

Alex O. Gonzalez

Assistant Scientist

Department of Physical Oceanography

Woods Hole Oceanographic Institution, Woods Hole, MA

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EDUCATION

2015	Ph.D.	Colorado State University	Atmospheric Science
2011	M.S.	Colorado State University	Atmospheric Science
2008	B.S.	The Pennsylvania State University	Meteorology (Minor: Mathematics)

PROFESSIONAL EXPERIENCE

Assistant Scientist, Jun 2022–Present

Woods Hole Oceanographic Institution, Woods Hole, MA

Assistant Professor, Aug 2018–Jun 2022

Iowa State University of Science and Technology, Ames, IA

Postdoctoral Scholar, Dec 2015–Aug 2018

UCLA/JPL Joint Institute for Regional Earth System Science and Engineering, Los Angeles, CA

Graduate Research Assistant, Jan 2009–Aug 2015

Colorado State University, Fort Collins, CO

Visiting Graduate Student, May–Aug 2011 & 2012

National Center for Atmospheric Research, Boulder, CO

SOARS Protégé, May–Aug 2007–2009

National Center for Atmospheric Research and Colorado State University

HONORS AND AWARDS

2025 James E. and Barbara V. Moltz

Early Career Science Fellowship

2025

Top Student Oral Presentation Award at the AMS 19th Conference

of Atmospheric and Oceanic Fluid Dynamics

June 2013

2012 Editors' Citation for Excellence in Refereeing for the

AGU Journal of Advances in Modeling Earth Systems

Fall 2013

SOARS Scholarship

2009-2015

CMMAP Fellowship

2009-2015

FUNDING

Jun 2025–May 2027: WHOI Independent Study Award, “The impact of cloud-related factors on Inter-Tropical Convergence Zone (ITCZ) biases in atmospheric reanalysis data.” Role: PI. Budget: \$79,887.

Jul 2023–Jun 2026: NSF AGS Climate and Large-Scale Dynamics, “The relationship between the trade wind inversion layer and the seasonal development of the southeast Pacific ITCZ.” Role: PI. Budget: \$942,102 (\$650,456 WHOI).

Nov 2021–Oct 2026: DOE Offshore Wind Energy Atmospheric Science And Project Development, “Improving High Resolution Offshore Wind Resource Assessments and Forecasts Using Observations in the MA/RI Lease Areas.” Role: Co-I. Budget: \$8,000,000.00 (WHOI). Note: A. O. Gonzalez started involvement in the project after the proposal was awarded, in June 2022.

Jan 2023–Dec 2024: NOAA-OAR-CPO, “Disaster Relief Supplemental Act (DRSA): Profiling Float Observations for the EEOOTT IFC.” Role: Co-PI. Budget: \$185,000.

Jan–Nov 2023: WHOI Independent Research and Development Program, “The Influence of Atmospheric Circulations and Convective Structure on the Eastward Propagation of the Madden-Julian Oscillation.” Role: PI. Budget: \$62,079.

May 2020–Jul 2024: NSF AGS Climate and Large-Scale Dynamics, “Nonlinear dynamics of daily-weekly boreal spring ITCZ shifts over the eastern Pacific Ocean.” Role: PI (May 2020–Jun 2022), Co-PI (Jul 2022–Apr 2024). Budget: \$340,945 (includes supplemental funding on Aug 1, 2023). Original Budget: \$315,896.

Sep 2020–Aug 2021: Iowa State University Morehouse Equipment Fund, Grant SG2704281. Role: Co-PI. Budget: \$67,843.05.

PAPERS IN PREPARATION (* means a current or former student, Contribution statements use CRediT Contributor Roles Taxonomy)

Ganguly, I.*, **A. O. Gonzalez**, and R. Neale, Wind-evaporation-SST feedbacks in the east Pacific ITCZ: The impact of daily versus monthly SSTs in forced CAM6 simulations, *J. Adv. Model Earth Syst.*, in preparation. *Contributions: conceptualization, data curation, funding acquisition, methodology, project administration, supervision, validation, visualization, writing – original draft, review & editing.*

Fahrin, F.*, **A. O. Gonzalez**, C. A. DeMott, G. V. Cesana, and R. Neale, The role of diverse low cloud populations prior to the development of the southeastern Pacific ITCZ, *J. Atmos. Sci.*, in preparation. *Contributions: conceptualization, funding acquisition, methodology, project administration, visualization, supervision, validation, writing – original draft.*

SUBMITTED/IN REVIEW/IN REVISION PUBLICATIONS (* means a current or former student or postdoc, Contribution statements use CRediT Contributor Roles Taxonomy)

Gonzalez, A. O., F. Fahrin*, G. Magnusdottir, A. Kinsella, and I. Ganguly* (2025), We need to simulate more double ITCZs and less southern ITCZs in reanalyses and coupled climate models, *Journal of Geophysical Research: Atmospheres*, in review. *Contributions: conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, visualization, writing – original draft, review & editing.*

Aurnou, J. M., J. E. Moscoso, S. M. Cavallo, W. J. Church, **A. O. Gonzalez**, J. H. Ruppert Jr., and R. Tripoli (2025), Tabletop atmospheric rivers, *Bull. Amer. Meteor. Soc.*, *Nowcast article*, in review. *Contributions: conceptualization, formal analysis, visualization, writing – original draft, review & editing.*

He, C*, A. Clement, M. Cane, **A. O. Gonzalez**, Y.-O. Kwon, J.-R. Shi, J. Klavans, and L. Murphy (2025), Climate models exaggerate the impact of greenhouse gases on recent interhemispheric temperature contrast and tropical climate, *Science Advances*, adw6442, in review.
Contributions: funding acquisition, writing – original draft, review & editing.

REFEREED PUBLICATIONS

Fahrin, F.*, **A. O. Gonzalez**, B. Chrisler, and J. P. Stachnik (2024), The influence of convectively coupled tropical waves on the Southern Hemisphere East Pacific ITCZ, *J. Climate*, JCLI-D-23-0398, <https://doi.org/10.1175/JCLI-D-23-0398.1>. *Contributions: conceptualization, data curation, funding acquisition, methodology, project administration, supervision, validation, visualization, writing – original draft, review & editing.*

Gonzalez, A. O., I. Ganguly*, M. Osterloh*, G. V. Cesana, and C. A. DeMott (2024), Dynamical importance of the trade wind inversion in suppressing the southeast Pacific ITCZ, *Journal of Geophysical Research: Atmospheres*, **129**, e2023JD039571. <https://doi.org/10.1029/2023JD039571>. *Contributions: conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, visualization, writing – original draft, review & editing.*

Yu, L., Y. Chen, **A. O. Gonzalez**, C. Zhang, and G. R. Foltz (2023), Dry Air Outbreak and Significant Surface Turbulent Heat Loss During Hurricane Ian: Satellite and Saildrone Observations, *Geophys. Res. Lett.*, **50**, e2023GL105583. <https://doi.org/10.1029/2023GL105583>. *Contributions: validation, writing – review & editing.*

Ganguly, I.*, **A. O. Gonzalez**, and K. B. Karneauskas (2023), On the role of wind-evaporation-SST feedbacks in the sub-seasonal variability of the east Pacific ITCZ. *J. Climate*, JCLI-D-22-0849, <https://doi.org/10.1175/JCLI-D-22-0849.1>. *Contributions: conceptualization, data curation, funding acquisition, methodology, project administration, supervision, validation, visualization, writing – review & editing.*

Gonzalez, A. O., I. Ganguly*, M. C. McGraw, and J. Larson (2022), Rapid dynamical evolution of ITCZ events over the east Pacific, *J. Climate*, **35(4)**, 1197–1213. <https://doi.org/10.1175/JCLI-D-21-0216.1>. *Contributions: conceptualization, data curation, formal analysis, funding acquisition, methodology, project administration, visualization, writing – original draft, review & editing.*

Heath A.*, **A. O. Gonzalez**, M. Gehne, and A. Jamarillo (2021), Interactions of large-scale dynamics and Madden-Julian Oscillation propagation in multi-model simulations. *Journal of Geophysical Research: Atmospheres*, **126**, e2020JD033988. <https://doi.org/10.1029/2020JD033988>. *Contributions: conceptualization, data curation, funding acquisition, methodology, project administration, supervision, validation, visualization, writing – review & editing.*

Merryfield, W. J., ...**A. O. Gonzalez**,... and Coauthors (2020), Current and Emerging Developments in Subseasonal to Decadal Prediction. *Bull. Amer. Meteor. Soc.*, **101**, E869–E896, <https://doi.org/10.1175/BAMS-D-19-0037.1>. *Contributions: conceptualization, data curation, formal analysis, writing – review & editing.*

- Maloney, E., A. Gettelman, Y. Ming, J. D. Neelin, D. Barrie, A. Mariotti, C.-C. Chen, Y.-H. Kuo, B. Singh, H. Annamalai, A. Berg, J. F. Booth, S. J. Camargo, A. Dai, **A. Gonzalez**, J. Hafner, X. Jiang; X. Jing, D. Kim, A. Kumar, Y. Moon, C. M Naud, A. H Sobel, K. Suzuki, F. Wang; J. Wang, A. Wing, X. Xu, and M. Zhao (2019), A framework for process-oriented evaluation of climate and weather forecasting models, *Bull. Amer. Meteor. Soc.*, **100**, 1665–1686, <https://doi.org/10.1175/BAMS-D-18-0042.1>. *Contributions: data curation, methodology, visualization, writing – review & editing.*
- Gonzalez, A. O.**, and W. H. Schubert (2019), Violation of Ekman balance in the eastern Pacific ITCZ boundary layer, *J. Atmos. Sci.*, **76**, 2919–2940, <https://doi.org/10.1175/JAS-D-18-0291.1>. *Contributions: conceptualization, data curation, methodology, formal analysis, visualization, writing – original draft, review & editing.*
- Gonzalez, A. O.**, and X. Jiang (2019), Distinct propagation characteristics of intraseasonal variability over the tropical west Pacific. *Journal of Geophysical Research: Atmospheres*, **124**, <https://doi.org/10.1029/2018JD029884>. *Contributions: conceptualization, data curation, methodology, formal analysis, visualization, writing – original draft, review & editing.*
- Gonzalez, A. O.**, G. Mora Rojas, W. H. Schubert, and R. K. Taft (2017), Transient aspects of the Hadley circulation forced by an idealized off-equatorial ITCZ, *J. Adv. Model. Earth Syst.*, **9**, <https://doi.org/10.1002/2016MS000837>. *Contributions: conceptualization, formal analysis, visualization, writing – original draft, review & editing.*
- Gonzalez, A. O.**, and X. Jiang (2017), Winter mean lower tropospheric moisture over the Maritime Continent as a climate model diagnostic metric for the propagation of the Madden-Julian oscillation, *Geophys. Res. Lett.*, **44**, 2588–2596, <https://doi.org/10.1002/2016GL072430>. *Contributions: conceptualization, formal analysis, visualization, writing – original draft, review & editing.*
- Gonzalez, A. O.**, C. J. Slocum, R. K. Taft, and W. H. Schubert (2016), Dynamics of the ITCZ boundary layer, *J. Atmos. Sci.*, **73**, 1577–1592, <https://doi.org/10.1175/JAS-D-15-0298.1>. *Contributions: conceptualization, formal analysis, visualization, writing – original draft, review & editing.*
- Gonzalez, A. O.**, and G. Mora Rojas (2014), Balanced dynamics of deep and shallow Hadley circulations in the tropics, *J. Adv. Model. Earth Syst.*, **6**, <https://doi.org/10.1002/2013MS000278>. *Contributions: conceptualization, formal analysis, visualization, writing – original draft, review & editing.*
- W. H. Schubert, L. G. Silvers, M. T. Masarik, and **A. O. Gonzalez** (2009), A filtered model of tropical wave motions, *J. Adv. Model. Earth Syst.*, **1**, Art. #3, 11 pp., <https://doi.org/10.3894/JAMES.2009.1.3>. *Contributions: formal analysis, writing – review & editing.*

INVITED PRESENTATIONS

“We need to simulate more double ITCZs and less southern ITCZs in reanalyses and coupled climate models,” Earth and Atmospheric Sciences Department Climate Dynamics Seminar, City College of New York, New York, NY, March 2025.

“We need to simulate more double ITCZs and less southern ITCZs in reanalyses and coupled climate models,” NASA GISS Lunch Seminar, NASA Goddard Institute for Space Studies, New York, NY, March 2025.

“Single and double ITCZ problems in reanalyses and coupled climate models,” WHOI Department of Physical Oceanography Seminar Series, Woods Hole, MA, August 2024.

“Dynamical importance of the trade wind inversion in suppressing the southeast Pacific ITCZ,” Atmosphere, Ocean and Climate Sack Lunch Seminar Series, MIT Department of Earth, Atmospheric, and Planetary Sciences, Cambridge, MA, November 2023.

“Dynamical importance of the trade wind inversion in suppressing the southeast Pacific ITCZ,” Topics in Atmospheric and Oceanic Sciences Weekly Seminar Series, School of Marine and Atmospheric Sciences at Stony Brook University, Stony Brook, NY, October 2023.

“Dynamical importance of the trade wind inversion in suppressing the southeast Pacific ITCZ,” Atmosphere–Ocean Processes and Predictability Division Weekly Seminar (Virtual), NOAA Physical Sciences Laboratory, Boulder, CO, July 2023.

“Dynamical importance of the trade wind inversion in suppressing the southeast Pacific ITCZ,” Department of Atmospheric and Environmental Sciences/Atmospheric Sciences Research Center Joint Colloquium Series, University at Albany, State University of New York, April 2023.

“Wind-Evaporation-SST feedbacks and the southeast Pacific Ocean ITCZ,” A Symposium in Honor of Professor Akio Arakawa: Modeling Convection, Clouds and Climate Systems, UCLA, October 2022.

“Interactions of MJO dynamics and propagation in climate model simulations,” Atmospheric Sciences at Home Virtual Seminar Series, Institute of Atmospheric Sciences and Climate Change at the National Autonomous University of México (México City), May 2021. In Spanish.

“Weather in the east Pacific ITCZ: The role of nonlinear dynamics in boreal spring submonthly ITCZ shifts,” Penn State University Department of Meteorology and Atmospheric Sciences Seminar Series, September 2020.

“The influence of synoptic variability in the ITCZ on climate model biases,” University of Wisconsin-Madison Department of Atmospheric and Oceanic Sciences Seminar Series, November 2018.

“Balanced and transient dynamics of deep and shallow Hadley circulations,” AGU Annual Fall Meeting, San Francisco, CA, December 2014.

PROFESSIONAL SERVICE

Organizer and Convener, From Observation to Process to Prediction – Bridging Layers of Understanding in Oceanographic Research CINAR Workshop, NCEP College Park, MD, Summer 2025 (Upcoming).

Panel Member, U.S. CLIVAR Process Study and Model Improvement (PSMI) Panel, May 2024–Present

Chairing/Convening, Earth Educators' Rendezvous 2022 and 2023, 10th Northeast Tropical Workshop, AGU 2021 Fall Meeting (2 sessions), AMS 2020 Annual Meeting, and International Conference on Subseasonal to Seasonal Prediction in 2018

Convener, OSPA Liaison, and Student Award Judge, Multiscale Processes in the East Pacific Intertropical Convergence Zone I, 101st AGU Fall Meeting, December 13–17, 2021, New Orleans, LA

Invited Speaker, 19th Annual AMS Student Conference, Conversations with Professionals, January 11, 2020, Boston, MA

UCLA DIYnamics Project Core Team Member, Fall 2019–Present

Reviewer, proposals for NSF Climate and Large-Scale Dynamics, Deutsche Forschungsgemeinschaft, papers for AGU Journal of Advances in Modeling Earth Systems, AGU Geophysical Research Letters, AMS Journal of Climate, AMS Monthly Weather Review, EGU Atmospheric Chemistry and Physics, Quarterly Journal of the Royal Meteorological Society, MDPI Atmosphere, and MDPI Climate

DEPARTMENT/COLLEGE SERVICE

Co-Chair, ISU Geological and Atmospheric Sciences Diversity, Equity, and Inclusion Committee, Summer 2020–Spring 2022

- Led discussion with GE-AT faculty to drop GRE in graduate applications, working with ISU Science Bound Program to discuss future event involvement, Organized GE-AT DEI Outreach Webpage, ISU Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) GE-AT representative, Manned College of Liberal Arts and Sciences booth at 2020 SACNAS Annual Conference

Co-Chair, ISU Geological and Atmospheric Sciences Department Seminar Series, Summer 2020–Spring 2022

WHOI/ISU/University of Kansas Climate Dynamics Journal Club Lead, Fall 2019, Summer 2020–Present

Watney Scholarship Committee, Summer 2020–Spring 2022

Advisor, ISU Graduate Meteorology Club, Fall 2019–Spring 2022, ISU AMS Student Chapter, Fall 2019–Spring 2022

Judge, ISU Meteorology senior thesis presentations, Fall 2018 and Fall 2021

Program of Study Committees (non-advisees)

Ahmad Samman (ISU, Ph.D. Fall 2018), Zachary Hiris (ISU, M.S. Spring 2020), Ezio Mauri (ISU, M.S. Fall 2020), Brian Squitieri (ISU, Ph.D. Spring 2022), Elise Schultz (ISU, Ph.D. Spring 2023), Dylan Dodson (ISU, M.S. expected Spring 2023), Elizabeth Tirone (ISU, Ph.D. expected Spring 2024), Suvadip Mandal (ISU, Ph.D. expected Spring 2024), Rosa Vargas Martes (Wisconsin-Madison, expected Fall 2024), Theo Carr (WHOI-MIT, expected Fall 2024), Brett Chrisler (Kansas, expected Spring 2025)

Postdoc Mentoring Committees

Alex Kinsella (WHOI, 2023–Present)

Lewis Kim (WHOI, 2023–Present)
Christoph Renkl (WHOI, 2023–Present)

Search Committees

Tenure-track Assistant Scientists, Department of Physical Oceanography (Fall 2023–Present, WHOI)
Department of Geological and Atmospheric Sciences Chair (Spring 2020, Iowa State University)
Tenure-track Assistant Professor in Meteorology (Fall 2019, Iowa State University)

PROFESSIONAL DEVELOPMENT

NSF Early Career Geosciences Faculty Workshop, July 28–Aug 2, 2019, College Park, MD
NCAR CESM Tutorial, August 6–10, 2018, Boulder, CO
XSEDE HPC Summer Boot Camp Workshop, June 4–7, 2018, Los Angeles, CA
NSF STC Professional Development Workshop, August 3–7, 2015, Indianapolis, IN
AGU/UCAR Sharing Science in Your Community Workshop, June 25, 2015, Boulder, CO

OUTREACH ACTIVITIES

WHOI Buoy Lunch presentation, “Do-It-Yourself Dynamics (DIYnamics): Building a Community of Scientists, Instructors, and Engineers to Teach Climate Sciences,” 17 August 2023, Woods Hole, MA
Urbandale HS hands-on weather/climate demonstrations (150 students), May 20, 2022, Urbandale, IA
STEMSEAS hands-on demonstration of cyclones with HBCU faculty, Jan 3, 2023, Woods Hole, MA
Black Girls Dive hands-on demonstration of cyclones, July 26, 2023 Woods Hole, MA

ADVISING/MENTORING STUDENTS

Graduate Advisor

Fouzia Fahrin	Fall 2021–Present
Travis Enzensperger	Fall 2021
Indrani Ganguly	Fall 2019–Present
Ashley Heath	Fall 2018–July 2020 (Graduated Summer 2020)

Undergraduate Research Mentor (include Senior Thesis)

Cassidy Hoium	Spring 2022
Marissa Osterloh	Summer 2021, Spring 2022
Allysa Dallmann	Spring 2021
James Larson	Spring 2020–Fall 2020
Matthew Statz	Spring 2020
Melissa Piper	Spring 2020
Kevin Greene	Fall 2018–Spring 2020
Franchesca Espinosa	May–Aug 2014
Andre Perkins	May–Aug 2011
Rachel Meier	Spring 2010

High School Teacher Research Mentor, High School Research Mentor

Natalie Kongable	Fall 2019–Spring 2020
Katherine Hanson	Summer 2021

Undergraduate Academic Advisor

10–15 students/semester	Fall 2019–Spring 2021
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RECENT ORAL PRESENTATIONS

Gonzalez, A. O., I. Ganguly*, M. Osterloh*, G. V. Cesana, and C. A. DeMott (2024), “Dynamical Importance of the Trade Wind Inversion in Suppressing the Southeast Pacific ITCZ,” AMS 104th Annual Meeting, Baltimore, MD.

Gonzalez, A. O., I. Ganguly*, M. C. McGraw, and J. G. Larson (2021), “Exploring the Role of Low-Level Dynamics in East Pacific Northern and Double ITCZ Events,” AMS 34th Conference on Hurricanes and Tropical Meteorology Meeting, New Orleans, LA.

Heath A.*, **A. O. Gonzalez,** M. Gehne, and A. Jamarillo (2021), “Interactions of large-scale dynamics and Madden-Julian Oscillation propagation in multi-model simulations,” AMS 34th Conference on Hurricanes and Tropical Meteorology Meeting, New Orleans, LA.

Gonzalez, A. O., and S. A. Henderson (2021), “Interannual Variability of the Boreal Winter Madden–Julian Oscillation over the West Pacific,” AMS 101st Annual Meeting, New Orleans, LA.

Gonzalez, A. O., I. Ganguly*, M. C. McGraw, and J. G. Larson (2020), “The role of surface dynamics in boreal spring submonthly eastern Pacific ITCZ shifts,” AGU Fall Meeting, San Francisco, CA.

TEACHING EXPERIENCE

Course	Semester	Credits	Enrollment
EAPS 860 [#] – Climate Variability and Diagnostics ⁺	Fall 2024	3	10
EAPS 800 [#] – Fluid Dynamics of Atmos. & Ocean ⁺	Fall 2024	3	28
Mteor 206 – Intro. to Weather and Climate	Spring 2022	3	102
Mteor 440/540 [#] – Tropical Meteorology	Fall 2021	3	18
Mteor 443 – Dynamic Meteorology I	Fall 2021	3	15
Mteor 443 – Dynamic Meteorology I	Spring 2021	3	18
Mteor 543 [#] – Advanced Dynamic Meteo.	Fall 2020	3	8
Mteor 443 – Dynamic Meteorology I	Spring 2020	3	11
Mteor 440/540 [#] – Tropical Meteorology	Fall 2019	3	24
Mteor 443 – Dynamic Meteorology I	Spring 2019	3	12
Introduction to Meteorology [*]	May 2013	3	~25
Introduction to Meteorology [*]	May 2012	3	~25

^{*}Autonomous University of the Yucatán (UADY), Mérida, MX – taught in Spanish

⁺Co-Instructor

[#]Graduate-Level Course