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