Di Chen

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EDUCATION

Ph.D., Atmospheric Science 2019

University at Albany, SUNY

Advisor: Prof. Aiguo Dai

Dissertation: *Precipitation Characteristics and Their Dependence on Data Resolution and Model Physics*

B.S., Atmospheric Science 2014

Ocean University of China

Thesis: *Current and Future Changes of The North Atlantic Oscillation in ECHAM6*

EMPLOYMENT

Postdoctoral Scholar 2019-present

University of California, Los Angeles

- Investigated the precursors for predicting extreme rainfall, utilizing statistical models including principle component analysis, time series analysis, multiple linear regression, and cross-correlation. Wrote research articles for publication on top-level journals. Incorporated the results into a larger-scale project in selecting CMIP6 models for regional downscaling.
- Developed an analysis pipeline in Python to boost evaluation of numerical model performance in rainfall prediction. This pipeline uses parallel processing to retrieve >5TB of spatiotemporal data from CMIP6 models, calculate rainfall metrics, conduct statistical analysis, and generate visualization report.
- Participated in collaborative research projects between UCLA and Lawrence Livermore National Laboratory. Collaborated with scientists at National Center for Atmospheric Research. Communicated results to peer scientists and stakeholders.

Graduate Research/Teaching Assistant 2014-2019

University at Albany, SUNY

- Performed analysis of global rainfall statistics using >2TB of satellite observation (e.g., TRMM, GPM, GPCP) data. Quantified and explained data aggregation effect

using joint probability. Presented research and won the Outstanding Student Paper Award at American Geophysical Union annual meeting in 2016.

- Designed and conducted sensitivity experiments using CESM on Unix/Linux platform to explore the parameters that affect the prediction accuracy of rainfall. Benchmarked model outputs with observational data, and recommended ways to improve rainfall parameterization in CMIP5 models.
- Served as Teaching Assistant for courses including Numerical Weather Prediction, Atmospheric Physics, Atmospheric Measurement, etc.

HONORS & AWARDS

Travel grant for CMIP6 Hackathon 2019

National Center for Atmospheric Research, Boulder, CO.

Outstanding Student Paper Award 2016

American Geophysical Union **(**AGU) Fall Meeting, San Francisco, CA

Outstanding B.S. Thesis 2014

Ocean University of China

PUBLICATIONS

✧ ***Published***

Chen, D., and A. Dai, 2018: Dependence of estimated precipitation frequency and intensity on data resolution, *Climate Dynamics*, **50**, 3625–3647. https://doi.org/10.1007/s00382-017-3830-7.

Chen, D., and A. Dai, 2019: Precipitation characteristics in the Community Atmosphere Model and their dependence on model physics and resolution, *Journal of Advances in Modeling Earth Systems,* 11. https://doi.org/10.1029/2018MS001536.

Norris, J., Hall, A., Neelin, J. D., Thackeray, C. W., & **Chen, D**. (2021). Evaluation of the tail of the probability distribution of daily and sub-daily precipitation in CMIP6 models. *Journal of Climate*, 1-61.

Norris, J., Hall, A., **Chen, D.**, Thackeray, C. W., & Madakumbura, G. D. (2021). Assessing the representation of synoptic variability associated with California extreme precipitation in CMIP6 models. *Journal of Geophysical Research: Atmospheres*, 126, e2020JD033938. https://doi.org/10.1029/2020JD033938

✧ ***In press***

Chen, D., A. Dai, and A, Hall, 2021: The convective-to-total precipitation ratio and the "drizzling" bias, *Journal of Geophysical Research,-Atmospheres*.

Chen, D.., J. Norris, N. Goldenson, C. Thackeray, and A. Hall, 2021: A distinctive atmospheric mode for California precipitation, *Journal of Geophysical Research,-Atmospheres*.

PRESENTATIONS

✧ ***Invited***

Chen, D., 2019: Precipitation Characteristics and Their Dependence on Data Resolution and Model Physics. GFDL/Princeton University, Princeton, NJ.

Chen, D., 2019: Precipitation Characteristics and Their Dependence on Data Resolution and Model Physics. Lawrence Berkeley National Laboratory, Berkeley, CA.

✧ ***Conferences***

Chen, D., and A. Dai, 2018: Precipitation Characteristics in the Community Atmosphere Model and their Dependence on Model Physics and Resolution. Poster, *2018 Fall Meeting, AGU,* Washington, D.C.

Chen, D., and A. Dai, 2016: Estimates of Global Precipitation Frequency and Intensity and their Dependence on Data Resolution. Lightning talk & Poster, *2016 Fall Meeting, AGU,* San Francisco, CA.

PROFESSIONAL SERVICE

Reviewer for *Journal of Climate, Geophysical Research Letters, Journal of Geophysical Research-Atmospheres, International Journal of Climatology, Quarterly Journal of the Royal Meteorological Society*

LEADERSHIP & VOLUNTEER

University at Albany Earth Day Planning Committee

Member 2019

Department of Atmospheric and Environmental Sciences Climate Group Steering Committee

Member 2017

TECHNICAL SKILLS

Operating Systems	Familiar with Windows, UNIX
Programming & Scripting Languages	Proficient in NCL, Python, Fortran, Unix Shell Scripting, TensorFlow, Scikit-learn

Datasets	Familiar with TRMM, CMORPH, GPM, GPCP, CPC, NCEP Stage IV, CMIP5 Archive
Models	Familiar with NCAR CESM1 Some experience with WRF-ARW