

CURRICULUM VITAE

**Wen-wen Tung**  
wwtung@purdue.edu

Last Updated May 28, 2021

Associate Professor  
Director of GeoData Science for Professionals (GDSP) MS Program  
Department of Earth, Atmospheric, and Planetary Sciences  
Purdue University  
550 Stadium Mall Drive  
West Lafayette, IN 47907-2051  
T: (765) 494-0272, F: (765) 496-1210  
<https://www.eaps.purdue.edu/tung/>

**EDUCATION**

**University of California, Los Angeles** **Los Angeles, CA**  
Ph.D., Atmospheric Sciences 2002  
Thesis Advisor: Michio Yanai  
M.S., Atmospheric Sciences 1998  
**National Taiwan University** **Taipei, Taiwan**  
B.S., Atmospheric Sciences 1996

**PROFESSIONAL EXPERIENCES**

**Purdue University** **West Lafayette, IN**  
Founder and Director Geodata Science for Professional Master’s Program  
Department of Earth, Atmospheric, and Planetary Sciences August 2019–present  
**Purdue University** **West Lafayette, IN**  
Associate Professor Atmospheric Sciences and Geodata Science  
Department of Earth, Atmospheric, and Planetary Sciences August 2011–present  
**National Taiwan University** **Taipei, Taiwan**  
Visiting Associate Professor Atmospheric Sciences  
Department of Atmospheric Sciences Summer 2015  
**New York University** **New York, NY**  
Sabbatical Visit Center for Atmosphere Ocean Science  
Courant Institute of Mathematical Sciences April 2012–May 2013  
**PMB InTelligence, LLC** **West Lafayette, IN**  
Founding President and Director March 2009–December 2012  
**Purdue University** **West Lafayette, IN**  
Assistant Professor Atmospheric Sciences  
Department of Earth, Atmospheric, and Planetary Sciences January 2005–August 2011  
**National Center for Atmospheric Research** **Boulder, CO**  
Visiting Scientist Cloud Systems Group  
Mesoscale & Microscale Meteorology Laboratory Summer 2004 & 2005  
**National Center for Atmospheric Research** **Boulder, CO**  
Postdoctoral Fellow Atmospheric Sciences  
Advanced Study Program August 2002–July 2004  
**University of California, Los Angeles** **Los Angeles, CA**  
Graduate Research Assistant Atmospheric Sciences  
Department of Atmospheric and Oceanic Sciences August 1996–June 2002  
**University of California, Los Angeles** **Los Angeles, CA**  
Graduate Teaching Assistant/Associate Atmospheric Sciences  
Department of Atmospheric and Oceanic Sciences September–December 1998/2001

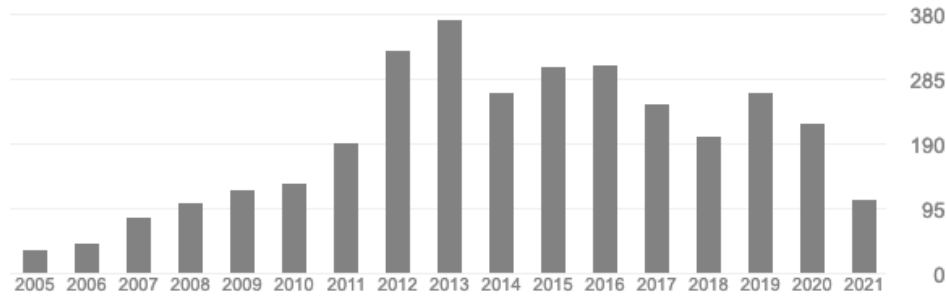
## AWARDS AND HONORS

<b>Teaching Academy Fellow</b> Purdue University	<b>2020</b> Teaching Academy
<b>Leadership Award</b> Purdue University	<b>2019</b> College of Science
<b>Major Scientific Equipment Program:</b> A Scalable Computational Environment for Deep Analysis of Complex Weather, Climate, Environmental, Resource, Energy, and Societal (WCERES) Nexus Data Purdue University	<b>2017</b> \$99,999 Awarded Office of Provost
<b>Diversity Award</b> Purdue University	<b>2016</b> College of Science
<b>Instruction Matters: Purdue Academic Course Transformation (IMPACT) Fellow</b> Purdue University	<b>2016</b> Center for Instructional Excellence
<b>Purdue Online Courses/Instructional Technology Program:</b> Purdue Virtual Laboratory with Conceptual Earth System Models Purdue University	<b>2015</b> \$13,368 Awarded Digital Education
<b>Graduate Student Mentoring Award</b> Purdue University	<b>2012</b> College of Science
<b>Advanced Study Program Postdoctoral Fellowship</b> National Center for Atmospheric Research	<b>2002–2004</b> Advanced Study Program
<b>Dissertation Year Fellowship</b> University of California, Los Angeles	<b>2001–2002</b> Department of Atmospheric and Oceanic Sciences
<b>Jacob Bjerknes Memorial Award for Graduate Research</b> University of California, Los Angeles	<b>2001</b> Department of Atmospheric and Oceanic Sciences
<b>Graduate Student Scholarship. 10th Symposium on Global Change Studies</b> American Meteorological Society	<b>1999</b> 79th Annual Meeting, 10–15 January 1999, Dallas, Texas
<b>Purdue EAPS Departmental Teaching Honor Roll</b> EAPS507 Introduction to Analysis And Computing With Geoscience Data: Fall 2019, Fall 2020 EAPS509 Data Analysis Techniques Applied to Earth and Atmospheric Sciences: Fall 2017 EAPS309 Computer-aided Data Analysis for Geosciences: Spring 2017, Spring 2016, Spring 2015 EAPS109 Dynamical Earth: Fall 2017, Fall 2016, Fall 2015 EAPS129 Earth System Dynamics: Fall 2018, Fall 2019 EAPS120 Introduction to Geography: Fall 2016, Fall 2018 EAPS534 Tropical Meteorology: Fall 2015 EAPS591/515 Geodata Science: Spring 2018 EAPS591 Geodata Science Seminar: Fall 2018, Spring 2019, Fall 2019, Fall 2020	

## RESEARCH INTERESTS

- Perform deep analysis, data-driven model, and uncertainty quantification on Earth and atmospheric data.
  - Analyze tropical dynamics and tropical–extra-tropical interactions.
  - Analyze multiscale convection-coupled atmospheric systems.
  - Interface weather, climate, environmental, resource, energy, and societal systems.
- Construct distributed-parallel computing environments for statistical analysis of big complex data.
- Quantify dynamical predictability by applying chaos and information theories.
- Develop and apply dynamical system and multiscale signal processing methods in geophysics and bioinformatics.

**Google Scholar Citations: 3444, h-index: 28, i10-index: 39**



**PROFESSIONAL ASSOCIATIONS**

- American Geophysical Union (AGU)
- American Meteorological Society (AMS)
- American Statistical Association (ASA)
- Society for Industrial and Applied Mathematics (SIAM)

**SYNERGISTIC ACTIVITIES**

**• Geodata Science Leadership**

- I created and am leading Geodata Science initiatives at Purdue, having organized and led multiple internal and external team research and outreach proposals. 2017–present
- I led the building and maintenance of a community Hadoop high-performance-computing cluster for big complex data analysis funded by Purdue Provost. 2017–present
- I have been presenting invited seminars and hosting tutorials domestically and internationally on Data Science with applications to Earth systems. 2017–present
- I led the Physical Science part of the Purdue College of Science multidisciplinary data science faculty search. 2020
- I was honored with Purdue University College of Science Leadership Award for Geodata Science leadership. 2019

**• Education and Pedagogy Innovation**

- I am serving as Purdue Teaching Academy Fellow to enhance and strengthen the quality of teaching and learning at the undergraduate and graduate levels. 2020–present
- I am leading the Purdue Online Climate and Society Certificate program proposal and market research. 2020–present
- I have received Certification for Independent Applying the QM Rubric. 2019  
Quality Matters (QM) is the global organization leading quality assurance in online and innovative digital teaching and learning environments.
- I created and am directing the EAPS Geodata Science for Professionals (GDSP) MS concentration program. 2018–present
- I am serving as Purdue College of Science Representative at the Digital Education Community Collaboration. 2018–present
- I served on the Purdue University Digital Education Faculty Advisory Committee 2017–2019
- I redesigned computer-aided data analysis courses as a Fellow of the Purdue Center for Instructional Excellence IMPACT program. 2016–2017

**• Professional Editorship and Services**

- I served on the Editorial Board: Mathematics of Climate and Weather Forecasting. 2016–2019
- I served on the Editorial Board: AIMS Geosciences. 2015–2016
- I served as a Co-Editor: Multiscale Convection-Coupled Systems in the Tropics, Meteorological Monograph, American Meteorological Society. 2016
- I organized and co-Chaired the Michio Yanai Symposium, 27 January 2011, Seattle, WA, at the 91st American Meteorological Society Annual Meeting. 2011

- I participated in the Dynamics of the MJO (DYNAMO) 3rd planning workshop, 2010  
Seattle, July 6-8, 2010.
- I participated in NCAR TIIMES Weather-Climate Retreat on the Intersection of, 2006  
Weather and Climate: Tropical Convection and Two-way Scale Interaction, 10-14 July 2006.
- I have provided reviews for scientific journals, book publishers, and funding agencies, including the Journal of Atmospheric Sciences, Journal of Climate, Climate Dynamics, Monthly Weather Review, Weather and Forecasting, Journal of Geophysical Research, Geophysical Review Letters, Quarterly Journal of Royal Meteorological Society, Theoretical and Applied Climatology, Atmospheric Research, IEEE Trans. Biomedical Engineering, IEEE Signal Processing Letters, Entropy, Journal of the Royal Society Interface, PLoS One, Wiley & Sons Higher Education, Cambridge University Press, and the National Science Foundation.
- **Diversity, Equity, and Inclusiveness Path**
- I am in the pilot faculty cohort of Purdue Institute for Racial Equity. 2021–present
- I am serving on Faculty Professional Development Committee, College of Science, 2017–present  
Purdue University.
- I served on Purdue University Advisory Committee on Equity. 2017–2019
- I served on the Strategic Hiring Committee, College of Science, Purdue University. 2015–2019
- I served and chaired (2013–2017) the Diversity Committee, Department of 2013–2019  
Earth, Atmospheric, and Planetary Sciences, Purdue University, leading multiple  
external proposals for broadening participation of geoscience and data science.
- I was honored with Purdue University College of Science Diversity Award. 2016
- I served on Purdue University Disability Resource Center Faculty Advisory Committee 2014–2016  
as the College of Science representative.
- I served on Purdue University College of Arts and Education Foreign Language 2013–2016  
Substitution Committee as the College of Science representative.
- I served on Faculty Committee for Diversity, College of Science, Purdue University. 2009–2016
- I spoke at Women in Data Science and Women in Science Programs. 2017, 2018
- I was a mentor for the Purdue Summer Research Opportunity Program (SROP) 2010  
for under-represented minority undergraduate students seeking PhD degrees.

## PUBLICATIONS

\* denotes an immediate student mentee

### A. Books and Book Chapters

1. *Multiscale Convection-Coupled Systems in the Tropics*, R. G. Fovell, and **W.-w. Tung**, Eds., Meteorol. Monogr., American Meteorological Society, 2017. ISBN:978-1-944970-04-8  
<https://bookstore.ametsoc.org/catalog/book/multiscale-convection-coupled-systems-tropics>.
2. Fovell, R. G., and **W.-w. Tung**, 2016: Introduction, in *Multiscale Convection-Coupled Systems in the Tropics*, R. Fovell, and W. Tung, Eds., Meteorol. Monogr., American Meteorological Society, doi: 10.1175/AMSMONOGRAPHS-D-16-0003.1.
3. Steven Esbensen, J. H. Chu, **W.-w. Tung**, and R. G. Fovell, 2016: EPILOGUE: Six Decades of Tropical Meteorology Research: A Retrospective on Michio Yanai's Life and Career, in *Multiscale Convection-Coupled Systems in the Tropics*, R. Fovell, and W. Tung, Eds., Meteorol. Monogr., American Meteorological Society.
4. Gao, J. B., Y. Cao, **W.-w. Tung**, and J. Hu\*, 2007: *Multiscale analysis of complex time series — Integration of Chaos and Random Fractal Theory, and Beyond*, Wiley Interscience, 368pp.

### B. Referred Publications

1. Zhang, C.\*, **W.-w. Tung**, and W.S. Cleveland, 2021, Arctic Atmospheric Rivers in CMIP6: Climatology and Physical Processes, *J. Geophys. Res.*, in preparation.

2. Zhang, C.\* , **W.-w. Tung**, and W.S. Cleveland, 2021, Atmospheric River Climatology and The Associated Melting Effects in the Arctic, *J. Geophys. Res.*, *in preparation*.
3. **W.-w. Tung**, M. C. Bowers, C. Zhang\*, 2021, Data-Driven Predictive Models of MJO Initiation. *in preparation*.
4. Zhang, C.\* , **W.-w. Tung**, and W. S. Cleveland, 2021, In Search of The Optimal Atmospheric River Index for US Precipitation: A Multifactorial Analysis, *Journal of Geophysical Research: Atmospheres*, 126, e2020JD033667. doi: 10.1029/2020JD033667  
Zhang, C.\* , **W.-w. Tung**, and W.S. Cleveland, 2021. “Purdue” Data in ARTMIP Tier 1 Catalogues. doi: 10.5065/D6R78D1M
5. O’Brien, Travis, A. Payne, C. Shields, J. Rutz, S. Brands, C. Castellano, J. Chen, W. Cleveland, M. DeFlorio, N. Goldenson, I. Gorodetskaya, H. Daz, K. Kashinath, B. Kawzenuk, S. Kim, M. Krinitskiy, J. Lora, B. McClenny, A. Michaelis, J. O’Brien, C. Patricola, A. Ramos, E. Shearer, **W. Tung**, P. Ullrich, M. Wehner, K. Yang, R. Zhang, Z. Zhang, Y. Zhou, 2020: Detection Uncertainty Matters for Understanding Atmospheric Rivers. *Bulletin of the American Meteorological Society*, 101, E790–E796, doi: 10.1175/BAMS-D-19-0348.1.
6. Wang, X.\* , Y. Wu, **W.-w. Tung**, J. H. Richter, S. Tilmes, C. Orbe, Y. Huang, and D. E. Kinnison, 2018: The Simulation of Stratospheric Water Vapor over the Asian Summer Monsoon Region in WACCM5 Models. *J. Geophys. Res.*, doi: 10.1029/2018JD028971.
7. **Tung, W.-w.**, A. Barthur, M. C. Bowers, Y. Song, J. Gerth, and W. S. Cleveland, 2018: Divide and Recombine (D&R) Data Science Projects for Deep Analysis of Big Data and High Computational Complexity, *Jpn. J. Stat. Data. Sci.* (inaugural issue of Japanese Journal of Statistics and Data Science), <https://doi.org/10.1007/s42081-018-0008-4>.
8. Bowers, M. C.\* , and **W.-w. Tung**, 2018: Variability and Confidence Intervals for the Mean of Climate Data with Short- and Long-Range Dependence, *J. Climate*, **31**, 6135–6156, doi: 10.1175/JCLI-D-17-0090.1.
9. Fovell, R. G., Y. P. Bu, K. L. Corbosiero, **W.-w. Tung**, Y. Cao, H.-C. Kuo, L.-H. Hsu, and H. Su, 2016: Influence of cloud microphysics and radiation on tropical cyclone structure and motion: A review, in *Multiscale Convection-Coupled Systems in the Tropics*, R. Fovell, and W. Tung, Eds., Meteor. Monogr., American Meteorological Society, doi: 10.1175/AMSM-D-15-0006.1.
10. Chen, B., **W.-w. Tung**, and M. Yanai, 2016: Perturbation Kinetic Energy (PKE) and its Budget in the Tropics, in *Multiscale Convection-Coupled Systems in the Tropics*, R. Fovell, and W. Tung, Eds., Meteor. Monogr., American Meteorological Society, doi: 10.1175/AMSMONOGRAPHS-D-15-0017.1.
11. Luo, Q.\* , and **W.-w. Tung**, 2015: Case study of moisture and heat budgets within atmospheric rivers, *Mon. Wea. Rev.*, **143**, 4145–4162, doi: 10.1175/MWR-D-15-0006.1.
12. **Tung, W.-w.**, D. Giannakis, and A. J. Majda, 2014: Symmetric and antisymmetric signals in MJO deep convection. Part I. Basic modes. *J. Atmos. Sci.*, doi:10.1175/JAS-D-13-0122.1.
13. Bowers, M. C.\* , J. B. Gao, and **W.-w. Tung**, 2013: Long range correlations in tree ring chronologies of the USA: Variation within and across species, *Geophys. Res. Lett.*, **40**, 1–5, doi:10.1029/2012GL054011. (Selected to be in the AGU Research Spotlight)
14. Gao, J.B., J. Hu, and **W. W. Tung**, 2013, On the Application of the SDLE to the Analysis of Complex Time Series. In: Shen X., Zayed A. (eds) *Multiscale Signal Analysis and Modeling*. Springer, New York, NY. [https://doi.org/10.1007/978-1-4614-4145-8\\_9](https://doi.org/10.1007/978-1-4614-4145-8_9)
15. Bowers, M. C.\* , **W.-w. Tung**, J.B. Gao, 2012: On the distributions of seasonal river flows: lognormal or power-law? *Water Resources Research*, **48**, W05536, doi:10.1029/2011WR011308.

16. Gao, J. B., J. Hu, **W.-w. Tung**, and E. Blasch, 2012: Multiscale analysis of physiological data by scale-dependent Lyapunov exponent. *Frontiers in Fractal Physiology*, doi: 10.3389/fphys.2011.00110.
17. Giannakis, D., **W.-w. Tung**, and A. J. Majda, 2012: Hierarchical structure of the Madden-Julian oscillation in infrared brightness temperature revealed through nonlinear Laplacian spectral analysis. Conference on Intelligent Data Understanding (CIDU), 55–62, doi:10.1109/CIDU.2012.6382201.
18. Gao, J. B., J. Hu, and **W.-w. Tung**, 2012: Entropy measures for biological signal analysis. *Nonlinear Dynamics*, doi: 10.1007/s11071-011-0281-2.
19. Gao, J. B., J. Hu, X. Mao, **W.-w. Tung**, 2012: Detecting low-dimensional chaos by the “noise titration” technique: possible problems and remedies. *Chaos, Solitons, & Fractals*, **45**, 213–223.
20. Gao, J. B., J. Hu\*, **W.-w. Tung**, 2011: Facilitating joint chaos and fractal analysis of biosignals through nonlinear adaptive filtering. *PLoS ONE*, **6(9)**: e24331. doi:10.1371/journal.pone.0024331.
21. **Tung, W.-w.**, J. B. Gao, J. Hu\*, and L. Yang, 2011: Recovering chaotic signals in heavy noise environments. *Phys. Rev. E*, **83**, 046210.
22. Gao, J. B., J. Hu\*, **W.-w. Tung**, Y. Zheng, 2011: Multiscale analysis of economic time series by scale-dependent Lyapunov exponent. *Quantitative Finance*, DOI:10.1080/14697688.2011.580774.
23. Wang, Y.-C. \*, and **W.-w. Tung**, 2010: Impacts of cloud-system resolving regional modeling on the simulation of monsoon depressions, *Geophys. Res. Lett.*, **37**, L08806, doi:10.1029/2010GL042734.
24. Gao, J. B., H. Sultan, J. Hu\*, and **W.-w. Tung**, 2010: Denoising nonlinear time series by adaptive filtering and wavelet shrinkage: A comparison. *IEEE Signal Processing Letters*, **17**, 237–240.
25. Hu, J. \*, J. B. Gao, **W. W. Tung**, and Y.H. Cao: Multiscale analysis of heart rate variability: A comparison of different complexity measures. *Annals of Biomedical Engineering*, **38**, 854–864.
26. Hu, J.,\* J. B. Gao, and **W. W. Tung**: Characterizing heart rate variability by scale-dependent Lyapunov exponent, *Chaos (special issue on Controversial Topics in Nonlinear Science: Is the Normal Heart Rate Chaotic?)* **19**, 028506 (2009).
27. Ashfaq, M., S. Ying, **W.-w. Tung**, R. J. Trapp, X. Gao, J. S. Pal, N. S. Diffenbaugh, 2009: Suppression of South Asian summer monsoon precipitation in 21st century, *Geophys. Res. Lett.*, doi:10.1029/2008GL036500.
28. Hu, J. \*, **W.-w. Tung**, and J. B. Gao, 2009: A new way to model non-stationary sea clutter, *IEEE Signal Processing Letters*, **16**, 129–132.
29. Gao, J. B., **W.-w. Tung**, and J. Hu\*, 2009: Quantifying dynamical predictability: The pseudo-ensemble approach (in honor of Professor Andrew Majda’s 60th birthday). *Chi. Annals. Math Series B*, **30**, 569–588.
30. **Tung, W.-w.**, J. Hu\*, J. B. Gao, and V. A. Billock, 2008: Diffusion, intermittency, and noise-sustained metastable chaos in the Lorenz equations: Effects of noise on multistability. *Theme Issue on Multistability in Dynamical Systems, International Journal of Bifurcations and Chaos*, **18**, 1749–1758.
31. Gao, J. B., J. Hu\*, **W.-w. Tung**, Y.H. Cao, 2006: Distinguishing chaos from noise by scale-dependent Lyapunov exponent. *Phys. Rev. E*, **74**, 066204.
32. Hsu, H.-m., M. W. Moncrieff, **W.-w. Tung**, and C. Liu, 2006: Temporal variability of warm season precipitation over north America: A study based on radar reflectivity. *J. Atmos. Sci.*, **63**, 2355–2368.
33. Hu, J. \*, J. B. Gao, F.L. Posner, Y. Zheng, and **W.-w. Tung**, 2006: Target detection within sea clutter: A comparative study by fractal scaling analyses. *Fractals*, **14**, 187–204.

34. Gao, J. B., V. A. Billock, I. Merk, **W.-w. Tung**, K. D. White, J. G. Harris, V. P. Roychowdhury, 2006: Inertia and memory in ambiguous visual perception, *Cogn. Process.* **7**, 105–112.
35. Gao, J. B., J. Hu\*, **W.-w. Tung**, Y. H. Cao, N. Sarshar, V. P. Roychowdhury, 2006: Assessment of long range correlation in time series: How to avoid pitfalls. *Phys. Rev. E*, **73**, 016117.
36. Hu, J.\* , **W.-w. Tung**, and J. B. Gao, 2006: Detection of low observable targets within sea clutter by structure function based multifractal analysis. *IEEE Trans. Antennas & Propagation*, **54**, 135–143.
37. **Tung, W.-w.**, Y. Qi,\* J. B. Gao, Y. H. Cao, and L. Billings, 2005: Direct characterization of chaotic and stochastic dynamics in a population model with strong periodicity. *Chaos, Solitons, and Fractals*, **24**, 645–652.
38. Gao, J. B., **W.-w. Tung**, Y. H. Cao, J. Hu\* , and Y. Qi\* , 2005: Power-law sensitivity to initial conditions in a time series with applications to epileptic seizure detection. *Physica A*, **353**, 613–624.
39. Hu, J.\* , **W.-w. Tung**, J. B. Gao, and Y. H. Cao, 2005: Reliability of the 0-1 test for chaos, *Phys. Rev. E*, **72**, 056207.
40. Gao, J. B., Y. Qi\* , Y. H. Cao, and **W.-w. Tung**, 2005: Protein coding sequence identification by simultaneously characterizing the periodic and random features of DNA sequences, *Journal of biotechnology and biomedicine* special issue, 139–146, DOI:10.1155/JBB.2005.139.
41. Cao, Y. H., **W.-w. Tung**, J. B. Gao, and Y. Qi\* , 2005: Recurrence time statistics: Versatile tools for genomic DNA sequence analysis, *Journal of Bioinformatics and Computational Biology*, **3**, 677–696
42. Cao, Y. H., **W.-w. Tung**, J. B. Gao, V. A. Protopopescu, and L. M. Hively, 2004: Detecting dynamical changes in time series using the permutation entropy. *Phys. Rev. E*, **70**, 046217. (selected for the November 1, 2004 issue of Virtual Journal of Biological Physics Research: <http://www.vjbio.org>).
43. **Tung, W.-w.**, M. W. Moncrieff, and J. B. Gao, 2004: A systematic view of the multiscale tropical deep convective variability over the tropical western-Pacific warm pool. *J. Climate*, **17**, 2736–2751.
44. Gao, J. B., **W.-w. Tung**, and N. Rao, 2002: Noise induced Hopf bifurcation-like sequence to chaos in the Lorenz equations. *Phys. Rev. Lett.*, **89**, 254101.
45. Gao, J. B., and **W.-w. Tung**, 2002: Pathological tremors as diffusional processes. *Biological Cybernetics*, **86**, 263–270.
46. **Tung, W.-w.**, and M. Yanai, 2002: Convective momentum transport Observed during the TOGA COARE IOP. Part II: Case studies. *J. Atmos. Sci.*, **59**, 2535–2549.
47. **Tung, W.-w.**, and M. Yanai, 2002: Convective momentum transport Observed during the TOGA COARE IOP. Part I: General features. *J. Atmos. Sci.*, **59**, 1857–1871.
48. Yanai, M., B. Chen, and **W.-w. Tung**, 2000: The Madden-Julian Oscillation (MJO) observed during the TOGA-COARE IOP: Global view. *J. Atmos. Sci.*, **57**, 2374–2396.
49. **Tung, W.-w.**, C. Lin, B. Chen, M. Yanai, and A. Arakawa, 1999: Basic modes of cumulus heating and drying observed during TOGA-COARE IOP. *Geophys. Res. Lett.*, **26**, 3117–3120.

### C. Invited Talks

1. **Tung, W.-w.**, 2021: Bill Cleveland’s Contribution to Analysis of Big Complex Data, in Special Session in Honor of William Cleveland and John Tukey, Symposium on Data Science & Statistics, June 2–4, 2021, Virtual Meeting.
2. **Tung, W.-w.**, 2020: Rethinking Climate Data Analysis and Visualization in the Era of Big Data, Symposium on Data Science & Statistics, June 3–5, 2020, Virtual Meeting.

3. **Tung, W.-w.**, 2018: DeltaRho for Deep Analysis of Precipitation and Cloud Observations to Advance the Understanding of Earth's Water Cycle, Symposium on Data Science & Statistics, May 16-19, 2018, Reston, Virginia.
4. **Tung, W.-w.**, 2018: Deep Geodata Analysis with Divide & Recombine and Domain Knowledge, WiDS (Women in Data Science) Conference, March 5, 2018, West Lafayette, Indiana.
5. **Tung, W.-w.**, 2017: Deep Analysis and Detailed Visualization of Large Complex Satellite-Based Precipitation Data, July 12, 2017, National Central University, Taoyuan, Taiwan.
6. **Tung, W.-w.**, 2017: Deep Analysis and Modeling of Satellite-based Precipitation—Opportunities for Short Term and Seasonal Rain Forecasts, July 11, 2017, Taiwanese Central Weather Bureau, Taipei, Taiwan.
7. **Tung, W.-w.**, 2017: Deep Analysis of Multiscale Satellite-Based Cloud and Precipitation Properties, July 10, 2017, Research Center for Environmental Changes, Academia Sinica, Taipei, Taiwan.
8. Bowers, M.\*, and **W.-w. Tung**, 2016: Quantifying Uncertainty in Time Averages of Climate Signals with both Short- and Long-Range Dependence, Special Session on Modeling and Predicting the Atmosphere, Oceans, and Climate, AMS Fall Central Sectional Meeting, October 28-30, Minneapolis, MN
9. **Tung, W.-w.**, 2015: Basic feature extraction of tropical atmospheric intraseasonal oscillation, 4 December, 2015, Mathematics, Purdue University, West Lafayette, IN.
10. **Tung, W.-w.**, and M. C. Bowers, 2015: The emerging states of MJO convection initiation, 14 October, 2014, Workshop on Stochasticity and Organization of Tropical Convection, April 26–May 1, 2015, Banff International Research Station, Banff, Canada.
11. **Tung, W.-w.**, 2014: Equatorially Asymmetric Deep Convection Signals of the Madden-Julian Oscillation, 14 October, 2014, Atmospheric Sciences, Texas A&M University, College Station, TX.
12. **Tung, W.-w.**, 2014: Significance of Asymmetry in MJO Deep Convection Signals, 5 August, 2014, Frontier Research Center for Global Change, Next Generation Climate Modeling Group, JAMSTEC, Yokohama, Japan.
13. **Tung, W.-w.**, 2014: MJO Kinetic Energy Associated with Equatorially Asymmetric Deep Convective Heating, 17 July, 2014, Central Weather Bureau, Taiwan.
14. **Tung, W.-w.**, 2014: On the asymmetry of the Madden-Julian Oscillation, 24 July, 2014, National Taiwan University, Taiwan.
15. **Tung, W.-w.**, 2014: Symmetric and Antisymmetric Signals in MJO Deep Convection, The 10th AIMS Conference on Dynamical Systems, Differential Equations and Applications, 7–11 July, 2014, Madrid, Spain.
16. **Tung, W.-w.**, 2014: Symmetric and Antisymmetric Signals in MJO Deep Convection, 29 January, 2014, Department of Atmospheric and Oceanic Sciences, University of California, Los Angeles, CA.
17. **Tung, W.-w.**, 2013: On the asymmetry of the Madden-Julian Oscillation, 24 July, 2013, Central Weather Bureau, Taiwan.
18. **Tung, W.-w.**, 2013: Intrinsic Predictability of the Madden-Julian Oscillation, 10 January, 2013. Madden-Julian Oscillation Symposium, American Meteorological Society 93rd Annual Meeting, Austin, TX.
19. **Tung, W.-w.**, 2012: Intrinsic Predictability of the Madden-Julian Oscillation, 22 August, 2012, Applied Mathematical Laboratory, Courant Institute of Mathematical Sciences, New York University, NY.



20. **Tung, W.-w.**, 2012: On the Limit of Predicting the Madden-Julian Oscillation, 26 July, 2012, The Second Emerging Information and Technology Association Young Investigator Conference, Leadership, Innovation, Growth, Palo Alto, CA.
21. **Tung, W.-w.**, 2012: On the long-range dependence of tropical rainfall, 20-22 March, 2012, Workshop on Tropical/Extra-tropical Interactions in Climate, Center for Prototype Climate Modeling, New York University Abu Dhabi, Abu Dhabi, UAE.
22. **Tung, W.-w.**, 2012: The Limit of Predictability of the Madden-Julian Oscillation: An Observational Study, Geophysical Fluid Dynamics Institute Colloquia, 6 February, 2012, Florida State University, Tallahassee, FL.
23. **Tung, W.-w.**, 2011: Detecting chaos and estimating predictability in heavy noise environments, May 20, 2011. The Institute of Earth Environment Chinese Academy of Sciences (IEECAS), Xian, China.
24. **Tung, W.-w.**, 2011: Cumulus-environment interaction: Convective Momentum Transport, 27 January, 2011. Michio Yanai Symposium, American Meteorological Society 91st Annual Meeting, Seattle, WA.
25. **Tung, W.-w.**, 2009: Multiscale Tropical Convection-Coupled Systems, October 13, 2009. Research Center for Environmental Changes, Academia Sinica, Taipei, Taiwan.
26. **Tung, W.-w.**, 2009: On the Multiscale Analysis of the Madden Julian Oscillation, October 15, 2009. Department of Atmospheric Sciences, National Central University, Taoyuan, Taiwan.
27. **Tung, W.-w.**, 2009: Many Facets of the Multiscale Tropical Convection-Coupled Systems, September 29, 2009. Earth System Sciences, UC Irvine, Irvine, CA.
28. **Tung, W.-w.**, 2009: Madden-Julian Oscillation as the Stochastically-Driven Chaotic Oscillator, August 7, 2009. Jet Propulsion Laboratory/NASA, Pasadena, CA.
29. **Tung, W.-w.**, 2008: Quantifying the Predictability of Multiscale Convection-Coupled Tropical Systems. October 28, 2008. Frontier Research Center for Global Change, Next Generation Climate Modeling Group, JAMSTEC, Yokohama, Japan
30. **Tung, W.-w.**, 2008: Quantifying Dynamical Predictability: The Pseudo-Ensemble Approach. May 19, 2008. Shanghai Typhoon Research Institute, Shanghai, China.
31. **Tung, W.-w.**, 2007: Quantifying Dynamical Predictability: The Pseudo-Ensemble Approach. October 04, 2007. Special Seminar at the Department of the Geophysical Sciences, University of Chicago, Chicago, IL.
32. **Tung, W.-w.**, 2006: Multiscale Analysis of Tropical Convective Variability. November 27, 2006. National Central Weather Bureau, Taipei, Taiwan.
33. **Tung, W.-w.**, 2006: Multiscale Tropical Convective Systems – from Analytical to Systematic Perspectives. November 21, 2006, Department of Earth and Atmospheric Sciences, National Taiwan University, Taipei, Taiwan.
34. **Tung, W.-w.**, 2005: Diurnal to Multi-day Convective Activities in the Bay of Bengal During the Indian Summer Monsoon. July 7, 2005, MMM/NCAR, Boulder, CO.
35. **Tung, W.-w.**, 2004: Observations of multiscale convective systems. The Cumulus Parameterization Problem in the Context of Turbulence Studies, NCAR Geophysical Turbulence Program Workshop, 23-25 February 2004, Boulder, CO.

#### **D. Conference Papers**

1. Zhang, C.\*, **W.-w. Tung**, and W. S. Cleveland, 2021, Big Data Analysis of Surface Precipitation Associated with Atmospheric River Indices over the North American West Coast and the Midwest, 34th AMS Conference on Hurricanes and Tropical Meteorology, May 9-14, 2021.
2. Zhang, C. \*, **W.-w. Tung**, and W. S. Cleveland, 2020, In Search of The Optimal Atmospheric River Index for Precipitation: Big Data Analysis of Index Ensembles over the North American West Coast and US Midwest, AGU Fall Meeting, 1-17 December 2020.
3. Tung, W.-w., C. Zhang\*, and W. S. Cleveland, 2019, Divide and Recombine Analysis of Atmospheric Rivers, 3rd Atmospheric River Tracking Method Intercomparison Project Workshop, Oct. 16-18, Lawrence Berkeley National Laboratory, Berkeley, CA.
4. Zhang, C. \*, **W.-w. Tung**, and W. S. Cleveland, 2019, Creation of AR indices customized for studying surface hydrometeorological impacts, 3rd Atmospheric River Tracking Method Intercomparison Project Workshop, Oct. 16-18, Lawrence Berkeley National Laboratory, Berkeley, CA.
5. Zhang, C.\*, and **W. -w. Tung**, 2018, Unified West-Coast and Gulf-Coast AR Indices to Study the Hydrological and Cloud-Radiative Effects of the Atmospheric Rivers over the Contiguous US, 33rd Conference on Hurricanes and Tropical Meteorology. April 16–20, 2018, Ponte Vedra, FL.
6. **Tung, W.-w.**, M. C. Bowers\*, Q. Liu, and W. S. Cleveland, 2018, Recent Changes in the Temporal Clustering Patterns of Tropical Rainfall—Example of a Divide and Recombine (D&R) Big-data Project, 33rd Conference on Hurricanes and Tropical Meteorology. April 16–20, 2018, Ponte Vedra, FL.
7. Wu, W. \*, **W. -w. Tung**, R. G. Fovell, and B. Chen, 2017, A Tango of Aerosols and Atmospheric Deep Convection in Northern Pacific (2015), A-Train Symposium, Apr. 19-21, 2017, Pasadena, California.
8. Bowers, M. C.\* , W. Wu\*, **W. -w. Tung**, and W. S. Cleveland, 2017, A Deep Analysis Framework for A-Train Data, A-Train Symposium, Apr. 19-21, 2017, Pasadena, California.
9. Bowers, M. C. \*, and **W. -w. Tung**, 2017, Variability and Confidence Intervals for the Mean of Climate Data with Short- and Long-Range Dependence, American Meteorological Society’s 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, July 28–29, 2017, Baltimore, MD.
10. Liu, Qi, M. C. Bowers\*, **W. -w. Tung**, Vinayak Rao, and William S. Cleveland, 2017, Divide & Recombine (D&R) with DeltaRho: Visualization and Modeling of TRMM Big Data, Big Data and the Earth Sciences: Grand Challenges Workshop, May 31–June 2, 2017, University of California, San Diego, CA.
11. **Tung, W.-w.**, H. E. Parker, C. A. Calahan, H. Holgate, J. Harbor, 2017, Assessing Global Learning in an Online, Off-campus Learning Environment, Symposium on Integrating Global Learning with the University Experience: Higher-Impact Study Abroad and Off-Campus Domestic Study, June 11–12, 2017, Elon University, NC.
12. Bowers, M. C.\* , Q. Liu, W. Wu, W. S. Cleveland, and **W. -w. Tung**, 2017, Deep Analysis of Large Complex Satellite-Based Cloud and Precipitation Properties, Big Data and the Earth Sciences: Grand Challenges Workshop, May 31–June 2, 2017, University of California, San Diego, CA.
13. Luo, Q.\* , and **W. -w. Tung**, 2016: The Cloud-Radiative Forcing of the Atmospheric Rivers on the US continents: An observational climatology study, International Atmospheric Rivers Conference, San Diego, CA
14. Luo, Q.\* , and **W. -w. Tung**, 2015: The Cloud-Radiative Forcing of North American landfalling Atmospheric Rivers, AGU Fall meeting 2015, San Francisco, CA.

15. **Tung, W.-w.**, M. C. Bowers\*, and B. Chen, 2015: MJO Energetics Associated with Equatorially Asymmetric Convective Heating, Third Symposium on Prediction of the Madden-Julian Oscillation: Processes, Prediction and Impact, American Meteorological Society Annual Meeting, January 04-08, Phoenix, AZ.
16. Bowers, M. C.\* and **W. -w. Tung**, 2014: Local Signs of MJO Convection Initiation, American Geophysical Union Fall Meeting, December 15-19, San Francisco, CA.
17. **Tung, W.-w.**, D. Giannakis, and A. J. Majda, 2014: Asymmetry in MJO Convection Signals. Asia Oceania Geosciences Society Annual Meeting 2014. July 28–August 01, 2014, Sapporo, Japan.
18. **Tung, W.-w.**, D. Giannakis, and A. J. Majda, 2014: Symmetric and antisymmetric signals in MJO deep convection. 31st Conference on Hurricanes and Tropical Meteorology. March 30–April 4, 2014, San Diego, CA.
19. Luo, Q.\* , and **W.-w. Tung**, 2014: Moisture and heat budgets within atmospheric rivers in January 2009. 31st Conference on Hurricanes and Tropical Meteorology. March 30–April 4, 2014, San Diego, CA.
20. Bowers, M. C.\* , and **W.-w. Tung**, 2014: Phase-dependent perturbation kinetic energy of the Madden-Julian oscillation. March 30–April 4, 2014, San Diego, CA.
21. Wu, W.\* , and **W.-w. Tung**, 2013: Cloud-radiative and microphysical impacts from precipitating hydrometeors in monsoon depression simulation, 14th WRF Users' Workshop, June 24 - 28, 2013
22. Bowers, M. C.\* , **W. W. Tung**, and J. B. Gao, 2013: Complexities in power-law modeling of river discharge time series, 27th Conference on Hydrology, American Meteorological Society 93rd Annual Meeting, Austin, TX.
23. **Tung, W.-w.**, and J. B. Gao, 2012: Observational analysis of the multiscale dynamics in the Madden-Julian oscillation, 30th Conference on Hurricanes and Tropical Meteorology, 15-20 April 2012, Ponte Vedra Beach, Florida.
24. **Tung, W.-w.**, J. B. Gao, R. G. Fovell, and D. K. Arthur, 2011: Hierarchical prediction of landfalling tropical cyclone tracks, American Meteorological Society 14th Conference on Mesoscale Processes, 15 August 2011, Los Angeles, California.
25. Wang, Y.-C.\* , **W.-w. Tung**, and J. B. Gao, 2011: On the multiscale dynamics of tropical rainfall, American Meteorological Society 14th Conference on Mesoscale Processes, 15 August 2011, Los Angeles, California.
26. Wu, W.\* , and **W.-w. Tung**, 2011: Impacts of cloud condensation and ice nuclei in the simulation of tropical cyclones, American Meteorological Society 14th Conference on Mesoscale Processes, 15 August 2011, Los Angeles, California.
27. **Tung, W.-w.**, and Y.-C. Wang\*, 2010: On the cloud-system resolving simulation of the South Asian monsoon depressions: Impact of microphysics, 2010 Western Pacific Geophysics Meeting, 22-25 June 2010, Taipei, Taiwan.
28. **Tung, W.-w.**, and Y.-C. Wang\*, 2010: Sensitivity of the South Asian summer monsoon circulation to the cloud-radiative forcing, 2010 Western Pacific Geophysics Meeting, 22-25 June 2010, Taipei, Taiwan.
29. **Tung, W.-w.**, and J. B. Gao, 2010: Madden-Julian oscillation as a stochastically-driven chaotic oscillator, 29th Conference on Hurricanes and Tropical Meteorology, 10-14 May 2010, Tucson, Arizona.
30. Wang, Y.-C.\* , J.-L. F. Li, **W.-w. Tung**, and D. Waliser, 2010: Impact of cloud-radiative forcing on the simulation of south Asian summer monsoon, 2010: 29th Conference on Hurricanes and Tropical Meteorology, 10-14 May 2010, Tucson, Arizona.

31. **Tung, W.-w.**, and J. B. Gao, 2010: Adaptive detrending, denoising, and decomposition of complex signals. 35th Annual Dayton-Cincinnati Aerospace Sciences Symposium, 9 March 2010, Dayton, Ohio.
32. **Tung, W.-w.**, Y.-C. Wang\*, and J.-B. Gao, 2009: Quantifying predictability in nonlinear multiscale systems with applications to tropical cyclone prediction, 2009 NSF CMMI Engineering Research and Innovation Conference, June 22-25 2009, Honolulu, HI.
33. Gao, J. B., **W.-w. Tung**, J. Hu\*, 2009: Detrending, denoising, and prediction of geophysical processes. 2009 NSF CMMI Engineering Research and Innovation Conference, June 22-25 2009, Honolulu, HI.
34. **Tung, W.-w.**, J. B. Gao, and J. Hu\*, Y.-C. Wang\*, and B. Hegyi\*, 2009: Inferring Significance of Trend and Adaptive Detrending of Complex Climate Time Series, American Meteorological Society 89th Annual Meeting, 10–16 January 2009, Phoenix, Arizona.
35. Wang, Y.-C.\*, and **W.-w. Tung**, 2009: On the Predictability of Summer Monsoon Depressions over South Asia, American Meteorological Society 89th Annual Meeting, 10–16 January 2009, Phoenix, Arizona.
36. Li, J.-L., D. E. Waliser, C. P. Woods, H. H. Hsu, C. H. Wu, J. Y. Yu, **W.-w. Tung**, Y. C. Wang\*, A. M. Tompkins, and M. Koehler, 2009: Comparisons of Cloud Water Content between CloudSat Estimates and ECMWF Analyses over Asian Monsoon Region and Tibet, American Meteorological Society 89th Annual Meeting, 10–16 January 2009, Phoenix, Arizona.
37. **Tung, W.-w.**, Y.-C. Wang\*, and J. B. Gao, 2008: Quantifying dynamical predictability: The Pseudo-ensemble technique, WMO 4th International Workshop on Monsoons, 20-25 October 2008, Beijing, China.
38. Wang, Y.-C.\*, and **W.-w. Tung**, 2008: On the dynamical predictability of the Indian summer monsoon depressions, WMO 4th International Workshop on Monsoons, 20-25 October 2008, Beijing, China.
39. **Tung, W.-w.**, J. Hu\*, J. B. Gao, R. S. Lynch, and G. Chen, 2008: On modeling sea clutter by noisy chaotic dynamics, XVII Conference on Signal Processing, Sensor Fusion, and Target Recognition at the SPIE Defense and Security Symposium ,16-20 March 2008, Orlando, Florida.
40. Hu, J.\*, **W.-w. Tung**, J. B. Gao, R. S. Lynch, and G. Chen, 2008: On modeling sea clutter by diffusive models, XVII Conference on Signal Processing, Sensor Fusion, and Target Recognition at the SPIE Defense and Security Symposium ,16-20 March 2008, Orlando, Florida.
41. **Tung, W.-w.**, J. B. Gao, J. Hu\*, and M. W. Moncrieff, 2007: Quantifying dynamical predictability by time-dependent exponent curves: the technique of pseudo-ensembles, American Meteorological Society 87th Annual Meeting, 14–18 January 2007, San Antonio, Texas.
42. **Tung, W.-w.**, 2006: Multiscale analysis for tropical convection, Tropical Convection and The Weather Climate Interface Retreat, 10–14 July 2006, NCAR, Boulder, Colorado.
43. **Tung, W.-w.**, H.-M. Hsu, and M. W. Moncrieff, 2006: Convective systems in the Bay of Bengal during the Indian Summer Monsoon, 24–28 April 2006, Monterey, CA.
44. Hsu, H., M. Moncrieff, **W. Tung**, J. Tuttle, K. Manning, W. Wang, M. Dixon, C. Liu, and P. Sullivan, 2005: Warm-season precipitation spectra over north America: A comparison between radar observations and WRF forecasts, Joint WRF/MM5 User's Workshop, 27–30 June 2005, Boulder, CO.
45. **Tung, W.-w.**, H.-m. Hsu, and M. W. Moncrieff, 2005: Diurnal to multi-day convective organizations in the Bay of Bengal during the Indian summer monsoon, American Meteorological Society 85th Annual Meeting, 9–13 January 2005, San Diego, California.

46. Qi, Y.\*, J. B. Gao, Y. Cao, and **W.-w. Tung**, 2004: Deriving a novel codon index by combining period-3 and fractal features of DNA sequences, The Computational Systems Bioinformatics Conference (CSB2004), Stanford, CA, August 16–19, 2004.
47. Cao, Y.H., **W.-w. Tung**, and J.B. Gao, 2004: Recurrence time statistics: Versatile tools for genomic DNA sequence analysis, The Computational Systems Bioinformatics Conference (CSB2004), Stanford, CA, August 16–19, 2004.
48. **Tung, W.-w.**, M. W. Moncrieff, and J. B. Gao, 2004: A Systemic analysis of multiscale convective variability in the Tropics. *Preprint, 26th Conference on Hurricanes and Tropical Meteorology*, 3-7 May 2004, Miami, Florida, Amer. Meteor. Soc., 393–394.
49. **Tung, W.-w.**, and G. N. Kiladis, 2004: Climatological spatial and temporal features of the Madden-Julian oscillation. *Preprint, 26th Conference on Hurricanes and Tropical Meteorology*, 3-7 May 2004, Miami, Florida, Amer. Meteor. Soc., 226–227.
50. Gao, J. B., Y. H. Cao, and **W.-w. Tung**, 2004: Multifractal and recurrence time based methods for DNA sequence analysis, Conference on Data Mining in Biomedicine, February 16-18, 2004, University of Florida, Gainesville, FL.
51. **Tung, W.-w.**, M. W. Moncrieff, and J. B. Gao, 2003: A systemic view of the multiscale tropical deep convective variability over the tropical western-Pacific warm pool, EGS-AGU-EUG Joint Assembly, 0611 April 2003, Nice, France.
52. Gao, J. B., and **W.-w. Tung**, 2002: The nature of essential and Parkinsonian tremors. *Proceedings, The Seventh Experimental Chaos Conference*, 25-29 August 2002, San Diego, California, Amer. Inst. Phy., 369.
53. **Tung, W.-w.**, and J. B. Gao, 2002: Multifractality of the satellite-derived deep convective index in the tropics. *Proceedings, The Seventh Experimental Chaos Conference*, 25-29 August 2002, San Diego, California, Amer. Inst. Phy., 376.
54. **Tung, W.-w.**, and M. Yanai, 2002: Convective momentum transport observed during the TOGA COARE IOP: Implications for parameterization. *Preprint, 25th Conference on Hurricanes and Tropical Meteorology*, 29 April-3 May 2002, San Diego, California, Amer. Meteor. Soc., 196–197.
55. **Tung, W.-w.**, and M. Yanai, 2001: Convective momentum transport observed during the TOGA COARE IOP. Cumulus Parameterization Workshop, 3-5 December 2001, NASA GSFC, Greenbelt, Maryland.
56. **Tung, W.-w.**, and M. Yanai, 2001: Convective momentum transport observed during the TOGA COARE IOP. Part II: Case Studies. 8th Scientific Assembly of International Association of Meteorology and Atmospheric Sciences, 10-18 July 2001, Innsbruck, Austria.
57. Yanai, M., and **W.-w. Tung**, 2001: Convective momentum transport observed during the TOGA COARE IOP. Part I: Background, momentum budget residual, and interpretation. 8th Scientific Assembly of International Association of Meteorology and Atmospheric Sciences, 10-18 July 2001, Innsbruck, Austria.
58. **Tung, W.-w.**, and M. Yanai, 2000: Convective heating and momentum transport associated with tropical disturbances. *Preprints, 24th Conference on Hurricanes and Tropical Meteorology*, 29 May-2 June 2000, Fort Lauderdale, Florida, Amer. Meteor. Soc., 518–519.
59. **Tung, W.-w.**, 1999: On the coupling of tropical motion systems with convection, The Yanai-Murakami Monsoon Symposium, 6-7 December 1999, Honolulu, Hawaii.
60. Yanai, M. and **W.-w. Tung**, 1999: Momentum budget over the TOGA COARE IFA and its interpretation. Convective Momentum Transport (CMT) Workshop, 7-8 October 1999, GFDL, Princeton, NJ.

61. **Tung, W.-w.**, and M. Yanai, 1999: The coupling between convection and large-scale motion associated with MJO Observed during TOGA-COARE IOP. Preprints, 23rd Conference on Hurricanes and Tropical Meteorology, 10-15 January 1999, Dallas, Texas, Amer. Meteor. Soc., 715-722.
62. **Tung, W.-w.**, 1998: The Madden-Julian Oscillation (MJO) observed during the TOGA-COARE Intensive Observing Period. Part II: Convection associated with the MJO. *Proceedings of the TOGA-COARE International Conference - COARE98*, Boulder, Colorado, 7-14 July 1998. WCRP, Geneva, Switzerland, 169–170.
63. Yanai, M., B. Chen, and **W.-w. Tung**, Madden-Julian Oscillation (MJO) during the TOGA-COARE IOP. American Geophysical Union 1997 Fall Meeting, 8-12 December 1997, San Francisco, CA.

## PHD & MS THESIS ADVISEES

### Chen Zhang

- Trends and variability of atmospheric rivers influencing the Arctic region Ph.D. Candidate

### W. Logan Downing

- Using probe data analytics for characterizing speed reductions as well as predicting speeds during rain events M.S. 2020

### Xinyue Wang

- Dynamical and chemical coupling of the summer monsoons and the upper troposphere-lower stratosphere (co-advised with Yutian Wu) Ph.D. 2020

### Bithi De

- The role of stratospheric pathway in linking Arctic sea ice loss to the mid-latitude circulation (co-advised with Yutian Wu) Ph.D. 2019

### Matthew C. Bowers

- Variability of Persistent Temporal Correlation in Climate Data Ph.D. 2017
- The distributions of seasonal river flows: Lognormal or power-law? M.S. 2012

### Wanchen Wu

- Cloud-radiative and microphysical impacts from precipitating hydrometeors in South Asian summer monsoon Ph.D. 2017
- Modeling study of aerosol effects on a tropical cyclone with bulk microphysics M.S. 2013

### Qianwen Luo

- The cloud-radiative forcing of the U.S. landfalling atmospheric rivers Ph.D. 2016
- The heat and moisture budget residuals of atmospheric rivers: A multiscale case study M.S. 2013

### Yi-Chi Wang

- Observations and simulations of multiscale convective systems in the south Asian summer monsoon Ph.D. 2011

## MS TECHNICAL REPORT ADVISEES

### Avnika Manaktala

- Analysis and prediction of Californian county precipitation using atmospheric river indices, soil moisture, and snow water equivalent Purdue e-Pubs Geodata Science Technical Report #4 M.S. 2020

### Hannah Walcek

- A framework for analyzing ground effects of atmospheric rivers Purdue e-Pubs Geodata Science Technical Report #2 M.S. 2020