Zhenyu He

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https://jobsstroustrup.github.io/

EDUCATION

Peking University Beijing, China 09/2018–06/2022(expected)
School of Physics, Department of Atmospheric and Oceanic Sciences,

- Major in Atmospheric and Oceanic Sciences
- GPA: **3.83**/4.0, Ranking: 17/178

RESEARCH EXPERIENCE

Markov Chain Monte–Carlo (MCMC) to Do Retrievals

Independent Research, Supervised by Prof. Yuk Yung, Caltech and Prof. King-Fai Li, UCR 03/2021-present

- Used MCMC to solve the weakness of Rodgers' method to do retrievals.
- Examined the MCMC method for the Earth Science applications.
- Tried to retrieve the land and ocean distribution of Earth from DSCOVR with single-point light curve.
- Applied different methods to find best regularization parameters to solve ill-conditioned problem in retrievals.

Dependence of Walker Circulation on the Width of Ocean Basin

Independent Research, Supervised by Prof. Yongyun Hu and Prof. Ji Nie, Peking University 05/2020-06/2021

- Explored the dependences of Walker circulation on the width of ocean basin with idealized aquaplanet simulations
- Developed diagnostic methods to reveal the controlling mechanisms of the above dependence
- Examined and understood Walker circulation in paleo-climate simulations with realistic geography

The response of Walker Circulation and Hadley Circulation under global warming

Independent Research, Supervised by Prof. Ji Nie, Peking University 10/2019-05/2020

- Found the change of the intensity of Walker Cell and Hadley Cell with different levels of CO_2.
- Calculated the different contributions of Walker Cell and Hadley Cell to the total change of mass flux at tropical areas.

SELECTED COURSE PROJECT

Introduction to Time Series Analysis in Atmospheric Sciences 11/2020-01/2021

- Constructed an appropriate Lanczos filter to process the 150-year daily average temperature series of Stockholm Station, and then adopted Fourier transform to extract the wavelets and gave the confidence interval
- Calculated the autocorrelation function and linear warming trend of the 50-year daily average temperature in Beijing, and carried out AR(1) model fitting

Global Environmental and Climate Change 10/2020-12/2020

- Collated the global and Chinese near-surface ozone concentration changes, compared the similarities and differences, and summarized the ozone change rules in each main area
- Analyzed the temporal and spatial distribution of near-surface ozone caused by human activities and the underlying reasons, and then proposed suggestions on emission reduction to Chinese government.

AWARDS AND HONORS

Merit Student, Peking University (10%)	09/2018-present
High scholarship - Petroleum Scholarship (6%)	10/2019
Lee Wai Wing Scholarship (11%)	10/2020
Weiming Scholarship for Physics Students (30%)	2019, 2020
Second Prize of Outstanding Volunteers of School of Physics, Peking University (4%)	11/2020
High Scholarship - Huatai Securities Technology Scholarship (6%)	10/2021

EXTRACURRICULAR ACTIVITIES

Homecoming High School Practice Group Leader 11/2018-02/2019

- Recruited volunteers from different majors, collected information on major features, learning experience, career development etc.
- Conducted lectures, launched a series of activities about introducing Peking University in high schools.
- Won a school-level first prize in the Homecoming volunteers' activities.

Volunteer Teaching in Majiang Middle School, Qishan, Shaanxi Leader 06/2020-09/2020

- Formed a team of Chinese college student volunteers to the remote and poor areas and conducted 'Helping the Will and Cultivating the Wisdom' activities.
- Gave lectures to students of Majiang Middle School and supervised self-study courses
- Received positive feedbacks from 93% of participating students.

Class 4 of Grade 2018, School of Physics, PKU	*Monitor*	09/2018-present
Baseball Team, PKU	*Third Baseman*	09/2018-present
Volunteer Club of PKU	*Core Member*	09/2018-present
Student Union, School of Physics, PKU	*Minister*	09/2019-09/2020

ADDITIONAL INFORMATION

- TOEFL 108(R30, L29, S24, W25), GRE V156, Q 170, AW 3.5
- Programming & Software: Python, MATLAB, C++, R, Java, Fortune, Linux; LaTeX, Origin