

# Peidong Wang

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## Education

### Massachusetts Institute of Technology

DOCTOR OF PHILOSOPHY (Ph.D.)

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

Cambridge, MA

Sep. 2019 - May. 2025

### University of Wisconsin–Madison

BACHELOR OF SCIENCE (B.S.)

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

Madison, WI

Sep. 2015 - May. 2019

## Professional Experience

### Stanford University

STANFORD SCIENCE FELLOW

- Advisor: Noah Diffenbaugh

Palo Alto, CA

Aug. 2025 - Aug. 2028

### Massachusetts Institute of Technology

POSTDOCTORAL RESEARCHER

- Advisor: Susan Solomon

Cambridge, MA

Jun. 2025 - Aug. 2025

### Massachusetts Institute of Technology

GRADUATE RESEARCH ASSISTANT

- Advisor: Susan Solomon

Cambridge, MA

Sep. 2019 - May. 2025

### Woods Hole Oceanographic Institution

SUMMER STUDENT FELLOW

- Advisor: Caroline Ummenhofer

Woods Hole, MA

May. 2018 - Aug. 2018

### University of Wisconsin–Madison

UNDERGRADUATE RESEARCH ASSISTANT

- Advisor: Tracey Holloway

Madison, WI

Sep. 2016 - May. 2019

## 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<sub>2</sub>O 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

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

## Teaching

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## 12.003 Introduction to Atmosphere, Ocean, and Climate Dynamics

DEPARTMENT OF EARTH, ATMOSPHERIC AND PLANETARY SCIENCES, MIT

Fall 2021

Teaching Assistant

## CS200 Programming I

DEPARTMENT OF COMPUTER SCIENCES, UW-MADISON

Fall 2017

Teaching Assistant

## CS302 Introduction to Programming

DEPARTMENT OF COMPUTER SCIENCES, UW-MADISON

Spring 2017

Teaching Assistant

## Selected Presentations

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*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. **68<sup>th</sup> Meeting of AGAGE Scientists and Cooperating Networks**, Boston, Massachusetts, Oct 2023.

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

*Chlorine processing after the 2020 Australian wildfire.* Oral. **Stratosphere-troposphere Processes And their Role in Climate (SPARC) 7<sup>th</sup> 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<sup>rd</sup> meeting, Columbia University**, NY, Nov 2017.

## Academic Services

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**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*