

Curriculum Vita

Aaron Wang

Ph.D. candidate

Department of Meteorology and Atmospheric Science

Pennsylvania State University

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EDUCATION

National Taiwan University, Taipei, Taiwan

- B.S., Atmospheric Sciences (2010–2014)
- B.S.E, Mechanical Engineering (Double Major) (2010–2014)
- M.S., Atmospheric Sciences (2014–2016)

Pennsylvania State University, University Park, PA, USA

- Ph.D. student, Meteorology and Atmospheric Science (2018–present)

PUBLICATIONS

1. **Wang, A.**, Y. Pan, G. H. Bryan, and P. M. Markowski (in preparation): Large-Eddy Simulations of a Tornado Using Two-Layer Models for the Near-Surface Turbulence.
2. **Wang, A.**, Y. Pan, and P. M. Markowski (2021): The Influence of WENO Schemes on Large-Eddy Simulations of a Neutral Atmospheric Boundary Layer. *J. Atmos. Sci.*, **78**, 3613-3628, doi: [10.1175/JAS-D-21-0033.1](https://doi.org/10.1175/JAS-D-21-0033.1).
3. **Wang, A.**, Y. Pan, and P. M. Markowski (2020): The influence of turbulence memory on idealized tornado simulations. *Mon. Wea. Rev.*, **148**, 4875-4892, doi: [10.1175/MWR-D-20-0031.1](https://doi.org/10.1175/MWR-D-20-0031.1).

CONFERENCE PRESENTATIONS

1. **Wang, Aaron**, Ying Pan, and Paul Markowski (2021): On reproducing the energy cascade when LES grids are too coarse to resolve energy-containing motions, oral presentation at the AGU Fall Meeting, December 17, New Orleans, LA.
2. **Wang, Aaron**, Ying Pan, and Paul Markowski (2020): The influence of turbulence memory associated with curved trajectories: A pseudo-second-order closure for near-surface turbulence and an application to idealized tornadoes, oral presentation at the AGU Fall Meeting, December 11, Zoom.
3. **Wang, Aaron**, Ying Pan, and Paul Markowski (2020): The influence of turbulence memory on idealized tornado simulation, poster presentation at the 100th AMS Annual Meeting, January 14, Boston, MA.
4. **Wang, Aaron**, Ying Pan, and Paul Markowski (2019): Large-eddy simulations of a neutral boundary layer: Sensitivity to grid spacing and implications for modeling the lower boundary

condition, poster presentation at the 18th Annual AMS Student Conference and Career Fair/the 99th AMS Annual Meeting, January 6, Phoenix, AZ.

5. **Wang, Aaron**, Hung-Chi Kuo, and Chien-Ming Wu (2016): 3D Structure of Vortex Tubes in Atmospheric Kármán Vortex Street, poster presentation at 2016 APEC Typhoon Symposium, Taipei, Taiwan.
6. **Wang, Aaron**, and Hung-Chi Kuo (2015): Simulation of Von Karman Vortex around Jeju Island, poster presentation at the 22nd National Computational Fluid Dynamics Conference, New Taipei, Taiwan.

SEMINAR TALKS

1. **Wang, Aaron** (2021): Toward Improving Near-Surface Wind Fields in Large-Eddy Simulations of Tornadoes, invited talk at Department of Atmospheric Sciences, November 11, National Taiwan University, Taipei, Taiwan.
2. **Wang, Aaron** (2021): Non-Equilibrium Wall Models for Large-Eddy Simulations of Tornadoes, oral presentation at the Fluid Dynamics Research Consortium, August 26, Penn State University, University Park, PA.
3. **Wang, Aaron** (2021): A More Realistic Surface Layer for Large-Eddy Simulations of Tornadoes, Frank Talk at Department of Meteorology and Atmospheric Science, March 25, Penn State University, University Park, PA.

RESEARCH EXPERIENCE

Graduate Research Assistant 2018–present
Department of Meteorology and Atmospheric Science,
Pennsylvania State University, University Park, PA, USA
– Study turbulence in large-eddy simulations and its influence on tornadoes

NCAR Visitor Summer 2019
(Host: Dr. George Bryan)
Mesoscale and Microscale Meteorology Laboratory,
National Center for Atmospheric Research, Boulder, CO, USA
– Implement a new wall model (Two-Layer Model) into Cloud Model 1

Graduate Research Assistant 2014–2016
Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Study the vortex structures of flows around topography

International Undergraduate Student Summer Program Summer 2013
(funded by NTU)
University of California Center for Hydrologic Modeling,
University of California, Irvine, CA, USA
– Study Monsoon Mechanism by GRACE, GLDAS and ERA Interim

Undergraduate Independent Study Spring 2012

Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Topic: When Dust meets Cloud – the Feasibility of Non-solute as Nucleus

TEACHING EXPERIENCE

- Teaching Assistant - Seminar on Weather Diagnosis** Spring 2016
Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Hardware setup, arranging and giving presentation.
- Teaching Assistant - Advanced Synoptic Meteorology** Fall 2015
Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Hardware setup, collecting homework.
- Teaching Assistant - Introduction to Physical Oceanography** Spring 2015
Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Grading homework.
- Teaching Assistant - Atmospheric Dynamics** Fall 2014
Department of Atmospheric Sciences,
National Taiwan University, Taipei, Taiwan
– Grading homework, exams and final project, office hour and designing exams.

ADDITIONAL TRAINING AND CAREER DEVELOPMENT

- Software Engineer** January 2022
Coderrect Inc., College Station, TX
(part-time, remote) –current
- Lecture Series on CFD for Atmospheric Flows and Wind Engineering** May 2020
von Karman Institute for Fluid Dynamics, Sint-Genesius-Rode, Belgium
(Joined on Zoom)
- Weather Research and Forecasting Model (WRF) Basic Tutorial** July 2019
National Center for Atmospheric Research, Boulder, CO
- XSEDE HPC Monthly Workshop - Summer Boot Camp** June 2019
Penn State University, University Park, PA

HONOR AND AWARDS

- 2016 APTS Student Poster Competition Award **Third Place**, 2016
- Dean's Award of College of Science (**Top 10%** of the department in 4 years), 2014
- Presidential Award (**Top 5%** in the semester), Spring, 2012; Fall, 2012; Spring, 2013