

**CURRICULUM VITAE: *Chidong Zhang***

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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:**

2016 -	Supervisory Oceanographer	NOAA Pacific Marine Environmental Laboratory and Leader of Ocean Climate Research Division
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:**

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:**

PI, The YMC Banda Sea Cruise, November 2019  
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:**

Member, Organization Committee for the NOAA Climate Program Office (CPO) Earth System Science and Modeling (ESSM) Division Strategic Planning Workshop, November 2018  
Member, Organization Committee for the US Clivar Workshop on Tropical Convection and Air-Sea Interaction, 2018-2019  
Member, 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-  
 Member, Organizing Committee of Workshop on Intraseasonal Processes and Prediction in the  
 Maritime Continent, Singapore, 11-13 April 2016  
 Member, US Steering Committee of International Indian Ocean Expedition 2 (IIOPE-2), 2015 -  
 Member, Tropical Pacific Observing System (TPOS) Planetary Boundary Layer Task Team,  
 2015 -  
 Member, SPURS-2 Steering Committee, 2015 -  
 Member, Organizing Committee of the 2<sup>nd</sup> International Workshop on Years of the Maritime  
 Continent, BMKG, Jakarta, November 24-26, 2015.  
 Member, AMS Awards Nomination Committee, 2015-2021.  
 Member, Editorial Advisory Board of Mathematics of Climate and Weather Forecasting, 2015 –  
 Member, Review Panel for NOAA Earth System Laboratory, Physical Science Division, May 12-  
 14, 2015  
 Guest Editor, Journal of the Meteorological Society of Japan, 2015  
 Member, 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 1<sup>st</sup> International Workshop on Years of the Maritime  
 Continent, Center for Climate Research Singapore, January 27-30, 2015.  
 Member, 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 – 2017.  
 Co-Chair, Symposium on Prediction of the Madden-Julian Oscillation, AMS Annual Meeting,  
 Austin, TX, January 10, 2013.  
 Member, Council of the American Meteorological Society, 2012 – 2015  
 Member, Organizing Committee of AMS Michio Yanai Symposium, January 27, 2011  
 Member, Organizing Committee of 2011 NCAR ASP Summer Colloquium on African Weather and  
 Climate, July 25 – August 5, 2011  
 Member, ARM MJO Investigation Experiment (AMIE) Science Steering Committee, 2010 - 2013  
 Chair, Dynamics of the MJO (DYNAMO) Science Steering Committee, 2010 – 2013  
 Member, Cooperative Indian Ocean Experiment on Intraseasonal Variability in the Year 2011  
 (CINDY2011) International Science Steering Committee, 2010 – 2013  
 Member, WWRP/WCRP YOTC MJO Task Force, 2010 – 2012  
 Member, Review Panel of National Research Council, 2009 - 2011  
 Member, 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 –  
 Member, AMS Committee on Hurricanes and Tropical Meteorology, 2004 – 2007  
 Member, International CLIVAR's Atlantic Implementation Panel (AIP), 2004 – 2007  
 Member, International Science Working Group of North American Monsoon Experiment (NAME),  
 2001 – 2005  
 Chair, Organizing Committee of MJO-ENSO workshop, 2000, Princeton, NJ  
 Member, AMS Max Eaton Award committee, 1997

#### **PUBLICATIONS:**

Ling, J., C. Zhang, R. Joyce, P.-P. Xie, and G. Chen, 2019: Possible Role of the Diurnal Cycle in  
 Land Convection in the Barrier Effect on the MJO by the Maritime Continent. *Geophys. Res.  
 Lett.*, in revision  
 Zelinsky, R.C., C. Zhang, and C. Liu, 2019: The Relationship Between the ITCZ and MJO  
 Initiation over the Indian Ocean. *J. Atmos. Sci.*, in revision.

- Li, T., L. Wang, M. Peng, B. Wang, C. Zhang, W. Lau, and H.-C. Kuo, 2019: A Forgotten Paper on the Tropical Intraseasonal Oscillation in 1963. *Bulletin of the American Meteorological Society*, in press.
- Kim, J.-E., C. Zhang, G.N. Kiladis, P. Bechtold, 2018: Heating and Moistening of the MJO during DYNAMO in ECMWF Reforecasts, *J. Atmos. Sci.*, 75(5), pp.1429-1452.
- Zhang, C. and Zhang, B., 2018. QBO-MJO Connection. *Journal of Geophysical Research: Atmospheres*, 123(6), pp.2957-2967.
- Li, X., M.A. Janiga, S. Wang, W.-K. Tao, A. Rowe, W. Xu, C. Liu, T. Matsui, and C. Zhang, 2018: Evolution of precipitation structure during November DYNAMO MJO event: Cloud-resolving model intercomparison and cross-validation using radar observations. *J. Geophys. Res.*, 123 (7), 3530–3555.
- 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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- Ling, J., C. Zhang, S. Wang, and C. Li, 2017: A New Interpretation of the Ability of Global Models to Simulate the MJO. *Ltr. Geophys. Res.* 44, doi:10.1002/2017GL073891.
- Zhang, C. and J. Ling, 2017: Barrier Effect of the Indo-Pacific Maritime Continent on the MJO: Perspectives from Tracking MJO Precipitation. *J. Climate*, 30, 3439-3459.
- Ling, J., C. Li, T. Li, X. Jia, B. Khouider, E. Maloney, F. Vitart, Z. Xiao, and C. Zhang, 2017: Challenges and Opportunities in MJO Studies. *BAMS*, BAMS (2016)
- Hagos, S.M., C. Zhang, C. D. Burleyson, Z. Feng, J. Benedict, C. De Mott, M. Martini, 2016: The impact of diurnal cycle on the propagation of MJO convection across the Maritime Continent. *JAMES*, 08, doi:10.1002/2016MS000725
- Pilon, R., C. Zhang, and J. Dudhia, 2016: Roles of Deep and Shallow Convection and Microphysics in the MJO Simulated by the Model for Prediction Across Scales (MPAS). *J. Geophys. Res. Atmos.*, 121(18).
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- Zermeno, D., C. Zhang, P. Kollias, and H. Kalesse, 2015: Shallow Cloud Moistening in MJO and non-MJO Large-Scale Convective Events over the ARM Manus Site. *JAS*, 72, 4797–4820.
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- Ling, J., P. Bauer, P. Bechtold, A. Beljaars, R. Forbes, F. Vitart, M. Ulate, C. Zhang, 2014: Global vs. Local MJO Forecast Skill of the ECMWF model during DYNAMO. *Mon. Wea. Rev.*, 142, 2228-2247.
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- Zhang, C., 2013: Madden-Julian Oscillation: Bridging Weather and Climate. *Bull. Amer. Met. Soc.*, 94, 1849–1870.
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- Huang, J., C. Zhang, and J. Prospero, 2010: African Dust Outbreaks: A satellite perspective of temporal and spatial variability over the Tropical Atlantic Ocean. *J. Geophys. Res.*, 115, D05202, doi:10.1029/2009JD012516.
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- Huang, J., C. Zhang, and J. Prospero, 2009: Aerosol-Induced Large-Scale Variability in Precipitation over the Tropical Atlantic. *J. Clim.*, 22, 4970-4988.
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- Huang, J., Zhang, C., Prospero, J.M. (2009), African aerosol and large-scale precipitation variability over West Africa, *Environ. Res. Lett.* 4 015006, doi: 10.1088/1748-9326/4/1/015006
- Huang, J., C. Zhang, and J. Prospero, 2009: Large-Scale Effect of Aerosol on Precipitation in the West African Monsoon Region. *Quart. J. Roy. Met. Soc.*, 135, 581-594.
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- Li, C., X. Jia, J. Ling, W. Zhou, and C. Zhang, 2009: Sensitivity of MJO simulations to convective heating profiles. *Clim. Dyn.*, 32, 167-187.
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- Mestas-Nunez, A. M., D.B. Enfield, C. Zhang, 2007: Water Vapor Fluxes over the Intra-

- Americas Sea: Seasonal and Interannual Variability and Associations with Rainfall. *J. Clim.*, 20, 1910–1922.
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#### **BOOK CHAPTERS:**

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- Zhang, C., 2014: MJO and Extreme Weather/Climate Events, in *Dynamics and Predictability of Global and Regional High-Impact Weather and Climate Events*. J. Li, R. Swinbank, H. Volkert, and R. Grotjahn, Eds, Cambridge University Press
- Zhang, C., 2014: MJO Initiation, in *The Global Monsoon Systems, 3rd Edition*. C.P. Chang, R. H. Johnson, Gabriel Lau, Bin Wang, Peter Webster, and Matthew Wheeler, Eds.
- Tao, W.K., Takayabu, Y.N., Lang, S., Shige, S., Olson, W., Hou, A., Skofronick-Jackson, G., Jiang, X., Zhang, C., Lau, W. and Krishnamurti, T., 2016. TRMM latent heating retrieval: Applications and comparisons with field campaigns and large-scale analyses. *Meteorological Monographs*, 56, pp.2-1.
- Maloney, E.D., C. Zhang, 2013: Dr. Yanai's Contributions to the Discovery and Science of the MJO. *AMS Meteorological Monographs - Multi-scale Convection-Coupled Systems in the Tropics*.
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6, pp 350.

Zhang, C., 2011: Vertical structure from recent observations, in *Intraseasonal Variability of the Atmosphere-Ocean Climate System* (2nd Edition), W.K.M. Lau and D. E. Waliser, Eds, Praxis Publishing, Chichester, pp 646. ISBN: 978-3642139130

Zhang, C., 2007: Intraseasonal Oscillation, in *Tropical Meteorology*, edited by Yuqing Wang, Volume 15, in Encyclopedia of Life Support Systems (EOLSS), Developed under the Auspices of the UNESCO, Eolss Publishers, Paris, France, [<http://www.eolss.net>]

#### **INVITED TALKS:**

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

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

“From DYNAMO to YMC – Issues of MJO initiation and propagation”, Institute of Atmospheric Science, Chinese Academy of Science, Beijing, China, September 1, 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”, 11<sup>th</sup> Annual AMS Student Conference, New Orleans, LA January 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. 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, Greenbelt, 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, Corvallis, 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 January - 2 February, 1996.

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

#### **TEACHING:**

Graduate courses: General Circulation of the Atmosphere, Introduction to Atmospheric Sciences, Climate Dynamics, Tropical Atmosphere and Ocean

Undergraduate courses: Introduction to Meteorology, Atmospheric Dynamics II, Advanced Weather Forecast and Analysis, Current Weather and Climate Topics, Physical Meteorology, Global Climate Change

#### **GRADUATE STUDENTS ADVISED:**

Jeremy Pennington (MS), Guojun Gu (PhD), Michael McGauley (MS), Phoebe Woodworth (MS), Pallav Ray (PhD), Atul Kapur (PhD), Marcela Ulate (PhD), David Zermeno (PhD).

#### **POSTDOCTORAL ASSOCIATES ADVISED:**

Randy Brown, Roberto Mestas-Nunez, Javier Zavala-Gary, Jingfeng Huang, Rajib Chattopadhyay, Samson Hagos, Jian Ling, Matthew Janiga, Arun Arunchandra, Romain Pilon, Ji-Eun Kim

#### **REFEREE:**

National Science Foundation, United States – Israel Binational Science Foundation, European Commission, National Oceanic and Atmospheric Administration, National Aeronautics and Space Administration, Department of Energy, National Research Council, Journal of the Atmospheric Sciences, Journal of Climate, Monthly Weather Review, Bulletin of the American Meteorological Society, Journal of Applied Meteorology, Journal of Physical Oceanography, Journal of Atmospheric and Oceanic Technology, Journal of Geophysical Research-Atmosphere, Journal of Geophysical Research-Ocean, Journal of Advances in Modeling Earth Systems, Geophysical Research Letters, International Journal of Climatology, Quarterly Journal of the Royal Meteorological Society, Geosciences Education Journal, Nature