Shangyong Shi

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RESEARCH INTERESTS

- Remote sensing, hydrology: snow-to-precipitation ratio, extreme precipitation, satellite precipitation retrieval
- machine learning; climate change

EDUCATION

Florida State University,
Department of Earth, Ocean, and Atmospheric Science — Tallahassee, FL
Ph.D., Meteorology — January 2021 - August 2024

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

EMPLOYMENTS AND EXPERIENCES

University of Maryland,
Cooperative Institute for Satellite Earth System Studies — College Park, MD
Research Intern — June 2023 – August 2023, October 2023-May 2024

- Developed an orographic precipitation index to identify orographic snowfall.
- Incorporate new variables in the machine learning algorithm to reduce the snowfall rate bias estimates from satellite microwave sensors.

Florida State University,
Department of Earth, Ocean, and Atmospheric Science — Tallahassee, FL
Research Assistant — September 2018 – August 2022, June 2023 – August 2024 (expected)

- Developed the ability to read, clean, and collocate various types of data (in-situ and snow telemetry observations, soundings, reanalysis, and satellite data).
- Combined statistical analysis, machine learning and models to understand the phases of precipitation.

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
Research Assistant, 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 sensitivity of the snow-to-precipitation ratio to temperature 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. Journal of Geophysical Research: Atmospheres, 129(10), e2023JD040030. https://doi.org/10.1029/2023JD040030.
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.

PRESENTATIONS

1. **Shi. S.** (Jan. 2024). Developing a machine learning algorithm to improve orographic snowfall retrieval from satellite passive microwave sensors. JPSS Hydrology Initiative Telecon (Online)
2. **Shi, S.** (Dec. 2023). Improvements on Phase Classification Using Atmospheric Melting and Refreezing Energy Based on Soundings. *2023 AGU Annual Meeting* (Poster)
3. **Shi, S.** (Jan. 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