

Zhongjing Jiang

Research Scientist at the Institute for Sustainability, Energy, and Environment, University of Illinois Urbana-Champaign (UIUC); Center for Advanced Bioenergy and Bioproducts Innovation (CABBI)

1101 West Peabody Drive, Urbana, IL, 61801,

E-mail: zjiang35@illinois.edu (Updated on 8 Nov. 2025)

RESEARCH INTERESTS

Climate dynamics: Climate variability, Ocean-atmosphere interaction, Chemistry-climate interaction

Modeling & Methods: Earth system modeling, AI for climate, Uncertainty Quantification, Bayesian Inference

Land-atmosphere processes: Land-atmosphere interaction, Agroecosystem modeling

Sustainability Applications: Bioenergy, Nature-based climate solutions, Sustainability

RESEARCH EXPERIENCE

2024.08-present	Research Scientist, University of Illinois Urbana-Champaign PI: Prof. Kaiyu Guan
2022.09-2024.08	Postdoctoral Research Associate, Brookhaven National Laboratory Supervisor & PI: Chongai Kuang co-PIs: Shawn Serbin , Nathan Urban
2018.09-2022.08	Graduate Research Assistant, Peking University Advisor: Prof. Jing Li
2017.09-2020.03	Graduate Research Assistant, Peking University Advisor: Prof. Tzung-May Fu
2018.08-2018.09	Visiting Ph. D. Student, University of Edinburgh Advisor: Prof. Paul Palmer

EDUCATION

2017/09-2022/06	Ph.D. in Atmospheric Physics and Atmospheric Environment, Peking University
2017/07-2017/08	Student in Summer Institute for China's Green Innovators, Tsinghua University
2013/09-2017/06	B.S. in Mathematics and Applied Mathematics, Beijing Normal University

HONORS & AWARDS

2023	Second Place in 2023 BNL Research SLAM Competition
2022	Outstanding Graduates of Peking University
2021	Merit Student of Peking University, Tung Scholarship
2021	Outstanding Student Presentation Awards (OSPA) in the Fall 2020 AGU meeting
2020	Pacemaker to Merit Student of Peking University, Doctoral President Scholarship of Peking University
2020	Second prize for 2020WAIC Hackathon
2019	Merit Student of Peking University, Founder Scholarship
2019	Third prize for "Shenqi" challenge algorithm and application competition
2018	Second prize "Huawei Cup" The 15th China Post-Graduate Mathematical Contest in Modeling

PUBLICATIONS

In preparation:

- Jiang Z., Guan K., Zhou L., Li Z., Grant R., Qin R., Hartman T., Jia M., Peng B., Heaton E., VanLoocke A., Bernacchi C.: Modeling the major bioenergy crop Miscanthus in an agroecosystem model (Ecosys)
- Jiang, Z., Subba, T., Isenberg, N., Gasparik J., Urban, N., Serbin, S., Kuang, C., Towards Model–Observing System Co-Design: An OSSE-Based Bayesian Framework for Prioritizing Earth System Measurements

Preprint:

- Jiang, Z., Isenberg, N., Subba, T., Urban, N., Serbin, S., Kuang, C., Woo, H.: A framework for parametric and predictive uncertainty quantification in the E3SM Land Model: Assessing the impact of site and observable heterogeneity. ESS Open Archive. March 08, 2025. (submitted to JAMES, In revision)
- Zhu, F., Torbunov, D., Ren, Y., **Jiang, Z.**, Zhao, T., Yogarathnam, A. and Yue, M., 2024. Mitigating Parameter Degeneracy using Joint Conditional Diffusion Model for WECC Composite Load Model in Power Systems. *arXiv preprint arXiv:2411.10431*. (submitted to Commun. Eng., In revision)

Submitted:

- Qin Z., Guan K., Li Y., ..., **Jiang Z.**: Reducing uncertainty in cradle-to-farmgate Carbon Intensity for feedstock using Model-Data Fusion. (submitted to ES&T, under review)

Peer-reviewed publications:

- Jiang, Z., Li, J., Liu, G., and Zhang, C.: Impact of the Indian Ocean Dipole Mode on Planetary Boundary Layer Ozone in China, *Geophys Res Lett*, 51, <https://doi.org/10.1029/2024GL110108>, 2024.
- Ye, X., Zhang, L., Wang, X., Lu, X., **Jiang, Z.**, Lu, N., Li, D., and Xu, J.: Spatial and temporal variations of surface background ozone in China analyzed with the grid-stretching capability of GEOS-Chem High Performance, *Science of the Total Environment*, 914, <https://doi.org/10.1016/j.scitotenv.2024.169909>, 2024.
- Ying, T., Li, J., **Jiang, Z.**, Liu, G., Zhang, Z., Zhang, L., Dong, Y., and Zhao, C.: Increased aerosol scattering contributes to the recent monsoon rainfall decrease over the Gangetic Plain, *Sci. Bull.*, <https://doi.org/10.1016/j.scib.2023.08.052>, 2023.
- Dong, Y., Li, J., Yan, X., Li, C., **Jiang, Z.**, Xiong, C., Chang, L., Zhang, L., Ying, T., and Zhang, Z.: Retrieval of aerosol single scattering albedo using joint satellite and surface visibility measurements, *Remote Sens. Environ.*, 294, <https://doi.org/10.1016/j.rse.2023.113654>, 2023.
- Zhang, C., **Jiang, Z.**, Liu, M., Dong, Y., and Li, J.: Relationship between summer time near-surface ozone concentration and planetary boundary layer height in Beijing, *Atmos. Res.*, 293, 106892, <https://doi.org/10.1016/j.atmosres.2023.106892>, 2023.
- Liu, G., Li, J., **Jiang, Z.**, and Li, X.: Impact of Sea Surface Temperature Variability at Different Ocean Basins on Dust Activities in the Gobi Desert and North China, *Geophys. Res. Lett.*, 49, <https://doi.org/10.1029/2022GL099821>, 2022.
- Zhang, L., Li, J., **Jiang, Z.**, Dong, Y., Ying, T. and Zhang, Z.: Clear-Sky Direct Aerosol Radiative Forcing Uncertainty Associated with Aerosol Optical Properties Based on CMIP6 models, *J. Clim.*, 35(10), 3007–3019, <https://doi.org/10.1175/jcli-d-21-0479.1>, 2022a.
- Zhang, L., Li, J., **Jiang, Z.**, Dong, Y., Ying, T. and Zhang, Z.: Clear-Sky Direct Aerosol Radiative Forcing Uncertainty Associated with Aerosol Vertical Distribution Based on CMIP6 models, *J. Clim.*, 35(10), 3021–3035, <https://doi.org/10.1175/jcli-d-21-0480.1>, 2022b.
- Jiang, Z.** and Li, J.: Impact of eastern and central Pacific El Niño on lower tropospheric ozone in China, *Atmos. Chem. Phys.*, 22, 7273–7285, <https://doi.org/10.5194/acp-22-7273-2022>, 2022.
- Jiang, Z.**, Li, J., Lu, X., Gong, C., Zhang, L., and Liao, H.: Impact of western Pacific subtropical high on ozone pollution over eastern China, *Atmos. Chem. Phys.*, 21, 2601–2613, <https://doi.org/10.5194/acp-21-2601-2021>, 2021.
- Jiang, Z.**, Jolleys, M. D., Fu, T.-M., Palmer, P. I., Ma, Y., Tian, H., Li, J., and Yang, X.: Spatiotemporal and probability variations of surface PM_{2.5} over China between 2013 and 2019 and the associated changes in health risks: An integrative observation and model analysis, *Sci. Total Environ.*, 723, 137896, <https://doi.org/10.1016/j.scitotenv.2020.137896>, 2020.

Dong, Y., Li, J., Guo, J., **Jiang, Z.**, Chu, Y., Chang, L., Yang, Y., and Liao, H.: The impact of synoptic patterns on summertime ozone pollution in the North China Plain, *Sci. Total Environ.*, 735, 139559, <https://doi.org/10.1016/j.scitotenv.2020.139559>, 2020.

Xu, X., **Jiang, Z.**, Li, J., Chu, Y., Tan, W., and Li, C.: Impacts of meteorology and emission control on the abnormally low particulate matter concentration observed during the winter of 2017, *Atmos. Environ.*, 225, 117377, <https://doi.org/10.1016/j.atmosenv.2020.117377>, 2020.

CONFERENCE & PRESENTATIONS

2025/12 (Upcoming) American Geosciences Union 2025 (AGU), New Orleans, US

Poster: Towards Model–Observing System Co-Design: An OSSE-Based Bayesian Framework for Prioritizing Earth System Measurements

2025/12 (Upcoming) American Geosciences Union 2025 (AGU), New Orleans, US

Oral: Modeling the major bioenergy crop Miscanthus in an agroecosystem model (Ecosys)

2025/03 2025 ARM/ASR PI meeting, UQ and OSSE breakout session

Oral (invited): A Novel Computational Framework for Model Uncertainty Quantification (UQ) and Observing System Simulation Experiments (OSSE)

2024/10 Micro2Macro Workshop, University of Wyoming, Laramie, WY

Oral: A Novel Computational Framework for Optimal Experimental Design for Climate Prediction

2023/12 American Geosciences Union 2023 (AGU), San Francisco, US

Poster: A Novel Computational Framework for Optimal Experimental Design for Climate Prediction

2023/07 Gordon Research Seminar & Conference (GRC), Radiation and Climate, Maine, US

Poster: A Novel Computational Framework for Optimal Experimental Design for Climate Prediction

2022/07 The 19th Annual Meeting Asia Oceania Geosciences Society (AOGS), Online

Oral: Impact of Eastern and Central Pacific El Niño on Lower Tropospheric Ozone in China

2021/12 American Geosciences Union 2021 (AGU), Online

Poster: Impact of East and Central Pacific El Niño on Lower Tropospheric Ozone in China

eLightning: Impact of Western Pacific Subtropical High on Ozone Pollution in China (Invited)

eLightning: Response of surface ozone concentration in China under different anthropogenic emission scenarios in future climate (Invited)

2020/12 American Geosciences Union 2020 (AGU), Online

Poster: Impact of Western Pacific Subtropical High on Ozone Pollution in China (OSPA)

2020/11 Graduate Forum of Global Alliance of Universities on Climate, Beijing, China

Poster: Spatiotemporal and probability variations of surface PM_{2.5} over China between 2013 and 2019 and the associated changes in health risks: An integrative observation and model analysis

2020/09 The 1st GEOS-Chem Europe meeting (GCE1), online

Oral: Spatiotemporal and probability variations of surface PM_{2.5} over China between 2013 and 2019 and the associated changes in health risks: An integrative observation and model analysis

2019/12 Symposium on atmospheric science of universities across the Taiwan Strait (Zhu Kezhen Forum), Taipei, Taiwan, China

Oral: Impact of Western Pacific Subtropical High on Ozone Pollution in China

2019/06 The 16th Annual Meeting Asia Oceania Geosciences Society (AOGS), Singapore

Oral: Impact of Meteorology and Western Pacific Subtropical High on Ozone Pollution in China

2018/12 American Geosciences Union 2018 (AGU), Washington D.C., US

Poster: Interpreting the spatial and temporal variation of PM_{2.5} over China during 2013 to 2018: an integrative data and regional 3-D model analysis

TEACHING EXPERIENCE

Instructor **Watershed Hydrology** (Course for undergraduate & graduate students), Department of Natural Resources and Environmental Sciences, University of Illinois Urbana-Champaign (2025/09-2026/01)

Teaching assistant **Introduction to Atmospheric Science** (Course for undergraduate students), Department of Atmospheric and Oceanic Sciences, Peking University (2018/09-2019/01)

Teaching assistant *Numerical Weather Prediction* (Course for undergraduate & graduate students), Department of Atmospheric and Oceanic Sciences, Peking University (2021/09-2022/01)

Software training lecturer *MATLAB* (training for undergraduate & graduate students) School of Physics, Peking University (2021/03)

ACTIVITIES & SERVICES

Primary Convener& Session Chair of AGU25- GC004: Advances in Approaches for Earth System Model Uncertainty Quantification: Integrating Models and Observations to Enhance Predictability (Co-conveners: Greg Elsaesser, Die Wang, Duncan Watson-Parris)

Vice President of the Brookhaven National Laboratory Association of Students & Postdocs (2023/01-2024/08)

Panelist of Brookhaven OEP's Speaker Series Panel (2023/07) and Career and Graduate Discussion Panel (2024/07)

Chair of the “Azure Space” Graduate Student Forum of the Department of Atmospheric and Oceanic Sciences, Peking University (2018/09-2020/09)

SKILLS

Programming: Python, Julia, MATLAB, NCL, Fortran

Modeling: Ecosys, E3SM land model (ELM), CESM, GEOS-Chem, WRF-Chem

Links

Website: <https://zhongjingjiang.github.io>

Google Scholar: https://scholar.google.com/citations?user=73N_824AAAAJ

ResearchGate: <https://www.researchgate.net/profile/Zhongjing-Jiang>