

Hongwei Sun

Contact Information

Department of Atmospheric Sciences
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Education

<i>Doctor of Philosophy (Environmental Science)</i> Harvard University	05/2023
<i>Master of Science (Atmospheric Science)</i> Tsinghua University	06/2018
<i>Bachelor of Science (Atmospheric Science)</i> Sun Yet-Sen University	06/2015

Working Experiences

<i>Postdoctoral scholar</i> Department of Atmospheric Sciences, University of Washington	08/2023-till now
<i>Postdoctoral scholar</i> Department of the Geophysical Sciences, University of Chicago	06/2023-08/2023

Research Interests

Aerosol-cloud interactions, marine cloud brightening
Multiscale plume-in-grid model development
Stratospheric dynamics and aerosol, stratospheric aerosol injection
Environment and renewable energies

Publications

- H Sun**, S Bourguet, S Eastham, D Keith. 2023. *Optimizing Injection Locations Relaxes Altitude-Lifetime Trade-Off for Stratospheric Aerosol Injection*. Geophysical Research Letters, 50, 0, e2023GL105371. <https://doi.org/10.1029/2023GL105371>.
- H Sun**, S Eastham, D Keith. 2022. *Developing a Plume-in-Grid model for plume evolution in the stratosphere*. Journal of Advances in Modeling Earth Systems, 14, e2021MS002816. <https://doi.org/10.1029/2021MS002816>.
- J Huang, P Lou, **H Sun**, Y Luo, ZC Zhao. 2019. *Numerical experimental study on the potential climatic impacts of large-scale wind farms in China*. Advances in Climate Change Research 10 (3), 143-149.

H Sun, Y Luo, Z Zhao, R Chang. 2018. *The impacts of Chinese wind farms on climate*. Journal of Geophysical Research: Atmospheres 123 (10), 5177-5187.

Submitted:

H Sun and S Bourguet, L Luan, D Keith. *Analyzing Particle Transport in the Stratosphere Based on Stratospheric Aerosol Injection*. Submitted to npj Climate and Atmospheric Science.

In Preparation:

H Sun, P Blossey, R Wood, E Erfani. *The Sensitivity of Aerosol-Cloud Interactions to Global Warming Can Inhibit the Cooling Effects of Marine Cloud Brightening*. In preparation.

H Sun and S Eastham. *Implementing Size-resolved Stratospheric Sulfate Aerosol in the GEOS-Chem Model to Simulate Pinatubo Volcano Eruption*. In preparation.

H Sun and Z Hu. *Using Convolutional Neural Network to Detect Aircraft Contrails Based on Satellite Images*. In preparation.

Conference Presentations

2022. AGU Fall Conference. Chicago, USA. “*Exploring Injection Locations for Stratospheric Aerosol Geoengineering to Maximize Particle Lifetime in the Stratosphere*”. Poster.

2022. SPARC (Stratosphere-troposphere Processes And their Role in Climate) conference. Colorado, USA. “*Investigating Particle Transport in the Stratosphere Based on Stratospheric Aerosol Injection*”. Poster.

2022. 10th International GEOS-Chem Conference. Saint Louis, USA. “*Developing and Coupling a Lagrangian Plume Model into GEOS-Chem Model to Resolve Subgrid Plumes in the Stratosphere*”. Oral.

2022. Gordon Research Conference: Climate Engineering. Newry, USA. “*Developing a Plume-in-Grid Model to Simulate Plume Evolution for Stratospheric Aerosol Injection*”. Poster.

2019. AGU Fall Conference. San Francisco, USA. “*Long-term Behavior of Stratospheric Aerosol Plumes in a Solar Geoengineering Scenario*”. Oral.

2017. 4th International Conference Energy & Meteorology. Bari, Italy. “*Regional climate model suggests upstream wind farms have weak but significant impacts on wind speed in Beijing during winter*”, Poster.

Invited Talks and Seminars

2023. Seminar in Atmospheric & Climate Dynamics. University of Washington.

2023. Solar Climate Intervention Virtual Symposia. Online ([Recording](#)).

2023. TAB Talks (Tsinghua Alumni in Boston Talks). Online ([Recording](#) in Chinese).

2022. Graduate Student & Postdoc Seminar. Harvard University.

Peer Reviewer for:

Atmospheric Chemistry and Physics

Scientific Reports

Teaching experiences

2023: Invited speaker for the Roundtable Discussion: *Teaching as an International Scholar* at Harvard Teaching Conference

2022: *Certificate of Distinction in Teaching*, awarded by Harvard University

2021 Fall: Teaching Fellowship - *Energy within Environmental Constraints*, Harvard University

2020 Fall: Teaching Fellowship - *Introduction to Meteorology and Climate*, Harvard University

2016 Fall: Teaching Fellowship - *Calculus I*, Tsinghua University