

## CURRICULUM VITAE

XIAOMING SHI

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### Academic Qualifications

- 2013 – 2015      Ph.D.    Atmospheric Sciences    University of Washington, USA  
Advisor: Dale Durran  
Dissertation: *Studies of Climate Dynamics with Innovative Global-Model Simulations*
- 2010 – 2013      M.S.    Atmospheric Sciences    University of Washington, USA  
Advisor: Dale Durran  
Thesis: *Estimating the Response of Mid-latitude Orographic Precipitation to Global Warming*
- 2005 – 2009      B.S.    Atmospheric Sciences    Lanzhou University, China

### Previous Academic Positions

- 2015 Sep – 2018 Aug      Postdoctoral Scholar  
Department of Civil and Environmental Engineering  
University of California, Berkeley, USA  
Advisor: Fotini Katopodes Chow & Robert L. Street

### Present Academic Positions

- 2024 July – present      Associate Professor  
2018 Sep – 2024 June      Assistant Professor  
Division of Environment and Sustainability  
The Hong Kong University of Science and Technology  
Hong Kong S.A.R.

### Selected Research Projects

- RGC HKUST- 16309025      Developing a Scale-Adaptive Cumulus Parameterization for Simulating Tropical Convection Across Scales (2026-2028)      PI
- RGC HKUST-16307323      Estimating Tropical Cyclone Changes Due to Global Warming with Smart Dynamical Downscaling and Convection-Permitting Simulations (2024-2026)      PI
- RGC HKUST-16301322      Large Eddy Simulation Code in JAX: An Accelerated and Differentiable Atmospheric Model for Turbulence Parameterization Development (2023-2025)      PI
- QNL M QNL M2oSCo1-F      The Impact of Wave-State Dependent Sea-Surface flux on the Regional Climate of East Asia in Climate System Simulations (2022-2024)      PI

RGC HKUST-16301721	The Representation of Turbulence and Convection in the Gray Zones of Orographic Precipitation (2022-2024)	PI
RGC HKUST-26305720	Quantifying and Understanding the Response of Extreme Convective Rainfall to Global Warming (2020-2023)	PI

Selected Publications [\* supervised students and postdocs]

- [1] Zhu, X., Y. Qu, X. Shi, 2026, LEX v1.6.0: A New Large-Eddy Simulation Model in JAX with GPU Acceleration and Automatic Differentiation, *Geosci. Model Dev.*, 19, 1103–1120.
- [2] Shi, X., Q. Li, D.V. Lestari, S. Lin, and H. Su, 2025: The Effects of Sea-State-Dependent Surface Fluxes on CESM2 Climate Simulations, *J. Adv. Model. Earth Syst.*, 17, e2025MS005284.
- [3] Wang\*, Y., H. Li, X. Shi, J. Fung, 2025: Assessing the Impact of Cumulus Convection and Turbulence Parameterizations on Typhoon Precipitation Forecast, *Geophys. Res. Lett.*, 52, e2024GL112075.
- [4] Shi, X., Y. Liu, J. Chen\*, H. Chen\*, Y. Wang\*, Z. Lu, R.Q. Wang, J. Fung, C. W.W. Ng, 2024: Escalating Tropical Cyclone Precipitation Extremes and Landslide Hazards in South China under Global Warming. *npj Climate and Atmospheric Science*, 7, 107.
- [5] Chen\*, J., and X. Shi, 2023: Quantifying Global Warming Response of the Orographic Precipitation in a Typhoon Environment with Large-Eddy Simulations. *J. Climate*, 36, 6951–6966.
- [6] Shi, X., Fan\*, Y., 2021: Modulation of the bifurcation in radiative-convective equilibrium by gray-zone cloud and turbulence parameterizations. *J. Adv. Model. Earth Syst.*, 13, e2021MS002632. <https://doi.org/10.1029/2021MS002632>.
- [7] Shi, X., 2020: Enabling Smart Dynamical Downscaling of Extreme Precipitation Events With Machine Learning, *Geophys. Res. Lett.*, 47, e2020GL090309, <https://doi.org/10.1029/2020GL090309>.
- [8] Shi, X., H. L. Hagen\*, F. K. Chow, R. L. Street, G. H. Bryan, 2018: Large-Eddy Simulation of Stratocumulus-Capped Boundary Layer with Explicit Filtering and Reconstruction Turbulence Modeling. *J. Atmos. Sci.*, 75, 611–637.
- [9] Shi, X. & D. R. Durran, 2016: Sensitivities of Extreme Precipitation to Global Warming Are Lower over Mountains than over Oceans and Plains. *J. Climate*, 4779–4791.
- [10] Shi, X. & C. S. Bretherton, 2014: Large Scale Character of an Atmosphere in Rotating Radiative-Convective Equilibrium. *J. Adv. Model. Earth Syst.*, 06.

Other Information

- Typhoon Committee Research Award for Young Scientist (2025)
- Heywood Young Scientist Award (2022)
- Executive Committee, Hong Kong Meteorology Society (2021 - present)
- Scientific Steering Committee, World Meteorological Society's Aviation Research and Development Project Phase 2 (AvRDP2) (2022 - 2025)
- Associate Editor for *JGR Machine Learning and Computation* (2025 – present)