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RESEARCH SUMMARY

I am interested in Atmospheric Physics. My research focuses primarily on precipitating convection, which I study using the combination of Large Eddy Simulations/Cloud Resolving Models and a Lagrangian Particle Dispersion Model to obtain a process level understanding of the fundamental dynamics, and also using observational data from satellites and stable water isotopes in precipitation. I apply these tools to research topics such as downdraft and cold pool dynamics, and also to the study of severe and extreme weather events and how these will respond to climate change.

EDUCATION

- 2012 Ph.D.**, Theoretical Physics, Imperial College London
Thesis: “Counting gauge invariant operators in supersymmetric theories using Hilbert series”
Advisor: Prof. Amihay Hanany
- 2007 M.Sc.**, Theoretical Physics, Università degli Studi di Milano – Bicocca
Thesis: “Partition functions for the chiral ring of supersymmetric gauge theories”
Advisor: Prof. Alberto Zaffaroni
Final grade: 110/110 magna cum laude
- 2005 B.Sc.**, Physics, Università degli Studi di Milano – Bicocca
Final dissertation: “Representations of SU(3) and the quark model”
Advisor: Prof. Alberto Zaffaroni
Final grade: 110/110 magna cum laude

POSITIONS

- 2018-current** Assistant Professor, Dept. Atmospheric Sciences, U. of Hawai‘i at Mānoa
- 2015-2018** Research Associate, Earth & Planetary Sciences, Harvard University
- 2012-2015** Post-Doctoral Fellow, Earth & Planetary Sciences, Harvard University

REFEREED SCHOLARSHIP

Sakaeda, N., G. Torri – The behaviors of intraseasonal cloud organization during DYNAMO/AMIE, *in review*

- Stuecker, M., C. Karamperidou, A.D. Nugent, G. Torri, S. Coats, S. Businger (2021) – Comments on “The financial dilemma of students pursuing an atmospheric science graduate degree in the United States”, *Bull. Amer. Met. Soc.*, **102**, 323-324.
- Torri, G. (2021) – On the isotopic composition of cold pools in radiative-convective equilibrium, *J. Geophys. Res. Atmos.* **126**.
- Tachera, D., N. Lautze, G. Torri, D. Thomas (2021) – Characterization of the isotopic composition and bulk ion deposition of precipitation from Central to West Hawai‘i Island between 2017 and 2019, *J. Hydro: Regional Studies*, **34**, 100786
- Dores, D., E., C. R. Glenn, G. Torri, R. B. Whittier, B. N. Popp (2020) – Stable isotopic composition of precipitation on Oahu, Hawaii, during the 2017-2018 La Niña and implications for groundwater recharge. *Hydrological Processes*. **34:34**: 4676-4696.
- Torri, G., D. K. Adams, H. Wuang, Z. Kuang (2019) – On the diurnal cycle of GPS-derived column water vapor over Sumatra, *Journal of the Atmospheric Sciences*, **76(11)**, <https://doi.org/10.1175/JAS-D-19-0094.1>.
- Torri, G. and Z. Kuang (2019) – On cold pool collisions in tropical boundary layers, *Geophysical Research Letters*, **46**, doi: 10.1029/2018GL080501
- Zuidema, P., G. Torri, C. Muller, A. Chandra (2017) – A survey of precipitation-induced atmospheric cold pools over oceans and their interactions with the larger-scale environment, *Surveys in Geophysics*, **38(6)**, 1283-1305.
- Torri, G., D. Ma, and Z. Kuang (2017) – Stable water isotopes and large-scale vertical motions in the tropics, *J. Geophys. Res. Atmos.*, **122**, 3703-3717.
- Torri, G. and Z. Kuang (2016) – Rain evaporation and moist patches in tropical boundary layers, *Geoph. Res. Let.*, **43(18)**.
- Torri, G. and Z. Kuang (2016) – A Lagrangian study of precipitation-driven downdrafts, *J. Atmos. Sci.*, **73**, 839-854.
- Gentine, P., A. Girelli, S. Park, J. Nie, G. Torri and Z. Kuang (2016) – Role of surface heat fluxes underneath cold pools, *Geoph. Res. Let.*, **43**, 874-883.
- Torri, G., Z. Kuang and Y. Tian (2015) – Mechanisms for convection triggering by cold pools, *Geoph. Res. Let.*, **42(6)**, 1943-1950.

Theoretical Physics (authors in alphabetical order)

- J. Davey, A. Hanany, N. Mekareeya, G. Torri (2011) – M2-branes and Fano 3-folds, *J. Phys. A*, **44**, 40.
- A. Hanany, G. Torri – Brane tilings and supersymmetric gauge theories (2011), *Nucl. Phys. Proc. Suppl.*, **216**, 1, 270-272.
- A. Hanany, E. E. Jenkins, A. V. Manohar, G. Torri (2011) – Hilbert series for flavor invariants of the Standard Model, *J. High En. Phys.*, **2011**, 3, 96.
- J. Davey, A. Hanany, N. Mekareeya, G. Torri (2010) – Brane tilings, M2-branes and Chern-Simons theories, *Acta Phys. Pol. B Proc. Suppl.*, **2**, 3, 639-655.
- I. R. Klebanov, G. Torri (2010) – M2-branes and AdS/CFT, *Int. J. Mod. Phys. A*, **25**, 2-3, 332-350.

- J. Davey, A. Hanany, N. Mekareeya, G. Torri (2009) – Higgsing M2-branes, *J. High En. Phys.*, **2009**, 11, 28.
- J. Davey, A. Hanany, N. Mekareeya, G. Torri (2009) – Phases of M2-branes, *J. High En. Phys.*, **2009**, 6, 25.
- A. Hanany, N. Mekareeya, G. Torri (2008) – The Hilbert series of Adjoint SQCD, *Nucl. Phys. B*, **825**, 1-2, 52-97.

TEACHING EXPERIENCE

2021, F	ATMO 620	Physical Meteorology
2021, S	ATMO 606	Cumulus Dynamics
2020, F	ATMO 620	Physical Meteorology
2020, S	ATMO 765	Seminars in Meteorology
2020, S	ATMO 412	Tropical Analysis and Forecasting
2019, F	ATMO 620	Physical Meteorology
2019, S	ATMO 416	Tropical Analysis and Forecasting (w/ Steven Businger)
2018, F	ATMO 620	Physical Meteorology (w/ Yuqing Wang)

GRANTS AND CONTRACTS

Assessment of Cloud Development and Organization Processes within the Madden Julian Oscillation using ARM Observations and Lagrangian Modeling, DOE, co-I, \$576,876, 10/01/19–09/30/22

A Lagrangian investigation of stable water vapor isotopes in deep convective systems, NSF, PI, \$299,971, 07/01/20—06/30/23

CAREER: Investigating the influences of land use/land cover changes on the diurnal cycle of convection over tropical islands, NSF, PI, \$717,433 *pending*

RII Track-1: Change Hawaii; Harnessing the Data Revolution for Island Resilience, NSF, \$20,000,000, *pending*.

INVITED PRESENTATIONS

2020	Durham University, Durham, UK
2019	Università degli Studi di Milano – Bicocca, Milan, Italy
2018	Woods Hole Oceanographic Institute, Woods Hole, USA
2018	Colorado State University, Fort Collins, USA
2017	Ludwig-Maximilian Universität, Munich, Germany
2016	University of Washington, Seattle, USA
2016	Max-Planck-Institut für Meteorologie, Hamburg, Germany

2014 Massachusetts Institute of Technology, Cambridge, USA

AWARDS & SCHOLARSHIPS

2021 Board of Regents Excellence in Teaching award (nominated)
2021 Innovation2Impact Initiative Award
2021 Second place for the University of Hawai‘i Venture Competition
2021 Winner of the Pacific Asian Center for Entrepreneurship Innovation Challenge
2020 Winner of the University of Hawai‘i Innovation Impact Challenge
2015 The Foundation Blanceflor Boncompagni Ludovisi, née Bildt Scholarship
2012-14 Harvard University Center for the Environment – Ziff Environmental Fellowship

SERVICE

2018-2021 Organizer of session “Atmospheric Convection: Processes, Dynamics, and Links to Weather and Climate” at AGU Fall Meeting
2019-current Member of the University of Hawai‘i at Mānoa SOEST Faculty Senate
2019-current Member of the Curriculum Committee in the Department of Atmospheric Sciences
2017 Organized and chaired session “Land-Atmosphere Interactions, Biosphere-Boundary Layer Feedbacks, and Moist Convection” at AGU Fall Meeting
2015 Chaired session “Other Mesoscale Processes” at 16th Conference on Mesoscale Processes, Boston
2012-current Reviewer for Geophysical Research Letter, Journal of the Atmospheric Sciences, Journal of Geophysical Research, Journal of Climate, Nature, and various proposals for National Science Foundation.

PROFESSIONAL MEMBERSHIP AND OTHER

Member of American Geophysical Union, American Meteorological Society, Associazione Italiana di Scienze dell’Atmosfera e Meteorologia, Società Italiana di Meteorologia.

Co-founder of Nimbus AI, a company that uses artificial intelligence to provide high-resolution solar irradiance forecasts in environments with complex topography, such as the Hawaiian Islands.