

Xinyue Wang

4001 Discovery Dr, N258, Boulder, CO 80309
Phone: 303-492-7486; Email: xinyuew@colorado.edu

EMPLOYMENT

- Assistant Professor** **Aug. 2023– present**
Department of Atmospheric and Oceanic Sciences, University of Colorado Boulder
- Advanced Study Program Postdoctoral Fellow** **Nov. 2020– Aug. 2023**
Atmospheric Chemistry Observations & Modeling (ACOM), National Center for Atmospheric Research (NCAR)
- Research Associate**
Ocean and Climate Physics (OCP) Division **Jan. – June 2018, Mar. – May 2019**
Lamont-Doherty Earth Observatory (LDEO), Columbia University
- Research & Teaching Assistant** **Sept. 2015 – Oct. 2020**
Department of Earth, Atmospheric and Planetary Sciences, Purdue University

EDUCATION

- Ph.D.**, Atmospheric Sciences, Purdue University **2020**
Certificate of Applied Management Principles (mini-MBA), Purdue University **2020**
B.Sc., Atmospheric Sciences, Nanjing University, China **2015**

PUBLICATIONS

- Zhang, J., Kinnison, D.E., Zhu, Y., **Wang, X.**, Tilmes, S., Dubé, K.R. and Randel, W.J.: “Chemistry contribution to stratospheric ozone depletion after the unprecedented water rich Hunga Tonga eruption”. *Submitted*, DOI: [10.22541/essoar.169149953.33177277/v1](https://doi.org/10.22541/essoar.169149953.33177277/v1).
- Yu, W., Garcia, R.R., Yue, J., Smith, A.K., **Wang, X.**, Randel, W.J., Qiao, Z., Zhu, Y., Harvey, V.L., Tilmes, S. and Mlynczak, M.G.: “Mesospheric temperature and circulation response to the Hunga Tonga-Hunga-Ha’apai volcanic eruption”. *In revision*, DOI: [10.22541/essoar.169008290.04690076/v1](https://doi.org/10.22541/essoar.169008290.04690076/v1).
- Zhu, Y., Portmann, R.W., Kinnison, D., Toon, O.B., Millán, L., Zhang, J., Vömel, H., Tilmes, S., Bardeen, C.G., **Wang, X.** and Evan, S.: “Stratospheric ozone depletion inside the volcanic plume shortly after the 2022 Hunga Tonga eruption”. *In revision*, <https://doi.org/10.5194/egusphere-2023-1334>, 2023.
- **Wang, X.**, Randel, W., Zhu, Y., Tilmes, S., Starr, J., Yu, W., Garcia, R., Toon, O. B, Park, M., Kinnison, D., Bourassa, A., Rieger, L., Li, J.: “Stratospheric climate anomalies and ozone loss caused by the Hunga Tonga volcanic eruption”. *Under review*, <https://essopenarchive.org/doi/full/10.1002/essoar.10512922.1>
- Yang, C., Li, T., Lai, D., **Wang, X.**, Xue, X., Dou, X., 2022: “The delayed response of the troposphere-stratosphere-mesosphere coupling to the 2019 southern SSW”. *Geophysical Research Letters*, 49(23), p.e2022GL101759.
- 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: “Perturbations in stratospheric aerosol evolution due to the water-rich plume of the 2022 Hunga-Tonga eruption”. *Communications Earth & Environment*, <https://doi.org/10.1038/s43247-022-00580-w>

- **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
- **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
- 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.**, 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
- 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., 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>

FELLOWSHIPS & GRANTS

- NASA ROSES-22 Proposal: Aura Science Team and Atmospheric Composition Modeling and Analysis Program 3-year grant (Co-I) Feb. 2023
- 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

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>)

AWARDS & HONORS

- SPARC General Assembly Early Career Researcher presentation prize Dec. 2022
- 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

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, Geophysical Research Letters, Journal of the Atmospheric Sciences, Journal of Geophysical Research: Atmospheres, npj Climate and Atmospheric Science, Quarterly Journal of the Royal Meteorological Society, Science Advances*
- **Local Organizing Committee**
Quadrennial Ozone Symposium (QOS 2024)
- **Panel Reviewer**
NESSI program for the 2023 Cohort
- **Committee Member**
NCAR/UCP Postdoc Research Reviews committee (2021-present)
High Performance Computing committee (2021-present)
ASP Seminar Series committee (2021-2022)
- **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)
- **Volunteer**
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)

SELECTED WORKSHOPS AND TRAININGS

- 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.** et al.: *Stratospheric Temperature and circulation impacts of the Hunga-Tonga Eruption*. The 103rd AMS Annual Meeting, Jan. 2023, Denver, CO. (oral)
- **Wang, X.** et al.: *The 2022 Asian summer monsoon anticyclone*. The ACCLIP post-mission Science Team Meeting. Nov. 2022 (oral)
- **Wang, X.** et al.: *Stratospheric Responses to the Hunga Tonga Volcanic Eruption*. 7th SPARC General Assembly. Oct. 2022 (poster)
- **Wang, X.** et al.: *Transient Behavior of the Asian Summer Monsoon Anticyclone associated with Eastward Eddy Shedding*. The 2nd ACCLIP Science Team Meeting. Feb. 2022. (oral)
- **Wang, X.** et al.: *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.** et al.: *Eastward Eddy Shedding of the Asian Summer Monsoon Anticyclone*. EGU General Assembly, Apr. 2021, virtual. (oral)
- **Wang, X.** et al.: *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.** et al.: *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.** et al.: *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.** et al.: *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)