

PEIDONG WANG

77 Massachusetts Avenue, Cambridge, MA 02139
(608) 695-1160 ◊ pdwang@mit.edu ◊ <http://www.mit.edu/~pdwang>

RESEARCH INTERESTS

I'm interested in stratospheric ozone chemistry. So far my work has focused on two related aspects: 1) emission estimates of ozone-depleting substances (and Montreal Protocol-regulated greenhouse gases) particularly involving the ocean processes; 2) stratospheric chlorine chemistry particularly after major volcanic eruptions and wildfires.

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA 2019 - Present

PhD candidate in Climate Science

Advisor: Susan Solomon

Thesis Committee: Paul O’Gorman, John Marshall, Andrew Babbin, David W. J. Thompson

University of Wisconsin-Madison, Madison, WI 2015 - 2019

B.S. in Atmospheric & Oceanic Sciences

B.S. in Applied Mathematics

Certificate in Computer Science

Advisor: Tracey Holloway

PUBLICATIONS

- [10] Jun Zhang, Peidong Wang, Douglas Kinnison, Susan Solomon, Jian Guan, Yunqian Zhu. **Stratospheric chlorine processing after the unprecedented Hunga Tonga eruption.** *Geophysical Research Letters* (under review). Preprint Link
- [9] 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
- [8] 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
- [7] 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
- [6] 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

- [5] 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
- [4] 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
- [3] 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
- [2] Megan Lickley, Susan Solomon, Doug Kinnison, Paul Krummel, Jens Mhle, 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 N₂O Abundances**. *Geophysical Research Letters*, 48(15), 2021. Paper Link
- [1] 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

TEACHING EXPERIENCE

| | |
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| Teaching assistant | Sept 2021 - Dec 2021 |
| 12.003 Introduction to Atmosphere, Ocean, and Climate Dynamics | |
| Department of Earth, Atmospheric and Planetary Sciences, MIT | |
| Teaching assistant | Sept 2017 - Dec 2017 |
| CS200 Programming I | |
| Department of Computer Sciences, UW-Madison | |
| Teaching assistant | Jan 2017 - May 2017 |
| CS302 Introduction to Programming | |
| Department of Computer Sciences, UW-Madison | |

SELECTED HONORS AND AWARDS

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| Jule Charney Fellowship, PAOC, MIT | 2023 |
| 7th SPARC General Assembly Early Career Presentation award | 2022 |
| Norman C. Rasmussen Fellowship, EAPS, MIT | 2022 |
| John H. Carlson Fellowship, EAPS, MIT | 2020 - 2021 |
| Jule Charney Prize, PAOC, MIT | 2019 |
| MIT Presidential Fellowship | 2019 - 2020 |
| Theodore Herfurth Award for Initiative and Efficiency, UW-Madison | 2019 |

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| Phi Beta Kappa Membership | 2019 |
| University Book Store Excellence Award, UW-Madison | 2019 |
| Lyle Horn Scholarship Award, AOS, UW-Madison | 2018 |
| Woods Hole Oceanographic Institution Summer Student Fellowship | 2018 |
| Wisconsin Hilldale Undergraduate/Faculty Research Fellowship, UW-Madison | 2017 - 2018 |

SELECTED PRESENTATIONS

- [8] *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.
- [7] *Stratosphere chlorine processing after a major volcanic eruption or wildfire event.* Poster. VolImpact Summer School, Greifswald, Germany, Sep 2023.
- [6] *Chlorine processing after the 2020 Australian wildfire.* Oral. Stratosphere-troposphere Processes And their Role in Climate (SPARC) 7th General Assembly, Boulder, Colorado, Oct 2022.
- [5] *Predicting Atlantic Multidecadal Variability.* Spotlight talk. NeurIPS 2021 Workshop on Tackling Climate Change with Machine Learning, virtual, Dec 2021.
- [4] *On the effects of the ocean on atmospheric CFCs lifetimes and emissions.* Poster. Quadrennial Ozone Symposium, virtual, Oct 2021.
- [3] *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.
- [2] *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.
- [1] *Formaldehyde Trend Analysis from OMI Satellite Observations and AQS Ground Measurements.* Poster. NASA Health and Air Quality Applied Sciences Team (HAQAST) 3rd. meeting, Columbia University, NY, Nov 2017.

SERVICE

NASA panelist

PAOC Colloquium Committee

Journal Reviewer: Environmental Science & Technology, Remote Sensing of Environment, Science Advances