

## Jiafu Mao

Earth Systems Modeling Group

[Environmental Sciences Division \(ESD\)](#)

[Climate Change Science Institute \(CCSI\)](#)

[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

Quantification and prediction of carbon, hydrology, vegetation, and wildfire dynamics in the Earth system, utilizing field measurements, satellite products, process-oriented land surface and Earth system models, as well as various statistical methods including machine learning techniques; attribution of variations in Earth's land surface dynamics to both natural and anthropogenic drivers, such as urbanization, through the use of factorial model simulations or geoengineering model experiments.

## EDUCATION

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

## POSITIONS HELD

- 8/2009 – present, Senior Scientist, Scientist, Associate Scientist, and Postdoctoral Research Fellow at ORNL
- 7/2015 – present, Joint Faculty Professor, Associate Professor, and Assistant Professor in the Department of Industrial and Systems Engineering (ISE) and Institute for a Secure & Sustainable Environment of University of Tennessee at Knoxville (UTK)
- 1/2008 – 8/2009, Joint Postdoctoral Research Fellow, University of New South Wales and the Commonwealth Scientific and Industrial Research Organisation, Sydney and Melbourne, Australia
- 10/2006 – 1/2008, Assistant Research Scientist, Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China

## GRANTS

- 2023-2025, ORNL LDRD, “Coupled Ecosystem-and-engineering Decision-making Framework for Enhanced Weathering”, (PI)
- 2023-2028, DOE, “Terrestrial Ecosystem Science Scientific Focus Area”, (Theme Co-Lead, and responsible for C allocation modeling and ecosystem vulnerability modeling and analysis)
- 2023-2026, Reaching a New Energy Sciences Workforce (DOE), “Applied Geospatial Data-science Initiative for Urban Climate Change Studies (AGDI-UCCS)”, (Co-PI, and responsible for high-res urban-scale ELM simulation and analysis)
- 2023-2026, DOE, “Aligning Climate Analysis for Power Systems ‘ALCAPS’”, (Co-PI, and responsible for constraining high-resolution projection of wildfire changes in contiguous US).
- 2022-2025, DOE, “Reducing Uncertainties in Biogeochemical Interactions through Synthesis and

- Computation”, (Science Co-Lead/Topical Lead, and responsible for feedback study of soil moisture and Earth system, and soil moisture working group)
- 2022-2024, ORNL LDRD, “Assessing the impacts of disturbances on soil carbon cycling”, (Task Lead, and responsible for global wildfire analysis)
  - 2022-2024, DOE, “ESS Urban Hydrology Pilot Study: biogeochemical cycling along the urban interface”, (Task Lead, and responsible for urban-site representative analysis and ELM simulation)
  - 2023-2024, UTK ISE, “Detection and Attribution of Land Surface Changes”, (PI).
  - 2021-2023, ORNL LDRD, “Ecosystem Resilience to Thermal Extremes: Urbanization Impacts”, (PI)
  - 2021-2023, Computational Resource Utilization awarded by the Oak Ridge Leadership Computing Facility’s (OLCF) (PI).
  - 2022, National Science Foundation (NSF) “SRS RN: People-Centric Integrated Assessment Model for Regional Sustainability (PIAMRS): Focusing on the Central Appalachian Region”, (Funded Collaborator)
  - 2022, National Science Foundation (NSF) “SRS RN: Integrated and Convergent Sea Level Rise Adaptation for South Florida and the Gulf of Mexico”, (Funded Collaborator)
  - 2021, ORNL Environmental Sciences Division, “Fire Network and Database Workshop: creating new partnerships, integrating existing data, and accelerating fire research”, (Co-PI)
  - 2020-2021, ORNL Environmental Sciences Division, “Diagnostics and prediction of global wildfire changes using machine learnings”, (PI)
  - 2019, ORNL Environmental Sciences Division, “Quantifying environmental controls on wildfire changes: towards the development of multi-scale wildfire prediction system”, (PI)
  - 2019-2023, DOE, “Terrestrial Ecosystem Science Scientific Focus Area”, (Task Lead, and responsible for the improvement and evaluation of ELM phenology, wildfire disturbance, and sun-induced fluorescence)
  - 2019-2020, ORNL LDRD, “Development of a Land Model Testbed (LMT) for Rapid Assessment and Benchmarking of Multiscale Complex Biogeochemistry in Earth System Models”, (Co-PI, and responsible for the development of process-based benchmarks for the ILAMB using machine learning techniques)
  - 2018-2022, DOE, “Reducing Uncertainties in Biogeochemical Interactions through Synthesis and Computation”, (Science Co-Lead/Topical Lead, and responsible for the factorial ELM simulations for CMIP6 LS3MIP, and detection and attribution (D&A) of regional/global hydrology and phenology changes)
  - 2016, Early Career Funding of the ORNL Climate Change Science Institute, “Integrated Urban and Earth System Modelling”, (PI)
  - 2016-2018, DOE, “Terrestrial Ecosystem Science Scientific Focus Area”, (Task Lead, and responsible for the development and application of the D&A methodology to disentangle natural and anthropogenic controls on terrestrial ecosystem dynamics)
  - 2015-2019, DOE, “The Next Generation Ecosystem Experiment-Tropics”, (Task Lead, and responsible for better understanding the changes and drivers of tropical vegetation growth with multi-stream observations and model simulations under the RO1)
  - 2015-2017, DOE University Call, “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”, (ORNL Lead and Co-PI)
  - 2015-2016, NCAR SDWG, “The Effects of Land use/cover Conversion Assumptions on the Global Carbon Cycle and Climate in Historical CESM Simulations”, (Co-PI)
  - 2014-2017, DOE, “Quantifying Feedbacks and Uncertainties of Biogeochemical Processes in Earth System Models”, (Task Lead, and responsible for the evaluation of Earth system models and land surface models using remote sensing products, and the D&A study of the large-scale

- vegetation growth)
- 2012-2015, ORNL LDRD, “Stochastic Parameterization of the Influence of Subgrid-scale Land Heterogeneity on Convective Initiation”, (Co-PI, and responsible for the stochastic coupling of Community Land Model (CLM) to the atmosphere component of the Community Atmosphere Model (CAM), and the analysis of different results from the fully stochastic ensemble simulations)
- 2011-2015, DOE, “Terrestrial Ecosystem Science Scientific Focus Area”, (Task Lead, and responsible for the simulation, evaluation and application of CLM at different spatial-temporal scales, the study of the carbon-climate feedbacks using the Community Earth System Model (CESM), and the calibration and improvement of the CLM based on the <sup>13</sup>CO<sub>2</sub> and shading manipulations in a pine stand [Partitioning in Trees and Soil (PiTS)])
- 2011-2014, DOE, “Climate Science for a Sustainable Energy Future”, (Task Lead, and responsible for the development and evaluation of two-layer soil biogeochemical model in the CLM using the Enriched Background Isotope Study (EBIS) observations)
- 2010-2014, DOE, “Integrated Earth System Model”, (Task Lead, and responsible for the coupling of CESM/CLM, the Global Change Assessment Model (GCAM), and the Global Land-Use Model (GLM))
- 2008-2011, ORNL LDRD, “Prognostic land use and land cover change for a coupled climate-biogeochemistry model”, (Task Lead, and responsible for the coupling of CESM/CLM with the Integrated Model to Assess the Global Environment [IMAGE])
- 2007-2008, the China Meteorological Administration, “Improvement of the terrestrial ecosystem processes in the Earth system model”, (Co-PI)

## PENDING GRANTS

- 2024-2027, NSF, “DISES: Compound Climate Risk, Resilience, and Spatial Justice in Appalachia (CRITICSL)”, (Pending, Co-PI)
- 2025-2029, SRS RN: People-Centric Integrated Assessment Model for Regional Sustainability (PIAMRS): Focusing on the Central Appalachian Region (Pending, Senior Personnel)

## 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 for the special Issue “10<sup>th</sup> 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

- 2023-present, Lead of DOE RUBISCO Soil Moisture Working Group
- 2023-present, Award committee for the Science Serving Society and Stanley I. Auerbach for Excellence in Environmental Science awards.

- 2022-present, Award committee of ESA Asian Ecology Section
- 2021-2024, Member of North American Carbon Program (NACP) Science Leadership Group (SLG)
- 2021-2023, Member of the Justice, Equity, Diversity, and Inclusion (JEDI) committee in the AGU Hydrology Section
- 2020-present, Co-lead of Climate Change Initiative at the Institute for a Secure & Sustainable Environment of UTK
- 2020-present, Member of the Steering Committee for “The Next Big Thing” of Environment Sciences Division at ORNL
- 2015-present, Member of the Steering Committee for the Land Surface, Snow and Soil moisture Model Intercomparison Program (LS3MIP) for the Sixth Phase of the Coupled Model Intercomparison Project (CMIP6)

### **Scientific Conference Planning and Organization**

- 2023, Program Committee for KDD2023, August 6-10, Long Beach, CA
- 2022, Program Committee for the Tenth Workshop on Data Mining in Earth System Science (DMESS 2022; <https://www.climatemodeling.org/workshops/dmess2022/>), held in conjunction with the IEEE International Conference on Data Mining (ICDM 2022; <https://icdm22.cse.usf.edu/>)
- 2022, Breakout Chair: “Integrated Ecosystem Experiments’ Project Design” at the ORNL Integrated Ecosystem Experiments to Advance Earth System Predictability Workshop, March 21<sup>st</sup> March 24<sup>th</sup>, 2022
- 2021, Planning Committee: “7<sup>th</sup> NACP Open Science Meeting”, Fairfax, VA
- 2021, Co-chair: “Earth Science Session-Ecohydrology” at the virtual DOE Artificial Intelligence for Earth System Predictability (AI4ESP) Workshop, November 8
- 2021, Meeting Organizer: “Fire Database Community”, Sept. 1-2, ORNL
- 2021, Co-convenor: “Long-term press events and short-term pulse events as agents of global change: What do experimental manipulations and models tell us?” at the DOE BER 2021 ESS PI virtual meeting
- 2021, Co-chair: “Diagnosis and Attribution Session” and “Next-Gen Data Session” at the “7<sup>th</sup> NACP Open Science Meeting”
- 2018, Convener: “Tropical forests under a changing environment”, the AGU Fall Meeting, San Francisco, CA
- 2017, Convener: “Tropical forests under a changing environment”, the AGU Fall Meeting, San Francisco, CA
- 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”, the 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 (<https://www.esa.org/asian/>)
- 2018-2024, President, Vice President: Sino-Ecologists Association Overseas (<http://www.sino-eco.org>)
- 2010-present, American Geophysical Union; 2015-present, Ecological Society of America

## **Review Service**

- 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
- Reviewer for: *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 money 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 at
  - <https://www.ornl.gov/news/study-led-ornl-informs-climate-resilience-strategies-urban-rural-areas>
- Highlight on the Nature paper related to global emissions of ammonia from croplands at
  - <https://www.ornl.gov/news/reaping-agricultural-emissions-solutions>
- Highlights on wildfire modeling and database at
  - <https://www.ornl.gov/news/improving-wildfire-predictions-earth-scale-climate-models>
  - <https://www.ornl.gov/news/scientists-dig-wildfire-predictions-long-term-impacts>
  - <https://phys.org/news/2023-07-wildfire-earth-scale-climate.html>
  - <https://www.sciencedaily.com/releases/2023/08/230802162517.htm>
- Highlight by Hellbender Press for the future wildfire paper on Nature Communications at
  - <https://hellbenderpress.org/news/so-appalachian-fire-risk>
- Selected highlights of “Machine learning-based observation-constrained projections reveal

- elevated global socioeconomic risks from wildfire” at
- <https://www.nature.com/articles/s41467-022-28853-0/metrics>
  - Highlight on the aridification paper on npj Climate and Atmospheric Science at
    - <https://www.ornl.gov/news/climate-drier-air>
  - Highlight on the Africa wildfire paper on Nature Communications at
    - <https://www.ornl.gov/news/climate-predicting-fire-risk>
  - Highlight by the NPR newscast for the PNAS phenology paper at
    - <https://www.npr.org/2021/11/29/1059861862/climate-change-and-city-lights-are-tricking-trees-into-growing-leaves-too-soon>.
  - Highlight by ScienceDaily for the PNAS phenology paper at
    - <https://www.sciencedaily.com/releases/2020/02/200211134538.htm>
  - Highlight by phys.org for the PNAS phenology paper at
    - <https://phys.org/news/2020-02-urban-areas-trees-earlier.html>
  - Highlight on the PNAS phenology paper at
    - <https://www.ornl.gov/news/hot-climates-see-more-variability-tree-leafing-temperatures-rise>
  - Highlight by e3sm.org for the Water Resources Research paper at
    - <https://e3sm.org/detection-and-attribution-analysis-of-drivers-affecting-columbia-river-basin-streamflow/>
  - Highlight by ORNL News for the editorial board member of Agricultural and Forest Meteorology
  - Highlight by ORNL for the editorial board member of npj journal at
    - <https://www.ornl.gov/division/esd/news/jiafu-mao-editorial-board-member-nature-partner-journal-climate-and-atmospheric>
  - Highlight on the Scientific Reports paper at
    - <https://www.ornl.gov/content/uncertainty-response-terrestrial-carbon-sink-environmental-drivers-undermines-carbon-climate>
  - Highlight at <https://climatechangescience.ornl.gov/content/getting-know-our-early> “Getting to know our early career scientists”
  - Highlights of “Biospheric feedback effects in a synchronously coupled model of human and Earth systems” at
    - <https://ccsi.ornl.gov/content/climate—bridging>
    - <https://phys.org/news/2017-07-titan-simulations-importance-two-way-coupling.html>
    - <https://www.ornl.gov/content/biospheric-feedback-effects-synchronously-coupled-model-human-and-earth-systems>
  - Selected highlights at
    - <http://www.nature.com/nclimate/journal/vaop/ncurrent/nclimate3056/metrics> for the paper: “Human-induced greening of the northern high-latitude land surface”
  - Selected highlights at
    - <http://sites.bu.edu/cliveg/highlights/articles-with-press-releases/greening-earth-zhu/> for the paper: “Greening of the Earth and its drivers”
  - Highlight by agrometeorology.org for global evapotranspiration study: “[Climate change is driving water cycle speed-up](#)”
  - Highlight by phys.org for the Partitioning in Trees and Soil (PiTS) project: “[Carbon tracking and climate models: Researchers study carbon cycling in deciduous trees](#)”
  - Highlight by ORNL for the Partitioning in Trees and Soil (PiTS) project: “[Refining climate models: Researchers study carbon cycling in deciduous trees](#)”

## STUDENTS AND RESEARCHERS SUPERVISED

Yulong Zhang (UTK, and now at Duke U); Anping Chen (Colorado State University); Yaoping Wang (ORNL); Di Ma (Chinese Academy of Sciences); Binyan Yan (the University of Texas at Austin [UT Austin]); Yan Yu (Peking University); Goutam Konapalag (ORNL); Whitney Leeann Forbes (UTK); Rongyun Tang (UTK); Liang Li (UTK); Rongfan Chai (Nanjing University of Information Science and Technology); Kai Wang (UT Austin); Wenting Fu (UT Austin); Xuebin Yang (UT Austin); Lingcheng Li (UT Austin); Lin Meng (Vanderbilt University); Yutao Wang (Fu Dan University); Li Zhang (Chinese Academy of Sciences); Ridhima Singh (Farragut High School); Xiangxu Kong (Nanjing University of Information Science and Technology); Joshua Miller (UTK); Yuefeng Hao (UTK); Xinyi Yang (Boston College); Ashley Cornish (U Georgia)

## HONORS AND AWARDS

- 2020, Stanley I. Auerbach Award (one of a year presented for research excellence within the Environmental Sciences division), ORNL
- 2016, 2019 and 2020, Supplementary Performance Award, ORNL
- 2015, Significant Event Award (in recognition of significant contribution to the Next Generation Ecosystem Experiment-Tropics), ORNL
- 2014, Significant Event Award (in recognition of significant contribution to the Intergovernmental Panel on Climate Change and National Climate Assessment Work), ORNL
- 2016, Visiting Scholar to National Center for Meteorological Research at Meteorology France, Toulouse, France
- 2007, Visiting Scholar (funded by the Natural Environment Research Council, Center for Terrestrial Carbon Dynamics), the University of Sheffield, UK
- 2005, Visiting Scholar (funded by the Chinese Academy of Sciences), the University of Sheffield, UK
- 2006, Outstanding Graduate Student Leader Award, Chinese Academy of Sciences
- 2006, Outstanding Graduate Student Award, Chinese Academy of Sciences
- 2003, 2004, 2005 and 2006, Outstanding Doctoral Scholarship, Chinese Academy of Sciences
- 2001, Outstanding Graduate, Nanjing Institute of Meteorology
- 1998, 1999 and 2000, Scholarship for Undergraduate, Nanjing Institute of Meteorology

## GRADUATE AND POSTDOCTORAL ADVISORS

- Postdoctoral Advisor in US: Peter E. Thornton (ORNL)
- Postdoctoral Advisor in Australia: Andrew J. Pitman (University of New South Wales) and Yingping Wang (Commonwealth Scientific and Industrial Research Organisation)
- PhD. Advisor in China: Bin Wang (Chinese Academy of Sciences) and Yongjiu Dai (Sun Yat-sen University)

## TECHNICAL SKILLS

- Familiar with the structure and operation of ELM, E3SM, iESM, CSIRO Mk3L, CESM, CLM, NCAR-DGVM, CoLM, AVIM, LPJ, SDGVM, M-SDGVM, ED, ED-JULES, and iLAMB
- Working knowledge of various operation systems and software packages, including LINUX, Fortran, C Language, NCL, Ferret, MatLab, Origin, Python, and R
- Good experience in data management, statistics, diagnostics, and visualization

## PEER-REVIEWED PUBLICATIONS

### First or Corresponding Author Publications

2024

1. 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 (2024). “Earth’s Exceptional Greening in 2020”. Under Review, *Nature Climate Change*.
2. Chai, R., **J. Mao\***, H. Chen, Y. Wang, X. Shi, M. Jin, D. Ricciuto, S. Wullschleger (2024) Emergent constraint on the projections of global aridity and associated socioeconomic effects. Under review, *Environmental Research Letters*.
3. Hao, Y., **J. Mao\***, M. Jin, Y. Wang, R. Tang, X. Weng Lee (2024). “Evaluating the Effects of Heatwave Events on Hydrological Processes in the Contiguous United States (2003-2022).” Accepted, *Journal of Hydrology*.
4. 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 (2024). “Thermal, Water, and Land Cover Factors Led to Contrasting Urban and Rural Vegetation Resilience to Heat Waves.” *PNAS nexus*. <https://doi.org/10.1093/pnasnexus/pgae147>
5. Tang, R., M. Jin, J. Mao\*, D.M. Ricciuto, A. Chen, and Y. Zhang (2024) TSECfire v1.0: Quantifying Wildfire Drivers and Predictability in Boreal Peatlands Using a Two-Step Error-Correcting Machine Learning Framework. *Geoscientific Model Development (GMD)*, <https://doi.org/10.5194/gmd-17-1525-2024>.

## 2023

6. Kong, X., **J. Mao\***, H. Chen, Y. Wang, Y. Zhang, X. Shi, and M. Jin (2023) Exploring the environmental drivers of vegetation seasonality changes in the northern extratropical latitudes: a quantitative analysis. *Environmental Research Letters*, <https://doi.org/10.1088/1748-9326/acf728>, 18(9) 094071.
7. Zhang, Y. \*, **J. Mao\***, D. Ricciuto, M. Jin, Y. Yu, X. Shi, S. Wullschleger, R. Tang, J. Liu (2023) Global fire modelling and control attributions based on the ensemble machine learning and satellite observations. *Science of Remote Sensing*. <https://doi.org/10.1016/j.srs.2023.100088>.
8. Chen, A. \*, D. Ricciuto, **J. Mao\***, J. Wang, D. Lu, F. Meng (2023) Improving E3SM land model photosynthesis parameterization via satellite SIF, machine learning, and surrogate modeling. *Journal of Advances in Modeling Earth Systems*. <https://doi.org/10.1029/2022MS003135>. 15 (4), e2022MS003135.

## 2022

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

## 2021

12. **Mao, J. \***, Y. Wang, D. Ricciuto, S. Mahajan, F. Hoffman, X. Shi, and G. Prakash (2021) 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>. <https://www.osti.gov/servlets/purl/1769666>.

13. Chai, R., **J. Mao\***, H. Chen, Y. Wang, X. Shi, M. Jin, T. Zhao, F. Hoffman, D. Ricciuto, S. Wullschleger (2021) Human-caused long-term changes in global aridity. *npj Climate and Atmospheric Science*, <https://doi.org/10.1038/s41612-021-00223-5>.
14. Wang, Y., **J. Mao\***, M. Jin, F. Hoffman, X. Shi, S. Wullschleger, and Y. Dai (2021) Development of observation-based global multilayer soil moisture products for 1970 to 2016, *Earth System Science Data*, 13, 4385-4405, <https://doi.org/10.5194/essd-13-4385-2021>.
15. Tang, R., **J. Mao\***, M. Jin, A. Chen, Y. Yu, X. Shi, Y. Zhang, F. Hoffman, M. Xu, Y. Wang (2021) Interannual variability and climatic sensitivity of global wildfire activity. *Advances in Climate Change Research*, <https://doi.org/10.1016/j.accre.2021.07.001>.
16. Chen, A. \*, **J. Mao\***, D. Ricciuto, D. Lu, P. Thornton, A.K. Knapp (2021b) Season changes in GPP/SIF ratios and their climatic determinants across the Northern Hemisphere, *Global Change Biology*, <https://doi.org/10.1111/gcb.15775>.
17. Chen, A. \*, **J. Mao\***, D. Ricciuto, J. Xiao, C. Frankenberg, X. Li, L. Gu, P. Thornton, A.K. Knapp, (2021a) "Moisture availability mediates the relationship between terrestrial gross primary production and solar-induced fluorescence: Insights from global scale variations," *Global Change Biology*, <https://doi.org/10.1111/gcb.15373>.
18. Meng, L., **J. Mao\***, D. Ricciuto, X. Shi, A. Richardson, P. Hanson, J. Warren, Y. Zhou, X. Li, L. Zhang, C. Schädel (2021) "Evaluation and modification of ELM seasonal deciduous phenology against observations in a Southern boreal peatland forest". *Agricultural and Forest Meteorology*, <https://doi.org/10.1016/j.agrformet.2021.108556>.

## 2020

19. Yu, Y., **J. Mao\***, P.E. Thornton, M. Notaro, S. D. Wullschleger, X. Shi, F.M. Hoffman, Y. Wang, (2020) "Quantifying the drivers and predictability of seasonal changes in African fire". *Nature Communications*, 11(1), 1-8, <https://doi.org/10.1038/s41467-020-16692-w>.
20. Chen, A. \*, R. Tang, **J. Mao\***, C. Yue, X. Li, M. Gao, X. Shi, M. Jin, D. Ricciuto, S. Rabin, P. Ciais, S. Piao (2020) "Spatiotemporal dynamics of ecosystem fires and biomass burning-induced carbon emissions in China over the past two decades," *Geography and Sustainability*, <https://doi.org/10.1016/j.geosus.2020.03.002>.
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102. Shi, X., **J. Mao**, Y. Wang, Y. Dai, X. Tang (2011) "Coupling a Terrestrial Biogeochemical model to the Common Land Model," *Advances in Atmospheric Sciences* 28(5): 1129-1142.
103. Shi, X., **J. Mao**, P.E. Thornton, F.M. Hoffman, W.M. Post (2011) "The impact of climate, CO<sub>2</sub>, nitrogen deposition and land use change on contemporary global river flow," *Geophysical Research Letters*, 38, L08704, doi:10.1029/2011GL046773.

## 2009

104. Zhang, H., B. Wang, **J. Mao** (2009) "A Generalized Approach of Three-dimensional Variational Data Assimilation for Land Surface Air Temperature and Its Tests under Simplification Cases" *Climatic and Environmental Research*, (in Chinese with English Abstract) 14(3): 273-283.
105. Shi, X., X. Shi, **J. Mao** (2009) "Interdecadal variation of Water Vapor Transport over East Asia and Its Impacts on Rainfall over Eastern China in summer," (in Chinese with English Abstract), *Acta Geographica Sinica*, 64(7): 861-870.

## PRESENTATIONS AND MEETINGS

### 2024

1. 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, AOGS 21<sup>st</sup> Annual Meeting, Pyeongchang, Gangwon-do, Korea.
2. Massoud, E., F. Hoffman, **J. Mao**, and Y. Wang. Benchmarking Soil Moisture and Ecohydrologic Interactions in Earth System Models. June 23-28, AOGS 21<sup>st</sup> Annual Meeting, Pyeongchang, Gangwon-do, Korea.
3. 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.
4. 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.
5. 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.
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 (SEED) Career Readiness Class (Invited).
7. **Mao, J.** Projection of Wildfire and Its Socioeconomic Risks in Earth System Models. Feb. 21, 2024, Edison Electric Institute (EEI) Wildfire Technology Summit, La Jolla, CA, USA (Invited).
8. **Mao, J.** Global Multilayer Soil Moisture Analysis (1970-2016): Observations & Human Impact on Terrestrial Aridity. Feb. 16, 2024, Colloquium Remote Talk for Northern Illinois University (Invited).

### 2023

9. Mayes, M., and coauthors including **J. Mao**. An international workshop to contextualize the Spruce and Peatland Responses Under Changing Environments (SPRUCE) Experiment. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
10. **Mao, J.** and coauthors. Improving ELM photosynthesis using satellite SIF and Machine Learning Techniques. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
11. Shi, X., and coauthors including **J. Mao**. SPRUCE-MIP: Model Intercomparison of Northern Peatland Carbon Cycle over the SPRUCE site. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
12. Ricciuto, D., A. Walker, **J. Mao**, X. Shi, X. Yang, and P. Hanson. Impacts of assimilating observations from long-term experiments and observations from vulnerable ecosystems on predicted carbon cycle feedbacks. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
13. Zhang, Y., **J. Mao** and coauthors. Global fire modeling and control attributions based on the ensemble machine learning and satellite observations. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
14. Meng, L., and coauthors including **J. Mao**. Green with phenology: earlier spring green-up in warmer and brighter cities. Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
15. Hao, Y., **J. Mao** and coauthors. Evaluating the effects of heatwave events on hydrological processes in the Contiguous United States (2003-2022). Dec. 11-15, 2023, AGU Fall Meeting, San Francisco, CA, USA.
16. **Mao, J.** Machine-Learning Applications in Understanding and Quantification of Earth's

- Terrestrial Ecosystem Dynamics. Nov. 10, 2023, Invited Seminar by the Department of Earth and Environmental Sciences, Vanderbilt University, Nashville, USA.
17. **Mao, J.** Machine-Learning Applications in Understanding and Quantification of Earth's Terrestrial Ecosystem Dynamics. Nov. 6, 2023, Workshop on AI Application in Earth System Science – Grand Challenges, ORNL, Oak Ridge, USA.
  18. **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. Oct. 23-27, 2023, World Climate Research Programme (WCRP) Open Science Conference, Kigali, Rwanda.
  19. **Mao, J.**, Y. Wang, D. Ricciuto, F. Yuang, X. Shi, C. Brelsford, and D. Rastogi. Ecosystem Resilience to Thermal Extremes: Urbanization Impacts. Sep. 27<sup>th</sup>, 2023, ORNL LDRD Poster Fair, Oak Ridge, USA.
  20. **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. Sep. 20-21, 2023, ORNL Climate Security Workshop - Global Water Challenge, Oak Ridge, USA.
  21. **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. Sep. 19, 2023, DOE Biological and Environmental Research PM Visit, Oak Ridge, USA.
  22. **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. Sep. 18-19, 2023, 2nd ORNL-VU Collaborative Workshop, Oak Ridge, USA.
  23. Mayes, M., and coauthors including **J. Mao**. The influence of soil moisture and tree evapotranspiration on an urban microclimate. Sep. 6, 2023, Social Equal Energy Efficient Development (SEEED) Career Readiness Class, Oak Ridge, USA.
  24. **Mao, J.**, Y. Wang, D. Ricciuto, F. Yuang, X. Shi, C. Brelsford, and D. Rastogi. Ecosystem Resilience to Thermal Extremes: Urbanization Impacts. Aug. 6-11, 2023, ESA Annual Meeting, Portland, OR, USA.
  25. Meng, L., and coauthors including **J. Mao**. Artificial light at night: an under-appreciated effect on plant phenology in urban areas. Aug. 6-11, 2023, ESA Annual Meeting, Portland, OR, USA.
  26. Hanson P. J., D. Ricciuto, M. Mayes, and coauthors including **J. Mao**. ORNL's terrestrial ecosystem science scientific focus area (TES SFA). July 10-12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review meeting, Duluth, Mn.
  27. Shi X., D. Ricciuto, and coauthors including **J. Mao**. SPRUCE-Modeling/MIP/Wetland: a predictive framework for quantifying treatment impacts on carbon cycling and their uncertainties. July 10-12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review meeting, Duluth, Mn.
  28. **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. July 10-12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review meeting, Duluth, Mn.
  29. Ricciuto D., A. Walker, **J. Mao** and coauthors. Regional integration and extrapolation. July 10-12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review meeting, Duluth, Mn.
  30. Griffiths, N, X. Shi, and co-authors including **J. Mao**. Carbon cycle responses to warming and increased atmospheric CO<sub>2</sub> concentration. July 10-12, 2023, ORNL Terrestrial Ecosystem Science Focus Area Review meeting, Duluth, Mn.
  31. Melanie M., L. Gu, C. Salvador, D. Weston, J. Warren, C. DeRolph, Y. Wang, **J. Mao**, K. Birdwell, J. First, and J. Hathaway. Trees, soil, moisture, and urban microclimates + new measurements and modeling of biogenic VOCs. May 16-17, 2023, DOE ESS PI meeting, Washington DC, USA (Invited).
  32. **Mao, J.**, A. Chen, D. Ricciuto, J. Wang, D. Lu, and F. Meng. Improving ELM photosynthesis using satellite SIF and machine learning techniques. May 16-17, 2023, DOE ESS PI meeting,

- Washington DC, USA.
33. Hanson, P., 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.
  34. Ricciuto, D., X. Shi, X. Yang, A. Walker, **J. Mao**, F. Yuan, and P. Hanson. Building a regional peatland model: First Steps. May 2-3, 2023, SPRUCE All-Hands Meeting, Minnesota, USA.
  35. Shi, X., D. Ricciuto, Y. Wang, D. Hui, S. Shao, Y. Luo, J. Zhou, Q. Sun, F. Joos, P. Hanson, **J. Mao**. The preliminary results and insights of SPRUCE-MIP. May 2-3, 2023, SPRUCE All-Hands Meeting, Minnesota, USA.
  36. 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.
  37. 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.
  38. **Mao, J.** Datasets relevant to people-centric integrated assessment modeling in central Appalachian region. SRS RN Workshop on People-Centric Integrated Assessment Model for the Central Appalachian region. April 3-4, 2023, UT Conference Center, UTK, TN.
  39. Wang, Y., **J. Mao**, and coauthors. Development of merged soil moisture data sets and detection and attribution of anthropogenic contributions to terrestrial aridity changes. Jan. 8-12, 2023, AMS 103<sup>rd</sup> Annual Meeting, Denver, Colorado.

## 2022

40. **Mao, J.**, Y. Wang, F. Hoffman, and coauthors. RUBISCO soil moisture working group: overview and next steps. RUBISCO Project and Working Group Meeting at the 2022 AGU Fall Meeting, Chicago, USA.
41. **Mao, J.**, Y. Yu, and coauthors. Machine learning–based observation-constrained global wildfire projections. Dec. 12-16, 2022, AGU Fall Meeting, Chicago, USA.
42. 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. Dec. 12-16, 2022, AGU Fall Meeting, Chicago, USA.
43. Singh, R., **J. Mao**, and Y. Wang. Quantification of environmental drivers underlying the changes in urban vegetation using machine learning. Dec. 12-16, 2022, AGU Fall Meeting, Chicago, USA.
44. Meng, L., and coauthors including **J. Mao**. Artificial light at night: an under-appreciated effect on plant phenology in urban areas. Dec. 12-16, 2022, AGU Fall Meeting, Chicago, USA.
45. **Mao, J.** Machine-Learning applications in process-understanding and prediction of wildfire. Dec. 2, 2022, The International Environmetrics Society (TIES) Webinar Series on Data Science for Environmental Sciences (DSES), USA (<https://www.youtube.com/watch?v=twmi7WzvtUc>).
46. **Mao, J.** Machine-Learning applications in wildfire projection and drivers analysis. Sep. 6, 2022, ORNL Earth Systems Science Section, Knoxville, USA.
47. Tang, R., M. Jin and **J. Mao**. Tackling key drivers and predicting fires in boreal peatland with a two-step machine learning framework. Sep. 15, 2022, Annual Research Conference of the Institute for a Secure & Sustainable Environment, Knoxville, USA.
48. Zheng, X., and coauthors including **J. Mao**. Sustainable global soybean supply Chain: a case study of the U.S. and China. Sep. 15, 2022, Annual Research Conference of the Institute for a Secure & Sustainable Environment, Knoxville, USA.
49. **Mao, J.**, and Y. Wang. Soil Moisture Working Group. July 13-14, 2022, RUBISCO Panel Review Meeting, Virtual, USA.
50. **Mao, J.**, Y. Yu, and co-authors. Machine learning-based observation-constrained projections

- reveal elevated global socioeconomic risks from wildfire. July 13-14, 2022, RUBISCO Panel Review Meeting, Virtual, USA.
51. Invited trip to attend the “Eighth Annual HBCU Climate Change Conference” at <https://www.dscej.org/events/eighth-annual-hbcu-climate-change-conference> by the NSF-funded SRS-RN Planning Project: “Integrated and Convergent Sea Level Adaptation for Urban and Rural Systems in the Gulf of Mexico Coastal Regions”.
  52. Mayes, M., J. Warren, **J. Mao**, Y. Wang, and C. DeRolph. The influence of soil moisture and tree evapotranspiration on an urban Microclimate. Environmental System Science Principal Investigator (PI) Meeting, May 24-26, 2022, Virtual Meeting, USA.
  53. **Mao, J.**, Y. Wang, D. Ricciuto, X. Shi, L. Meng, and P. Hanson. Above- and belowground phenology modeling of ELM using the SPRUCE observations. Environmental System Science Principal Investigator (PI) Meeting, May 24-26, 2022, Virtual Meeting, USA.
  54. Hanson P.J., and coauthors including **J. Mao**. ORNL’s Terrestrial Ecosystem Science Scientific Focus Area (TES SFA) – 2022. Environmental System Science Principal Investigator (PI) Meeting, May 24-26, 2022, Virtual Meeting, USA.
  55. 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.
  56. Ricciuto D.M., X. Shi, **J. Mao**, X. Xu, D. Lu, Y. Luo, X. Yang, and P.J. Hanson. SPRUCE MODEX philosophy and overview of current modeling efforts. May 3-5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
  57. **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.
  58. Shi, X., D. Ricciuto, X. Yang, P. Hanson, Y. Wang, **J. Mao**, D. Weston, and R. Norby. Preliminary results on ELM SPRUCE driven by plot-scale forcing data. May 3-5, 2022, Virtual SPRUCE All-Hands Meeting, USA.
  59. **Mao, J.**, Y. Yu, and co-authors. Machine learning-based observation-constrained projections reveal elevated global socioeconomic risks from wildfire. April 29, 2022, RUBISCO Science Talk, USA.
  60. Breakout facilitator for the “ORNL Integrated Ecosystem Experiments to Advance Earth System Predictability Workshop”, March 21-24, 2022, Virtual, Oak Ridge, USA.

## 2021

61. **Mao, J.** Quantifying the drivers and improving the predictability: wildfire research using machine learning techniques. December 7, 2021, GEOINT workshop organized by ORNL (invited).
62. **Mao, J.**, and coauthors. Urban warming advances spring phenology but reduces the response of phenology to temperature in the conterminous United States. November 15-17, 2021, virtual International Symposium “Towards Urban Sustainability” (Invited).
63. **Mao, J.**, and coauthors. Development, evaluation, and application of new soil moisture products. September 17, 2021, DOR RUBISCO Biogeochemistry Science Friday Presentation.
64. **Mao, J.**, and coauthors. Development of observation-based global multi-layer soil moisture products for 1970 to 2016. August 18-19, 2021, National Soil Moisture Virtual Workshop.
65. Ricciuto D.M., et al., including **J. Mao**. TES SFA modeling overview. August 18-19, 2021, DOE BER 2021 ESS PI virtual meeting.
66. **Mao, J.**, and coauthors. An integrated observational and modeling framework for improving the understanding and modeling of wildfire evolution and ecosystem impacts. August 18-19, 2021, DOE BER 2021 ESS PI virtual meeting.

67. **Mao, J.**, Y. Yu, and coauthors. Quantifying the drivers and predictability of seasonal changes in Africa. August 1-6, 2021, ESA virtual annual meeting, USA.
68. Forrest Hoffman et al., including **J. Mao**. Have land surface processes in earth system models improved over time. August 1-6, 2021, ESA virtual annual meeting, USA.
69. **Mao, J.**, and coauthors. Development of observation-based global multi-layer soil moisture products for 1970 to 2016. July 28, 2021, RUBISCO SOC working group meeting.
70. Melanie M., J. Warren, L. Hutyra, A. Reinmann, S. Painter, E. Coon, D. Ricciuto, **J. Mao**, and N. Griffiths. New science at the urban interface. June 7, Environmental Systems Science Program managers meeting, USA.
71. 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. May 11-13, 2021, Virtual SPRUCE All-Hands Meeting, USA.
72. **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*. May 11-13, 2021, Virtual SPRUCE All-Hands Meeting, USA.
73. **Mao, J.**, T. Keenan, and F. Hoffman. Development of observation-based global multi-layer soil moisture products for 1970 to 2016. April 16, 2021, US GEWEX Virtual Soil Moisture Mini-Workshop, USA.
74. Masri, B., and coauthors including **J. Mao**. Carbon and water use efficiencies: a comprehensive analysis of ten terrestrial ecosystem models under changing climate. Mar. 5-26, 2021, virtual 7<sup>th</sup> Open Science Meeting, North American Carbon Program, USA.
75. Huntzinger, D., and coauthors including **J. Mao**. Evaluation of simulated soil carbon dynamics in the ABoVE domain. Mar. 5-26, 2021, virtual 7<sup>th</sup> Open Science Meeting, North American Carbon Program, USA.
76. Hoffman, F., and coauthors including **J. Mao**. Diagnosing climate-carbon cycle feedbacks constrained by ILAMB. Mar. 5-26, 2021, virtual 7<sup>th</sup> Open Science Meeting, North American Carbon Program, USA.

## 2020

77. **Mao, J.**, Y. Yu, and coauthors. Quantifying the drivers and predictability of seasonal changes in Africa. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
78. 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. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
79. Wang, Y., **J. Mao**, M. Jin, and F. Hoffman. Developing a gridded upscaled soil moisture dataset using sparse in situ observations. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
80. Hoffman, F., and coauthors including **J. Mao**. Have land surface and carbon cycle processes in Earth system models improved over time? Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
81. 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. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
82. 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. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
83. Shi, X., and coauthors including **J. Mao**. Carbon cycle warming and elevated CO<sub>2</sub> responses in a northern temperate bog: a modeling study using ELM-SPRUCE. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
84. Meng, L., Y. Zhou, **J. Mao**, and X. Li. The responses of spring phenology to temperature and photoperiod. Dec. 1-17, 2020, virtual AGU Fall Meeting, USA.
85. 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. October 26-29, 2020, DOE

- ESMD-E3SM PI Meeting.
86. 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. October 26-29, 2020, DOE ESMD-E3SM PI Meeting.
  87. **Mao, J.**, Y. Yu, and coauthors. Quantifying the drivers and predictability of seasonal changes in Africa. October 13-16, 2020, DOE Regional and Global Model Analysis (RGMA) Principal Investigators Virtual Meeting.
  88. Meng, L., Y. Zhou, **J. Mao**, X. Li, and Z. Wang. When do trees leaf out in a warmer city. August 3-6, 2020, ESA virtual annual meeting, USA.
  89. 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. May 12-13, 2020, 2020 Virtual SPRUCE All-Hands Meeting.
  90. 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. May 12-13, 2020, 2020 Virtual SPRUCE All-Hands Meeting.
  91. **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. May 12-13, 2020, 2020 Virtual SPRUCE All-Hands Meeting.
  92. 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. May 12-13, 2020, 2020 Virtual SPRUCE All-Hands Meeting.
  93. 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. May 12-13, 2020, 2020 Virtual SPRUCE All-Hands Meeting.
  94. Hoffman F.M., 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.
  95. 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. May 3-8, 2020, EGU Meeting, Vienna, Austria.
  96. Xu, M., F.M. Hoffman, N. O. Collier, S. Mahajan, **J. Mao**, and P. A. Levine. Jan. 12-16, 2020, the 100<sup>th</sup> AMS Annual Meeting, Boston, Massachusetts, USA.

## 2019

97. **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. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
98. 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. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
99. 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. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
100. Mu, M., J. Randerson, H. Forrest, D. Lawrence, W. Riley, G. Keppel-Aleks, A. Swann, C. Koven, N. Collier, and **J. Mao**. Attribution of Diurnal Temperature Range Trends to Radiative and Physiological Effects of Rising Atmospheric Carbon Dioxide. Dec. 9-13, 2019, AGU Fall

- Meeting, San Francisco, CA, USA.
101. Notaro, M., F. Wang, Y. Yu and **J. Mao**. Projected Changes in the Terrestrial and Oceanic Regulators of Climate Variability Across Sub-Saharan Africa. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
  102. 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. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
  103. 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. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
  104. Meng, L., Y. Zhou, **J. Mao**, X. Li and Z. Wang. Photoperiod effects on spring leaf out of deciduous forests. Dec. 9-13, 2019, AGU Fall Meeting, San Francisco, CA, USA.
  105. **Mao, J.**, D.M. Ricciuto and L. Meng. Quantifying the GPP uncertainties in the E3SM Land Model (ELM) using FLUXNET data. Oct. 15-17, 2019, Analyzing observations and models of carbon, energy, and water fluxes: working group and incubator, Lawrence Berkeley National Laboratory, Berkeley, CA, USA.
  106. Meng, L., Y. Zhou, **J. Mao** and Z. Wang. How do trees know when to leaf out in a warmer and brighter city? Sep. 23-25, 2019, NASA terrestrial ecology science team meeting, College Park, MD, USA.
  107. Calvin, K., and coauthors including **J. Mao**. Land use in E3SM. Sep. 16-20, 2019, AGCI-LUMIP workshop about the impacts of land use and land management on Earth system evolution, biogeochemical cycles, extremes and inter-sectoral dynamics, Snowmass, CO, USA.
  108. **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. Aug. 26-29, 2019, AGU Chapman Conference on Understanding Carbon Climate Feedbacks, San Diego, CA, USA.
  109. Town Hall on the Artificial Intelligence. Aug. 20-21, 2019, ORNL, TN, USA.
  110. **Mao, J.**, and co-authors. Phenological improvement and evaluation of ELM using the SPRUCE observations. August 12-16, 2019, ESA annual meeting, Louisville, Kentucky, USA.
  111. Meng, L., Y. Zhou, **J. Mao**, X. Li and G. Asrar. Characterizing spatiotemporal changes of spring green-up under climate change and urbanization. August 12-16, 2019, ESA annual meeting, Louisville, Kentucky, USA.
  112. Cui, E., and coauthors including **J. Mao**. Vegetation functional properties determine uncertainty of simulated ecosystem productivity in the East Asian monsoon region. August 12-16, 2019, ESA annual meeting, Louisville, Kentucky, USA.
  113. Chen, A., X. Li, **J. Mao** and A.K. Knapp. Changes in satellite-derived grassland growth trend in Northern America coupled with climate variations from 1982 to 2016. August 12-16, 2019, ESA annual meeting, Louisville, Kentucky, USA.
  114. Wang, Y., **J. Mao**, M. Jin, and Forrest Hoffman. Developing a gridded upscaled soil moisture dataset using sparse in situ observations. June 23-28, 2019, Catchment science: interactions of hydrology, biology and geochemistry Gordon Research Conference, Andover, NH, USA.
  115. **Mao, J.**, and co-authors. Detection and attribution of regional terrestrial hydrology changes using factorial ELM simulations. June 3-5, 2019, ORNL TES SFA Review Meeting, Duluth, MN, USA.
  116. Shi, X., and coauthors including **J. Mao**. Representing northern peatland vegetation and biogeochemistry with ELM. June 3-5, 2019, ORNL TES SFA Review Meeting, Duluth, MN, USA.
  117. Ricciuto, D.M., **J. Mao** and others. Improving ELM carbon cycle predictions with observations and experiments from point to regional scales. June 3-5, 2019, ORNL TES SFA Review Meeting, Duluth, MN, USA.
  118. Workshop on urban scale processes and their representation in high spatial resolution Earth system models. May 22-24, 2019, Argonne National Laboratory, IL, USA.

119. **Mao, J.**, and co-authors. Phenological improvement and evaluation of ELM using the SPRUCE observations. May 2019, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
120. 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. May 2019, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
121. Hoffman F.M., and coauthors including **J. Mao**. Benchmarking CMIP terrestrial carbon cycle and biogeochemistry models with the ILAMB package. March 2019, CMIP6 Model Analysis Workshop, Barcelona, Spain.
122. **Mao, J.**, X. Shi, D.M. Ricciuto, F.M. Hoffman, Peter Thornton, and M. Xu. Simulations and evaluations of version 1.0 of E3SM Land Model (ELM) for the LS3MIP. March 2019, CMIP6 Model Analysis Workshop, Barcelona, Spain.

## 2018

123. **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. December 2018, AGU Fall Meeting, Washington DC, US.
124. Xu, M., F.M. Hoffman, S. Mahajan, **J. Mao**, and P. Levine. Oceanic drivers for tropical terrestrial carbon cycle and extreme. December 2018, AGU Fall Meeting, Washington DC, US.
125. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. Investigating the CO<sub>2</sub> effects and human intervention on water cycle. December 2018, AGU Fall Meeting, Washington DC, US.
126. Kim, Y., Z. Wang, H. Seo, and **J. Mao**. Surface temperature variation induced by the LAI change in Arctic Tundra. December 2018, AGU Fall Meeting, Washington DC, US.
127. 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. December 2018, AGU Fall Meeting, Washington DC, US.
128. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. Elucidating observed land surface feedbacks across sub-Saharan Africa. December 2018, AGU Fall Meeting, Washington DC, US.
129. Yuan, F., A. Breen, V. Salmon, C. Iversen, J. Kumar, S. Kao, B. Sulman, **J. Mao**, P. Thornton, and S. Wullschlegler. Assessments of multiple plant function types in E3SM land model across six ecotypes in Kougarak intensive study sites, Seward Peninsula, Alaska. December 2018, AGU Fall Meeting, Washington DC, US.
130. **Mao, J.**, and coauthors. Predictability of tropical vegetation greenness using sea surface temperatures. December 2018, NGEE-Tropics Annual Meeting, Washington DC, US.
131. 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. November 2018, Earth and environmental systems modeling (EESM) PI meeting, Potomac, MD, USA.
132. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi, and Y. Wei. Elucidating observed land surface feedbacks across sub-saharan Africa. November 2018, Earth and environmental systems modeling (EESM) PI meeting, Potomac, MD, USA.
133. **Mao, J.**, L. Meng, X. Shi, D.M. Ricciuto, P.E. Thornton, Y. Zhou, P.J. Hanson, and A.D. Richardson. Phenological evaluation and improvement of ELM using SPRUCE observations. September 2018, SPRUCE China Science Exchange Workshop, Grand Rapids, MN, USA.
134. 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. August 2018, Terrestrial Systems Modeling Group meeting at ORNL.
135. **Mao, J.**, and coauthors. Predictability of tropical vegetation greenness using sea surface temperatures, August 5-10, 2018, ESA annual meeting, New Orleans, LA, USA.
136. Huntzinger, D., and coauthors including **J. Mao**. Uncertainty in response of net land sink to rising atmospheric CO<sub>2</sub> undermines climate projections, August 5-10, 2018, ESA annual meeting, New Orleans, LA, USA.

137. Meng, L., **J. Mao**, Y. Zhou, D. Ricciuto, X. Shi and F. Yuan. How do trees know when to leaf out in urban areas? August 2018, the 2018 Summer Student/Postgraduate/Faculty Poster Session at ORNL.
138. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. June 2018, Nanjing University of Information Science and Technology, China (Invited).
139. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. June 2018, Nanjing University, China (Invited).
140. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. Investigating the CO<sub>2</sub> effects and human intervention on water cycle. June 2018, Nanjing University of Information Science and Technology, China (Invited).
141. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. Investigating the CO<sub>2</sub> effects and human intervention on water cycle. June 2018, Nanjing University, China (Invited).
142. **Mao, J.**, and coauthors. Contribution of environmental forcings to US runoff changes for the period 1950-2010. June 2018, the 15th Annual Meeting of Asia Oceania Geosciences Society, Honolulu, Hawaii, US.
143. Shi, X., K. Calvin, B. Bond-Lamberty, A. Jones, A.D. Vittorio, **J. Mao**, and P. Thornton. Investigating the CO<sub>2</sub> effects and human intervention on water cycle. June 2018, the 15th Annual Meeting of Asia Oceania Geosciences Society, Honolulu, Hawaii, US.
144. **Mao, J.**, and coauthors. Contribution of environmental forcings to US runoff changes for the period 1950-2010. May 2018, the Robert Dickinson Symposium on Earth System Modeling: Past, Present and Future, Austin, TX, US (Invited).
145. **Mao, J.**, and coauthors. Contribution of environmental forcings to US runoff changes for the period 1950-2010. May 2018, the 8th GEWEX Open Science Conference: Extremes and Water on The Edge, Canmore, Alberta, Canada.
146. 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, A. Griffiths, David J. Weston, and A.P. Walker. Representing northern peatland hydrology and biogeochemistry with the ELM land surface model. May 2018, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
147. 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. May 2018, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
148. **Mao, J.**, and coauthors. Prediction of tropical vegetation growth using sea surface temperatures. May 2018, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
149. Forbes, W., **J. Mao** and coauthors. Contribution of climatic and non-climatic forcings to US runoff changes for the period 1950-2010. January 2018, GEM-ASEE Doctoral Engineering Research Showcase, Washington DC, US.

## 2017

150. **Mao, J.**, and coauthors. Detection and attribution of the terrestrial runoff in the conterminous United States. January 2018, the 98th American Meteorological Society Annual Meeting, Austin, TX, US.
151. Cui, E., and coauthors including **J. Mao**. Uncertainty Source of Modeled Ecosystem Productivity in East Asian Monsoon Region: A Traceability Analysis. December 2017, AGU Fall Meeting, New Orleans, LA, US.
152. 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. December 2017, AGU Fall Meeting, New Orleans, LA, US.
153. Thornton, P.E., and coauthors including **J. Mao**. Biospheric feedback effects in a synchronously coupled model of human and Earth systems. December 2017, AGU Fall Meeting,

- New Orleans, LA, US.
154. Piao, S., and coauthors including **J. Mao**. Weakening temperature control on the interannual variations of spring carbon uptake across northern lands. December 2017, AGU Fall Meeting, New Orleans, LA, US.
  155. King, A.W., and coauthors including **J. Mao**. Implications of Uncertainty in Fossil Fuel Emissions for Terrestrial Ecosystem Modeling. December 2017, AGU Fall Meeting, New Orleans, LA, US.
  156. Kao, S., and coauthors including **J. Mao**. Can Earth System Model Provide Reasonable Natural Runoff Estimates to Support Water Management Studies? December 2017, AGU Fall Meeting, New Orleans, LA, US.
  157. Notaro, M., and coauthors including **J. Mao**. Do state-of-the-art CMIP5 ESMs accurately represent observed vegetation-rainfall feedbacks? Focus on the Sahel. December 2017, AGU Fall Meeting, New Orleans, LA, US.
  158. Shi, X., and coauthors including **J. Mao**. Representing Northern Peatland Hydrology and Biogeochemistry with ALM Land Surface Model. December 2017, AGU Fall Meeting, New Orleans, LA, US.
  159. **Mao, J.**, and coauthors. Spatially and seasonally asymmetric responses of Amazon forests to El Niño. December 2017, AGU Fall Meeting, New Orleans, LA, US.
  160. **Mao, J.**, and coauthors. Improving the representation of Human-Earth system interactions. December 2017, US-China Joint Symposium on the Nexus of Food, Energy, and Water Systems, Nashville, TN, US.
  161. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. November 2017, Seminar of EAS Fall 2017, Georgia Institute of Technology, GA, US (Invited).
  162. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. October 2017, The University of Texas at Austin, Austin, US (Invited).
  163. **Mao, J.**, Detection and attribution (D&A) application to biogeochemistry. September 2017, RUBISCO Scientific Focus Area Triennial Review, Gaithersburg, Maryland, US.
  164. **Mao, J.**, Driving mechanisms and feedbacks of the land greening. September 2017, RUBISCO Scientific Focus Area Triennial Review, Gaithersburg, Maryland, US.
  165. Koven, C., and **J. Mao**. Research and analysis for CMIP6. September 2017, RUBISCO Scientific Focus Area Triennial Review, Gaithersburg, Maryland, US.
  166. **Mao, J.**, Terrestrial hydrologic simulation and Detection-Attribution. September 2017, Workshop between U.S. army engineer research and development center and ORNL, Oak Ridge, US (Invited).
  167. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. September 2017, the 5th iLEAPS Science Conference, Oxford, UK (Invited).
  168. Zhu, Z., and coauthors including **J. Mao**. Greening of the Earth and its drivers. August 2017, 10th International Carbon Dioxide Conference 2017, Interlaken, Switzerland.
  169. Huang, M., and coauthors including **J. Mao**. Seasonal responses of terrestrial ecosystem water-use efficiency to climate change. August 2017, 10th International Carbon Dioxide Conference 2017, Interlaken, Switzerland.
  170. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. August 2017, Seminar of Geological & Atmospheric Sciences, Iowa State University, Ames, Iowa (Invited).
  171. Meng, L., **J. Mao**, Y. Zhou, D. Ricciuto, X. Shi and F. Yuan. Changes of urban phenology and their drivers. August 2017, the 2017 Summer Student/Postgraduate/Faculty Poster Session at ORNL.
  172. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. June 2017, Seminar of Institute of Atmospheric Physics in Chinese Academy of Sciences, Beijing, China (Invited).
  173. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. June 2017, Seminar of College of Urban and Environmental Sciences, Peking University, Beijing, China

- (Invited).
174. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. June 2017, Seminar of Department of Environmental Science and Engineering, Fudan University, Shanghai, China (Invited).
  175. King, A.W., **J. Mao**, D. Ricciuto and Robert J. Andres. Implications of uncertainty in fossil fuel emissions for terrestrial ecosystem modeling. April 2017, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
  176. 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. April 2017, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
  177. 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. April 2017, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
  178. 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? April 2017, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
  179. **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. April 2017, DOE Environmental System Science (ESS) PI Meeting, Potomac, MD.
  180. Zhu, Z., and coauthors including **J. Mao**. Greening of the Earth and its drivers. August 2017, 10th International Carbon Dioxide Conference, Interlaken, Switzerland.
  181. Huang, M., and coauthors including **J. Mao**. . Seasonal responses of terrestrial ecosystem water-use efficiency to climate change. August 2017, 10th International Carbon Dioxide Conference, Interlaken, Switzerland.
  182. **Mao, J.**, and coauthors. Driving mechanisms and feedbacks of the land greening. February 2017, Fourth Santa Fe Conference on Global and Regional Climate Change, Santa Fe, NM (Invited).
  183. 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. February 2017, Fourth Santa Fe Conference on Global and Regional Climate Change, Santa Fe, NM.

## 2016

184. Yan, B., and coauthors including **J. Mao**. Seasonally asymmetric responses of Amazon forests to El Niño. December 2016, NGEE-Tropics ENSO research meeting, San Francisco, CA.
185. 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. December 2016, AGU Fall Meeting, San Francisco, CA.
186. Yu, Y., and coauthors including **J. Mao**. Vegetation-rainfall feedbacks across the Sahel: a combined observational and modeling study. December 2016, AGU Fall Meeting, San Francisco, CA.
187. Huang, M., and coauthors including **J. Mao**. Seasonal responses of terrestrial ecosystem water-use efficiency to climate change. December 2016, AGU Fall Meeting, San Francisco, CA.
188. 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. December 2016, AGU Fall Meeting, San Francisco, CA.
189. 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.

- December 2016, AGU Fall Meeting, San Francisco, CA.
190. **Mao, J.**, and coauthors. Human-induced greening of the northern extratropical land surface. December 2016, AGU Fall Meeting, San Francisco, CA.
191. **Mao, J.**, and coauthors. Disentangling natural and anthropogenic controls on terrestrial evapotranspiration and vegetation growth trends. November 2016, Seminar of National Center for Meteorological Research at Meteorology France, Toulouse, France (Invited).
192. **Mao, J.**, and coauthors. Human-induced greening of the northern extratropical land surface. November 29-December 1, 2016. DOE Regional & Global Climate Modeling (RGCM) Program, Rockville, MD, USA.
193. **Mao, J.**, and coauthors. Disentangling natural and anthropogenic controls on vegetation growth trends. November 2-4, 2016. Model hierarchies workshop, Princeton University, New Jersey, USA.
194. **Mao, J.**, and coauthors. Disentangling natural and anthropogenic controls on vegetation growth trends. October 30, 2016. BGC-Feedback project meeting. ORNL, Oak Ridge, TN, USA.
195. Yan, B., **J. Mao**, X. Shi, R.E. Dickinson, X. Zhang, J. Wu and D.M. Ricciuto, 2016. Seasonally asymmetric responses of Amazon forests to El Nino. September 21-22, 2016, The NGEE-Tropics annual meeting, Smithsonian S. Dillon Ripley Center, Washington DC, USA.
196. Khaleel, K., M. Allen, K. Evans, J. Fellows, S. Fowler, P. Gilna, A. Guss, G. Jacobs, U. Kalluri, **J. Mao**, A. Palumbo, E. Pierce, S. Wullschleger, T. Zacharia, October 4, 2016, ORNL briefing on FY16 S&T goals and objectives for DOE Biological and Environmental Research, Washington DC, USA.
197. Kalser, D., and coauthors including **J. Mao**, The national extreme events data and research center (NEED), September 14, 2016, ORNL d annual meeting, Oak Ridge, TN, USA.
198. 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, August 16, 2016, Earth system modeling workshop, Oak Ridge, TN, USA.
199. **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 <sup>13</sup>CO<sub>2</sub> and shading manipulations, August 7-12, 2016, ESA annual meeting, Fort Lauderdale, FL, USA.
200. **Mao, J.**, and coauthors. Human-induced greening of the northern extratropical land surface. June 22, 2016. Terrestrial ecosystem modeling group meeting, ORNL, Oak Ridge, TN, USA.
201. **Mao, J.**, and coauthors. Improving the representation of the human component in ACME. May 2, 2016. The “3 by 5” talk in CCSI, ORNL, Oak Ridge, TN, USA.
202. Randerson, J.T., and coauthors including **J. Mao**. The International Land Model Benchmarking (ILAMB) Package. May 16-18, 2016. The 2016 International Land Model Benchmarking (ILAMB) Workshop, Washington DC, USA.
203. Ricciuto, D.M., and coauthors including **J. Mao**. Uncertainty quantification in the ACME land model. May 16-18, 2016. The 2016 International Land Model Benchmarking (ILAMB) Workshop, Washington, DC, USA.
204. **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. May 16-18, 2016. The 2016 International Land Model Benchmarking (ILAMB) Workshop, Washington DC, USA (Invited).
205. McDowell, N., and coauthors including **J. Mao**. NGEE-Tropics El Nino and drought impacts research. April 26-27, 2016. The 2016 Environmental System Science (ESS) PI meeting, Potomac, MD, USA.
206. **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. April 26-27, 2016. The 2016 Environmental System Science (ESS) PI meeting, Potomac, MD, USA.
207. Shi, X., and coauthors including **J. Mao**. Representing northern peatland hydrology and biogeochemistry with the Community Land Model. April 26-27, 2016. The 2016 Environmental

- System Science (ESS) PI meeting, Potomac, MD, USA.
208. **Mao, J.**, and coauthors. Human-induced greening of the northern extratropical land surface. April 4-7, 2016, the 2016 Annual Symposium of the US International Association of Landscape Ecology (US-IALE) meeting, Asheville, NC, USA (Invited).
  209. **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. Mar 30, 2016, CCSI SAB meeting, Oak Ridge, TN.
  210. Shi, X., and coauthors including **J. Mao**. Improving representation of human-Earth system interactions. Mar 30, 2016, CCSI SAB meeting, Oak Ridge, TN.
  211. Hoffman, F.M., **J. Mao**, X. Yang, N. Collier, X. Shi, G. Wang, M. Xu and C. Yang. Biogeochemistry-Climate Feedbacks Scientific Focus Area. Mar 30, 2016, CCSI SAB meeting, Oak Ridge, TN.
  212. **Mao, J.**, and coauthors. Disentangling natural and anthropogenic controls on terrestrial evapotranspiration and vegetation growth trends, Mar 28, 2016. Seminar at the Yale School of Forestry & Environmental Studies, Yale University, New Haven, Connecticut, US (Invited).
  213. Rebecca, T., and coauthors including **J. Mao**. CO<sub>2</sub> and greening observations indicate increasing light use efficiency in northern terrestrial ecosystems. April 2016, EGU Meeting, Vienna, Austria.
  214. Di Vittorio, A., **J. Mao** and X. Shi. Evaluating the need for integrated land use and land cover analysis for robust assessment of climate adaptation and strategies. April 2016, EGU Meeting, Vienna, Austria.
  215. Hoffman, F.M., **J. Mao**, X. Yang, N. Collier, X. Shi, G. Wang, M. Xu, and C. Yang. Biogeochemistry-Climate Feedbacks. February, 2016, CCS Directorate Advisory Committee Meeting.
  216. Wang, F., M. Notaro, Y. Yu, **J. Mao**, X. Shi and Y. Wei. Evaluating CMIP5 Models' representation of oceanic drivers of north African precipitation. January 2016, AMS 96th Annual Meeting, New Orleans, Louisiana.

## 2015

217. Yang, C., **J. Mao**, F. Hoffman, D.M. Ricciuto and J. Fu. Evaluation of Vegetation Biomass in CMIP5 Models over the Northern High-Latitudes. December 2015, AGU Fall Meeting, San Francisco, CA.
218. Huntzinger, D., and coauthors including **J. Mao**. Nitrogen Dynamics are a Key Factor in Explaining Global Land Carbon Sink. December 2015, AGU Fall Meeting, San Francisco, CA.
219. Yu, Y., M. Notaro, F. Wang, **J. Mao**, X. Shi and Y. Wei. Observed Oceanic and Terrestrial Drivers of North African Climate. December 2015, AGU Fall Meeting, San Francisco, CA.
220. 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. December 2015, AGU Fall Meeting, San Francisco, CA.
221. 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. December 2015, AGU Fall Meeting, San Francisco, CA.
222. Di Vittorio, A., **J. Mao** and X. Shi. The Influence of Historical Land Use and Land Cover Change Assumptions, CO<sub>2</sub> Fertilization, and Nitrogen Deposition on Global Carbon Balance in an Earth System Model. December 2015, AGU Fall Meeting, San Francisco, CA.
223. Notaro, M., F. Wang, Y. Yu, **J. Mao**, X. Shi and Y. Wei. Evaluating CMIP5 Models' Representation of Oceanic Drivers of North African Climate. December 2015, AGU Fall Meeting, San Francisco, CA.
224. **Mao, J.**, and coauthors, Disentangling climatic and anthropogenic controls on global terrestrial evapotranspiration trends. December 2015, AGU Fall Meeting, San Francisco, CA.

225. Mu, M., and coauthors including **J. Mao**. Design and application of a community land benchmarking system for earth system models. December 2015, AGU Fall Meeting, San Francisco, CA.
226. Huang, M., and coauthors including **J. Mao**. Change in terrestrial ecosystem water-use efficiency over the last three decades. December 2015, AGU Fall Meeting, San Francisco, CA.
227. Shi, X., **J. Mao**, Z. Zeng, P. Thornton, F.M. Hoffman and D.M. Ricciuto. Biophysical feedbacks of vegetation to the global climate change for the past three decades. Nov., 2015, ACME meeting, Albuquerque, New Mexico.
228. **Mao, J.**, and coauthors. Evaluation of the forest biomass in CMIP5 models over the northern high-latitudes, Oct. 20-23, 2015, EMBRACE-CMIP Analysis and Modelling Workshop, Dubrovnik, Croatia.
229. **Mao, J.** Human-induced greening of the northern high-latitude land surface, Sep 18, 2015, the Nelson Institute Center for Climatic Research (CCR) Climate, People, and the Environment Program (CPEP) seminar, University of Wisconsin-Madison, Madison, US (Invited).
230. **Mao, J.**, D.M. Ricciuto and X. Shi, Sensitivity of land-atmosphere fluxes to biogeophysical and biogeochemical parameters in the Community Land Model, Aug 9-14, 2015, ESA Annual Meeting, Baltimore, MD.
231. **Mao, J.**, D.M. Ricciuto, P.E. Thornton, J.M. Warren, A.W. King, X. Shi, C. M. Inversen and R.J. Norby, Evaluating the Community Land Model in a pine stand with  $^{13}\text{CO}_2$  and shading manipulations, June 23-24, 2015, ORNL TES-SFA Triennial Review, Gaithersburg, MD.
232. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto and J.S. Fu, Evaluation of the vegetation biomass in the CMIP5 models over the northern high-latitudes. June 9, 2015, CCSI Earth system modeling workshop, Oak Ridge, TN.
233. 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.
234. **J. Mao**. 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).
235. 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.
236. 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.
237. 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.
238. 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, 2015, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.
239. **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  $^{13}\text{CO}_2$  and shading manipulations, April 28-29, 2015, Environmental System Science Principal Investigator (PI) Meeting, Potomac, MD, USA.
240. **Mao, J.**, and coauthors, Disentangling Climatic and Anthropogenic Controls on Global Terrestrial Evapotranspiration Trends. April 9, 2015, CCSI SAB meeting, Oak Ridge, TN.
241. 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.
242. Yang, C., **J. Mao**, F.M. Hoffman, D.M. Ricciuto and J.S. Fu, Evaluation of the vegetation biomass in the CMIP5 models over the northern high-latitudes. April 9, 2015, CCSI SAB meeting, Oak Ridge, TN.
243. 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.
244. 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. April 12-17, 2015, European Geosciences Union General Assembly, Vienna, Austria.
245. Di Vittorio, Alan, and coauthors including **J. Mao**. The effects of land unit boundaries on GCAM land use and cover, March 2-4, 2015, Boulder, Colorado.
246. **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.
247. Fang, Y., and coauthors including **J. Mao**. Can terrestrial biosphere models capture the response of atmospheric CO<sub>2</sub> growth rate to ENSO? Jan. 26-29, 2015, NACP and AmeriFlux Joint Meeting, Washington D.C.
248. Wei, Y., and coauthors including **J. Mao**. The North American Carbon Program Multi-scale Synthesis and Terrestrial Model Intercomparison Project: Environmental driver data. Jan. 26-29, 2015, NACP and AmeriFlux Joint Meeting, Washington D.C.
249. Ricciuto, D.M., and coauthors including **J. Mao**. Biogeophysical controls on land-atmosphere fluxes in the Community Earth System Model. Jan. 26-29, 2015, NACP and AmeriFlux Joint Meeting, Washington D.C.

## 2014

250. Fang, Y., and coauthors including **J. Mao**. Can terrestrial biosphere models capture the response of atmospheric CO<sub>2</sub> growth rate to ENSO? December 2014, AGU Fall Meeting, San Francisco, CA.
251. 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.
252. 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.
253. 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.
254. 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.
255. 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.
256. 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.
257. 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.
258. **Mao, J., and coauthors**, Dynamics of global vegetation biomass simulated by the integrated Earth System Model. December 2014, AGU Fall Meeting, San Francisco, CA.
259. 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.
260. **Mao, J.**, X. Shi, P.E. Thornton, Binyan 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, Oct 24, 2014, Department of Industrial and Systems Engineering Graduate Seminar, The University of Tennessee at Knoxville, Knoxville, US (Invited).
261. **Mao, J.**, B. Yan, X. Shi, P.E. Thornton and F.M. Hoffman. Global vegetation growth tendencies during the past 3 decades: a study with multiple satellite LAI products and model simulations, May 18-22, 2014, The 2014 Annual Symposium of the US International Association of Landscape Ecology (US-IALE) meeting, Anchorage, Alaska, USA (Invited).
262. **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 16, 2014, BGC Feedbacks SFA Review Meeting, Washington DC, 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, May 12-14, 2014, Integrated Climate Modeling Principal Investigator Meeting, Washington DC, 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 13CO<sub>2</sub> 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 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.
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, May 6-7, 2014, Terrestrial Ecosystem Science (TES)-Subsurface Biogeochemical Research (SBR) Joint Investigators Meeting, Washington DC, USA.
267. 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.
268. Di Vittorio, A., L. Chini, B. Bond-Lamberty, **J. Mao**, X. Shi, 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.
269. 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, 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.
270. **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.

**2013**

271. **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. December 2013, AGU Fall Meeting, San Francisco, CA.
272. Langan, R., R. Archibald, S. Mahajan, D. Ricciuto, C. Yang, R. Mei, **J. Mao** and X. Shi. Stochastic Parameterization for extreme precipitation. December 2013, AGU Fall Meeting, San Francisco, CA.
273. 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. December 2013, AGU Fall Meeting, San Francisco, CA.
274. 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. December 2013, AGU Fall Meeting, San Francisco, CA.
275. 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. August 2013, the 98th Ecological Society of America (ESA) Annual Meeting, Minneapolis MN.
276. **Mao, J.**, and coauthors. Global estimation of CMIP5 Earth System Models in simulating Leaf Area Index against remote-sensing products. June 2013, the 18th Annual CESM Workshop, Breckenridge, CO.
277. Shi, X. and coauthors including **J. Mao**. Development and testing the hydrological dynamics of vegetated wetland for CLM. June 2013, the 18th Annual CESM Workshop, Breckenridge, CO.
278. Archibald, R., S. Mahajan, **J. Mao**, B. Mayer, R. Mei, D. Ricciuto, X. Shi. Parameterization of the Influence of Sub-grid Scale Land Heterogeneity on Convection in a Climate Model. June 2013, the 18th Annual CESM Workshop, Breckenridge, CO.
279. 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. June 2013, the 18th Annual CESM Workshop, Breckenridge, CO.
280. Ricciuto, D.M., **J. Mao**, X. Shi, D. J. Hayes, A.W. King, P.E. Thornton. Modeling the terrestrial carbon cycle at regional to global scales: Parameter sensitivity and evaluation against benchmarks. May 2013, TES/SBR Joint Principal Investigator's Meeting, Washington DC.
281. Shi, X. and coauthors including **J. Mao**. Development and testing the hydrological dynamics of vegetated wetland for CLM. May 2013, TES/SBR Joint Principal Investigator's Meeting, Washington DC.
282. **Mao, J.**, and coauthors. Global estimation of CMIP5 Earth System Models in simulating Leaf Area Index against remote-sensing products. April 2013, a special symposium entitled "Phenology for Disturbance Detection and Monitoring" at the 2013 US International Association of Landscape Ecology (US-IALE) meeting, Austin, Texas (Invited).
283. 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. March 2013, CCSI SAB meeting, Oak Ridge, TN.
284. **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. March 2013, CCSI SAB meeting, Oak Ridge, TN.
285. Ricciuto, D.M., and coauthors including **J. Mao**. Sensitivity of site-level CLM4 simulations to input meteorology. February 2013, CESM Land Model and Biogeochemistry Working Group Meetings, Boulder, CO.
286. **Mao, J.**, Global simulations, evaluations and applications of CLM4 at ORNL. February 2013, CESM Land Model and Biogeochemistry Working Group Meetings, Boulder, CO.
287. **Mao, J.**, D. Ricciuto, Peter Thornton, J. Warren, Richard Norby, Colleen Iversen. Performance

- of simulated C partitioning within CLM4 based on  $^{13}\text{CO}_2$  and shading manipulations in a pine stand. February 2013, CESM Land Model and Biogeochemistry Working Group Meetings, Boulder, CO.
288. **Mao, J.**, P. Thornton, X. Shi, D. Ricciuto, Gangsheng Wang, P.J. Hanson. The development of CLM4 two-layer soil biogeochemical model using EBIS observations. February 2013, CESM Land Model and Biogeochemistry Working Group Meetings, Boulder, CO.
289. Ricciuto, D.M., A. King, **J. Mao**, P. Thornton. An ensemble global carbon cycle modeling framework for calibration and uncertainty quantification. February 2013, 4th NACP All-Investigators Meeting, Albuquerque, NM.
290. Shi, X., W. Post, P. Thornton, **J. Mao**. Evaluation of CLM4 litterfall based on the observed database. February 2013, 4th NACP All-Investigators Meeting, Albuquerque, NM.
291. **Mao, J.**, D. Ricciuto, P. Thornton, J. Warren, R. Norby, C. Iversen. Performance of simulated C partitioning within CLM4 based on  $^{13}\text{CO}_2$  and shading manipulations in a pine stand. February 2013, 4th NACP All-Investigators Meeting, Albuquerque, NM.

## 2012

292. Shi, X., **J. Mao**, P.E. Thornton, F.M. Hoffman. Spatiotemporal pattern of CLM4 simulated evapotranspiration in response to multifactor environmental changes. December 2012, AGU Fall Meeting, San Francisco, CA.
293. **Mao, J.**, X. Shi, P.E. Thornton, F.M. Hoffman. Global latitudinal-asymmetric vegetation growth trends and their driving mechanisms over the past three decades. December 2012, AGU Fall Meeting, San Francisco, CA.
294. 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. December 2012, AGU Fall Meeting, San Francisco, CA.
295. Forrest M., J.T. Randerson, and **J. Mao**. "Using Remotely-sensed Data Sets for Model Evaluation and Benchmarking." ForestSAT 2012 (September 11–14, 2012), Oregon State University, Corvallis, Oregon, USA (Invited).
296. **Mao, J.** September 2012, the eleventh CTWF (which is organized by Chinese Academy of Sciences (CAS), Third World Academy of Sciences (TWAS), World Meteorological Organization (WMO).) international workshop on "Terrestrial Ecosystems under the Changing Climate", Beijing, China (Invited).
297. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. January 2012, CCSI SAB meeting, Oak Ridge, TN
298. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. April 2012, TES Principal Investigator's Meeting, Washington DC.
299. **Mao, J.**, and coauthors. Simulation and improvement of CLM4 based on  $^{13}\text{CO}_2$  and shading manipulations in a pine stand. April 2012, TES Principal Investigator's Meeting, Washington DC.
300. Shi, X., **J. Mao** and coauthors. The impact of climate change,  $\text{CO}_2$ , nitrogen deposition and land use change on contemporary global river flow. April 2012, TES Principal Investigator's Meeting, Washington DC.
301. 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. April 2012, TES Principal Investigator's Meeting, Washington DC.
302. Hayes, D., and coauthors including **J. Mao**. Global carbon cycle model development, application and evaluation. April 2012, TES Principal Investigator's Meeting, Washington DC.
303. **Mao, J.**, and coauthors. Two-layer treatment of litter and soil organic matter pools and fluxes for CLM. February 2012, Joint Land, Biogeochemistry, and Chemistry-Climate Working Groups NCAR, Boulder, CO.

304. **Mao, J.**, and coauthors. Comparison of CLM predicted GPP, LAI, and NDVI against remote sensing-based estimates. February 2012, Joint Land, Biogeochemistry, and Chemistry-Climate Working Groups NCAR, Boulder, CO.

## 2011

305. Thornton, P.E., **J. Mao**, X. Shi, and coauthors Influence of prognostic land use on 21st century climate prediction. December 2011, AGU Fall Meeting (Invited).
306. **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. December 2011, AGU Fall Meeting, San Francisco, CA.
307. 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. December 2011, AGU Fall Meeting, San Francisco, CA.
308. Shi, X., **J. Mao** and coauthors. Runoff of the 20th and 21st centuries simulated by CESM1. December 2011, AGU Fall Meeting, San Francisco, CA.
309. **Mao, J.**, and coauthors. Remote sensing evaluation of CLM4. June 2011, the 16th Annual CESM Workshop, Breckenridge, CO.
310. **Mao, J.**, and coauthors. The impact of climate, CO<sub>2</sub>, nitrogen deposition and land use change on simulated contemporary global river flow. March 2011, CESM Land Model Working Group Meeting, Boulder, CO.
311. **Mao, J.**, and coauthors. ORNL progress in the IESM project. March 2011, CESM Land Model Working Group Meeting, Boulder, CO.

## 2010

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

## 2009

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

## 2006

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

**2005**

320. **Mao, J.**, and coauthors. The sensitivity of a dynamic global vegetation model to historical climate variability and CO<sub>2</sub> in the conterminous China. November 2005, the forth CTWF (which is organized by Chinese Academy of Sciences (CAS), Third World Academy of Sciences (TWAS), World Meteorological Organization (WMO).) international workshop on Land Surface Models and Their Applications, Zhuhai, China.

**2004**

321. **Mao, J.**, and coauthors. Coupling of an Atmosphere-Vegetation Interaction Model (AVIM) to a New Generation Grid Point Atmospheric General Circulation Model (GAMIL). July 2004, the 8th meeting of Chinese outstanding youth scientist of atmospheric science, Chengdu Province, China.

**2003**

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