

XIANG LIU

Xianlin Campus, Nanjing University, 163 Xianlin Avenue, Qixia District, Nanjing, Jiangsu, China

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EDUCATION

Nanjing University (NJU)

Nanjing, CN

Master of Science in Atmospheric Science

2021.09 - 2024.06 (Expected)

University of Wisconsin-Madison (UW-Madison)

Madison, US

Visiting Undergraduate in Atmospheric Science

2020.01 - 2020.08

China University of Mining and Technology (CUMT)

Xuzhou, CN

Bachelor of Engineering in Environmental Engineering

2017.09 - 2021.06

Related Courses: Bioclimatology, Weather and Climate, Big Data Analysis in Meteorology, Atmospheric Environment Theory and Model, Climate Change Impacts and Adaptations, and Atmospheric Aerosols

PUBLICATIONS

1. **Liu, X.**, Wang, H. (2023). Inflated negative impacts of temperature on global agricultural yields due to ozone omission. *Environmental Science & Technology*, in preparation.
2. **Liu, X.**, Chu, B., Tang, R., Liu, Y., Qiu, B., Gao, M., Li, X., Xiao, J., Sun, H.Z., Huang, X., Desai, A.R., Ding, A., Wang, H. (2023). Strengthening China's food security through air quality improvements. *Nature Food*, accepted.
3. Sun, H.Z., Zhao, J., **Liu, X.**, Qiu, M., Shen, H., Wang, H., He, K., Liu, H., Guo, Y., Archibald, A. (2023). Antagonism between ambient ozone increasing and urbanization-oriented population migration on Chinese cardiopulmonary mortality. *The Innovation*, 4(6), 100517.
4. Zhu, Y., Liu, Y., **Liu, X.**, & Wang, H. (2023). Carbon mitigation and health effects of fleet electrification in China's Yangtze River Delta. *Environment International*, 108203.
5. **Liu, X.**, Zhu, Y., Xue, L., Desai, A. R., & Wang, H. (2022). Cluster-enhanced ensemble learning for mapping global monthly surface ozone from 2003 to 2019. *Geophysical Research Letters*, 49(11), e2022GL097947.
6. **Liu, X.**, & Desai, A. R. (2021). Significant reductions in crop yields from air pollution and heat stress in the United States. *Earth's Future*, 9(8), e2021EF002000.

RESEARCH EXPERIENCE

NJU, Nanjing, China

2021.09 - present

Master's Thesis (preliminary): *The Impacts of Air Pollution on Food Security Based on Statistical Inference*

Mentor: Professor Haikun Wang, School of Atmospheric Sciences

Independent Research: Global Ozone Mapping

- Harmonized surface ozone measurements and multi-source data (e.g., satellite and reanalysis) to a modeling dataset
- Developed and validated the proposed cluster-enhanced ensemble learning algorithm for global ozone predictions
- Compared the results with other studies, demonstrating the highest accuracy of our data

Independent Research: Global Warming, Ozone Omission, and Crop Yields

- Used a fixed effect model to uncover the air pollution and meteorological impacts on global crop yields
- Estimated the marginal effects of ozone and temperature on 18 crops across the globe.
- Projected the future yield impacts from changes in ozone and warming levels.

Independent Research: China's Air Pollution & Crop Growth

- Assembled a panel dataset of myriad spaceborne remote sensing, such as SIF, ozone, and climate data
- Established a statistical crop model to analyze the relationships between crop growth and air pollution levels
- Evaluated the air quality-driven changes in crop yield and air pollution-attributed impacts on food security in China
- Explored the pathway to abate ozone and aerosol pollution, demonstrating that reducing ozone pollution benefits more than aerosols mitigation.

UW-Madison, Madison, U.S.

2020.01 - 2020.08

Research Assistant

Mentor: Professor Ankur R. Desai, Department of Atmospheric and Oceanic Sciences

Independent Research: U.S.'s Air Pollution, Heat Stress, and Crop Yields

- Performed and processed extensive datasets including USDA NASS agricultural statistics and GHCN weather data
- Conducted further analysis through an empirical model to analyze the air pollution impacts on historical crop yield
- Found that maize and soybean behave differently in response to combined air pollution and heat stress effects

NJU, Nanjing, China

2019.08 - 2020.01

Research Assistant (Summer Intern)

Mentor: Professor Yanxu Zhang, School of Atmospheric Sciences

- Modified and revised the MOZART boundary conditions to initiate the model simulation
- Used a new online atmospheric chemical transport model (WRF-GC) to forecast air quality in China
- Generated daily forecasting results on WRF-GC model through Python and NCL scripts

CUMT, Xuzhou, China

2019.05 - 2019.07

Research Assistant

Mentor: Associate Professor Ping Lou, School of Environment and Spatial Informatics

- Prepared planktonic crustacean daphnia magna for experiment operation
- Designed and conducted experiments to explore the relationship between daphnia magna mortality and nano-silver concentration in water

CONFERENCE

Poster in Fifth Workshop on Prevention and Control of Atmospheric Ozone Pollution

Wuhan, CN, 2023.05

Best oral presentation in Academic Innovative Forum of "Interdisciplinary Modern Earth Science"

Nanjing, CN, 2023.10

HONORS & AWARDS

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| • YingCai Scholarship, School of Atmospheric Sciences | NJU, 2023 |
| • GuoRui Scholarship, School of Atmospheric Sciences | NJU, 2022 |
| • Master's Second-Class Scholarship | NJU, 2022 |
| • Master's First-Class Freshman Scholarship | NJU, 2021 |
| • Undergraduate Study Abroad Scholarship | CUMT, 2019 |
| • National Undergraduate Encouragement Scholarship | CUMT, 2019 |
| • Undergraduate Third-Class Scholarship | CUMT, 2018 |
| • The First Prize of New Year Mathematical Modeling Competition | CUMT, 2018 |
| • The Third Prize of Regular Mathematical Modeling Competition | CUMT, 2018 |
| • The Third Prize of BoXue Mathematical Modeling Competition | CUMT, 2018 |

TECHNICAL SKILLS

Coding skills: R, Latex, Python

Chemical transport models: GEOS-Chem, WRF-Chem

Languages: Chinese (mandarin), English

Latest updated: 7 November 2023