Peidong **Wang**

77 Massachusetts Ave., Cambridge, Massachusetts

(+1) 608-695-1160 | pdwang@mit.edu | https://peidwang.github.io | Google Scholar

Education

Massachusetts Institute of Technology — *Cambridge, MA*

Doctor of Philosophy (Ph.D.) — *Sep. 2019 - May. 2025*

- Major: Climate Science
- Advisor: Susan Solomon
- Thesis: Understanding Drivers of Stratospheric Ozone Change and Fingerprinting its Recovery

University of Wisconsin–Madison — *Madison, WI*

Bachelor of Science (B.S.) — *Sep. 2015 - May. 2019*

- Major: Atmospheric & Oceanic Sciences
- Major: Applied Mathematics
- Minor (certificate): Computer Science
- Advisor: Tracey Holloway

Professional Experience

Stanford University — *Palo Alto, CA*

Stanford Science Fellow — *Aug. 2025 - Aug. 2028*

- Host: Noah Diffenbaugh

Massachusetts Institute of Technology — *Cambridge, MA*

Postdoctoral Researcher — *Jun. 2025 - Aug. 2025*

- Host: Susan Solomon

Massachusetts Institute of Technology — *Cambridge, MA*

Graduate Research Assistant — *Sep. 2019 - May. 2025*

- Advisor: Susan Solomon

Woods Hole Oceanographic Institution — *Woods Hole, MA*

Summer Student Fellow — *May. 2018 - Aug. 2018*

- Advisor: Caroline Ummenhofer

University of Wisconsin–Madison — *Madison, WI*

Undergraduate Research Assistant — *Sep. 2016 - May. 2019*

- Advisor: Tracey Holloway

Publications

In preparation or submitted

Peidong Wang, Susan Solomon, Jeffery R. Scott, Shari A. Yvon-Lewis, Paul O. Wennberg, Ray F. Weiss, Matt Rigby, Minde An. **Ocean Outgassing of Methyl Chloroform Affects Inferred Emissions and OH Trends**. *In prep.*.

Aodhan Sweeney, Qiang Fu, Susan Solomon, Stephen Po-Chedley, William J. Randel, Andrea Steiner, Pu Lin, Thomas Birner, Sean Davis, Peidong Wang. **Recent Warming of the Southern Hemisphere Subtropical Lower Stratosphere and Antarctic Ozone Healing**. *AGU Advances (in revision)*.

2025

Peidong Wang, Susan Solomon, Benjamin D. Santer, Douglas E. Kinnison, Qiang Fu, Kane A. Stone, Jun Zhang, Gloria L. Manney, Luis F. Millán. **Fingerprinting the Recovery of Antarctic Ozone**. *Nature*, 639(8055), 2025. Paper Link, News

2024

Peidong Wang, Susan Solomon. **Contrasting Chlorine Chemistry on Volcanic and Wildfire Aerosols in the Southern Mid-Latitude Lower Stratosphere**. *Geophysical Research Letters*, 51(18), 2024. Paper Link

Jun Zhang, Peidong Wang, Douglas Kinnison, Susan Solomon, Jian Guan, Yunqian Zhu. **Stratospheric chlorine processing after the unprecedented Hunga Tonga eruption**. *Geophysical Research Letters*, 51(17), 2024. Paper Link

2023

Glenn Liu, Peidong Wang, Young-Oh Kwon. **Physical Insights from the Multidecadal Prediction of North Atlantic Sea Surface Temperature Variability Using Explainable Neural Networks**. *Geophysical Research Letters*, 50(24), 2023. Paper Link

Peidong Wang, Susan Solomon, Megan Lickley, Jeffery Scott, Ray Weiss, Ronald Prinn. **On the influence of hydroxyl radical changes and ocean sinks on estimated HCFC and HFC emissions and banks**. *Geophysical Research Letters*, 50(18), 2023. Paper Link

Peidong Wang, Susan Solomon, Kane Stone. **Stratospheric chlorine processing after the 2020 Australian wildfires derived from satellite data**. *Proceedings of the National Academy of Sciences*, 120(11), 2023. Paper Link

Susan Solomon, Kane Stone, Pengfei Yu, Daniel Murphy, Doug Kinnison, AR Ravishankara, Peidong Wang. **Chemical impacts of wildfire smoke on stratospheric chlorine and ozone depletion**. *Nature*, 615(7951), 2023. Paper Link, News

2022

Peidong Wang, Janni Yuval, Paul A. O'Gorman. **Non-local parameterization of atmospheric subgrid processes with neural networks**. *Journal of Advances in Modeling Earth Systems*, 14(10), 2022. Paper Link

Peidong Wang, Tracey Holloway, Matilyn Bindl, Monica Harkey, Isabelle De Smedt. **Ambient Formaldehyde over the United States from Ground-Based (AQS) and Satellite (OMI) Observations**. *Remote Sensing*, 14(9), 2022. Paper Link

2021

Glenn Liu, Peidong Wang, Matthew Beveridge, Young-Oh Kwon, Iddo Drori. **Predicting Atlantic Multidecadal Variability**. *NeurIPS 2021 Workshop on Tackling Climate Change with Machine Learning*, 2021. [Awarded with Best Paper: Pathway to Impact]. Paper Link

Megan Lickley, Susan Solomon, Doug Kinnison, Paul Krummel, Jens Mühle, Simon O'Doherty, Ronald Prinn, Matthew Rigby, Kane A Stone, Peidong Wang, Ray Weiss, Dickon Young. **Quantifying the Imprints of Stratospheric Contributions to Interhemispheric Differences in Tropospheric CFC-11, CFC-12, and N_2O Abundances**. *Geophysical Research Letters*, 48(15), 2021. Paper Link

Peidong Wang, Jeffery R. Scott, Susan Solomon, John Marshall, Andrew R. Babbin, Megan Lickley, David W. J. Thompson, Timothy DeVries, Qing Liang, Ronald G. Prinn. **On the Effects of the Ocean on Atmospheric CFC-11 Lifetimes And Emissions**. *Proceedings of the National Academy of Sciences*, 118(12), 2021. Paper Link, News

Honors & Awards

2025–2028	**Stanford Science Fellow**, Stanford University
2025	**Carl-Gustaf Rossby Award for the Best PhD Thesis**, PAOC, MIT
2024–2025	**Jule Charney Fellowship**, PAOC, MIT
2023	**Chinese Government Award for Outstanding Self-Financed Students Abroad**, with extraordinary prize for the top 20 awardees
2022	**Early Career Scientist Best Oral Presentation**, 7th SPARC General Assembly
2021–2022	**Norman C. Rasmussen Fellowship**, EAPS, MIT
2020–2021	**John H. Carlson Fellowship**, EAPS, MIT
2019	**Jule Charney Prize**, PAOC, MIT
2019–2020	**MIT Presidential Fellowship**, MIT
2019	**Herfurth-Kubly Awards for Comprehensive Undergraduate Excellence**, UW–Madison
2019	**University Book Store Excellence Award**, UW–Madison
2018	**Lyle Horn Scholarship Award**, AOS, UW–Madison
2018	**Summer Student Fellowship**, Woods Hole Oceanographic Institution
2017–2018	**Wisconsin Hilldale Undergraduate/Faculty Research Fellowship**, UW–Madison

Teaching

12.003 Introduction to Atmosphere, Ocean, and Climate Dynamics *Fall 2021*
Department of Earth, Atmospheric and Planetary Sciences, MIT *Teaching Assistant*

CS200 Programming I *Fall 2017*
Department of Computer Sciences, UW–Madison *Teaching Assistant*

CS302 Introduction to Programming *Spring 2017*
Department of Computer Sciences, UW–Madison *Teaching Assistant*

Selected Presentations

Invited talks

Fingerprinting the Recovery of Antarctic Ozone. **Peking University**, Beijing (virtual), Mar 2025.

Contrasting stratospheric chlorine processes on volcanic and wildfire aerosols. **Jinan University**, Guangzhou, Jan 2024.

Conference presentations

Fingerprinting the Recovery of Antarctic Ozone. Oral. **Atmosphere Model, Chemistry Climate, Earth System Prediction, Climate Variability & Change, and Whole Atmosphere Working Group Meeting 2025**, Boulder, Colorado, Feb 2025.

Assessing HCFC-22 loss to the ocean from observations and high-resolution modeling. Poster. **Quadrennial Ozone Symposium**, Boulder, Colorado, Jul 2024.

Contrasting Stratospheric Chlorine Processes on Volcanic and Wildfire Aerosols in the Mid-latitudes. Oral. **EGU general assembly**, Vienna, Austria, Apr 2024.

On the influence of hydroxyl radical changes and ocean sinks on estimated HCFC and HFC emissions and banks. Oral. **68th Meeting of AGAGE Scientists and Cooperating Networks**, Boston, Massachusetts, Oct 2023.

Stratosphere chlorine processing after a major volcanic eruption or wildfire event. Poster. **VolImpact Summer School, Greifswald**, Germany, Sep 2023.

Chlorine processing after the 2020 Australian wildfire. Oral. **Stratosphere-troposphere Processes And their Role in Climate (SPARC) 7th General Assembly**, Boulder, Colorado, Oct 2022.

Predicting Atlantic Multidecadal Variability. Spotlight talk. **NeurIPS 2021 Workshop on Tackling Climate Change with Machine Learning**, virtual, Dec 2021.

On the effects of the ocean on atmospheric CFCs lifetimes and emissions. Poster. **Quadrennial Ozone Symposium**, virtual, Oct 2021.

Synthesis of Tree-Ring Records and Coupled Climate Model Simulations to Understand North Atlantic Hydroclimate Responses to Volcanic Eruptions in the Last Millennium. Poster. **American Geophysical Union Fall Meeting**, Washington D.C., Dec 2018.

The Role of Volcanic Forcing in the North Atlantic Hydroclimate Over the Last Millennium. Poster. **Understanding and Modeling the Earth's Climate: A Symposium in Honor of Isaac Held**, Princeton University, NJ, Oct 2018.

Formaldehyde Trend Analysis from OMI Satellite Observations and AQS Ground Measurements. Poster. **NASA Health and Air Quality Applied Sciences Team (HAQAST) 3$^{rd.}$ meeting, Columbia University**, NY, Nov 2017.

Academic Services

Committee Member PAOC Colloquium Committee (2021-2025)

Proposal Reviewer NASA ROSES panelist

Journal Reviewer *Communications Earth & Environment · Environmental Science & Technology · Geophysical Research Letters · Geoscience Letters · Nature Communications · Remote Sensing of Environment · Science Advances*