Ping, G. J. Michaelson, Z. Fan, R. M. Miller, A. D. McGuire, C. Tarnocai, P. Kuhry, W. J. Riley, K. Schaefer, E. A. G. Schuur, M. T. Jorgenson, and L. D. Hinzman (2013), Empirical estimates to reduce modeling uncertainties of soil organic carbon in permafrost regions: a review of recent progress and remaining challenges, *Environ Res Lett*, *8*,WOS:000325247100065, Artn 035020, Doi 10.1088/1748-9326/8/3/035020.
13. Riley, W. J. (2013), Using model reduction to predict the soil-surface $C^{18}OO$ flux: An example of representing complex biogeochemical dynamics in a computationally efficient manner, *Geoscientific Model Development*, *6*, doi:10.5194/gmd-6-345-2013, 345-352.
14. Schuur, E. A. G., B. W. Abbott, W. B. Bowden, V. Brovkin, P. Camill, J. P. Canadell, J. P. Chanton, F. S. Chapin, T. R. Christensen, P. Ciais, P. M. Crill, B. T. Crosby, C. I. Czimczik, G. Grosse, J. Harden, D. J. Hayes, G. Hugelius, J. D. Jastrow, J. B. Jones, T. Kleinen, C. D. Koven, G. Krinner, P. Kuhry, D. M. Lawrence, A. D. McGuire, S. M. Natali, J. A. o'Donnell, C. L. Ping, W. J. Riley, A. Rinke, V. E. Romanovsky, A. B. K. Sannel, C. Schadel, K. Schaefer, J. Sky, Z. M. Subin, C. Tarnocai, M. Turetsky, M. Waldrop, K. M. Walter-Anthony, K. P. Wickland, C. J. Wilson, and S. A. Zimov (2013), Expert Assessment of Vulnerability of Permafrost Carbon to Climate Change, *Climatic Change*, 10.1007/s10584-013-0730-7.
15. Shim, J. H., H. H. Powers, C. W. Meyer, A. Knohl, T. E. Dawson, W. J. Riley, W. T. Pockman, and N. McDowell (2013), Hydrologic control of the oxygen isotope ratio of ecosystem respiration in a semi-arid woodland, *Biogeosciences*, *10*,ISI:000322242700035, Doi 10.5194/Bg-10-4937-2013, 4937-4956.
16. Stoy, P. C., M. Dietze, A. D. Richardson, R. Vargas, A. G. Barr, R. S. Anderson, M. A. Arain, I. T. Baker, T. A. Black, J. M. Chen, R. B. Cook, C. M. Gough, R. F. Grant, D. Y. Hollinger, R. C. Izaurralde, C. J. Kucharik, P. Lafleur, B. E. Law, S. Liu, E. Lokupitiya, Y. Luo, J. W. Munger, C. Peng, B. Poulter, D. T. Price, D. M. Ricciuto, W. J. Riley, A. K. Sahoo, K. Schaefer, C. R. Schwalm, H. Tian, H. Verbeeck, and E. Weng (2013), Evaluating the agreement between measurements and models of net ecosystem exchange at different times and time scales using wavelet coherence: an example using data from the North American Carbon Program Site-Level Interim Synthesis, *Biogeosciences*, *10*, doi:10.5194/bg-10-6893-2013, 6893-6909.
17. Subin, Z. M., C. D. Koven, W. J. Riley, M. S. Torn, D. M. Lawrence, and S. C. Swenson (2013), Effects of Soil Moisture on the Responses of Soil Temperatures to Climate Change in Cold Regions, *J. Climate*, *26*, DOI: 10.1175/JCLI-D-12-00305.1, 3139-3158.
18. Tang, J. Y., and W. J. Riley (2013), Impacts of a new bare-soil evaporation formulation on site, regional, and global surface energy and water budgets in CLM4, *J Adv Model Earth Sy*, *5*,WOS:000325934100006, Doi 10.1002/Jame.20034, 558-571.
19. Tang, J. Y., and W. J. Riley (2013), A total quasi-steady-state formulation of substrate uptake kinetics in complex networks and an example application to microbial litter

decomposition, *Biogeosciences*, *10*,WOS:000329054600033, Doi 10.5194/Bg-10-8329-2013, 8329-8351.

20. Tang, J. Y., and W. J. Riley (2013), A new top boundary condition for modeling surface diffusive exchange of a generic volatile tracer: Theoretical analysis and application to soil evaporation, *Hydrology and Earth System Sciences*, *17*, doi:10.5194/hess-17-873-2013, 873-893.
21. Tang, J. Y., W. J. Riley, C. D. Koven, and Z. M. Subin (2013), CLM4-BeTR, a generic biogeochemical transport and reaction module for CLM4: model development, evaluation and application, *Geoscientific Model Development*, *6*, doi:10.5194/gmd-6-127-2013, 127-140.
22. Wania, R., J. R. Melton, E. L. Hodson, B. Poulter, B. Ringeval, R. Spahni, T. Bohn, C. A. Avis, G. Chen, A. V. Eliseev, P. O. Hopcroft, W. J. Riley, Z. M. Subin, H. Tian, V. Brovkin, P. M. vanBodegom, T. Kleinen, Z. C. Yu, J. S. Singarayer, S. Zurcher, D. P. Lettenmaier, D. J. Beerling, S. N. Denisov, C. Prigent, F. Papa, and J. O. Kaplan (2013), Present state of global wetland extent and wetland methane modelling: Methodology of a model intercomparison project (WETCHIMP), *Geoscientific Model Development*, *6*, doi:10.5194/gmd-6-617-2013, 617-641.

2012

23. Bonfils, C. J. W., T. J. Phillips, D. M. Lawrence, P. Cameron-Smith, W. J. Riley, and Z. M. Subin (2012), On the influence of shrub height and expansion on northern high latitude climate, *Environ Res Lett*, *7*,ISI:000302580600057, Artn 015503, Doi 10.1088/1748-9326/7/1/015503.
24. Bouskill, N. J., J. Tang, W. J. Riley, and E. L. Brodie (2012), Trait-based representation of biological nitrification: model development, testing, and predicted community composition, *Frontiers in microbiology*, *3*, doi: 10.3389/fmicb.2012.00364, 1-17.
25. Luo, Y., J. T. Randerson, G. Abramowitz, C. Bacour, E. M. Blyth, N. Carvalhais, P. Ciais, D. Dalmonech, J. B. Fisher, R. A. Fisher, P. Friedlingstein, K. Hibbard, F. Hoffman, D. N. Huntzinger, C. D. Jones, C. D. Koven, D. Lawrence, D. Li, M. Mahecha, S. Niu, S. Piao, X. Qi, P. Peylin, C. Prentice, W. J. Riley, M. Reichstein, J. Famiglietti, Y. P. Wang, J. Xia, S. Zaehle, and X. Zhou (2012), A Framework of Benchmarking Land Models, *Biogeosciences*, *9*, doi:10.5194/bg-9-3857-2012, 3857-3874.
26. Melton, J. R., R. Wania, E. Hodson, B. Poulter, B. Ringeval, R. Spahni, T. Bohn, C. A. Avis, D. Beerling, G. Chen, A. V. Eliseeve, S. N. Denisov, P. Hopcroft, D. P. Lettenmaier, W. J. Riley, J. O. Singarayer, Z. M. Subin, H. Tian, S. Zurcher, V. Brovkin, P. M. vanBodegom, T. Kleinen, Z. C. Yu, and J. O. Kaplan (2013), Present state of global wetland extent and wetland methane modelling: Conclusions from a model inter-comparison project (WETCHIMP), *Biogeosciences*, *10*, doi:10.5194/bg-10-753-2013, 753-788.
27. Meng, L., P. G. M. Hess, N. M. Mahowald, J. B. Yavitt, W. J. Riley, Z. M. Subin, D. M. Lawrence, S. C. Swenson, J. Jauhiainen, and D. R. Fuka (2012), Sensitivity of wetland methane emissions to model assumptions: application and model testing against site observations, *Biogeosciences*, *9*,ISI:000306976100030, Doi 10.5194/Bg-9-2793-2012, 2793-2819.

28. Mishra, U., and W. J. Riley (2012a), Alaskan soil carbon stocks: Spatial variability and dependence on environmental factors, *Biogeosciences*, *9*, doi:10.5194/bg-9-3637-2012, 3637-3645.
29. Mishra, U., and W. J. Riley (2012b), Spatial variability of the active layer, permafrost, and soil profile depth in Alaskan soils, paper presented at The 5th Global Workshop on Digital Soil Mapping 2012, Sydney, Australia, April 10-13, 2012.
30. Murphy, L. N., W. D. Collins, and W. J. Riley (2012), Local and remote climate impacts from expansion of woody biomass for bioenergy feedstock in the Southeastern US, *in press J. Climate*, doi: http://dx.doi.org/10.1175/JCLI-D-11-00535.1.
31. Schaefer, K., C. Schwalm, C. Williams, A. Arain, A. Barr, J. Chen, K. Davis, D. Dimitrov, N. Golaz, T. Hilton, D. Hollinger, E. Humphreys, B. Poulter, B. Raczka, A. Richardson, A. Sahoo, P. Thornton, R. Vargas, V. H, R. Anderson, I. Baker, D. Baldocchi, T. A. Black, P. Bolstad, J. Chen, P. Curtis, A. Desai, M. Dietze, D. Dragoni, L. Flanagan, R. Grant, L. Gu, G. Katul, C. Kucharik, B. Law, S. Liu, E. Lokipitiya, H. Margolis, R. Matamala, H. McCaughey, R. Monson, J. W. Munger, W. Oechel, C. Peng, D. Price, D. Ricciuto, W. Riley, N. Roulet, T. H, C. Tonitto, M. Torn, S. Verma, and E. Weng (2012), A model-data comparison of gross primary productivity, *in press JGR-Biogeosciences*.
32. Subin, Z. M., L. N. Murphy, F. Y. Li, C. Bonfils, and W. J. Riley (2012a), Boreal lakes moderate seasonal and diurnal temperature variation and perturb atmospheric circulation: analyses in the Community Earth System Model 1 (CESM1), *Tellus A*, *64*,ISI:000300396900001, Artn 15639, Doi 10.3402/Tellusa.V64i0.15639.
33. Subin, Z. M., W. J. Riley, and D. Mironov (2012b), An improved lake model for climate simulations: Model structure, evaluation, and sensitivity analyses in CESM1, *J. Adv. Model. Earth Sys.*, *4*, 10.1029/2011MS000072.

2011

34. Schuur, E. A. G., B. W. Abbott, W. B. Bowden, P. C. V. Brovkin, J. P. Canadell, F. S. C. III, T. R. Christensen, J. P. Chanton, P. Ciais, P. M. Crill, B. T. Crosby, C. I. Czimczik, G. Grosse, J. Harden, D. J. Hayes, G. Hugelius, J. D. Jastrow, T. Kleinen, K. C.D, G. Krinner, P. Kuhry, D. M. Lawrence, A. D. McGuire, S. M. Natali, J. A. O'Donnell, C. L. Ping, A. Rinke, W. J. Riley, V. E. Romanovsky, A. B. K. Sannel, C. Schädel, K. Schaefer, Z. M. Subin, C. Tarnocai, M. Turetsky, M. Waldrop, K. M. Walter-Anthony, K. P. Wickland, C. J. Wilson, and S. A. Zimov (2011), High risk of permafrost thaw, *Nature*, *480*32-33.
35. Riley, W. J., Z. M. Subin, M. S. Torn, L. Meng, N. Mahowald, P. G. Hess, and D. M. Lawrence (2011), Barriers to predicting changes in global terrestrial methane fluxes: Analyses using CLM4ME, a methane biogeochemistry model integrated in CESM, *Biogeosciences Discussion*, *8*, doi:10.5194/bgd-8-1733-2011, 1733-1807.
36. Williams, I., W. Riley, M. Torn, J. Berry, and S. Biraud (2011), Using boundary layer equilibrium to reduce uncertainties in CO_2 flux inversions, *Atmospheric Chemistry Physics Discussions*, *11*, doi:10.5194/acpd-11-11455-2011, 11455-11495.
37. Buenning, N., D. C. Noone, J. T. Randerson, W. J. Riley, C. J. Still, and J. White (2011b), Influences of the hydrological cycle on observed inter-annual variations in atmosheric $CO^{18}O$, *accepted JGR-Biogeosciences*.

38. Macleod, M., H. vonWaldow, P. Tay, J. M. Armitage, H. Wohrnschimmel, W. Riley, T. E. McKone, and K. Hungerbuhler (2011), BETR Global - A Geographically-Explicit Global-Scale Multimedia Contaminant Fate Model, *Environmental Pollution*, *159*, 10.1016/j.envpol.2011.01.038, 1442-1445.
39. Torn, M. S., S. C. Biraud, C. J. Still, W. J. Riley, and J. A. Berry (2011), Seasonal and interannual variability in C-13 composition of ecosystem carbon fluxes in the U.S. Southern Great Plains, *TELLUS SERIES B-CHEMICAL AND PHYSICAL METEOROLOGY*, *63*,ISI:000288516400003, Doi 10.1111/J.1600-0889.2010.00519.X, 181-195, LBNL-4004E.

2010

40. Subin, Z. M., W. J. Riley, L. M. Kueppers, J. Jin, Z. M. Subin, D. S. Christianson, and M. S. Torn (2010), Ecosystem feedbacks to climate change in California: Development, testing, and analysis using a coupled regional atmosphere and land-surface model (WRF3-CLM3.5), *Earth Interactions*, 10.1175/2010EI331.1.
41. Schwalm, C. R., C. A. Williams, K. Schaefer, R. Anderson, M. A. Arain, I. Baker, T. A. Black, G. Chen, P. Ciais, K. J. Davis, A. R. Desai, M. Dietze, D. Dragoni, M. L. Fischer, L. B. Flanagan, R. F. Grant, L. Gu, D. Hollinger, R. C. Izaurralde, C. Kucharik, P. M. Lafleur, B. E. Law, L. Li, Z. Li, S. Liu, E. Lokupitiya, Y. Luo, S. Ma, H. Margolis, R. Matamala, H. McCaughey, R. K. Monson, W. C. Oechel, C. Peng, B. Poulter, D. T. Price, D. M. Riciutto, W. J. Riley, A. K. Sahoo, M. Sprintsin, J. Sun, H. Tian, C. Tonitto, H. Verbeeck, and S. B. Verma (2010), A model-data intercomparison of CO_2 exchange across North America: Results from the North American Carbon Program Site Synthesis, *J. Geophysical Research - Biogeosciences*, *doi:10.1029/2009JG001229*.
42. Parton, W. J., P. J. Hanson, C. Swanston, M. Torn, S. E. Trumbore, W. Riley, and R. Kelly (2010), ForCent model development and testing using the Enriched Background Isotope Study experiment, *Journal of Geophysical Research-Biogeosciences*, *115*,ISI:000282768500002, Doi 10.1029/2009jg001193.
43. Gaudinski, J. B., M. S. Torn, W. J. Riley, T. E. Dawson, J. D. Joslin, and H. Majdi (2010), Measuring and modeling the spectrum of fine-root turnover times in three forests using isotopes, minirhizotrons, and the Radix model, *Global Biogeochemical Cycles*, *24*,ISI:000282433600002, Doi 10.1029/2009gb003649.
44. Gu, C. H., and W. J. Riley (2010), Combined effects of short term rainfall patterns and soil texture on soil nitrogen cycling - A modeling analysis, *J Contam Hydrol*, *112*,ISI:000275735600011, Doi 10.1016/J.Jconhyd.2009.12.003, 141-154, LBNL-2959E.
45. Maggi, F., and W. J. Riley (2010), Mathematical treatment of isotopologue and isotopomer speciation and fractionation in biochemical kinetics, *Geochim Cosmochim Ac*, *74*,ISI:000274722200007, Doi 10.1016/J.Gca.2009.12.021, 1823-1835, LBNL-2959E.

2009

46. Riley, W. J., S. C. Biraud, M. S. Torn, M. L. Fischer, D. P. Billesbach, and J. A. Berry (2009a), Regional CO2 and latent heat surface fluxes in the Southern Great Plains: Measurements, modeling, and scaling, *Journal of Geophysical Research-Biogeosciences*, *114*,ISI:000272147100002, Artn G04009, Doi 10.1029/2009jg001003.

47. Riley, W. J., J. B. Gaudinski, M. S. Torn, J. D. Joslin, and P. J. Hanson (2009b), Fine-root mortality rates in a temperate forest: estimates using radiocarbon data and numerical modeling, *New Phytologist*, *184*,ISI:000270190300014387-398, LBNL-2789E.
48. Maggi, F., and W. J. Riley (2009), Transient competitive complexation in biological kinetic isotope fractionation explains nonsteady isotopic effects: Theory and application to denitrification in soils, *Journal of Geophysical Research-Biogeosciences*, *114*,ISI:000272147300001, Artn G04012; Doi 10.1029/2008jg000878, -, LBNL-2963E.
49. Gaudinski, J. B., M. S. Torn, W. J. Riley, C. Swanston, S. E. Trumbore, J. D. Joslin, H. Majdi, T. E. Dawson, and P. J. Hanson (2009), Use of stored carbon reserves in growth of temperate tree roots and leaf buds: analyses using radiocarbon measurements and modeling, *Global Change Biology*, *doi: 10.1111/j.1365-2486.2008.01736.x*.
50. Gu, C. H., F. Maggi, W. J. Riley, G. M. Hornberger, T. Xu, C. M. Oldenburg, N. Spycher, N. L. Miller, R. T. Venterea, and C. Steefel (2009), Aqueous and gaseous nitrogen losses induced by fertilizer application, *Journal of Geophysical Research-Biogeosciences*, *114*,ISI:000262982700001.
51. Still, C. J., W. J. Riley, S. C. Biraud, D. C. Noone, N. H. Buenning, J. T. Randerson, M. S. Torn, J. Welker, J. W. C. White, R. Vachon, G. D. Farquhar, and J. A. Berry (2009), Influence of clouds and diffuse radiation on ecosystem-atmosphere CO2 and (COO)-O-18 exchanges, *Journal of Geophysical Research-Biogeosciences*, *114*,ISI:000263950400001.

<u>2008</u>

52. Maggi, F., C. Gu, W. J. Riley, G. M. Hornberger, R. T. Venterea, T. Xu, N. Spycher, C. Steefel, N. L. Miller, and C. M. Oldenburg (2008), A mechanistic treatment of the dominant soil nitrogen cycling processes: Model development, testing, and application, *Journal of Geophysical Research-Biogeosciences*, *113*,ISI:000255460200001.
53. Riley, W. J., D. Y. Hsueh, J. T. Randerson, M. L. Fischer, J. G. Hatch, D. E. Pataki, W. Wang, and M. L. Goulden (2008), Where do fossil fuel carbon dioxide emissions from California go? An analysis based on radiocarbon observations and an atmospheric transport model, *Journal of Geophysical Research-Biogeosciences*, *113*,ISI:000259989300001.
54. Fried, J. S., J. K. Gilless, W. J. Riley, T. J. Moody, C. S. de Blas, K. Hayhoe, M. Moritz, S. Stephens, and M. Torn (2008), Predicting the effect of climate change on wildfire behavior and initial attack success, *Climatic Change*, *87*,ISI:000254987600016, Doi 10.1007/S10584-007-9360-2, S251-S264.
55. McDowell, N., D. Baldocchi, M. Barbour, C. Bickford, M. Cuntz, D. Hanson, A. Knohl, H. Powers, T. Rahn, J. Randerson, W. Riley, C. Still, K. Tu, and A. Walcroft (2008), Understanding the stable isotope composition of biosphere atmosphere CO_2 exchange, *EOS Transactions American Geophysical Union*, *89*94-95.

<u>2007</u>

56. Fischer, M. L., D. P. Billesbach, J. A. Berry, W. J. Riley, and M. S. Torn (2007), Spatiotemporal variations in growing season exchanges of CO2, H2O, and sensible heat

in agricultural fields of the Southern Great Plains, *Earth Interactions*, *11*,ISI:000251534500001, Artn 17

2006

57. Henderson-Sellers, A., M. Fischer, I. Aleinov, K. McGuffie, W. J. Riley, G. A. Schmidt, K. Sturm, K. Yoshimura, and P. Irannejad (2006), Stable water isotope simulation by current land-surface schemes: Results of iPILPS Phase 1, *Global and Planetary Change*, *51*,ISI:00023804140000434-58.
58. Christensen, L., W. J. Riley, and I. Ortiz-Monasterio (2006), Nitrogen cycling in an irrigated wheat system in Sonora, Mexico: Measurements and modeling, *Nutr Cycl Agroecosys*, *DOI 10.1007/s10705-006-9025-y*.
59. Joslin, J. D., J. B. Gaudinski, M. S. Torn, W. J. Riley, and P. J. Hanson (2006), Fine-root turnover patterns and their relationship to root diameter and soil depth in a C-14-labeled hardwood forest, *New Phytologist*, *172*,ISI:000241238800015, Doi 10.1111/J.1469-8137.2006.01847.X, 523-535.
60. Lai, C. T., W. Riley, C. Owensby, J. Ham, A. Schauer, and J. R. Ehleringer (2006), Seasonal and interannual variations of carbon and oxygen isotopes of respired CO_2 in a tallgrass prairie: Measurements and modeling results from 3 years with contrasting water availability, *Journal of Geophysical Research-Atmospheres*, *111*,ISI:000236730800003.
61. Aranibar, J. N., J. A. Berry, W. J. Riley, D. E. Pataki, B. E. Law, and J. R. Ehleringer (2006), Combining meteorology, eddy fluxes, isotope measurements, and modeling to understand environmental controls of carbon isotope discrimination at the canopy scale, *Global Change Biology*, *12*,ISI:000236549600010, Doi 10.1111/J.1365-2486.2006.01121.X, 710-730.

2005

62. Riley, W. J., J. T. Randerson, P. N. Foster, and T. J. Lueker (2005), The influence of terrestrial ecosystems and topography on coastal CO_2 measurements: A case study at Trinidad Head, California, *JGR-Biogeosciences*, *110*.
63. Macleod, M., W. J. Riley, and T. E. McKone (2005), Assessing the influence of climate variability on atmospheric concentrations of polychlorinated biphenyls using a global-scale mass balance model (BETR-global), *Environmental Science & Technology*, *39*,ISI:000231723800063 6749-6756.
64. Riley, W. J. (2005), A modeling study of the impact of the delta O-18 value of near-surface soil water on the delta O-18 value of the soil-surface CO_2 flux, *Geochim Cosmochim Ac*, *69*,ISI:000228682000003 1939-1946.
65. Cooley, H. S., W. J. Riley, M. S. Torn, and Y. He (2005), Impact of agricultural practice on regional climate in a coupled land surface mesoscale model, *Journal of Geophysical Research-Atmospheres*, *110*,ISI:000227065800002D03113.
66. Still, C. J., W. J. Riley, B. A. Helliker, and J. A. Berry (2005), Simulation of ecosystem oxygen-18 CO_2 isotope fluxes in a tallgrass prairie: Biological and physical controls, in *Stable Isotopes and Biosphere-Atmosphere Interactions*, edited by L. B. Flanagan, Ehleringer, J.R. & D.E. Pataki, Elsevier-Academic Press.

2004 and Earlier

67. Riley, W. J., T. E. McKone, and E. A. C. Hubal (2004), Estimating contaminant dose for intermittent dermal contact: Model development, testing, and application, *Risk Analysis*, *24*,ISI:00018930890000773-85.
68. Riley, W. J., C. J. Still, B. R. Helliker, M. Ribas-Carbo, and J. A. Berry (2003), ^{18}O composition of CO_2 and H_2O ecosystem pools and fluxes in a tallgrass prairie: Simulations and comparisons to measurements, *Global Change Biology*, *9*,740DV-0005 740DV: Document Delivery available1567-1581.
69. Maddalena, R. L., T. E. McKone, and W. J. Riley (2003), Is there a "forest filter effect" for organic pollutants?, *in press Stochastic Environmental Research and Risk Assessment*.
70. Marshall, J. D., W. J. Riley, T. E. McKone, and W. W. Nazaroff (2003), Intake fraction of primary pollutants: motor vehicle emissions in the South Coast Air Basin, *Atmospheric Environment*, *37*,702RM-0013 702RM: Document Delivery available3455-3468.
71. Marshall, J. D., W. J. Riley, T. E. McKone, and W. W. Nazaroff (2002), Population, proximity, and persistence, incorporating exposure into life-cycle assessment, *Epidemiology*, *13*,ISI:000176378600202205.
72. Riley, W., C. Still, M. Torn, and J. Berry (2002a), A mechanistic model of $H_2{}^{18}O$ and $C^{18}OO$ fluxes between ecosystems and the atmosphere: Model description and sensitivity analyses, *Global Biogeochemical Cycles*, *16*1095-1109.
73. Asner, G. P., A. R. Townsend, W. J. Riley, P. A. Matson, J. C. Neff, and C. C. Cleveland (2001), Physical and biogeochemical controls over terrestrial ecosystem responses to nitrogen deposition, *Biogeochemistry*, *54*,ISI:0001686669000011-39.
74. Riley, W. J., T. E. McKone, A. C. K. Lai, and W. W. Nazaroff (2002b), Indoor particulate matter of outdoor origin: Importance of size-dependent removal mechanisms (vol 36, pg 200, 2002), *Environmental Science & Technology*, *36*,ISI:0001749763000341868-1868.
75. Riley, W. J., T. E. McKone, A. C. K. Lai, and W. W. Nazaroff (2002c), Indoor particulate matter of outdoor origin: Importance of size-dependent removal mechanisms, *Environmental Science & Technology*, *36*,512EP-0013 512EP: Document Delivery available200-207.
76. Riley, W. J., I. Ortiz-Monasterio, and P. A. Matson (2001), Nitrogen leaching and soil nitrate, nitrite, and ammonium levels under irrigated wheat in Northern Mexico, *Nutr Cycl Agroecosys*, *61*,512GG-0002 512GG: Document Delivery available223-236.
77. Van Loy, M. D., W. J. Riley, J. M. Daisey, and W. W. Nazaroff (2001), Dynamic behavior of semivolatile organic compounds in indoor air. 2. Nicotine and phenanthrene with carpet and wallboard, *Environmental Science & Technology*, *35*,ISI:000166727700030560-567.
78. Riley, W. J., and P. A. Matson (2000), NLOSS: A mechanistic model of denitrified N_2O and N_2 evolution from soil, *Soil Sci*, *165*237-249.
79. Lund, C. P., W. J. Riley, L. L. Pierce, and C. B. Field (1999), The effects of chamber pressurization on soil-surface CO2 flux and the implications for NEE measurements under elevated CO2, *Global Change Biology*, *5*,ISI:000079231000003269-281.
80. Riley, W. J., A. L. Robinson, A. J. Gadgil, and W. W. Nazaroff (1999), Effects of variable wind speed and direction on radon transport from soil into buildings: model

development and exploratory results, *Atmospheric Environment*, *33*,ISI:000079778700003 2157-2168.
81. Robinson, A. L., R. G. Sextro, and W. J. Riley (1997), Soil-gas entry into houses driven by atmospheric pressure fluctuations - The influence of soil properties, *Atmospheric Environment*, *31*,ISI:A1997WR160000111487-1495.
82. Riley, W. J., A. J. Gadgil, and W. W. Nazaroff (1996a), Wind-induced ground-surface pressures around a single-family house, *Journal of Wind Engineering and Industrial Aerodynamics*, *61*,ISI:A1996VG91700004153-167.
83. Riley, W. J., W. J. Fisk, and A. J. Gadgil (1996b), Regional and national estimates of the potential energy use, energy cost and CO2 emissions associated with radon mitigation by sub-slab depressurization, *Energy and Buildings*, *24*,ISI:A1996VZ89700005203-212.
84. Riley, W. J., A. J. Gadgil, Y. C. Bonnefous, and W. W. Nazaroff (1996c), The effect of steady winds on radon-222 entry from soil into houses, *Atmospheric Environment*, *30*,ISI:A1996UA047000161167-1176.
85. Fisk, W. J., R. J. Prill, J. Wooley, Y. C. Bonnefous, A. J. Gadgil, and W. J. Riley (1995), New Methods of Energy-Efficient Radon Mitigation, *Health Physics*, *68*,ISI:A1995QT41800009689-698.

OTHER PUBLICATIONS

1. M MacLeod, WJ Riley, and TE McKone, 2005, Modeling Transport and Deposition of Level 1 Substances to the Great Lakes, United States Environmental Protection Agency, Great Lakes National Program Office, 77 West Jackson Blvd (G-17J), Chicago, IL 60604-3590 (LBNL-56801).
2. Noone, DC, CJ Still, and WJ Riley, 2002: A global biophysical model of 18O in terrestrial water and CO2 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, report to the Kearney Foundation of Soil Science, University of California, Berkeley, CA.
5. Riley, WJ (1996) Wind-induced contaminant transport in near-surface soils with application to radon entry into buildings, Ph.D. dissertation, Lawrence Berkeley National Laboratory, Berkeley, CA. (LBNL-39000)

CONFERENCES & OTHER PRESENTATIONS

2014

1. D.L. Lawrence, J. Randerson, M. Mu, W.J. Riley, et al., (2014) Development and application of a benchmarking system for land models, GEWEX 2014.
2. W.J. Riley, 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**.
3. 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**.
4. 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**.
5. W.J. Riley, 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**.
6. 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**.
7. W.J. Riley, 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.

8. C. Shen, 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.
9. W.J. Riley, J. Tang (2014) Impacts of incorporating root hydraulic redistribution on global evapotranspiration predictions using CLM4.5, *RGCM PI Meeting*, May 12 - 14, Potomac, MD.
10. N.J. Bouskill, 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.
11. D. Dwivedi, 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.
12. G. Bisht, 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.
13. C. Shen, …, 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.
14. W.J. Riley, 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.
15. J.Y. Tang, 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.
16. W.J. Riley, G. Bisht, G. Pau (2014) Approaches to represent spatial heterogeneity in CLM, *Land Model and Biogeochemistry Working Group Meeting,* February 24-27, Boulder, CO.
17. W.J. Riley, C.D. Koven, J.Y. Tang (2014) New capabilities for CLM, *Land Model and Biogeochemistry Working Group Meeting,* February 24-27, Boulder, CO.
18. G.S.H. Pau, 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
19. E.L. Brodie, 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.
20. Bisht, G., Riley, W.J., Progess towards development of a variably saturated subsurface model for CLM (2014), Climate Modeling PI Meeting, Potomac, MD, May.
21. 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

22. 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.
23. 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.
24. G. Bisht 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.
25. D. Dwivedi[1], W. J. Riley[1], and G. Bisht (2013) Mechanistic representation of soil C dynamics: for Arctic Ecosystem, *American Geophysical Union*, December 15-19, San Francisco, CA.
26. B. Ghimire, 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.
27. S. Hubbard, ..., 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.
28. U. Karaoz, 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.
29. R. Mills, ..., 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.
30. T.L. O'Halloran, 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.
31. W.J. Riley 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.
32. J. Tang, 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.
33. J. Tang 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.
34. H.J. Wang, 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.
35. I.N. Williams, 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.
36. A. Bozbiyik, 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.

37. N. Bouskill, J. 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.
38. W.J. Riley, 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.
39. G. Bisht, 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.
40. S.D. Wullschleger, 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.
41. C.J. Wilson, 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.
42. W.J. Riley, J. 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.
43. J. Tang, 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.
44. U. Mishra, 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.
45. J. Tang, 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.
46. N.J. Bouskill, J. 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

47. N.J. Bouskill, J. 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

48. N. Guerry, 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.
49. S.S. Hubbard, 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.
50. C.D. Koven, 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.
51. U. Mishra, W.J. Riley (2011) Spatial variability of soil depth and organic carbon stocks of Alaska, *American Geophysical Union*, December 5-9, San Francisco, CA.
52. L.N. Murphy, 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.
53. W.J. Riley, J. 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.
54. C.J. Still, 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.
55. Z.M. Subin, 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.
56. J. Tang, 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.
57. I.N. Williams, 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.
58. W.J. Riley, 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.
59. W.J. Riley, J. Tang, D.C. Noone (2011) Isotopes (CLMiso) and Reactive Transport in CLM4, CESM Annual Meeting, June 20-23, Breckenridge, Colorado.
60. W.J. Riley, 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.
61. Z. Subin, 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.
62. Ian's ARM Science Team meeting

63. Sulman, 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.
64. I.N. Williams,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.
65. J. Eluszkiewicz, A. Maher, T. Nehrkorn, J. Henderson, Y. Xiao, S.C. Biraud, M.L. Fischer, W.J. Riley, M.S. Torn (2011) High-Resolution CO2 Simulations at the ASR-SGP Site With the WRF-STILT-ISOLSM Model, 3rd NACP All-Investigators Meeting, New Orleans, LA.
66. K. Schaeffer, …, 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 and before

67. W.J. Riley. 2010. Invited. 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.
68. N. Buenning, 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.
69. Developing a prognostic methane biogeochemical model in the CESM. 2010. Invited, Oak Ridge National Laboratory, January 31, Oak Ridge, TN.
70. Z.M. Subin, W.J. Riley, C. Bonfils. 2010. Developing a new lake model in CLM, Land Model and Biogeochemistry Working Group Meeting, February 9, Boulder, CO.
71. W.J. Riley, 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.
72. W.J. Riley, 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.
73. W.J. Riley. 2010. Mechanisms, observations, and testing a prognostic methane biogeochemical model. 2010. Invited. *Joint Genome Institute*, April 14, Walnut Creek, CA.
74. *F. Maggi, 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.
75. *I.N. Williams, 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.
76. *W.J. Riley, 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.
77. *C. Gu, 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.

78. *C. Bonfils, 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.
79. *C.T. Lai, 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.
80. *S.C. Biraud, 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.
81. *N.H. Buenning, 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.
82. *M.S. Torn, 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.
83. Z.M. Subin, 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.
84. L.M. Kueppers, 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.
85. Riley WJ (2009) Using Radiocarbon Measurements and Modeling to Constrain CA's Fossil-Fuel CO_2 Emissions and Transport, invited presentation for the Berkeley Atmospheric Sciences Center, April 28, University of California, Berkeley.
86. Riley WJ and ZM Subin. 2009. CH_4 Biogeochemistry in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.
87. Subin, ZM and WJ Riley. 2009. Thermokarst Lake Dynamics in CLM, *Land Model Working Group, NCAR*, March 30 – May 1, Boulder, Colorado.
88. W.J. Riley, 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.
89. S.C. Biraud, 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.
90. W.J. Riley, Z.J. Subin. 2009. CH_4 biogeochemistry and thermokarst lake dynamics in CLM. *Land-Model Working Group Meeting,* Date, Boulder, CO.
91. Subin ZM, J Jin, LM Kueppers, WJ Riley, DS Christianson and MS 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.
92. Gu C, F Maggi, WJ 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.
93. Maggi F, WJ 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.

94. Subin, ZM, J Jin, LM Kueppers, WJ Riley, DM Svehla, MS 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.
95. Riley WJ, IN Williams, MS Torn, SC Biraud, ML Fischer, JA 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.
96. Gaudinski JB, WJ Riley, MS Torn, TE Dawson, SE Trumbore, JD Joslin, H Majdi, PJ 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.
97. A. Knohl, 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.
98. W.J. Riley, 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.
99. C. Zhao, 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.
100. SC Biraud, 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.
101. M.S. Torn, 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.
102. F. Maggi, 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.
103. C. Gu, F. 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.
104. W.J. Riley, 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.
105. C. Zhao, 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.
106. M.L. Fischer, 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.
107. W.J. Riley, 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.

108. M.L. Fischer, 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.
109. J.A. Berry, 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.
110. WJ Riley, JA Berry, SC Biraud, ML Fischer, MS 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.
111. LR Welp, JWC White, JT Randerson, PP Tans, CJ Still, B Vaughn, DC Noone, N Buenning, WJ Riley (2006) A decreasing seasonal cycle amplitude of $\delta^{18}O$-CO_2 as a metric of high latitude temperature increases, *American Geophysical Union*, December 5-9, San Francisco, CA.
112. N Buenning, DC Noone, WJ Riley, CJ Still, JT Randerson, L Welp, JWC 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.
113. CJ Still, DC Noone, N Buenning, JT Randerson, L Welp, JWC White, B Vaughn, WJ Riley (2006) What controls the global value of Oxygen-18 in atmospheric CO_2? *American Geophysical Union*, December 5-9, San Francisco, CA.
114. JA Berry, JN Arinibar, WJ Riley, BR Helliker, JR 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.
115. IN Williams, WJ Riley, JA Berry, MS Torn, ML 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.
116. MS Torn, ML Fischer, WJ Riley, TJ Jackson, R Avissar, SC Biraud, DP Billesbach, C Sweeney, PP Tans, JA 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.
117. ML Goulden, Y Jin, JT Randerson, S Trumbore, D Hsueh, A Fellows, R Anderson, A McMillan, D Roberts, WJ 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.
118. DY Hsueh, WJ Riley, JT Randerson, ML Fischer, DE Pataki, ML 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.
119. 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.

120. 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.
121. 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.
122. WJ Riley (2005) Estimating Surface CO_2 and Energy Fluxes with Top-Down and Bottom-Up Approaches Invited talk, *Environmental Engineering Seminar*, October 14, University of California, Berkeley, CA.
123. 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.
124. 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.
125. 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.
126. 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.
127. 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.
128. 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.
129. 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.
130. 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.
131. 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.
132. 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.
133. 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.

134. 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.
135. W.J. Riley and J.T. Randerson (2004) The Influence of Terrestrial Ecosystems and Topography on Coastal CO2 Measurements: A Case Study at Trinidad Head, CA, *American Geophysical Union*, December 12-18, San Francisco, CA.
136. 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.
137. 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.
138. 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.
139. 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.
140. 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.
141. 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.
142. 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, invited SIBAE/BASIN Conference, Orvieto, Italy.
143. W.J. Riley (2003) Water isotope modeling: Land surface and plant exchanges, invited NCAR working group, Boulder, CO.
144. 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)
145. 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)
146. 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)
147. 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)
148. 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)

149. 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.
150. 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)
151. 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)
152. 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 CO2/H2O exchange in the Southern Great Plains, *American Geophysical Union*, December 10-14, San Francisco, CA. (LBNL-52812)
153. 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)
154. 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)
155. 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)
156. 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
157. 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.
158. 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.
159. 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.
160. 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)
161. 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.

162. 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)
163. 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)
164. 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.
165. 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).
166. 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.
167. Riley, W.J., C.J. Still, B.R. Helliker, M. Ribas-Carbo, G. Burba, S. Verma, M.S. Torn, and J.A. Berry (2001) Simulating $\delta^{18}O$ of Water and Carbon Dioxide at a Tallgrass Prairie in Oklahoma, *Ecological Society of America, 86th Annual Meeting*, August 5-10, Madison, WI. (LBNL-50324).
168. 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)
169. 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
170. Torn, M.S., J.A. Berry, M.L. Fischer, D. Billesbach, W.J. Riley, and W. Zhao (2001) Carbon monitoring at the ARM Southern Great Plains site, 2001 *ARM Program Science Team Meeting*, Atlanta, March 19-23, 2001. (LBNL-50342)
171. 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)
172. 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)
173. Asner, G.P., J.C. Neff, W.J. Riley, R. Jackson, P.A. Matson, and C.B. Field (1999) Global estimates of dissolved organic carbon fluxes and storage in terrestrial ecosystems, *American Geophysical Union, 1999 Fall Meeting*, December 6 - 10, San Francisco, CA.
174. 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.
175. 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.

176. 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.
177. 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.
178. Riley, W.J. and P.A. Matson (1997) Predicting nitrogen gas losses from agricultural soils, *NATO ASI: Soils and Global Climate Change*, June 16-27, Toulouse, France.
179. Riley, WJ (1997) Nitrogen trace-gas emissions from agricultural soils, *Kearney Foundation of Soil Science Symposium on California Soil Quality*, March 25, U.C. Berkeley, CA.
180. Riley, W.J., A.J. Gadgil, and W.W. Nazaroff (1995) Estimating the impact on radon entry rate of steady wind-induced ground pressures: Predictions with wind-tunnel experiments and a k-ε turbulence model of wind flow, *International Symposium on the Natural Radiation Environment VI*, June 5-9, Montreal, Quebec.
181. Riley, W.J., W.J. Fisk, and A.J. Gadgil (1995) The potential energy use, energy cost, and CO_2 emissions associated with radon mitigation by sub-slab ventilation in the USA: A brief summary, *International Symposium on the Natural Radiation Environment VI*, June 5-9, Montreal, Quebec.
182. Bonnefous, Y.C., A.J. Gadgil, and W.J. Riley (1994) A numerical tool for predicting gas flow at the soil/building interface, *Proceedings of Europeanne Performance Energetique et Qualite des Ambiances Dans le batiment*, November, Lyon, France.
183. Bonnefous, Y.C., A.J. Gadgil, K.L. Revzan, W.J. Fisk, and W.J. Riley (1993) Impacts of a sub-slab aggregate layer and a sub-aggregate membrane on radon entry rate: a numerical study, *Proceedings of Indoor Air'93, The 6th International Conference on Indoor Air Quality and Climate*, 4, 569-574, July 4-8, Helsinki, Finland.
184. Miller, J.H.,..., Riley, W.J., et al. (1989) Synthesis and characterization of BiCaSrCuO and BiSnCaSrCuO superconductor ceramics*, Proceedings of 1988 High Temperature Superconductivity, the First Two Years*, Metzger, R M (Ed), 235-240.
185. Miller, J.H., B. Liu, W.J. Riley, et al. (1988) Temperature-dependent conductivity of oxygen-depleted YBCO ceramics, *Proceedings of 1987 High-Temperature Superconducting Materials, Preparations, Properties, and Processing*, Hatfield WE, Miller JH (Eds.), 243-249.

HONORS AND AWARDS

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.

RECENT GRANTS FUNDED

1. PI: DOE, 2010-2013
2. Co-I: NASA, 2005-2008.
3. Co-I: LDRD for Berkeley Water Center, 2006-2007.
4. PI: California Energy Commission, 2005-2006.
5. Co-I: California Energy Commission, 2003-2004.
6. Co-I: U.S. Environmental Protection Agency, 2004-2005.
7. PI: LDRD LBNL, 2001-2003.
8. Co-I: National Oceanographic and Atmospheric Administration, 2002-2005.
9. Co-I: National Science Foundation, 2001-2004.
10. Co-I: Department of Energy, 2002-2005.
11. Co-I: California Energy Commission, 2003.