Xian Wu
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The University of Texas at Dallas
Department of Sustainable Earth Systems Sciences
ROC21, 800 W. Campbell Rd., Richardson, TX 75080-3021

Dr. Xian Wu | CURRICULUM VITAE

Education

Ph.D.	Geological Sciences (Research area: Climate Dynamics) The University of Texas at Austin	2015–2020
B.S.	Atmospheric Sciences (Climatology) Nanjing University of Information Science and Technology (NUIST)	2011–2015

Academic Appointments

Assistant Professor, Sustainable Earth Systems Sciences, The University of Texas at Dallas

01/2025–present

Postdoctoral Research Associate, Princeton University & NOAA GFDL	03/2023–12/2024
ASP Postdoctoral Fellow, National Center for Atmospheric Research	09/2020–03/2023
Graduate Research Assistant, UT Austin	08/2016–08/2020

Research Interests

Ocean-atmosphere interaction, climate variability and change, climate predictability

Fellowships and Awards

NSF NCAR Advanced Study Program Postdoctoral Fellowship	2020
UT Austin, Institute for Geophysics Graduate Fellowship	2020
Outstanding Student Presentation Award, American Geophysical Union Fall Meeting	2019
UT Austin, Institute for Geophysics Entry Fellowship	2015–2016
Excellent Honor Graduate Award, NUIST	2015
First-Class Scholarship, NUIST	2011–2015

Publications

Published (Google Scholar Profile):

14. Lawman, A., C. Sun, **X. Wu**, et al. 2025: Tropical rainfall changes in response to a weaker AMOC: Mechanisms and an integrative model-data comparison for Heinrich Stadial 1, *Quat. Sci. Rev.*, 369, 109567, https://doi.org/10.1016/j.quascirev.2025.109567.

13. DiNezio, P. N., T. Shanahan, T. Sun, C. Sun, **X. Wu,** A. Lawman, D. Lea, and M. Kageyama, U. Merkel, M. Prange, B. Otto-Bliesner, and X. Zhang, 2025: The tropical response to ocean circulation collapse*, Nature,* https://doi.org/10.1038/s41586-025-09319-x.

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12. Miao, J., **X. Wu,** D. Jiang, X. Song, T. Wang, and X. Xu, 2025: Revisiting unstable ENSO teleconnections from a global perspective, *J. Geophys. Res. Atmos.,* 130, e2025JD043757, https://doi.org/10.1029/2025JD043757.

11. **Wu, X.,** S. G. Yeager, C. Deser, A. Capotondi, A. T. Wittenberg, and M. J. McPhaden, 2024: Predictability of tropical Pacific decadal variability is dominated by oceanic Rossby waves, *npj Clim. and Atmos. Sci.*, 7, 292. https://doi.org/10.1038/s41612-024-00851-7.

10. Bilbao, R., P. Ortega, D. Swingedouw, L. Hermanson, P. Athanasiadis, R. Eade, M. Devilliers, F. Doblas-Reyes, N. Dunstone, A.-C. Ho, W. Merryfield, J. Mignot, D. Nicolì, M. Samsó, R. Sospedra-Alfonso, **X. Wu,** and S. Yeager 2024: Impact of volcanic eruptions on CMIP6 decadal predictions: A multi-model analysis, *Earth Syst. Dynam.,* 15, 501–525, https://doi.org/10.5194/esd-2023-36.

9. **Wu, X.,** 2023: Long La Niña events could rise in frequency as the planet warms. *Nature*, 619, 702–703, https://doi.org/10.1038/d41586-023-02331-z. (Invited commentary by *Nature News & Views*)

8. **Wu, X.,** S. G. Yeager, C. Deser, N. Rosenbloom, and G. A. Meehl, 2023: Volcanic forcing degrades multiyear-to-decadal prediction skill in the tropical Pacific. *Science Advances*, 9, eadd9364, https://doi.org/10.1126/sciadv.add9364.

7. Maher, N., R. C. J. Wills, P. N. DiNezio, J. Klavans, S. Milinski, S. C. Sanchez, S. Stevenson, M. F. Stuecker, and **X. Wu,** 2023: The future of the El Niño-Southern Oscillation: Using large ensembles to illuminate time-varying responses and inter-model differences. *Earth Syst. Dynam.*, https://doi.org/10.5194/esd-2022-26.

6. Yeager, S. G., N. Rosenbloom, A. A. Glanville, **X. Wu,** I. Simpson, H. Li, M. J. Molina, K. Krumhardt, S. Mogen, K. Lindsay, D. Lombardozzi, W. Weider, W. M. Kim, J. H. Richter, M. Long, G. Danabasoglu, D. Bailey, M. Holland, N. Lovenduski, W. G. Strand, and, T. King, 2022: The Seasonal-to-Multiyear Large Ensemble (SMYLE) Prediction System using the Community Earth System Model Version 2, *Geosci. Model Dev.*, 15, 6451–6493, https://doi.org/10.5194/gmd-15-6451-2022.

5. **Wu, X.,** Y. M. Okumura, P. N. DiNezio, S. G. Yeager, and C. Deser, 2022: The Equatorial Pacific Cold Tongue Bias in CESM1 and its Influence on ENSO Forecasts. *J. Climate,* 35, 3261–3277, https://doi.org/10.1175/JCLI-D-21-0470.1.

4. **Wu, X.,** Y. M. Okumura, C. Deser and P. N. DiNezio, 2021: Two-year Dynamical Predictions of ENSO Event Duration during 1954–2015. *J. Climate*. 34, 4069–4087, https://doi.org/10.1175/JCLI-D-20-0619.1.

3. **Wu, X.,** Y. M. Okumura, and P. N. DiNezio, 2021: Predictability of El Niño Duration Based on the Onset Timing. *J. Climate*. 34, 1351–1366, https://doi.org/10.1175/JCLI-D-19-0963.1.

2. **Wu, X.,** Y. M. Okumura, and P. N. DiNezio, 2019: What Controls the Duration of El Niño and La Niña Events? *J. Climate,* 32, 5941–5965, https://doi.org/10.1175/JCLI-D-18-0681.1.

1. Okumura, Y. M., T. Sun, and **X. Wu,** 2017: Asymmetric Modulation of El Niño and La Niña and the Linkage to Tropical Pacific Decadal Variability. *J. Climate*, 30, 4705–4733, https://doi.org/10.1175/JCLI-D-16-0680.1.

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Under review

Wu, X., A. T. Wittenberg, F. Zeng, B. G. Reichl, and F. Lu, 2025: Understanding the equatorial Pacific cold tongue bias via hierarchical coupled modeling, *J. Adv. Model. Earth Syst,* in revision*,* https://doi.org/10.22541/au.174733523.37826607/v1.

Yeager, S. G., Y. Li, **X. Wu**, G. A. Meehl, N. Rosenbloom, A. A. Glanville, J. H. Richter, L. Van Roekel, and W. Hannah, 2025: Efficient drift correction of initialized Earth system predictions. *J. Adv. Model. Earth Syst,* under review.

Presentations

Invited seminar:

"Tropical Pacific decadal prediction: the role of volcanic forcing and ocean initialization", Department of Earth and Environmental Sciences, The University of Texas at Arlington, 04/2025.

"Advancing Seasonal-to-Decadal Climate Prediction in the Tropical Pacific", The Department of Sustainable Earth Systems Sciences, The University of Texas at Dallas, 03/2024.

"Advancing Seasonal-to-Decadal Climate Prediction in the Tropical Pacific", The Department of Ocean Science, The Hong Kong of Science and Technology, 03/2024.

"Tropical Pacific decadal predictability: the role of volcanic forcing and ocean initialization", Department of Earth Science Seminar Programme, The University of Hong Kong, 01/2024.

"Seasonal-to-decadal predictions in the tropical Pacific", School of Oceanography Seminar, Shanghai Jiao Tong University, 01/2024.

"Tropical Pacific decadal predictability: the role of volcanic forcing and ocean initialization", GFLD seminar series, virtual, 10/2022.

Invited conference presentations:

"Understanding and improving ENSO simulation via mean-state bias corrections", American Geophysical Union Fall Meeting, Washington DC, 12/2024 (Talk).

"Volcanic forcing degrades multiyear-to-decadal prediction skill in the tropical Pacific", EPESC/DCPP workshop on integrated attribution and prediction, 03/2023 (Talk).

"Predicting the duration of La Niña events using the CESM multiyear forecast systems", WCRP the second chapter of the Explaining and Predicting Earth System Change webinar series on 'Triple La Niña', virtual, 11/2022 (Talk).

"Duration of El Niño and La Niña Events: Dynamics and Multiyear Predictability", American Geophysical Union Fall Meeting, virtual, 12/2020 (Poster).

Other conference presentations:

"Understanding the influence of mean climate bias on ENSO simulation via flux adjustments", Symposium on ENSO: Past, Present and Future; Celebrating the Scientific Legacy of Klaus Wyrtki, Honolulu, Hawaii, 03/2025 (Talk).

"Pinpointing sources of tropical Pacific climatological biases in GFDL's SPEAR models",

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Symposium on ENSO: Past, Present and Future; Celebrating the Scientific Legacy of Klaus Wyrtki, Honolulu, Hawaii, 03/2025 (Talk).

"Predictability of tropical Pacific decadal variability is dominated by oceanic Rossby waves", CESM ESPWG working group meeting, Boulder, CO, 02/2025 (Talk)

"Pinpointing the sources of equatorial Pacific SST biases in a coupled GCM", CESM workshop, Boulder, CO, 06/2024 (Talk).

"Pinpointing the sources of equatorial Pacific SST biases in a coupled GCM", Ocean Sciences Meeting 2024, 02/2024 (Talk, presented by a co-author, Brandon Reichl).

"Understanding the equatorial Pacific cold tongue bias via hierarchical coupled modeling", American Geophysical Union Fall Meeting, San Francisco, CA,12/2023 (Talk).

"Volcanic forcing degrades multiyear-to-decadal prediction skill in the tropical Pacific", Decadal Climate Variability and Predictability Webinar Series, 05/2023 (Talk).

"Predictability of tropical Pacific decadal variability and associated oceanic mechanisms", CESM Working Group Meeting 2023, Boulder, CO, 02/2023 (Talk).

"Volcanic forcing degrades multiyear-to-decadal prediction skill in the tropical Pacific", American Meteorological Society 103rd Annual Meeting, Denver, CO, 01/2023 (Talk).

"Duration of El Niño and La Niña events: dynamics and multiyear predictability", ICTP ENSO Summer School, Trieste, Italy, 08/2022 (Talk).

"Two-year dynamical predictions of ENSO event duration during 1954-2015", CLIVAR Societally-Relevant Multi-Year Climate Predictions Workshop, Boulder CO, 03/2022 (Talk).

"The effect of volcanic eruptions on multiyear-to-decadal predictions in the tropical Pacific", CESM Working Group Meeting 2022, virtual, 02/2022 (Talk).

"High prediction skill of tropical Pacific decadal climate in a decadal prediction system without volcanic forcing", Ocean Sciences Meeting 2022, virtual, 03/2022 (Talk).

"High prediction skill of tropical Pacific decadal climate in a decadal prediction system without volcanic forcing", American Geophysical Union Fall Meeting, virtual, 12/2021 (Talk).

"The Equatorial Pacific Cold Tongue Bias in CESM1 and its Influence on ENSO Forecasts", American Geophysical Union Fall Meeting, virtual, 12/2021 (Poster).

"The Equatorial Pacific Cold Tongue Bias in CESM1 and its Influence on ENSO Forecasts", CESM Working Group Meeting 2021, virtual, 02/2021 (Talk).

"Duration of El Niño and La Niña Events during 1954-2015", American Geophysical Union Fall Meeting, virtual, 12/2020 (Talk).

"Two-year Predictions of ENSO event duration during 1954-2015", CESM Workshop 2020, virtual, 06/2020 (Talk).

"Duration of El Niño and La Niña event: mechanisms and multiyear predictability", Water, Climate, and Environmental Seminar Series, Austin, TX, 03/2020 (Talk).

"Two-year Predictions of ENSO event duration during 1954-2015", American Geophysical Union

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Fall Meeting, San Francisco, CA, 12/2019 (Poster).

"Predictability of El Niño duration based on the onset timing", American Geophysical Union Fall Meeting, San Francisco, CA, 12/2019 (Talk)

"Predictability of El Niño duration based on the onset timing", UT Austin Institute for Geophysics Seminar Series, Austin, TX, 12/2019 (Talk).

"Predictability of El Niño duration in a coupled general circulation model", American Meteorological Society 99th Annual Meeting, Phoenix, AZ. 01/2019 (Talk).

"What controls the duration of El Niño and La Niña events?", American Meteorological Society 98th Annual Meeting, Austin, TX. 01/2018 (Talk).

"Impact of Interbasin Teleconnections on the Duration of El Niño and La Niña", American Geophysical Union Fall Meeting, San Francisco, CA, 12/2016 (Poster)

Service

Associate Editor for *Journal of Climate,* 07/2023–present

Reviewer for *Advances in Atmospheric Sciences, Advances in Climate Change Research, Bulletin of the American Meteorological Society, Climate Dynamics, Communications Earth & Environment, Geophysical Research Letters, International Journal of Climatology, Journal of Climate, Journal of Geophysical Research: Atmospheres, Journal of Physical Oceanography, One Earth, Nature, Nature Geoscience, Nature Climate Change, Nature Communications, npj Climate and Atmospheric Science, Proceedings of the National Academy of Sciences, Science Bulletin, Science Advances*

NCAR ASP committee member**,** 2020–2023: writing club, seminar series

NOAA GFDL Internal reviewer, 2023–2024

Media

NCAR UCAR News, "Predictive Power of Climate Models May Be Masked by Volcanoes", 04/12/2023

NOAA CPO News, "Evaluating The Impact Of Volcanic Eruptions In Tropical Pacific Climate Models", 04/28/2023

US CLIVAR Research Highlights, "Predicting the duration of El Niño and La Niña events with multiyear lead time", 04/23/2021

NOAA MAPP News, "Scientists Explore Cutting-Edge Multi-Year ENSO Forecasts Using Climate Model", 02/28/2021

The Washington Post, Capital Weather Gang, "Lingering La Niña may help forecasters spot costly weather patterns two years away", 12/10/2020

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Teaching

Assistant Professor, UT Dallas   January 2025–present
        Courses: Physical Climate Science, Fall 2025; The Earth's Atmosphere, Spring 2026

Graduate Teaching Assistant, *GEO 302 Earth, Wind, and Fire,* UT Austin   Spring 2018

Mentoring

PhD students:
        Yao Zhu (UTD Geosciences, Fall 2025–)

Undergraduate students:
        Henry Schaefer (UTD Physics, Fall 2025–)

        Samantha Donner (Rutgers University; Summer 2024), CIMES Summer Research Internships, Princeton University, Topic: Understanding the Dynamics, Predictability, and Changes of Multiyear La Nina Events

Summer Schools

AOS Summer 2023 Workshop on paleo, present, and future: Leveraging the past to understand and predict our changing climate, Princeton, NJ, USA   08/2023
ICTP Summer School on Theory, Mechanisms and Hierarchical Modeling of Climate Dynamics: Tropical Oceans, ENSO and their teleconnections, Trieste, Italy   08/2022
Artificial Intelligence for Earth System Science Summer School, Boulder, CO, USA   06/2020
Advanced Climate Dynamics Courses (Dynamics of the Seasonal Cycle), Norway   09/2017
NCAR Community Earth System Model Tutorial, Boulder, CO, USA   08/2016

Outreach

Event Supervisor, UT Austin Science Olympiad Tournaments (Meteorology)   2018–2019
K-12 STEM Outreach, Ford Elementary, Georgetown, Texas   2019
Co-organize outreach activities on the 2014 World Meteorological Day, inform the public on air pollution facts and actions to reduce air pollution, Nanjing, China   2014

Computer Skills and Numerical Modeling

Programming Languages	FORTRAN, NCAR Command Language, Python, Shell Script
Numerical Modeling	NCAR CESM, GFDL SPEAR
System	Windows, Mac OS, Unix/Linux

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Professional Memberships

American Meteorological Society, American Geophysical Union