HING ONG

Curriculum Vitae
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Updated on Oct 6, 2024

He/him

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

2024 **Ong, H.**, & Yang, D, Vapor kinetic energy for the detection and understanding of atmospheric rivers. *Nat. Commun.* (Accepted in principle).

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.

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 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 "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