PENGCHENG ZHANG

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Education

Ph.D., Climate Science, Scripps Institution of Oceanography, La Jolla, CA, USA. Sept.2020 – present

B.S., Atmospheric Science, Peking University, Beijing, China. Sept. 2016 - Jul. 2020

- **Academics:** Overall GPA 3.70/4.00; Major GPA 3.72/4.00; Ranking 4/22;
- **Thesis:** Dynamics of Coastal Low-Level Jets.

Research Experience

Dynamic of eastern boundary atmospheric jets Jun. 2019 - present

Advisor: Prof. Eli Tziperman, Harvard University

· Familiarized the usage of CESM and supercomputer; re-derived the governing equations in CESM hybrid vertical coordinate.

· Examined the wind field and confirmed the existence of eastern boundary atmospheric jets in model simulations of different resolutions.

· Successfully closed and analyzed the momentum budget, vorticity budget, and potential temperature budget in jet regions; researched the determining terms in momentum and vorticity budget.

· Researching potential temperature budget and developing a simplified theoretical model.

Antarctic climate response to stratospheric ozone reduction and recovery Aug. 2018 - Feb. 2020

Advisor: Prof. Yongyun Hu, Peking University

· Examined the changes and seasonality of Antarctic clouds in CMIP5 simulations and ISCCP observatory data; analyzed the changes of longwave radiation induced by changes of clouds.

· Researched the reason for changes in Antarctic clouds; studied the changes in total precipitation, snowfall, and rainfall in response to stratospheric ozone reduction and recovery.

· Demonstrated the relationship between changes of cloud-induced longwave radiation and sea ice fraction; scrutinized the potential causality between changes in stratospheric ozone and Antarctic sea ice.

Radiative effects of snow on the formation of sea ice Apr. 2018 - Sept. 2018

Advisor: Prof. Yongyun Hu, Peking University

· Reviewed the changes of Antarctic sea ice and precipitation in CMIP5 simulations and observatory data; researched the correlation between Antarctic sea ice and snow.

· Semi-quantitatively verified the radiative effect of snow coverage on sea ice; clarified the importance of snow coverage on the formation and melt of sea ice.

Selected Presentations and Conferences

- "New Insights into the Dynamics of Coastal Low-Level Jets: a Vorticity Perspective" (talk), California Geophysical Fluid Dynamics (CalGFD) Meeting, Virtual, 2020;

Selected Awards and Honors

Regents Fellowship of Scripps Institution of Oceanography (32,000 USD), 2020;

PKU Scholar in Physics of Peking University (3,000 CNY), 2020;

Merit Student of Peking University, 2019;

Founder Scholarship of Peking University (5,000 CNY), 2019;

First Prize, **34th Physics Competition for Undergraduates**, China, 2017;

First Prize (Top 100 in China), **32nd Chinese Physics Olympiad, Final**, China, 2015;

First Prize (4th place among >300,000), **32nd Chinese Physics Olympiad, Semi-finals**, Shandong Province, 2015.

Additional Information

Languages:

Mandarin (native), English (fluent);

Programming/Computer Skills:

Python, NCL, C/C++, LaTeX, FORTRAN, CESM.