Shangyong Shi

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# RESEARCH INTERESTS

* Snow hydrology, orographic precipitation, extreme precipitation
* Satellite remote sensing, snowfall validation
* Machine learning applications
* Climate change, climate adaptation

# EDUCATION

Florida State University,

Department of Earth, Ocean, and Atmospheric Science Tallahassee, FL

Ph.D., Meteorology January 2021 - July 2024 (estimated)

Florida State University,

Department of Earth, Ocean, and Atmospheric Science Tallahassee, FL

M.S., Meteorology September 2018 - December 2020

Nanjing University, School of Atmospheric Sciences Nanjing, China

B.S., Atmospheric Sciences September 2014 - June 2018

# EXPERIENCES

**University of Maryland,**

**Cooperative Institute for Satellite Earth System Studies**  College Park, MD

*Research Intern* June 2023 – August 2023, October 2023-continuing

* Identified orographic snowfall via orographic precipitation index.
* Evaluated the performance of snowfall detection for the orographic and non-orographic snowfall.
* Discovered a positive correlation between the orographic precipitation index and the snowfall rate bias and would incorporate the index in the phase classification algorithm.

**Florida State University,**

**Department of Earth, Ocean, and Atmospheric Science** Tallahassee, FL

*Research Assistant* September 2018 – August 2022, June 2023 - continuing

* Developed the ability to read, clean, and collocate various types of data (in-situ and snow telemetry observations, soundings, reanalysis, and satellite data).
* Conducted statistical analysis (moments, trends, fitting gamma distribution, etc.).
* Examined the characteristics of the rain-snow partitioning and improved the phase classification method.
* Explored performances of machine learning algorithms in phase classification.

**Florida State University,**

**Department of Earth, Ocean, and Atmospheric Science** Tallahassee, FL

Teaching Assistant September 2022 – May 2023

* Assisted syllabus design, guided recitation and conducted tank experiments.
* Assisted with proctoring, grading and holding office hours.

**Nanjing University, School of Atmospheric Sciences** Nanjing, China

*Dissertation* September 2017 – June 2018

* Studied the modification on the Indo-Western Pacific Ocean Capacitor Effect by the Pacific Meridional Mode in boreal spring.

*Student Innovative Project Leader* September 2015 – July 2016

* Simulated the Fujiwara Effect between two vortices in a rotating water tank.

# PUBLICATIONS

1. **Shi, S.,** Fan, Y., Dong, J., and Meng, H (2024). Developing a machine learning algorithm to improve orographic snowfall retrieval from satellite passive microwave sensors. (In preparation)
2. **Shi, S.,** & Liu, G (2024). Investigation on the snow-to-precipitation ratio in the US based on satellite data. (In preparation)
3. **Shi, S.,** & Liu, G (2024). Improvements on Phase Classification Using Atmospheric Melting and Refreezing Energy Based on Soundings. (Submitted to JGR-Atmosphere)
4. Jeoung, H., **Shi, S.,** & Liu, G. (2022). A novel approach to validate satellite snowfall retrievals by ground-based point measurements. *Remote Sensing*, 14(3), 434. https://doi.org/10.3390/rs14030434
5. **Shi, S.,** & Liu, G. (2021). The latitudinal dependence in the trend of snow event to precipitation event ratio. *Scientific Reports*, 11(1), 18112. https://doi.org/10.1038/s41598-021-97451-9
6. **Shi, S.,** & Misra, V. (2020). The role of extreme rain events in Peninsular Florida’s seasonal hydroclimate variations. *Journal of Hydrology*, 589, 125182. https://doi.org/10.1016/j.jhydrol.2020.125182

# CONFERENCES

1. **Shi, S.** (2023). Improvements on Phase Classification Using Atmospheric Melting and Refreezing Energy Based on Soundings. *2023 AGU Annual Meeting* (To be presented)
2. **Shi, S.** (2023). Classifying precipitation phase with atmospheric soundings. *2023 AMS Annual Meeting* (Oral)

# PEER REVIEW

* Reviewer of Journal of Hydrology, 1 manuscript 2021
* Reviewer of Climate Dynamics, 1 manuscript 2021

# AWARDS

* 1st place oral presentation among student entries in the Hydrology section 2023

Member of Chi Epsilon Pi Meteorology Honor Society 2019

National Scholarship for outstanding undergraduates (top 2% in NJU) 2017

The Liao’s Scholarship (University-level, top 2% in school, NJU) 2016

University-level outstanding students (top 5% in NJU) 2015

# SKILLS

**Coding**: Python (numpy, pandas, xarray, HDF, sklearn…), Matlab, Fortran, C

**Platforms**: Linux, Github code management