

HING ONG

Curriculum Vitae
<https://hingong.github.io/>

Updated on Nov 4, 2024
He/him

EDUCATION

PhD	University at Albany, State University of NY, Atmospheric Sciences Dissertation: “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics”	2020
MS	National Taiwan University, Atmospheric Sciences Thesis: “Effects of artificial local compensation of convective mass flux in the cumulus parameterization”	2016
BS	National Taiwan University, Atmospheric Sciences	2014

PUBLICATIONS

Peer-Reviewed Publications in Atmospheric Sciences

- 2024 **Ong, H.**, & Yang, D, Vapor kinetic energy for the detection and understanding of atmospheric rivers. *Nat. Commun.*, 15, 9428.
- 2022 **Ong, H.**, & Yang, D., The compressional beta effect and convective system propagation. *J. Atmos. Sci.*, 79(8), 2031–2040.
- 2021 Skamarock, W. C., **Ong, H.**, & Klemp, J. B., A fully compressible nonhydrostatic deep-atmosphere equations solver for MPAS. *Mon. Weather Rev.*, 149(2), 571–583.
- 2020 **Ong, H.**, Comments on “On the structure and formation of UTLS PV dipole/jetlets in tropical cyclones by convective momentum surges”. *Mon. Weather Rev.*, 148(11), 4693–4695.
- 2020 **Ong, H.**, & Roundy, P. E., The compressional beta effect: Analytical solution, numerical benchmark, and data analysis. *J. Atmos. Sci.*, 77(11), 3721–3732.
- 2020 **Ong, H.**, & Roundy, P. E., Nontraditional hypsometric equation. *Q. J. R. Meteorol. Soc.*, 146(727), 700–706.
- 2019 **Ong, H.**, & Roundy, P. E., Linear effects of nontraditional Coriolis terms on intertropical convergence zone forced large-scale flow. *Q. J. R. Meteorol. Soc.*, 145(723), 2445–2453.
- 2017 **Ong, H.**, Wu, C. M., & Kuo, H. C., Effects of artificial local compensation of convective mass flux in the cumulus parameterization. *J. Adv. Model. Earth Syst.*, 9(4), 1811–1827.

In-Progress Publications in Atmospheric Sciences

- 2024 **Ong, H.**, & Yang, D., Rossby wave propagation direction and a unified explanation with a right-hand rule. Draft.
- 2024 **Ong, H.**, Kotamarthi V. R., Jung C., Wang J. & Sever G., The evaluation of surface energy fluxes in a convection-permitting regional climate simulation in North America. *AGU Annual Meeting*. Poster.
- 2024 Jung C., **Ong, H.**, Sever G., Wang J. & Kotamarthi V. R., Convection-permitting regional climate simulations: Past and future projections for the Contiguous United States, Alaska, and Puerto Rico. *AGU Annual Meeting*. Poster.
- 2024 Zhang A., Yang D., & **Ong, H.**, How will atmospheric rivers evolve in a changing climate? *AGU Annual Meeting*. Poster.

Peer-Reviewed Publication in Linguistics

- 2024 **Ong, H.**, Functional aspiration in Taiwanese. *Taiwan Journal of Linguistics* (Accepted).

HONORS AND AWARDS

- 2020 **Climate and Global Change Postdoctoral Fellowship**, NOAA (declined)
- 2019 **Government Scholarship to Study Abroad**, Ministry of Education, Taiwan
- 2019 **Poster Presentation Award**, Annual Meeting, AMS
- 2014 **Dean's Award**, College of Science, National Taiwan University

INVITED LECTURES (SELECTED)

- 2024 “Pressure Perturbation in Mesoscale Meteorology,” Department of Geography and Meteorology, Valparaiso University, Valparaiso, IN, Mar 25.
- 2022 “Káng 風 soat 雨 òe 大氣” (Talk about wind, rain, and atmosphere), Sè-kài Tâi-oân Bûn-hòa Lûn-tôaⁿ (World Taiwanese Culture Forum), Online, Nov 12. Delivered in Taiwanese Taigi.
- 2021 “Atmospheric rivers: Integrated vapor kinetic energy and preliminary budget analyses,” Department of Atmospheric Sciences, National Taiwan University, Taipei, Taiwan, Dec 16. Delivered in Taiwanese Taigi.
- 2021 “The nontraditional Coriolis terms and convective system propagation,” Geophysical Fluid Dynamics Laboratory, Princeton, NJ, Sep 23.

- 2021 “Radiative-convective equilibrium with the nontraditional Coriolis terms,” Department of Atmospheric Science, Colorado State University, Fort Collins, CO, Feb 17.
- 2020 “Is vorticity tilting the primary source of potential vorticity in the eye of a hurricane?” Department of Atmospheric Sciences, National Taiwan University, Taipei, Taiwan, Dec 22.
- 2020 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Department of Land, Air and Water Resources, University of California, Davis, CA, Feb 24.
- 2020 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Research Center for Environmental Changes, Academia Sinica, Taipei, Taiwan, Jan 10.
- 2020 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Department of Atmospheric Sciences, National Taiwan University, Taipei, Taiwan, Jan 9.
- 2019 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Department of Earth, Atmospheric and Planetary Sciences, Massachusetts Institute of Technology, Cambridge, MA, Oct 30.
- 2019 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Mesoscale and Microscale Meteorology Laboratory, National Center for Atmospheric Research, Boulder, CO, Jul 25.
- 2019 “The significance of the nontraditional Coriolis terms in tropical large-scale dynamics,” Central Weather Bureau, Taipei, Taiwan, Jun 20.
- 2018 “Ertel potential vorticity charging and scaling for the nontraditional Coriolis term,” Department of Atmospheric Sciences, National Taiwan University, Taipei, Taiwan, Jun 26.

RESEARCH EXPERIENCE

- Postdoctoral Appointee**, Argonne National Laboratory 2023 to current
 Supervisor: Rao Kotamarthi
 Performed climate dynamical downscaling with WRF model
 Evaluated the model against in-situ and satellite observations
- Postdoctoral Scholar**, University of California, Davis 2020 to 2023
 Supervisor: Da Yang
 Adapted the dynamics of SAM atmospheric model.
 Performed spectral analysis to model simulation data.
 Formulated the prognostic equation of vapor kinetic energy.
 Analyzed MERRA2 and ERA5 reanalysis data.

Developed in-line diagnostics for the CAM atmospheric model.

PhD Researcher, University at Albany, State University of NY 2017 to 2020

Advisor: Paul E. Roundy

Formulated a numerical idealized circulation model.

Analyzed rawinsonde and ERA-Interim reanalysis data.

Derived analytical equatorial wave solutions.

Developed a benchmarking test for model dynamics.

Adapted the dynamics of MPAS atmospheric model.

Research Assistant, National Taiwan University 2016 to 2017

Supervisor: Hung-Chi Kuo

Participated in a scientific planning group in a field experiment.

Composed a progress report.

MS Researcher, National Taiwan University 2014 to 2016

Advisor: Chien-Ming Wu and Hung-Chi Kuo

Formulated a cumulus parameterization scheme.

Adapted the dynamics and physics of WRF atmospheric model.

TEACHING EXPERIENCE

Taigi STEM Educator, Seattle Taiwanese Language Association 2023 to current

Volunteered at the Seattle Taiwanese Taigi Summer Camp

Designed STEM activities in Taiwanese Taigi

Guided K-to-5th grade students in the STEM activities

Taigi STEM Educator, Online 2023 to current

Designed STEM materials in Taiwanese Taigi

Delivered STEM materials to Taiwanese Taigi speakers

Teaching Assistant, University at Albany, State University of NY 2018 to 2020

Applications of Subseasonal to Seasonal Dynamics

Ocean Science

Water and Climate Change

Atmospheric Dynamics

Teaching Assistant, National Taiwan University 2014 to 2016

Lab. of Synoptic Meteorology (*de facto* Lecturer)

Fluid Mechanics

Program and Scientific Computing

PROFESSIONAL SERVICE

Peer-Reviewed Articles for:

Geophysical Research Letters

Monthly Weather Review
Journal of Geophysical Research: Atmospheres
Journal of Atmospheric Sciences

Coordinated Seminar Series for:

2022 Winter Atmospheric Science Seminar, University of California, Davis

LANGUAGES

English: Professionally proficient

Chinese Mandarin: Native (my official name until Dec 2021, Heng Wang)

Taiwanese Taigi: Native (my official name since Dec 2021, Hing Ong)

OUTSTANDING SKILLS

Model Formulation: using partial differential equations.

Model Development: using Fortran, Matlab, or Python

Data Analysis: using Fortran, Matlab, NCL, Python, or Grads

RESEARCH INTERESTS

Geophysical Fluid Dynamics

Earth System Modeling