Jiafu Mao

Earth Systems Modeling Group
Climate Change Science Institute (CCSI)
Environmental Sciences Division (ESD)
Oak Ridge National Laboratory (ORNL)
Mailing address: P.O. Box 2008, MS 6301, Oak Ridge, Tennessee 37831-6253, USA
Phone: +1 (865) 576-7815
Email: maoj@ornl.gov
https://www.ornl.gov/staff-profile/jiafu-mao
https://scholar.google.com/citations?user=OBPDsi0AAAAJ&hl=en
https://orcid.org/0000-0002-2050-7373

RESEARCH INTERESTS

My research interests focus on quantifying and predicting carbon, hydrology, vegetation, and wildfire dynamics within the Earth system. This involves leveraging field measurements, satellite observations, process-based land surface and Earth system models, and advanced statistical techniques, including machine learning and artificial intelligence. I also investigate the attribution of variations and extremes in land surface dynamics to natural and anthropogenic drivers, such as urbanization, through factorial model simulations and geoengineering experiments. Additionally, I specialize in developing Carbon Dioxide Removal (CDR) strategies, with a particular emphasis on the Enhanced Rock Weathering (ERW) process and optimizing supply chains for integration into Earth system models.

EDUCATION

- Ph.D. in Atmospheric Sciences (Combined M.Sc.-Ph.D.)
  Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, 2007
- B.Sc. in Meteorology
  Nanjing University of Information Science and Technology (formerly Nanjing Institute of Meteorology), Nanjing, China, 2001

POSITIONS HELD

- Senior Scientist, Scientist, Associate Scientist, and Postdoctoral Research Fellow
  Oak Ridge National Laboratory (ORNL)
  August 2009 – Present
- Joint Faculty Professor, Associate Professor, and Assistant Professor
  Department of Industrial and Systems Engineering (ISE) and Institute for a Secure & Sustainable Environment, University of Tennessee, Knoxville (UTK)
  July 2015 – Present
- Joint Postdoctoral Research Fellow
  University of New South Wales and the Commonwealth Scientific and Industrial Research Organisation (CSIRO), Sydney and Melbourne, Australia
  January 2008 – August 2009
- Assistant Research Scientist
  Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China
  October 2006 – January 2008

GRANTS

Active Grants

- 2023 – 2026: PI, "Detection and Attribution of Terrestrial Ecosystem Dynamics," funded by UTK ISE.
- 2023 – 2025: PI, "Coupled Ecosystem-and-Engineering Decision-Making Framework for Enhanced Weathering," funded by ORNL LDRD.
- 2023 – 2028: Theme Co-Lead, "Terrestrial Ecosystem Science Scientific Focus Area," funded by DOE. Responsible for carbon allocation modeling and ecosystem vulnerability analysis.
- 2023 – 2026: Co-PI, "Applied Geospatial Data-Science Initiative for Urban Climate Change Studies (AGDI-UCCS)," funded by DOE (Reaching a New Energy Sciences Workforce). Responsible for high-resolution urban-scale simulation using the land component of DOE Energy Exascale Earth Model (ELM).
- 2023 – 2026: Co-PI, "Aligning Climate Analysis for Power Systems (ALCAPS)," funded by DOE. Focus on high-resolution wildfire projections and implications for U.S. powerlines.
- 2022 – 2025: Science Co-Lead, "Reducing Uncertainties in Biogeochemical Interactions Through Synthesis and Computation," funded by DOE. Led soil moisture and Earth system feedback studies, serving as Soil Moisture Working Group Lead.
- 2022 – 2025: Task Lead, "ESS Urban Hydrology Pilot Study: Biogeochemical Cycling Along the Urban Interface," funded by DOE. Conducted urban-scale representative analysis and ELM development.

Previous Grants

- 2022 – 2024: Task Lead, "Assessing the Impacts of Disturbances on Soil Carbon Cycling," funded by ORNL LDRD. Focused on wildfire modeling and analysis.
- 2022: Funded Collaborator, "SRS RN: People-Centric Integrated Assessment Model for Regional Sustainability (PIAMRS): Focusing on the Central Appalachian Region," funded by NSF.
- 2022: Funded Collaborator, "SRS RN: Integrated and Convergent Sea Level Rise Adaptation for South Florida and the Gulf of Mexico," funded by NSF.
- 2021 – 2023: PI, "Ecosystem Resilience to Thermal Extremes: Urbanization Impacts," funded by ORNL LDRD.
- 2021 – 2023: PI, Computational Resource Utilization awarded by the Oak Ridge Leadership Computing Facility's (OLCF).
- 2021: Co-PI, "Fire Network and Database Workshop: Creating New Partnerships, Integrating Existing Data, and Accelerating Fire Research," funded by ORNL Environmental Sciences Division.
- 2020 – 2021: PI, "Diagnostics and Prediction of Global Wildfire Changes Using Machine Learning," funded by ORNL Environmental Sciences Division.
- 2019: PI, "Quantifying Environmental Controls on Wildfire Changes: Toward Multi-Scale Wildfire Prediction System," funded by ORNL Environmental Sciences Division.
- 2019 – 2023: Task Lead, "Terrestrial Ecosystem Science Scientific Focus Area," funded by DOE. Responsible for ELM phenology, wildfire disturbance, and sun-induced fluorescence.
- 2019 – 2020: Co-PI, "Development of a Land Model Testbed (LMT) for Rapid Assessment and Benchmarking of Multiscale Complex Biogeochemistry in Earth System Models," funded by ORNL LDRD.
- 2018 – 2022: Science Co-Lead, "Reducing Uncertainties in Biogeochemical Interactions," funded by DOE. Focused on CMIP6 LS3MIP simulations and detection/attribution of regional/global hydrology changes.
- 2016: PI, "Integrated Urban and Earth System Modeling," funded by Early Career Funding of the ORNL Climate Change Science Institute.
- 2016 – 2018: Task Lead, "Terrestrial Ecosystem Science Scientific Focus Area," funded by DOE. Developed methodologies to disentangle natural and anthropogenic drivers of ecosystem dynamics.

- 2015 – 2019: Task Lead, "Next Generation Ecosystem Experiment–Tropics," funded by DOE. Focused on tropical vegetation growth using multi-stream observations.
- 2015 – 2017: ORNL Lead and Co-PI, "Evaluation of the Large-Scale and Regional Climatic Response Across North Africa to Natural Variability in Oceanic Modes and Terrestrial Vegetation Among the CMIP5 Models," funded by DOE University Call.
- 2015 – 2016: Co-PI, "The Effects of Land Use/Cover Conversion Assumptions on the Global Carbon Cycle and Climate in Historical CESM Simulations," funded by NCAR SDWG.
- 2014 – 2017: Task Lead, "Quantifying Feedbacks and Uncertainties of Biogeochemical Processes in Earth System Models," funded by DOE. Focused on evaluating Earth system models with remote sensing products and conducting detection and attribution studies of large-scale vegetation growth.
- 2012 – 2015: Co-PI, "Stochastic Parameterization of the Influence of Subgrid-Scale Land Heterogeneity on Convective Initiation," funded by ORNL LDRD.
- 2011–2015: Task Lead, "Terrestrial Ecosystem Science Scientific Focus Area," funded by DOE. Conducted simulations and analyses using CLM for carbon-climate feedback studies.
- 2011 – 2014: Task Lead, "Climate Science for a Sustainable Energy Future," funded by DOE. Developed and evaluated a two-layer soil biogeochemical model in CLM using EBIS observations.
- 2010 – 2014: Task Lead, "Integrated Earth System Model," funded by DOE. Led the coupling of CESM/CLM with GCAM and GLM.
- 2008 – 2011: Task Lead, "Prognostic Land Use and Land Cover Change for a Coupled Climate-Biogeochemistry Model," funded by ORNL LDRD.
- 2007 – 2008: Co-PI, "Improvement of Terrestrial Ecosystem Processes in the Earth System Model," funded by the China Meteorological Administration.

PROFESSIONAL SERVICE

Editorial Roles

- 2024 – Present: Associate Editor, *Water Resources Research*
- 2023 – Present: Topic Editor, *Earth System Science Data*
- 2021 – Present: Associate Editor, *CABI Agriculture and Bioscience (CABI A&B)*
- 2019 – Present: Editorial Board Member, *Agricultural and Forest Meteorology*
- 2019 – Present: Editorial Board Member, *Remote Sensing*
- 2018 – Present: Editorial Advisory Board Member, *Global Change Biology*
- 2018 – Present: Editorial Advisory Board Member, *Sci*
- 2018: Guest Editor, Special Issue "10th Anniversary of Atmosphere – Climatology and Meteorology"
- 2017 – Present: Editorial Board Member, *Atmosphere*
- 2017 – Present: Associate/Subject Editor, *npj Climate and Atmospheric Science*
- 2016 – Present: Subject Editor, *Ecosystem Health and Sustainability*

Scientific Committee Service

- 2024 – Present: Member, Coupled Model Intercomparison Project (CMIP) Data Request Land and Land Ice Author Team
- 2024 – Present: Member, CMIP Impacts and Adaptation Author Theme
- 2023 – Present: Lead, DOE RUBISCO Soil Moisture Working Group
- 2023 – Present: Member, Award Committee for the Science Serving Society and Stanley I. Auerbach for Excellence in Environmental Science Awards
- 2022 – Present: Member, Award Committee of ESA Asian Ecology Section
- 2021 – Present: Member, Justice, Equity, Diversity, and Inclusion (JEDI) Committee in the AGU

Hydrology Section
- 2021 – Present: Member, North American Carbon Program (NACP) Science Leadership Group (SLG)
- 2020 – Present: Co-lead, Climate Change Initiative at the Institute for a Secure & Sustainable Environment, UTK
- 2020 – Present: Member, Steering Committee for "The Next Big Thing" of Environmental Sciences Division, ORNL
- 2015 – Present: Member, Steering Committee for the Land Surface, Snow, and Soil Moisture Model Intercomparison Program (LS3MIP) for the Sixth Phase of the CMIP (CMIP6)

Scientific Conference Planning and Organization

- 2024: Lead, *"RUBISCO Soil Moisture Working Group Virtual Mini-Workshop"*, September 11, USA
- 2024: Topic Lead, *"Water Cycle and Hydroclimate"* session, DOE Earth & Environmental Systems Modeling PI Meeting, August 6–9, Rockville, Maryland, USA
- 2024: Program Committee, *ACM KDD 2024*, August 25–29, Barcelona, Spain
- 2023: Program Committee, *ACM KDD 2023*, August 6–10, Long Beach, CA, USA
- 2022: Program Committee, *Tenth Workshop on Data Mining in Earth System Science (DMESS 2022)*, held in conjunction with the IEEE International Conference on Data Mining (ICDM 2022) (DMESS 2022, ICDM 2022)
- 2022: Breakout Chair, *"Integrated Ecosystem Experiments' Project Design"*, ORNL Integrated Ecosystem Experiments to Advance Earth System Predictability Workshop, March 21–24, USA
- 2021: Planning Committee, *"7th NACP Open Science Meeting"*, Fairfax, VA, USA
- 2021: Co-chair, *"Earth Science Session-Ecohydrology"*, DOE Artificial Intelligence for Earth System Predictability (AI4ESP) Workshop, November 8
- 2021: Meeting Organizer, *"Fire Database Community"*, September 1–2, ORNL
- 2021: Co-convener, *"Long-term press events and short-term pulse events as agents of global change: What do experimental manipulations and models tell us?"*, DOE BER 2021 ESS PI Virtual Meeting
- 2021: Co-chair, *"Diagnosis and Attribution Session"* and *"Next-Gen Data Session", 7th NACP Open Science Meeting*
- 2018: Convener, *"Tropical Forests under a Changing Environment"*, AGU Fall Meeting, San Francisco, CA, USA
- 2017: Convener, *"Tropical Forests under a Changing Environment"*, AGU Fall Meeting, San Francisco, CA, USA
- 2016: Theme Chair, *"LS3MIP in the CMIP6 Evaluation Priorities"*, International Workshop on *International Land Model Benchmarking (ILAMB)*, Washington, DC, USA
- 2015: Theme Chair, *"Observations: What trends have we identified in regional and global ET, GPP, and GPP/ET?"*, International Workshop on *Quantifying Uncertainties in Land Surface Models*, Beijing Normal University, Beijing, China
- 2014: Convener, *"Vulnerability of Arctic and Boreal Ecosystem under a Changing Climate"*, Annual Symposium of the US Regional Association of the International Association for Landscape Ecology (US-IALE), Anchorage, Alaska, USA

Professional Organization Membership

- 2023 – 2025: President, *ESA Asian Ecology Section* (ESA Asian Ecology Section)
- 2018 – 2024: President, Vice President, *Sino-Ecologists Association Overseas* (Sino-Eco)
- 2020 – Present: Member, *American Association for the Advancement of Science (AAAS)*
- 2015 – Present: Member, *Ecological Society of America (ESA)*

- 2010 – Present: Member, *American Geophysical Union (AGU)*

Review Service

- 2024: *AGU24 Travel Grants*
- 2022, 2023, 2024: *ESA Session Reviewer*
- 2021: Expert Reviewer for the final government review of the IPCC Working Group I (WGI) AR Summary for Policy Makers
- 2020: Expert Reviewer for the Second Order Draft (SOD) of the WGI contribution to the Sixth Assessment Report (AR6) of the IPCC
- 2019: Expert Reviewer for the First Order Draft (FOD) of the WGI contribution to the Sixth Assessment Report (AR6) of the IPCC
- 2018: Review Panel: NOAA CMIP6/model diagnostics funding opportunity under the *"Addressing Key Issues in CMIP6-era Earth System Models"*
- 2018: Review Panel: *AGU Fall Meeting Student Travel Grant*
- *Nature, Nature Geoscience, Nature Communications, Nature Sustainability, PNAS, Global Change Biology, National Science Review, Frontiers in Ecology and the Environment, Frontiers in Environmental Science, Current Opinion in Environmental Sustainability, Journal of Climate, Global Biogeochemical Cycles, the Journal of Geophysical Research-Atmosphere, the Journal of Geophysical Research-Biogeosciences, Environmental Research Letters, Geophysical Research Letters, Geoscientific Model Development, Remote Sensing, Earth System Science Data, Remote Sensing of Environment, the International Journal of Climatology, PLOS ONE, Global and Planetary Change, Journal of Hydrometeorology, Hydrology and Earth System Sciences, Atmosphere and Oceanic Science Letters, Atmosphere, Journal of Cleaner Production, Journal of Scientific Research and Reports, Global Ecology and Biogeography, Climate Dynamics, npj Climate and Atmospheric Science, Atmospheric Chemistry and Physics, Atmospheric Environment, Advances in Atmospheric Sciences, Scientific Reports, Ecological Modelling, International Journal of Remote Sensing, Journal of Advances in Modeling Earth Systems, Climatic Change, Advances in Climate Change Research, Environmental Data Science, the ISPRS International Journal of Geo-Information, Science of the Total Environment, Science Bulletin, ISPRS Journal of Photogrammetry and Remote Sensing, Environmental Challenges, Environmental Science & Technology, Environmental Pollution, Earth Interactions, Catena, Forests, Landscape Ecology, Regional Environmental Change, Field Crops Research, Nature Computational Science, Forests, the chapter of a book entitled "Biophysical Applications of Satellite Remote Sensing", the chapter of a book entitled "Multi-scale Biogeochemical Processes in Soil Ecosystems: Critical Reactions and Resilience to Climate Changes", and technical review of ORNL Seed and LDRD proposals*

QUOTES IN THE NEWS MEDIA

- Highlight on the PNAS Nexus paper related to climate resilience strategies in U.S. urban and rural areas
  Study led by ORNL informs climate resilience strategies in urban-rural areas
- Highlight on the Nature paper related to global emissions of ammonia from croplands
  Reaping agricultural emissions solutions
- Highlights on wildfire modeling and database
  Improving wildfire predictions in Earth-scale climate models
  Scientists dig into wildfire predictions and long-term impacts
  Wildfire predictions at Earth-scale climate
  ScienceDaily coverage of wildfire predictions

- Highlight by Hellbender Press for the future wildfire paper in Nature Communications
  So Appalachian fire risk
- Selected highlights of the Nature Communications wildfire projection paper
  Machine learning-based observation-constrained projections reveal elevated global socioeconomic risks from wildfire
- Highlight on the aridification paper on npj Climate and Atmospheric Science
  Climate leading to drier air
- Highlight on the Africa wildfire paper on Nature Communications
  Predicting fire risk in Africa
- Highlight by NPR for the PNAS phenology paper
  Climate change and city lights trick trees into growing leaves too soon
- Highlight by ScienceDaily for the PNAS phenology paper
  Urban areas cause trees to leaf out earlier
- Highlight by Phys.org for the PNAS phenology paper
  Urban areas cause trees to leaf out earlier
- Highlight on the PNAS phenology paper
  Hot climates see more variability in tree leafing as temperatures rise
- Highlight by E3SM.org for the Water Resources Research paper
  Detection and attribution analysis of drivers affecting Columbia River Basin streamflow
- Highlight by ORNL for the editorial board member role of npj journal
  Editorial Board Member of Nature Partner Journal Climate and Atmospheric Science
- Highlight on the Scientific Reports paper
  Uncertainty in the response of the terrestrial carbon sink to environmental drivers undermines the carbon-climate feedback
- Highlight in "Getting to know our early career scientists"
  Getting to know our early career scientists
- Highlights of "Biospheric feedback effects in a synchronously coupled model of human and Earth systems"
  Titan simulations highlight two-way coupling importance
  Biospheric feedback effects in a synchronously coupled model of human and Earth systems
- Selected highlights of "Human-induced greening of the northern high-latitude land surface"
  Human-induced greening
- Selected highlights of "Greening of the Earth and its drivers"
  Greening Earth by human-induced drivers
- Highlight by Agrometeorology.org for the global evapotranspiration study
  Climate change driving water cycle speed-up
- Highlight by Phys.org for the PiTS project
  Carbon tracking in deciduous trees
- Highlight by ORNL for the PiTS project
  Refining climate models through PiTS

STUDENTS AND RESEARCHERS SUPERVISED

Xiaoman Lu (ORNL); Lun Gao (University of Minnesota and ORNL); Tianqi Zhang (ORNL); Yaoping Wang (ORNL); Goutam Konapalag (ORNL); Yuefeng Hao (UTK); Whitney Leeann Forbes (UTK); Rongyun Tang (UTK); Liang Li (UTK); Cheng-En Yang (UTK); Joshua Miller (UTK); Yulong Zhang (Duke University); Binyan Yan (University of Texas at Austin, UT Austin); Kai Wang (UT Austin); Wenting Fu (UT Austin); Xuebin Yang (UT Austin); Lingcheng Li (UT Austin); Anping Chen (Colorado State University); Di Ma (Chinese Academy of Sciences, CAS); Li Zhang (CAS); Zehou Li (Nankai University); Rongfan Chai (Nanjing University of Information Science and Technology, NUIST);

Xiangxu Kong (NUIST); Lin Meng (Vanderbilt University); Yutao Wang (Fudan University); Yan Yu (Peking University); Ashley Cornish (University of Georgia); Xinyi Yang (Boston College); Matthew Wang (Farragut High School, FHS); Sophie Lu (FHS); Ridhima Singh (FHS)

HONORS AND AWARDS

- 2024: Distinguished Service Award, Sino-Ecologists Association Overseas
- 2020: Stanley I. Auerbach Award (presented annually for research excellence within the Environmental Sciences Division), ORNL
- 2016, 2019, 2020: Supplementary Performance Award, ORNL
- 2016: Visiting Scholar, National Center for Meteorological Research, Météo-France, Toulouse, France
- 2015: Significant Event Award (for contributions to the Next Generation Ecosystem Experiment-Tropics), ORNL
- 2014: Significant Event Award (for contributions to the Intergovernmental Panel on Climate Change and National Climate Assessment Work), ORNL
- 2007: Visiting Scholar Award (funded by the Natural Environment Research Council, Center for Terrestrial Carbon Dynamics), University of Sheffield, UK
- 2006: Outstanding Graduate Student Leader Award, Chinese Academy of Sciences
- 2006: Outstanding Graduate Student Award, Chinese Academy of Sciences
- 2005: Visiting Scholar Award (funded by the Chinese Academy of Sciences), University of Sheffield, UK
- 2003, 2004, 2005, 2006: Outstanding Doctoral Scholarship, Chinese Academy of Sciences
- 2001: Outstanding Graduate, Nanjing Institute of Meteorology
- 1998, 1999, 2000: Outstanding Undergraduate Scholarship, Nanjing Institute of Meteorology

GRADUATE AND POSTDOCTORAL ADVISORS

- Postdoctoral Advisor (US): Peter E. Thornton, ORNL
- Postdoctoral Advisors (Australia): Andrew J. Pitman, University of New South Wales; Yingping Wang, CSIRO
- Ph.D. Advisors (China): Bin Wang, Chinese Academy of Sciences; Yongjiu Dai, Sun Yat-sen University

PEER-REVIEWED PUBLICATIONS

First or Corresponding Author Publications

2024

1. Hao, Y., **J. Mao***, M. Jin, Y. Wang, R. Tang, and X. Weng Lee. "Evaluating the effects of heatwave events on hydrological processes in the contiguous United States (2003–2022)." *Journal of Hydrology* 616 (2024): 131368. https://doi.org/10.1016/j.jhydrol.2024.131368.
2. **Mao, J.***, Y. Hao, D. Sholl, X. Gu, Y. Wang, A. Stack, M. Uddin, X. Shi, N. Singh, D. Lu, I. Busch, F. Yuan, M. Jin, D. McCollum, D. Ricciuto, and P. Thornton. "Unlocking sustainable carbon capture: A comprehensive review of advances, challenges, and future prospects for enhanced rock weathering." *Reviews of Geophysics* (Under Review).
3. **Mao, J.*** "Fires jeopardize world's carbon sinks." *Nature Geoscience* (2024). https://doi.org/10.1038/s41561-024-01562-7.
4. Tang, R., M. Jin, **J. Mao***, D. M. Ricciuto, A. Chen, and Y. Zhang. "TSECfire v1.0: Quantifying wildfire drivers and predictability in boreal peatlands using a two-step error-correcting machine learning framework." *Geoscientific Model Development* (2024). https://doi.org/10.5194/gmd-17-1525-2024.

5. Wang, Y., **J. Mao***, C. M. Brelford, D. M. Ricciuto, F. Yuan, X. Shi, D. Rastogi, M. M. Mayers, S. Kao, J. M. Warren, N. A. Griffiths, D. J. Weston, Y. Zhou, L. Gu, and P. E. Thornton. "Thermal, water, and land cover factors led to contrasting urban and rural vegetation resilience to heat waves." *PNAS Nexus* (2024). https://doi.org/10.1093/pnasnexus/pgae147.
6. 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. "Earth's record-high greening and its attributions in 2020." *Remote Sensing of Environment* 316 (2024): 114494. https://doi.org/10.1016/j.rse.2024.114494.

2023

7. Chen, A., D. Ricciuto, **J. Mao***, J. Wang, D. Lu, and F. Meng. "Improving E3SM land model photosynthesis parameterization via satellite SIF, machine learning, and surrogate modeling." *Journal of Advances in Modeling Earth Systems* 15, no. 4 (2023): e2022MS003135. https://doi.org/10.1029/2022MS003135.
8. Kong, X., **J. Mao***, H. Chen, Y. Wang, Y. Zhang, X. Shi, and M. Jin. "Exploring the environmental drivers of vegetation seasonality changes in the northern extratropical latitudes: A quantitative analysis." *Environmental Research Letters* 18, no. 9 (2023): 094071. https://doi.org/10.1088/1748-9326/acf728.
9. Zhang, Y., **J. Mao***, D. Ricciuto, M. Jin, Y. Yu, X. Shi, S. Wullschleger, R. Tang, and J. Liu. "Global fire modelling and control attributions based on the ensemble machine learning and satellite observations." *Science of Remote Sensing* (2023). https://doi.org/10.1016/j.srs.2023.100088.

2022

10. Chen, A., F. Meng, **J. Mao***, D. Ricciuto, and A. Knapp. "Photosynthesis phenology, as defined by solar-induced chlorophyll fluorescence, is overestimated by vegetation indices in the extratropical Northern Hemisphere." *Agricultural and Forest Meteorology* 323 (2022): 109027. https://doi.org/10.1016/j.agrformet.2022.109027.
11. Wang, Y., **J. Mao***, F. Hoffman, C. Bonfils, H. Douville, M. Jin, P. Thornton, D. Ricciuto, X. Shi, H. Chen, S. Wullschleger, and S. Piao. "Quantification of human contribution to soil moisture–based terrestrial aridity." *Nature Communications* 13 (2022): 6848. https://doi.org/10.1038/s41467-022-34071-5.
12. Yu, Y., **J. Mao***, S. Wullschleger, A. Chen, X. Shi, Y. Wang, F. Hoffman, Y. Zhang, and E. Pierce. "Machine learning-based observation-constrained projections reveal elevated global socioeconomic risks to wildfire in the twenty-first century." *Nature Communications* 13 (2022): 1250. https://doi.org/10.1038/s41467-022-28853-0.

2021

13. Chai, R., **J. Mao***, H. Chen, Y. Wang, X. Shi, M. Jin, T. Zhao, F. Hoffman, D. Ricciuto, and S. Wullschleger. "Human-caused long-term changes in global aridity." *npj Climate and Atmospheric Science* 4 (2021): 23. https://doi.org/10.1038/s41612-021-00223-5.
14. Chen, A., **J. Mao***, D. Ricciuto, D. Lu, P. Thornton, and A. K. Knapp. "Season changes in GPP/SIF ratios and their climatic determinants across the Northern Hemisphere." *Global Change Biology* 27, no. 21 (2021): 5482–5496. https://doi.org/10.1111/gcb.15775.
15. Chen, A., **J. Mao***, D. Ricciuto, J. Xiao, C. Frankenberg, X. Li, L. Gu, P. Thornton, and A. K. Knapp. "Moisture availability mediates the relationship between terrestrial gross primary production and solar-induced fluorescence: Insights from global scale variations." *Global Change Biology* 27, no. 9 (2021): 1885–1904. https://doi.org/10.1111/gcb.15373.

16. **Mao, J.***, Y. Wang, D. Ricciuto, S. Mahajan, F. Hoffman, X. Shi, and G. Prakash. "AI-based integrated modeling and observational framework for improving seasonal to decadal prediction of terrestrial ecohydrological extremes." *United States*. https://doi.org/10.2172/1769666.
17. Meng, L., **J. Mao***, D. Ricciuto, X. Shi, A. Richardson, P. Hanson, J. Warren, Y. Zhou, X. Li, L. Zhang, and C. Schädel. "Evaluation and modification of ELM seasonal deciduous phenology against observations in a Southern boreal peatland forest." *Agricultural and Forest Meteorology* 308–309 (2021): 108556. https://doi.org/10.1016/j.agrformet.2021.108556.
18. Tang, R., **J. Mao***, M. Jin, A. Chen, Y. Yu, X. Shi, Y. Zhang, F. Hoffman, M. Xu, and Y. Wang. "Interannual variability and climatic sensitivity of global wildfire activity." *Advances in Climate Change Research* 12, no. 3 (2021): 322–330. https://doi.org/10.1016/j.accre.2021.07.001.
19. Wang, Y., **J. Mao***, M. Jin, F. Hoffman, X. Shi, S. Wullschleger, and Y. Dai. "Development of observation-based global multilayer soil moisture products for 1970 to 2016." *Earth System Science Data* 13, no. 10 (2021): 4385–4405. https://doi.org/10.5194/essd-13-4385-2021.

2020

20. Chen, A., R. Tang, **J. Mao***, C. Yue, X. Li, M. Gao, X. Shi, M. Jin, D. Ricciuto, S. Rabin, P. Ciais, and S. Piao. "Spatiotemporal dynamics of ecosystem fires and biomass burning-induced carbon emissions in China over the past two decades." *Geography and Sustainability* 1, no. 1 (2020): 89–100. https://doi.org/10.1016/j.geosus.2020.03.002.
21. Meng, L., **J. Mao***, Y. Zhou, A. Richardson, X. Lee, P. Thornton, D. Ricciuto, X. Li, Y. Dai, X. Shi, and G. Jia. "Urban warming advances spring phenology but reduces the response of phenology to temperature in the conterminous United States." *PNAS* 117, no. 8 (2020): 4228–4233. https://doi.org/10.1073/pnas.1911117117.
22. Yan, B., **J. Mao***, R. Dickinson, P. Thornton, X. Shi, D. Ricciuto, J. Warren, and F. Hoffman. "Modelling tree stem-water dynamics over an Amazonian rainforest." *Ecohydrology* 13, no. 1 (2020): e2180. https://doi.org/10.1002/eco.2180.
23. Yu, Y., **J. Mao***, P. Thornton, M. Notaro, S. Wullschleger, X. Shi, F. Hoffman, and Y. Wang. "Quantifying the drivers and predictability of seasonal changes in African fire." *Nature Communications* 11 (2020): 16692. https://doi.org/10.1038/s41467-020-16692-w.

2019

24. Forbes, W. L., **J. Mao***, D. Ricciuto, S. Kao, X. Shi, A. Tavakoly, M. Jin, W. Guo, T. Zhao, Y. Wang, P. Thornton, and F. Hoffman. "Streamflow in the Columbia River Basin: Quantifying changes over the period 1951-2008 and determining the drivers of those changes." *Water Resources Research* 55, no. 8 (2019): 6640–6652. https://doi.org/10.1029/2018WR024256.
25. Yan, B., **J. Mao***, X. Shi, F. Hoffman, M. Notaro, T. Zhou, N. McDowell, R. Dickinson, M. Xu, L. Gu, and D. Ricciuto. "Predictability of tropical vegetation greenness using sea surface temperatures." *Environmental Research Communications* 1, no. 3 (2019): 031003. https://doi.org/10.1088/2515-7620/ab178a.

2018

26. Forbes, W. L., **J. Mao***, M. Jin*, S. Kao, W. Fu, X. Shi, D. Ricciuto, P. Thornton, A. Ribes, Y. Wang, S. Piao, T. Zhao, C. Schwalm, F. Hoffman, J. Fisher, A. Ito, B. Poulter, Y. Fang, H. Tian, A. Jain, and D. Hayes. "Contribution of environmental forcings to US runoff changes for the period 1950–2010." *Environmental Research Letters* 13, no. 5 (2018): 054023. https://doi.org/10.1088/1748-9326/aabda5.
27. Yang, C. E., **J. Mao***, F. Hoffman, D. Ricciuto, J. Fu, C. Jones, and M. Thurner. "Uncertainty quantification of extratropical forest biomass in CMIP5 models over the Northern Hemisphere." *Scientific Reports* 8, no. 1 (2018): 1–14. https://doi.org/10.1038/s41598-018-29227-7.

2016

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PRESENTATIONS AND MEETINGS

2024

1. Liu, L., and coauthors including **J. Mao.** "Can Long-term Tropical Land Carbon-Climate Feedback Uncertainties Be Constrained from Interannual Variability?" April 14-19, 2024, European Geosciences Union (EGU) Meeting, Vienna, Austria.
2. **Mao, J.** "Projection of Wildfire and Its Socioeconomic Risks in Earth System Models." February 21, 2024, Edison Electric Institute (EEI) Wildfire Technology Summit, La Jolla, CA, USA (Invited).
3. **Mao, J.** "Global Multilayer Soil Moisture Analysis (1970–2016): Observations and Human Impact on Terrestrial Aridity." February 16, 2024, Colloquium Remote Talk for Northern Illinois University (Invited).

4. **Mao, J.** "Machine-Learning Applications in Understanding and Quantification of Earth's Terrestrial Ecosystem Dynamics." July 1, 2024, AAMU Summer Research Apprenticeship Program (Invited).
5. **Mao, J.,** Kong, X., H. Chen, Y. Wang, Y. Zhang, X. Shi, and M. Jin. "Exploring the Environmental Drivers of Vegetation Seasonality Changes in the Northern Extratropical Latitudes: A Quantitative Analysis." August 5-9, 2024, ESA Annual Meeting, Long Beach, CA, USA.
6. Mayes, M., J. Warren, Y. Wang, C. DeRolph, **J. Mao,** J. Parker, J. Chavez, J. First, J. Hathaway, and T. Mead. "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." April 4, 2024, Social Equal Energy Efficient Development (SEEED) Career Readiness Class (Invited).
7. Massoud, E., F. Hoffman, **J. Mao,** and Y. Wang. "Benchmarking Soil Moisture and Ecohydrologic Interactions in Earth System Models." June 23-28, 2024, AOGS 21st Annual Meeting, Pyeongchang, Gangwon-do, Korea.
8. Massoud, E., F. Hoffman, **J. Mao,** Y. Wang, and Nathan Collier. "Benchmarking Soil Moisture and Ecohydrologic Interactions in Earth System Models." July 19, 2024, RUBISCO BGC Science Fridays.
9. Ricciuto, D., and coauthors including **J. Mao.** "SPRUCE-MIP: Model Intercomparison of Northern Peatland Carbon Cycle Over the SPRUCE Site." April 14-19, 2024, European Geosciences Union (EGU) Meeting, Vienna, Austria.
10. Su, H., Y. Yu, W. Guo, and **J. Mao.** "Fuel Availability and Convective Potential Complement Near-surface Weather in Regulating Global Wildfire Activity." June 23-28, 2024, AOGS 21st Annual Meeting, Pyeongchang, Gangwon-do, Korea.
11. Wang, Y., L. Wang, **J. Mao,** L. Meng, and A. Malhotra. "Exploring the Intersection of Culture and Career in Ecology: Insights from a Survey of Asian Ecologists." August 5-9, 2024, ESA Annual Meeting, Long Beach, CA, USA.
12. Warren, J., M. Mayes, **J. Mao,** J. Parker, C. DeRolph, and Y. Wang. "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." April 16-17, 2024, DOE ESS PI Meeting, Washington, DC, USA.

2023

13. Hao, Y., **J. Mao,** and coauthors. "Evaluating the Effects of Heatwave Events on Hydrological Processes in the Contiguous United States (2003–2022)." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
14. Hanson, P.J., N. Griffiths, C. Iversen, R. Norby, S. Sebestyen, J. Phillips, J. Chanton, R. Kolka, A. Malhotra, K. Oleheiser, J. Warren, X. Shi, X. Yang, **J. Mao,** and D. Ricciuto. "SPRUCE Carbon Cycle 2016 Through 2021." May 2–3, 2023, SPRUCE All-Hands Meeting, Minnesota, USA.
15. Kan, F., and coauthors including **J. Mao.** "Discrepant Decadal Trends in Global Land-Surface and Air Temperatures Controlled by Vegetation Biophysical Feedbacks." April 23–28, 2023, European Geosciences Union (EGU) Meeting, Vienna, Austria.
16. Liu, L., and coauthors including **J. Mao.** "Artificial Light at Night: An Under-appreciated Effect on Plant Phenology in Urban Areas." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
17. **Mao, J.** "Datasets Relevant to People-centric Integrated Assessment Modeling in Central Appalachian Region." April 3–4, 2023, SRS RN Workshop on People-Centric Integrated Assessment Model for the Central Appalachian Region, UT Conference Center, Knoxville, TN, USA.

18. **Mao, J.** "Machine-Learning Applications in Understanding and Quantification of Earth's Terrestrial Ecosystem Dynamics." November 6, 2023, Workshop on AI Application in Earth System Science – Grand Challenges, ORNL, Oak Ridge, USA.
19. **Mao, J.** "Machine-Learning Applications in Understanding and Quantification of Earth's Terrestrial Ecosystem Dynamics." November 10, 2023, Invited Seminar by the Department of Earth and Environmental Sciences, Vanderbilt University, Nashville, USA.
20. **Mao, J.** "Improving ELM Photosynthesis Using Satellite SIF and Machine Learning Techniques." May 16–17, 2023, DOE ESS PI Meeting, Washington, DC, USA.
21. **Mao, J.** "Improving ELM Photosynthesis Using Satellite SIF and Machine Learning Techniques." July 10–12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review Meeting, Duluth, MN, USA.
22. **Mao, J.** "Ecosystem Resilience to Thermal Extremes: Urbanization Impacts." September 27, 2023, ORNL LDRD Poster Fair, Oak Ridge, USA.
23. **Mao, J.** "Ecosystem Resilience to Thermal Extremes: Urbanization Impacts." August 6–11, 2023, ESA Annual Meeting, Portland, OR, USA.
24. **Mao, J.,** A. Chen, D. Ricciuto, J. Wang, D. Lu, F. Meng, and L. Gu. "Improving ELM Photosynthesis Using Satellite SIF and Machine Learning Techniques." September 18–19, 2023, 2nd ORNL-VU Collaborative Workshop, Oak Ridge, USA.
25. **Mao, J.,** Y. Wang, F. Hoffman, X. Shi, D. Ricciuto, P. Thornton, and M. Jin. "Global Multilayer Soil Moisture Analysis (1970–2016): Observations and Human Impact on Terrestrial Aridity." October 23–27, 2023, World Climate Research Programme (WCRP) Open Science Conference, Kigali, Rwanda.
26. **Mao, J.,** Y. Wang, F. Hoffman, X. Shi, D. Ricciuto, P. Thornton, and M. Jin. "Global Multilayer Soil Moisture Analysis (1970–2016): Observations and Human Impact on Terrestrial Aridity." September 20–21, 2023, ORNL Climate Security Workshop - Global Water Challenge, Oak Ridge, USA.
27. **Mao, J.,** Y. Wang, M. Uddin, F. Yuan, X. Gu, D. Ricciuto, X. Shi, I. Busch, D. Lu, and N. Singh. "Coupled Ecosystem-and-engineering Decision-making Framework for Enhanced Weathering." September 19, 2023, DOE Biological and Environmental Research PM Visit, Oak Ridge, USA.
28. **Mao, J.,** Y. Wang, D. Ricciuto, F. Yuan, X. Shi, C. Brelsford, and D. Rastogi. "Ecosystem Resilience to Thermal Extremes: Urbanization Impacts." September 20, 2023, ORNL Climate Security Workshop, Oak Ridge, USA.
29. Massoud, E., F. Hoffman, **J. Mao,** and Y. Wang. "Benchmarking Soil Moisture and Ecohydrologic Interactions in Earth System Models." June 23–28, 2023, AOGS 21st Annual Meeting, Pyeongchang, Korea.
30. Massoud, E., F. Hoffman, **J. Mao,** and Y. Wang. "Benchmarking Soil Moisture and Ecohydrologic Interactions in Earth System Models." July 19, 2023, RUBISCO BGC Science Fridays.
31. Mayes, M., and coauthors including **J. Mao.** "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." September 6, 2023, Social Equal Energy Efficient Development (SEEED) Career Readiness Class, Oak Ridge, USA.
32. Mayes, M., J. Warren, Y. Wang, C. DeRolph, **J. Mao,** J. Parker, J. Chavez, J. First, J. Hathaway, and T. Mead. "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." April 4, 2023, Social Equal Energy Efficient Development (SEEED) Career Readiness Class, Invited.
33. Mayes, M., and coauthors including **J. Mao.** "An International Workshop to Contextualize the SPRUCE Experiment." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
34. Meng, L., and coauthors including **J. Mao.** "Artificial Light at Night: An Under-appreciated Effect on Plant Phenology in Urban Areas." August 6–11, 2023, ESA Annual Meeting, Portland, OR, USA.

35. Meng, L., and coauthors including **J. Mao.** "Green with Phenology: Earlier Spring Green-up in Warmer and Brighter Cities." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
36. Ricciuto, D., A. Walker, **J. Mao,** X. Shi, X. Yang, and P. Hanson. "Impacts of Assimilating Observations from Long-term Experiments on Predicted Carbon Cycle Feedbacks." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
37. Ricciuto, D., and coauthors including **J. Mao.** "SPRUCE-MIP: Model Intercomparison of Northern Peatland Carbon Cycle Over the SPRUCE Site." April 14–19, 2023, European Geosciences Union (EGU) Meeting, Vienna, Austria.
38. Shi, X., D. Ricciuto, Y. Wang, D. Hui, S. Shao, Y. Luo, J. Zhou, Q. Sun, F. Joos, P. Hanson, **J. Mao.** "Preliminary Results and Insights of SPRUCE-MIP." May 2–3, 2023, SPRUCE All-Hands Meeting, Minnesota, USA.
39. Shi, X., and coauthors including **J. Mao.** "SPRUCE-MIP: Model Intercomparison of Northern Peatland Carbon Cycle Over the SPRUCE Site." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
40. Su, H., Y. Yu, W. Guo, and **J. Mao.** "Fuel Availability and Convective Potential Complement Near-surface Weather in Regulating Global Wildfire Activity." June 23–28, 2023, AOGS 21st Annual Meeting, Pyeongchang, Korea.
41. Wang, Y., **J. Mao,** D. Ricciuto, S. Weber, C. Iversen, P. Hanson, and P. Thornton. "Development of Separate Above- and Belowground Phenology in the ELM-SPRUCE Model." May 2–3, 2023, SPRUCE All-Hands Meeting, Minnesota, USA.
42. Warren, J., M. Mayes, **J. Mao,** J. Parker, C. DeRolph, and Y. Wang. "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." April 16–17, 2023, DOE ESS PI Meeting, Washington, DC, USA.
43. Zhang, Y., **J. Mao,** and coauthors. "Global Fire Modeling and Control Attributions Based on Ensemble Machine Learning and Satellite Observations." December 11–15, 2023, AGU Fall Meeting, San Francisco, CA, USA.

2022

44. Chen, A., F. Meng, **J. Mao,** D. Ricciuto, and A. Knapp. "Photosynthesis Phenology, as Defined by Solar-induced Chlorophyll Fluorescence, is Overestimated by Vegetation Indices in the Extratropical Northern Hemisphere." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
45. Hanson, P.J., and coauthors including **J. Mao.** "ORNL's Terrestrial Ecosystem Science Scientific Focus Area (TES SFA) – 2022." May 24–26, 2022, DOE Environmental System Science (ESS) Principal Investigator Meeting, Virtual, USA.
46. Hanson, P.J., N.A. Griffiths, C.M. Iversen, R.J. Norby, S.D. Sebestyen, J.R. Phillips, J.P. Chanton, R.K. Kolka, A. Malhotra, K.C. Oleheiser, J.M. Warren, X. Shi, X. Yang, **J. Mao,** and D.M. Ricciuto. "SPRUCE Carbon Cycle 2016 Through 2021." May 3–5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
47. **Mao, J.** "Machine-Learning Applications in Process-understanding and Prediction of Wildfire." December 2, 2022, The International Environmetrics Society (TIES) Webinar Series on Data Science for Environmental Sciences (DSES), USA.
48. **Mao, J.** "Machine-Learning Applications in Wildfire Projection and Drivers Analysis." September 6, 2022, ORNL Earth Systems Science Section, Knoxville, TN, USA.
49. **Mao, J.** "Above- and Belowground Phenology Modeling of ELM Using the SPRUCE Observations." May 3–5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
50. **Mao, J.** "Above- and Belowground Phenology Modeling of ELM Using the SPRUCE Observations." May 24–26, 2022, DOE ESS PI Meeting, Virtual, USA.

51. **Mao, J.** "RUBISCO Soil Moisture Working Group: Overview and Next Steps." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
52. **Mao, J.** "RUBISCO Soil Moisture Working Group: Overview and Next Steps." July 13–14, 2022, RUBISCO Panel Review Meeting, Virtual, USA.
53. **Mao, J.** "Machine Learning-based Observation-constrained Projections Reveal Elevated Global Socioeconomic Risks from Wildfire." April 29, 2022, RUBISCO Science Talk, USA.
54. **Mao, J.** "Machine Learning-based Observation-constrained Global Wildfire Projections." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
55. **Mao, J.** "Machine Learning-based Observation-constrained Projections Reveal Elevated Global Socioeconomic Risks from Wildfire." July 13–14, 2022, RUBISCO Panel Review Meeting, Virtual, USA.
56. **Mao, J.** "Breakout Facilitator for the ORNL Integrated Ecosystem Experiments to Advance Earth System Predictability Workshop." March 21–24, 2022, Virtual, Oak Ridge, TN, USA.
57. **Mao, J.,** Y. Yu, and coauthors. "Machine Learning-based Observation-constrained Projections Reveal Elevated Global Socioeconomic Risks from Wildfire." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
58. **Mao, J.,** Y. Wang, D. Ricciuto, X. Shi, L. Meng, and P. Hanson. "Above- and Belowground Phenology Modeling of ELM Using the SPRUCE Observations." May 24–26, 2022, DOE ESS PI Meeting, Virtual, USA.
59. **Mao, J.,** and Y. Wang. "Soil Moisture Working Group." July 13–14, 2022, RUBISCO Panel Review Meeting, Virtual, USA.
60. **Mao, J.,** Y. Wang, D. Ricciuto, X. Shi, L. Meng, and P. Hanson. "Above- and Belowground Phenology Modeling of ELM Using the SPRUCE Observations." May 3–5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
61. Mayes, M., J. Warren, **J. Mao,** Y. Wang, and C. DeRolph. "The Influence of Soil Moisture and Tree Evapotranspiration on an Urban Microclimate." May 24–26, 2022, DOE ESS PI Meeting, Virtual, USA.
62. Meng, L., and coauthors including **J. Mao.** "Artificial Light at Night: An Under-appreciated Effect on Plant Phenology in Urban Areas." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
63. Ricciuto, D.M., and coauthors including **J. Mao.** "SPRUCE MODEX Philosophy and Overview of Current Modeling Efforts." May 3–5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
64. Shi, X., and coauthors including **J. Mao.** "Preliminary Results on ELM SPRUCE Driven by Plot-scale Forcing Data." May 3–5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
65. Singh, R., **J. Mao,** and Y. Wang. "Quantification of Environmental Drivers Underlying the Changes in Urban Vegetation Using Machine Learning." December 12–16, 2022, AGU Fall Meeting, Chicago, IL, USA.
66. Tang, R., M. Jin, and **J. Mao.** "Tackling Key Drivers and Predicting Fires in Boreal Peatland with a Two-step Machine Learning Framework." September 15, 2022, Annual Research Conference of the Institute for a Secure & Sustainable Environment, Knoxville, TN, USA.
67. Zheng, X., and coauthors including **J. Mao.** "Sustainable Global Soybean Supply Chain: A Case Study of the U.S. and China." September 15, 2022, Annual Research Conference of the Institute for a Secure & Sustainable Environment, Knoxville, TN, USA.

2021

68. Hoffman, F., and coauthors including **J. Mao**. "Diagnosing Climate-Carbon Cycle Feedbacks Constrained by ILAMB." Virtual 7th Open Science Meeting, North American Carbon Program, March 5–26, 2021.
69. Hoffman, et al., including **J. Mao**. "Have Land Surface Processes in Earth System Models Improved Over Time." ESA Virtual Annual Meeting, August 1–6, 2021.

70. Huntzinger, D., and coauthors including **J. Mao**. "Evaluation of Simulated Soil Carbon Dynamics in the ABoVE Domain." Virtual 7th Open Science Meeting, North American Carbon Program, March 5–26, 2021.
71. Masri, B., and coauthors including **J. Mao**. "Carbon and Water Use Efficiencies: A Comprehensive Analysis of Ten Terrestrial Ecosystem Models Under Changing Climate." Virtual 7th Open Science Meeting, North American Carbon Program, March 5–26, 2021.
72. **Mao, J.** "Quantifying the Drivers and Improving the Predictability: Wildfire Research Using Machine Learning Techniques." GEOINT Workshop Organized by ORNL, December 7, 2021 (Invited).
73. **Mao, J.**, and coauthors. "Urban Warming Advances Spring Phenology but Reduces the Response of Phenology to Temperature in the Conterminous United States." Virtual International Symposium "Towards Urban Sustainability," November 15–17, 2021 (Invited).
74. **Mao, J.**, and coauthors. "Development, Evaluation, and Application of New Soil Moisture Products." DOR RUBISCO Biogeochemistry Science Friday Presentation, September 17, 2021.
75. **Mao, J.**, and coauthors. "Development of Observation-Based Global Multi-Layer Soil Moisture Products for 1970 to 2016." National Soil Moisture Virtual Workshop, August 18–19, 2021.
76. **Mao, J.**, and coauthors. "An Integrated Observational and Modeling Framework for Improving the Understanding and Modeling of Wildfire Evolution and Ecosystem Impacts." DOE BER 2021 ESS PI Virtual Meeting, August 18–19, 2021.
77. **Mao, J.**, Y. Yu, and coauthors. "Quantifying the Drivers and Predictability of Seasonal Changes in Africa." ESA Virtual Annual Meeting, August 1–6, 2021.
78. **Mao, J.**, and coauthors. "Development of Observation-Based Global Multi-Layer Soil Moisture Products for 1970 to 2016." RUBISCO SOC Working Group Meeting, July 28, 2021.
79. **Mao, J.**, Y. Zhang, L. Meng, X. Shi, J.M. Warren, D.M. Ricciuto, J. Peters, E.J. Ward, and P.J. Hanson. "Initial GPP Estimates for the SPRUCE P. mariana and L. laricina." Virtual SPRUCE All-Hands Meeting, May 11–13, 2021.
80. **Mao, J.**, T. Keenan, and F. Hoffman. "Development of Observation-Based Global Multi-Layer Soil Moisture Products for 1970 to 2016." US GEWEX Virtual Soil Moisture Mini-Workshop, April 16, 2021.
81. **Mao, J.**, and coauthors. "An Integrated Observational and Modeling Framework for Improving the Understanding and Modeling of Wildfire Evolution and Ecosystem Impacts." DOE BER 2021 ESS PI Virtual Meeting, August 18–19, 2021.
82. **Mao, J.**, Y. Yu, and coauthors. "Quantifying the Drivers and Predictability of Seasonal Changes in Africa." ESA Virtual Annual Meeting, August 1–6, 2021.
83. Ricciuto, D.M., X. Shi, **J. Mao**, X. Xu, D. Lu, A. King, Y. Luo, X. Yang, and P.J. Hanson. "ELM-SPRUCE Overview and Future Plans." Virtual SPRUCE All-Hands Meeting, May 11–13, 2021.

2020

84. Chen, A., **J. Mao**, D. Ricciuto, D. Lu, and A. Knapp. "Seasonal Patterns of Gross Primary Productivity and Solar-Induced Chlorophyll Fluorescence Over the Northern Land." Virtual AGU Fall Meeting, December 1–17, 2020.
85. Hanson, P.J., N.A. Griffiths, C.M. Iversen, R.J. Norby, S.D. Sebestyen, J.R. Phillips, J.P. Chanton, P.K. Kolka, A. Malhotra, K.C. Oleheiser, J.M. Warren, X. Shi, X. Yang, **J. Mao**, and D.M. Ricciuto. "SPRUCE Carbon Cycle 2016 Through 2018: Rapid Net Carbon Loss From a Whole-Ecosystem Warmed Peatland." Virtual SPRUCE All-Hands Meeting, May 12–13, 2020.
86. Hoffman, F., N. Collier, C.D. Koven, D.M. Lawrence, G. Keppel-Aleks, J.T. Randerson, M. Mu, W.J. Riley, Q. Zhu, **J. Mao**, H. Kim, J.K. Moore, and W. Fu. "Have Land Surface Carbon Cycle Models Improved Over Time?" CESM Land and Biogeochemistry Working Group Meeting, March 3–5, 2020, Boulder, Colorado.

87. Hoffman, F., and coauthors including **J. Mao**. "Have Land Surface and Carbon Cycle Processes in Earth System Models Improved Over Time?" Virtual AGU Fall Meeting, December 1–17, 2020.
88. **Mao, J.,** Y. Yu, and coauthors. "Quantifying the Drivers and Predictability of Seasonal Changes in Africa." Virtual AGU Fall Meeting, December 1–17, 2020.
89. **Mao, J.,** Y. Yu, and coauthors. "Quantifying the Drivers and Predictability of Seasonal Changes in Africa." DOE Regional and Global Model Analysis (RGMA) Principal Investigators Virtual Meeting, October 13–16, 2020.
90. **Mao, J.,** L. Meng, D.M. Ricciuto, X. Shi, P.E. Thornton, P.J. Hanson, and A.D. Richardson. "Modification and Evaluation of ELM Seasonal Deciduous Phenology Against the SPRUCE Observations." Virtual SPRUCE All-Hands Meeting, May 12–13, 2020.
91. Meng, L., Y. Zhou, **J. Mao**, and X. Li. "The Responses of Spring Phenology to Temperature and Photoperiod." Virtual AGU Fall Meeting, December 1–17, 2020.
92. Meng, L., Y. Zhou, **J. Mao**, X. Li, and Z. Wang. "When Do Trees Leaf Out in a Warmer City?" ESA Virtual Annual Meeting, August 3–6, 2020.
93. Padron, R., L. Gudmundsson, A. Ducharne, D.M. Lawrence, **J. Mao**, D. Peano, J. Colin, G. Krinner, H. Kim, and S.I. Seneviratne. "Dry Season Water Availability Changes Attributed to Human-Induced Climate Change." EGU Meeting, May 3–8, 2020, Vienna, Austria.
94. Ricciuto, D., K. Sargsyan, D. Lu, **J. Mao**, and A. Chen. "Quantifying Drivers of Uncertainty in Land Model Predictions at Global Scales Using Machine Learning." Virtual AGU Fall Meeting, December 1–17, 2020.
95. Ricciuto, D., K. Sargsyan, D. Lu, **J. Mao**, and A. Chen. "Quantifying Drivers of Uncertainty in Land Model Predictions at Global Scales Using Machine Learning." DOE ESMD-E3SM PI Meeting, October 26–29, 2020.
96. Ricciuto, D., X. Shi, **J. Mao**, X. Xu, D. Lu, A. King, Y. Luo, X. Yang, and P.J. Hanson. "Protocol and Plans for a SPRUCE Model Intercomparison." Virtual SPRUCE All-Hands Meeting, May 12–13, 2020.
97. Ricciuto, D., X. Shi, **J. Mao**, X. Xu, D. Lu, A. King, Y. Luo, X. Yang, and P.J. Hanson. "SPRUCE MODEX Philosophy and Overview of Current Modeling Efforts." Virtual SPRUCE All-Hands Meeting, May 12–13, 2020.
98. Shi, X., D.M. Ricciuto, P.E. Thornton, X. Xu, F. Yuan, R.J. Norby, A.P. Walker, J. Warren, **J. Mao**, P.J. Hanson, L. Meng, D. Weston, and N.A. Griffiths. "Modeling the Hydrology and Physiology of Sphagnum Moss in a Northern Temperate Bog." Virtual SPRUCE All-Hands Meeting, May 12–13, 2020.
99. Shi, X., Y. Wang, **J. Mao**, D.M. Ricciuto, F.M. Hoffman, and P.E. Thornton. "Quantifying the Long-Term Changes of Land Water Availability and Their Driving Factors." DOE ESMD-E3SM PI Meeting, October 26–29, 2020.
100. Shi, X., and coauthors including **J. Mao**. "Carbon Cycle Warming and Elevated CO2 Responses in a Northern Temperate Bog: A Modeling Study Using ELM_SPRUCE." Virtual AGU Fall Meeting, December 1–17, 2020.
101. Sreepathi, S., M. Xu, N. Collier, J. Kumar, **J. Mao**, and F. Hoffman. "Land Model Testbed: Accelerating Development, Benchmarking and Analysis of Land Surface Models." Virtual AGU Fall Meeting, December 1–17, 2020.
102. Wang, Y., **J. Mao**, M. Jin, and F. Hoffman. "Developing a Gridded Upscaled Soil Moisture Dataset Using Sparse In Situ Observations." Virtual AGU Fall Meeting, December 1–17, 2020.
103. Xu, M., F.M. Hoffman, N.O. Collier, S. Mahajan, **J. Mao**, and P.A. Levine. "Land Model Innovations for Predicting Long-Term Soil Dynamics." 100th AMS Annual Meeting, January 12–16, 2020, Boston, Massachusetts, USA.

2019

104. Calvin, K., and coauthors including **J. Mao**. "Land Use in E3SM." AGCI-LUMIP Workshop about the Impacts of Land Use and Land Management on Earth System Evolution, Biogeochemical Cycles, Extremes, and Inter-Sectoral Dynamics, September 16–20, 2019, Snowmass, CO, USA.
105. Chen, A., X. Lian, **J. Mao**, and A. Knapp. "The Seasonal Dynamics of Gross Primary Production and Solar-Induced Chlorophyll Fluorescence in U.S. Semi-Arid Grasslands." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.
106. Chen, A., X. Li, **J. Mao**, and A.K. Knapp. "Changes in Satellite-Derived Grassland Growth Trends in Northern America Coupled with Climate Variations From 1982 to 2016." ESA Annual Meeting, August 12–16, 2019, Louisville, Kentucky, USA.
107. Cui, E., and coauthors including **J. Mao**. "Vegetation Functional Properties Determine Uncertainty of Simulated Ecosystem Productivity in the East Asian Monsoon Region." ESA Annual Meeting, August 12–16, 2019, Louisville, Kentucky, USA.
108. Hoffman, F.M., and coauthors including **J. Mao**. "Benchmarking CMIP Terrestrial Carbon Cycle and Biogeochemistry Models With the ILAMB Package." CMIP6 Model Analysis Workshop, March 2019, Barcelona, Spain.
109. **Mao, J.**, W. Forbes, D.M. Ricciuto, S. Kao, X. Shi, A.A. Tavakoly, M. Jin, W. Guo, T. Zhao, Y. Wang, P.E. Thornton, and F.M. Hoffman. "Streamflow in the Columbia River Basin: Quantifying Changes Over the Period 1951–2008 and Determining the Drivers of Those Changes." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.
110. **Mao, J.**, D.M. Ricciuto, and L. Meng. "Quantifying the GPP Uncertainties in the E3SM Land Model (ELM) Using FLUXNET Data." Analyzing Observations and Models of Carbon, Energy, and Water Fluxes: Working Group and Incubator, October 15–17, 2019, Lawrence Berkeley National Laboratory, Berkeley, CA, USA.
111. **Mao, J.**, X. Shi, D.M. Ricciuto, F.M. Hoffman, P. Thornton, and M. Xu. "Simulations and Evaluations of Version 1.0 of E3SM Land Model (ELM) for the LS3MIP." AGU Chapman Conference on Understanding Carbon Climate Feedbacks, August 26–29, 2019, San Diego, CA, USA.
112. **Mao, J.**, X. Shi, D.M. Ricciuto, F.M. Hoffman, P. Thornton, and M. Xu. "Simulations and Evaluations of Version 1.0 of E3SM Land Model (ELM) for the LS3MIP." CMIP6 Model Analysis Workshop, March 2019, Barcelona, Spain.
113. **Mao, J.**, and coauthors. "Phenological Improvement and Evaluation of ELM Using the SPRUCE Observations." ESA Annual Meeting, August 12–16, 2019, Louisville, Kentucky, USA.
114. **Mao, J.**, and coauthors. "Phenological Improvement and Evaluation of ELM Using the SPRUCE Observations." DOE Environmental System Science (ESS) PI Meeting, May 2019, Potomac, MD, USA.
115. **Mao, J.**, and coauthors. "Detection and Attribution of Regional Terrestrial Hydrology Changes Using Factorial ELM Simulations." ORNL TES SFA Review Meeting, June 3–5, 2019, Duluth, MN, USA.
116. Meng, L., Y. Zhou, **J. Mao**, and X. Li. "Photoperiod Effects on Spring Leaf Out of Deciduous Forests." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.
117. Meng, L., Y. Zhou, **J. Mao**, and Z. Wang. "How Do Trees Know When to Leaf Out in a Warmer and Brighter City?" NASA Terrestrial Ecology Science Team Meeting, September 23–25, 2019, College Park, MD, USA.
118. Meng, L., Y. Zhou, **J. Mao**, X. Li, and G. Asrar. "Characterizing Spatiotemporal Changes of Spring Green-Up Under Climate Change and Urbanization." ESA Annual Meeting, August 12–16, 2019, Louisville, Kentucky, USA.
119. Notaro, M., F. Wang, Y. Yu, and **J. Mao**. "Projected Changes in the Terrestrial and Oceanic Regulators of Climate Variability Across Sub-Saharan Africa." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.

120. Ricciuto, D.M., **J. Mao**, and others. "Improving ELM Carbon Cycle Predictions With Observations and Experiments From Point to Regional Scales." ORNL TES SFA Review Meeting, June 3–5, 2019, Duluth, MN, USA.
121. Ricciuto, D.M., X. Shi, Dan Lu, **J. Mao**, and P.J. Hanson. "Implications of SPRUCE Results for the Long-Term Carbon Balance of Boreal Peatlands: A Modeling Study Using ELM-SPRUCE." DOE Environmental System Science (ESS) PI Meeting, May 2019, Potomac, MD, USA.
122. Sebestyen, S., N. Griffiths, P. Hanson, J. Warren, X. Shi, D. Ricciuto, **J. Mao**, C. Iversen, L. Gu, and R. Kolka. "Water Science Objectives and Water Budget Quantification in the SPRUCE Experiment." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.
123. Shi, X., and coauthors including **J. Mao**. "Representing Northern Peatland Vegetation and Biogeochemistry With ELM." ORNL TES SFA Review Meeting, June 3–5, 2019, Duluth, MN, USA.
124. Town Hall on Artificial Intelligence. August 20–21, 2019, ORNL, TN, USA.
125. Wang, Y., **J. Mao**, M. Jin, and Forrest Hoffman. "Developing a Gridded Upscaled Soil Moisture Dataset Using Sparse In Situ Observations." Catchment Science: Interactions of Hydrology, Biology, and Geochemistry, Gordon Research Conference, June 23–28, 2019, Andover, NH, USA.
126. Wang, Y., M. Jin, A. Muhammad, **J. Mao**, Y. Zhu, L. Tang, L. Liu, B. Liu, and X. Zhang. "A Scalable Modeling Framework for the Sustainability of the Global Crop Supply Chain Focusing on U.S.-China Interactions." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.
127. Workshop on Urban Scale Processes and Their Representation in High Spatial Resolution Earth System Models. May 22–24, 2019, Argonne National Laboratory, IL, USA.
128. Zeng, Z., S. Piao, L. Li, P. Ciais, L. Peng, X. Lian, T. Wang, **J. Mao**, Y. Yang, X. Shi, and R. Myneni. "Earth Greening and Terrestrial Water Cycle Change." AGU Fall Meeting, December 9–13, 2019, San Francisco, CA, USA.

2018

129. Forbes, W., **J. Mao**, and coauthors. "Contribution of Climatic and Non-Climatic Forcings to US Runoff Changes for the Period 1950–2010." GEM-ASEE Doctoral Engineering Research Showcase, January 2018, Washington DC, US.
130. Huntzinger, D., and coauthors including **J. Mao**. "Uncertainty in Response of Net Land Sink to Rising Atmospheric CO2 Undermines Climate Projections." ESA Annual Meeting, August 5–10, 2018, New Orleans, LA, USA.
131. Kim, Y., Z. Wang, H. Seo, and **J. Mao**. "Surface Temperature Variation Induced by the LAI Change in Arctic Tundra." AGU Fall Meeting, December 2018, Washington DC, US.
132. **Mao, J.**, L. Meng, D.M. Ricciuto, X. Shi, J.M. Warren, P.J. Hanson, P.E. Thornton, Y. Zhou, and A.D. Richardson. "Phenological Improvement of ELM and Its Feedbacks to Terrestrial Hydrological Cycle." AGU Fall Meeting, December 2018, Washington DC, US.
133. **Mao, J.**, and coauthors. "Predictability of Tropical Vegetation Greenness Using Sea Surface Temperatures." NGEE-Tropics Annual Meeting, December 2018, Washington DC, US.
134. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Nanjing University of Information Science and Technology, June 2018, China (Invited).
135. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Nanjing University, June 2018, China (Invited).
136. **Mao, J.**, and coauthors. "Contribution of Environmental Forcings to US Runoff Changes for the Period 1950–2010." The 15th Annual Meeting of Asia Oceania Geosciences Society, June 2018, Honolulu, Hawaii, US.

137. **Mao, J.**, and coauthors. "Contribution of Environmental Forcings to US Runoff Changes for the Period 1950–2010." The Robert Dickinson Symposium on Earth System Modeling: Past, Present, and Future, May 2018, Austin, TX, US (Invited).
138. **Mao, J.**, and coauthors. "Contribution of Environmental Forcings to US Runoff Changes for the Period 1950–2010." The 8th GEWEX Open Science Conference: Extremes and Water on the Edge, May 2018, Canmore, Alberta, Canada.
139. **Mao, J.**, and coauthors. "Prediction of Tropical Vegetation Growth Using Sea Surface Temperatures." DOE Environmental System Science (ESS) PI Meeting, May 2018, Potomac, MD.
140. **Mao, J.**, and coauthors. "Phenological Evaluation and Improvement of ELM Using SPRUCE Observations." SPRUCE China Science Exchange Workshop, September 2018, Grand Rapids, MN, USA.
141. Meng, L., **J. Mao**, Y. Zhou, X. Li, D. Ricciuto, X. Shi, and F. Yuan. "Dual Influences of Urbanization on Spring Phenology: A Declining Advance Effect." Terrestrial Systems Modeling Group Meeting at ORNL, August 2018.
142. Meng, L., **J. Mao**, Y. Zhou, X. Li, D. Ricciuto, X. Shi, and F. Yuan. "How Do Trees Know When to Leaf Out in Urban Areas?" The 2018 Summer Student/Postgraduate/Faculty Poster Session at ORNL, August 2018.
143. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. "Evaluation of the Representation of Terrestrial Feedbacks Across Sub-Saharan Africa in the CMIP5 Earth System Models." Earth and Environmental Systems Modeling (EESM) PI Meeting, November 2018, Potomac, MD, USA.
144. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. "Elucidating Observed Land Surface Feedbacks Across Sub-Saharan Africa." Earth and Environmental Systems Modeling (EESM) PI Meeting, November 2018, Potomac, MD, USA.
145. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. "Elucidating Observed Land Surface Feedbacks Across Sub-Saharan Africa." AGU Fall Meeting, December 2018, Washington DC, US.
146. Ricciuto, D.M., Dan Lu, **J. Mao**, X. Shi, Anthony King, and P.J. Hanson. "Sensitivity of Simulated Peatland Carbon and Energy Flux Warming Responses to Biogeochemistry Process Uncertainty." DOE Environmental System Science (ESS) PI Meeting, May 2018, Potomac, MD.
147. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. "Investigating the CO2 Effects and Human Intervention on Water Cycle." Nanjing University of Information Science and Technology, June 2018, China (Invited).
148. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. "Investigating the CO2 Effects and Human Intervention on Water Cycle." Nanjing University, June 2018, China (Invited).
149. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. "Investigating the CO2 Effects and Human Intervention on Water Cycle." The 15th Annual Meeting of Asia Oceania Geosciences Society, June 2018, Honolulu, Hawaii, US.
150. Shi, X., D.M. Ricciuto, P.E. Thornton, P.J. Hanson, X. Xu, F. Yuan, **J. Mao**, J. Warren, R.J. Norby, Steve Sebestyen, Natalie Griffiths, David J. Weston, and A.P. Walker. "Representing Northern Peatland Hydrology and Biogeochemistry With the ELM Land Surface Model." DOE Environmental System Science (ESS) PI Meeting, May 2018, Potomac, MD.
151. Xu, M., F.M. Hoffman, S. Mahajan, **J. Mao**, and P. Levine. "Oceanic Drivers for Tropical Terrestrial Carbon Cycle and Extreme." AGU Fall Meeting, December 2018, Washington DC, US.
152. Yuan, F., A. Breen, V. Salmon, C. Iverseen, J. Kumar, S. Kao, B. Sulman, **J. Mao**, P. Thornton, and S. Wullschleger. "Assessments of Multiple Plant Function Types in E3SM Land Model Across Six Ecotypes in Kougarok Intensive Study Sites, Seward Peninsula, Alaska." AGU Fall Meeting, December 2018, Washington DC, US.

153. Zhang, L., P. Li, **J. Mao**, X. Shi, X. Ren, and H. He. "Contribution of Tropical Forests to the Changes of Global Land Carbon Sink." AGU Fall Meeting, December 2018, Washington DC, US.

2017

154. Cui, E., and coauthors including **J. Mao**. "Uncertainty Source of Modeled Ecosystem Productivity in East Asian Monsoon Region: A Traceability Analysis." AGU Fall Meeting, December 2017, New Orleans, LA, US.
155. Huang, M., and coauthors including **J. Mao**. "Seasonal Responses of Terrestrial Ecosystem Water-Use Efficiency to Climate Change." 10th International Carbon Dioxide Conference, August 2017, Interlaken, Switzerland.
156. Kao, S., and coauthors including **J. Mao**. "Can Earth System Model Provide Reasonable Natural Runoff Estimates to Support Water Management Studies?" AGU Fall Meeting, December 2017, New Orleans, LA, US.
157. King, A.W., and coauthors including **J. Mao**. "Implications of Uncertainty in Fossil Fuel Emissions for Terrestrial Ecosystem Modeling." AGU Fall Meeting, December 2017, New Orleans, LA, US.
158. King, A.W., **J. Mao**, D. Ricciuto, and Robert J. Andres. "Implications of Uncertainty in Fossil Fuel Emissions for Terrestrial Ecosystem Modeling." DOE Environmental System Science (ESS) PI Meeting, April 2017, Potomac, MD.
159. Koven, C., and **J. Mao**. "Research and Analysis for CMIP6." RUBISCO Scientific Focus Area Triennial Review, September 2017, Gaithersburg, Maryland, US.
160. **Mao, J.**, and coauthors. "Detection and Attribution of the Terrestrial Runoff in the Conterminous United States." The 98th American Meteorological Society Annual Meeting, January 2018, Austin, TX, US.
161. **Mao, J.**, and coauthors. "Spatially and Seasonally Asymmetric Responses of Amazon Forests to El Niño." AGU Fall Meeting, December 2017, New Orleans, LA, US.
162. **Mao, J.**, and coauthors. "Improving the Representation of Human-Earth System Interactions." US-China Joint Symposium on the Nexus of Food, Energy, and Water Systems, December 2017, Nashville, TN, US.
163. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Seminar of EAS Fall 2017, November 2017, Georgia Institute of Technology, GA, US (Invited).
164. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." The University of Texas at Austin, October 2017, Austin, US (Invited).
165. **Mao, J.** "Detection and Attribution (D&A) Application to Biogeochemistry." RUBISCO Scientific Focus Area Triennial Review, September 2017, Gaithersburg, Maryland, US.
166. **Mao, J.** "Driving Mechanisms and Feedbacks of the Land Greening." RUBISCO Scientific Focus Area Triennial Review, September 2017, Gaithersburg, Maryland, US.
167. **Mao, J.** "Terrestrial Hydrologic Simulation and Detection-Attribution." Workshop between U.S. Army Engineer Research and Development Center and ORNL, September 2017, Oak Ridge, US (Invited).
168. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." The 5th iLEAPS Science Conference, September 2017, Oxford, UK (Invited).
169. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Seminar of Geological & Atmospheric Sciences, August 2017, Iowa State University, Ames, Iowa (Invited).
170. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Seminar of Institute of Atmospheric Physics in Chinese Academy of Sciences, June 2017, Beijing, China (Invited).
171. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Seminar

of College of Urban and Environmental Sciences, June 2017, Peking University, Beijing, China (Invited).

172. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Seminar of Department of Environmental Science and Engineering, June 2017, Fudan University, Shanghai, China (Invited).
173. **Mao, J.**, W. Fu, W. Forbes, X. Shi, D. Ricciuto, M. Jin, and S. Kao. "Detection and Attribution of the Terrestrial Runoff in the Conterminous United States." DOE Environmental System Science (ESS) PI Meeting, April 2017, Potomac, MD.
174. **Mao, J.**, and coauthors. "Driving Mechanisms and Feedbacks of the Land Greening." Fourth Santa Fe Conference on Global and Regional Climate Change, February 2017, Santa Fe, NM (Invited).
175. Meng, L., **J. Mao**, Y. Zhou, D. Ricciuto, X. Shi, and F. Yuan. "Changes of Urban Phenology and Their Drivers." Summer Student/Postgraduate/Faculty Poster Session, August 2017, ORNL.
176. Notaro, M., and coauthors including **J. Mao**. "Do State-of-the-Art CMIP5 ESMs Accurately Represent Observed Vegetation-Rainfall Feedbacks? Focus on the Sahel." AGU Fall Meeting, December 2017, New Orleans, LA, US.
177. Notaro, M., and coauthors including **J. Mao**. "Elucidating Observed Land Surface Feedbacks Across Sub-Saharan Africa." Earth and Environmental Systems Modeling (EESM) PI Meeting, November 2017, Potomac, MD, US.
178. Piao, S., and coauthors including **J. Mao**. "Weakening Temperature Control on the Interannual Variations of Spring Carbon Uptake Across Northern Lands." AGU Fall Meeting, December 2017, New Orleans, LA, US.
179. Ricciuto, D., X. Shi, P.J. Hanson, **J. Mao**, and the SPRUCE Model Intercomparison Team. "Methods and Initial Results for a Model Intercomparison Study in a Northern Peatland." DOE Environmental System Science (ESS) PI Meeting, April 2017, Potomac, MD.
180. Shi, X., and coauthors including **J. Mao**. "Representing Northern Peatland Hydrology and Biogeochemistry with ALM Land Surface Model." AGU Fall Meeting, December 2017, New Orleans, LA, US.
181. Shi, X., D.M. Ricciuto, P.E. Thornton, P.J. Hanson, X. Xu, **J. Mao**, J. Warren, S. Sebestyen, N.A. Griffiths, R.J. Norby, A.P. Walker, and D. J. Weston. "Representing Northern Peatland Hydrology and Biogeochemistry with ALM." DOE Environmental System Science (ESS) PI Meeting, April 2017, Potomac, MD.
182. Thornton, P.E., and coauthors including **J. Mao**. "Biospheric Feedback Effects in a Synchronously Coupled Model of Human and Earth Systems." AGU Fall Meeting, December 2017, New Orleans, LA, US.
183. Wu, D., and coauthors including **J. Mao**. "Asymmetric Responses of Primary Productivity to Altered Precipitation Simulated by Land Surface Models Across Three Long-term Grassland Sites." AGU Fall Meeting, December 2017, New Orleans, LA, US.
184. Yan, B., **J. Mao**, F.M. Hoffman, M Xu, and X. Shi. "To What Extent Can Variability of Tropical Vegetation Growth Be Predicted Using Sea Surface Temperatures?" DOE Environmental System Science (ESS) PI Meeting, April 2017, Potomac, MD.
185. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto, Joshua S. Fu, Chris D. Jones, and N. Carvalhais. "Evaluation of Extratropical Forest Biomass in Earth System Models Over the Northern Hemisphere." Fourth Santa Fe Conference on Global and Regional Climate Change, February 2017, Santa Fe, NM.
186. Zhu, Z., and coauthors including **J. Mao**. "Greening of the Earth and Its Drivers." 10th International Carbon Dioxide Conference, August 2017, Interlaken, Switzerland.

2016

187. Yan, B., and coauthors including **J. Mao**. "Seasonally Asymmetric Responses of Amazon Forests to El Niño." NGEE-Tropics ENSO Research Meeting, December 2016, San Francisco, CA, US.
188. Wang, F., and coauthors including **J. Mao**. "Advancing a Model-Validated Statistical Method for Decomposing the Key Oceanic Drivers of Observed Regional Climate Variability and Evaluating Model Performance: Focus on North African Rainfall in CESM." AGU Fall Meeting, December 2016, San Francisco, CA, US.
189. Yu, Y., and coauthors including **J. Mao**. "Vegetation-Rainfall Feedbacks Across the Sahel: A Combined Observational and Modeling Study." AGU Fall Meeting, December 2016, San Francisco, CA, US.
190. Huang, M., and coauthors including **J. Mao**. "Seasonal Responses of Terrestrial Ecosystem Water-Use Efficiency to Climate Change." AGU Fall Meeting, December 2016, San Francisco, CA, US.
191. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto, and Joshua S. Fu. "Uncertainty Quantification of Extratropical Forest Biomass in CMIP5 Models Over the Northern Hemisphere." AGU Fall Meeting, December 2016, San Francisco, CA, US.
192. Di Vittorio, A., **J. Mao**, and X. Shi. "Evaluating the Need for Integrated Land Use and Land Cover Analysis for Robust Assessment of Carbon-Related Climate Adaptation and Mitigation Strategies." AGU Fall Meeting, December 2016, San Francisco, CA, US.
193. **Mao, J.**, and coauthors. "Human-Induced Greening of the Northern Extratropical Land Surface." AGU Fall Meeting, December 2016, San Francisco, CA, US.
194. **Mao, J.**, and coauthors. "Disentangling Natural and Anthropogenic Controls on Terrestrial Evapotranspiration and Vegetation Growth Trends." Seminar of National Center for Meteorological Research at Meteorology France, November 2016, Toulouse, France (Invited).
195. **Mao, J.**, and coauthors. "Human-Induced Greening of the Northern Extratropical Land Surface." DOE Regional & Global Climate Modeling (RGCM) Program, November 29–December 1, 2016, Rockville, MD, US.
196. **Mao, J.**, and coauthors. "Disentangling Natural and Anthropogenic Controls on Vegetation Growth Trends." Model Hierarchies Workshop, November 2–4, 2016, Princeton University, New Jersey, US.
197. **Mao, J.**, and coauthors. "Disentangling Natural and Anthropogenic Controls on Vegetation Growth Trends." BGC-Feedback Project Meeting, October 30, 2016, ORNL, Oak Ridge, TN, US.
198. Yan, B., **J. Mao**, X. Shi, R.E. Dickinson, X. Zhang, J. Wu, and D.M. Ricciuto. "Seasonally Asymmetric Responses of Amazon Forests to El Niño." NGEE-Tropics Annual Meeting, September 21–22, 2016, Smithsonian S. Dillon Ripley Center, Washington, DC, US.
199. Khaleel, K., and coauthors including **J. Mao**. "ORNL Briefing on FY16 S&T Goals and Objectives for DOE Biological and Environmental Research." October 4, 2016, Washington, DC, US.
200. Kalser, D., and coauthors including **J. Mao**. "The National Extreme Events Data and Research Center (NEED)." ORNL Annual Meeting, September 14, 2016, Oak Ridge, TN, US.
201. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto, and Joshua S. Fu. "Evaluation of Forest Biomass in CMIP5 Models Over Northern High Latitudes." Earth System Modeling Workshop, August 16, 2016, Oak Ridge, TN, US.
202. **Mao, J.**, D.M. Ricciuto, P.E. Thornton, J.M. Warren, Anthony W. King, X. Shi, Colleen M. Inversen, and R.J. Norby. "Evaluating the Community Land Model in a Pine Stand with 13CO2 and Shading Manipulations." ESA Annual Meeting, August 7–12, 2016, Fort Lauderdale, FL, US.
203. **Mao, J.**, and coauthors. "Human-Induced Greening of the Northern Extratropical Land Surface." Terrestrial Ecosystem Modeling Group Meeting, June 22, 2016, ORNL, Oak Ridge, TN, US.

204. **Mao, J.**, and coauthors. "Improving the Representation of the Human Component in ACME." The "3 by 5" Talk in CCSI, May 2, 2016, ORNL, Oak Ridge, TN, US.
205. Randerson, J.T., and coauthors including **J. Mao**. "The International Land Model Benchmarking (ILAMB) Package." The 2016 ILAMB Workshop, May 16–18, 2016, Washington, DC, US.
206. Ricciuto, D.M., and coauthors including **J. Mao**. "Uncertainty Quantification in the ACME Land Model." The 2016 ILAMB Workshop, May 16–18, 2016, Washington, DC, US.
207. Mao, J., W. Forbes, D.M. Ricciuto, M. Jin, X. Shi, P.E. Thornton, and F.M. Hoffman. "A Framework of Detecting and Attributing Terrestrial Ecosystem Dynamics." The 2016 ILAMB Workshop, May 16–18, 2016, Washington, DC, US (Invited).
208. Mcdowell, N., and coauthors including **J. Mao**. "NGEE-Tropics El Niño and Drought Impacts Research." The 2016 Environmental System Science (ESS) PI Meeting, April 26–27, 2016, Potomac, MD, US.
209. **Mao, J.**, W. Forbes, D.M. Ricciuto, M. Jin, X. Shi, P.E. Thornton, and F.M. Hoffman. "A Framework of Detecting and Attributing Terrestrial Ecosystem Dynamics." The 2016 Environmental System Science (ESS) PI Meeting, April 26–27, 2016, Potomac, MD, US.
210. Shi, X., and coauthors including **J. Mao**. "Representing Northern Peatland Hydrology and Biogeochemistry with the Community Land Model." The 2016 Environmental System Science (ESS) PI Meeting, April 26–27, 2016, Potomac, MD, US.
211. **Mao, J.**, and coauthors. "Human-Induced Greening of the Northern Extratropical Land Surface." The 2016 Annual Symposium of the US International Association of Landscape Ecology (US-IALE), April 4–7, 2016, Asheville, NC, US (Invited).
212. **Mao, J.**, Whitney Forbes, D.M. Ricciuto, M. Jin, X. Shi, P.E. Thornton, and F.M. Hoffman. "A Framework of Detecting and Attributing Terrestrial Ecosystem Dynamics." CCSI SAB Meeting, March 30, 2016, Oak Ridge, TN, US.
213. Shi, X., and coauthors including **J. Mao**. "Improving Representation of Human-Earth System Interactions." CCSI SAB Meeting, March 30, 2016, Oak Ridge, TN, US.
214. Hoffman, F.M., **J. Mao**, X. Yang, N. Collier, X. Shi, G. Wang, M. Xu, and C. Yang. "Biogeochemistry-Climate Feedbacks Scientific Focus Area." CCSI SAB Meeting, March 30, 2016, Oak Ridge, TN, US.
215. **Mao, J.**, and coauthors. "Disentangling Natural and Anthropogenic Controls on Terrestrial Evapotranspiration and Vegetation Growth Trends." Seminar at the Yale School of Forestry & Environmental Studies, March 28, 2016, Yale University, New Haven, CT, US (Invited).

2015

216. Yang, C., **J. Mao**, F. Hoffman, D.M. Ricciuto, and J. Fu. "Evaluation of Vegetation Biomass in CMIP5 Models Over the Northern High-Latitudes." AGU Fall Meeting, December 2015, San Francisco, CA, US.
217. Huntzinger, D., and coauthors including **J. Mao**. "Nitrogen Dynamics are a Key Factor in Explaining Global Land Carbon Sink." AGU Fall Meeting, December 2015, San Francisco, CA, US.
218. Yu, Y., M. Notaro, F. Wang, **J. Mao**, X. Shi, and Y. Wei. "Observed Oceanic and Terrestrial Drivers of North African Climate." AGU Fall Meeting, December 2015, San Francisco, CA, US.
219. Shi, X., D. Ricciuto, X. Xu, Peter Thornton, Paul Hanson, **J. Mao**, Steven Sebestyen, and Natalie Griffiths. "Representing Northern Peatland Hydrology and Biogeochemistry Within the Community Land Model." AGU Fall Meeting, December 2015, San Francisco, CA, US.
220. Mei, R., D. Ricciuto, **J. Mao**, Forrest Hoffman, and Jitendra Kumar. "Sensitivity of Land Surface Modeling to Parameters: An Uncertainty Quantification Method Applied to the Community Land Model." AGU Fall Meeting, December 2015, San Francisco, CA, US.

221. Di Vittorio, A., **J. Mao**, and X. Shi. "The Influence of Historical Land Use and Land Cover Change Assumptions, CO2 Fertilization, and Nitrogen Deposition on Global Carbon Balance in an Earth System Model." AGU Fall Meeting, December 2015, San Francisco, CA, US.
222. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. "Evaluating CMIP5 Models' Representation of Oceanic Drivers of North African Climate." AGU Fall Meeting, December 2015, San Francisco, CA, US.
223. **Mao, J.**, and coauthors. "Disentangling Climatic and Anthropogenic Controls on Global Terrestrial Evapotranspiration Trends." AGU Fall Meeting, December 2015, San Francisco, CA, US.
224. Mu, M., and coauthors including **J. Mao**. "Design and Application of a Community Land Benchmarking System for Earth System Models." AGU Fall Meeting, December 2015, San Francisco, CA, US.
225. Huang, M., and coauthors including **J. Mao**. "Change in Terrestrial Ecosystem Water-Use Efficiency Over the Last Three Decades." AGU Fall Meeting, December 2015, San Francisco, CA, US.
226. Shi, X., **J. Mao**, Z. Zeng, P. Thornton, F.M. Hoffman, and D.M. Ricciuto. "Biophysical Feedbacks of Vegetation to Global Climate Change Over the Past Three Decades." ACME Meeting, November 2015, Albuquerque, NM, US.
227. **Mao, J.**, and coauthors. "Evaluation of Forest Biomass in CMIP5 Models Over the Northern High-Latitudes." EMBRACE-CMIP Analysis and Modelling Workshop, October 20–23, 2015, Dubrovnik, Croatia.
228. **Mao, J.** "Human-Induced Greening of the Northern High-Latitude Land Surface." Nelson Institute Center for Climatic Research Seminar, September 18, 2015, University of Wisconsin-Madison, Madison, US (Invited).
229. **Mao, J.**, D.M. Ricciuto, and X. Shi. "Sensitivity of Land-Atmosphere Fluxes to Biogeophysical and Biogeochemical Parameters in the Community Land Model." ESA Annual Meeting, August 9–14, 2015, Baltimore, MD, US.
230. **Mao, J.**, D.M. Ricciuto, P.E. Thornton, J.M. Warren, Anthony W. King, X. Shi, Colleen M. Inversen, and R.J. Norby. "Evaluating the Community Land Model in a Pine Stand With 13CO2 and Shading Manipulations." ORNL TES-SFA Triennial Review, June 23–24, 2015, Gaithersburg, MD, US.
231. Yang, C., **J. Mao**, F. Hoffman, D.M. Ricciuto, and J.S. Fu. "Evaluation of Vegetation Biomass in CMIP5 Models Over the Northern High-Latitudes." CCSI Earth System Modeling Workshop, June 9, 2015, Oak Ridge, TN, US.
232. Di Vittorio, A., and **J. Mao**. "Evaluating the Effects of Different Historical Land Use/Cover Trajectories on Terrestrial Carbon." The 20th Annual CESM Workshop, June 2015, Breckenridge, CO, US.
233. **Mao, J.** "Impacts of Natural and Human Forcings on Global Land Evapotranspiration and Vegetation Growth." International Workshop on Quantifying Uncertainties in Land Surface Models, May 26, 2015, Beijing Normal University, Beijing, China (Invited).
234. Ricciuto, D.M., and **J. Mao**. "Sensitivity of the Community Land Model to Biogeochemical and Biogeophysical Parameters." International Workshop on Quantifying Uncertainties in Land Surface Models, May 26, 2015, Beijing Normal University, Beijing, China.
235. Gu, L., and coauthors including **J. Mao**. "Climate Variability as a Key Factor for Model Improvement: Insights From Observed and Modeled Ecosystem Functional Responses to Precipitation Regimes and Associated Stresses in a Central US Forest." Environmental System Science Principal Investigator (PI) Meeting, April 28–29, 2015, Potomac, MD, US.
236. Ricciuto, D.M., and coauthors including **J. Mao**. "Sensitivity of Community Land Model Carbon Fluxes and Biomass to Parameters." Environmental System Science Principal Investigator (PI) Meeting, April 28–29, 2015, Potomac, MD, US.

237. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, **J. Mao**, Steven Sebestyen, Natalie Griffiths, and Gautam Bisht. "Representing Northern Peatland Microtopography and Hydrology Within the Community Land Model." Environmental System Science Principal Investigator (PI) Meeting, April 28–29, 2015, Potomac, MD, US.
238. **Mao, J.**, and coauthors. "Disentangling Climatic and Anthropogenic Controls on Global Terrestrial Evapotranspiration Trends." CCSI SAB Meeting, April 9, 2015, Oak Ridge, TN, US.
239. Wei, Y., and coauthors including **J. Mao**. "The North American Carbon Program Multi-Scale Synthesis and Terrestrial Model Intercomparison Project: Environmental Driver Data." CCSI SAB Meeting, April 9, 2015, Oak Ridge, TN, US.
240. Di Vittorio, A., and coauthors including **J. Mao**. "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." European Geosciences Union General Assembly, April 12–17, 2015, Vienna, Austria.
241. Di Vittorio, A., and coauthors including **J. Mao**. "The Effects of Land Unit Boundaries on GCAM Land Use and Cover." March 2–4, 2015, Boulder, Colorado, US.
242. **Mao, J.**, and coauthors. "How Anthropogenic Effects Modulate the Climate-Dominated Land Evapotranspiration." CESM Land Model and Biogeochemistry Working Group Meetings, March 2–4, 2015, Boulder, Colorado, US.
243. Fang, Y., and coauthors including **J. Mao**. "Can Terrestrial Biosphere Models Capture the Response of Atmospheric CO2 Growth Rate to ENSO?" NACP and AmeriFlux Joint Meeting, January 26–29, 2015, Washington, D.C., US.
244. Wei, Y., and coauthors including **J. Mao**. "The North American Carbon Program Multi-Scale Synthesis and Terrestrial Model Intercomparison Project: Environmental Driver Data." NACP and AmeriFlux Joint Meeting, January 26–29, 2015, Washington, D.C., US.
245. Ricciuto, D.M., and coauthors including **J. Mao**. "Biogeophysical Controls on Land-Atmosphere Fluxes in the Community Earth System Model." NACP and AmeriFlux Joint Meeting, January 26–29, 2015, Washington, D.C., US.

2014

246. Fang, Y., and coauthors including **J. Mao**. "Can Terrestrial Biosphere Models Capture the Response of Atmospheric CO2 Growth Rate to ENSO?" December 2014, AGU Fall Meeting, San Francisco, CA, USA.
247. Huntzinger, D., and coauthors including **J. Mao**. "Trends in the Global Net Land Sink and Their Sensitivity to Environmental Forcing Factors: Results From the Multi-Scale Synthesis and Terrestrial Model Intercomparison Project (MsTMIP)." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
248. Hayes, D., and coauthors including **J. Mao**. "Model and Inventory Perspectives on the Role of Forests in the Global Carbon Cycle: Results from the Multi-Scale Synthesis and Terrestrial Model Intercomparison Project (MsTMIP)." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
249. Di Vittorio, A., and coauthors including **J. Mao**. "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." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
250. Ricciuto, D.M., and coauthors including **J. Mao**. "Biogeophysical Controls on Land-Atmosphere Fluxes in the Community Earth System Model." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
251. Zhang, L., and coauthors including **J. Mao**. "Evaluation of the Community Land Model Simulated Carbon and Water Fluxes Against Observations Over ChinaFLUX Sites." December 2014, AGU Fall Meeting, San Francisco, CA, USA.

252. Shi, X., and coauthors including **J. Mao**. "Investigating the Biogeophysical Impacts of Land Cover Change on Future Climate." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
253. Piao, S., and coauthors including **J. Mao**. "Evidence for a Weakening Relationship Between Interannual Temperature Variability and Northern Vegetation Activity." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
254. **Mao, J.**, and coauthors. "Dynamics of Global Vegetation Biomass Simulated by the Integrated Earth System Model." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
255. Zeng, Z., and coauthors including **J. Mao**. "A Worldwide Analysis of Spatiotemporal Changes in Water Balance-Based Evapotranspiration From 1982 to 2009." December 2014, AGU Fall Meeting, San Francisco, CA, USA.
256. **Mao, J.**, X. Shi, P.E. Thornton, B. Yan, and W. Fu. "The Impact of Natural and Human Forcings on the Global Terrestrial Hydrology Cycle and Vegetation Dynamics for the Past 3 Decades." October 24, 2014, Department of Industrial and Systems Engineering Graduate Seminar, The University of Tennessee at Knoxville, Knoxville, TN, USA (Invited).
257. **Mao, J.**, B. Yan, X. Shi, P.E. Thornton, F.M. Hoffman, and D.M. Lawrence. "Synthesis of Long-Term Remote Sensing LAI for Applications in Land Surface and Earth System Models: Homogenization and Intercomparison." May 12–14, 2014, Integrated Climate Modeling Principal Investigator Meeting, Washington, DC, USA.
258. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, and **J. Mao**. "Development and Testing the Hydrological Dynamics of Vegetated Wetland for CLM." May 12–14, 2014, Integrated Climate Modeling Principal Investigator Meeting, Washington, DC, USA.
259. Ricciuto, D.M., **J. Mao**, X. Shi, P.E. Thornton, and NACP Site Interim Synthesis Participants. "Performance of the Community Land Model at AmeriFlux and FLUXNET Sites." May 6–7, 2014, Terrestrial Ecosystem Science (TES)-Subsurface Biogeochemical Research (SBR) Joint Investigators Meeting, Washington, DC, USA.
260. Langan, R., R. Archibald, R. Mei, M. Plumlee, C. Yang, S. Mahajan, **J. Mao**, D. Ricciuto, X. Shi, and J. Fu. "Stochastic Parameterization for Extreme Precipitation in Climate Models." March 31–April 3, 2014, SIAM Conference on Uncertainty Quantification, Savannah, Georgia, USA.
261. Di Vittorio, A., L. Chini, B. Bond-Lamberty, **J. Mao**, X. Shi, and J. Truesdale. "From Land Use to Land Cover: Restoring the Afforestation Signal in GCAM to CESM Land Coupling and the Implications for CMIP5 RCP Simulations." February 2014, SDWG Winter Meetings, Boulder, CO, USA.
262. Thornton, P.E., B. Bond-Lamberty, K. Calvin, L. Chini, B. Collins, T. Craig, A. Di Vittorio, J. Edmunds, G. Hurtt, A. Jones, **J. Mao**, X. Shi, A. Thomson, and J. Truesdale. "The Influence of Prognostic Land Use and Land Cover Change Representations in CESM Simulations Over the Period 1850–2100." February 2014, SDWG Winter Meetings, Boulder, CO, USA.
263. **Mao, J.**, B. Yan, X. Shi, P.E. Thornton, F.M. Hoffman, and D.M. Lawrence. "Synthesis of Long-Term Remote Sensing LAI for Applications in Land Surface and Earth System Models: Homogenization and Intercomparison." February 2014, CESM Land Model and Biogeochemistry Working Group Meetings, Boulder, CO, USA.
264. **Mao, J.**, D.M. Ricciuto, P.E. Thornton, J.M. Warren, Anthony W. King, X. Shi, Colleen M. Inversen, and R.J. Norby. "Evaluating the Community Land Model in a Pine Stand with 13CO2 and Shading Manipulations." May 6–7, 2014, Terrestrial Ecosystem Science (TES)-Subsurface Biogeochemical Research (SBR) Joint Investigators Meeting, Washington, DC, USA.
265. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, **J. Mao**, S.D. Sebestyen, N.A. Griffiths, and Gautam Bisht. "Representing Northern Peatland Microtopography and Hydrology Within the Community Land Model." April 28–29, 2014, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.

266. Ricciuto, D.M., **J. Mao**, X. Shi, P.E. Thornton, and NACP Site Interim Synthesis Participants. "Performance of the Community Land Model at AmeriFlux and FLUXNET Sites." April 28–29, 2014, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.
267. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto, and J.S. Fu. "Evaluation of Vegetation Biomass in CMIP5 Models Over the Northern High-Latitudes." June 9, 2015, CCSI Earth System Modeling Workshop, Oak Ridge, TN, USA.
268. Di Vittorio, A. and **J. Mao**. "Evaluating the Effects of Different Historical Land Use/Cover Trajectories on Terrestrial Carbon." June 2015, The 20th Annual CESM Workshop, Breckenridge, CO, USA.
269. **Mao, J.** "Impacts of Natural and Human Forcings on the Global Land Evapotranspiration and Vegetation Growth." May 26, 2015, International Workshop on "Quantifying Uncertainties in Land Surface Models," Beijing Normal University, Beijing, China (Invited).
270. Ricciuto, D.M., and **J. Mao**. "Sensitivity of the Community Land Model to Biogeochemical and Biogeophysical Parameters." May 26, 2015, International Workshop on "Quantifying Uncertainties in Land Surface Models," Beijing Normal University, Beijing, China.
271. Gu, L., and coauthors including **J. Mao**. "Climate Variability as a Key Factor for Model Improvement: Insights from Observed and Modeled Ecosystem Functional Responses to Precipitation Regimes and Associated Stresses in a Central US Forest." April 28–29, 2015, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.
272. Ricciuto, D.M., and coauthors including **J. Mao**. "Sensitivity of Community Land Model Carbon Fluxes and Biomass to Parameters." April 28–29, 2015, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.
273. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, **J. Mao**, S.D. Sebestyen, N.A. Griffiths, and G., Bisht. "Representing Northern Peatland Microtopography and Hydrology Within the Community Land Model." April 9, 2015, CCSI SAB Meeting, Oak Ridge, TN, USA.
274. **Mao, J.**, D.M. Ricciuto, P.E. Thornton, J.M. Warren, Anthony W. King, X. Shi, C.M. Inversen, and R.J. Norby. "Evaluating the Community Land Model in a Pine Stand with 13CO2 and Shading Manipulations." April 9, 2015, CCSI SAB Meeting, Oak Ridge, TN, USA.
275. Wei, Y., and coauthors including **J. Mao**. "The North American Carbon Program Multi-scale Synthesis and Terrestrial Model Intercomparison Project: Environmental Driver Data." April 9, 2015, CCSI SAB Meeting, Oak Ridge, TN, USA.
276. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto, and J.S. Fu. "Evaluation of Vegetation Biomass in CMIP5 Models Over the Northern High-Latitudes." April 9, 2015, CCSI SAB Meeting, Oak Ridge, TN, USA.

2013

277. **Mao, J.**, B. Yan, X. Shi, P.E. Thornton, F.M. Hoffman, S. Piao, S. Liang, and D.M. Lawrence. Synthesis of remote sensing LAI for benchmark of global land surface models. Part 1: Homogenization and intercomparison. Presented at AGU Fall Meeting, December 2013, San Francisco, CA, USA.
278. Langan, R., R. Archibald, S. Mahajan, D. Ricciuto, C. Yang, R. Mei, **J. Mao**, and X. Shi. Stochastic Parameterization for extreme precipitation. Presented at AGU Fall Meeting, December 2013, San Francisco, CA, USA.
279. Tan, J., X. Wang, **J. Mao**, X. Shi, S. Peng, Z. Zeng, and S. Piao. Detection and attribution of vegetation growth change in China during the last thirty years. Presented at AGU Fall Meeting, December 2013, San Francisco, CA, USA.
280. Shi, X., P.E. Thornton, D.M. Ricciuto, P.J. Hanson, and **J. Mao**. Development and testing the hydrological dynamics of vegetated wetland for CLM. Presented at AGU Fall Meeting, December 2013, San Francisco, CA, USA.

281. Warren, J., and coauthors including **J. Mao**. Partitioning in Trees and Soils (PiTS): A field research facility for testing dynamic carbon partitioning representations within global models. Presented at the 98th Ecological Society of America (ESA) Annual Meeting, August 2013, Minneapolis, MN, USA.
282. **Mao, J.**, and coauthors. Global estimation of CMIP5 Earth System Models in simulating Leaf Area Index against remote-sensing products. Presented at the 18th Annual CESM Workshop, June 2013, Breckenridge, CO, USA.
283. Shi, X., and coauthors including **J. Mao**. Development and testing the hydrological dynamics of vegetated wetland for CLM. Presented at the 18th Annual CESM Workshop, June 2013, Breckenridge, CO, USA.
284. Archibald, R., S. Mahajan, **J. Mao**, B. Mayer, R. Mei, D. Ricciuto, and X. Shi. Parameterization of the influence of sub-grid scale land heterogeneity on convection in a climate model. Presented at the 18th Annual CESM Workshop, June 2013, Breckenridge, CO, USA.
285. Di Vittorio, A., B. Bond-Lamberty, **J. Mao**, L.P. Chini, J. Truesdale, X. Shi, M.L. Branstetter, W. Collins, P.E. Thornton, J. Edmonds, A.A Thomson, G.C. Hurtt, K. Calvin, A. Jones, and T. Craig. iESM update: New land-use coupling and initial results of a fully-coupled experiment. Presented at the 18th Annual CESM Workshop, June 2013, Breckenridge, CO, USA.
286. Ricciuto, D.M., **J. Mao**, X. Shi, D.J. Hayes, A.W. King, and P.E. Thornton. Modeling the terrestrial carbon cycle at regional to global scales: Parameter sensitivity and evaluation against benchmarks. Presented at TES/SBR Joint Principal Investigator's Meeting, May 2013, Washington DC, USA.
287. Shi, X., and coauthors including **J. Mao**. Development and testing the hydrological dynamics of vegetated wetland for CLM. Presented at TES/SBR Joint Principal Investigator's Meeting, May 2013, Washington DC, USA.
288. **Mao, J.**, and coauthors. Global estimation of CMIP5 Earth System Models in simulating Leaf Area Index against remote-sensing products. Presented at a special symposium entitled "Phenology for Disturbance Detection and Monitoring" at the 2013 US International Association of Landscape Ecology (US-IALE) Meeting, April 2013, Austin, TX, USA (Invited).
289. Shi, X., W.M. Post, P.E. Thornton, **J. Mao**, and D.M. Ricciuto. Evaluation and improvement of CLM4 litterfall and littermass based on the observed database. Presented at CCSI SAB Meeting, March 2013, Oak Ridge, TN, USA.
290. **Mao, J.**, X. Shi, P.E. Thornton, F.M. Hoffman, Z. Zhu, and R.B. Myneni. Global latitudinal-asymmetric vegetation growth trends and their driving mechanisms: 1982-2009. Presented at CCSI SAB Meeting, March 2013, Oak Ridge, TN, USA.
291. Ricciuto, D.M., and coauthors including **J. Mao**. Sensitivity of site-level CLM4 simulations to input meteorology. Presented at CESM Land Model and Biogeochemistry Working Group Meetings, February 2013, Boulder, CO, USA.
292. **Mao, J.** Global simulations, evaluations, and applications of CLM4 at ORNL. Presented at CESM Land Model and Biogeochemistry Working Group Meetings, February 2013, Boulder, CO, USA.
293. **Mao, J.**, D. Ricciuto, Peter Thornton, J. Warren, Richard Norby, and Colleen Iversen. Performance of simulated C partitioning within CLM4 based on 13CO2 and shading manipulations in a pine stand. Presented at CESM Land Model and Biogeochemistry Working Group Meetings, February 2013, Boulder, CO, USA.
294. **Mao, J.**, P. Thornton, X. Shi, D. Ricciuto, Gangsheng Wang, and P.J. Hanson. The development of CLM4 two-layer soil biogeochemical model using EBIS observations. Presented at CESM Land Model and Biogeochemistry Working Group Meetings, February 2013, Boulder, CO, USA.
295. Ricciuto, D.M., A. King, **J. Mao**, and P. Thornton. An ensemble global carbon cycle modeling framework for calibration and uncertainty quantification. Presented at the 4th NACP All-Investigators Meeting, February 2013, Albuquerque, NM, USA.

296. Shi, X., W. Post, P. Thornton, and **J. Mao**. Evaluation of CLM4 litterfall based on the observed database. Presented at the 4th NACP All-Investigators Meeting, February 2013, Albuquerque, NM, USA.
297. **Mao, J.**, D. Ricciuto, P. Thornton, J. Warren, R. Norby, and C. Iversen. Performance of simulated C partitioning within CLM4 based on 13CO2 and shading manipulations in a pine stand. Presented at the 4th NACP All-Investigators Meeting, February 2013, Albuquerque, NM, USA.

2012

298. Shi, X., **J. Mao**, P.E. Thornton, and F.M. Hoffman. Spatiotemporal pattern of CLM4 simulated evapotranspiration in response to multifactor environmental changes. Presented at AGU Fall Meeting, December 2012, San Francisco, CA, USA.
299. **Mao, J.**, X. Shi, P.E. Thornton, and F.M. Hoffman. Global latitudinal-asymmetric vegetation growth trends and their driving mechanisms over the past three decades. Presented at AGU Fall Meeting, December 2012, San Francisco, CA, USA.
300. Thornton, P.E., and coauthors including **J. Mao**. Influence of Human-Climate System Feedbacks on Predicted 21st Century Land Use/Land Cover Trajectories, Fossil Fuel Emissions, and Climate Change. Presented at AGU Fall Meeting, December 2012, San Francisco, CA, USA.
301. Forrest, M., J.T. Randerson, and **J. Mao**. Using Remotely-sensed Data Sets for Model Evaluation and Benchmarking. Presented at ForestSAT 2012, September 11–14, 2012, Oregon State University, Corvallis, Oregon, USA (Invited).
302. **Mao, J.** Terrestrial ecosystems under the changing climate. Presented at the Eleventh CTWF International Workshop, September 2012, Beijing, China (Invited).
303. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. Presented at CCSI SAB Meeting, January 2012, Oak Ridge, TN, USA.
304. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. Presented at TES Principal Investigator's Meeting, April 2012, Washington, DC, USA.
305. **Mao, J.**, and coauthors. Simulation and improvement of CLM4 based on 13CO2 and shading manipulations in a pine stand. Presented at TES Principal Investigator's Meeting, April 2012, Washington, DC, USA.
306. Shi, X., **J. Mao**, and coauthors. The impact of climate change, CO2, nitrogen deposition and land use change on contemporary global river flow. Presented at TES Principal Investigator's Meeting, April 2012, Washington, DC, USA.
307. Warren, J., and coauthors including **J. Mao**. Partitioning in Trees and Soils (PiTS): A field research facility for testing dynamic carbon partitioning representations within global models. Presented at TES Principal Investigator's Meeting, April 2012, Washington, DC, USA.
308. Hayes, D., and coauthors including **J. Mao**. Global carbon cycle model development, application, and evaluation. Presented at TES Principal Investigator's Meeting, April 2012, Washington, DC, USA.
309. **Mao, J.**, and coauthors. Two-layer treatment of litter and soil organic matter pools and fluxes for CLM. Presented at Joint Land, Biogeochemistry, and Chemistry-Climate Working Groups NCAR, February 2012, Boulder, CO, USA.
310. **Mao, J.**, and coauthors. Comparison of CLM predicted GPP, LAI, and NDVI against remote sensing-based estimates. Presented at Joint Land, Biogeochemistry, and Chemistry-Climate Working Groups NCAR, February 2012, Boulder, CO, USA.

2011

311. Thornton, P.E., **J. Mao**, X. Shi, and coauthors. Influence of prognostic land use on 21st-century climate prediction. Presented at AGU Fall Meeting, December 2011 (Invited).

312. **Mao, J.**, X. Shi, P.E. Thornton, S. Piao, and X. Wang. Causes of spring vegetation growth in the northern mid-high latitudes from 1982 to 2004. Presented at AGU Fall Meeting, December 2011, San Francisco, CA.
313. Jones, A.D., Collins, W.D., Edmonds, J., Torn, M.S., Janetos, A.C., Calvin, K., Thomson, A., Chini, L., **J. Mao**, Shi, X., Thornton, P., Hurtt, G.C., and Wise, M. Greenhouse gas policy influences climate via direct effects of land-use change. Presented at AGU Fall Meeting, December 2011, San Francisco, CA.
314. Shi, X., **J. Mao**, and coauthors. Runoff of the 20th and 21st centuries simulated by CESM1. Presented at AGU Fall Meeting, December 2011, San Francisco, CA.
315. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. Presented at the 16th Annual CESM Workshop, June 2011, Breckenridge, CO.
316. **Mao, J.**, and coauthors. The impact of climate, CO2, nitrogen deposition, and land use change on simulated contemporary global river flow. Presented at CESM Land Model Working Group Meeting, March 2011, Boulder, CO.
317. **Mao, J.**, and coauthors. ORNL progress in the IESM project. Presented at CESM Land Model Working Group Meeting, March 2011, Boulder, CO.

2010

318. **Mao, J.**, and coauthors. Remote sensing evaluation of CLMCN GPP. Presented at AGU Fall Meeting, December 2010, San Francisco, CA.
319. **Mao, J.**, and coauthors. The progress of prognostic land use and land cover change in CESM1. Presented at the 15th Annual CCSM Workshop, June 2010, Breckenridge, CO.

2009

320. US-China Workshop on the Climate-Energy Nexus. November 11–13, 2009, Oak Ridge, USA.
321. North American Carbon Program Second Joint Workshop Site-level Interim Synthesis Regional and Continental Interim Synthesis. November 9–11, 2009, Oak Ridge, USA.

2006

322. **Mao, J.**, and coauthors. Improvements of a dynamic global vegetation model and simulations of carbon and water from stand point to region. Presented at the International Conference on Regional Carbon Budgets, August 2006, Beijing, China.
323. The International Summer School of Climate Change Science for International Graduate Students. July 30–August 12, 2006, Beijing, China.
324. **Mao, J.**, and coauthors. Improvements of a dynamic global vegetation model and simulations of carbon and water at an upland-oak forest. Presented at the University Allied Workshop for Climate and Environmental Modeling (UAW), July 2006, Taiwan.
325. **Mao, J.**, and coauthors. Perspective of Dynamic Global Vegetation Models and Their Coupling with Climate System Model. Presented at the fourth allied workshop of LASG/CAS and Nanjing University on the development of climate system model, May 2006, Shaoxing, China.

2005

326. **Mao, J.**, and coauthors. The sensitivity of a dynamic global vegetation model to historical climate variability and CO2 in the conterminous China. Presented at the fourth CTWF international workshop on Land Surface Models and Their Applications, November 2005, Zhuhai, China.

2004

327. **Mao, J.**, and coauthors. Coupling of an Atmosphere-Vegetation Interaction Model (AVIM) to a

New Generation Grid Point Atmospheric General Circulation Model (GAMIL). Presented at the 8th meeting of Chinese outstanding youth scientists of atmospheric science, July 2004, Chengdu Province, China.

2003

328. **Mao, J.**, and coauthors. Land surface models and their coupling with GCM. Presented at the workshop of '973' project of large dataset management, September 2003, Hunan Province, China.