JIN LI

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EDUCATION BACKGROUND

Institute of Atmospheric Physics, Chinese Academy of Sciences Beijing, China

PHD of Science in Atmospheric Sciences (in progress) 09/2021-Now

Nanjing University of Information Science and Technology (NUIST) Nanjing, China

Bachelor of Science in Atmospheric Sciences 09/2017-07/2021

PUBLICATIONS

Jin Li, Yongqiang Yu, De-Zheng Sun. (2025). Asymmetric Responses in the Equatorial Pacific to Wind Forcing in OMIP2 Experiments: Role of Zonal Currents. Geophysical Research Letters, 52(9), e2025GL114661. https://doi.org/10.1029/2025GL114661

Yongqiang Yu, **Jin Li**, Xiaojie Li. (2025). Application and Evaluation of an artificial intelligence vertical mixing parameterization in an ocean model. Chinese Journal of Atmospheric Sciences. https://doi.org/10.3878/j.issn.1006-9895.2508.25097

Junjie Fang, Xiaojie Li, **Jin Li**, Zhanao Huang, Yongqiang Yu, Xiaomeng Huang, Xi Wu. (2025). Physically Constrained Adaptive Deep Learning for Ocean Vertical-Mixing Parameterization. Advances in Atmospheric Sciences, 42(1), 165–177. https://doi.org/10.1007/s00376-024-3246-3

PRESENTATIONS

Jin Li, Yongqiang Yu. (Apr 2024). "Underestimated ENSO Asymmetry and Zonal Currents over the Equatorial Western Pacific in OMIP2 experiments"— Oral Presentation, EGU 2024 Meeting, Vienna, Austria.

RESEARCH EXPERIENCES

Study of the Role of Ocean Zonal Currents on ENSO Asymmetric Response over Equatorial Pacific Subsurface to External Forcing Supervisor: Yongqiang Yu

Aimed to explore the mechanisms leading to the underestimated asymmetric response to external wind forcing over equatorial Pacific subsurface via results of ocean models from OMIP2 comparing with oceanic reanalysis data

- The asymmetric temperature response to zonal wind-stress forcing in the western Pacific is commonly underestimated by ocean models
- A generally weaker zonal currents in ocean models than in the observations is a cause of the underestimated asymmetric temperature response
- The weaker zonal current response in ocean models is linked to a less steep zonal tilt of the thermocline

- Submitted one SCI manuscript to Geophysical Research Letters (GRL) as the first author in 2025

Realize and Diagnose the Simulation Skill of LICOM3.0 after being Embedded with Deep-Learning-Based Vertical Mixing Scheme Supervisor: Yongqiang Yu

Aimed to evaluate the performance of a deep learning-based vertical mixing parameterization (DLVMP) integrated into the LICOM ocean model and to compare it against traditional parameterization schemes (Canuto2001 and KPP) in long-term climate simulations.

- DLVMP inherits the biases of KPP but improves the simulation of equatorial subsurface temperature climatology due to the inclusion of observational information
- Compared with the Canuto2001 scheme, both DLVMP and KPP underestimate surface mixing and overestimate subsurface mixing in the equatorial Pacific
- These mixing biases lead to significant differences in temperature, salinity, mixed-layer depth, Atlantic Meridional Overturning Circulation (AMOC), and subtropical cell (STC) among the experiments
- The underestimated surface mixing weakens mid-latitude ventilation, causing an upward shift and intensification of the STC and producing a pronounced cold bias near the thermocline in the DLVMP experiment
- Co-authored and submitted a manuscript to the journal **Chinese Journal of Atmospheric Sciences** in 2025 (second author)

HONORS & ACTIVITIES

- First Prize Scholarship (11/2018, 11/2019, 11/2020), Second Prize Scholarship (06/2021), NUIST
- Second Prize, The 28th China Undergraduate Mathematical Contest in Modeling, 11/2019
- Honorable Mention, The 36th Mathematical Contest in Modeling, 04/2020
- Third Prize, The 16th May Day Mathematical Contest in Modeling, 06/2019
- Pacemaker to Merit Students, NUIST, 11/2018
- Third Prize, Mathematical Modeling Competition, NUIST, 05/2019

RELEVANT SKILLS

- Strong self-learning ability and skilled in hands-on tasks
- Fluent English communication and writing skills
- Proficient in programming with Python and Fortran for scientific computing and data analysis
- Numerical Modeling & Simulation