Qinxue "Sharon" Gu

E-mail: qg4783@princeton.edu

EDUCATION & RESEARCH EXPERIENCE

***Postdoctoral Researcher,* Princeton University/Geophysical Fluid Dynamics Laboratory** Sept. 2023 – Present
- *Atmospheric and Oceanic Sciences Program (AOS)*
- Mentors: Tom Delworth, Liwei Jia, Liping Zhang

***Ph.D.,* The Pennsylvania State University** July 2020 – Aug. 2023
- *Department of Meteorology and Atmospheric Science* GPA: 4.00/4.00
- Advisor: Melissa Gervais

***Visiting Graduate Student,* University of California, San Diego** June 2023 – July 2023
- *Scripps Institution of Oceanography*
- Mentor: Shang-Ping Xie

***Advanced Study Program Graduate Student Visitor,* NCAR** May 2022 – Aug. 2022
- *Climate and Global Dynamics Laboratory (CGD)*
- Mentor: Gokhan Danabasoglu

***M.S.,* The Pennsylvania State University** Aug. 2018 – July 2020
- *Department of Meteorology and Atmospheric Science* GPA: 4.00/4.00
- Advisor: Melissa Gervais

***B.S.,* Zhejiang University (ZJU)** Sept. 2014 – July 2018
- *Department of Atmospheric Sciences* GPA: 3.90/4.00
- Advisor: Xiaojing Jia

***Visiting Student and Research Assistant,* University of California, Davis.** July 2017 – Aug. 2017
- *Department of Land, Air and Water Resources*
- Mentor: Adele Igel

SELECTED AWARDS

- National Scholarship (Highest honor for undergraduates in China, top 1%) 2016-2017
- Dennis and Joan Thomson Distinguished Graduate Fellowship (Penn State) 2018-2019
- Columbia Climate School Postdoctoral Research Program Awardee (Declined) 2023

PUBLICATIONS

- **Gu, Q.**, Gervais, M., Danabasoglu, G., Kim, W. M., Castruccio, F., Maroon, E., & Xie, S. P. (2024). Wide range of possible trajectories of North Atlantic climate in a warming world. *Nature Communications*, 15(1), 4221. https://doi.org/10.1038/s41467-024-48401-2
- **Gu, Q.**, Gervais, M., Maroon, E., Kim, W. M., Danabasoglu, G., & Castruccio, F. (2023). Investigating Atmospheric Responses to and Mechanisms Governing North Atlantic Sea Surface Temperatures over 10-Year Periods. *Journal of Climate*, 36(24), 8601-8618. https://doi.org/10.1175/JCLI-D-23-0093.1
- **Gu, Q.**, & Gervais, M. (2022). Diagnosing two-way coupling in decadal North Atlantic SST variability using time-evolving self-organizing maps. *Geophysical Research Letters*, 49, e2021GL096560. https://doi.org/10.1029/2021GL096560
- **Gu, Q.**, & Gervais, M. (2021). Exploring North Atlantic and North Pacific decadal climate prediction using self-organizing maps. *Journal of Climate*, 34(1), 123-141. https://doi.org/10.1175/JCLI-D-20-0017.1
- Jia, X., **Gu, Q.**, Qian, Q., & Wu, R. (2021). Wet-to-dry climate shift of the Sichuan Basin during 1961–2010. *Climate Dynamics*, *57*(3–4), 671–685. https://doi.org/10.1007/s00382-021-05734-8
- Wang, M., **Gu, Q.**, Jia, X., & Ge, J. (2019). An assessment of the impact of Pacific Decadal Oscillation on autumn droughts in North China based on the Palmer drought severity index. *International Journal of Climatology*, 39(14), 5338-5350. https://doi.org/10.1002/joc.6158

- **Gu, Q.**, Zhang, L., Jia, L., Delworth, T.L., Yang, X., Zeng, F., Cooke, W.F., & Li, S. Exploring multiyear-to-decadal North Atlantic sea level predictability and prediction using machine learning. *In Revision.*

SERVICE ACTIVITIES

Professional Service

- **The 14th annual Graduate Climate Conference** Oct. 2020
  - Host / Convener of *AI Methods in Climate* workshop
- **Peer reviewer for scientific journals**

Selected Community Service

250+ hours community service, certificated as a five-star (highest level) volunteer at ZJU

- Guiding waste sorting in local communities in Hangzhou Oct. 2014
- Volunteer serving the G20 Hangzhou summit (11th meeting of the Group of Twenty) Sept. 2016
- Volunteer for alumni group weddings at ZJU May 2015, May 2016
- Weather and climate science popularization in local communities in Hangzhou Sept. 2016

SELECTED PRESENTATIONS

- **Gu, Q.**, Zhang, L., Jia, L., Delworth, T.L., Yang, X., Zeng, F., Cooke, W.F., & Li, S. Exploring multiyear-to-decadal North Atlantic sea level predictability and prediction using machine learning, *EGU General Assembly*, Vienna, April, 2024. (oral)
- **Gu, Q.**, Gervais, M., Danabasoglu, G., Kim, W. M., Castruccio, F., & Maroon, E. Impact of external forcing on North Atlantic decadal variability in the CESM2 large ensemble, *AMS Annual Meeting*, Denver, CO, January, 2023. (poster)
- **Gu, Q.**, Gervais, M., Danabasoglu, G., Kim, W. M., Castruccio, F., & Maroon, E. Impact of external forcing on North Atlantic decadal variability in the CESM2 large ensemble, *AGU Fall Meeting*, Chicago, IL, December, 2022. (oral)
- **Gu, Q.**, Gervais, M., & Elizabeth Maroon. Mechanisms Governing Decadal Variability in the North Atlantic Using Time-evolving Self-organizing maps, *AGU Fall Meeting*, Virtual event, December, 2021. (oral)
- **Gu, Q.,** & Gervais, M. Investigating Decadal Variability in the North Atlantic Using a New Time-evolving Self-organizing Maps Method, *AMS Annual Meeting*, Virtual event, January, 2021. (poster)
- **Gu, Q.,** & Gervais, M. Investigating Decadal Variability in the North Atlantic Using a New Time-evolving Self-organizing Maps Method, *AGU Fall Meeting*, Virtual event, December, 2020. (poster)
- **Gu, Q.,** & Gervais, M. Investigating Decadal Variability in the North Atlantic Using a New Time-evolving Self-organizing Maps Method, *Penn State Earth System Science Center Brown Bag Series Seminar*, Virtual event, November, 2020. (oral)
- **Gu, Q.,** & Gervais, M. Exploring North Atlantic and North Pacific Decadal Climate Prediction Using Self-Organizing Maps, *14th annual Graduate Climate Conference*, Virtual event, October, 2020. (poster)
- **Gu, Q.,** & Gervais, M. Exploring North Atlantic and North Pacific Decadal Climate Prediction Using Self-Organizing Maps, *AMS Annual Meeting*, Boston, MA, USA, January, 2020. (oral)
- **Gu, Q.,** & Gervais, M. Exploring North Atlantic and North Pacific Decadal Climate Prediction Using Self-Organizing Maps, *AGU Fall Meeting*, San Francisco, CA, USA, December, 2019. (oral)
- **Gu, Q.,** & Gervais, M. A New Method of Conducting Decadal Climate Prediction Using Machine Learning, *Earth System Observation and Modeling Graduate Student Symposium*, Fairfax, VA, USA, April, 2019. (poster)
- **Gu, Q.,** & Gervais, M. A New Method of Conducting Decadal Climate Prediction Using Machine Learning, *Penn State Institute for Computational and Data Sciences Symposium*, PA, USA, April, 2019. (poster)
- **Gu**, **Q.,** & Igel, A. The Causes of the Sudden Changes of the Mixed-Phase Clouds in the Arctic, *AGU Fall Virtual Poster Showcase*, Washington, DC, USA, 2017. (poster)

TEACHING ASSISTANT EXPERIENCE

- METEO 273 (Penn State): Introduction to Programming Techniques for Meteorology — Spring 2020
- METEO 470 (Penn State): Climate Dynamics — Spring 2021
- METEO 470 (Penn State): Climate Dynamics (TA and guest lecturer) — Fall 2021
- METEO 470 (Penn State): Climate Dynamics — Spring 2022
- METEO 473 (Penn State): Application of Computers to Meteorology (TA and guest lecturer) — Fall 2022
- METEO 273 (Penn State): Introduction to Programming Techniques for Meteorology — Spring 2023

OTHER AWARDS

- Lixin Tang Outstanding Student Leader Awards, ZJU (Awarded to 7 students who contributed most to the university as student leaders) — Oct. 2017
- Scholarship for Innovation, ZJU (Top 2% undergraduates outstanding in research at ZJU) — Sept. 2016
- Second Award of Career Planning Competition, Zhejiang Province (Awarded to students with most clear career plans out of 58 universities in Zhejiang Province, China) — Nov 2015
- First Class Scholarship for Outstanding Merits, ZJU (Top 3% undergraduates at ZJU) — Sept. 2017
- Second Award of Meteorological Innovation Competition, China — June 2016
- Stars of Danyang & Qingxi Community (Highest honor for sophomore at ZJU, 10/4000+) — May. 2016
- Excellent Student Awards, ZJU — Sept. 2017, Sept. 2016, Sept. 2015
- Outstanding Student Leader Awards, ZJU — Sept. 2017, Sept. 2016, Sept. 2015