Kai-Chih Tseng (Kai)

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Positions

2022 Assistant Professor	Atmospheric Science, National Taiwan University
2019 – 2022 Postdoc	Atmospheric and Oceanic Science, Princeton University and NOAA Geophysical Fluid Dynamics Laboratory
2016 – 2019 Ph.D.	Atmospheric Science - Colorado State University (Highest honors and degree awarded within 3yrs)
2008 – 2014 BS/MS	Atmospheric Science - National Taiwan University (Highest honors in both B.S. and M.S.)

Publications

(*=mentored students)

2024

1. **Tseng K.-C** 2023: Solving the Analytical Solution of Ensemble Forecast with Data-driven Liouville equation (submitted)
2. **Tseng K.-C**., and Y.-H., Ho* 2023: The Subseasoanl Predictability of North Pacific Subtropical High and the 2020 Record-breaking Event (submitted)
3. **Tseng K.-C**., and co-authors 2023: Skillful forecasts of springtime CONUS tornado activity up to a year in advance (submitted)
4. Schmitt*, J., **Tseng, K.-C**, Hughes M., and Johnson, N., : Illuminating snow droughts: The future of Western United States snowpack in the SPEAR large ensemble. (submitted to JGR Atmosphere)
5. Zhang, W., Xiang, B., **K.-C. Tseng** Johnson, N., Harris L., Delworth T. 2023: Subseasonal prediction of wintertime atmospheric rivers in the GFDL SPEAR model. (submitted to Journal of Climate.)

2023

6. Bower, C., Serafin, K., **K.-C. Tseng**, Baker, J., 2023: Atmospheric River Sequences as Indicators of Hydrologic Hazard in Present and Future Climates. (accepted)
7. Jong, B.-T., and **co-authors** 2023: Investigating Observed and Projected Increases in Extreme Precipitation over the Northeast United States using High-resolution Climate Model Simulations (accepted by *npj Clim Atmos Sci*)

2022

8. Jia, L., and **co-authors** 2022: Skillful seasonal prediction of North American summertime hot extremes (in press), *J. Climate*, **35(13)**, 4331–4345 (Nature research highlight)
9. **Tseng K.-C**., and co-authors 2022: When will humanity notice its influence on atmospheric rivers? *JGR. Atmospheres* **127(9)**

10. Bushuk, M., and **co-authors** 2022: Mechanisms of Regional Artic Sea Ice Predictability in Dynamical Seasonal Forecast Systems *J. Climate*, **35(13)**, 4207–4231

11. Zhang, L., and **co-authors** 2022: Using large ensembles to elucidate the possible roles of Southern Ocean meridional overturning circulation in the Southern Ocean 36-yr SST trend *J. Climate*, **35(5)**, 1577–1596

2021

12. Chen Y.-L.,and **co-authors** 2021: Effect of the MJO on East Asian winter rainfall as revealed by a SVD analysis *J. Climate*, **34(24)**, 9729–9746

13. Bushuk, M., and **co-authors** 2021: Seasonal prediction and predictability of regional Antarctic sea ice *J. Climate*, **34(15)**, 6207–6233

14. Zhang, G., and **co-authors** 2021: Seasonal Predictability of Baroclinic Waves *npj Clim Atmos Sci* **4(50)**

15. **Tseng K.-C**., and co-authors 2021: Are multiseasonal forecasts of atmospheric rivers possible? **48**, e2021GL094000. https://doi.org/10.1029/2021GL094000 (GFDL research highlight)

16. **Tseng K.-C**., N. C. Johnson., E. D. Maloney, E. A. Barnes, and S. B. Kapnick 2021: Mapping Large-scale Climate Variability to Hydrological Extremes: An Application of the Linear Inverse Model to Subseasonal prediction *J. Climate*, **34(11)**, 4207–4225

17. **Tseng K.-C**., E. A. Barnes, and E. D. Maloney 2021: The important role of the MJO for extratropical variability in observations and the CMIP5 climate models (submitted to JGR-Atmosphere)

2020 and prior

18. **Tseng K.-C**., E. D. Maloney and E. A. Barnes, 2020: The consistency of MJO teleconnection patterns on interannual timescales *J. Climate*, **33**, 3471-3486

19. **Tseng K.-C**., E. A. Barnes, and E. D. Maloney, 2020: The importance of past MJO activity in determining the future state of midlatitude circulation *J. Climate* **33**, 2131-2147

20. **Tseng K.-C**., E. D. Maloney, and E. A. Barnes, 2019: Explaining the consistency of MJO teleconnection patterns with linear Rossby wave theory, *J. Climate*, **32**, 531–548.

21. **Tseng K.-C**., E. A. Barnes, and E. D. Maloney, 2018: Prediction of the midlatitude response to strong Madden-Julian oscillation events on S2S timescales, *Geophys. Res. Lett.*, **45**, 463–470. (NOAA Climate Program Office research highlight)

22. **Tseng K.-C**., C.-H. Sui., and T. Li, 2015: Moistening Processes of MJO events during DYNAMO/CINDY, *J. Climate*, **28**, 3041–3057.

Honors and Awards

2023	2030 Cross-Generation Young Scholars Program	NSTC, Taiwan
2021	Yushan Young Scholar - Faculty Early Career Development	Ministry of Education, Taiwan
2019	Alumni Award (Ph.D. highest honor, best Ph.D. thesis)	Colorado State University
2018	Shrake-Culler Scholarship (outstanding academic record)	Colorado State University
2016	Program of Research and Scholarly Excellence	Colorado State University
2014	Deans Award (M.S. highest honor, best master thesis)	National Taiwan University
2011 – 2015	International Research Fellowship	National Taiwan University
2012	Deans Award (B.S. highest honor, major GPA=4.2/4.3)	National Taiwan University
2012	NICAM workshop Traveling Grant (the only undergrad recipient)	University of Tokyo
2008 – 2011	Presidential Award (top 5% of the class in the academic year)	National Taiwan University
2009 – 2010	Hsu Shui-Sen Fellowship	Changhua County, Taiwan

Conference Presentations

1. **Tseng K.-C**, 2023 : Infinite members of ensemble weather forecast with data-driven statistical mechanics [poster]
2. **Tseng K.-C**., and co-authors, 2022 : Mapping Large-scale Climate Variability to Hydrological Extremes: An Application of the Linear Inverse Model to Subseasonal predictio. AMS annual meeting [invited talk]
3. **Tseng K.-C**., and co-authors, 2022 : When will humanity notices its impacts on atmospheric rivers? AMS annual meeting [talk]
4. **Tseng K.-C**., and co-authors, 2021 : Are multiseasonal forecasts of atmospheric rivers possible? WWRP/WCRP workshop [poster]
5. **Tseng K.-C**., N. C. Johnson., E. D. Maloney, E. A. Barnes, and S. B. Kapnick, 2021: Mapping Large-scale Climate Variability to Hydrological Extremes: An Application of the Linear Inverse Model to Subseasonal predictio, WWRP/WCRP/S2S/MJO teleconnection webinar [invited talk]
6. **Tseng K.-C**., and co-authors, 2020 : Seasonal Skillful Prediction of Western North America Atmospheric Rivers, AGU [poster]
7. **Tseng K.-C**., E. A. Barnes and E. D. Maloney, 2019 : The importance of past MJO activity in determining the future state of extratropical circulations, AGU [poster]
8. **Tseng K.-C**., E. A. Barnes and E. D. Maloney, 2018 : Explaining the consistency of MJO teleconnection patterns with linear Rossby wave theory, Second International Conference on Subseasonal to Seasonal Prediction (S2S) and Second International Conference on Seasonal to Decadal Prediction (S2D) [poster]
9. **Tseng K.-C**., E. A. Barnes and E. D. Maloney, 2017 : Prediction of North Pacific Height Anomalies During Strong Madden-Julian Oscillation Events, AGU Fall Meeting [oral]
10. **Tseng K.-C**., E. A. Barnes and E. D. Maloney, 2017 : Forecasting North Pacific Height Anomalies with the MJO on S2S timescales , 30th Conference on Climate Variability and Change/24th Conference on Probability and Statistics in the Atmospheric Sciences/16th Conference on Artificial Intelligence and its Applications to the Environmental Sciences [oral]
11. **Tseng K.-C**., and C.-H. Sui, 2016 : Moistening Process in Observed and Simulated MJOs during DYNAMO/CINDY-(cumulus properties diagnosis), 32nd Conference on Hurricanes and Tropical Meteorology [oral]
12. **Tseng K.-C**., and C.-H. Sui, 2014A Diagnosis of Boundary Layer Moistening Processes for Madden-Julian Oscillations During DYNAMO IOP, 31st Conference on Hurricanes and Tropical Meteorology, AMS, 6B.C [oral]

Reviewer Experience-Journal

1. Journal of Climate
2. npj, Climate and Atmospheric Science (Nature)
3. Geophysical Research Letter
4. JGR-Atmosphere
5. Climate Dynamics
6. Advances in Atmospheric Sciences
7. Monthly Weatehr Review
8. GFDL internal review

Reviewer Experience-Proposal

1. National Science Fundation