

JUN GU

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“Protect us with advanced model in a warming world”

Education

University of Science and Technology of China

Ph.D. in Geophysics, GPA: 3.82/4.3

Hefei, China

Aug. 2020 - Jun. 2025

University of Science and Technology of China

B.S. in Atmospheric Science, GPA: 3.42/4.3

Hefei, China

Aug. 2016 - Jun. 2020

Key publications

Pronounced Advance on Typhoon Track Forecast with Global Convection-Permitting Model

Jun Gu, Chun Zhao, Gudongze Li, Jiawang Feng, Mingyue Xu, Qiuyan Du, Zihan Xia, Yubin Li, Guanghua Chen, Xiaoyu Hao, Junshi Chen, Hong An

Science Bulletin, 2025, doi: 10.1016/j.scib.2025.01.032

Fast Warming Over the Mongolian Plateau a Catalyst for Extreme Rainfall Over North China

Jun Gu, Chun Zhao, Mingyue Xu, Yuanyuan Ma, Zhiyuan Hu, Chen Jin, Jianping Guo, Tao Geng, Wenju Cai

Geophysical Research Letters, 2025, doi: 10.1029/2024GL113737

Global Convection-Permitting Model Improves Subseasonal Forecast of Plum Rain around Japan

Jun Gu, Chun Zhao, Mingyue Xu, Jiawang Feng, Gudongze Li, Yongxuan Zhao, Xiaoyu Hao, Junshi Chen, Hong An

Environmental Research Letters, 2024, doi: 10.1088/1748-9326/ad71e2

Establishing a Non-Hydrostatic Global Atmospheric Modeling System at 3-Km Horizontal Resolution with Aerosol Feedbacks on the Sunway Supercomputer of China

Jun Gu, Jiawang Feng, Xiaoyu Hao, Tao Fang, Chun Zhao, Hong An, Junshi Chen, Mingyue Xu, Jian Li, Wenting Han, Chao Yang, Fang Li, Dexun Chen

Science Bulletin, 2022, doi: 10.1016/j.scib.2022.03.009

Presentation

Pronounced Advance on Typhoon Track Forecast with Global Convection-permitting Model

Japan Geoscience Union Meeting. (Oral)

Chiba, Japan

May, 2025

Global convection-permitting model improves subseasonal forecast of plum rain around Japan

AGU Fall Meeting. (eLightning)

Washington, D.C., USA

December. 2024

Insights from global convection-permitting model on forecasting the typhoon track

AOGS Annual Meeting. (Oral)

Pyeongchang, South Korea

June. 2024

Insights from global convection-permitting model on forecasting the typhoon track

AGU Fall Meeting. (Poster)

San Francisco, USA

December. 2023

Development and application of global kilometer-scale atmospheric model (in Chinese)

invited by National Supercomputing Center in Shenzhen. (Oral)

ShenZhen, China

July. 2022

A study of global 3km atmospheric physics-chemistry coupled model simulation (in Chinese)

7th Young Scientist Forum of Earth Science. (Oral and OSPA)

Guiyang, China

July. 2021

Honors & Awards

2025 Outstanding Doctoral Dissertation Award, USTC

Hefei, China

2025 First Prize, Jiaolong Scholarship (80,000 CNY)

Hefei, China

2025 President Award, Chinese Academy of Sciences

Hefei, China

2025 Dean Award, School of Earth and Space Sciences, USTC

Hefei, China

2023 Finalist, ACM Gordon Bell Prize for Climate Modelling

Denver, USA

2022 National Scholarship for Graduate Students, Ministry of Education, China

Hefei, China

2020 Outstanding Undergraduate Dissertation Award, USTC

Hefei, China

Academic services

Reviewer

- Environmental Research Letters (2)
- Journal of Geophysical Research: Atmospheres (1)
- Journal of Open Source Software (2)

Teaching Assistant

- Electrodynamics, 2019 Spring at USTC

Skills

Atmospheric Models	MPAS, WRF, CESMv1.x
Programming Languages	Fortran = NCL = Python > Shell Script > C
Parallel Programming	MPI, OpenMP, OpenACC
Platform	Linux, Windows, MacOS
Languages	Mandarin, English
Software	Git, Vim, Markdown, Microsoft Office, \LaTeX , GIMP, InkSpace, Zotero

Co-authored publications

Dust Impacts on the Indian Summer Monsoon: Chaotic or Physical Effect?

Jiawang Feng, Chun Zhao, [Jun Gu](#), Gudongze Li, Mingyue Xu, Shengfu Lin, Jie Feng
Atmospheric Chemistry and Physics, 2025, doi: 10.5194/acp-25-12051-2025

Excessive Equatorial Light Rain Causes Modeling Dry Bias of Indian Summer Monsoon Rainfall

Gudongze Li, Chun Zhao, [Jun Gu](#), Jiawang Feng, Mingyue Xu, Xiaoyu Hao, Junshi Chen, Hong An, Wenju Cai, Tao Geng
npj Climate and Atmospheric Science, 2025, doi: 10.1038/s41612-025-00916-1

Comprehensive Evaluation of iAMAS (v1.0) in Simulating Antarctic Meteorological Fields with Observations and Reanalysis

Qike Yang, Chun Zhao, Jiawang Feng, Gudongze Li, [Jun Gu](#), Zihan Xia, Mingyue Xu, Zining Yang
Geoscientific Model Development, 2025, doi: 10.5194/gmd-18-5373-2025

Modeling Urban Pollutant Transport at Multiple Resolutions: Impacts of Turbulent Mixing

Zining Yang, Qiuyan Du, Qike Yang, Chun Zhao, Gudongze Li, Zihan Xia, Mingyue Xu, Renmin Yuan, Yubin Li, Kaihui Xia, [Jun Gu](#), Jiawang Feng
Atmospheric Chemistry and Physics, 2025, doi: 10.5194/acp-25-8831-2025

Seasonal Characteristics of Forecasting Uncertainties in Surface PM_{2.5} Concentration Associated with Forecast Lead Time over the Beijing-Tianjin-Hebei Region

Qiuyan Du, Chun Zhao, Jiawang Feng, Zining Yang, Jiamin Xu, [Jun Gu](#), Mingshuai Zhang, Mingyue Xu, Shengfu Lin
Advances in Atmospheric Sciences, 2024, doi: 10.1007/s00376-023-3060-3

Modeling Across Scales of Heavy Precipitation With a Global Variable-Resolution Model: A Case Study of a Catastrophic Event in China

Mingyue Xu, Chun Zhao, Gudongze Li, [Jun Gu](#), Jiawang Feng, Ziyu Zhang, Jianping Guo
Journal of Geophysical Research: Atmospheres, 2024, doi: 10.1029/2024JD041180

Simulating Atmospheric Dust With a Global Variable-Resolution Model: Model Description and Impacts of Mesh Refinement

Jiawang Feng, Chun Zhao, Qiuyan Du, Mingyue Xu, [Jun Gu](#), Zhiyuan Hu, Yu Chen
Journal of Advances in Modeling Earth Systems, 2023, doi: 10.1029/2023MS003636

swMPAS-A: Scaling MPAS-A to 39 Million Heterogeneous Cores on the New Generation Sunway Supercomputer

Xiaoyu Hao, Tao Fang, Junshi Chen, [Jun Gu](#), Jiawang Feng, Hong An, Chun Zhao
IEEE Transactions on Parallel and Distributed Systems, 2023, doi: 10.1109/TPDS.2022.3215002

Establishing a Modeling System in 3-Km Horizontal Resolution for Global Atmospheric Circulation Triggered by Submarine Volcanic Eruptions with 400 Billion Smoothed Particle Hydrodynamics

Shenghong Huang, Junshi Chen, Ziyu Zhang, Xiaoyu Hao, [Jun Gu](#), Hong An, Chun Zhao, Yan Hu, Zhanming Wang, Longkui Chen, Yifan Luo, Jineng Yao, Yi Zhang, Yang Zhao, Zhihao Wang, Dongning Jia, Zhao Jin, Changming Song, Xisheng Luo, Xiaobin He, Dexun Chen
Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis, 2023, New York, NY, USA, doi: 10.1145/3581784.3627045

Southern Himalayas Rainfall as a Key Driver of Interannual Variation of Pre-Monsoon Aerosols over the Tibetan Plateau

Weichen Liu, Chun Zhao, Mingyue Xu, Jiawang Feng, Qiuyan Du, [Jun Gu](#), L. Ruby Leung, William K. M. Lau
npj Climate and Atmospheric Science, 2023, doi: 10.1038/s41612-023-00392-5

Appropriately Representing Convective Heating Is Critical for Predicting Catastrophic Heavy Rainfall in 2021 in Henan Province of China

Mingyue Xu, Chun Zhao, [Jun Gu](#), Jiawang Feng, Gudongze Li, Jianping Guo
Environmental Research Communications, 2023, doi: 10.1088/2515-7620/acfec

Toward Earth System Modeling with Resolved Clouds and Ocean Submesoscales on Heterogeneous Many-Core HPCs

Shaoqing Zhang, Shiming Xu, Haohuan Fu, Lixin Wu, Zhao Liu, Yang Gao, Chun Zhao, Wubing Wan, Lingfeng Wan, Haitian Lu, Chenling Li, Yanfei Liu, Xiaojing Lv, Jiayu Xie, Yangyang Yu, [Jun Gu](#), Xuanton Wang, Yan Zhang, Chenhui Ning, Yunlong Fei, Xiuwen Guo, Zhaoying Wang, Xue Wang, Zhenming Wang, Binglin Qu, Mingkui Li, Haoran Zhao, Yingjing Jiang, Guang Yang, Hong Wang, Hong An, Xin Zhang, Yu Zhang, Wentao Ma, Fujiang Yu, Jing Xu, Xueshun Shen

Convection-Permitting Hindcasting of Diurnal Variation of Mei-yu Rainfall Over East China With a Global Variable-Resolution Model

Mingyue Xu, Chun Zhao, Jun Gu, Jiawang Feng, Samson Hagos, L. Ruby Leung, Yali Luo, Jianping Guo, Rui Li, Yunfei Fu

Journal of Geophysical Research: Atmospheres, 2021, doi: 10.1029/2021JD034823