

Xinyue Wang

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EDUCATION

- Ph.D., Atmospheric Sciences, Purdue University** 2020
Dissertation: Dynamical and Chemical Coupling of the Summer Monsoons and the Upper Troposphere-Lower Stratosphere
Advisors: Drs. Yutian Wu (Lamont-Doherty Earth Observatory) & Wen-wen Tung
- Certificate of Applied Management Principles (mini-MBA), Purdue University** 2020
- B.Sc., Atmospheric Sciences, Nanjing University, China** 2015
Dissertation: Changes in the East Asian Jet Stream under Global Warming
Advisor: Dr. Yang Zhang

RESEARCH ACTIVITIES

- Advanced Study Program Postdoctoral Fellow** Nov. 2020– present
Atmospheric Chemistry Observations & Modeling (ACOM), National Center for Atmospheric Research (NCAR)
Advisors: Drs. William Randel & Laura Pan
- Research & Teaching Assistant** Sept. 2015 – Oct. 2020
Department of Earth, Atmospheric and Planetary Sciences, Purdue University
- Advanced Study Program Graduate Visitor** May – Aug. 2019
ACOM, NCAR
- Graduate Student Visitor** June – Aug. 2018
ACOM, NCAR
- Research Associate**
Ocean and Climate Physics (OCP) Division Jan. – June 2018, Mar. – May 2019
Lamont-Doherty Earth Observatory (LDEO), Columbia University
Cold & Arid Regions Environmental & Engineering Research Institute July 2014
Chinese Academy of Sciences, Lanzhou, China.

PUBLICATIONS

- **Wang, X.**, Wu, Y., Tung, W.-w., Richter, J.H., Glanville, A.S., Tilmes, S., Orbe, C., Huang, Y., Kinnison, D., 2018: “The Simulation of Stratospheric Water Vapor over the Asian Summer Monsoon Region in the CESM1(WACCM) Models” *Journal of Geophysical Research: Atmospheres*, <https://doi.org/10.1029/2018JD028971>
- Wu, Y., Orbe, C., Tilmes, S., Abalos, M., **Wang, X.**, 2019: “Fast transport pathways into the Northern Hemisphere upper troposphere and lower stratosphere during northern summer”. *Journal of Geophysical Research: Atmospheres*, <https://doi.org/10.1029/2019JD031552>
- **Wang, X.**, Wu, Y., Randel, W.J., Tilmes, S.: 2020: “Stratospheric Contribution to the Summertime High Surface Ozone Events over the Western United States”. *Environmental Research Letters*, doi: 10.1088/1748-9326/abba53

- Zheng, C., Wu, Y., Ting, M., Orbe, C., **Wang, X.**, Tilmes, S., 2020: “Summertime Transport Pathways from Different Northern Hemisphere Regions into the Arctic”. *Journal of Geophysical Research: Atmospheres*, <https://doi.org/10.1029/2020JD033811>
- **Wang, X.**, Randel, W.J., Wu, Y., 2021: “Infrequent, Rapid Transport Pathways to the Summer North American Upper Troposphere and Lower Stratosphere”. *Geophysical Research Letters*, doi: 10.1029/2020GL089763
- **Wang, X.**, Randel, W.J., Pan, L., Wu, Y., Zhang, P., 2022: “Transient Behavior of the Asian Summer Monsoon Anticyclone associated with Eastward Eddy Shedding”. *Journal of Geophysical Research: Atmospheres*, doi: 10.1029/2021JD036090
- Zhu, Y., Bardeen, C., Tilmes, S., Mills, M., **Wang, X.**, Harvey, V. L., Taha, G., Kinnison, D., Yu, P., Rosenlof, K., Avery, M., Kloss, C., Li, C., Glanville, S., Millan, L., Deshler, T., Portmann, R., Krotkov, N., Toon, O. B.: “2022 Hunga-Tonga eruption: stratospheric aerosol evolution in a water-rich plume”. *In revision, Communications Earth & Environment*, <https://doi.org/10.21203/rs.3.rs-1647643/v1>
- Yang, C., Li, T., Lai, D., **Wang, X.**, Xue, X., Dou, X.: “The Delayed Effect of the 2019 Southern SSW on the Polar Mesospheric Cloud Occurrence”. *Under review, Geophysical Research Letters*, doi: 10.1002/essoar.10512043.1
- **Wang, X.**, Randel, W., Tilmes, S., Zhu, Y., Toon, O. B., Yu, W.: “The atmospheric response to the Hunga-Tonga eruption”. *In prep.*

FELLOWSHIPS & GRANTS

- NASA ROSES-22 Proposal: Aura Science Team and Atmospheric Composition Modeling and Analysis Program 3-year grant (Co-I) Pending
- Early Career Scientist Assembly (ECSA) 6-month Visitor Fund, NCAR (PI) Mar. 2022
- ECSA Travel Fund, NCAR Feb. 2021
- NCAR's Advanced Study Program Postdoctoral Fellowship (PI) Mar. 2020
- International HPC Summer School on HPC Challenges travel subsidy Mar. 2020
- European Geosciences Union Early Career Scientist's Travel Support Dec. 2019
- Purdue Climate Change Research Center Travel Grant Nov. 2016, 2018, 2019
- NCAR's Advanced Study Program's Graduate Student Fellowship (PI) Jan. 2019
- A.H. Ismail Interdisciplinary Graduate School Grant (PI) Nov. 2018
- Purdue Graduate Student Government Travel Grant Oct. 2018
- Annual CESM Workshop Travel Grant June 2018, 2019
- American Meteorological Society (AMS) Student Travel Grant June. 2017

AWARDS & HONORS

- NCAR's Advanced Study Program Postdoctoral Fellowship awardee Mar. 2020
- June L. and Tan Sun Chen Research Scholarship, Purdue University Apr. 2020
- 2019 College of Science Graduate Student International Travel Award Dec. 2019
- June L. and Tan Sun Chen Research Scholarship, Purdue University Apr. 2019
- NCAR's Advanced Study Program's Graduate Student Fellowship awardee Jan. 2019
- The Ross Purdue Graduate Fellowship, Purdue University Aug. 2015
- University Merit Scholarship, Nanjing University 2014

TEACHING EXPERIENCE

- **Teaching Assistant:** EAPS 309: Computer-Aided Analysis for Geosciences (2017); EAPS221: Survey of Atmospheric Science (2017).
Made the Purdue EAPS Teaching Honor Roll by achieving an instructor rating 4.8 out of 5.0 as rated by students.
- **Summer Intern Mentor:** Grace Brown (undergraduate student at Barnard College of Columbia University)
Project: The Interannual Variability of Carbon Monoxide in the Upper Troposphere-Lower Stratosphere over the Asian Summer Monsoon Region (AGU Fall meeting 2021 Abstract: https://lamont.columbia.edu/sites/default/files/content/Summer%20Interns%202021/Brown_Abstract.pdf)
- **Host:** Jaewon Lee (graduate student, Columbia University)
Project: The Evolutions and Large-scale Mechanisms of Summer Stratospheric Ozone Intrusion across Global Hotspots (submitted to AGU Fall meeting 2022, <https://agu.confex.com/agu/fm22/webprogrampreliminary/Paper1149725.html>)

FIELD EXPERIENCE

- **The Asian summer monsoon Chemical and Climate Impact Project (ACCLIP)**
Chemical forecaster: Co-led the 2021-2022 summer ACCLIP briefings. Tested and evaluated NCAR's newer high-resolution model (CESM2 regional refined model, MUSICA). Monitored the Asian summer monsoon shedding and typhoon activities using NCAR's and NASA's model forecasts. Designed the flight paths for GV and WB57. Made plots for 2022 GV flight reports.

SERVICE & OUTREACH

- **Publication Referee:** *Atmospheric Chemistry and Physics*, *Atmospheric Environment*, *Climate Dynamics*, *Journal of the Atmospheric Sciences*, *Journal of Geophysical Research: Atmospheres*, *Quarterly Journal of the Royal Meteorological Society*
- **Committee Member (2021-present)**
NCAR/UCP Postdoc Research Reviews committee
High Performance Computing committee
ASP Seminar Series committee
- **Judge**
Purdue Undergraduate Research Conference poster session, West Lafayette, IN (2020, 2021)
The Significant Opportunities in Atmospheric Research and Science (SOARS) poster session, Boulder, CO (2018-08-02)
2022 NCAR|UCAR|UCP Summer Internship Poster Symposium, Boulder, CO (2022-07-28)
- **Standby computing mentor**
SOARS program for the 2021 Cohort
- Earth Science Passport Day at Imagination Station volunteer, Lafayette, IN (2017-11-04)
- Indiana State Museum exhibitor for Nature Unleashed exhibit, Indianapolis, IN (2017-03-20)
- Habitat for Humanity Collegiate Challenge program volunteer, Dade City, FL (June. 2016)

SELECTED WORKSHOPS AND TRAINING

- 24th Annual CESM Workshop, NCAR, Boulder, CO (June. 2019)

- CGD-CISL Python Tutorial and Hackathon, NCAR, Boulder, CO (June. 2019)
- Future Physics for Global Atmospheric Model Workshop, NCAR, Boulder, CO (June. 2019)
- Fundamentals of Atmospheric Chemistry and Aerosol Modeling Workshop, NCAR, Boulder, CO (Aug. 2018)
- 2018 CESM Tutorial, NCAR, Boulder, CO (Aug. 2018)
- Weather Research and Forecasting (WRF) Model Tutorial, NCAR, Boulder, CO (July. 2018)
- 23rd Annual CESM Workshop, NCAR, Boulder, CO (June. 2018)

SELECTED PRESENTATIONS

- **Wang, X.**, Randel, W.J., Li, J., Yu, W.: *Observed HDO/H₂O ratios in the upper troposphere and lower stratosphere over Monsoon Regions*. 7th SPARC General Assembly. Oct. 2022 (poster)
- **Wang, X.**: *Transient Behavior of the Asian Summer Monsoon Anticyclone associated with Eastward Eddy Shedding*. The 2nd ACCLIP Science Team Meeting. Feb. 2022. (oral)
- **Wang, X.**, Randel, W.J., Pan, L., Wu, Y., Zhang, P.: *Transient Behavior of the Asian Summer Monsoon Anticyclone associated with Eastward Eddy Shedding*. The 102nd AMS Annual Meeting, Jan. 2022, Houston, TX. (oral)
- **Wang, X.**, Wu, Y., Randel, W.J.: *Eastward Eddy Shedding of the Asian Summer Monsoon Anticyclone*. EGU General Assembly, Apr. 2021, virtual. (oral)
- **Wang, X.**, Wu, Y., Randel, W.J.: *The Dynamics of Eastward Eddy Shedding from the Asian Summer Monsoon Anticyclone*. The 101st AMS Annual Meeting, Jan. 2021, virtual. (oral)
- **Wang, X.**, Randel, W.J., Wu, Y., Orbe, C.: *Transport into the upper troposphere-lower stratosphere over North America during northern summer*. AGU Fall Meeting, Dec. 2019, San Francisco, CA. (poster)
- **Wang, X.**, Randel, W.J., Wu, Y.: *Stratospheric Contribution to the Summertime High Surface Ozone Events over the Western United States*. 24th Annual CESM Workshop, June 2019, Boulder, CO. (poster)
- **Wang, X.**, Wu, Y., Randel, W.J.: *On the Linkage between Summertime Tropopause Folds and Elevated Low-Level Ozone over North America*. AGU Fall Meeting, Dec. 2018, Washington, D.C. (poster)
- **Wang, X.**, Wu, Y., Tung, W.-w., Richter, J.H., Glanville, A.S., Tilmes, S., Orbe, C., Huang, Y., Kinnison, D.: *The Simulation of Stratospheric Water Vapor over the Asian Summer Monsoon Region in the CESM1(WACCM) Models*. 23rd Annual CESM Workshop, June 2018, Boulder, CO. (oral)
- **Wang, X.**, Wu, Y., Tung, W.-w., Huang, Y., Tilmes, S.: *The simulation of stratospheric water vapor in the NH summer monsoon regions in a suite of WACCM models*. AGU Fall Meeting, Dec. 2016, San Francisco, CA. (poster)