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**Education:**

1989 Ph.D. Meteorology, The Pennsylvania State University

1985 M.S. Meteorology, University of Utah

1982 B.S. Meteorology, Peking University

**PROFESSIONAL OCCUPATION:**

2022 Acting Lead of Engineering

Development Division NOAA Pacific Marine Environmental Laboratory

2022 Acting Deputy Director NOAA Pacific Marine Environmental Laboratory

2016 - Supervisory Oceanographer

and Lead of Ocean Climate

Research Division NOAA Pacific Marine Environmental Laboratory

2016 - Affiliate Professor University of Washington

2004-2017 Professor University of Miami

2000-2004 Associate Professor University of Miami

1997-2000 Research Associate Professor University of Miami

1992-1996 Research Assistant Professor University of Washington

1991-1992 Postdoctoral Visitor University of Washington

1989-1991 Research Associate The Pennsylvania State University

**Award and Honor:**

2021 Fellow, 125th Anniversary of the College of Earth and Mineral Sciences at Penn State

2020 Fellow, American Geophysical Union

2019 Silver Sherman Award, NOAA

2018 Scientific and Technological Activities Commission Award, American Meteorological Society

2016 Editor’s Citation for Excellence in Refereeing, Review of Geophysics

2014 Fellow, American Meteorological Society

2001 Graduate Student Appreciation Award, University of Miami

1999 Editor’s Citation for Excellence in Refereeing, Journal of Geophysical Research-Oceans

1991 NOAA Global and Climate Change Postdoctoral Fellowship

**Professional Association:**

1994 - Member, American Geophysical Union

1989 - Member, American Meteorological Society

**Field Program Experience:**

Chief Scientist, YMC Banda Sea Cruise, February – March 2023

Co-Lead, NOAA Saildrone Hurricane Observations Mission, August – October, 2021, Eastern Tropical Atlantic Ocean

Lead, NOAA Saildrone Arctic Observations Mission, June – September, 2019, Bering, Chukchi and Beaufort Seas

Chief Scientist, Dynamics of the Madden-Julian Oscillation (DYNAMO), October 2011 – March 2012, Indian Ocean

Guest Participant, Saharan Air Layer Experiment (SALEX), September 2006, Barbados

PI, Eastern Pacific Investigation on Climate (EPIC2001), September 2001, Huatulco, Mexico

Postdoctoral Participant, Tropical Ocean Global Atmosphere (TOGA) Couple Ocean Atmosphere Response Experiment (COARE), December 1992 - February 1993, Honiara, Solomon Islands.

**Professional service**

Scientific Organizing Committee of NCAR ASP Summer Colloquium (2021) and Workshop on Subseasonal to Seasonal (S2S) Science and Prediction (2022)

AMS Fellow Committee, 2021-2023

Executive Committee of the US CLIVAR Science Steering Committee, 2020-2022.

Chair, Science Steering Committee of the US CLIVAR Science Steering Committee, 2022.

AMS Nomination Committee, 2020-2022

~~Program Committee of the 15th Pan Ocean Remote Sensing Conference (PORSE2020)~~

Organizing Committee for 2020 NCAR Summer Colloquium on Subseasonal-to-Seasonal Science, 2021

Organizing Committee of the Second International Conference on Tropical Meteorology and Atmospheric Science (ICTMAS), Jakarta, Indonesia, August 2021

Editor, Scientific Online Letters on the Atmosphere (SOLA), 2019 - 2022

Organization Committee for the NOAA Climate Program Office (CPO) Earth System Science and Modeling (ESSM) Division Strategic Planning Workshop, November 2018

Organization Committee for the US Clivar Workshop on Tropical Convection and Air-Sea Interaction, 2018-2019

US TPOS Executive Committee, 2018

Co-Chair, Organizing Committee of AMS Peter Webster Symposium, January 9, 2018

Chair, AMS Award Nomination Committee, 2017

Co-Chair, Science Steering Committee of Years of the Maritime Continent (YMC), 2015 -

Organizing Committee of Workshop on Intraseasonal Processes and Prediction in the Maritime Continent, Singapore, 11-13 April 2016

US Steering Committee of International Indian Ocean Expedition 2 (IIOP-2), 2015-2020

Tropical Pacific Observing System (TPOS) Planetary Boundary Layer Task Team, 2015 - 2019

SPURS-2 Steering Committee, 2015 - 2018

Organizing Committee of the 2nd International Workshop on Years of the Maritime Continent, BMKG, Jakarta, November 24-26, 2015.

AMS Awards Nomination Committee, 2015-2020.

Editorial Advisory Board of Mathematics of Climate and Weather Forecasting, 2015 – 2020

Review Panel for NOAA Earth System Laboratory, Physical Science Division, May 12-14, 2015

Guest Editor, Journal of the Meteorological Society of Japan, 2015 -

Organizing Committee of BIRS workshop on Stochasticity and Organization of Tropical Convection, the Banff Centre, Banff, Alberta, Canada, April 27 - May 1, 2015

Chair, Organizing Committee of the 1st International Workshop on Years of the Maritime Continent, Center for Climate Research Singapore, January 27-30, 2015.

National Academy of Sciences Committee on Developing a U.S. Research Agenda to Advance Subseasonal to Seasonal Forecasting, 2014-2016.

Editor, Journal of Geophysical Research – Atmosphere, 2013 – 2021.

Co-Chair, Symposium on Prediction of the Madden-Julian Oscillation, AMS Annual Meeting, Austin, TX, January 10, 2013.

Council of the American Meteorological Society, 2012 – 2015

Organizing Committee of AMS Michio Yanai Symposium, January 27, 2011

Organizing Committee of 2011 NCAR ASP Summer Colloquium on African Weather and Climate, July 25 – August 5, 2011

ARM MJO Investigation Experiment (AMIE) Science Steering Committee, 2010 - 2013

Chair, Dynamics of the MJO (DYNAMO) Science Steering Committee, 2010 – 2013

Cooperative Indian Ocean Experiment on Intraseasonal Variability in the Year 2011 (CINDY2011) International Science Steering Committee, 2010 – 2013

WWRP/WCRP YOTC MJO Task Force, 2010 – 2012

Review Panel of National Research Council, 2009 - 2011

US CLIVAR MJO Working Group, 2006 – 2009

Chair, Organizing Committee of NCAR/TIIME Summer Retreat on Tropical Convection and Weather Climate Interface, July 2006, Boulder, CO

Associate Editor, Journal of Climate, 2005 – 2019

AMS Committee on Hurricanes and Tropical Meteorology, 2004 – 2007

International CLIVAR’s Atlantic Implementation Panel (AIP), 2004 – 2007

International Science Working Group of North American Monsoon Experiment (NAME), 2001 – 2005

Chair, Organizing Committee of MJO-ENSO workshop, 2000, Princeton, NJ

AMS Max Eaton Award committee, 1997

**Publications**

Zhang, C., J.M. Wallace, R.A. Houze, E.J. Zipser, K.A. Emanual, 2022: Relocation of GATE from the Pacific to the Atlantic. *Bulletin of the American Meteorological Society.* Accepted.

Zhang, C., and J. Moore, 2022: Anatomy of International Field Campaigns in Atmospheric and Oceanic Sciences, AGU 100 Anniversary Monograph, L. Lin, Ed., accepted.

Zhang, C., A.F. Levine, M. Wang, C. Gentemann, C.W. Mordy, E.D. Cokelet, P.A. Browne, Q.Yang, N. Lawrence-Slavas, C. Meinig, G. Smith, A. Chiodi, D. Zhang, P. Stabeno, W. Wang, H. Ren, K.A. Peterson, S. N. Figueroa, M.Steele, N.P. Barton, A. Huang, H.-C. Shin, 2022: Evaluation of Surface Conditions from Operational Forecasts Using in situ Saildrone Observations in the Pacific Arctic. Mon. Wea. Rev., 150, 1437-1455. DOI:<https://doi.org/10.1175/MWR-D-20-0379.1>

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Martin, Z., S.W. Son, A.B., H. Hendon, H.Kim, A. Sobel, S. Yoden, and C. Zhang, 2021: The influence of the quasi- biennial oscillation on the Madden–Julian oscillation. *Nature Reviews Earth & Environment*, <https://doi.org/10.1038/s43017-021-00173-9>

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Zhang, C., Á. F. Adames, [B. Khouider](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Khouider%2C+B), [B. Wang](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Wang%2C+B), [D. Yang](https://agupubs.onlinelibrary.wiley.com/action/doSearch?ContribAuthorStored=Yang%2C+D), 2020: Four Theories of the Madden-Julian Oscillation. Rev. Gephys. p.e2019RG000685..

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Wang, B., S.-S. Lee, D.E. Waliser, C. Zhang, A. Sobel, E. Maloney, T. Li, X. Jiang, and K.-J. Ha., 2018: Dynamics-oriented diagnostics for the Madden-Julian Oscillation. *J. Climate, 31* (8), 3117–3135.

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Chandra, A., C. Zhang, H.-Y. Ma, and S.A. Klein, 2015: Low cloud statistics over Tropical Western Pacific in ARM observations and CAM5 simulations. J. Geophys. Res. Atmos., 120, doi:10.1002/ 2015JD023369.

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**BOOK CHAPTERS**

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**Invited TALKs**

“Air-Sea Transition Zone in the Context of Monsoons”, the Seventh WMO International Workshop on Monsoons, March 22 – 26, 2022

“MJO in the Maritime Continent”, The 16th NOAA-BMKG Annual Workshop, September 28 – 30, 2021

“Redefine Air-Sea Interaction”, NCAR ASP Workshop on the Science of S2S Predictions, August 2 – 5, 2021

“Theories of Tropical Intraseasonal Oscillation”, NCAR ASP 2021 Summer Colloquium on S2S Prediction, July 12 – 23, 2021

“Observing the Ocean-Atmosphere Transition Zone”, US CLIVAR [Tropical Pacific Observing Needs Workshop](https://usclivar.org/meetings/tpon-2021), May 24-26, 2021

"Progress in Understanding Physical Processes and Dynamics of the MJO”, Keynote at the Ninth Symposium on the Madden-Julian Oscillation and Sub-Seasonal Monsoon Variability, AMS 101st Annual Meeting, January 14, 2021.

“Transition Zones between Earth System Components”, Fellow presentations, AGU Annual Meeting, December 7 – 11, 2020.

“Emerging Challenge to the MJO Study: The Barrier Effect of the Maritime Continent”, International Workshop on Weather and Climate Variabilities and their Mechanisms, Beijing, 7 - 8 August 2019.

“YMC Update”, MJO Task Force meeting, Singapore, July 31, 2019.

“Indo-Pacific Maritime Continent: Challenges and Opportunities”, Australian Meteorological and Oceanic Society Annual Meeting and International Conference on Tropical Meteorology and Oceanography, Darwin, Australia, 14 – 19 June 2019

“Indo-Pacific Maritime Continent: A Hot Spot of Global Weather-Climate”. International Symposium on Global Climate and Enviornmental Changes. Beijing, May 25-26, 2019.

“Years of the Maritime Continent”. Planning Workshop for Integrated Scientific experiment of the South China Sea Monsoon. ZhuHai, 4-8 March 2019.

“MJO-QBO Connection: Knowns and Unknowns”, 2018 AGU Fall Meeting, Washington, DC, 10-14 December 2018

“David Raymond’s Insights into the ITCZ”, David Raymon Symposium, 2018 Annual Meeting of the American Meteorological Society, Austin, TX, 11 January 2018

“From DYNAMO to YMC – Issues of MJO initiation and propagation”, Institute of Atmospheric Science, Chinese Academy of Science, Beijing, China, 1 September 2017

“Monsoon Shallow Circulation”, International Workshop on the Asian Monsoon in a Warmer World, Chengjiang, China, 20-23 August 2017

“Five Years After: What Have We Learned from DYNAMO?”, Fifth Symposium on Prediction of the Madden-Julian Oscillation: Processes, Prediction, and Impact, AMS annual meeting, Seattle, WA, January 22-26, 2017

“DYNAMO and Beyond”, Robert A. Houze, Jr. Symposium, AMS annual meeting, Seattle, WA, January 22-26, 2017

“The Indo-Pacific Maritime Continent and Its Role in Global Weather-Climate”, Climate Challenge, Forum, Pusan National University, Busan, June 29, 2016

“Intraseasonal Oscillation and its impacts II: Impact on monsoons and extreme events”, Asian-Pacific Climate Center S2S Training Program, Busan, June 28, 2016

“Intraseasonal Oscillation and its impacts I: Characteristics of ISO, mechanism, and understanding its predictability”, Asian-Pacific Climate Center S2S Training Program, Busan, June 27, 2016

“Indo-Pacific Maritime Continent: The Crux of Global Weather-Climate”, The Environmental Fluid Dynamics Laboratory, University of Notre Dame, South Bend, IN, April 5, 2016

“Role of the Indo-Pacific Maritime Continent (Malay Archipelago) in the Earth System”, School of Atmospheric Sciences, Sun Yat-Sen University, Guangzhou, March 10, 2016.

“Madden-Julian Oscillation: Problems, Challenges, and Progress”, AMS Annual Meeting, January 11, 2016.

“MJO Impact on Global Weather and Climate”, National Hurricane Center, Miami, FL, April 8, 2014.

“CINDY/DYNAMO/AMIE/LASP Field Campaign: A Biennial Report”, AMS 31st Conference on Hurricanes and Tropical Meteorology, 31 March-4 April 2014, San Diego, CA

“Moisture Processes in the Madden-Julian Oscillation”, AGU Annual Meeting, Session of Grand challenges in moist process feedback in the climate system, San Francisco, CA, December 11 – 15, 2013.

“The CINDY-DYNAMO Field Campaign 2011-12”, IWM-V, Macao, China, October 28 – October 28 – 31, 2013

“Convective initiation of the MJO”, Atmosphere and Cryosphere Assembly 2013, 8-12 July 2013, Davos, Switzerland

“Out of the Indian Ocean: Initiation and Global Impact of the Madden-Julian Oscillation”, ECMWF, June, 2013

“Global Impact of the MJO on Weather and Climate”, National Taiwan University, 17 May 2013

“Tropospheric Moisture: The Crux of the MJO?”, ICGPSRO2013, Taipei, Taiwan, 14-16 May 2013

“MJO Initiation: Large-Scale Diagnostics, Field Observations, and Numerical Modeling”, Academia Sinica, Taipei, Taiwan, 13 May 2013.

“The 2011-12 CINDY/DYNAMO Indian Ocean Field Campaign”, EGU, April 8-12, 2013

“Madden-Julian Oscillation: Its Potential Vorticity vs. Gill-Model Interpretations”, EGU, April 8-12, 2013

“Processes of MJO initiation over the Indian Ocean”, CAWCR Annual Workshop, Melbourne, 12-15 November, 2012.

“Preliminary thoughts from the CINDY/DYNAMO field campaign”, AOGS-AGU (WPGM) Joint Assembly, Singapore, 13-17 August, 2012

“MJO and Weather/Climate Extremes”, ICDM 2012 Workshop on “Dynamics and Predictability of High-impact Weather and Climate Events”, Kuming, China, 6 - 9 August 2012.

“DYNAMO Field Campaign”, 2012 NCAR ASP Summer Colloquium “The Weather-Climate Intersection: Advances And Challenges”, June 4-22, 2012, Boulder

“DYNAMO Field Campaign”, 11th Annual AMS Student Conference*,* New Orleans, LAJanuary 21-22, 2012

“A strategy of isolating climatic effects of aerosol on precipitation from other weather and climate factors”, IUGG 2011 General Assembly, Melbourne, Australia, 28 June - 7 July 2011.

“A PV View of the MJO and Equatorial Waves”, IUGG 2011 General Assembly, Melbourne, Australia, 28 June - 7 July 2011

“DYNAMO”, NOAA Climate Board, May 17, 2011

“PV of the MJO and Equatorial Waves”, PAOC, MIT, Boston, MA, 9 May 2011

“A PV analysis for the MJO”, The Waves and Multiscale Processes in the Tropics Workshop, American Institute of Mathematics, Palo Alto, CA, December 6 – 10, 2010

“Madden Julian Oscillation and other tropical variability”, Workshop on Evaluation of Reanalyses – Developing an Integrated Earth System Analysis (IESA) Capability, Baltimore, MD, November 1-3, 2010

“DYNAMO: A Research Program on MJO Initiation”, the 35th Annual Climate Diagnostics and Prediction Workshop, Raleigh, NC, October 4-7, 2010

“Role of the MJO in ENSO Simulated by CGCMs”, AGU Western Pacific Geophysical Meeting, Taipei, Taiwan, June 21 – 15, 2010

“Vertical Structures of Tropical Diabatic Heating: Ubiquity of the Leading Modes and   
its Dynamical Implications”, [Courant Institute of Mathematical Sciences](http://www.cims.nyu.edu/). November 18, 2009

“Simulations of the Madden-Julian Oscillation by Global Climate Models”, International Workshop on Global Change Projection: Modeling, Intercomparison, and Impact Assessment, Yokohama, Japan, February 18-20, 2009.

“Cross-scale air sea interaction”, European Centre for Medium-Range Weather Forecasts Workshop on Ocean-Atmosphere Interactions measurements, Reading, England, November 10 – 12, 2008.

“Bimodal Structure in Diabatic Heating Profiles over the Tropical Pacific Region”, 2008 Western Pacific Geophysics Meeting, Cairns, Australia, July 21 – August 1, 2008.

“MJO and ENSO: A Stochastic Connection between Weather and Climate”, Department of Atmospheric and Geophysical Sciences, State University of New York at Albany, February 24, 2008.

“Research Issues on Tropical Convection and Two-way Interaction with the Large-scale Flow”, AMS Forum: Climate Change, 17 January 2007

“The MJO-ENSO Problem”, Department of Earth and Atmospheric Sciences, Cornell University, 29 September 2006

“The MJO-ENSO Problem”, Workshop on the Organization and Maintenance of Tropical Convection and the Madden Julian Oscillation, Trieste, March 13-17, 2006

“Shallow meridional circulation in the tropics”, Center for Geophysical Research, University of Costa Rica, San José, 25 May 2005

“The structure and annual cycle of the MJO”, ECMWF/CLIVAR Workshop on Simulation and Prediction of Intra-Seasonal Variability with Emphasis on the MJO, ECMWF, 3 - 6 November 2003.

“Role of Radiation in the Large-Scale Circulation in the Western Pacific”, ARM annual meeting, Boulder, April 2003

"Observed evidence for a dynamic connection between the MJO and ENSO", European Geophysical Society XXVII General Assembly, Nice, April 2002

“MJO Theories”, NCAR Summer Colloquium, Boulder, 17 July, 2001.

“Tropical Coupled Variability”, NCAR Summer Colloquium, Boulder, 13 July, 2001.

“The MJO-ENSO Problem”, Climate Diagnoses Center, NOAA, Boulder, 25 June, 2001.

“Scrutinizing ITCZ Theories”, Program of Atmospheric and Oceanic Science, University of Colorado, Boulder, 22 June, 2001.

“The bimodality of tropical upper-tropospheric water vapor: Observations from in situ and remote sensing measurements”, NASA Goddard Space Flight Center, Grenbelft, 10 May, 2000

"The Intraseasonal Oscillation in the Atmosphere and the Ocean of the Western Pacific Warm Pool", College of the Oceanic and Atmospheric Sciences, Corvales, Oregon State University, OR, 8 March 1996

"Coherence between SST and Atmospheric Variability in the Western Pacific Warm Pool", the 8th Conference on Air-Sea Interaction, AMS, Atlanta, GA, 28 Januray - 2 February, 1996.

"Atmospheric Intraseasonal Variability at the Surface in the Western Pacific Ocean", NASA Goddard Space Flight Center, Greenbelt, MD, 18 January 1995.