Zilu Meng

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Nanjing University of Information Science and Technology, Nanjing, Jiangsu, China

Education

- **B.S. in Atmospheric Science** (expected in Jul. 2023): Sep.2019–Present in Changwang School of Honors, Nanjing University of Information Science and Technology (NUIST), Nanjing
- **GPA:** 3.79/4
- **Rank:** 1/42 (The elite class in NUIST)
- **Honors:** National Scholarship of the Ministry of Education (0.3%)

Publications

- **Meng, Z.**, and T. Li, 2022: Why is the Pacific Meridional Mode Most Pronounced in Boreal Spring? *Geophysical Research Letters,* https://www.essoar.org/doi/10.1002/essoar.10510924.2 (under review)
- **Meng, Z.**, Z. Hu, Z. Ai, Y. Zhang, and K. Shan, 2021: Research on Planar Double Compound Pendulum Based on RK-8 Algorithm. *Journal on Big Data*, 3, 11–20, https://doi.org/10.32604/jbd.2021.015208.

Research Repositories

- **Sacpy:** a fast and useful Statistical Analysis tool for Climate and meteorology data. https://github.com/ZiluM/sacpy
- **Deep learning for ENSO:** Deep-learning and Grad-CAM are used to study the cause of El Nino (La Nina). https://github.com/ZiluM/Deep-learning-for-multi-year-ENSO-Reproduction

Research Experiences

- **Why is the Pacific Meridional Mode Most Pronounced in Boreal Spring?** **2021/09 – Now**

  Supervisor: Prof. Tim Li (University of Hawaii, Manoa)
  Main Content: The reason why PMM is the largest in boreal spring is explored and verified by numerical model. The Zebiak-Cane mode is programmed and improved for the research.
  Result: Collate and submit the research results to *Geophysical Research Letters*.

- **Prediction of climate variability in the tropical Pacific using ConvLSTM** **2021/07 – Now**

  Supervisor: Prof. Fei Zheng (Institute of Atmospheric Physics, Chinese Academy of Sciences)
  Main Content: The ConvLSTM neural network is used to forecast the climate variability in the Pacific Ocean, and a neural network forecasting system capable of forecasting ENSO for 18 months is constructed.
  Result: Summarized and wrote 10000 words closing report

- **Research on El Nino precursory based on Machine Learning** **2020/04 – 2021/04**

  Supervisor: Prof. Lin Chen (NUIST)
  Main Content: The K-Means method is used to classify the El Nino, and the precursory of each kind of El Nino are studied.
  Result: Summarized and wrote 10000 words closing report

- **Research on Planar Double Compound Pendulum Based on RK-8 Algorithm** **2020/01 – 2021/01**

  Supervisor: Prof. Yanan Zhang (NUIST)
  Main Content: Using the RK-8 algorithm with high accuracy to study the motion law of double compound

pendulum.

Result: Collate and publish the research results on *Journal on Big Data*

Awards and Scholarships

- **National Scholarship,** Ministry of Education, 2021 (0.3%)
- **President Scholarship,** NUIST,2021 (0.3%)
- **First Prize of National College Students' Higher Mathematics Competition**, Chinese Mathematics Association, 2021 (5%)
- **First class scholarship**, NUIST, 2020 (10%)
- **Honorable Mention of Mathematical Contest in Modeling,** the Consortium for Mathematics and Its Applications, 2021 (20%)

Skills

- **Python:** skillfully use Python to complete scientific calculation and plotting tasks
- **Climate models**: Skillfully use mainstream climate models, such as CESM and ECHAM
- **Shell or Linux:** Familiar with Linux related operations and shell script programming
- **Fortran**: Skillfully use Fortran for scientific calculation
- **Git and GitHub**: Skillfully use code management software and repositories