HING ONG

Curriculum Vitae Updated on May 30, 2025

https://hingong.github.io/

EDUCATION

PhD University at Albany, State University of NY, Atmospheric Sciences 2020
Dissertation: "The significance of the nontraditional Coriolis terms in tropical large-scale dynamics"

MS National Taiwan University, Atmospheric Sciences 2016
Thesis: "Effects of artificial local compensation of convective mass flux in the cumulus parameterization"

BS National Taiwan University, Atmospheric Sciences 2014

PUBLICATIONS

Peer-Reviewed Publications in Atmospheric Sciences

2025 **Ong, H.**, Scale analysis for the Madden–Julian oscillation. *Q. J. R. Meteorol. Soc.* (Accepted).

2025 **Ong, H.**, & Yang, D., Westward- or eastward-propagating Rossby waves: Schematic illustrations. *J. Atmos. Sci.* (Minor Revision).

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-Preparation Works in Atmospheric Sciences

2025 **Ong, H.**, Jung C., Wang J., Kotamarthi V. R., & Sever G., Surface temperature and energy fluxes in a dynamical downscaling simulation. Draft.

2025 **Ong, H.**, Herrington, A, & Yang, D., The double-ITCZ bias and the nontraditional Coriolis terms. Invited presentation at CESM Workshop, Boulder, CO.

Peer-Reviewed Publication in Linguistics

2024 **Ong, H.**, Functional aspiration in Taiwanese. *Taiwan Journal of Linguistics*, *23*(2), 51–81.

HONORS AND AWARDS

2020 **Climate and Global Change Postdoctoral Fellowship**, NOAA (declined)

2019 **Government Scholarship to Study Abroad**, Ministry of Education, Taiwan

RESEARCH EXPERIENCE

Postdoctoral Appointee, Argonne National Laboratory — 2023 to 2025
- Performed climate dynamical downscaling with WRF model
- Evaluated the surface fluxes of the model against observations
- Conducted sensitivity simulations of land models in WRF
- Managed petabytes of data storage

Postdoctoral Scholar, University of California, Davis — 2020 to 2023
- 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.

Student Researcher, University at Albany, State University of NY — 2017 to 2020
- 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
Participated in a scientific planning group in a field experiment.
Composed a progress report.

Student Researcher, National Taiwan University 2014 to 2016
Formulated a cumulus parameterization scheme.
Adapted the dynamics and physics of WRF atmospheric model.

TEACHING EXPERIENCE

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

Coordinated Seminar Series for:
2022 Winter Atmospheric Science Seminar, University of California, Davis

INVITED LECTURES (SELECTED)

2025 "Mitigation of the double-ITCZ bias by inclusion of the nontraditional Coriolis terms," CESM Workshop, Boulder, CO, Jun 9.

2025 "The double-ITCZ bias and the nontraditional Coriolis terms," Climate & Global Dynamics Laboratory, National Center for Atmospheric Research, Boulder, CO, Feb 5.

2024 "Pressure perturbation in mesoscale meteorology," Department of Geography and Meteorology, Valparaiso University, Valparaiso, IN, Mar 25.

2022 “Káng 風 soat 雨 ōe 大氣” (Talk about wind, rain, and atmosphere), Sè-kài Tâi-oân Bûn-hòa Lūn-tôaⁿ (World Taiwanese Culture Forum), Online, Nov 12. Delivered in Taiwanese Taigi.

2021 “The nontraditional Coriolis terms and convective system propagation,” Geophysical Fluid Dynamics Laboratory, Princeton, NJ, Sep 23.

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.

LANGUAGES

English: Professionally proficient

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

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

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