Curriculum vitae
Peter E. Thornton
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Education:
Ph.D., 1998 ***University of Montana***, School of Forestry, Missoula, MT
M.A., 1992 ***Johns Hopkins University***, Geography and Environmental Engineering, Baltimore, MD
B.A., 1990 ***Johns Hopkins University***, Biomedical Engineering, Baltimore, MD

Professional Positions:
October 2025 – present: **Interim Division Director**, Environmental Sciences Division, Oak Ridge National Laboratory
November 2023 – present: **Corporate Fellow**, Environmental Sciences Division, Oak Ridge National Laboratory
November 2022 – present: **Director**, Climate Change Science Institute, Oak Ridge National Laboratory, Oak Ridge, TN
October 2020 – November 2025: **Section Head**, Earth Systems Science Section, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
March 2017 – November 2022: **Deputy Director**, Climate Change Science Institute, Oak Ridge National Laboratory, Oak Ridge, TN
August 2012 – September 2020: **Group Leader**, Terrestrial Systems Modeling Group, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN
August 2012 – November 2023: **Distinguished R&D Staff**, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.
August 2008 – July 2012: **Senior R&D Staff**, Environmental Sciences Division, Oak Ridge National Laboratory, Oak Ridge, TN.
August 2001 – August 2008: **Scientist I/II**, Climate and Global Dynamics Division, National Center for Atmospheric Research, Boulder, CO.
September 1999 – July 2001: **Research Associate**, The University of Montana, School of Forestry, Numerical Terradynamic Simulation Group.

Awards and Honors:
- ***Elected Fellow of American Geophysical Union, 2025***
- ***ORNL / UT-Battelle Corporate Fellow*** (appointed 2023)
- ***Elected Fellow of AAAS, 2022***
- ***Community Outreach Award, 2021*** (UT-Battelle Award)

- ***Highly Cited Researchers, 2020*** (Clarivate)
- ***Highly Cited Researchers, 2019*** (Clarivate)
- ***Science Serving Society Award, 2019*** (Environmental Sciences Division, ORNL)
- ***Highly Cited Researchers, 2018*** (Clarivate)
- ***E3SM Phase 1 Leadership Award, 2018*** (Recognition from DOE, Office of Science, BER)
- ***Community Climate System Model Distinguished Achievement Award*** (as a member of the Land Model Working Group), 2008.
- ***NASA Fellowship in Global Change Research***, 1993-1997.
- ***National Merit Scholar***, 1986-1990.

Current Projects:

Institutional PI: (Land model group lead) Energy Exascale Earth System Model (E3SM). DOE Office of Science: $2.5M per year to ORNL, June 2014 – present. (Institutional PI for multi-institution project, led at LLNL, totaling $30M per year).

Co-PI (Modeling lead)**:** Next Generation Ecosystem Experiments (NGEE Arctic). PI: Colleen Iversen, ORNL. DOE Office of Science: $8M per year.

Co-PI (Modeling lead): Coastal Observations, Mechanisms, and Predictions Across Systems and Scales (COMPASS). Institutional PI for multi-Lab project, led at PNNL

Publication and Citation Summary:

Peer-Reviewed Publications: 185

Scopus Statistics:

H-Index: **72**

Total citations: **26,178**

Web of Science Statistics:

H-Index: **73**

Total citations: **27,384**

Google Scholar Statistics:

H-Index: **93**

Total citations: **51,791**

Published Datasets (with DOIs): **10**

Peer-Reviewed Publications, by year:

2025 (13)

Corak, N. K., P. E. Thornton and L. E. L. Lowman **2025**. A high resolution, gridded product for vapor pressure deficit using Daymet. *Scientific Data* **12**(1): 256 DOI: https://doi.org/10.1038/s41597-025-04544-5

Ding, J., N. McDowell, V. Bailey, N. Conroy, D.J. Day, Y. Fang, K.M. Kemner, M.L. Kirwan, C.D. Koven, M. Kovach, P. Megonigal, K.A. Morris, T. O'Meara, S.C. Pennington, R.B. Peixoto, P. Thornton, M. Weintraub, P. Regier, L. Sandoval, F. Machado-Silva, A. Stearns, N. Ward, S.J. Wilson **2025**. Modeling the mechanisms of coastal vegetation dynamics and ecosystem responses to changing water levels. *Biogeosciences*, in press.

Feng, S., B.E. Harrop, D.M. Ricciuto, S.M. Burrows, Q. Zhu, W. Lin, N. Collier, B. Bond-Lamberty, C. Zhang, R.M. Forsythe, J.D. Wolfe, X. Shi, P.E. Thornton, Y. Takano,

M.E. Maltrud, B. Singh, Y. Fang, J.A. Holm, N. Jeffrey, L.R. Leung **2025**. Implementation and evaluation of emission-driven land-atmosphere coupled simulation in E3SMv2.1. *Journal of Advances in Modeling Earth Systems*, in press.

Gu, Z., D. Wang, D. Gao, Y. Feng and Q. Cao **2025**. Flexible User-Defined Domain Decomposition in Kilometer-Scale E3SM Land Model Simulation, In: Lees, M.H., *et al.* Computational Science – ICCS 2025. ICCS 2025. Lecture Notes in Computer Science, vol 15903. Springer, Cham. https://doi.org/10.1007/978-3-031-97626-1_12

Jiang, F., G. Dong, Y. Zhang, W. Ju, S. Piao, P. Ciais, W. Peters, I. Liujkx, J. Liu, F. Chevallier, N. Zeng, X. Tian, S. Maksyutov, O. Sonnentag, A. Arain, Y. Huang, C. Yue, W. Yuan, L. Liu, L. Fan, X. Yue, J. Xiao, X. Li, S. Sitch, P. Friedlingstein, M. O'Sullivan, J. Knauer, V. Arora, D. Kennedy, L. Ma, P. Thornton, R. Seferian, T. Nutzel, J. Heinke, Q. Sun, S. Zaehle, P. Peylin, E Kato, H Alcock, B. Lecavalier, M. Wu, J. Wang, L. Zhang, G. Lv, Y. Zhang, D. Zhao, J. Chen **2025**. Canadian net forest CO_2 uptake enhanced by heat-drought via reduced respiration. *Nature Geoscience*, in press.

Li, L., H. Y. Li, G. Abeshu, J. Tang, L. R. Leung, C. Liao, Z. Tan, H. Tian, P. Thornton and X. Yang **2025**. Transformation rate maps of dissolved organic carbon in the contiguous US. *Earth Syst. Sci. Data* **17**(6): 2713-2733 DOI: https://doi.org/10.5194/essd-17-2713-2025

Patel, K. F., A. Malhotra, C. G. Norris, S. A. McKever, D. M. Fields, J. I. Musci, S. Bandopadhyay, B. Bond-Lamberty, X. Chen, D. J. Day, K. O. Doro, E. Fluet-Chouinard, M. Garcia, K. M. Kemner, F. Machado-Silva, N. McDowell, K. A. Morris, A. Myers-Pigg, E. J. O'Loughlin, T. O'Meara, R. B. Peixoto, S. C. Pennington, P. Regier, R. Rich, K. A. Rod, B. Sulman, P. Thornton, N. Ward, S. J. Wilson, M. N. Weintraub, J. P. Megonigal and V. L. Bailey **2025**. Transition Zones at the Changing Coastal Terrestrial-Aquatic Interface. *Journal of Geophysical Research: Biogeosciences* **130**(11): e2025JG008978 DOI: https://doi.org/10.1029/2025JG008978.

Schwartz, P., D. Wang, and P. Thornton **2025**. SPEL - Software Package for E3SM Land Model: Code Understanding and Functional Unit Testing. US Research Software Engineering Conference 2025 (USRSE'25), Philadelphia, PA. https://doi.org/10.5281/zenodo.16877458

Wang, D., P. Schwartz, F. Yuan, F. Eaglebarge, D. Ricciuto, P. Thornton, C. Layton and Q. Cao **2025**. Portable Software Environment for Ultrahigh-Resolution ELM Development on GPUs. *Journal of Computer and Communications* **13**(2): 28-36 DOI: https://doi.org/10.4236/jcc.2025.132003

Wang, D., C. Wang, Q. Cao, J. Krishna, D. Wu, W. Zheng, P. Schwartz, F. Yuan, K. Mohror and P. Thornton **2025**. Scaling Ultrahigh-Resolution E3SM Land Model for Leadership-Class Supercomputers. 2025 IEEE 25th International Symposium on Cluster, Cloud and Internet Computing Workshops (CCGridW). https://ieeexplore.ieee.org/abstract/document/11044467 (publisher-provided DOI is not active).

Wang, X., J.-Y. Choi, T. Kurihaya, I. Lyngaas, H.-J. Yoon, X. Xiao, D. Pugmire, M. Fan, N.M. Nafi, A. Tsaris, A.M. Aji, M. Hossain, M. Wahib, D. Wang, P. Thornton, P. Balaprakash, M. Ashfaq, D. Lu **2025**. ORBIT-2: Scaling Exascale Vision

Foundation Models for Weather and Climate. *Supercomputing 2025* (finalist paper for ACM Gordon Bell Climate Modeling Award), accepted.

Ward, N. D., J. P. Megonigal, M. N. Weintraub, P. Regier, S. C. Pennington, R. B. Peixoto, B. Bond-Lamberty, X. Chen, K. O. Doro, K. M. Kemner, F. Machado-Silva, N. G. McDowell, A. N. Myers-Pigg, L. Sandoval, K. F. Patel, P. E. Thornton, S. J. Wilson, V. L. Bailey and R. L. Rich **2025**. A Synoptic System for Capturing Ecosystem Control Points Across Terrestrial-Aquatic Interfaces. *Journal of Geophysical Research: Biogeosciences* **130**(10): e2025JG009335 DOI: https://doi.org/10.1029/2025JG009335.

Zhang, Y., J. Mao, G. Sun, Q. Guo, J. Atkins, W. Li, M. Jin, C. Song, J. Xiao, T. Hwang, T. Qiu, L. Meng, D. M. Ricciuto, X. Shi, X. Li, P. Thornton and F. Hoffman **2025**. Earth's record-high greenness and its attributions in 2020. *Remote Sensing of Environment* **316**: 114494 DOI: https://doi.org/10.1016/j.rse.2024.114494

2024 (9)

Gao, B., E. T. Coon, P. E. Thornton and D. Lu **2024**. Improving the estimation of atmospheric water vapor pressure using interpretable long short-term memory networks. Agricultural and Forest Meteorology 347: 109907 DOI: https://doi.org/10.1016/j.agrformet.2024.109907

O'Meara, T. A., F. Yuan, B. N. Sulman, G. L. Noyce, R. Rich, P. E. Thornton and J. P. Megonigal **2024**. Developing a Redox Network for Coastal Saltmarsh Systems in the PFLOTRAN Reaction Model. Journal of Geophysical Research: Biogeosciences 129(3): e2023JG007633 DOI: https://doi.org/10.1029/2023JG007633

Patel, K. F., K. A. Rod, J. Zheng, P. Regier, F. Machado-Silva, B. Bond-Lamberty, X. Chen, D. J. Day, K. O. Doro, M. H. Kaufman, M. Kovach, N. McDowell, S. A. McKever, J. P. Megonigal, C. G. Norris, T. O'Meara, R. B. Peixoto, R. Rich, P. Thornton, K. M. Kemner, N. D. Ward, M. N. Weintraub and V. L. Bailey **2024**. Time to anoxia: Observations and predictions of oxygen drawdown following coastal flood events. Geoderma 444: 116854 DOI: https://doi.org/10.1016/j.geoderma.2024.116854.

Schwartz, P. , D. Wang, F. Yuan, and P. Thornton **2024.** Script-Based GPU-Ready ELM Development for Continuous Code Integration. *Journal of Computer and Communications*, **12**, 102-106. doi: 10.4236/jcc.2024.125007.

Shi, M., M. Keller, B. Bomfim, L. Li, C. Koven, L. Kueppers, R. Knox, J. Needham, S.-C. Kao, P. E. Thornton, M. M. Thornton and L. R. Leung **2024**. Functionally Assembled Terrestrial Ecosystem Simulator (FATES) for Hurricane Disturbance and Recovery. *Journal of Advances in Modeling Earth Systems* **16**(1): e2023MS003679 DOI: https://doi.org/10.1029/2023MS003679

Shi, X., Y. Wang, J. Mao, P. E. Thornton, D. M. Riccuito, F. M. Hoffman and Y. Hao **2024**. Quantifying the long-term changes of terrestrial water storage and their driving factors. Journal of Hydrology 635: 131096 DOI: https://doi.org/10.1016/j.jhydrol.2024.131096

Tesfa, T. K., L. R. Leung, P. E. Thornton, M. A. Brunke and Z. Duan **2024**. Impacts of Topography-Based Subgrid Scheme and Downscaling of Atmospheric Forcing on Modeling Land Surface Processes in the Conterminous US. Journal of Advances in

Modeling Earth Systems 16(8): e2023MS004064 DOI: https://doi.org/10.1029/2023MS004064.

Wang, Y., J. Mao, C. M. Brelsford, D. M. Ricciuto, F. Yuan, X. Shi, D. Rastogi, M. M. Mayes, S.-C. Kao, J. M. Warren, N. A. Griffiths, X. Cheng, D. J. Weston, Y. Zhou, L. Gu and P. E. Thornton **2024**. Thermal, water, and land cover factors led to contrasting urban and rural vegetation resilience to extreme hot months. PNAS Nexus 3(4) DOI: https://doi.org/10.1093/pnasnexus/pgae147

Wang, D., Yuan, F., Schwartz, P., Ricciuto, D., Thornton, P., Kao, K., Thornton, M., Walker, A., Cao, Q., & Gu, Z. **2024**, Enable Kilometer-scale E3SM Land Simulation with User-defined Datasets and KiloCraft, Pages:152-153, Proceedings of 12th International Congress on Environmental Modeling and Software, Lansing, MI, USA. DOI: https://doi.org/10.5281/zenodo.14285085

2023 (8)

Ghimire, G. R., C. Hansen, S. Gangrade, S.-C. Kao, P. E. Thornton and D. Singh **2023**. Insights From Dayflow: A Historical Streamflow Reanalysis Dataset for the Conterminous United States. *Water Resources Research* **59**(2): e2022WR032312 DOI: https://doi.org/10.1029/2022WR032312

Lagergren, J., M. Cashman, V. G. M. Vergara, P. R. Eller, J. G. F. M. Gazolla, H. B. Chhetri, J. Streich, S. Climer, P. Thornton, W. Joubert and D. Jacobson **2023**. Climatic Clustering and Longitudinal Analysis with Impacts on Food, Bioenergy, and Pandemics. Phytobiomes Journal 7(1): 65-77 DOI: https://doi.org/10.1094/pbiomes-02-22-0007-r

Schwartz, P., Wang, D., Yuan, F., Thornton, P. **2023**. Developing Ultrahigh-Resolution E3SM Land Model for GPU Systems. In: Gervasi, O., *et al.* Computational Science and Its Applications – ICCSA 2023. ICCSA 2023. Lecture Notes in Computer Science, vol 13956 . Springer, Cham. https://doi.org/10.1007/978-3-031-36805-9_19

Schwartz, P., D. Wang, F. Yuan and P. Thornton (2022). SPEL: Software tool for Porting E3SM Land Model with OpenACC in a Function Unit Test Framework. 2022 Workshop on Accelerator Programming Using Directives (WACCPD). https://doi.org/10.1109/WACCPD56842.2022.00010.

Thornton, P. E., B. C. Reed, G. Z. Xian, L. Chini, A. E. East, J. L. Field, C. M. Hoover, B. Poulter, S. C. Reed, G. Wang and Z. Zhu **2023**. Land cover and land-use change. Fifth National Climate Assessment. A. R. Crimmins, C. W. Avery, D. R. Easterling et al. Washington, DC, USA, U.S. Global Change Research Program. https://doi.org/10.7930/NCA5.2023.CH6

Wang, D., F. Yuan, P. Schwartz, S. Kao, M. Thornton, D. Ricciuto, P. Thornton and S. Reis (2023). A data toolkit for ultrahigh-resolution E3SM land simulation on massively parallel processing systems. 25th International Congress on Modeling and Simulation. J. Vase, C. Chilcott, L. Hutley and S. M. Cuddy. Darwin, NT, Australia, Modelling and Simulation Society of Australia and New Zealand Inc. **2023:** 996-1002.

Yang, X., P. Thornton, D. Ricciuto, Y. Wang and F. Hoffman **2023**. Global evaluation of terrestrial biogeochemistry in the Energy Exascale Earth System Model (E3SM)

and the role of the phosphorus cycle in the historical terrestrial carbon balance. *Biogeosciences* **20**(14): 2813-2836 DOI: https://doi.org/10.5194/bg-20-2813-2023.

Yuan, F., D. Wang, S.-C. Kao, M. Thornton, D. Ricciuto, V. Salmon, C. Iversen, P. Schwartz and P. Thornton **2023**. An ultrahigh-resolution E3SM land model simulation framework and its first application to the Seward Peninsula in Alaska. Journal of Computational Science 73: 102145 DOI: https://doi.org/10.1016/j.jocs.2023.102145

2022 (9)

Bartelt, P. E., P. E. Thornton and R. W. Klaver **2022**. Modelling physiological costs to assess impacts of climate change on amphibians in Yellowstone National Park, U.S.A. *Ecological Indicators* **135**: 108575 DOI: https://doi.org/10.1016/j.ecolind.2022.108575

Butler, E. E., K. R. Wythers, H. Flores-Moreno, D. M. Ricciuto, A. Datta, A. Banerjee, O. K. Atkin, J. Kattge, P. E. Thornton, M. Anand, S. Burrascano, C. Byun, J. H. C. Cornelissen, E. Forey, S. Jansen, K. Kramer, V. Minden and P. B. Reich **2022**. Increasing Functional Diversity in a Global Land Surface Model Illustrates Uncertainties Related to Parameter Simplification. *Journal of Geophysical Research: Biogeosciences* 127(3): e2021JG006606 DOI: https://doi.org/10.1029/2021JG006606

Hidy, D., Z. Barcza, R. Hollós, L. Dobor, T. Ács, D. Zacháry, T. Filep, L. Pásztor, D. Incze, M. Dencső, E. Tóth, K. Merganičová, P. Thornton, S. Running and N. Fodor **2022**. Soil-related developments of the Biome-BGCMuSo v6.2 terrestrial ecosystem model. *Geosci. Model Dev.* 15(5): 2157-2181 DOI: https://doi.org/10.5194/gmd-15-2157-2022

Schwartz, P., D. Wang, F. Yuan and P. Thornton **2022**. Developing an ELM Ecosystem Dynamics Model on GPU with OpenACC. *Computational Science – ICCS 2022*, Cham, Springer International Publishing. DOI: https://doi.org/10.1007/978-3-031-08754-7_38

Sulman, B. N., F. Yuan, T. O'Meara, B. Gu, E. M. Herndon, J. Zheng, P. E. Thornton and D. E. Graham **2022**. Simulated Hydrological Dynamics and Coupled Iron Redox Cycling Impact Methane Production in an Arctic Soil. *Journal of Geophysical Research: Biogeosciences* **127**(10): e2021JG006662 DOI: https://doi.org/10.1029/2021JG006662.

Thornton, P. **2022**. Mapping classes of carbon. *Nature Sustainability* 5(1): 7-8 DOI: https://doi.org/10.1038/s41893-021-00783-7

Wang, D., P. Schwartz, F. Yuan, P. Thornton and W. Zheng **2022**. Towards Ultra-high-resolution E3SM Land Modeling on Exascale Computers. *Computing in Science & Engineering*: 1-14 DOI: 10.1109/MCSE.2022.3218990.

Wang, Y., J. Mao, F. M. Hoffman, C. J. W. Bonfils, H. Douville, M. Jin, P. E. Thornton, D. M. Ricciuto, X. Shi, H. Chen, S. D. Wullschleger, S. Piao and Y. Dai **2022**. Quantification of human contribution to soil moisture-based terrestrial aridity. *Nature Communications* **13**(1): 6848 DOI: https://doi.org/10.1038/s41467-022-34071-5.

Wang, Y., F. Yuan, K. A. Arndt, J. Liu, L. He, Y. Zuo, D. Zona, D. A. Lipson, W. C. Oechel, D. M. Ricciuto, S. D. Wullschleger, P. E. Thornton and X. Xu **2022**. Upscaling

Methane Flux From Plot Level to Eddy Covariance Tower Domains in Five Alaskan Tundra Ecosystems. *Frontiers in Environmental Science* **10** DOI: 10.3389/fenvs.2022.939238.

2021 (11)

Butler, E. E., K. R. Wythers, H. Flores-Moreno, M. Chen, A. Datta, D. M. Ricciuto, O. K. Atkin, J. Kattge, P. E. Thornton, A. Banerjee and P. B. Reich **2021**. Updated respiration routines alter spatio-temporal patterns of carbon cycling in a global land surface model. *Environmental Research Letters* 16(10): 104015 DOI: https://doi.org/10.1088/1748-9326/ac2528

Chen, A., J. Mao, D. Ricciuto, D. Lu, J. Xiao, X. Li, P. E. Thornton and A. K. Knapp **2021**. Seasonal changes in GPP/SIF ratios and their climatic determinants across the Northern Hemisphere. *Global Change Biology* **27**(20): 5186-5197 DOI: https://doi.org/10.1111/gcb.15775

Chen, A., J. Mao, D. Ricciuto, J. Xiao, C. Frankenberg, X. Li, P. E. Thornton, L. Gu and A. K. Knapp **2021**. Moisture availability mediates the relationship between terrestrial gross primary production and solar-induced chlorophyll fluorescence: Insights from global-scale variations. *Global Change Biology* **27**(6): 1144-1156 DOI: https://doi.org/10.1111/gcb.15373

He, L., D. A. Lipson, J. L. Mazza Rodrigues, M. Mayes, R. G. Björk, B. Glaser, P. Thornton and X. Xu **2021**. Dynamics of Fungal and Bacterial Biomass Carbon in Natural Ecosystems: Site-Level Applications of the CLM-Microbe Model. *Journal of Advances in Modeling Earth Systems* 13(2): e2020MS002283 DOI: https://doi.org/10.1029/2020MS002283

O'Meara, T. A., P. E. Thornton, D. M. Ricciuto, G. L. Noyce, R. L. Rich and J. P. Megonigal **2021**. Considering coasts: Adapting terrestrial models to characterize coastal wetland ecosystems. *Ecological Modelling* 450: 109561 DOI: https://doi.org/10.1016/j.ecolmodel.2021.109561.

Ricciuto, D. M., X. Xu, X. Shi, Y. Wang, X. Song, C. W. Schadt, N. A. Griffiths, J. Mao, J. M. Warren, P. E. Thornton, J. Chanton, J. K. Keller, S. D. Bridgham, J. Gutknecht, S. D. Sebestyen, A. Finzi, R. Kolka and P. J. Hanson **2021**. An Integrative Model for Soil Biogeochemistry and Methane Processes: I. Model Structure and Sensitivity Analysis. *Journal of Geophysical Research: Biogeosciences* 126(8): e2019JG005468 DOI: https://doi.org/10.1029/2019JG005468

Shi, X., D. M. Ricciuto, P. E. Thornton, X. Xu, F. Yuan, R. J. Norby, A. P. Walker, J. M. Warren, J. Mao, P. J. Hanson, L. Meng, D. Weston and N. A. Griffiths **2021**. Extending a land-surface model with Sphagnum moss to simulate responses of a northern temperate bog to whole ecosystem warming and elevated CO2. *Biogeosciences* 18(2): 467-486 DOI: https://doi.org/10.5194/bg-18-467-2021

Sulman, B. N., V. G. Salmon, C. M. Iversen, A. L. Breen, F. Yuan and P. E. Thornton **2021**. Integrating Arctic Plant Functional Types in a Land Surface Model Using Above- and Belowground Field Observations. *Journal of Advances in Modeling Earth Systems* 13(4): e2020MS002396 DOI: https://doi.org/10.1029/2020MS002396

Thornton, P. E., R. Shrestha, M. Thornton, S.-C. Kao, Y. Wei and B. E. Wilson **2021**. Gridded daily weather data for North America with comprehensive uncertainty

quantification. *Scientific Data* **8**(1): 190 DOI: https://doi.org/10.1038/s41597-021-00973-0

Yuan, F., Y. Wang, D. M. Ricciuto, X. Shi, F. Yuan, T. Brehme, S. Bridgham, J. Keller, J. M. Warren, N. A. Griffiths, S. D. Sebestyen, P. J. Hanson, P. E. Thornton and X. Xu **2021**. Hydrological feedbacks on peatland CH4 emission under warming and elevated CO2: A modeling study. *Journal of Hydrology* 603: 127137 DOI: https://doi.org/10.1016/j.jhydrol.2021.127137

Yuan, F., Y. Wang, D. M. Ricciuto, X. Shi, F. Yuan, P. J. Hanson, S. Bridgham, J. Keller, P. E. Thornton and X. Xu **2021**. An Integrative Model for Soil Biogeochemistry and Methane Processes. II: Warming and Elevated CO2 Effects on Peatland CH4 Emissions. *Journal of Geophysical Research: Biogeosciences* 126(8): e2020JG005963 DOI: https://doi.org/10.1029/2020JG005963

2020 (8)

Burrows, S. M., M. Maltrud, X. Yang, Q. Zhu, N. Jeffery, X. Shi, D. Ricciuto, S. Wang, G. Bisht, J. Tang, J. Wolfe, B. E. Harrop, B. Singh, L. Brent, S. Baldwin, T. Zhou, P. Cameron-Smith, N. Keen, N. Collier, M. Xu, E. C. Hunke, S. M. Elliott, A. K. Turner, H. Li, H. Wang, J.-C. Golaz, B. Bond-Lamberty, F. M. Hoffman, W. J. Riley, P. E. Thornton, K. Calvin and L. R. Leung **2020**. The DOE E3SM v1.1 Biogeochemistry Configuration: Description and Simulated Ecosystem-Climate Responses to Historical Changes in Forcing. *Journal of Advances in Modeling Earth Systems* **12**(9): e2019MS001766 DOI: https://doi.org/10.1029/2019ms001766

Butler, E. E., M. Chen, D. Ricciuto, H. Flores-Moreno, K. R. Wythers, J. Kattge, P. E. Thornton and P. B. Reich **2020**. Seeing the Canopy for the Branches: Improved Within Canopy Scaling of Leaf Nitrogen. Journal of Advances in Modeling Earth Systems 12(10): e2020MS002237 DOI: https://doi.org/10.1029/2020ms002237

Hurtt, G. C., L. Chini, R. Sahajpal, S. Frolking, B. L. Bodirsky, K. Calvin, J. C. Doelman, J. Fisk, S. Fujimori, K. Klein Goldewijk, T. Hasegawa, P. Havlik, A. Heinimann, F. Humpenöder, J. Jungclaus, J. O. Kaplan, J. Kennedy, T. Krisztin, D. Lawrence, P. Lawrence, L. Ma, O. Mertz, J. Pongratz, A. Popp, B. Poulter, K. Riahi, E. Shevliakova, E. Stehfest, P. Thornton, F. N. Tubiello, D. P. van Vuuren and X. Zhang **2020**. Harmonization of global land use change and management for the period 850–2100 (LUH2) for CMIP6. *Geosci. Model Dev.* **13**(11): 5425-5464 DOI: https://doi.org/10.5194/gmd-13-5425-2020

Kattge, J., G. Bönisch, S. Díaz, S. Lavorel, I. C. Prentice, P. Leadley, S. Tautenhahn, G. D. A. Werner, and numerous co-authors, including P.E. Thornton **2020**. TRY plant trait database – enhanced coverage and open access. *Global Change Biology* **26**(1): 119-188 DOI: https://doi.org/10.1111/gcb.14904

Meng, L., J. Mao, Y. Zhou, A. D. Richardson, X. Lee, P. E. Thornton, D. M. Ricciuto, X. Li, Y. Dai, X. Shi and G. Jia **2020**. Urban warming advances spring phenology but reduces the response of phenology to temperature in the conterminous United States. *Proceedings of the National Academy of Sciences* **117**(8): 4228-4233 DOI: https://doi.org/10.1073/pnas.1911117117

Ward, N. D., J. P. Megonigal, B. Bond-Lamberty, V. L. Bailey, D. Butman, E. A. Canuel, H. Diefenderfer, N. K. Ganju, M. A. Goñi, E. B. Graham, C. S. Hopkinson, T. Khangaonkar, J. A. Langley, N. G. McDowell, A. N. Myers-Pigg, R. B. Neumann, C. L. Osburn, R. M. Price, J. Rowland, A. Sengupta, M. Simard, P. E. Thornton, M.

Tzortziou, R. Vargas, P. B. Weisenhorn and L. Windham-Myers **2020**. Representing the function and sensitivity of coastal interfaces in Earth system models. Nature Communications 11(2458): 1-14 DOI: https://doi.org/10.1038/s41467-020-16236-2

Yan, B., J. Mao, R. E. Dickinson, P. E. Thornton, X. Shi, D. M. Ricciuto, J. M. Warren and F. M. Hoffman **2020**. Modelling tree stem-water dynamics over an Amazonian rainforest. *Ecohydrology* **13**(1): e2180 DOI: https://doi.org/10.1002/eco.2180

Yu, Y., J. Mao, P. E. Thornton, M. Notaro, S. D. Wullschleger, X. Shi, F. M. Hoffman and Y. Wang **2020**. Quantifying the drivers and predictability of seasonal changes in African fire. Nature Communications 11(1): 2893 DOI: https://doi.org/10.1038/s41467-020-16692-w

2019 (9)

Calvin, K., B. Bond-Lamberty, A. Jones, X. Shi, A. Di Vittorio and P. Thornton **2019**. Characteristics of human-climate feedbacks differ at different radiative forcing levels. Global and Planetary Change 180: 126-135 DOI: https://doi.org/10.1016/j.gloplacha.2019.06.003

Collalti, A., P. E. Thornton, A. Cescatti, A. Rita, M. Borghetti, A. Nolè, C. Trotta, P. Ciais and G. Matteucci **2019.** The sensitivity of the forest carbon budget shifts across processes along with stand development and climate change. Ecological Applications 29(2): e01837 DOI: https://doi.or/10.1002/eap.1837

Coon, E. T., W. R. Elwasif, H. Pillai, P. E. Thornton and S. L. Painter **2019**. Exploring the Use of Novel Programming Models in Land Surface Models. 2019 IEEE/ACM Parallel Applications Workshop, Alternatives To MPI (PAW-ATM).

Forbes, W. L., J. Mao, D. M. Ricciuto, S.-C. Kao, X. Shi, A. A. Tavakoly, M. Jin, W. Guo, T. Zhao, Y. Wang, P. E. Thornton and F. M. Hoffman **2019**. Streamflow in the Columbia River Basin: Quantifying Changes Over the Period 1951-2008 and Determining the Drivers of Those Changes. Water Resources Research 55(0): 35 DOI: https://doi.org/10.1029/2018wr024256

Golaz, J.-C., P. M. Caldwell, L. P. Van Roekel, M. R. Petersen, Q. Tang, J. D. Wolfe, G. Abeshu, V. Anantharaj, X. S. Asay-Davis, D. C. Bader, S. A. Baldwin, G. Bisht, P. A. Bogenschutz, M. Branstetter, M. A. Brunke, S. R. Brus, S. M. Burrows, P. J. Cameron-Smith, A. S. Donahue, M. Deakin, R. C. Easter, K. J. Evans, Y. Feng, M. Flanner, J. G. Foucar, J. G. Fyke, B. M. Griffin, C. Hannay, B. E. Harrop, M. J. Hoffman, E. C. Hunke, R. L. Jacob, D. W. Jacobsen, N. Jeffery, P. W. Jones, N. D. Keen, S. A. Klein, V. E. Larson, L. R. Leung, H.-Y. Li, W. Lin, W. H. Lipscomb, P.-L. Ma, S. Mahajan, M. E. Maltrud, A. Mametjanov, J. L. McClean, R. B. McCoy, R. B. Neale, S. F. Price, Y. Qian, P. J. Rasch, J. E. J. Reeves Eyre, W. J. Riley, T. D. Ringler, A. F. Roberts, E. L. Roesler, A. G. Salinger, Z. Shaheen, X. Shi, B. Singh, J. Tang, M. A. Taylor, P. E. Thornton, A. K. Turner, M. Veneziani, H. Wan, H. Wang, S. Wang, D. N. Williams, P. J. Wolfram, P. H. Worley, S. Xie, Y. Yang, J.-H. Yoon, M. D. Zelinka, C. S. Zender, X. Zeng, C. Zhang, K. Zhang, Y. Zhang, X. Zheng, T. Zhou and Q. Zhu 2019. The DOE E3SM Coupled Model Version 1: Overview and Evaluation at Standard Resolution. Journal of Advances in Modeling Earth Systems 11(7): 2089-2129 DOI: https://doi.org/10.1029/2018ms001603

Salmon, V. G., A. L. Breen, J. Kumar, M. J. Lara, P. E. Thornton, S. D. Wullschleger and C. M. Iversen **2019**. Alder Distribution and Expansion Across a Tundra Hillslope:

Implications for Local N Cycling. *Frontiers In Plant Science* **10**(1099) DOI: https://doi.org/10.3389/fpls.2019.01099

Wang, Y., F. Yuan, F. Yuan, B. Gu, M. S. Hahn, M. S. Torn, D. M. Ricciuto, J. Kumar, L. He, D. Zona, D. A. Lipson, R. Wagner, W. C. Oechel, S. D. Wullschleger, P. E. Thornton and X. Xu **2019**. Mechanistic Modeling of Microtopographic Impacts on CO2 and CH4 Fluxes in an Alaskan Tundra Ecosystem Using the CLM-Microbe Model. *Journal of Advances in Modeling Earth Systems* **11**(12): 4288-4304 DOI: https://doi.org/10.1029/2019ms001771

Yang, X., D. M. Ricciuto, P. E. Thornton, X. Shi, M. Xu, F. Hoffman and R. J. Norby **2019**. The Effects of Phosphorus Cycle Dynamics on Carbon Sources and Sinks in the Amazon Region: A Modeling Study Using ELM v1. *Journal of Geophysical Research: Biogeosciences* **124**(12): 3686-3698 DOI: https://doi.org/10.1029/2019jg005082

Zheng, J., P. E. Thornton, S. L. Painter, B. Gu, S. D. Wullschleger and D. E. Graham **2019**. Modeling anaerobic soil organic carbon decomposition in Arctic polygon tundra: insights into soil geochemical influences on carbon mineralization. Biogeosciences 16(3): 663-680 DOI: https://doi.org/10.5194/bg-16-663-2019

2018 (3)

Forbes, W. L., J. Mao, M. Jin, S.-C. Kao, W. Fu, X. Shi, D. M. Ricciuto, P. E. Thornton, A. Ribes, Y. Wang, S. Piao, T. Zhao, C. R. Schwalm, F. M. Hoffman, J. B. Fisher, A. Ito, B. Poulter, Y. Fang, H. Tian, A. K. Jain and D. J. Hayes **2018**. Contribution of environmental forcings to US runoff changes for the period 1950–2010. Environmental Research Letters 13(5): 054023 DOI: 10.1088/1748-9326/aabb41.

Jones, A. D., K. V. Calvin, X. Shi, A. V. Di Vittorio, B. Bond-Lamberty, P. E. Thornton and W. D. Collins **2018**. Quantifying Human-Mediated Carbon Cycle Feedbacks. Geophysical Research Letters 45(0): 1-10 DOI: doi:10.1029/2018GL079350.

Ricciuto, D., K. Sargsyan and P. Thornton **2018**. The Impact of Parametric Uncertainties on Biogeochemistry in the E3SM Land Model. Journal of Advances in Modeling Earth Systems 10 DOI: 10.1002/2017MS000962.

2017 (5)

Butler, E. E., A. Datta, H. Flores-Moreno, M. Chen, K. R. Wythers, F. Fazayeli, A. Banerjee, O. K. Atkin, J. Kattge, B. Amiaud, B. Blonder, G. Boenisch, B. Bond-Lamberty, K. A. Brown, C. Byun, G. Campetella, B. E. L. Cerabolini, J. H. C. Cornelissen, J. M. Craine, D. Craven, F. T. de Vries, S. Díaz, T. F. Domingues, E. Forey, A. González-Melo, N. Gross, W. Han, W. N. Hattingh, T. Hickler, S. Jansen, K. Kramer, N. J. B. Kraft, H. Kurokawa, D. C. Laughlin, P. Meir, V. Minden, Ü. Niinemets, Y. Onoda, J. Peñuelas, Q. Read, L. Sack, B. Schamp, N. A. Soudzilovskaia, M. J. Spasojevic, E. Sosinski, P. E. Thornton, F. Valladares, P. M. van Bodegom, M. Williams, C. Wirth and P. B. Reich **2017**. Mapping local and global variability in plant trait distributions. Proceedings of the National Academy of Sciences DOI: 10.1073/pnas.1708984114.

Duarte, H. F., B. M. Raczka, D. M. Ricciuto, J. C. Lin, C. D. Koven, P. E. Thornton, D. R. Bowling, C. T. Lai, K. J. Bible and J. R. Ehleringer **2017**. Evaluating the Community Land Model (CLM4.5) at a coniferous forest site in northwestern United States using flux and carbon-isotope measurements. Biogeosciences 14(18): 4315-4340 DOI: 10.5194/bg-14-4315-2017.

Metcalfe, D. B., D. Ricciuto, S. Palmroth, C. Campbell, V. Hurry, J. Mao, S. G. Keel, S. Linder, X. Shi, T. Näsholm, K. E. A. Ohlsson, M. Blackburn, P. E. Thornton and R. Oren **2017**. Informing climate models with rapid chamber measurements of forest carbon uptake. Global Change Biology 23(5): 2130-2139 DOI: 10.1111/gcb.13451. (accepted 8/27/2016).

Thornton, P. E., K. Calvin, A. D. Jones, A. V. Di Vittorio, B. Bond-Lamberty, L. Chini, X. Shi, J. Mao, W. D. Collins, J. Edmonds, A. Thomson, J. Truesdale, A. Craig, M. L. Branstetter and G. Hurtt **2017**. Biospheric feedback effects in a synchronously coupled model of human and Earth systems. Nature Clim. Change 7(7): 496-500 DOI: 10.1038/nclimate3310. (accepted 9 May 2017, published online 12 June 2017)

Xu, X., J. P. Schimel, I. A. Janssens, X. Song, C. Song, G. Yu, R. L. Sinsabaugh, D. Tang, X. Zhang and P. E. Thornton **2017**. Global pattern and controls of soil microbial metabolic quotient. Ecological Monographs: n/a-n/a DOI: 10.1002/ecm.1258. (published online 2 May 2017)

2016 (12)

Hidy, D., Z. Barcza, H. Marjanović, M. Z. Ostrogović Sever, L. Dobor, G. Gelybó, N. Fodor, K. Pintér, G. Churkina, S. Running, P. Thornton, G. Bellocchi, L. Haszpra, F. Horváth, A. Suyker and Z. Nagy **2016**. Terrestrial ecosystem process model Biome-BGCMuSo v4.0: summary of improvements and new modeling possibilities. *Geosci. Model Dev.* **9**(12): 4405-4437 DOI: 10.5194/gmd-9-4405-2016. (accepted 6 November 2016, published 7 December 2016).

Kumar, J., N. Collier, G. Bisht, R. T. Mills, P. E. Thornton, C. M. Iversen and V. Romanovsky **2016**. Modeling the spatiotemporal variability in subsurface thermal regimes across a low-relief polygonal tundra landscape. *The Cryosphere* **10**(5): 2241-2274 DOI: 10.5194/tc-10-2241-2016. (published 27 September 2016).

Mao, J., A. Ribes, B. Yan, X. Shi, P. E. Thornton, R. Seferian, P. Ciais, R. B. Myneni, H. Douville, S. Piao, Z. Zhu, R. E. Dickinson, Y. Dai, D. M. Ricciuto, M. Jin, F. M. Hoffman, B. Wang, M. Huang and X. Lian **2016**. Human-induced greening of the northern extratropical land surface. *Nature Clim. Change* advance online publication DOI: 10.1038/nclimate3056 (accepted 4/4/2016)

Mao, J., D. M. Ricciuto, P. E. Thornton, J. M. Warren, A. W. King, X. Shi, C. M. Iversen and R. J. Norby **2016**. Evaluating the Community Land Model in a pine stand with shading manipulations and 13CO2 labeling. *Biogeosciences* **13**(3): 641-657 DOI: 10.5194/bg-13-641-2016. (accepted 12/27/2015)

Raczka, B., H. F. Duarte, C. D. Koven, D. Ricciuto, P. E. Thornton, J. C. Lin and D. R. Bowling **2016**. An observational constraint on stomatal function in forests: evaluating coupled carbon and water vapor exchange with carbon isotopes in the Community Land Model (CLM4.5). *Biogeosciences* **13**(18): 5183-5204 DOI: 10.5194/bg-13-5183-2016. (accepted 8/31/2016)

Tang, G., F. Yuan, G. Bisht, G. E. Hammond, P. C. Lichtner, J. Kumar, R. T. Mills, X. Xu, B. Andre, F. M. Hoffman, S. L. Painter and P. E. Thornton **2016**. Addressing numerical challenges in introducing a reactive transport code into a land surface model: a biogeochemical modeling proof-of-concept with CLM–PFLOTRAN 1.0. *Geosci. Model Dev.* **9**(3): 927-946 DOI: 10.5194/gmd-9-927-2016. (accepted 3/4/2016)

Tang, G., J. Zheng, X. Xu, Z. Yang, D. E. Graham, B. Gu, S. L. Painter and P. E. Thornton **2016.** Biogeochemical modeling of CO2 and CH4 production in anoxic Arctic soil microcosms. Biogeosciences 13(17): 5021-5041 DOI: 10.5194/bg-13-5021-2016. (accepted 8/23/2016)

Wang, G., M. Yu, J. S. Pal, R. Mei, G. B. Bonan, S. Levis and P. E. Thornton **2016**. On the development of a coupled regional climate–vegetation model RCM–CLM–CN–DV and its validation in Tropical Africa. *Climate Dynamics* **46**(1): 515-539 DOI: 10.1007/s00382-015-2596-z.

Xu, X., F. Yuan, P. J. Hanson, S. D. Wullschleger, P. E. Thornton, W. J. Riley, X. Song, D. E. Graham, C. Song and H. Tian **2016**. Reviews and syntheses: Four decades of modeling methane cycling in terrestrial ecosystems. *Biogeosciences* **13**(12): 3735-3755 DOI: 10.5194/bg-13-3735-2016.

Xu, X., S. Goswami, J. Gulledge, S. Wullschleger, P. Thornton **2016**. Interdisciplinary research in the climate and energy sciences. *Wiley Interdisciplinary Reviews: Energy and Environment* 5(1): 49-56 DOI: 10.1002/wene.180. (accepted 6/30/2015)

Yang, X., P. E. Thornton, D. M. Ricciuto and F. M. Hoffman **2016**. Phosphorus feedbacks constraining tropical ecosystem responses to changes in atmospheric CO2 and climate. *Geophysical Research Letters* 43(13): 7205-7214 DOI: 10.1002/2016GL069241.

Zhang, L., J. Mao, X. Shi, D. Ricciuto, H. He, P. Thornton, G. Yu, P. Li, M. Liu, X. Ren, S. Han, Y. Li, J. Yan, Y. Hao and H. Wang **2016**. Evaluation of the Community Land Model simulated carbon and water fluxes against observations over ChinaFLUX sites. *Agricultural and Forest Meteorology* 226–227: 174-185 DOI: 10.1016/j.agrformet.2016.05.018. (accepted 5/22/2016)

2015 (9)

Collins, W. D., A. P. Craig, J. E. Truesdale, A. V. Di Vittorio, A. D. Jones, B. Bond-Lamberty, K. V. Calvin, J. A. Edmonds, S. H. Kim, A. M. Thomson, P. Patel, Y. Zhou, J. Mao, X. Shi, P. E. Thornton, L. P. Chini and G. C. Hurtt **2015**. The integrated Earth system model version 1: formulation and functionality. *Geosci. Model Dev.* **8**(7): 2203-2219 DOI: 10.5194/gmd-8-2203-2015. (accepted 5/27/2015)

Mao, J., F. Wenting, S. Xiaoying, M. R. Daniel, B. F. Joshua, E. D. Robert, W. Yaxing, S. Willis, P. Shilong, W. Kaicun, R. S. Christopher, T. Hanqin, M. Mingquan, A. Altaf, C. Philippe, C. Robert, D. Yongjiu, H. Daniel, M. H. Forrest, H. Maoyi, H. Suo, N. H. Deborah, I. Akihiko, J. Atul, W. K. Anthony, L. Huimin, L. Chaoqun, M. M. Anna, P. Nicholas, P. Changhui, P. Shushi, P. Benjamin, S. Kevin, J. Elchin, E. T. Peter, W. Weile, Z. Ning, Z. Zhenzhong, Z. Fang, Z. Qiuan and Z. Zaichun **2015**. Disentangling climatic and anthropogenic controls on global terrestrial evapotranspiration trends. *Environmental Research Letters* 10(9): 094008 (accepted 8/18/2015)

Medlyn, B. E., S. Zaehle, M. G. De Kauwe, A. P. Walker, M. C. Dietze, P. J. Hanson, T. Hickler, A. K. Jain, Y. Luo, W. Parton, I. C. Prentice, P. E. Thornton, S. Wang, Y.-P. Wang, E. Weng, C. M. Iversen, H. R. McCarthy, J. M. Warren, R. Oren and R. J. Norby **2015**. Using ecosystem experiments to improve vegetation models. *Nature Clim. Change* **5**(6): 528-534 DOI: 10.1038/nclimate2621. (accepted 3/24/2015)

Reed, S. C., X. Yang and P. E. Thornton **2015**. Incorporating phosphorus cycling into global modeling efforts: a worthwhile, tractable endeavor. *New Phytologist* **208**(2): 324-329 DOI: 10.1111/nph.13521.

Safta, C., D. M. Ricciuto, K. Sargsyan, B. Debusschere, H. N. Najm, M. Williams and P. E. Thornton **2015**. Global sensitivity analysis, probabilistic calibration, and predictive assessment for the data assimilation linked ecosystem carbon model. *Geosci. Model Dev.* 8(7): 1899-1918 DOI: 10.5194/gmd-8-1899-2015. (accepted 6/9/2015)

Shi, X., P. E. Thornton, D. M. Ricciuto, P. J. Hanson, J. Mao, S. D. Sebestyen, N. A. Griffiths and G. Bisht **2015**. Representing northern peatland microtopography and hydrology within the Community Land Model. *Biogeosciences* 12(21): 6463-6477 DOI: 10.5194/bg-12-6463-2015. (accepted 9/20/2015)

Wullschleger, S. D., J. M. Warren and P. E. Thornton **2015**. Leaf respiration (GlobResp) – global trait database supports Earth System Models. *New Phytologist* **206**(2): 483-485 DOI: 10.1111/nph.13364. (published 3/20/2015)

Xu, X., D. Hui, A. W. King, X. Song, P. E. Thornton and L. Zhang **2015**. Convergence of microbial assimilations of soil carbon, nitrogen, phosphorus, and sulfur in terrestrial ecosystems. Scientific Reports 5: 17445 DOI: 10.1038/srep17445 (accepted 10/29/2015)

Xu, X., D. A. Elias, D. E. Graham, T. J. Phelps, S. L. Carroll, S. D. Wullschleger and P. E. Thornton **2015**. A microbial functional group-based module for simulating methane production and consumption: Application to an incubated permafrost soil. *Journal of Geophysical Research: Biogeosciences* 120(7): 1315-1333 DOI: 10.1002/2015JG002935. (accepted 6/8/2015).

2014 (12)

Bond-Lamberty, B., K. Calvin, A. D. Jones, J. Mao, P. Patel, X. Y. Shi, A. Thomson, P. Thornton and Y. Zhou **2014**. On linking an Earth system model to the equilibrium carbon representation of an economically optimizing land use model. *Geosci. Model Dev.* **7**(6): 2545-2555 DOI: 10.5194/gmd-7-2545-2014. (accepted 9/29/2014)

De Kauwe, M. G., B. E. Medlyn, S. Zaehle, A. P. Walker, M. C. Dietze, Y.-P. Wang, Y. Luo, A. K. Jain, B. El-Masri, T. Hickler, D. Wårlind, E. Weng, W. J. Parton, P. E. Thornton, S. Wang, I. C. Prentice, S. Asao, B. Smith, H. R. McCarthy, C. M. Iversen, P. J. Hanson, J. M. Warren, R. Oren and R. J. Norby **2014**. Where does the carbon go? A model–data intercomparison of vegetation carbon allocation and turnover processes at two temperate forest free-air CO2 enrichment sites. *New Phytologist* **203**(3): 883-899 DOI: 10.1111/nph.12847. (accepted 04/08/2014)

Di Vittorio, A. V., L. P. Chini, B. Bond-Lamberty, J. Mao, X. Shi, J. Truesdale, A. Craig, K. Calvin, A. Jones, W. D. Collins, J. Edmonds, G. C. Hurtt, P. Thornton and A. Thomson **2014**. From land use to land cover: restoring the afforestation signal in a coupled integrated assessment–earth system model and the implications for CMIP5 RCP simulations. *Biogeosciences* **11**(22): 6435-6450 DOI: 10.5194/bg-11-6435-2014. (accepted 10/17/2014)

Koster, R. D., G. K. Walker, G. J. Collatz and P. E. Thornton **2014**. Hydroclimatic Controls on the Means and Variability of Vegetation Phenology and Carbon Uptake. *Journal of Climate* **27**(14): 5632-5652 DOI: 10.1175/JCLI-D-13-00477.1. (accepted 03/26/2014)

Lindsay, K., G. B. Bonan, S. C. Doney, F. M. Hoffman, D. M. Lawrence, M. C. Long, N. M. Mahowald, J. Keith Moore, J. T. Randerson and P. E. Thornton **2014**. Preindustrial-Control and Twentieth-Century Carbon Cycle Experiments with the Earth System Model CESM1(BGC). *Journal of Climate* **27**(24): 8981-9005 DOI: 10.1175/JCLI-D-12-00565.1. (published 12/1/2014)

Sargsyan, K., C. Safta, H. N. Najm, B. J. Debusschere, D. Ricciuto and P. Thornton **2014**. Dimensionality reduction for complex models via Bayesian Compressive Sensing. *International Journal for Uncertainty Quantification* **4**(1): 63-93 DOI: 10.1615/Int.J.UncertaintyQuantification.2013006821.

Steed, C. and others **2014**. Web-based visual analytics for extreme scale climate science. *IEEE BigData* (accepted 08/30/2014)

Walker, A. P., P. J. Hanson, M. G. De Kauwe, B. E. Medlyn, S. Zaehle, S. Asao, M. Dietze, T. Hickler, C. Huntingford, C. M. Iversen, A. Jain, M. Lomas, Y. Luo, H. McCarthy, W. J. Parton, I. C. Prentice, P. E. Thornton, S. Wang, Y.-P. Wang, D. Warlind, E. Weng, J. M. Warren, F. I. Woodward, R. Oren and R. J. Norby **2014**. Comprehensive ecosystem model-data synthesis using multiple data sets at two temperate forest free-air CO2 enrichment experiments: Model performance at ambient CO2 concentration. *Journal of Geophysical Research: Biogeosciences* **119**(5): 937-964 DOI: 10.1002/2013JG002553. (accepted 04/25/2014)

Wang, D., Y. Xu, P. Thornton, A. King, C. Steed, L. Gu and J. Schuchart **2014**. A functional test platform for the Community Land Model. *Environmental Modelling & Software* **55**: 25-31 DOI: http://dx.doi.org/10.1016/j.envsoft.2014.01.015. (accepted 01/09/2014)

Xu, X., J. P. Schimel, P. E. Thornton, X. Song, F. Yuan and S. Goswami **2014**. Substrate and environmental controls on microbial assimilation of soil organic carbon: a framework for Earth system models. *Ecology Letters* **17**(5): 547-555 DOI: 10.1111/ele.12254. (published May 2014)

Yang, X., P. E. Thornton, D. M. Ricciuto and W. M. Post **2014**. The role of phosphorus dynamics in tropical forests - a modeling study using CLM-CNP. *Biogeosciences* 11: 1667-1681 DOI: doi:10.5194/bg-11-1667-2014. (accepted 02/11/2014).

Zaehle, S., B. E. Medlyn, M. G. De Kauwe, A. P. Walker, M. C. Dietze, T. Hickler, Y. Luo, Y.-P. Wang, B. El-Masri, P. Thornton, A. Jain, S. Wang, D. Warlind, E. Weng, W. Parton, C. M. Iversen, A. Gallet-Budynek, H. McCarthy, A. Finzi, P. J. Hanson, I. C. Prentice, R. Oren and R. J. Norby **2014.** Evaluation of 11 terrestrial carbon–nitrogen cycle models against observations from two temperate Free-Air CO2 Enrichment studies. *New Phytologist* 202(3): 803-822. DOI: 10.1111/nph.12697. (accepted 12/20/2013)

2013 (12)

Ciais, P., C. Sabine, G. Bala, L. Bopp, V. Brovkin, J. Canadell, A. Chhabra, R. DeFires, J. Galloway, M. Heimann, C. Jones, C. Le Quéré, R. B. Myneni, S. Piao and P. Thornton **2013**. Carbon and Other Biogeochemical Cycles. Climate Change 2013: The Physical Science Basis. Contribution of Working Group I to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change. T. F. Stocker, D. Qin, G.-K. Plattneret al. Cambridge, United Kingdom and New York, NY, USA, Cambridge University Press.

De Kauwe, M. G., B. E. Medlyn, S. Zaehle, A. P. Walker, M. C. Dietze, T. Hickler, A. K. Jain, Y. Luo, W. J. Parton, I. C. Prentice, B. Smith, P. E. Thornton, S. Wang, Y.-P. Wang, D. Wårlind, E. Weng, K. Y. Crous, D. S. Ellsworth, P. J. Hanson, H. Seok Kim, J. M. Warren, R. Oren and R. J. Norby **2013**. Forest water use and water use efficiency at elevated CO2: a model-data intercomparison at two contrasting temperate forest FACE sites. *Global Change Biology* **19**(6): 1759-1779 DOI: 10.1111/gcb.12164.

Hudiburg, T. W., B. E. Law and P. E. Thornton **2013**. Evaluation and improvement of the Community Land Model (CLM4) in Oregon forests. *Biogeosciences* **10**(1): 453-470 DOI: 10.5194/bg-10-453-2013.

Hudiburg, T. W., S. Luyssaert, P. E. Thornton and B. E. Law **2013**. Interactive effects of environmental change and management strategies on regional forest carbon emisisons. *Environmental Science and Technology* 47: 13132-13140 DOI: 10.1021/es402903u. (accepted 10/18/2013)

Jones, A. D., W. D. Collins, J. Edmonds, M. S. Torn, A. Janetos, K. V. Calvin, A. Thomson, L. P. Chini, J. Mao, X. Shi, P. Thornton, G. C. Hurtt and M. Wise **2013**. Greenhouse Gas Policy Influences Climate via Direct Effects of Land-Use Change. *Journal of Climate* **26**(11): 3657-3670 DOI: 10.1175/jcli-d-12-00377.1.

Keppel-Aleks, G., J. T. Randerson, K. Lindsay, B. B. Stephens, J. K. Moore, S. C. Doney, P. E. Thornton, N. M. Mahowald, F. M. Hoffman, C. Sweeney, P. P. Tans, P. O. Wennberg and S. C. Wofsy **2013**. Atmospheric carbon dioxide variability in the Community Earth System Model: Evaluation and transient dynamics during the Twentieth and Twenty-first Centuries. *Journal of Climate* 26: 4447-4475 DOI: 10.1175/jcli-d-12-00589.1.

Mao, J., X. Shi, P. Thornton, F. Hoffman, Z. Zhu and R. Myneni **2013**. Global Latitudinal-Asymmetric Vegetation Growth Trends and Their Driving Mechanisms: 1982–2009. *Remote Sensing* **5**(3): 1484-1497

Shi, X., J. Mao, P. E. Thornton and M. Huang **2013**. Spatiotemporal patterns of evapotranspiration in response to multiple environmental factors simulated by the Community Land Model. *Environmental Research Letters* **8**(2): 024012

Smith, B., D. M. Ricciuto, P. E. Thornton, G. Shipman, C. Steed, D. Williams and M. Wehner **2013**. ParCAT: Parallel Climate Analysis Toolkit. *Procedia Computer Science* 18: 2367-2375 DOI: 10.1016/j.procs.2013.05.408.

Steed, C. A., D. M. Ricciuto, G. Shipman, B. Smith, P. E. Thornton, D. Wang and D. N. Williams **2013**. Big Data visual analytics for Earth system simulation exploratory analysis. *Computers and Geoscience* 61: 71-82 DOI: 10.1016/j.cageo.2013.07.025.

Xu, X., P. E. Thornton and W. M. Post **2013**. A global analysis of soil microbial biomass carbon, nitrogen and phosphorus in terrestrial ecosystems. *Global Ecology and Biogeography* **22**(6): 737-749 DOI: 10.1111/geb.12029.

Yang, X., W. M. Post, P. E. Thornton and A. Jain **2013**. The distribution of soil phosphorus for global biogeochemical modeling. *Biogeosciences* **10**(4): 2525-2537 DOI: 10.5194/bg-10-2525-2013.

2012 (11)

Bauerle, W. L., R. Oren, D. A. Way, S. S. Qian, P. C. Stoy, P. E. Thornton, J. D. Bowden, F. M. Hoffman and R. F. Reynolds, **2012**. Photoperiodic regulation of the seasonal pattern of photosynthetic capacity and the implications for carbon cycling.

Proceedings of the National Academy of Sciences 109: 8612-8617, DOI: 10.1073/pnas.1119131109

Castillo, C. K. G., S. Levis and P. Thornton **2012**. Evaluation of the New CNDV Option of the Community Land Model: Effects of Dynamic Vegetation and Interactive Nitrogen on CLM4 Means and Variability. *Journal of Climate* **25**(11): 3702-3714 DOI: 10.1175/jcli-d-11-00372.1.

Huntzinger, D. N., W. M. Post, Y. Wei, A. M. Michalak, T. O. West, A. R. Jacobson, I. T. Baker, J. M. Chen, K. J. Davis, D. J. Hayes, F. M. Hoffman, A. K. Jain, S. Liu, A. D. McGuire, R. P. Neilson, C. Potter, B. Poulter, D. Price, B. M. Raczka, H. Q. Tian, P. Thornton, E. Tomelleri, N. Viovy, J. Xiao, W. Yuan, N. Zeng, M. Zhao and R. Cook, **2012**. North American Carbon Project (NACP) regional interim synthesis: Terrestrial biospheric model intercomparison. *Ecological Modelling* **232**: 144-157 DOI: http://dx.doi.org/10.1016/j.ecolmodel.2012.02.004.

Lawrence, P. J., J. J. Feddema, G. B. Bonan, G. A. Meehl, B. C. O'Neill, K. W. Oleson, S. Levis, D. M. Lawrence, E. Kluzek, K. Lindsay and P. E. Thornton, **2012**. Simulating the biogeochemical and biogeophysical impacts of transient land cover change and wood harvest in the Community Climate System Model (CCSM4) from 1850 to 2100. *Journal of Climate*, **25**: 3071-3095, doi: http://dx.doi.org/10.1175/JCLI-D-11-00256.1.

Levis, S., G. B. Bonan, E. Kluzek, P. E. Thornton, A. Jones, W. J. Sacks and C. J. Kucharik, **2012**. Interactive crop management in the Community Earth System Model (CESM1): Seasonal influences on land-atmosphere fluxes. *Journal of Climate* 25: 4839-4859.

Mao, J., P. E. Thornton, X. Shi, M. Zhao and W. M. Post, **2012**. Remote sensing evaluation of CLM4 GPP for the period 2000-09. *Journal of Climate* 25: 5327-5342.

Rothenberg, D., N. Mahowald, K. Lindsay, S. C. Doney, J. K. Moore and P. Thornton **2012**. Volcano impacts on climate and biogeochemistry in a coupled carbon-climate model. *Earth System Dynamics* **3**: 121-136 DOI: doi:10.5194/esd-3-121-2012.

Schaefer, K., C. R. Schwalm, C. Williams, M. A. Arain, A. Barr, J. M. Chen, K. J. Davis, D. Dimitrov, T. W. Hilton, D. Y. Hollinger, E. Humphreys, B. Poulter, B. M. Raczka, A. D. Richardson, A. Sahoo, P. Thornton, R. Vargas, H. Verbeeck, R. Anderson, I. Baker, T. A. Black, P. Bolstad, J. Chen, P. S. Curtis, A. R. Desai, M. Dietze, D. Dragoni, C. Gough, R. F. Grant, L. Gu, A. Jain, C. Kucharik, B. Law, S. Liu, E. Lokipitiya, H. A. Margolis, R. Matamala, J. H. McCaughey, R. Monson, J. W. Munger, W. Oechel, C. Peng, D. T. Price, D. Ricciuto, W. J. Riley, N. Roulet, H. Tian, C. Tonitto, M. Torn, E. Weng and X. Zhou **2012**. A model-data comparison of gross primary productivity: Results from the North American Carbon Program site synthesis. *Journal of Geophysical Research: Biogeosciences* **117**(G3): G03010 DOI: 10.1029/2012jg001960.

Mao, J., X. Shi, P. E. Thornton, S. Piao and X. Wang, **2012**. Causes of spring vegetation growth trends in the northern mid-high latitudes from 1982 to 2004. *Environmental Research Letters* **7**(104010): 1-7 DOI: 10.1088/1748-9326/7/1/014010.

Steed, C. A., G. Shipman, P. Thornton, D. Ricciuto, D. Erickson and M. Branstetter **2012**. Practical Application of Parallel Coordinates for Climate Model Analysis. *Procedia Computer Science* 9(0): 877-886 DOI: 10.1016/j.procs.2012.04.094

Warren, J. M., C. M. Iversen, C. T. Garten, R. J. Norby, J. Childs, D. Brice, R. M. Evans, L. Gu, P. Thornton and D. J. Weston **2012**. Timing and magnitude of C partitioning through a young loblolly pine (Pinus taeda L.) stand using 13C labeling and shade treatments. *Tree Physiology* **32**(6): 799-813 DOI: 10.1093/treephys/tpr129.

2011 (8)

Edburg, S. L., J. A. Hicke, D. M. Lawrence and P. E. Thornton, **2011**. Simulating coupled carbon and nitrogen dynamics following bark beetle outbreaks. *Journal of Geophysical Research - Biogeosciences* **116**(G04033): 15 DOI: 10.1029/2011JG001786

Hurtt, G. C., L. P. Chini, S. Frolking, R. Betts, J. Feddema, G. Fischer, J. P. Fisk, K. Hibbard, R. A. Houghton, A. Janetos, C. Jones, G. Kindermann, T. Kinoshita, K. Klein Goldewijk, K. Riahi, E. Shevliakova, S. Smith, E. Stehfest, A. Thomson, P. Thornton, D. P. van Vuuren and Y. Wang, **2011**. "Harmonization of land-use scenarios for the period 1500-2100: 600 years of global gridded annual land-use transitions, wood harvest, and resulting secondary lands." *Climatic Change,* DOI: 10.1007/s10584-011-0153-2

Kattge, J., S. DÍAz, S. Lavorel, I. C. Prentice, P. Leadley, G. BÖNisch, E. Garnier, M. Westoby, P. B. Reich, I. J. Wright, J. H. C. Cornelissen, C. Violle, S. P. Harrison, P. M. Van Bodegom, M. Reichstein, B. J. Enquist, N. A. Soudzilovskaia, D. D. Ackerly, M. Anand, O. Atkin, M. Bahn, T. R. Baker, D. Baldocchi, R. Bekker, C. C. Blanco, B. Blonder, W. J. Bond, R. Bradstock, D. E. Bunker, F. Casanoves, J. Cavender-Bares, J. Q. Chambers, F. S. Chapin Iii, J. Chave, D. Coomes, W. K. Cornwell, J. M. Craine, B. H. Dobrin, L. Duarte, W. Durka, J. Elser, G. Esser, M. Estiarte, W. F. Fagan, J. Fang, F. FernÁNdez-MÉNdez, A. Fidelis, B. Finegan, O. Flores, H. Ford, D. Frank, G. T. Freschet, N. M. Fyllas, R. V. Gallagher, W. A. Green, A. G. Gutierrez, T. Hickler, S. I. Higgins, J. G. Hodgson, A. Jalili, S. Jansen, C. A. Joly, A. J. Kerkhoff, D. Kirkup, K. Kitajima, M. Kleyer, S. Klotz, J. M. H. Knops, K. Kramer, I. KÜHn, H. Kurokawa, D. Laughlin, T. D. Lee, M. Leishman, F. Lens, T. Lenz, S. L. Lewis, J. Lloyd, J. LlusiÀ, F. Louault, S. Ma, M. D. Mahecha, P. Manning, T. Massad, B. E. Medlyn, J. Messier, A. T. Moles, S. C. MÜLler, K. Nadrowski, S. Naeem, Ü. Niinemets, S. NÖLlert, A. NÜSke, R. Ogaya, J. Oleksyn, V. G. Onipchenko, Y. Onoda, J. OrdoÑEz, G. Overbeck, W. A. Ozinga, S. PatiÑO, S. Paula, J. G. Pausas, J. PeÑUelas, O. L. Phillips, V. Pillar, H. Poorter, L. Poorter, P. Poschlod, A. Prinzing, R. Proulx, A. Rammig, S. Reinsch, B. Reu, L. Sack, B. Salgado-Negret, J. Sardans, S. Shiodera, B. Shipley, A. Siefert, E. Sosinski, J. F. Soussana, E. Swaine, N. Swenson, K. Thompson, P. Thornton, M. Waldram, E. Weiher, M. White, S. White, S. J. Wright, B. Yguel, S. Zaehle, A. E. Zanne and C. Wirth **2011**. TRY – a global database of plant traits. *Global Change Biology* **17**(9): 2905-2935 DOI: 10.1111/j.1365-2486.2011.02451.x.

Lawrence, D.M., Oleson, K.W. Flanner, M.G., Thornton, P.E., Swenson, S.C., Lawrence, P.J., Zeng, X., Yang, Z.-L., Levis, S., Sakaguchi, K., Bonan, G.B., Slater, A.G., **2011**. Parameterization improvements and functional and structural advances in Version 4 of the Community Land Model. *Journal of Advances in Modeling Earth Systems,* **3**, doi: 10.1029/2011MS000045.

Mahowald, N., Lindsay, K., Rothenberg, D., Doney, S.C., Moore, J.K., Thornton, P., Randerson, J.T., Jones, C.D., **2011**. Desert dust and anthropogenic aerosol

interactions in the Community Climate System Model coupled-carbon-climate model. *Biogeosciences*, **8**(2): 387-414, doi: 10.5194/bg-8-387-2011.

Turner, D. P., W. D. Ritts, Z. Q. Yang, R. E. Kennedy, W. B. Cohen, M. V. Duane, P. E. Thornton and B. E. Law **2011**. Decadal trends in net ecosystem production and net ecosystem carbon balance for a regional socioecological system. *Forest Ecology and Management* **262**(7): 1318-1325 DOI: 10.1016/j.foreco.2011.06.034.

Shi, X., Mao, J., Thornton, P.E., Hoffman, F.M., Post, W.M., **2011**. The impact of climate, CO_2, nitrogen deposition and land use change on simulated contemporary global river flow. *Geophysical Research Letters*, **38**(8): L08704, doi: 10.1029/2011gl046773.

Warren, J. M., E. Pötzelsberger, S. D. Wullschleger, P. E. Thornton, H. Hasenauer and R. J. Norby, **2011**. Ecohydrologic impact of reduced stomatal conductance in forests exposed to elevated CO_2. *Ecohydrology* **4**: 196-210.

2010 (4)

Kloster, S., Mahowald, N. M., Randerson, J. T., Thornton, P. E., Hoffman, F. M., Levis, S., Lawrence, P. J., Feddema, J. J., Oleson, K. W., and Lawrence, D. M., **2010**. Fire dynamics during the 20th century simulated by the Community Land Model, *Biogeosciences*, 7, 1877-1902, 10.5194/bg-7-1877-2010, 2010.

Mahowald, N. M., S. Kloster, S. Engelstaedter, J. K. Moore, S. Mukhopadhyay, J. R. McConnell, S. Albani, S. C. Doney, A. Bhattacharya, M. A. J. Curran, M. G. Flanner, F. M. Hoffman, D. M. Lawrence, K. Lindsay, P. A. Mayewski, J. Neff, D. Rothenberg, E. Thomas, P. E. Thornton and C. S. Zender, **2010**. Observed 20th century desert dust variability: impact on climate and biogeochemistry. *Atmos. Chem. Phys.* **10**(22): 10875-10893.

Mao, J., X. Shi, L. Ma, D.P. Kaiser, Q. Li, and P.E. Thornton, **2010**. Assessment of re-analysis daily extreme temperatures with China's homogenized historical dataset during 1979-2001 using Probability Density Functions, *Journal of Climate*, 23, 6605-6623. doi: 10.1175/2010JCLI3581.1.

Oleson, K. W., Lawrence, D. M., Bonan, G. B., Flanner, M. G., Kluzek, E., Lawrence, P. J., Levis, S., Swenson, S. C., and Thornton, P. E., **2010**. Technical Description of version 4.0 of the Community Land Model (CLM), NCAR Technical Note, 257 pp.

2009 (3)

Randerson, J. T., Hoffman, F. M., Thornton, P. E., Mahowald, N. M., Lindsay, K., Lee, Y.-H., Nevison, C. D., Doney, S. C., Bonan, G., Stöckli, R., Covey, C., Running, S. W., and Fung, I. Y., **2009**. Systematic assessment of terrestrial biogeochemistry in coupled climate-carbon models, *Global Change Biology*, 15, 2462-2484, 10.1111/j.1365-2486.2009.01912.x.

Thornton, P. E., Doney, S. C., Lindsay, K., Moore, J. K., Mahowald, N., Randerson, J. T., Fung, I., Lamarque, J. F., Feddema, J. J., and Lee, Y. H., **2009**. Carbon-nitrogen interactions regulate climate-carbon cycle feedbacks: results from an atmosphere-ocean general circulation model, *Biogeosciences*, 6, 2099-2120.

Wang, W., Ichii, K., Hashimoto, H., Michaelis, A. R., Thornton, P. E., Law, B. E., and Nemani, R. R., **2009**. A hierarchical analysis of terrestrial ecosystem model Biome-BGC: equilibrium analysis and model calibration, *Ecological Modelling*, 220(17): 2009-2032.

2008 (3)

Oleson, K.W, Niu, G.-Y., Yang, Z.-L., Lawrence, D.M., Thornton, P.E., Lawrence, P.J., Stöckli, R., Dickinson, R.E., Bonan, G.B., Levis, S., Dai, A., Qian, T., **2008**. Improvements to the Community Land Model and their impact on the hydrological cycle. *Journal of Geophysical Research*, 113, G01021, doi:10.1029/2007JG000563.

Stöckli, R, Lawrence, D.M., Niu, G.-Y., Oleson, K.W., Thornton, P.E., Yang, Z.-L., Bonan, G.B., Denning, A.S., Running, S.W., **2008**. Use of FLUXNET in the Community Land Model development. *Journal of Geophysical Research*, 113, G01025, doi:10.1029/2007JG000562.

Stöckli, R., Rutishauser, T., Dragoni, D., O'Keefe, J., Thornton, P.E., Jolly, M., Lu, L., Denning, A.S., **2008**. Remote sensing data assimilation for a prognostic phenology model. *Journal of Geophysical Research*, 113, G04021, doi:10.1029/2008JG000781.

2007 (3)

Lawrence, D.M., P.E. Thornton, K.W. Oleson, G.B. Bonan, **2007**. The partitioning of evapotranspiration into transpiration, soil evaporation, and canopy evaporation in a GCM. *Journal of Hydrometeorology*, 8(4): 862-880.

Thornton, P.E., Lamarque, J.-F., Rosenbloom, N.A. and Mahowald, N.M., **2007**. Influence of carbon-nitrogen cycle coupling on land model response to CO_2 fertilization and climate variability. *Global Biogeochemical Cycles*, 21(4): GB4018.

Thornton, P. E., and N. E. Zimmermann, **2007**. An improved canopy integration scheme for a land surface model with prognostic canopy structure, *Journal of Climate*, *20*, 3902-3923.

2006 (4)

Del Grosso, S.J., W.J. Parton, A.R. Mosier, M.K. Walsh, D.S. Ojima, P.E. Thornton, **2006**. DAYCENT national-scale simulations of nitrous oxide emissions from cropped soils in the United States. *Journal of Environmental Quality*, 35: 1451-1460.

Dickinson, R.E., K.W. Oleson, G.B. Bonan, F.M. Hoffman, P.E. Thornton, M. Vertenstein, Z.-L. Yang, X. Zeng, **2006**. The Community Land Model and its climate statistics as a component of the Community Climate System Model. *Journal of Climate*. 19:2302-2324.

Turner, D.P., W.D. Ritts, J. Styles, Z. Yang, W.B. Cohen, B.E. Law, P.E. Thornton, **2006**. A diagnostic carbon flux model to monitor the effects of disturbance and interannual variation in climate on regional NEP. *Tellus*, 58B:476-490

Zimmermann, N.E., H. Lischke, P.E. Thornton, **2006**. Up-scaling of biological properties and mechanisms to the landscape level. Chapter 5 in "A changing world: challenges for landscape research", F. Kienast, S. Ghosh, O. Wildi, editors. Landscape Series, Vol. 8. Springer.

2005 (5)

Bond-Lamberty, B., S.T. Gower, D. Ahl, and P.E. Thornton, **2005**. A reimplementation of the Biome-BGC model supporting multiple interacting vegetation types. *Tree Physiology,* 25: 413-424.

Lamarque, J.-F., J. Kiehl, G. Brasseur, T. Butler, P. Cameron-Smith, W.D. Collins, W.J. Collins, C. Granier, D. Hauglustaine, P. Hess, E. Holland, L. Horowitz, M. Lawrence, D. McKenna, P. Merilees, M. Prather, P. Rasch, D. Rotman, D. Shindell and P. Thornton, **2005**. Assessing future nitrogen deposition and carbon cycle

feedback using a multi-model approach: Analysis of nitrogen deposition. *Journal of Geophysical Research* 110: D19303.

Pietsch, S.A., H. Hasenauer, and P.E. Thornton, **2005**. BGC-model parameters for tree species growing in central European forests. *Forest Ecology and Management* 211: 264-295.

Thornton, P. E., R. B. Cook, B. H. Braswell, B. E. Law, W. M. Corvallis, H. H. Shugart, B. T. Rhyne and L. A. Hook **2005**. Archiving numerical models of biogeochemical dynamics. *Eos, Transactions American Geophysical Union* 86(44): 431-431 DOI: 10.1029/2005EO440003.

Thornton, P.E., N. Rosenbloom, **2005**. Ecosystem model spin-up: estimating steady state conditions in a coupled terrestrial carbon and nitrogen cycle model. *Ecological Modeling* 189 (1/2): 25-48.

2004 (1)

Hanson, P.J., J.S. Amthor, S.D. Wullschleger, K.B. Wilson, R.F. Grant, A. Hartley, D. Hui, E.R. Hunt Jr., D.W. Johnson, J.S. Kimball, A.W. King, Y. Luo, S.G. McNulty, G. Sun, P.E. Thornton, S. Wang, M. Williams, D.D. Baldocchi, R.M. Cushman, **2004**. Oak forest carbon and water simulations: model intercomparisons and evaluations against independent data. *Ecological Monographs*, 74(3): 443-489.

2003 (5)

Churkina, G., J. Tenhunen, P.E. Thornton, E.M. Falge, J.A. Elbers, M. Erhard, T. Grünwald, A.S. Kowalski, and U. Rannik, D. Sprinz, **2003**. Analyzing the ecosystem carbon dynamics of four European coniferous forests using a biogeochemistry model. *Ecosystems* 6: 168-184.

Fujita, D., M. Ishizawa, S. Maksyutov, P.E. Thornton, T. Saeki, T. Nakazawa, **2003**. Inter-annual variability of the atmospheric carbon dioxide concentrations as simulated with global terrestrial biosphere models and an atmospheric transport model. *Tellus* 55B(2): 530-546.

Hasenauer, H., K. Merganicova, R. Petritsch, S. Pietsch, P.E. Thornton, **2003**. Validating daily climate interpolations of complex terrain in Austria. *Agricultural and Forest Meteorology* 119: 87-107.

Law, B.E., O.J. Sun, J. Campbell, S. VanTuyl, P.E. Thornton, **2003**. Changes in carbon storage and fluxes in a chronosequence of ponderosa pine. *Global Change Biology* 9(4): 510-514.

McKenzie, D., D.W. Peterson, D.L. Peterson, P.E. Thornton, **2003**. Climatic and biophysical controls on conifer species distributions in mountain forests of Washington State, USA. *Journal of Biogeography* 30: 1093-1108.

2002 (4)

Kittel, T.G.F., P.E. Thornton, J.A. Royle, and T.N. Chase. **2002.** Climates of the Rocky Mountains: Historical and Future Patterns. Pp. 59-82 (Chapter 4), in: J.S. Baron (ed.). *Rocky Mountain Futures: An Ecological Perspective.* Island Press, Covelo, CA. 325 p.

Nemani, R.R., M.A. White, P.E. Thornton, K. Nishida, S. Reddy, J. Jenkins, S.W. Running, **2002**. Recent trends in hydrologic balance have enhanced the terrestrial carbon sink in the United States. *Geophysical Research Letters* 2002GL014867.

Thornton, P.E., B.E. Law, H.L. Gholz, K.L. Clark, E. Falge, D.S. Ellsworth, A.H. Goldstein, R.K. Monson, D. Hollinger, M. Falk, J. Chen, J.P. Sparks, **2002**. Modeling and

measuring the effects of disturbance history and climate on carbon and water budgets in evergreen needleleaf forests. *Agricultural and Forest Meteorology* 113: 185-222.

White, M.A., R.R. Nemani, P.E. Thornton, S.W. Running, **2002**. Satellite evidence of phenological differences between urbanized and rural areas of the eastern United States deciduous broadleaf forest. *Ecosystems* 5: 260-277.

2001 (1)

Law, B.E., P.E. Thornton, J. Irvine, P.M. Anthoni, S. Van Tuyl, **2001**. Carbon storage and fluxes in ponderosa pine forests at different developmental stages. *Global Change Biology*, 7: 755-777.

2000 (3)

Schimel, D., J. Melillo, H. Tian, A.D. McGuire, D. Kicklighter, T. Kittel, N. Rosenbloom, S. Running, P.Thornton, D. Ojima, W. Parton, R. Kelly, M. Sykes, R. Neilson, and B. Rizzo, **2000**. The contribution of increasing CO_2 and climate to carbon storage by natural and agricultural ecosystems of the US 1980-1993. *Science*, 287: 2004-2006.

Thornton, P.E., H. Hasenauer, and M.A. White, **2000**. Simultaneous estimation of daily solar radiation and humidity from observed temperature and precipitation: an application over complex terrain in Austria. *Agricultural and Forest Meteorology,* 104: 255-271.

White, M.A., P.E. Thornton, and S.W. Running, **2000**. Parameterization and sensitivity analysis of the Biome-BGC terrestrial ecosystem model. *Earth Interactions*, 4(3): 1-85.

1999 (2)

Thornton, P.E., and S.W. Running, **1999**. An improved algorithm for estimating incident daily solar radiation from measurements of temperature, humidity, and precipitation. *Agricultural and Forest Meteorology*, 93: 211-228.

White, M.A., S. W. Running, and P.E. Thornton, **1999**. The impact of growing-season length variability on carbon assimilation and evapotranspiration over 88 years in the eastern US deciduous forest. *Int. J. Biometeorology* 42:139-145.

1998 (1)

White, J.D., S.W. Running, P.E. Thornton, R.E. Keane, K.C. Ryan, D.B. Fagre, and C.H. Key, **1998**. Assessing simulated ecosystem processes for climate variability research at Glacier National Park, USA. *Ecological Applications*, 8(3):805-823.

1997 (3)

Kimball, J.S., P.E. Thornton, M.A. White, and S.W. Running, **1997**. Simulating forest productivity and surface-atmosphere carbon exchange in the BOREAS study region. *Tree Physiology*, 17: 589-599.

Thornton, P.E., S.W. Running, and M.A. White, **1997**. Generating surfaces of daily meteorological variables over large regions of complex terrain. *Journal of Hydrology*, 190: 214-251.

White, M.A., P.E. Thornton, and S.W. Running, **1997**. A continental phenology model for monitoring vegetation responses to interannual climatic variability. *Global Biogeochemical Cycles*, 11: 217-234.

1996 (3)

Mahfouf, J.-F., C.Ciret, A. Ducharne, P. Irannejad, J. Noilhan, Y. Shao, P.Thornton, Y. Xue, and Z.L. Yang, **1996**. Analysis of transpiration results from the RICE and PILPS workshop. *Global and Planetary Change*, 13: 73-88.

Parton, W.J., A. Haxeltine, P. Thornton, R. Anne, and M. Hartman, **1996**. Ecosystem sensitivity to land-surface model and leaf area index. *Global and Planetary Change*, 13:89-98.

Thornton, P.E., and S.W. Running, **1996**. Generating daily surfaces of temperature and precipitation over complex topography. Pp. 93-98, in *GIS and Environmental Modeling: Progress and Research Issues*, M.F. Goodchild, L.T. Steyaert, B.O. Parks, C. Johnston, D. Maidment, M. Crane, and S. Glendinning, Eds. GIS World Books, Ft. Collins, CO.

1994 (1)

Shao, Y., R. Anne, A. Henderson-Sellers, P. Irannejad, P. Thornton, X. Liang, T. Chen, C. Ciret, C. Desborough, O. Balachova, A. Haxeltine, and A. Ducharne, **1994**. Soil moisture simulation: A report on the RICE and PILPS workshop. *International GEWEX Project Office Publication Series*, No. 14. World Climate Research Programme.

Published Datasets (10)

Thornton, M.M., R. Shrestha, Y. Wei, P.E. Thornton, S. Kao, and B.E. Wilson. 2020. Daymet: Daily Surface Weather Data on a 1-km Grid for North America, Version 4. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1840

Thornton, M.M., Y. Wei, P.E. Thornton, R. Shrestha, S. Kao, and B.E. Wilson. 2020. Daymet: Station-Level Inputs and Cross-Validation Result for North America, Version 4. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1850

Thornton, M.M., P.E. Thornton, Y. Wei, R.S. Vose, and A.G. Boyer. 2017. Daymet: Station-Level Inputs and Model Predicted Values for North America, Version 3. ORNL DAAC, Oak Ridge, Tennessee, USA. https://doi.org/10.3334/ORNLDAAC/1391

Thornton, P.E., M.M. Thornton, B.W. Mayer, Y. Wei, R. Devarakonda, R.S. Vose, and R.B. Cook. **2016**. Daymet: Daily Surface Weather Data on a 1-km Grid for North America, Version 3.ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1328

Thornton, P.E., and M.M. Thornton. **2016.** Daymet: Annual 2-degree Tile Summary Cross-Validation Statistics for North America. ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1303

Thornton, P.E., M.M. Thornton, B.W. Mayer, N. Wilhelmi, Y. Wei, R. Devarakonda, and R.B. Cook. **2014.** Daymet: Daily Surface Weather Data on a 1-km Grid for North America, Version 2. ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1219

Yang, X., W.M. Post, P.E. Thornton, and A. Jain. **2014.** Global Gridded Soil Phosphorus Distribution Maps at 0.5-degree Resolution. ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1223

Yang, X., W.M. Post, P.E. Thornton, and A. Jain. **2014.** A Global Database of Soil Phosphorus Compiled from Studies Using Hedley Fractionation.ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1230

Ricciuto, D.M., K. Schaefer, P.E. Thornton, R.B. Cook, R. Anderson, M.A. Arain, I. Baker, J.M. Chen, M. Dietze, R. Grant, C. Izaurralde, A.K. Jain, A.W. King, C. Kucharik, S. Liu, E. Lokupitiya, Y. Luo, C. Peng, B. Poulter, D. Price, W. Riley, A. Sahoo, H. Tian, C. Tonitto, and H. Verbeeck. **2013.** NACP Site: Terrestrial Biosphere Model Output Data in Original Format. ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1192

Cook, R.B., W.M. Post, P.E. Thornton, A. Jacobson, D.N. Huntzinger, Y. Wei, I. Baker, J. Chen, F. Chevallier, F. Hoffman, A. Jain, S. Liu, R. Lokupitiya, D.A. McGuire, A. Michalak, G.G. Moisen, R.P. Neilson, P. Peylin, C. Potter, B. Poulter, D. Price, J. Randerson, C. Rodenbeck, A. Schuh, C. Schwalm, H. Tian, E. Tomelleri, D. Turner, G. van der Werf, N. Viovy, T.O. West, J. Xiao, N. Zeng, and M. Zhao. **2013.** NACP Regional: Original Observation Data and Biosphere and Inverse Model Outputs. ORNL DAAC, Oak Ridge, Tennessee, USA. http://dx.doi.org/10.3334/ORNLDAAC/1193

Other Publications (incuding workshop reports)

Brown, M. A., P. E. Thornton, R. L. Gruber, S. Hubbard, M. Lapsa, E. Lara-Curzio, T. C. Lieuwen, D. McCollum, M. Oxman, D. Stanton, M. Twardy and R. Wagner 2024. **2023**. Southeast Decarbonization Workshop - Activating science, business, and community partnerships. Oak Ridge National Laboratory. ORNL/TM-2024/3470. DOI: https://doi.org/10.2172/2404612.

Running, S.W., P.E. Thornton, R.R. Nemani, and J.M. Glassy, **2000**. Global Terrestrial Gross and Net Primary Productivity from the Earth Observing System. In: *Methods in Ecosystem Science*, O. Sala, R. Jackson, and H. Mooney, Eds. Springer-Verlag, New York.

Thornton, P.E., **1998**. Regional ecosystem simulation: combining surface- and satellite-based observations to study linkages between terrestrial energy and mass budgets. Ph.D. Dissertation, School of Forestry, The University of Montana, Missoula, MT., 280 pp.

Science Presentations: (210 total, 117 invited) (current through 22 August 2020)

August 2020: P. Thornton, **invited.** Measurements and models: The science of climate change. Citizens Climate Lobby Southeast Conference (virtual meeting), 22 August 2020, Oak Ridge, TN.

May 2020: P. Thornton, **invited.** Measurements and models: The science of climate change. Friends of ORNL (virtual meeting), 12 May 2020, Oak Ridge, TN.

February 2020: P. Thornton. Earth system analysis. Closing the Carbon Cycle Workshop, 6 February 2020, ORNL, Oak Ridge, TN.

January 2020: P. Thornton, **invited**. Measurements and models: The science of climate change. Technical Society of Knoxville, 13 January 2020, Knoxville, TN.

December 2019: P. Thornton, S. Wullschleger, C. Iversen, C. Wilson, B. Dafflon, D. Graham, M. Torn, V. Salmon, F. Yuan, S. Painter, A. Jan, E. Coon, B. Sulman, T.

O'Meara, J. Kumar, B. Bolton, B. Newman, K. Ely, E. Jafarov, S. Serbin, A. Breen, S. Dengel, J. Beisman, D. Harp, A. Rogers, C. Abolt. Improving the representation of Arctic ecosystem responses to climate change in an Earth system model through multi-scale integration of observations, experiments, and simulations. AGU Fall Meeting 2019, 9 December 2019, San Francisco, CA.

December 2019: P. Thornton and NGEE Arctic Modeling Team. Phase 3 modeling deliverables. NGEE Arctic All-Hands Meeting, 7 December 2019, San Francisco, CA.

November 2019: P. Thornton, D. Wang, P. Schwartz, F. Yuan, R. Shrestha, M. Thornton, S. Kao, J. Mao, M. Branstetter. Progress toward a high-resolution offline ELM simulation over North America. E3SM All-Hands Meeting, 20 November 2019, Washington, DC.

November 2019: P. Thornton, X. Shi, X. Yang, D. Ricciuto, M. Maltrud, N. Jeffrey, L. Brent, S. Burrows, Q. Zhu, W. Riley, J. Tang, and E3SM v1 BGC team, **invited**. E3SM v1 BGC experiments: Carbon-climate feedbacks during the historical period. E3SM All-Hands meeting, 20 November 2019, Washington, DC.

November 2019: P. Schwartz, D. Wang, F. Yuan, and P. Thornton, **invited**. High-resolution land model implementation on Summit using OpenACC. OpenACC API User Experience, Vendor Reaction, Relevance, and Roadmap, at SuperComputing 2019 (SC19), 19 November 2019, Denver, CO

October 2019: P. Thornton, **invited**. Improved prediction of future climate by including human society in Earth system models. University of Toledo National Laboratory Day. 10 October 2019, Toledo, OH

September 2019: P. Thornton, D. Wang**.** Ultra high-res offline land capability over North America. Exascale Application Workshop: High-Resolution Offline Land Model Implementation on Summit. 18-19 September 2019, Oak Ridge, TN.

May 2019: P. Thornton, **invited**. Integration of modeling and measurements across scales to improve Arctic process representation in an Earth system model. Interagency Arctic Research Policy Committee (IARPC) Terrestrial Ecosystems and Modeling Collaboration Team Meeting (webinar). 23 May 2019.

March 2019: T. O'Meara, P. Thornton, D. Ricciuto, F. Yuan, B. Sulman, **invited**. ELM-saltmarsh: predicting vegetation and sediment BGC response to warming and SLR in a tidal marsh environment. E3SM All-Hands Meeting, 20 March 2019, Westminster, CO.

March 2019: P. Thornton. Ultra-high resolution offline land capability over North America. E3SM All-Hands Meeting, 20 March 2019, Westminster, CO.

March 2019: P. Thornton, X. Shi, X. Yang, D. Ricciuto, M. Maltrud, N. Jeffery, L. Brent, S. Burrows, and the E3SM v1 BGC team, **invited**. Preliminary analysis of V1 coupled BGC experiments (CTC+Ocean BGC): Carbon-Climate feedbacks during historical period. E3SM All-Hands Meeting, 19 March 2019, Westminster, CO.

December 2018: P. Thornton, D. Ricciuto, M. Thornton, **invited**. Dealing with structural and parametric uncertainty in an Earth System Model. AGU Fall Meeting, 13 December 2018, Washington, D.C.

December 2018: P. Thornton, Y. Wei, M. Thornton, S.-C. Kao, **invited**. Evaluating Continental-Scale Gridded Daily Precipitation Estimates Using Gauge Networks,

Radar Products, and Reanalysis Datasets. AGU Fall Meeting, 13 December 2018, Washington, D.C.

November 2018: P. Thornton, T. Tesfa, M. Brunke. A new data architecture for ELM v2: Implications for coupling and simulation of disturbance. Poster presented at DOE ESM PI Meeting, 6 November 2018, Potomac, MD.

September 2018: P. Thornton, **invited**. Process Modeling for Coastal Terrestrial-Aquatic Interfaces: Toward Representation in Earth System Models. STAR Workshop: Terrestrial Aquatic Interfaces, Richland, WA. 24 Sept 2018.

June 2018: P. Thornton. High-resolution land modeling: Science drivers and implementation. Workshop on Exascale Applications in Climate and Environmental Science, ORNL, 7 June 2018, Oak Ridge, TN.

April 2018: P. Thornton, **invited**. Land use and land cover change: The influence of disturbances on Earth system feedbacks. Presented to interagency Climate Modeling Summit, 4 April 2018, College Park, MD.

February 2018: P. Thornton, **invited**. The science of climate change. Community lecture sponsored by Tennessee Citizens for Wilderness Planning. 22 February 2018, Oak Ridge, TN.

December 2017: P. Thornton. Biospheric feedback effects in a synchronously coupled model of human and Earth systems. AGU Fall Meeting. 15 December 2017, New Orleans, LA.

October 2017: P. Thornton, **invited**. Human systems in an Earth system model. Presentation to CCSI Lunch seminar series. 16 October 2017, Oak Ridge, TN.

October 2017: P. Thornton, K. Calvin, R. Leung, W. Riley. E3SM Land Group update. E3SM Science Advisory Board meeting, 4 October 2017, Princeton, NJ.

September 2017: P. Thornton. Systems engineering for mission-driven modeling. Presentation as E3SM all-hands science talk. 28 September 2017, Oak Ridge, TN.

September 2017: P. Thornton, **invited**. Evaluating and improving surface radiation estimates using ARM data. Presentation to Army Engineering visitors, ORNL, 20 September 2017, Oak Ridge, TN.

July 2017: P. Thornton, **invited**. Land model sensitivity to radiation forcing in an Arctic tundra environment. Presented at the Gordon Research Conference on Radiation and Climate: Connecting Observations to Global Circulation Modeling Challenges, 18 July 2017, Bates College, Lewiston, ME.

June 2017: P. Thornton, D. Ricciuto, E. Butler, V. Salmon, C. Iversen, **invited**. Prediction of plant traits and future climates in an Earth system model. Presented at the 39th New Phytologist Symposium, Trait covariation: Structural and functional relationships in plant ecology. 29 June 2017, University of Exeter, Exeter, UK.

June 2017: P. Thornton. Experimental evidence from CO_2 enrichment experiments supports the “Relative Demand” approximation for nutrient competition. Presentation at ACME All-Hands meeting, Land Group session, 5 June 2017, Potomac, MD.

June 2017: P. Thornton, A. Salinger. A system engineering perspective on the ACME Land Model development effort. Poster presentation at ACME All-Hands meeting, 5 June 2017, Potomac, MD.

April 2017: P. Thornton, F. Yuan, G. Wang. Multi-scale modeling of Arctic land ecosystems with ACME-PFLOTRAN. Poster presentation at DOE BER ESS PI Meeting, 25 April 2017, Potomac, MD.

March 2017: P. Thornton, **invited**. The role of storage pools in resolving nutrient limitations to plant growth. Presentation at Vegetation Dynamics Workshop, IIASA. 27 March 2017, Vienna, Austria.

December 2016: P. Thornton, S. Painter, S. Wullschleger, **invited**. Better Earth system prediction through improved representation of land processes in the Arctic. Presentation at AGU Fall Meeting 2016, in Session B52C: The Resilience and Vulnerability of Arctic and Boreal Ecosystems to Climate Change II. 16 December 2016, San Francisco, CA.

November 2016: G. Hurtt, R. Sahajpal, L. Chini, P. Thornton, X. Shi, D. Ricciuto, **invited**. Land use and land cover change for the ACME V1 experiments. Plenary presentation at the ACME All-Hands project meeting. 10 November 2016, Denver, CO.

October 2016: P. Thornton, **invited**. Multi-scale modeling of human-Earth system feedbacks. Department Seminar Series, Department of Civil and Environmental Engineering, Duke University. 4 October 2016, Durham, NC.

September 2016: P. Thornton, **invited**. Exploring trophic cascades in the plant-soil system to improve prediction of future climate. Plenary presentation to the EMSL Integration 2016 Workshop: Multiscale Ecosystems Analysis and Design. 12 September 2016, Environmental Molecular Sciences Laboratory, Richland, WA.

September 2016: R. Leung, W. Riley, and P. Thornton, **invited**. Current state and needs for Terrestrial Aquatic Interfaces in modeling. Presentation to the DOE, BER, Terrestrial Aquatic Interfaces Workshop. 7 September 2017, Rockville, MD.

August 2016. P. Thornton, **invited**. Thoughts on crafting a successful research career. Presentation to early career staff in CCSI as part of “Boot Camp” series. 26 August 2016, ORNL, Oak Ridge, TN.

June 2016: P. Thornton and B. Riley. ACME Land Model (ALM): V1 progress and V2 plans. Presentation to the ACME all-hands meeting, 7 June 2016, Rockville, MD.

May 2016: P. Thornton **invited**. Current representation of P cycling in ESMs and new approaches that can be implemented in next generation ESMs. Presentation to the Awesome Phosphorus Workshop, 23 May 2016, Townsend, TN.

May 2016: P. Thornton. A control system scenario. Presentation to New Scenarios for Earth System Modeling Workshop, 20 April 2016, JGCRI, College Park, MD.

May 2016: P. Thornton, **invited**. ACME Land Model (ALM): Current capabilities and future science directions. Presentation to Human Dimensions in Earth System Models Workshop, 19 April 2016, JGCRI, College Park, MD.

April 2016: P. Thornton and Lara Kueppers **invited**. Summary of the NGEE-ACME coordination workshop. Presentation to the DOE, BER, ESS PI meeting, 26 April 2016, Bolger Center, Potomac, MD.

March 2016: P. Thornton and D. Moulton, **invited**. Terrestrial and subsurface research priorities. Presentation in breakout to BER Exascale Requirements Workshop, 29 March 2016, Rockville, MD.

March 2016: P. Thornton and W.J. Riley. ACME land model progress report and 12-month plans. Presentation to the ACME Advisory Committee, 7-8 March 2016, Denver, CO.

December 2015: P. Thornton, **invited**. Results of NGEE-Arctic Phase 2 exercise prioritizing critical observations and modeling requirements. Presentation at NGEE Arctic Data Management Town Hall 2015, AGU Fall Meeting, San Francisco, CA, 16 December 2016.

December 2015: P. Thornton, presenting for the NGEE-Arctic Modeling Team. NGEE-Arctic Modeling and Scaling Framework. Presentation at NGEE-Arctic All-Hands Meeting, San Francisco, CA, 12-13 December 2015.

November 2015: P. Thornton, **invited**. ACME Land component: Highlighted topics for integration with NGEE-Arctic and NGEE-Tropics. Presentation to mini-workshop on ACME-NGEE coordination, Rockville, MD, 19 November 2015.

November 2015: P. Thornton, **invited**. The consequences of including dynamic plant traits in Earth system models. Presentation at DOE BER Plant Traits Workshop, Rockville, MD, 17-18 November 2015.

November 2015: P. Thornton. Terrestrial Ecosystem and Carbon Cycle Science input to CCSI strategic planning retreat. ORNL, 11 November 2015.

November 2015: P. Thornton, **invited.** Land model developments and biogeochemistry experiment design for ACME v1. Presentation at the ACME All-Hands meeting, Albuquerque, NM, 2-4 November 2015.

September 2015: P. Thornton, presenting for the NGEE-Arctic modeling team. NGEE-Arctic Modeling and Scaling Framework. Presentation in support of NGEE-Arctic Phase 2 proposal review, Rockville, MD. 2 September 2015.

August 2015: P. Thornton, **invited**. Science drivers and mission roadblocks. Presentation to the BER Data and Informatics Workshop, Bethesda, MD. 13 August 2015.

July 2015: P. Thornton. Accelerated Climate Modeling for Energy: Overview of the ACME Land Modeling component. CCSI Brown-Bag seminar. CCSI, Oak Ridge, TN. 27 July 2015.

May 2015: P. Thornton, B. Riley. ACME Land Group Overview and Roadmaps. Presentation to ACME All-Hands Meeting, Tyson's Corner, VA. 5 May 2015.

April 2015: P. Thornton, C. Koven, **invited**. Model-data integration challenges and opportunities: Terrestrial Ecosystem Sciences. Presentation at Environmental System Science (ESS) Workshop on Model-Data Integration, Potomac, MD. 30 April 2015.

April 2015: P. Thornton presenting for CCSI TECCS Theme. TECCS Annual Highlights and response to previous SAB suggestions. CCSI Science Advisory Board Meeting, Oak Ridge, TN. 9 April 2015.

January 2015: P. Thornton, **invited**. Modeling connections to the Integrated Field Laboratory. Presentation to BERAC-sponsored workshop on IFL/Urban, Germantown, MD. 29 January 2015.

January 2015: P. Thornton, B. Riley. ACME Land Group: Progress since July 1. Presentation at ACME 6-month review, Germantown, MD. 20 January 2015.

January 2015: P. Thornton, B. Riley. ACME Land Group: Plans and progress. ACME Advisory Committee meeting, Denver, CO. 14 January 2015.

December 2014: P. Thornton, D. Ricciuto, D. Metcalfe, R. Oren, J. Mao, X. Shi. Multiple independent constraints help resolve net ecosystem exchange under nutrient limitation. AGU Fall Meeting, session title: “Tell the story, drop the powerpoint”. 17 December 2014.

December 2014: P. Thornton presenting for NGEE-Arctic modeling team. Phase 2: Bridging scales and reducing model uncertainty. NGEE-Arctic All-Hands meeting, San Francisco, CA. 14 December 2014.

December 2014: P. Thornton presenting for NGEE-Arctic modeling team. NGEE-Arctic Phase 1 Scaling Objectives. NGEE-Arctic All-Hands meeting, San Francisco, CA. 13 December 2014.

December 2014: P. Thornton presenting for CCSI leadership. The ORNL Climate Change Science Institute. Susan Solomon visit to CCSI, Oak Ridge. 9 December 2014.

October 2014: K. Calvin, A. Jones, J. Edmonds, B. Collins, P. Thornton, **invited**. The integrated Earth System Model (iESM). DOE Accelerated Climate Model for Energy workshop, Rockville, MD. 30 October 2015.

October 2014: P. Thornton, **invited**. Multi-scale modeling of climate-biogeochemistry feedbacks. University of Utah Seminar, Salt Lake City. 22 October 2015.

September 2014: P. Thornton. Carbon cycle and land ecosystems: Modeling, observation, experimentation, and feedbacks with climate and human systems. Seminar for Alex Witze, CCSI visitor, Oak Ridge. 24 September 2015.

December 2013: P. Thornton, J. Kumar, S. Painter, G. Bisht, G. Hammond, R. Mills, G. Tang, **invited**. A multi-scale approach to representing tundra permafrost dynamics in a coupled climate system model. AGU Fall Meeting, San Francisco. 9-13 Dec 2013.

December 2013: P. Thornton, **invited**. Land modeling from microbes to the globe: purposes and frontiers. Guest speaker in DOE Office of Science, BER Modeling lecture series, Germantown, MD. 18 Dec 2013.

February 2014: P. Thornton. An Earth system modeling perspective on carbon-nutrient feedbacks and forced climate changes. Presentation to DOE TES-sponsored project, PI Bruce Hungate. Northern Arizona University, Flagstaff, AZ. 5 February 2014.

February 2014: P. Thornton, NGEE Modeling Team. NGEE-Arctic: Multi-scale modeling for Arctic tundra. CESM Land Model Working Group. Boulder, CO. 24 February 2014.

February 2014: P. Thornton, B. Bond-Lamberty, K. Calvin, L. Chini, W.D. Collins, T. Craig, A. Di Vittorio, J. Edmunds, G. Hurtt, A. Jones, J. Mao, X. Shi, A. Thomson, J. Truesdale. Influence of land use and land cover change on climate predictions over the period 1850-2004. CESM Land Model Working Group. Boulder, CO. 26 February 2014.

March 2014: P. Thornton, for TECCS. Terrestrial Ecosystem and Carbon cycle Science. Presentation to the CCSI Science Advisory Board, Oak Ridge, TN. 12 March 2014.

March 2014: P. Thornton, **invited**. Plants to plots to watersheds and beyond. Talk given at DOE SBR / ASCR Joint Workshop: Computational Challenges for Mechanistic Modeling of Terrestrial Ecosystems. Germantown, MD. 26 March 2014.

April 2014: P. Thornton, **invited**. Multi-scale modeling of climate-biogeochemistry feedbacks. Guest speaker in University of Tennessee Civil Engineering Department Seminar Series. 4 April 2014.

April 2014: P. Thornton. Earth system science and interdisciplinary research. CCSI 3x5 presentation. 7 April 2014.

April 2014: P. Thornton. ACME: belowground aspects. Mini-workshop organized by Colleen Iversen, Oak Ridge, TN. 16 April 2014.

May 2014: P. Thornton, NGEE-Arctic Science Team, **invited**. NGEE-Arctic: Migrating knowledge across scales to improve climate prediction. Plenary presentation to DOE Office of Science, BER TES/SBR Principal Investigators Meeting. Potomac, MD. 6 May 2014.

May 2014: P. Thornton, **invited**. Migrating knowledge across scales through coupled modeling and process studies. Webinar presentation (one of four invited talks from NGEE project) to Interagency Arctic Research Policy Committee (IARPC). 22 May 2014.

June 2014: P. Thornton, **invited**. Getting to the root in a terrestrial biosphere model. DOE TES-sponsored Root processes workshop, Oak Ridge, TN. 11 June 2014.

June 2014: P. Thornton, for TECCS. Terrestrial Ecosystem and Carbon Cycle Science: Biogeochemistry-Climate System Feedbacks. Presentation to University of Wisconsin visitors. Oak Ridge, TN. 14 June 2014.

August 2014: P. Thornton, G. Wang, X. Xu, X. Yang, M. Mayes, **invited**. Observational and experimental constraints on global scale microbial models to improve climate prediction. Ecological Society of America Meeting, Sacramento. 14 Aug 2014.

July 2013: P. Thornton, NGEE-Arctic Modeling Team. NGEE-Arctic Modeling: Phase 1 Approach and Early Results. NGEE-Arctic Science Talk series, delivered on-line from ORNL. 26 July 2013.

May 2013: P. Thornton, NGEE-Arctic Modeling Team, **invited**. NGEE-Arctic: Migrating knowledge across scales to improve climate prediction. DOE's Joint TES/SBR PI meeting, Potomac, MD. 14 May 2013.

May 2013: P. Thornton, **invited**. Surface weather data with uncertainty quantification for terrestrial ecosystem process models. NASA Terrestrial Ecology Program Science Team Meeting, La Jolla, CA. 1 May 2013.

April 2013: P. Thornton, **invited.** Land use and land cover change as critical uncertainties in the global carbon budget. Carbon Cycle Steering Group meeting, Alexandria, VA. 22 April 2013.

April 2013: P. Thornton, M. Mayes, X. Yang. Land modeling at ORNL: Helping to build the next generation of CLM and CESM. Presentation to DOE BER program managers, Germantown, MD. 19 April 2013.

March 2013: P. Thornton, Terrestrial Systems Modeling Group. Terrestrial Ecosystems and Carbon Cycling. CCSI Science Advisory Board Meeting, ORNL. 6 March 2013.

February 2013: P. Thornton, Xiaojuan Yang. Coupled C-N-P Modeling. CESM Biogeochemistry Working Group Meeting, NCAR, Boulder, CO. 22 Feb 2013.

February 2013: P. Thornton, NGEE-Arctic Modeling Team. NGEE-Arctic. CESM Land Model Working Group Meeting, NCAR, Boulder, CO. 20 Feb 2013.

December 2012: P. Thornton, NGEE-Arctic Modeling Team, **invited**. Update on 2012 Multi-Scale Modeling Tasks. Second Annual NGEE-Arctic All-Hands Meeting, Berkeley, CA. 1 Dec 2012.

November 2012: P. Thornton, M. Thornton, B. Mayer, R. Cook. Application of Daymet surface weather interpolation method over India: preliminary results. ORNL, 29 Nov 2012.

September 2012: P. Thornton. The new Carbon Cycle Science Plan and critical uncertainties. Carbon Cycle Steering Group meeting, Alexandria, VA. 20 Sept 2012.

August 2012: P. Thornton, NGEE Modeling Team. NGEE Modeling Overview. Presentation to DOE BER Program Managers, Barrow, AK. 13 August 2012.

June 2012: P. Thornton, X. Shi, J. Mao, S. Liu, **invited**. Tropical warming, nutrient cycling, and drought: Model-experiment investigation with the Community Land Model. Critical Research Needs for Tropical Ecosystems Workshop, Bethesda, MD. 5 June 2012.

May 2012: P.Thornton, NGEE-Arctic Science Team, **invited**. Next-Generation Ecosystem Experiments (NGEE Arctic): Biogeochemical and geophysical characterization of permafrost ecosystems on the North Slope of Alaska. NASA TEP Arctic Boreal Zone Workshop, Greenbelt, MD. 22 May 2012.

April 2012: P. Thornton, W.M. Post, ORNL TES SFA Team. Model-Experiment-Observation Integration. ORNL TES SFA Review, Washington, D.C. 25 April 2012.

April 2012: P. Thornton, **invited**. Process science and large-scale coupled models. Plenary presentation to DOE BER TES PI Meeting, Washington, D.C. 23 April 2012.

March 2012: P. Thornton, **invited**. Roots in the Community Land Model: Current approach and future needs. Scaling Root Processes: Global Impacts Workshop, Arlington, VA. 7 March 2012.

March 2012: P. Thornton and NGEE Science Team. Multi-scale modeling approach to improve Arctic tundra ecosystem and climate system prediction – NGEE Arctic. CESM Land and Biogeochemistry Working Group Meeting, Boulder, CO. 1 March 2012.

February 2012: P. Thornton and iESM Science Team. First results from coupled IAM-ESM (iESM): Influence of model coupling through land use and land cover change. CESM Land and Biogeochemistry Working Group Meeting, Boulder, CO. 29 February 2012.

February 2012: P. Thornton. CSSEF Land Team progress and FY2012 Planning. CSSEF All-Hands Meeting, Gaithersburg, MD. 14 February 2012.

January 2012: X. Xu, P.E. Thornton, W.M. Post. A global analysis of soil microbial biomass carbon, nitrogen, and phosphorus in terrestrial ecosystems. Poster presentation, ORNL CCSI SAB Meeting, Oak Ridge, TN. 31 January 2012.

January 2012: P. Thornton. Multi-scale carbon cycle modeling. ORNL, EESD SAB Meeting, Oak Ridge, TN. 25 January 2012.

December 2011: P. Thornton, G. Bisht, D.M. Ricciuto, and NACP Site-Synthesis Team, **invited**. Evaluating and improving land surface model predictions using site-level observations. AGU Fall Meeting (Session B51), San Francisco, CA. 9 December 2011.

December 2011: P. Thornton and NGEE Science Team, **invited**. Modeling ecosystem-climate interactions in the high Arctic: Challenges and potential solutions. NGEE Townhall at AGU Fall Meeting, Sanfrancisco, CA. 8 December 2011.

September 2011: J. Edmonds, B. Collins, P. Thornton, **invited**. Development and early results from an integrated Earth system model. Plenary presentation at DOE, BER Climate and Earth System Modeling Annual PI Meeting, Washington, D.C. 21 September 2012.

September 2011: P. Thornton, W. Riley, N. McDowell, J.T. Randerson, F.M. Hoffman, X. Yang, M. Post, U. Mishra, C.D. Koven, C. Xu., R. Fisher, **invited**. Reducing uncertainties associated with terrestrial carbon cycle-climate system feedbacks: Improved Earth System Model process representation for arctic, tropical, and temperate systems. Plenary presentation at DOE, BER Climate and Earth System Modeling Annual PI Meeting, Washington, D.C. 20 September 2012.

September 2011: P. Thornton, J. Mao, X. Shi, CESM Biogeochemistry Working Group members, **invited**. Land ecosystem observation and process knowledge in support of predictive modeling. Carbon Cycle Science Steering Group meeting, Arlington, VA. 14 Sept 2012.

August 2011: P. Thornton, for CSSEF Land Modeling Team. CSSEF: Land Modeling, Fy 2011 progress update. Presentation at Climate Science for a Sustainable Energy Future (CSSEF) Kickoff Meeting, Gaithersburg, MD, 18 August 2011.

July 2011: P. Thornton, **invited**. Earth System Modeling. Presented to DOE BER GOAmazon 2014 Workshop, Crystal City, VA, 26 July 2011.

June 2011: P. Thornton. New observational constraints for tropical forest biogeochemistry. Presented at the Biogeochemistry Working Group Meeting, 16th Annual Community Earth System Model Workshop, Breckenridge, CO, 22 June 2011.

June 2011: P. Thornton, G. Bisht, D. Ricciuto. Evaluating modeled carbon state and flux variables against multiple NACP observational datasets. Presented at the Land Model Working Group Meeting, 16th Annual Community Earth System Model Workshop, Breckenridge, CO, 21 June 2011.

March 2011: P. Thornton, G. Bisht, J. Mao, X. Shi, F. Hoffman, K. Lindsay, S. Doney, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee, **invited**. Critical needs for new understanding of nutrient dynamics in Earth System Models. Presented at First INTERFACE Workshop, Captiva Island, FL. 1 March 2011.

February 2011: P. Thornton, **invited**. Using site-level observations to find and fix problems in CLM4. Presented to Terrestrial Science Section, NASA Goddard Space Flight Center, Greenbelt, MD. 22 February 2011.

February 2011: P. Thornton, **invited**. CMIP5: overview of the Coupled Model Intercomparison Project, Phase 5. Presented at the North American Carbon Program/AmeriFlux Meeting, New Orleans, LA. 3 February 2011.

January 2011: P. Thornton and NACP site-level synthesis participants, **invited**. NACP Site-Level Synthesis. Presented at International Land Model Benchmarking workshop, Irvine, CA. 24 January 2011.

December 2010: P. Thornton, G. Bisht, D. Ricciuto, NACP site-level synthesis participants, **invited**. Evaluation of land model simulations across multiple sites and

multiple models: results from the NACP site-level synthesis effort. AGU Fall Meeting, San Francisco, CA. 16 December 2010.

October 2010: P. Thornton, X. Shi, J. Mao, CCSM Biogeochemistry and Land Model Working Group members, **invited**. High-latitude climate change experiments: model uncertainties, needed improvements, and limitations. Presented at Arctic Warming Experiments Workshop, University of Alaska, Fairbanks, AK. 13 October 2011.

September 2010: P. Thornton. Climate Change Science Institute, Theme 3: Terrestrial Ecosystems and Carbon Cycle. Presentation to CCSI Science Advisory Board. ORNL, Oak Ridge, TN. 29 September 2011.

September 2010: P. Thornton, **invited**. Carbon-nitrogen cycle coupling regulates climate-carbon cycle feedbacks. DOE Laboratory Energy Research and Development Working Group (LERDWG). Washington, D.C. 22 September 2011.

August 2010: P. Thornton. Consistency checks for ancillary biological and ecological data for NACP Site-level Synthesis. Third NACP Interim Synthesis Workshop, Boulder, CO. 26 August 2010.

August 2010: P. Thornton. Coupled climate-biogeochemistry modeling at ORNL. Presentation to RADM Titley and Navy Climate Task Force. ORNL, Oak Ridge, TN. 19 August 2010.

August 2010: P. Thornton. Coupled climate-biogeochemistry modeling at ORNL. Presentation to Air Force weather/climate team. ORNL, Oak Ridge, TN. 5 August 2010.

July 2010: P. Thornton, F. Hoffman, J. Mao, X. Shi, M. Branstetter, K. Lindsay, CESM Biogeochemistry Working Group, **invited**. Using single forcing factor experiments to explore climate-biogeochemistry feedbacks in CESM1. SciDAC 2010, Chattanooga, TN. 14 July 2010.

June 2010: Thornton, P. Planning for CCSM6: Land modeling component of CSSEF (Climate Science for a Sustainable Energy Future). Land Model Working Group, 15th Annual CESM Workshop, Breckenridge, CO. 29 June 2010.

June 2010: Thornton, P. Land BGC results from CCSM4. Biogeochemistry Working Group, 15th Annual CESM Workshop, Breckenridge, CO. 30 June 2010.

June 2010: Thornton, P. Improved soil organic matter model for CLM: Making the most of recent observational and experimental results. Biogeochemistry Working Group, 15th Annual CESM Workshop, Breckenridge, CO. 30 June 2010.

May 2010: P. Thornton, C. Cleveland, A. Finzi, G. Hurtt, N. McDowell, **invited**. Terrestrial Science Overview. DOE BER Climate Research Roadmapping Workshop, Arlington, VA. 13 May 2010.

April 2010: Edmonds, J., Collins, W., Thornton, P., Thomson, A. Integrated Earth System Models: Strengthening the coupling between Earth system models and integrated assessment models. DOE Climate Change Modeling Program Science Team Meeting, Gaithersburg, MD. 1 April 2010.

December 2009: Thornton, P., D. Ricciuto, K. Schaefer, A. Barr, M. Dietze, E. Lokupitiya, C. van Ingen, D. Agarwal, R. Cook, **invited**. American Geophysical Union Fall Meeting, San Francisco, CA. 15 December 2009.

December 2009: Thornton, P.E., Hoffman, F., Hurtt, G. Interactions of land use/land cover change with rising CO_2 and anthropogenic nitrogen deposition. American Geophysical Union Fall Meeting, San Francisco, CA. 15 December 2009.

November 2009: Thornton, P., **invited**. Parameterization of plant functional type physiology and litter/soil components in the Community Land Model. ORNL CCP Response SFA Meeting. Oak Ridge, TN. 30 November 2009.

November 2009: Thornton, P., F. Hoffman, S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee, R. Norby, **invited**. Influence of carbon-nitrogen cycle coupling and land use change on climate-carbon cycle feedbacks. U.S. China Workshop on the Climate-Energy Nexus. ORNL, Oak Ridge, TN. 13 November 2009.

October 2009: Thornton, P., **invited**. Climate-biogeochemistry-land use interactions: an Earth system modeling and analysis frontier. Presentation to Conrad Lautenbacher, at ORNL. Oak Ridge, TN. 15 October 2009.

October 2009: Thornton, P. Overview of CLM: Biophysics, biogeochemistry, and handling of land use and land cover change. Integrated Earth System Modeling Prjoct Meeting, JGCRI, University of Maryland, MD. 13 October 2009.

September 2009: Thornton, P. Overview of CLM: Biophysics, biogeochemistry, and handling of land use and land cover change. IAM-ESM Project Meeting, JGCRI, University of Maryland, College Park, MD. 23 September 2009.

September 2009: Thornton, P., Schaefer, K., NACP site Synthesis participants. Preliminary results of model-data intercomparison for the NACP Site-level Synthesis. AmeriFlux Annual PI Meeting. Washington, D.C. 22 September 2009.

September 2009: Thornton, P., **invited.** Climate-carbon cycle feedbacks. Presentation to NOAA administrators. ORNL, Oak Ridge, TN. 11 September 2009.

July 2009: Thornton, P., **invited.** The global carbon cycle and its interactions with other biogeochemical cycles and climate. IPCC AR5 Scoping Meeting, Venice, Italy. 15 July 2009.

April 2009: Thornton, P., **invited**. Recent modifications to CLM-CN improve seasonal cycle and other C-LAMP metrics. CCSM-BGC Working Group Meeting, NCAR, Boulder, CO. 1 April 2009.

March 2009: Thornton, P. Site-level synthesis of modeled and measured carbon, water, and energy fluxes across North America: Evaluation of model and measurement uncertainty. CCSM-BGC Working Group Meeting, NCAR, Boulder, CO. 31 March 2009.

March 2009: Thornton, P., A.W. King, W.M. Post, F.M. Hoffman. Prognostic land-use and land cover change for a coupled climate-biogeochemistry model. CCSM-Land Model Working Group Meeting, NCAR, Boulder, CO. 30 March 2009.

February 2009: Thornton, P. and 90 co-authors. NACP Interim Synthesis: Site-level evaluation of uncertainty in observed and modeled carbon stocks and fluxes. Second NACP All-Investigators' Meeting, San Diego, CA. 18 February 2009.

February 2009: Cescatti, A., Thornton, P., Zaehle, S., **invited**. Carbon-nitrogen interactions at global-scale: emerging scientific issues and potential climate feedbacks. European Commission Workshop, Stockholm. 26 February 2009.

February 2009: Thornton, P., **invited**. Plant-microbe interactions regulate climate-carbon cycle feedbacks: A new frontier for climate modeling. DOE-sponsored Genes-to-Life annual investigator's meeting, Bethesdad, MD. 11 February 2009.

February 2009: Thornton, P. Evaluation of seasonal cycle of atmospheric CO_2 and recent modifications to CLM-CN. CCSM Scientist's Meeting, NCAR, Boulder, CO. 4 February 2009.

January 2009: Thornton, P. and co-authors. NACP Interim Synthesis: Update on Site-level evaluation of uncertainty in observed and modeled carbon stocks and fluxes. NACP Synthesis Workshop, ORNL, Oak Ridge, TN. 7 January 2009.

December 2008: Thornton, P. S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee, **invited**. Competition between plants and microbes for available mineral nitrogen: evaluation against experimental results and consequences for carbon-climate feedbacks. American Geophysical Union Fall Meeting, San Francisco, CA. 19 December 2008.

December 2008: Thornton, P., F. Hoffman, R. Norby, CCSM BGC and Land Model Working Groups, **invited**. Disturbance history and nitrogen cycle controls on ecosystem response to increased CO_2. American Geophysical Union Fall Meeting, San Francisco, CA. 17 December 2008.

September 2008: Thornton, P., S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee, **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. International Union of Forest Research Organizations (IUFRO) Conference, Murten, Switzerland. 10 September 2008.

June 2008: Thornton, P., S. Levis. CLM-CN update: progress toward CLM4.0. CCSM Biogeochemistry Working Group, Annual CCSM Workshop, Breckenridge, CO.

February 2008: Thornton, P., **invited**. Influence of coupled carbon-nitrogen cycles on climate-carbon feedbacks. UCAR Board of Trustees Annual Meeting, NCAR, Boulder, CO. 27 February 2008.

February 2008: Thornton, P., J. Randerson, and BGC Working Group, **invited**. C-LAMP science results and CLM-CN update. NCAR, Boulder, CO. 22 February 2008.

January 2008: Thornton, P., S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee, **invited**. Carbon-nitrogen cycle coupling regulates climate-carbon cycle feedbacks. Laboratory Seminar, Appalachian Laboratory, University of Maryland, Frostburg, MD. 28 January 2008.

December 2007: Thornton, P., S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee. Carbon-nitrogen cycle coupling regulates climate-carbon cycle feedbacks. Climate and Global Dymanics Division Seminar, NCAR, Boulder, CO. 18 December 2007.

December 2007: Thornton, P., S. Doney, K. Lindsay, K. Moore, N. Mahowald, J. Randerson, I. Fung, J.-F. Lamarque, J. Feddema, Y.-H. Lee. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. American Geophysical Union Fall Meeting, San Francisco, CA. 12 December 2007.

November 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-

carbon cycle feedbacks. Department Seminar, Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Gif-Sur-Yvette, France. 9 November 2007.

November 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Department Seminar, European Commission Joint Research Centre, Institute for Environment and Sustainability, Ispra, Italy. 7 November 2007.

November 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Department Seminar, Physics Institute (Climate and Environmental Physics), University of Bern, Bern, Switzerland. 5 November 2007.

November 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. WSL Research Seminar, Swiss Federal Research Institute WSL, Birmensdorf, Switzerland. 2 November 2007.

October 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Met Office Seminar, UK Met Office, Exeter, UK. 30 October 2007.

October 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. QUEST Seminar, Department of Earth Sciences, University of Bristol, Bristol, UK. 29 October 2007.

October 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Department Seminar, Potsdam Institute for Climate Impact Research, Potsdam, Germany. 26 October 2007.

October 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Department Seminar, Max Planck Institute for Biogeochemistry, Jena, Germany. 25 October 2007.

October 2007: Thornton, P., Doney, S., Moore, J.K., Lindsay, K., Mahowald, N., Vertenstein, M., Hoffman, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Department Seminar, Max Planck Institute for Meteorology, Hamburg, Germany. 22 October 2007.

October 2007: Thornton, P., **invited**. Climate-biosphere modeling: Continental and global patterns. AmeriFlux Annual Science Team Meeting. Boulder, CO. 18 October 2007.

September 2007: Thornton, P., **invited**. Frontiers in climate system modeling. United Nations advisory group on Groundwater Resource Assessment Under the Pressures of Humanity and Climate Change. NCAR, Boulder, CO. 20 September 2007.

September 2007: Thornton, P., **invited**. Coupling between water, energy, carbon and nitrogen cycles. University of Illinois Hydrologic Synthesis Workshop, Allerton Park, IL. 12 September 2007.

August 2007: Thornton, P., CCSM biogeochemistry Working Group members, C4MIP participants, **invited**. Influence of carbon-nitrogen coupling on climate-carbon feedbacks. Presentation to NSF site visit. NCAR, Boulder, CO. 9 August 2007.

July 2007: Thornton, P., C4MIP participants, **invited**. Coordinating land use assumptions. Climate Change Impacts and Integrated Assessment Workshop, Snowmass, CO. 31 July 2007.

July 2007: Thornton, P., Lindsay, K., Doney, S., Moore, K., Mahowald, N., Vertenstein, M., Hoffmann, F., Lamarque, J.-F., Rosenbloom, N., Holland, E., Feddema, J., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Gordon Research Conference, Colby-Sawyer College, New London, NH.

May 2007: Thornton, P., Lamarque, J.-F., Rosenbloom, N., Lindsay, K., Doney, S., Moore, K., Mahowald, N., Vertenstein, M., Hoffmann, F., Feddema, J. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Climate and Global Dynamics Division Seminar, NCAR, Boulder, CO.

March 2007: Thornton, P., **invited**. Fundamental influence of carbon-nitrogen cycle coupling on climate-carbon cycle feedbacks. Oak Ridge National Laboratory, Environmental Sciences Division Seminar, Oak Ridge, TN. 15 March 2007.

March 2007: Thornton, P. Preliminary results from fully coupled climate-carbon-nitrogen cycle simulations. CGD Research Reports, Boulder, CO. 8 March 2007.

February 2007: Thornton, P., Oleson, K., Lawrence, D. Introduction of Btran control for partially-frozen soils and effective N limitation control on Vcmax in LMWG new hydrology. CCSM Land Model Working Group Meeting, Boulder, CO. 28 February 2007.

February 2007: Thornton, P., Lindsay, K., **invited**. Status of biogeochemistry code and model spinup for CCSM3.5. Joint CCSM Chemistry/Biogeochemistry/Land Working Group Meeting, Boulder, CO. 26 February 2007.

February 2007: Thornton, P., Lindsay, K., Doney, S., Moore, K., Mahowald, N., **invited**. Results from fully-coupled climate-biogeochemistry simulations with CCSM3.1BGC. Joint CCSM Chemistry/Biogeochemistry/Land Working Group Meeting, Boulder, CO. 26 February 2007.

February 2007: Thornton, P., Lamarque, J.-F., Rosenbloom, N., Mahowald, N., **invited**. Effects of terrestrial carbon-nitrogen coupling on carbon-climate feedbacks. Atmospheric Sciences Department Seminar, Colorado State University, Fort Collins, CO. 8 February 2007.

January 2007: Thornton, P., Lamarque, J.-F., Rosenbloom, N., Zimmermann, N. Effects of carbon-nitrogen cycle coupling on Climate-carbon feedbacks (poster). North American Carbon Program Principal Investigator's Meeting, Colorado Springs, CO. 24 January 2007.

January 2007: Thornton, P., Cook, R., Post, W.M., Wilson, B., Hartsough, C. A high-resolution daily surface weather database for NACP investigations (poster). North American Carbon Program Principal Investigator's Meeting, Colorado Springs, CO. 23 January 2007.

December 2006: Thornton, P., Lamarque, J.-F., Rosenbloom, N., Mahowald, N., Vertenstein, M., Lee, J., Hoffmann, F. Effects of terrestrial carbon-nitrogen coupling on carbon-climate feedbacks. AGU Fall Meeting, San Francisco, CA. 15 December 2006.

December 2006: Thornton, P., **invited**. Update on CCSM Biogeochemistry. CGD/CCR Section Meeting, Boulder, CO. 4 December 2006.

September 2006: P. Thornton. Interactions between terrestrial carbon and nitrogen cycles and the climate system. TIIMES Seminar, Boulder, CO. 7 September 2006.

August 2006: N. Mahowald/P. Thornton (co-presentation), K. Lindsay, J. Lee, S. Doney, J. Randerson. BGC plans for January 1 coupling. CCSM Scientists Meeting, Boulder, CO. 18 August 2006.

June 2006: N. Wilhelmi, P. Thornton. Grid-BGC: a Grid-enabled research platform for high-resolution surface weather interpolation and biogeochemical process modeling. Earth Science Technology Conference, College Park, MD. 27 June 2006.

June 2006: Thornton, P., N. Mahowald, F. Hoffmann, N. Rosenbloom. Preliminary results from C-LAMP intercomparison. CCSM Meeting, Breckenridge, CO. 21 June 2006.

June 2006: Thornton, P., **invited**. Carbon – Nitrogen – Climate Coupling. Lecture to ASP Colloquium "The Art of Climate Modeling", Boulder, CO. 9 June 2006.

May 2006: Thornton, P. Interactions between terrestrial carbon and nitrogen cycles and the climate system. Climate and Global Dynamics Division Seminar, NCAR, Boulder, CO. 2 May 2006.

April 2006: P. Thornton, **invited**. Recent science modifications to Biome-BGC. Biome-BGC Developers Meeting, Missoula, MT. 25 April 2006.

March 2006: Thornton, P., J.-F. Lamarque, M. Vertenstein, N. Rosenbloom, J. Lee. CLM-CN update: sensitivity to CO_2, temperature, and precipitation in C-only vs. C-N mode. CCSM Biogeochemistry Working Group meeting, Boulder, CO. 29 March 2006.

March 2006: Thornton, P., J.-F. Lamarque, M. Vertenstein, N. Rosenbloom, **invited**. Carbon-nitrogen cycle interactions, ozone stress, and N emissions speciation. CCSM Chemistry-Climate Working Group meeting, Boulder, CO. 23 March 2006.

February 2006: Thornton, P., M. Vertenstein, J. Lee, J.-F. Lamarque, N. Rosenbloom, **invited**. Terrestrial carbon-nitrogen cycle coupling and interactions with the climate system. American Association for the Advancement of Science, Annual Meeting. St. Louis, MO. 20 February 2006.

December 2005: Thornton, P., M. Vertenstein, J. Lee, J.-F. Lamarque, N. Rosenbloom. Terrestrial carbon-nitrogen cycle coupling and interactions with the climate system. American Geophysical Union, Fall Meeting 2005. San Francisco, CA. 7 December 2005.

October 2005: Thornton, P., T. Stiefel, B.E. Law, **invited**. Interactions between disturbance, and anthropogenic and experimental increases in CO_2 and nitrogen deposition. AmeriFlux Annual Meeting. Boulder, CO. 18 October 2005.

October 2005: Thornton, P. Prognostic vs. diagnostic canopy treatment in CCSM. NCAR CGD Research Reports. Boulder, CO. 13 October 2005.

September 2005: Thornton, P., S. Denning, **invited**. North American Carbon Program – Overview. Ocean Carbon and Climate Change (OCCC) North American Continental Margins – Coastal CO_2 Workshop. Boulder, CO. 21 September 2005.

September 2005: Thornton, P., **invited**. Update on CCSM3 biogeochemistry simulations using CLM3-CN. CCSM Scientists Meeting. NCAR, Boulder, CO. 15 September 2005.

July 2005: Thornton, P. Interactions between TIIMES and CCSM. Atmosphere-Hydrosphere-Biosphere Focus Group Retreat (TIIMES). NCAR, Boulder, CO. 15 July 2005.

July 2005: Thornton, P., **invited**. Gridded daily surface weather: The challenges of spatio-temporal data. GIS in Weather Workshop. NCAR, Boulder, CO. 6 July 2005.

June 2005: Thornton, P., **invited**. CCSM3 climate-biogeochemistry simulations using CLM3-CN. CCSM Workshop, Biogeochemistry Working Group Meeting. Breckenridge, CO. 23 June 2005.

June 2005: Thornton, P., **invited**. CCSM3 climate – biogeochemistry simulations using CLM3-CN. CCSM Workshop, Land Model Working Group Meeting. Breckenridge, CO. 22 June 2005.

May 2005: Thornton, P., **invited**. Overview of terrestrial biogeochemistry module in CCSM. CGD/Climate Change Research section meeting. Boulder, CO. 2 May 2005.

April 2005: Thornton, P. Coupled terrestrial carbon and nitrogen cycles in CCSM3. NCAR Early Career Scientists' Assembly Poster Session. Boulder, CO. 15 April 2005.

March 2005: Thornton, P., **invited**. Impact of modifications in CLM hydrology on coupled carbon-nitrogen cycle simulations. Land Model Working Group Meeting, Boulder, CO, 14 March 2005.

March 2005: Thornton, P. Progress in coupled carbon-nitrogen cycle modeling within CCSM3. NCAR CGD Research Report, 5 March 2005.

February 2005: Thornton, P., J.-F. Lamarque, **invited**. Interactions between terrestrial carbon and nitrogen cycles. 3rd Chemistry-Climate Interactions Workshop, Boulder, CO, 15 February 2005.

February 2005: Thornton, P., **invited**. Interactions between water cycle and biogeochemistry. TIMES Retreat, Boulder, CO, 2 February 2005.

January 2005: **Co-chair**, North American Carbon Program – Data Management Planning Workshop. New Orleans, LA. 25-27 January, 2005.

December 2004: Thornton, P., J.-F. Lamarque. First results from coupling carbon cycle, nitrogen cycle, and climate in the NCAR Community Climate System Model (CCSM3). American Geophysical Union Fall Meeting, San Francisco, CA, 15 December 2004.

December 2004: Thornton, P., **invited**. Preliminary offline and coupled (CCSM3) results from CLM3-CN, a new land model with coupled carbon and nitrogen cycles. C4MIP Meeting, Berkeley, CA, 12 December 2004.

November 2004: Thornton, P., **invited**. Controls on nitrogen cycling and carbon-nitrogen coupling in forest ecosystems. Forest N deposition – Ecosystem Functioning Workshop, Boulder, CO, 7 November 2004

October 2004: Thornton, P., **invited**. Implementing a grid-compute engine for high-resolution terrestrial biogeochemistry modeling. NCAR SCD Executive Committee Meeting, 27 October 2004.

August 2004: Thornton, P., **invited**. Biogeochemistry and Climate. NCAR Climate and Global Change Workshop for geoscience educators, Boulder, CO, 2 August 2004.

July 2004: Thornton, P., M. Vertenstein, N. Rosenbloom, and J.-F. Lamarque, **invited**. C4MIP update: Coupling LCM3-CN to CAM3 within CCSM3. Biogeochemistry Working Group Meeting – CCSM3 Workshop, Santa Fe, NM, 8 July 2004.

July 2004: CCSM Workshop, Biogeochemistry Working Group. "C4MIP Update: coupling CLM3-CN to CAM3 within CCSM3." Santa Fe, NM.

July 2004: CCSM Workshop, Land Model Working Group. "Coupling carbon, nitrogen, and climate: offline and coupled results from CCSM3 Land Biogeochemistry Component (CLM3-CN)." Santa Fe, NM.

June 2004: NCAR Biogeosciences Advisory Committee Meeting. P.E. Thornton, N. Mahowald, G. Bonan, E. Holland, "Global modeling component of the NCAR Biogeosciences Initiative." Boulder, CO.

May 2004: **Invited talk**: Oak Ridge National Laboratory DAAC User Working Group Meeting. "A Grid-Compute architecture for high resolution terrestrial biogeochemistry model applications." Ft. Collins, CO.

March 2004: CCSM Biogeochemistry Working Group Meeting. "Coupled carbon and nitrogen cycles: new land biogeochemistry Component for CCSM-3." Boulder, CO.

February 2004: **Invited talk**: UCAR Board of Trustees Meeting. P.E. Thornton, E. Holland, S. Doney, "Overview of Biogeochemistry Research at NCAR." Boulder, CO.

December 2003: **Invited talk**: AGU Fall Meeting. C. Still*, D. Schimel, P. Thornton, B. Stephens, "Productivity and carbon storage: insights from new measurements and models." San Francisco, CA.

October 2003: **Invited talk**: Annual AmeriFlux Meeting. "Interactions between climate, CO_2, N deposition, and disturbance, and their influence on net ecosystem carbon exchange." Boulder, CO.

October 2003: Guest lecture, Colorado State University, Graduate hydrology program. "Surface weather data for research applications in hydrology." Ft. Collins, CO.

June 2003: CCSM Workshop, Biogeochemistry Working Group. "Terrestrial carbon cycle and carbon-nitrogen cycle coupling in CLM." Breckenridge, CO.

June 2003: CCSM Workshop, Land Model Working Group. "Terrestrial carbon cycle and carbon-nitrogen cycle coupling in CLM." Breckenridge, CO.

May 2003: **Invited talk**: Oak Ridge National Laboratory, User Working Group Meeting. "Archiving models at ORNL DAAC". Oak Ridge, TN.

May 2003: CGD Seminar. "Evaluating a land surface model across spatial scales".

April 2003, **Invited talk**: BE Law*, PE Thornton, "Regional soil respiration: Responses to environment". 28-30 April, 2003. TERACC Workshop on Interactions Between Increasing CO_2 and Temperature in Terrestrial Ecosystems. Lake Tahoe, CA.

March 2003, **Invited talk**: International Symposium – State-of-the-art in Vegetation Monitoring Approaches. "Combining remote sensing observations and process

models for biophysical and biological monitoring." Swiss Federal Research Institute. Birmensdorf, Switzerland.

February 2003: CCSM Land Model Working Group Meeting. "Coupled carbon and nitrogen cycles in CLM: Objectives, current work, and plans for 2003." Boulder, CO.

December 2002, **Invited talk**: American Geophysical Union, Fall Meeting. "Controls on the seasonal cycle of net ecosystem carbon exchange." San Francisco, CA.

October 2002, **Invited talk**: Annual AmeriFlux Investigators Meeting. "Effects of disturbance, CO_2, and N deposition on fluxes." Boulder, CO.

September 2002: IGAC Meeting. "Integration of bio-atmospheric cycling of carbon and nitrogen into Earth system models." (Elisabeth A. Holland*, Alex Guenther, Christine Wiedinmyer, James Sulzman, Sam Levis, Gordon Bonan, Xuexi Tie, Peter Thornton, Scott Doney)

June 2002: CCSM Workshop, Biogeochemistry Working Group. "CLM 2.1: A new framework for carbon and nitrogen biogeochemistry and disturbance dynamics in the CCSM land model." Breckenridge, CO.

June 2002: CCSM Workshop, Land Model Working Group. "An introduction to CLM2.1 and evaluation of controls on carbon and water cycle." Breckenridge, CO.

March 2002: CCSM Joint Biogeochemistry/Land Working Group meeting. "Land biogeochemistry developments for CCSM2: current status and near-term plans." Boulder, CO.

December 2001: American Geophysical Union Fall Meeting. "Modeling and measuring the effects of disturbance history and climate on carbon and water budgets in evergreen needleleaf forests." San Francisco, CA.

August 2000: Ecological Society of America Annual Meeting. "Relationship between decadal anomalies in climate and model-estimated AET, NPP, and net ecosystem carbon exchange over the U.S., 1895-1993: Results from VEMAP Phase 2." Snowbird, UT.

August 1999: Ecological Society of America Annual Meeting. "Net primary production from the MODIS sensor." (P.E. Thornton and S.W. Running*) Spokane, WA.

July 1999: International Union of Geophysics and Geodesy Annual Meeting. "Predicted NPP, NEE, and carbon stocks for historic and potential future climate scenarios over the U.S.: Model results from VEMAP Phase 2." (P.E. Thornton*, D.S. Schimel, and VEMAP members). One of three invited talks to present VEMAP results to the international community. Birmingham, UK.

Workshops Organized:

Public engagement workshop for Fifth National Climate Assessment, Land Cover and Land Use Change. Online, 75 participants. 18 January 2022.

Recently Completed Projects:

PI: Strengthening the coupling between Earth System Models and Integrated Assessment Models. DOE Office of Science: $640K per year. (Institutional PI for multi-institution project, totaling $2.4M per year). 2009-2014.

Co-PI (with Paul Hanson)**:** ORNL Climate Change Program: Terrestrial Ecosystem Science SFA (Scientific Focus Area). DOE Office of Science: $8M per year.

PI: Quantification and reduction of critical uncertainties associated with carbon cycle – climate system feedbacks. DOE Office of Science: $1M per year. (Overall PI for multi-institution project).

Co-I: Characterization and Modeling of Permafrost Microbial Community Diversity and Metabolism during Simulated Global Warming. ORNL Lab-Directed R&D Program: $400K per year.

PI: Prognostic land use and land cover change for a coupled climate-biogeochemistry model. ORNL LDRD: $780,000 (2009-2011).

Professional Service:

October 2017 – present: **Associate Editor**, Global Biogeochemical Cycles/

April 2015 – present: **Chair,** U.S. Carbon Cycle Science Steering Group.

April 2011 – present: **Invited member**, U.S. Carbon Cycle Science Steering Group.

September 2010 – 2015: **Invited member**, Carbon Dioxide Information and Archive Center (CDIAC), Users Working Group.

July 2010 – 2013: **Lead Author**, IPCC WGI, Fifth Assessment Report. Chapter 6: Carbon and Other Biogeochemical Cycles.

January 2009: **Chair**, Organizing Committee for the Second NACP All-Investigators' Meeting, San Diego, CA.

December 2007: **Co-chair**, Biogeosciences Session, "Role of Climate, Carbon and Limiting Nutrient Cycles, and Human Activities in Terrestrial Ecosystems", AGU Fall Meeting, San Francisco, CA.

August 2006: **Invited member**, External review panel, AmeriFlux Data System. Oak Ridge, TN. 15 August 2006.

July 2005: **Co-chair**: Atmosphere-Hydrosphere-Biosphere Focus Group Retreat (TIIMES). NCAR, Boulder, CO. 15 July 2005.

July 2005: **Panel member**: NCAR Director's Opportunity Fund Review Panel.

January 2005 – 2007: **Co-Chair**, Continental Synthesis Task Force, North American Carbon Program Science Steering Group.

January 2005 – 2007: **Co-Chair**, Data System Task Force, North American Carbon Program Science Steering Group.

January 2005 – 2009: **Invited member**, Science Steering Group for the North American Carbon Program.

December 2004 – 2008 **Chair**, Regional and Global Data Subcommittee, Oak Ridge National Laboratory Data Active Archive Center (ORNL DAAC) User Working Group.

December 2004 – 2008: **Invited member**, Oak Ridge National Laboratory Data Active Archive Center (ORNL DAAC) User Working Group (second term).

October 2004-present: **Invited member**: AmeriFlux Network Steering Committee.

August 2004: **Invited speaker**: UCAR Teachers Workshop. "Biogeochemistry and Climate", Boulder, CO.

July 2004-January 2005: **Co-chair**: North American Carbon Program Data Workshop Steering Committee.

December 2003 – December 2005: **Chair:** NCAR Early Career Scientists Association (served two one-year terms).

October 2003: **Co-chair**: UCAR Members Meeting, Biogeochemistry Forum.

September 2003: **Invited participant**: Coupled Climate Carbon-Cycle Model Intercomparison Project (C4MIP) workshop, Hamburg.
May 2003: **Invited participant**: North American Carbon Program (NACP) PI Meeting, Washington, D.C.
April 2003: **Invited Speaker**, University of Colorado Workshop for Environmental Journalists. “Evaluating models of terrestrial biogeochemical processes”.
April 2003: **Invited Delegate**, Congressional Visits Day, Science Engineering and Technology Work Group, Washington, D.C. Visits to congressional offices in support of strong federal funding for R&D in the Physical and Earth Sciences.
January 2003 – 2015: **Invited member**, Editorial Review Board for the journal Tree Physiology.
December 2002: **Co-chair**, AGU Biogeosciences Special Session: “Water, energy, and carbon exchange in forest systems.” Fall AGU Meeting, San Francisco, CA.
September 2002 – May 2003: CGD Seminar Series Coordinator.
March 2002: **Chair**, Code review committee for CCSM Community Land Model version 2.1.
December 2001 – 2003 **Invited member**, AGU Biogeosciences Section Meetings Committee.
November 2001 – December 2004: **Invited member**, Oak Ridge National Laboratory Data Active Archive Center (ORNL DAAC) User Working Group.
December 2001: **Co-chair**, AGU Biogeosciences Special Session: “Water, energy, and carbon exchange in forest systems.” Fall AGU Meeting, San Francisco, CA.

Management Experience:

- I currently lead the Earth Systems Science Section, consisting of five groups and a total of 64 science and technical staff. Our section uses multi-scale observation, experimentation, and modeling to develop predictive understanding of ecosystem – climate – human interactions. My focus as a section head is on realizing the full potential of our unique interdisciplinary and cross-scale expertise through collaboration and intellectual cross-fertilization among our groups, and with the broader ORNL and Earth system science communities.
- I led the Terrestrial Systems Modeling Group within the Environmental Sciences Division at ORNL from the group’s inception in 2012 until the ORNL reorganization in 2020. My focus as a group leader has been on helping staff achieve their professional objectives while raising the group as an example of scientific creativity, productivity, and collaboration. The group is consistently one of the most productive, in absolute and per-FTE terms, across the division and directorate. We have a broad and growing network of collaborators across the division, across ORNL, and into the national and international communities. We have become recognized as leaders in coupled Earth system model development and application, and in several areas of model and data analysis.
- I have managed large research teams for several successful projects, including the Land Model Group for the E3SM Phase 1 project, and the Integrated Modeling effort for Phases 1, 2, and 3 of the NGEE-Arctic project.

Community Service:

2023: Community Investment Grants Board, Roane County United Way
2017-present: Lead Technical Mentor, NASA CubeSat Launch Initiative, Robertsville Middle School, Oak Ridge, TN (RamSat Project).
2017-present: Board Member, Oak Ridge Public Schools Education Foundation (ORPSEF). Oak Ridge, TN.
2015-2020: Mentor, First Robotics Challenge, Oak Ridge High School, Oak Ridge TN.

Students Advised:
Lauren Lowman, Duke University, PhD Student
Tara Hudiberg, Oregon State University, PhD Student
Ming Chen, University of Minnesota, PhD Student
Qing Ying, University of Maryland, PhD Student.

Employment Experience as a Student and Postdoc:
September 1998 – August 1999: **Postdoctoral Fellow**, The University of Montana, School of Forestry, Numerical Terradynamic Simulation Group.
August 1992 - August 1998: **Graduate Research Assistant**, The University of Montana, School of Forestry, Numerical Terradynamic Simulation Group
August 1990 - August 1992: **Graduate Research Assistant**, The Johns Hopkins University, Department of Geography and Environmental Engineering
August 1986 - August 1990: **Undergraduate Research Assistant**, The Johns Hopkins University, Department of Biomedical Engineering