

**Yang Shi**  
yangshi@mit.edu

## **EDUCATION**

<b>Texas A&amp;M University</b> , College Station, TX Ph.D. in Atmospheric Sciences	Aug. 2022
<b>University of Wyoming</b> , Laramie, WY M.S. in Atmospheric Sciences	May 2019
<b>Nanjing University</b> , Nanjing, China B.S. in Atmospheric Sciences	Jun. 2016

## **APPOINTMENTS**

<b>Department of Civil and Environmental Engineering, MIT</b> Postdoctoral associate, advised by Colette Heald	2022 - present
<b>Department of Atmospheric Sciences, Texas A&amp;M University</b> Research assistant, advised by Xiaohong Liu	2019 - 2022
<b>Department of Atmospheric Sciences, University of Wyoming</b> Research assistant, advised by Xiaohong Liu	2016 - 2019
<b>Department of Atmospheric Sciences, Nanjing University</b> Undergraduate research assistant, advised by Minghuai Wang	2015 - 2016

## **PUBLICATIONS**

**Shi, Y.**, Liu, X., Hiranuma, N., Hou, Y., Alrimaly, S., Wilbourn, E., Mazzola, M., and Traversi, R. (2022). Interannual and interseasonal variabilities and sources of ice nucleating particles in the Arctic, in preparation.

**Shi, Y.**, Liu, X., and Wu, C. (2022). Development of an anthropogenic dust emission parameterization in Energy Exascale Earth System Model, in preparation.

**Shi, Y.**, Liu, X., Wu, M., Zhao, X., Ke, Z., and Brown, H. (2022). Relative importance of high latitude local and long-range transported dust to Arctic ice nucleating particles and impacts on Arctic mixed-phase clouds, *Atmospheric Chemistry and Physics*, 22, 2909-2935. <https://doi.org/10.5194/acp-22-2909-2022>

**Shi, Y.**, and Liu, X. (2019). Dust radiative effects on climate by glaciating mixed-phase clouds. *Geophysical Research Letters*, 46, 6128-6137. <https://doi.org/10.1029/2019GL082504>

Zhao, X., Liu, X., Burrows, S., DeMott, P., Diao, M., McFarquar, G., Patade, S., Phillips, V., Roberts, G., Sanchez, K., **Shi, Y.**, and Zhang, M. (2022). Important ice processes are missed by climate models in Southern Ocean mixed-phase clouds: bridging SOCRATES observations to model developments, *Journal of Geophysical Research*, in review.

- Desai, N., Diao, M., **Shi, Y.**, and Liu, X. (2022). Ship-based observations and climate model simulation of cloud phase over the Southern Ocean, *Journal of Geophysical Research*, in review.
- Ke, Z., Liu, X., Wu, M., Shan, Y., and **Shi, Y.** (2022). Improved dust representation and impacts on dust transport and radiative effect in CAM5, *Journal of Advances in Modeling Earth Systems*, 14, e2021MS002845. <https://doi.org/10.1029/2021MS002845>
- Knopf, D. A., Barry, K. R., Brubaker, T. A., Jahl, L. G., Jankowsk, K. A., Li, J., Lu, Y., Monroe, L. W., Moore, K. A., Rivera-Adorno, F. A., Saucedo, K. A., **Shi, Y.**, Tomlin, J. M., Verpuri, H. S. K., Wang, P., Lata, N. N., Levin, E. J. T., Creamean, J. M., Hill, T. C. J., China, S., Alpert, P. A., Moffet, R. C., Hiranuma, N., Sullivan, R. C., Fridlind, A. M., West, M., Riemer, N., Laskin, A., DeMott, P. J., and Liu, X. (2021). Aerosol–Ice Formation Closure: A Southern Great Plains Study. *Bulletin of the American Meteorological Society*, 102, E1952-E1971. <https://doi.org/10.1175/BAMS-D-20-0151.1>
- Zhao, X., Liu, X., Burrows, S., and **Shi, Y.** (2021). Effects of marine organic aerosols as sources of immersion-mode ice-nucleating particles on high-latitude mixed-phase clouds. *Atmospheric Chemistry and Physics*, 21, 2305-2327. <https://doi.org/10.5194/acp-21-2305-2021>
- Wu, M., Liu, X., Yu, H., Wang, H., **Shi, Y.**, Yang, K., Darmenov, A., Wu, C., Wang, Z., Luo, T., Feng, Y., and Ke, Z. (2020). Understanding processes that control dust spatial distributions with global climate models and satellite observations. *Atmospheric Chemistry and Physics*, 20, 13835-13855. <https://doi.org/10.5194/acp-20-13835-2020>

## **SCIENTIFIC PRESENTATIONS**

### Oral presentations

- Shi, Y.**, Liu, X., Hou, Y., Alrimaly, S., Wilbourn, E., Mazzola, M., Traversi, R., and Hiranuma, N.: Interannual and interseasonal variabilities and sources of ice nucleating particles in the Arctic: Insights from long-term measurements and model simulations from Ny-Ålesund. 102<sup>nd</sup> AMS Annual meeting, Houston, TX (virtual), January 10-15, 2022.
- Shi, Y.**, Liu, X., Hou, Y., Alrimaly, S., Wilbourn, E., Mazzola, M., Traversi, R., and Hiranuma, N.: Interannual and interseasonal variabilities and sources of ice nucleating particles in the Arctic: Insights from model and long-term measurements simulations from Ny-Ålesund. AGU Fall Meeting, New Orleans, LA, December 13-17, 2021.
- Shi, Y.**, and Liu, X.: Relative importance of high-latitude local and long-range transported dust to Arctic INPs and impacts on mixed-phase clouds. 101<sup>st</sup> AMS Annual meeting, virtual, January 10-15, 2021.
- Shi, Y.**, Liu, X., Wu, M., and Zhang, K.: Responses of mixed-phase cloud condensates and cloud radiative effects to ice nucleation parameterizations and dust concentration in E3SM. AGU Fall Meeting, Washington D. C., December 10-14, 2018.

### Poster presentations

**Shi, Y.**, Liu, X., Zhang, D., and Wu, M.: Impacts of high latitude dust emissions on the Arctic mixed-phase clouds through heterogeneous ice nucleation. AGU Fall Meeting, San Francisco, CA, December 9-13, 2019.

**Shi, Y.**, Liu, X., Wu, M., and Zhang, K.: Responses of mixed-phase cloud condensates and cloud radiative effects to ice nucleating particle distribution in DOE E3SM model. 10<sup>th</sup> International Aerosol Conference, St. Louis, MO, September 2-7, 2018.

### HONORS & AWARDS

- AMS Best Student Oral Presentation (second place) 2021
- Outstanding student of the Department of Atmospheric Sciences 2015, 2014  
Department of Atmospheric Sciences, Nanjing University, China
- People's Scholarship (third prize) 2015, 2014  
Department of Atmospheric Sciences, Nanjing University, China
- Outstanding Students Union leader 2014, 2013  
Department of Atmospheric Sciences, Nanjing University, China
- People's Scholarship (second prize) 2013  
Department of Atmospheric Sciences, Nanjing University, China

### SKILLS

- Modelling skills
  - Familiarity with running E3SM and CESM models
  - Familiarity with dust emission, ice nucleation, modal aerosol module (MAM), and cloud microphysics parameterizations in E3SM and CESM
  - Experience in dust mineralogy, marine organic aerosols, and cirrus cloud formation
  - Experience in conducting simulations for AeroCom model comparisons
  - Experience in running single column model
  - Experience in running WRF model
- Programming Languages
  - Fortran (advanced), NCL (advanced), Shell scripting (intermediate), MATLAB (beginner), IDL (beginner), Python (beginner)
- Others
  - Current user of NCAR Cheyenne and DOE NERSC supercomputers
  - GitHub, Microsoft Word/Excel/PowerPoint

### PROFESSIONAL SERVICE

Reviewer for *Atmospheric Chemistry and Physics*, *Geophysical Research Letters*, and *Journal of Geophysical Research: Atmospheres*.

**OUTREACH**

TAMU Physics & Engineering Festival Volunteer

2022