

Monday, May 10

10:00 A.M.–11:05 A.M.

34HURR

Session 1: 15 YEARS SINCE HURRICANE KATRINA- A LOOK BACK AND THE ROAD AHEAD

Chairs: Eric S. Blake, NOAA/NCEP/NHC, Miami, FL; Carl J. Schreck, NOAA, Asheville, NC

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

I.1 *Advances in NHC Products and Services Since Katrina: Summarizing 15 Years of Improvements (Invited Presentation).* **Michael J. Brennan**, NOAA/NWS/NCEP, Miami, FL

10:15 A.M.

I.2 *Progress in Operational Hurricane Modeling in the Past 15 Years Since Hurricane Katrina - Successes and Challenges (Invited Presentation).* **Vijay Tallapragada**, NOAA/NWS/NCEP, College Park, MD

10:25 A.M.

I.3 *An Update on ECMWF Activities for Improved Hurricane Forecasts (Invited Presentation).* **Linus Magnusson**, ECMWF, Reading, UK; J. Bidlot, K. Mogensen, F. Prates, S. J. Majumdar

10:35 A.M.

I.4 *The Hurricane Forecast Improvement Project: Progress in Hurricane Prediction Since Hurricane Katrina (Invited Presentation).* **Frank Marks**, Hurricane Research Division, AOML, Miami, FL

10:45 A.M.

I.5 *Satellite-Based TC Surveillance Since Katrina: An Exciting Era (Invited Presentation).* **Jeffrey Hawkins**, Retired, Carmel, CA; C. S. Velden

10:55 A.M.

I.6 *Katrina Then and Now: A Look Back Using New Storm Surge Forecasting Products and Services (Invited Presentation).* **Jamie R. Rhome**, NOAA/NHC, Miami, FL; K. Graham, R. Berg, F. Rivette

11:30 A.M.–12:30 P.M.

34HURR

Session 2A: CONVECTION I

Chairs: Hui Su, Jet Propulsion Laboratory, California Institute of Technology,, Pasadena, CA; Kathleen Schiro, Jet Propulsion Laboratory, California Institute of Technology,, Pasadena, CA, , University of Virginia, Charlottesville, VA; Carl J. Schreck, North Carolina State Univ., Asheville, NC; Brandon O. Wolding, NOAA/ESRL, Boulder, CO

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

2A.1 *Noninstantaneous Wave-CISK for the Interaction between Convective Heating and Low-level Moisture Convergence in the Tropics.* **Yan Liu**, Nanjing University, Nanjing, China; Z. M. Tan, Z. Wu

11:40 A.M.

2A.2 *A Shallow-Deep Unified Stochastic Mass-Flux Cumulus Parameterization in the Single Column Community Climate Model.* **Boualem Khouider**, Univ. of Victoria, Victoria, Canada; B. Goswami, R. Phani, A. Majda

11:45 A.M.

2A.3 *Can Simplified Cloud Structures Capture Vertical Fluxes?* **Christopher E. Holloway**, Univ. of Reading, Reading, UK; J. F. GU, R. S. Plant

11:50 A.M.

2A.4 *The Key Components of Convection for Vertical Transport of Heat and Moisture: A Core-cloak Conceptual Model.* **JIAN-FENG GU**, Univ. of Reading, Reading, United Kingdom; R. S. Plant, C. E. Holloway, T. R. Jones, A. Stirling, P. Clark, S. Woolnough

11:55 A.M.

2A.5 *Parcel Models and Stochastic Convective Initiation Time.* **Gerardo Hernandez-Duenas**, National University of Mexico, Juriquilla, Mexico; S. N. Stechmann, L. M. Smith

12:00 A.M.

2A.6 *Evolution of the West African Boundary Layer As a Long-Range Predictor of Rainfall Onset.* **Elijah Adesanya Adefisan**, Federal University of Technology, Akure, Akure, Nigeria; J. Omotosho, K. A. Foamouhou

12:05 A.M.

2A.7 *A Unified Turbulence-Convection Parameterization and Its Application for Tropical Convection in Climate Models.* **Yair Cohen**, California Institute of Technology, Pasadena, CA; I. Lopez-Gomez, J. He, A. Jaruga, C. Kawczynski, Z. D. Huang, S. Marras, Y. Tissaoui, T. Schneider

12:10 A.M.

2A.8 *Investigating Climatological Bottom-Heavy Convection in a Cloud-Resolving Model with Parameterized Large-Scale Dynamics.* **Miguel A Bernardez**, Univ. of Wisconsin, Madison, WI; L. E. Back

12:15 A.M.

2A.9 *Role of Wind Speed in Organizing Shallow Convection on Small Islands in Idealized Simulations.* **Michael C. Johnston**, Univ. of Reading, Reading, United Kingdom; C. E. Holloway, R. S. Plant

12:20 A.M.

2A.10 *Convective Life-Cycles: A Dual Equilibrium System?* **Vijit Maithel**, University of Wisconsin-Madison, Madison, WI; L. Back

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 2B: HURRICANE FORECAST IMPROVEMENT PROGRAM (HFIP) AND HURRICANE ANALYSIS AND FORECAST SYSTEM (HAFS) I

Chairs: Avichal Mehra, NWS, College Park, MD; Youngsun Jung, Office of Science and Technology Integration, Silver Spring, MD

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

2B.1 *Advances in Hurricane Forecast Models under NOAA Hurricane Forecast Improvement Program (HFIP).* **Sundaraman Gopalakrishnan**, NOAA/AOML/HRD, Miami, FL; A. Mehra, Y. Jung, F. Marks, D. Koch, S. Upadhayay

11:40 A.M.

2B.2 *Unified Forecast System (UFS) for Hurricane Predictions: A path forward for NCEP Operational Hurricane Models transitioning to Hurricane Analysis and Prediction System (HAFS).* **Vijay Tallapragada**, NOAA/NWS/NCEP, College Park, MD; A. Mehra

2B.3 WITHDRAWN

11:50 A.M.

2B.4 *What Caused the Uncertainty in the Early-Stage Forecasts of Hurricane Dorian?* **Andrew Hazelton**, CIMAS and AOML/HRD, Miami, FL; G. J. Alaka Jr., S. Gopalakrishnan, F. D. Marks, L. Cowan, M. Fischer

11:55 A.M.

2B.5 *What Resolution Is Optimal for Track Forecasts of Tropical Cyclones in the Hurricane Analysis and Forecasting System?* **Xuejin Zhang**, NOAA/AOML/HRD, Miami, FL; B. Liu, A. Hazelton, W. Ramstrom, S. Gopalakrishnan, A. Mehra, F. D. Marks, V. Tallapragada

12:00 A.M.

2B.6 *Moving Nest Development in FV3GFS.* **William Ramstrom**, RSMAS, Miami, FL; X. Zhang, S. Gopalakrishnan, R. Benson, L. Harris

12:05 A.M.

2B.7 *Improving Tropical Cyclone Forecasting through Physics Advancement: Using the HWRF Physics Suite in NOAA's New Hurricane Analysis and Forecast System.* **Man Zhang**, CU/CIRES at NOAA/GSL, Boulder, CO; L. Bernardet, E. Aligo, C. Zhang, G. Firl, M. K. Biswas, D. Heinzeller, M. B. Ek

12:10 A.M.

2B.8 *Leveraging Community Tools to Improve the Usability, Portability, and Testing Capabilities of the Hurricane Analysis and Forecast System (HAFS).* **Evan A. Kalina**, CU/CIRES at NOAA/GSL, Boulder, CO; U. Turuncoglu, S. Trahan, D. Rosen, R. Dunlap, L. Bernardet, M. Vertenstein, B. Liu, A. Chawla, A. Mehra, K. L. Friedman, C. DeLuca

12:15 A.M.

2B.9 *Capturing Multi-Storm and Multi-Scale Interactions for Tropical Cyclone Intensity Predictions.* **Ghassan J. Alaka**, NOAA/AOML/HRD, Miami, FL; B. Thomas, L. Gramer, S. Gopalakrishnan, A. Mehra

12:20 A.M.

2B.10 *Wave Coupling Sensitivity Investigations of Hurricane Michael (2018) with Coupled Hurricane-Ocean Model.* **Hyun-Sook Kim**, IMMSG and NOAA/NWS/NCEP/EMC, College Park, MD; J. Meixner, B. Liu, A. Wallcraft, A. Mehra, V. Tallapragada

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 2C: TROPICAL CYCLONE ENVIRONMENTAL INTERACTION

Chairs: Juan Feng, Nanjing University, Nanjing, China; Ben Schenkel, CIMMS, Norman, OK

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

2C.1 *A Preliminary Study of Radiation Emitted by Tropical Cyclones.* **Elizabeth A Ritchie**, Univ. of New South Wales, Canberra, Australia; K. T. Nguyen, L. Hu, J. S. Tyo

11:40 A.M.

2C.2 *Observations of Tropical Cyclone Interactions with Madden-Julian Oscillation Convection in the Indian Ocean.* **Deanna A. Hence**, Univ. of Illinois, Urbana, IL; J. D. Thayer, M. Geyer, J. Lara

11:45 A.M.

2C.3 *The Impact of Weak Environmental Steering Flow on Tropical Cyclone Track Predictability.* **John Ashcroft**, Univ. of Leeds, Leeds, UK; J. Schwendike, A. N. Ross, S. D. Griffiths, C. Short

11:50 A.M.

2C.4 *The Moisture Budget of Tropical Cyclones in HighResMIP Models: Large-Scale Balance and Sensitivity to Horizontal Resolution..* **Benoît Vanni re**, NCAS, Reading, United Kingdom; P. L. Vidale, M. J. Roberts, K. I. Hodges, M. E. Demory

11:55 A.M.

2C.5 *The Typhoon-Induced Drying of the Maritime Continent.* **Enrico Scoccimarro**, Fondazione Centro euro-Mediterraneo sui Cambiamenti Climatici, Bologna, Italy; S. Gualdi, A. Bellucci, D. Peano, A. Cherchi, G. Vecchi, A. Navarra

12:00 A.M.

2C.6 *A Spatial Model of North Indian Ocean Tropical Cyclone Intensity: Role of Sea Surface Temperature and Tropical Cyclone Heat Potential.* **Md Wahiduzzaman**, Nanjing Univ. of Information Science and Technology, Nanjing, China; J. J. Luo

12:05 A.M.

2C.7 *Impacts of Upper-Tropospheric Cold Low on Typhoon Jongdari (2018) using Piecewise Potential Vorticity Inversion.* **Ziyu Yan**, Nanjing University of Information Science & Technology, Nanjing, China; X. Ge, Z. Wang, C. C. Wu, P. Melinda

12:10 A.M.

2C.8 *Environmental Forcing of Upper-tropospheric Cold Low (UTCL) to Tropical Cyclone Intensity and Structural Change.* **Yu-An Chen**, National Taiwan University, New Taipei City, Taiwan; C. C. Wu

12:15 A.M.

2C.9 *Influences of Synoptic Pattern on the Precipitation of Landfalling Tropical Cyclones.* **Shoujuan Shu**, Zhejiang University, Hangzhou, China

2C.10 *WITHDRAWN*

12:25 A.M.

Discussion.

1:00 P.M.–2:05 P.M.

34HURR

Session 3A: CONVECTION II

Chairs: Brandon O. Wolding, NOAA/ESRL, Boulder, CO; Carl J. Schreck, North Carolina State Univ., Asheville, NC

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

3A.1 *Effects of Lower-Tropospheric Buoyancy on the Tropical Convective Life Cycle.* **Scott W. Powell**, Naval Postgraduate School, Monterey, CA; B. O. Wolding

3A.2 *WITHDRAWN*

1:10 P.M.

3A.2A *Capability of Highly Spatiotemporally Resolving Initializations with All-sky Satellite Data Assimilation on the Convective Severe Weather Event Predictions.* **Masashi Minamide**, JPL, California Institute of Technology, Pasadena, CA; D. J. Posselt

1:15 P.M.

3A.3 *Observing Aggregation-Dependent Convective Evolution Using the Gross Moist Stability Framework.* **Wei-Ming Tsai**, University of Miami, RSMAS, Miami, FL; B. Mapes

1:20 P.M.

3A.4 *Physical Mechanisms of Offshore Propagation of Convection over Sumatra and their Dependence on Large-Scale Forcing.* **Simon Christopher Peatman**, University of Leeds, Leeds, United Kingdom; J. Schwendike, C. E. Birch, J. H. Marsham

1:25 P.M.

3A.5 *Island Rainfall Enhancement and Diurnal Rectification in the Maritime Continent.* **James Ruppert**, The Pennsylvania State University, University Park, PA; X. Chen, F. Zhang

1:30 P.M.

3A.6 *The Effects of Topography and Air-Sea Feedbacks on the Diurnal Cycle of Convection Over Luzon During the BSISO.* **Emily M. Riley Dellaripa**, Colorado State University, Fort Collins, CO; E. D. Maloney, B. A. Toms, S. M. Saleeby, S. C. van den Heever

3A.7 *WITHDRAWN*

1:40 P.M.

3A.8 *A Humidity-Entrainment Mechanism for Aerosol Invigoration of Convection.* **Tristan H. Abbott**, Massachusetts Institute of Technology, Cambridge, MA; T. W. Cronin

1:45 P.M.

3A.9 *The Role of Cold Pool in Shaping the Mesoscale Convective Edge.* **Hao Fu**, Stanford University, Stanford, CA; M. O'Neill

1:50 P.M.

3A.10 *Identifying and Characterizing Tropical Mesoscale Convective Cold Pools using Spaceborne Scatterometer Winds, Precipitation, High-Resolution Regional Modeling.* **Piyush Garg**, Univ. of Illinois, Urbana, IL; S. W. Nesbitt, T. J. Lang, G. Priftis, J. D. Thayer, D. A. Henc

3A.11 *WITHDRAWN*

2:00 P.M.

Poster Session I: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 3B: TROPICAL CYCLONE THEORY AND INTENSITY

Chairs: Morgan O'Neill, Stanford Univ., Earth Systems Science Department, Stanford, CA; Robert G. Nystrom, NCAR, Boulder, CO

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

3B.1 *Steady State Tropical Cyclones in Axisymmetric Models.* **Raphael Rousseau-Rizzi**, MIT, Cambridge, MA; R. Rotunno, G. H. Bryan

1:10 P.M.

3B.2 *Why Do the Maximum Intensities in Modeled Tropical Cyclones Vary Under the Same Environmental Conditions?* **Dandan Tao**, Colorado State Univ., Fort Collins, CO; M. M. Bell, R. Rotunno, P. J. Van Leeuwen

1:15 P.M.

3B.3 *Lilly's Model for Steady-State Tropical Cyclone Intensity and Structure.* **Michael Bell**, Colorado State Univ., Fort Collins, CO; D. Tao, R. Rotunno

1:20 P.M.

3B.4 *Linking Surface Enthalpy Fluxes to the Forces Driving the Secondary Circulation: Towards a Causal Theory of Tropical Cyclone Intensification.* **Rémi Tailleux**, Univ. of Reading, RG6 6BB Reading, UK; B. L. Harris, C. E. Holloway, P. L. Vidale

1:25 P.M.

3B.5 *The Diurnal Cycle of Rainfall and Surface Wind Speed in Tropical Cyclones.* **Patrick Duran**, NASA, Huntsville, AL; J. L. Case, E. L. Duran, D. J. Cecil

1:30 P.M.

3B.6 *Roles of Barotropic Instability across the Moat in Tropical Cyclone Eyewall Replacement Cycles.* **Tsz-Kin Lai**, McGill University, Montreal, Canada; E. A. Hendricks, M. K. Yau, K. Menelaou

3B.7 WITHDRAWN

1:40 P.M.

3B.8 *Can Existing Theory Predict the Response of Tropical Cyclone Intensity to Idealized Landfall?* **Jie Chen**, Purdue Univ., West Lafayette, IN; D. R. Chavas

1:45 P.M.

3B.9 *Moist Potential Vorticity Structure of the Tropical Cyclone Boundary Layer: A 3D perspective.* **Ipshita Dey**, Stanford University, Stanford, CA; M. O'Neill

1:50 P.M.

Discussion.

2:00 P.M.

Poster Session I: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 3C: HURRICANE FORECAST IMPROVEMENT PROGRAM (HFIP) AND HURRICANE ANALYSIS AND FORECAST SYSTEM (HAFS) II

Chairs: Vijay Tallapragada, NOAA/NWS/NCEP, College Park, MD; S. Gopalakrishnan, NOAA/AOML/HRD, Miami, FL

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

3C.1 *Operational Tropical Cyclone Modeling at NOAA's National Weather Service National Center for Environmental Prediction (NWS/NCEP): Recent Performance and Future Upgrades.* **Avichal Mehra**, NOAA/NWS/NCEP/EMC, College Park, FL; V. Tallapragada

1:10 P.M.

3C.2 *Recent Advances in Operational HWRF Data Assimilation.* **Jason Sippel**, AOML, Miami, FL; Z. Zhang, L. Bi, A. Mehra

1:15 P.M.

3C.3 *Recent Advances in the COAMPS-TC Ensemble and Highlights from the 2019-2020 Hurricane/Typhoon Seasons.* **William A. Komaromi**, NRL, Monterey, CA; J. D. Doyle, J. R. Moskaitis, P. A. Reinecke

1:20 P.M.

3C.4 *Bayesian Data Assimilation within an Experimental HWRF Modeling System.* **Jonathan Poterjoy**, Univ. of Maryland, College Park, College Park, MD

1:25 P.M.

3C.5 *Enhancing the Prediction of Landfalling Hurricanes Through Improved Data Assimilation with HWRF and the Hybrid 3DEnVar System.* **Zhaoxia Pu**, Univ. of Utah, Salt Lake City, UT; Y. Wang, X. Li, J. A. Zhang, L. Bi, A. Mehra, V. Tallapragada

1:30 P.M.

3C.6 *The Assimilation of Coastal Ground-Based WSR-88D and Airborne Tail Doppler Radar Observations with the Hybrid 3DEnVar System to Improve HWRF Landfalling Hurricane Prediction.* **Xu Lu**, Univ. of Oklahoma, Norman, OK; X. Wang

3C.7 WITHDRAWN

1:40 P.M.

3C.8 *Impact of Assimilating Different Ocean Observing Systems on Coupled Intensity Prediction for 2017 and 2018 Atlantic Hurricanes.* **G. R. Halliwell**, NOAA/AOML, Miami, FL; M. Le Henaff, R. Domingues, G. Goni, H. S. Kim

1:45 P.M.

3C.9 *HAFS Workflow Development to Support Hurricane Research and Operational Transitions.* **Bin Liu**, I.M. Systems Group at NOAA/NWS/NCEP/EMC, College Park, MD; Z. Zhang, J. Dong, L. Zhu, H. Winterbottom, W. Wang, C. Zhang, H. S. Kim, D. Iredell, B. Thomas, K. Wu, Q. Liu, A. Mehra, A. Chawla, V. Tallapragada

1:50 P.M.

3C.10 *Updates on NOAA's Evolving Research Transition Efforts.* **Matthew C. Mahalik**, NOAA/OAR/Weather Program Office, Silver Spring, MD

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session I: Welcoming Remarks.

34HURR

Poster Session I: CONVECTION- POSTERS

Chairs: Hui Su, Jet Propulsion Laboratory, California Institute of Technology,, Pasadena, CA; Kathleen Schiro, Jet Propulsion Laboratory, California Institute of Technology,, Pasadena, CA; Carl J. Schreck, North Carolina State Univ., Asheville, NC; Brandon O. Wolding, NOAA/ESRL, Boulder, CO

1 *Precipitation and the Associated Moist Static Energy Budget Off Western Australia in Conjunction with Ningaloo Niño.* **Tao Zheng**, Hohai University, Nanjing, China; T. Feng

2 *Understanding Cloud Radiative Feedbacks Within the MJO.* **Hrag Najarian**, University of Oklahoma, Norman, OK; N. Sakaeda

4 *Understanding Relationships between Humidity, Stability, and Precipitation in the Tropics.* **Martin S. Singh**, Monash University, Clayton, Australia; R. A. Warren, C. Jakob

5 *The Upscale Growth of Tropical Oceanic Mesoscale Convective Systems.* **James O H Russell**, University of Utah, Salt Lake City, UT; M. Rajagopal, E. Zipser

6 *Radiative-Convective Equilibrium with the Nontraditional Coriolis Terms.* **Hing Ong**, University of California, Davis, Davis, CA; D. Yang

34HURR**Poster Session I: ENVIRONMENTAL INTERACTIONS WITH TROPICAL CYCLONE OUTFLOW- POSTERS**

Chairs: Gregory J. Tripoli, Univ. of Wisconsin–Madison, Madison, WI; Daniel R. Chavas, Purdue Univ., West Lafayette, IN

7 *Lagrangian Trajectories at the Outflow of Tropical Cyclones.* **Yair Cohen**, California Institute of Technology, Pasadena, CA; N. Paldor

34HURR**Poster Session I: HAZARD COMMUNICATION- POSTERS**

Chair: Robbie Berg, National Hurricane Center, Miami, FL

8 *Perceived Risk, Protective Actions and the Parasocial Relationship with the Local Weathercaster: A Case Study of Hurricane Irma.* **Christopher L. Nunley**, Mississippi State University, College Station, TX; K. Sherman-Morris, J. A. Morris, P. S. Poe

34HURR**Poster Session I: HURRICANE FORECAST IMPROVEMENT PROGRAM (HFIP) AND HURRICANE ANALYSIS AND FORECAST SYSTEM (HAFS) - POSTERS**

Chairs: Lidia Cucurull, AOML, Miami, FL; Zhan Zhang, EMC, College Park, MD

9 *A Dynamical Model for Tropical Cyclone Rapid Intensification Using Aircraft Reconnaissance Data.* **Eric A. Hendricks**, NCAR, Boulder, CO; J. L. Vigh, C. Rozoff

10 *Performance of HMON Forecast in hurricane seasons.* **Lin Zhu**, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD; W. Wang, H. S. Kim, D. Iredell, Z. Zhang, B. Liu, J. Dong, A. Mehra, V. Tallapragada

11 WITHDRAWN

12 *A Preliminary Analysis of a Rapid Intensification and Prediction Aid for 2019 and 2020.* **Kate D. Musgrave**, CIRA/Colorado State Univ., Fort Collins, CO; J. A. Knaff, C. R. Sampson, A. Brammer

13 *Extension of the Tropical Cyclone Wind Speed Probability Model from Five to Seven Days.* **Alan Brammer**, CIRA/Colorado State Univ., Fort Collins, CO; A. B. Schumacher, K. D. Musgrave, M. DeMaria

14 *A Modified Tke-Based Edmf PBL Scheme for Hurricane Simulations in Hafs.* **Weiguo Wang**, I.M. Systems Group at NOAA/NWS/NCEP/EMC, College Park, MD; J. Dong, C. Zhang, L. Zhu, B. Liu, K. Wu, Z. Zhang, A. Mehra, V. Tallapragada

15 *Bias Correction for SHIPS and LGEM Intensity Change Distributions.* **Benjamin C. Trabling**, Colorado State Univ., Fort Collins, CO; M. DeMaria, K. Musgrave

34HURR**Poster Session I: INTRASEASONAL- POSTERS**

Chair: Matthew Adam Janiga, NRL, Monterey, CA

16 *A Climatology of Extreme Convective Storms in Tropical East Asia and Their Ingredients for Heavy Rainfall as seen by TRMM.* **Warittha Panasawatwong**, Colorado State University, Fort Collins, CO; K. L. Rasmussen, M. M. Bell

17 *Sources of Tropical Subseasonal Skill in the CFSv2.* **Carl J. Schreck**, North Carolina State Univ., Asheville, NC; M. A. Janiga, S. Baxter

18 *Evaluation of Surface Heat Fluxes over the Tropical Oceans in AMIP Simulations.* **Xin Zhou**, Florida Institute of Technology, Melbourne, FL; P. Ray, B. S. Barrett, P. C. Hsu

19 WITHDRAWN

21 *Influence of the MJO on Stratospheric Equatorial Waves and the QBO.* **Jennifer Gahtan**, JPL, Pasadena, CA; B. Tian

22 *'Assessment of Stratospheric Wave Activity Associated with the MJO During the QBO Phases'.* **Sadiksha Rai**, The University of Oklahoma, Norman, OK; N. Sakaeda

23 *Impact of Large Scale Conditions on the 2018 Extreme Event over Senegal and Ghana.* **Coumba NIANG**, University Cheikh Anta Diop of Dakar, Dakar, Senegal

24 *Forecasting DYNAMO MJO Events with the Subseasonal Experiment (SubX).* **Rachel C. Zelinsky**, RSMAS, Miami, FL; B. Kirtman, K. Pegion

25 *Predicting the Leading Modes of Sub-seasonal East African Short Rains Variability in the S2S Database.* **Felipe M. de Andrade**, University of Reading, Reading, United Kingdom; E. M. Thompson, L. C. Hiron, S. J. Woolnough

34HURR

Poster Session I: RAPID INTENSIFICATION- POSTERS

Chair: Scott A. Braun, GSFC, Greenbelt, MD

26 *Characterizing the Nature and Evolution of Asymmetric Structures in Idealized Simulations of Rapidly Intensifying Tropical Cyclones.* **Jonathan Martinez**, NCAR, Boulder, CO; M. M. Bell

27 *The Role of Diabatic Heating in the Intensity Changes of Hurricane Irma (2017).* **William Torgerson**, Univ. of Leeds, Leeds, United Kingdom; J. Schwendike, A. N. Ross, C. Short

28 *High-Resolution Simulation of Hurricane Patricia (2015) – Rapid Intensification.* **Yi Jin**, NRL, Monterey, CA; D. R. Ryglicki, H. Jin, J. D. Doyle, D. Stern

29 *Predicting Tropical Cyclone Rapid Intensification using a Convolutional Neural Network.* **Sarah M. Griffin**, CIMSS/Univ. of Wisconsin, Madison, WI; A. Wimmers, T. Olander, C. S. Velden

30 *Inner-core Processes Leading to the Rapid Intensification of Early-stage Tropical Cyclones in Moderate Vertical Wind Shear.* **Xiaomin Chen**, NOAA, Miami, FL; J. A. Zhang, F. D. Marks, J. Fang, R. F. Rogers, J. J. Cione

31 *The Rapid Intensification and Eyewall Replacement Cycles of Hurricane Irma (2017).* **Michael S. Fischer**, NOAA/AOML/HRD, Miami, FL; R. F. Rogers, P. D. Reasor

33 *How Can the Initial Storm Structure Influence Hurricane Patricia's Rapid Intensification?.* **Dandan Tao**, Colorado State Univ., Fort Collins, CO; P. J. Van Leeuwen, M. M. Bell, Y. Ying

34 *The Evolution of Large-Scale and Storm-Scale Characteristics in Rapidly Intensifying and Slowly Intensifying Tropical Cyclones using an Analog Approach.* **Jannetta C Richardson**, SUNY, Albany, NY; R. D. Torn, B. Tang

3:00 P.M.–4:00 P.M.

34HURR

Session 4A: CONVECTION III

Chairs: Carl J. Schreck, North Carolina State Univ., Asheville, NC; Brandon O. Wolding, NOAA/ESRL, Boulder, CO

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

4A.1 *Radiative Convective Equilibrium, Self-Aggregation, and Climate in the RCEMIP Suite.* **Catherine L. Stauffer**, Florida State University, Tallahassee, FL; A. A. Wing, K. A. Reed

3:10 P.M.

4A.2 *A Shallow Water Model for Convective Self-Aggregation.* **Da Yang**, Univ. of California, Davis, Davis, CA; C. Muller

3:15 P.M.

4A.3 *Cloud-Radiation Interactions and their Contributions to Convective Self-Aggregation.* **Kieran N. Pope**, University of Reading, Reading, United Kingdom; C. E. Holloway, T. Stein, T. R. Jones

3:20 P.M.

4A.4 *A Vertically Resolved Moist Static Energy Framework Highlights the Role of Boundary Layer in Convective Self-Aggregation.* **Lin Yao**, University of California Davis, DAVIS, CA; D. Yang, Z. M. Tan

3:25 P.M.

4A.5 *Competition between shear-organized and unorganized convection in large-domain CRM simulations.* **Wei-Ming Tsai**, University of Miami, RSMAS, Miami, FL; B. Mapes

3:30 P.M.

4A.6 *Relating the Gross Moist Stability to SST and SST Gradients.* **Margaret L. Duffy**, MIT, Cambridge, MA; L. E. Back

3:35 P.M.

4A.7 *Radiative-Convective Equilibrium and Coupling to Parameterized Large-Scale Dynamics in Single Column Community Atmosphere Model.* **I-Kuan Hu**, Univ. of Miami/RSMAS, Miami, FL; B. E. Mapes

3:40 P.M.

4A.8 *Periodic Oscillations in Steady State Simulations with Parameterized Large-Scale Dynamics.* **Miguel A Bernardez**, Univ. of Wisconsin, Madison, WI; L. E. Back

3:45 P.M.

4A.9 *Mesoscale Convective Systems Over Tropical Oceans: The Spatiotemporal Distribution of Size, Duration, and Rain Volume using IMERG.* **Manikandan Rajagopal**, University of Utah, Salt Lake City, UT; J. O. H. Russell, E. J. Zipser

3:50 P.M.

4A.10 *The Impact of Stable Layers on Downdrafts in Tropical Deep Convection.* **Charles N. Helms**, NASA/GSFC, Greenbelt, MD; G. M. Heymsfield

3:55 P.M.

Discussion.

3:00 P.M.—4:00 P.M.

34HURR

Session 4B: HURRICANE FORECAST IMPROVEMENT PROGRAM (HFIP) AND HURRICANE ANALYSIS AND FORECAST SYSTEM (HAFS) III

Chairs: Avichal Mehra, NOAA/NWS/NCEP/EMC, College Park, MD; Sundararaman Gopalakrishnan, NOAA/AOML/HRD, Miami, FL

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

4B.1 *Hurricane Forecast Improvement Program (HFIP): the Unified Forecast System (UFS) and the next-generation Hurricane Analysis.* **Youngsun Jung**, Office of Science and Technology Integration, Silver Spring, MD; D. Koch, E. Rappaport, V. Tallapragada, F. Marks, A. Mehra, S. Gopalakrishnan, S. Upadhayay

3:10 P.M.

4B.2 *Application of Ensemble-based Sensitivity for Landfalling TC Wind and Precipitation Forecasts.* **Ryan D. Torn**, Univ. at Albany, SUNY, Albany, NY

3:15 P.M.

4B.3 *A Performance Diagram for Comprehensive Evaluation of Forecasts of Tropical Cyclone Rapid Intensification.* **Tara L. Jensen**, NCAR, Boulder, CO; J. L. Vigh, M. K. Biswas, K. M. Newman, B. G. Brown, T. V. Burek, J. E. Halley Gotway

3:20 P.M.

4B.4 *Application of a Sub-setting Ensemble Post-processing Method on HWRF based Ensemble Prediction System.* **Zhan Zhang**, IMSG at NOAA/NWS/NCEP/EMC, College Park, MD; W. Wang, L. Zhu, B. Liu, K. Wu, A. Mehra, V. Tallapragada

3:25 P.M.

4B.5 *A Generalized Rapid Intensification Prediction Framework.* **Jonathan L. Vigh**, NCAR, Boulder, CO; C. M. Rozoff, E. A. Hendricks, M. K. Biswas, J. Lin, K. Emanuel, D. J. Gagne II, I. C. MacDaniel, P. A. Kucera, M. DeMaria, J. A. Knaff, C. R. Sampson, R. Ríos-Berrios

3:30 P.M.

4B.6 *Verification of Probabilistic Hazard Forecasts for the Hurricane Seasons 2017 to 2019.* **Kevin Bachmann**, Univ. at Albany, SUNY, Albany, NY; R. D. Torn

3:35 P.M.

4B.7 *A Machine Learning Approach to Investigate Uncertainties in Hurricane Track and Intensity Forecasting.* **Keqin Wu**, I.M. Systems Group at NOAA/NWS/NCEP/EMC, College Park, MD; Z. Zhang, W. Wang, B. Liu, J. Dong, A. Mehra, V. Tallapragada

3:40 P.M.

4B.8 *Forecasts of Hurricanes using Large-Ensemble Outputs.* **Jonathan Lin**, MIT, Cambridge, MA; K. Emanuel, J. L. Vigh

3:45 P.M.

4B.9 *Extension of the Statistical Hurricane Intensity Prediction Scheme (SHIPS) and Logistic Growth Equation Model (LGEM) from Five to Seven Days.* **Kate D. Musgrave**, CIRA/Colorado State Univ., Fort Collins, CO; M. DeMaria, A. Brammer, A. Libardoni, S. N. Stevenson

3:50 P.M.

4B.10 *Predicting Tropical Cyclone Rapid Intensification with an HWRF-based Logistic Regression Post-Processing Scheme.* **Christopher M. Rozoff**, NCAR, Boulder, CO; I. C. MacDaniel, J. L. Vigh

3:55 P.M.

Discussion.

3:00 P.M.—4:00 P.M.

34HURR

Session 4C: TROPICAL CYCLONE INTENSITY CHANGE IN MODERATE VERTICAL WIND SHEAR: MECHANISMS, OBSERVATIONS, AND PREDICTABILITY I

Chairs: Peter Finocchio, National Research Council, Monterey, CA; Rosimar Ríos-Berrios, NCAR, Boulder, CO
3:00 P.M.

Welcoming Remarks. **Rosimar Rios-Berrios**

3:05 P.M.

4C.1 *The Effects of Ventilation Before and During the Rapid Intensification of Hurricane Michael (2018).* **Joshua J. Alland**, National Center for Atmospheric Research, Boulder, CO; C. A. Davis, R. E. Morss

3:10 P.M.

4C.2 *Eddy Vorticity Fluxes impact on the Rapid Intensification of Hurricanes Irma (2017) and Michael (2018).* **Alrick Green**, San Jose State Univ., San Jose, CA; S. Gopalakrishnan, S. Chiao, X. Zhang, G. J. Alaka Jr.

3:15 P.M.

4C.3 *The Thermodynamic Influence of Downdrafts on the Tropical Cyclone Boundary Layer Using Idealized Simulations with Moderate Wind Shear.* **Joshua B. Wadler**, RSMAS, University of Miami, Miami, FL; D. S. Nolan, J. Zhang, L. K. Shay

3:20 P.M.

4C.4 *Boundary Layer Recovery and Precipitation Symmetrization Preceding Rapid Intensification of Tropical Cyclones in Shear.* **Xiaomin Chen**, NOAA, Miami, FL; J. F. Gu, J. A. Zhang, F. D. Marks, R. F. Rogers, J. J. Cione

3:25 P.M.

4C.5 *Observed Evolution of Thermodynamic and Precipitation Properties During Tropical Cyclone Intensity Change.* **Jonathan Zawislak**, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; R. F. Rogers, J. Y. Ge, G. R. Alvey III

3:30 P.M.

4C.6 *Precipitation Processes and Vortex Alignment during the Intensification of a Weak Tropical Cyclone in Moderate Vertical Shear.* **Robert F. Rogers**, NOAA/AOML/HRD, Miami, FL; P. D. Reasor, J. Zawislak, M. S. Fischer, L. T. Nguyen

3:35 P.M.

4C.7 *Asymmetric Rainband Processes Leading to Secondary Eyewall Formation in a Model Simulation of Hurricane Matthew (2016).* **Chau Lam Yu**, Pennsylvania State University, State College, PA; A. C. Didlake Jr., F. Zhang

4C.8 WITHDRAWN

3:45 P.M.

4C.9 *Stabilization of Tropical Cyclones Against Vertical Wind Shear by Asymmetric Diabatic Heat Release.* **Tom Doerffel**, Free Univ. Berlin, Berlin, Germany; R. Klein, S. Gopalakrishnan, D. S. Nolan

3:50 P.M.

Discussion.

Tuesday, May 11

10:00 A.M.–11:00 A.M.

34HURR

Session 5A: TROPICAL WAVES I

Chair: Anantha Aiyer, North Carolina State University, RALEIGH, NC

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

5A.1 *Upscale Impact of Mesoscale Convective Systems on the Madden-Julian Oscillation and Its Parameterization in a Coarse-Resolution GCM.* **Qiu Yang**, New York University, New York, NY; A. J. Majda, M. W. Moncrieff

10:10 A.M.

5A.2 *Impact of the QBO on the Scale and Structure of Stratospheric Equatorial Waves.* **George Kiladis**, NOAA, Boulder, CO; J. R. Albers, J. Dias

5A.3 *WITHDRAWN*

10:20 A.M.

5A.4 *Precipitation and Latent Heating in Tropical Easterly Waves.* **Elinor R. Martin**, Univ. of Oklahoma, Norman, OK; R. McCrary, J. P. Stachnik, M. Hollis, C. Lewis-Merritt

10:25 A.M.

5A.5 *Easterly Wave Contributions to Diabatic Heating in the Global Tropics.* **Carrie Lewis-Merritt**, University of Kansas, Lawrence, KS; J. P. Stachnik

10:30 A.M.

5A.6 *Tropical Waves in Stochastically Excited Two-Dimensional Turbulence on a Moist Shallow Water Earth.* **Josef Schröttle**, Tel Aviv University, Tel Aviv, Israel; N. Harnik, D. L. Suhas, J. Sukhatme

10:35 A.M.

5A.7 *The Moisture-Temperature Ratio and Dominant Balances in Tropical Waves.* **Fiaz Ahmed**, Univ. of California, Los Angeles, CA; Á. F. Adames, J. D. Neelin

10:40 A.M.

5A.8 *Effect of Tropical waves on Tropical Cyclone Drift in a Barotropic Model.* **Boualem Khouider**, Univ. of Victoria, Victoria, Canada; H. Shin

10:45 A.M.

5A.9 *Dynamics of the Movement and Weather Patterns Around the African Easterly Wave between 18 and 24 August 2017.* **Stephen Ogungbenro**, Federal University of Technology Akure, Ondo State, Nigeria

10:50 A.M.

5A.10 *The Art of Identifying Equatorial Waves.* **Peter Knippertz**, Karlsruhe Institute of Technology, Karlsruhe, Germany; J. Dias, A. H. Fink, M. Gehne, G. Kiladis, K. Kikuchi, J. Methven, A. Rasheeda Satheesh, P. E. Roundy, A. Schlueter, M. C. Wheeler, S. J. Woolnough, G. Y. Yang, N. Žagar

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 5B: TROPICAL CYCLONE INTENSITY CHANGE IN MODERATE VERTICAL WIND SHEAR: MECHANISMS, OBSERVATIONS, AND PREDICTABILITY II

Chairs: Dandan Tao, Colorado State Univ., Fort Collins, CO; Rosimar Ríos-Berríos, NCAR, Boulder, CO

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

5B.1 *Bifurcation Points for Tropical Cyclone Genesis in Sheared and Dry Environments.* **Chaehyeon Chelsea Nam**, Colorado State Univ., Fort Collins, CO; D. Tao, M. M. Bell

10:10 A.M.

5B.2 *Development of a Misaligned Tropical Cyclone.* **David A. Schecter**, NorthWest Research Associates, Boulder, CO; K. Menelaou, P. Rosenthal

5B.3 WITHDRAWN

10:20 A.M.

5B.4 *Processes Underlying the Vortex Repositioning during Dorian's (2019) Early Stages That Increased Its Favorability for Rapid Intensification.* **George R. Alvey**, Cooperative Institute for Marine and Atmospheric Studies, University of Miami, and NOAA/AOML/HRD, MIAMI BEACH, FL; M. Fischer, P. Reasor, R. F. Rogers, J. Zawislak

10:25 A.M.

5B.5 *Vertical Alignment or Redevelopment? Recent Case Studies Using High-Resolution HEDAS Analyses.* **Sim Aberson**, AOML, Miami, FL; A. Aksoy, K. Sellwood, M. Fischer

10:30 A.M.

5B.6 *Relationships Between Vortex Tilt, Convective Structure, and Intensity Change in Early-Stage Tropical Cyclones.* **Michael S. Fischer**, NOAA/AOML/HRD, Miami, FL; R. F. Rogers, P. D. Reasor, J. P. Dunion

10:35 A.M.

5B.7 *The Dependence of Tropical Cyclone Response to Moderate Vertical Wind Shear on the Initial Storm Intensity.* **Peter Finocchio**, National Research Council, Monterey, CA; R. Ríos-Berrios

10:40 A.M.

5B.8 *The Role of Low-Level Flow Direction on Tropical Cyclone Intensity Changes in a Moderate-Sheared Environment.* **Tsung-Yung Lee**, National Taiwan University, Taipei, Taiwan; C. C. Wu

10:45 A.M.

5B.9 *The Tropical Cyclone as a Divergent Source in a Background Flow.* **David R. Ryglicki**, NRL, Monterey, CA; D. Hodyss, G. Rainwater, J. D. Doyle

10:50 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 5C: TROPICAL CYCLONES AND REMOTE SENSING I

Chairs: Haiyan Jiang, Florida International Univ., Miami, FL; Jason Dunion, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; Jonathan Zawislak, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; George R. Alvey, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

5C.1 *How Astronomers Might Analyze Tropical Cyclone Imagery?* **John Knaff**, NOAA/NESDIS, Fort Collins, CO; C. J. Slocum

10:10 A.M.

5C.2 *Can We Learn How to See inside a Tropical Cyclone from Geostationary Orbit?* **Christopher J. Slocum**, NOAA/NESDIS, Fort Collins, CO; J. Knaff

10:15 A.M.

5C.3 *Regional Constellation Design to Monitor Hurricanes Using Cubesat Coverage MAPS.* **Pardhasai chadalavada**, WICHITA STATE UNIVERSITY, Wichita, KS; A. Dutta

10:20 A.M.

5C.4 *Tropical Cyclone Wind Speed Measurements from the WindSat and AMSR Sensors.* **Thomas Meissner**, Remote Sensing Systems, Santa Rosa, CA; L. Ricciardulli, A. Manaster, F. Wentz

10:25 A.M.

5C.5 *Observations of tropical cyclone inner-core fine-scale structure, and its link to intensity variations.* **Léo vinour**, Ifremer, Brest, France; C. Combot, S. Jullien, A. Mouche, J. A. Knaff, B. Chapron

10:30 A.M.

5C.6 *Validation of Surface Wind Speeds from the SMAP, AMSR2, and Windsat Radiometers in Intense Tropical Cyclones.* **Lucrezia Ricciardulli**, Remote Sensing Systems, Santa Rosa, CA; A. Manaster, T. Meissner

10:35 A.M.

5C.7 *Estimation of the Tangential Winds and Asymmetric Structures in Typhoon Inner Core Region Using Himawari-8.* **Taiga Tsukada**, Hokkaido University, Sapporo, Japan; T. Horinouchi

10:40 A.M.

5C.8 *Exposing the Beast: The Structure of the Hurricane Boundary Layer from the Imaging Wind and Rain Airborne Profiler (IWRAP).* **Stephen R. Guimond**, UMBC/JCET, Baltimore, MD; J. Sapp, P. S. Chang, Z. Jelenak, J. Carswell

10:45 A.M.

5C.9 *Examining the Coastal Transition of the Hurricane Boundary Layer During Hurricane Irene (2011).* **A. Addison Alford**, Univ. of Oklahoma, Norman, OK; J. A. Zhang, M. I. Biggerstaff, P. P. Dodge, F. D. Marks, D. J. Bodine, G. D. Carrie

10:50 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 6A: INTRASEASONAL VARIABILITY I

Chairs: Matthew Adam Janiga, NRL, Monterey, CA; Brandon O. Wolding, NOAA/ESRL, Boulder, CO

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

6A.1 *Radiation and Intraseasonal Variability.* **Kerry Emanuel**, Massachusetts Institute of Technology, Cambridge, MA

6A.2 *WITHDRAWN*

11:45 A.M.

6A.3 *Interactions of Large-Scale Dynamics in Multi-Model MJO Simulations.* **Alex Omar Gonzalez**, Iowa State Univ., Ames, IA; A. L. Heath, M. Gehne, A. Jaramillo

11:50 A.M.

6A.4 *The Moist Entropy Budget of Terminating Madden-Julian Oscillation Events.* **Brett Chrisler**, Univ. of Kansas, Lawrence, KS; J. P. Stachnik

11:55 A.M.

6A.5 *Large-Scale Controls of Propagation of the Madden-Julian Oscillation Based on Aqua-Planet GCM Simulations.* **Xianan Jiang**, JIFRESSE/UCLA and JPL/Caltech, Pasadena, CA; E. D. Maloney, H. Su

12:00 A.M.

6A.6 *On the Importance of Mean-State Easterly Vertical Shear to the MJO.* **Stefan N. Tulich**, CIRES/Univ. of Colorado and NOAA/ESRL, Boulder, CO; G. Kiladis

12:05 A.M.

6A.7 *Unified Theory of the MJO and Kelvin Waves.* **Ji-Eun Kim**, Center for Climate Physics, Institute for Basic Science, Busan, Korea, Republic of (South); C. Zhang

12:10 A.M.

6A.8 *Tropical Wave – MJO Interactions Throughout the Lifetime of Intraseasonal Oscillation Events.* **Justin P. Stachnik**, Univ. of Kansas, Lawrence, KS; B. Chrisler

12:15 A.M.

6A.9 *Patterns Across the Continuum of Eastward-Moving Convective Disturbances of the Tropical Warm Pool Regions.* **Paul E. Roundy**, University at Albany, State University of New York, Albany, NY

12:20 A.M.

6A.10 *Understanding the Impact of the Interactions between the Diurnal Cycle and Topography on the MJO in the Maritime Continent.* **Pallav Ray**, Florida Institute of Technology, Melbourne, FL; H. Tan, J. Dudhia, M. W. Moncrieff

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 6B: TROPICAL CYCLONES AND REMOTE SENSING II

Chairs: Haiyan Jiang, Florida International Univ., Miami, FL; Jonathan Zawislak, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; George R. Alvey, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; Jason Dunion, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

6B.1 *Examining Rapidly Intensifying Tropical Cyclone Structure with TROPICS Observations.* **Erin B. Munsell**, NASA GSFC, Greenbelt, MD; S. A. Braun

11:40 A.M.

6B.2 *Towards the Use of GOES GLM Lightning for Tropical Cyclone Intensity Prediction.* **Stephanie N. Stevenson**, CIRA/NHC, Miami, FL; C. J. Slocum, M. DeMaria, M. S. Fischer, K. L. Corbosiero

6B.3 *WITHDRAWN*

11:50 A.M.

6B.4 *A 15-Year Survey of Tropical Cyclones Using a Lightning, Satellite Microwave, and Precipitation Multiplatform Dataset: Storm Intensity and Convective Properties.* **Natalia N. Solorzano**, DigiPen Institute of Technology, Redmond, WA; J. N. Thomas, C. Bracy, D. Shukla

11:55 A.M.

6B.5 *Climatology of Cloud Population in Tropical Cyclones.* **Mauricio Zapata**, Universidad Nacional de Colombia, Medellín, Medellín, Colombia; J. Sepulveda, J. S. Pérez-Carrasquilla, C. D. Hoyos

12:00 A.M.

6B.6 *Multi-Storm Analysis of Convective Rainband Characteristics Using Airborne Radar Observations.* **Nicholas R. Barron**, The Pennsylvania State University, University Park, PA; A. C. Didlake Jr., P. D. Reasor

12:05 A.M.

6B.7 *Satellite and Numerical Study of Convective Bursts with Gravity Waves in Intensifying Tropical Cyclone and Its Application.* **Takeshi Horinouchi**, Hokkaido University, Sapporo, Japan; U. Shimada, A. Wada

12:10 A.M.

6B.8 *Hydrometeor Size Sorting in the Asymmetric Eyewall of Hurricane Matthew (2016).* **Chelsey N. Laurencin**, The Pennsylvania State University, University Park, PA; A. C. Didlake Jr., S. Loeffler, M. R. Kumjian, G. M. Heymsfield

12:15 A.M.

6B.9 *Observation of the Tropical Cyclone Diurnal Cycle Using NUCAPS Satellite Sounding Retrievals .* **Erika L. Duran**, Univ. of Alabama in Huntsville, Huntsville, AL; E. Berndt, P. Duran

12:20 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 6C: STORM SURGE

Chair: Cody Fritz, NOAA/NCEP/NHC, Miami, FL

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

6C.1 *A Method for Probabilistic Surge Forecasting with High-Fidelity Models.* **Taylor G. Asher**, UNC Chapel Hill, Chapel Hill, NC; M. Plumlee, W. Chang, M. V. Bilskie, R. A. Luettich

11:40 A.M.

6C.2 *Improvements to the Probabilistic Storm Surge Model (P-Surge).* **Andrew B. Penny**, UCAR / National Hurricane Center, Miami, FL; L. P. Alaka, C. L. Fritz, J. Rhome, A. A. Taylor

11:45 A.M.

6C.3 *Forecasting and Communicating Dorian's Life Threatening Storm Surge on the North Carolina Outer Banks.* **Carl E. Barnes**, NWS, Newport, NC

11:50 A.M.

6C.4 *Hurricane Storm Surge from Irma and Maria in Puerto Rico and the Virgin Islands: Analyzing Intensity, Pressure, Forward Speed, and the Saffir-Simpson Scale.* **Kyra Bryant**, Tennessee State University, Nashville, TN; M. Akbar, J. G. Fleming, J. O. Gonzalez-Lopez

11:55 A.M.

6C.5 *Hurricane Storm Surge Assessment for the Archipelago of San Andres, Providencia and Santa Catalina, Colombia.* **Wilmer Rey**, General Maritime Directorate (DIMAR), Cartagena de Indias, Colombia; P. Ruíz-Salcines, C. M. Appendini, P. Salles, C. Urbano, G. Escobar-Olaya, A. Cabarcas-Mier, B. Jigena-Antelo, A. F. Osorio

12:00 A.M.

6C.6 *New York States Hurricanes and the Associated Wind and Storm Surge Hazards in a Changing Climate.* **Chia-Ying Lee**, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY; A. H. Sobel, S. J. Camargo, M. K. Tippett, K. Mandli

11:30 A.M.

Paper 6C.7 is now Paper 13C.6A..

12:05 A.M.

Discussion.

1:00 P.M.–2:05 P.M.

34HURR

Session 7A: INTRASEASONAL VARIABILITY II

Chairs: Matthew Adam Janiga, NRL, Monterey, CA; Michael Natoli, Colorado State Univ., Fort Collins, CO

1:00 P.M.

Welcoming Remarks.

7A.1 WITHDRAWN

1:10 P.M.

7A.2 *The Impact of Mean State Biases on MJO Skill in the Navy ESPC.* **Stephanie Rushley**, National Research Council, Monterey, CA; M. Janiga

1:15 P.M.

7A.3 *Subseasonal Tropical Prediction during Boreal Summer 2017 in the Navy Earth System Prediction Capability.* **Matthew Adam Janiga**, NRL, Monterey, CA; M. Ulate, P. P. Papin, W. Crawford, C. Reynolds

7A.4 WITHDRAWN

1:25 P.M.

7A.5 *Subseasonal Prediction of Tropical Cyclone Activity in the Operational Framework at CPC.* **Lindsey N. Long**, CPC, College Park, MD; J. Gottschalck, N. S. Novella

1:30 P.M.

7A.6 *Tropical Cyclone Interactions with Madden-Julian Oscillation Convection in the Indian Ocean from a High-Resolution WRF Simulation.* **Jeffrey D. Thayer**, Univ. of Illinois at Urbana–Champaign, Urbana, IL; D. A. Hence, P. Garg, S. W. Nesbitt

1:35 P.M.

7A.7 *Role of Land-Sea Contrast on Precipitation over Islands in the Maritime Continent during Easterly and Westerly Phases of the MJO.* **Haochen Tan**, Florida Institute of Technology, Melbourne, FL; P. Ray, B. S. Barrett, A. M. Ravindran, J. Dudhia, M. W. Moncrieff

1:40 P.M.

7A.8 *Intraseasonal Variability in the Diurnal Cycle of Precipitation in the Philippines.* **Michael Natoli**, Colorado State Univ., Fort Collins, CO; E. D. Maloney

1:45 P.M.

7A.9 *The Intraseasonal Evolution of Cloud Organization during DYNAMO.* **Naoko Sakaeda**, OU School of Meteorology, Norman, OK

1:50 P.M.

7A.10 *Eastward-Extended MJO Teleconnection Pattern Under Global Warming Leads to Amplified Impacts in the Pacific-North America Region.* **Wenyu Zhou**, Pacific Northwest National Laboratory, Richland, CA; D. Yang, S. P. Xie, J. Ma

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session 2: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 7B: HAZARD COMMUNICATION

Chair: Robbie Berg, National Hurricane Center, Miami, FL

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

7B.1 *On the Potential Extension of the Official Atlantic Hurricane Season.* **Ryan Truchelut**, WeatherTiger, LLC, TALLAHASSEE, FL; E. M. Staehling

1:10 P.M.

7B.2 *Enhancing Hazard Communication and Education for Marine Partners.* **Andy Latto**, NHC, Miami, FL

1:15 P.M.

7B.3 *The Tropical Analysis and Forecast Branch at the National Hurricane Center - Working with the U.S. Coast Guard to Keep Blue Water Mariners Safe.* **Christopher W. Landsea**, NHC, Miami, FL; E. Christensen, S. B. Konarik, A. S. Levine, J. R. Lewitsky, S. Stripling, B. J. Reinhart, A. Latto

1:20 P.M.

7B.7 *A Gridded Version of the NHC Official Forecasts to Support Operations at National Centers and Weather Forecast Offices (WFOs).* **Pablo Santos**, NOAA/NWS, Miami, FL; M. DeMaria, G. Demaria, M. Onderlinde, O. Ostwald

1:25 P.M.

7B.5 *Hurricane Isaias and its Impacts to the Greater New York City Metropolitan Area.* **Da'Vel Johnson**, NWS, Upton, NY

1:30 P.M.

7B.6 *A Closer Look at the Extra-Tropical Transition of Hurricane Michael: Scientific Successes and Messaging Challenges.* **Ryan T. Ellis**, NWS, Newport, NC; B. Haines, G. Hartfield, M. Strickler, A. Zimmerman

1:35 P.M.

7B.4 *Case Study: Continuing Challenges in Forecasting Extratropical Transition and Impacts as Seen with Tropical Storm Olga.* **Stephen P Caparotta**, WAFB-TV, Baton Rouge, LA

1:40 P.M.

7B.9 *Climate Communication, Impact Based Forecasting and User Evaluations.* **Johnson Ameho**, Ghana Meteorological Agency, Accra, Ghana

1:45 P.M.

7B.10 *A Reanalysis of the 1961-1965 Atlantic Hurricane Seasons.* **Andrew B. Hagen**, NHC, Miami, FL; S. Delgado, C. W. Landsea

7B.8 *WITHDRAWN*

1:50 P.M.

Discussion.

2:00 P.M.

Poster Session 2: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 7C: CYCLONE GLOBAL NAVIGATION SATELLITE SYSTEM (CYGNSS): APPLICATIONS FOR TROPICAL METEOROLOGY AND HYDROLOGY

Chair: D. J. Posselt, JPL, Pasadena, CA

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

7C.1 *Cyclone Global Navigation Satellite System (CYGNSS): Mission and Science Data Product Status.* **Christopher S. Ruf**, Univ. of Michigan, Ann Arbor, MI; D. McKague, D. J. Posselt, M. Moghaddam

1:10 P.M.

7C.2 *The Surface Heat Flux Product for CYGNSS: Updates and Results.* **Juan A. Crespo**, JPL, Pasadena, CA; S. Asharaf, D. J. Posselt

1:15 P.M.

7C.3 *Analysis of Tropical Cyclone Size, Structure & Strength using CYGNSS.* **Mary Morris**, JPL, Pasadena, CA; C. R. Sampson

1:20 P.M.

7C.4 *Assessing the Impact of CYGNSS Data on Predicting Landfalling Hurricanes.* **Zhaoxia Pu**, Univ. of Utah, Salt Lake City, UT; X. Li, C. S. Ruf

1:25 P.M.

7C.5 *Forward model based wind retrieval for CYGNSS.* **Rajeswari Balasubramaniam**, Univ. of Michigan, Ann Arbor, MI; C. S. Ruf

1:30 P.M.

7C.6 *Impacts of CYGNSS v2.1, v3.0 and NOAA L2 Winds on Analyses and Forecasts of Tropical Cyclones in Regional OSEs.* **Bachir Annane**, University of Miami and NOAA/AOML, Miami, FL; S. M. Leidner, R. N. Hoffman, R. Atlas, L. Cucurull, B. D. McNoldy, S. Majumdar

1:35 P.M.

Discussion.

2:00 P.M.

Poster Session 2: Welcoming Remarks.

34HURR

Poster Session 2: CLIMATE AND LARGE-SCALE CIRCULATION-POSTERS

Chair: Hanh Nguyen, BOM, Docklands, Australia

35 *Role of Physical Parameters in Cyclone-Induced Storm Surges in the Ganges-Brahmaputra-Meghna Delta.* **Wasif E Elahi**, University of New South Wales, Canberra, Australia; E. A. Ritchie, X. H. Wang

36 *The QBO's Influence on Tropical Lightning Activity.* **Montana Etten-Bohm**, Texas A&M Univ., College Station, TX; L. Houston, C. Schumacher, C. Hernandez, S. N. Stevenson

37 *Tropopause Temperature Increases with Climate Warming.* **Seth Seidel**, Univ. of California, Davis, CA; D. Yang

39 *Quasi-Stationary Nature of Arabian Sea Mid-Tropospheric Cyclones.* **Pradeep Kushwaha**, Indian Institute of Science, Bengaluru, Karnataka 560012, Bangalore, India; J. Sukhatme, R. S. Nanjundiah

40 *Interactions Between Convection and a Moist Vortex Associated with an Extreme Rainfall Event over Southern West Africa.* **Marlon Maranan**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. H. Fink, P. Knippertz, S. D. Francis, A. B. Akpo, O. O. Jegede, C. Yorke

41 *Convective Coupling in Tropical-Depression-Type Waves: Moist Static Energy Budgets and Gross Moist Stability.* **Tao Feng**, Hohai University, Nanjing, China

43 *Synoptic Drivers of Extreme Rainfall in East Africa.* **Samantha J Clarke**, University of Leeds, Leeds, United Kingdom; J. Schwendike, J. Mutemi

44 *Saharan Dust Transport and Dry Deposition During a Severe Summer Convective Storm.* **Habib Senghor**, Agence Nationale de l'Aviation Civile et de la Météorologie, SENEGAL, Dakar, Senegal; A. J. Roberts, J. H. Marsham

34HURR

Poster Session 2: SUBSEASONAL-TO-DECADAL (S2D) PREDICTION OF TROPICAL CYCLONE ACTIVITY - POSTERS

Chair: Philip J. Klotzbach, Colorado State Univ., Fort Collins, CO

57 *Predicting Subtropical Anticyclonic Wave Breaking Impacts on North Atlantic Seasonal Tropical Cyclone Activity.* **Jhordanne J. Jones**, Colorado State Univ., Fort Collins, CO; M. M. Bell, P. J. Klotzbach

34HURR

Poster Session 2: TROPICAL CYCLONE INTENSITY CHANGE IN MODERATE VERTICAL WIND SHEAR- POSTERS

Chair: Peter Finocchio, National Research Council, Monterey, CA

58 *Intensification of Idealized Tropical Cyclones in Directional Shear Flows: Balanced Dynamics and Role of Moist Convection.* **JIAN-FENG GU**, Univ. of Reading, Reading, United Kingdom; Z. M. Tan, X. Qiu

59 *Impacts of Radiation and Cold Pools on the Intensity and Vortex Tilt of Weak Tropical Cyclones Interacting with Vertical Wind Shear.* **Rosimar Ríos-Berríos**, NCAR, Boulder, CO

60 *Exploring the Relationship between Temporal Shear Direction Changes and Tropical Cyclone Intensification.*

Stephanie N. Stevenson, CIRA/NHC, Miami, FL; R. Ríos-Berríos, M. S. Fischer

34HURR

Poster Session 2: TROPICAL CYCLONES AND REMOTE SENSING - POSTERS

Chairs: Haiyan Jiang, Florida International Univ., Miami, FL; Jonathan Zawislak, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; George R. Alvey, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL

61 *Analyzing Gaps and Hurricane Rain Coverage to Inform NASA Satellite Proposals.* **Justin P. Stow**, Center for Ocean-Atmospheric Prediction Studies, Tallahassee, FL; M. A. Bourassa, H. Holbach, V. Misra

62 *Evaluating NASA's Soil Moisture Active Passive (SMAP) Mission Wind Retrieval Reliability on RMS HWind's Operational Products.* **Justin P. Stow**, Risk Management Solutions, Tallahassee, FL; C. Seitz, M. D. Powell

63 *Operational SFMR Algorithm Update.* **Heather M. Holbach**, The Florida State Univ., Northern Gulf Institute, and NOAA/AOML/HRD, Tallahassee, FL

64 *Reduction of Airborne Tail-Doppler Radar Winds to the Surface.* **Paul D. Reasor**, NOAA/AOML/HRD, Miami, FL; H. M. Holbach, J. F. Gamache

65 *Watching Hurricanes Fall Apart: Aircraft Observations of Weakening Tropical Cyclones.* **Sofia de Solo**, Mississippi State Univ., Mississippi State, MS; K. M. Wood

66 *Satellite Altimeter Derived Oceanic Heat Content Variability Estimates: Implications for Tropical Cyclone Intensity Change.* **Lynn K. Shay**, Univ. of Miami/RSMAS, Miami, FL; J. K. Brewster, B. Jaimes, E. M. Maturi, D. R. Donahue, E. Leuliette

67 WITHDRAWN

68 *Tropical Cyclone Precipitation, Infrared, Microwave, and Environmental Dataset (TC PRIMED).* **Naufal Razin**, Colorado State University, Fort Collins, CO; P. J. Brown, C. J. Slocum, J. Knaff, M. M. Bell

69 *Climatology of the Internal Structure of Tropical Cyclones at Different Life Cycle Stages: CloudSat and Airborne Reflectivity Data.* **Jhayron S. Pérez-Carrasquilla**, Universidad Nacional de Colombia, Sede Medellín, Facultad de Minas, Medellín, Colombia; J. Sepulveda, M. Zapata, C. D. Hoyos

70 WITHDRAWN

71 *Evolution of the Inner Core and Eyewall of Florence (2018) and Harvey (2017) During Landfall.* **Jeffrey A. Stevenson**, University of Oklahoma, Norman, OK; M. I. Biggerstaff, A. A. Alford, G. D. Carrie

72 WITHDRAWN

34HURR

Poster Session 2: TROPICAL WAVES - POSTERS

Chair: Anantha R. Aiyer, North Carolina State Univ., Raleigh, NC

73 *Development of a Global Tropical Easterly Wave Climatology.* **Margaret Hollis**, Univ. of Oklahoma, Norman, OK; E. R. Martin

74 *Equatorial Waves and High Impact Weather in Southeast Asia.* **Christopher E. Holloway**, Univ. of Reading, Reading, UK; S. Ferrett, S. J. Woolnough, G. Y. Yang, J. Methven, K. I. Hodges

75 *The Synoptic-Scale Convection and Precipitation Relationship between Western Equatorial Africa and Eastern Equatorial Africa.* **Godwin Ayesiga**, University of Reading, Reading, United Kingdom

34HURR

Poster Session 2: OPERATIONAL FORECASTING - POSTERS

Chair: Eric S. Blake, NOAA/NCEP/NHC, Miami, FL

45 *A Climatological Investigation of Tropical Cyclones Affecting the NWS Charleston County Warning Area.* **Robert Bright**, NOAA/NWS, North Charleston, SC; A. R. Pettett

46 *Employing AI-Machine Learning Techniques to Enhance TC Intensity Information from the Advanced Dvorak Technique (ADT).* **Timothy Olander**, CIMSS/Univ. of Wisconsin, Madison, WI; A. Wimmers, C. Velden

47 WITHDRAWN

48 *Use of JPSS and other Polar-Orbiting Satellite Data to Improve Operational Tropical Cyclones Position, Intensity, and Wind Structure Estimates, and Intensity Forecasts.* **Galina Chirokova**, CIRA / Colorado State University, Fort Collins, CO; J. Knaff, M. L. Bozeman, R. T. DeMaria, A. Libardoni, J. L. Beven, A. B. Penny, C. Grassotti, S. Liu

49 *Machine Learning Nighttime Visible Imagery (ML-NVI) and applications in tropical forecasting.* **Chandra Pasillas**, Colorado State University, Fort Collins, CO; M. M. Bell, C. Kummerow

50 *Initial Evaluation of Dropsonde Hurricane Wind Profiles Modeled with a Neutral Log-Wind Profile.* **Mark. A. Bourassa**, Florida State Univ., Tallahassee, FL; K. Ahern, H. M. Holbach, R. Foster

51 *Improvements to the Tropical Cyclone Logistic Guidance for Genesis (TCLOGG).* **Daniel J. Halperin**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; R. E. Hart

52 2019-2022 Proposed New Improvements to Tropical Cyclone Logistic Guidance for Genesis (TCLOGG). **Robert E. Hart**, Florida State Univ., Tallahassee, FL; D. J. Halperin

53 Historical Analysis of 2018-2020 Atlantic and Pacific Hurricane Wind Fields. **Michael E. Kozar**, Risk Management Solutions, Tallahassee, FL; M. D. Powell

54 Revisiting the Historic 1846 "Havana Hurricane": Comparing SLOSH and Firsthand Accounts to Identify Potential Peak Storm Surge Flooding in Key West, Florida. **Sandy Delgado**, NWS, Key West, FL

55 Important Factors in the Tracking of Tropical Cyclones in Operational Models. **Timothy Marchok**, NOAA/GFDL, Princeton, NJ

56 Operational Seasonal and Sub Seasonal Forecasting of the Summer 2020 African Monsoon : Interactions with the Seasonal Tropical Atlantic Cyclone Activity. **Cheikh Dione**, Centre Africain des Applications de la Météorologie pour le Développement, Niamey, Niger; G. Nshimirimana, H. kabengela, E. A. Adefisan, A. Kanga Foamouhoue

3:00 P.M.–4:00 P.M.

34HURR

Session 8A: DATA ASSIMILATION AND OBSERVING STRATEGIES I

Chairs: Lisa Bucci, NOAA/AOML and Univ. of Miami, Miami, FL; Kelly Ryan, NOAA/AOML and Univ. of Miami, Miami, FL

8A.1 WITHDRAWN

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

8A.1 Impacts of Assimilating Airborne Doppler Wind Lidar data into NOAA's Hurricane Weather Research and Forecasting (HWRF) System. **Lisa Bucci**, NOAA, Miami, FL; S. Majumdar, R. Atlas, B. A. Dahl, G. D. Emmitt, S. A. Wood

3:10 P.M.

8A.2 Impact of Tail Doppler Radar Observations on the Prediction of Tropical Cyclone Structure. **Kelly Ryan**, NOAA/AOML and Univ. of Miami, Miami, FL; J. Sippel, L. Cucurull

3:15 P.M.

8A.3 Assimilation of Global Hawk UAS HIWRAP Radar Horizontal Wind Profiles Collected During the 2016 SHOUT Field Campaign. **Kathryn Sellwood**, University of Miami CIMAS and NOAA/AOML/HRD, Miami, FL; C. N. Helms, B. A. Dahl, A. Aksoy, L. Cucurull, G. Wick

3:20 P.M.

8A.4 A Systematic Assessment of Dropsonde Impact during the 2017-2019 Hurricane Seasons using the Basin-Scale HWRF. **Sarah D. Ditchek**, Cooperative Institute for Marine and Atmospheric Studies and Atlantic Oceanographic and Meteorological Laboratory, Miami, FL; J. A. Sippel, G. J. Alaka Jr., K. Apodaca, L. Cucurull

3:25 P.M.

8A.5 A Composite Assessment of the Coyote sUAS Observations for Tropical Cyclone Data Assimilation and Prediction. **Altug Aksoy**, University of Miami/CIMAS and NOAA/AOML/HRD, Miami, FL; J. J. Cione, B. A. Dahl, K. Sellwood

3:30 P.M.

8A.6 Eye of the Storm: Observing Hurricanes with a Small Unmanned Aircraft System. **Joseph J. Cione**, AOML, Miami, FL; G. H. Bryan, R. J. Dobosy, J. Zhang, G. deBoer, A. Aksoy, J. B. Wadler, E. A. Kalina, B. A. Dahl, K. Ryan, J. Neuhaus, E. Dumas, F. D. Marks, A. Farber, T. Hock, X. Chen

3:35 P.M.

8A.7 *First Eddy-Covariance Derivation of Momentum Flux in a Hurricane Eyewall Below 200 m.* **Ronald J. Dobosy**, Dobosy Turbulence, Oak Ridge, TN; J. Zhang, J. J. Cione, G. deBoer, A. Farber, G. H. Bryan, J. Wadler, X. Chen

3:40 P.M.

8A.8 *Evaluation of HRD Automated Airborne-Doppler Quality-Control and Analysis System, Using Dropwindsondes and Separate Analyses from Two WP-3D Aircraft.* **John F. Gamache**, NOAA/AOML/HRD, Miami, FL; P. D. Reasor

3:45 P.M.

8A.9 *Reducing Ambiguity regarding the Accuracy of Stepped Frequency Microwave Radiometer (SFMR) Surface Wind Speed Measurements in Intense Hurricanes.* **Richard G. Henning**, NOAA Aircraft Operations Center, Lakeland, FL

3:50 P.M.

8A.10 *Real-time Mapping of Significant Wave Height and Directional Ocean Wave Spectra with NOAA's WSRA in Hurricane Lorenzo; pathway to operational status.* **Ivan PopStefanija**, ProSensing Inc., Amherst, MA

3:55 P.M.

Discussion.

3:00 P.M.—4:00 P.M.

34HURR

Session 8B: RAPID INTENSIFICATION I

Chair: Scott Braun, NASA, Greenbelt, MD

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

8B.1A *A Long Short-Term Memory Model for Global Rapid Intensification Prediction.* **Qidong Yang**, Columbia University, New York, NY; C. Y. Lee, M. K. Tippett

8B.1 *WITHDRAWN*

3:10 P.M.

8B.2 *Characterization of the Thermodynamics, Life Cycle and Influence Over the Mean Flow of Inner Core Processes in Tropical Cyclones: Observational and Idealized Modelling Approach.* **Jhayron S. Pérez-Carrasquilla**, Universidad Nacional de Colombia, Sede Medellín, Facultad de Minas, Medellín, Colombia; C. D. Hoyos

3:15 P.M.

8B.3 *Investigating Tropical Cyclone Rapid Intensification Using Idealized Simulations with Realistic Initial Vortices.* **Daniel P. Stern**, UCAR/NRL, Monterey, CA; J. D. Doyle, J. L. Vigh

3:20 P.M.

8B.4 *Rapid Intensification of Super typhoon Hagibis (2019).* **I. I. Lin**, National Taiwan Univ., Taipei, Taiwan; R. Rogers, H. C. Huang, Y. C. Liao, D. C. Herndon, J. Y. Yu, Y. T. Chang, J. Zhang, C. M. Patricola, I. F. Pun, C. C. Lien

3:25 P.M.

8B.5 *Potential Vorticity Mixing and Rapid Intensification in the Simulated Supertyphoon Haiyan (2013).* **Satoki Tsujino**, Hokkaido University, Sapporo, Japan; H. C. Kuo

3:30 P.M.

8B.6 *Tracing Extreme Updrafts in Hurricane Wilma (2005) to their Boundary Layer Roots Using Trajectories: A Thermodynamic and Structural Analysis.* **William J. S. Miller**, University of Maryland, College Park, MD

3:35 P.M.

8B.7 *On the Extreme Rapid Intensification of Hurricane Patricia (2015): Extreme Eyewall Convection and Double Warm-Core Structures.* **Nannan Qin**, Fudan University, Shanghai, China; D. L. Zhang

3:40 P.M.

8B.8 *Fluctuations in Inner-Core Structure during the Rapid Intensification of Super Typhoon Nepartak (2016).* **Sam Hardy**, Univ. of Leeds, Leeds, UK; J. Schwendike, R. Smith, C. Short, M. Reeder, C. E. Birch

3:45 P.M.

8B.9 *Evolution of the Error Covariance Structure Associated with Rapidly Intensifying Tropical Cyclones.* **Chun-Yeh Lu**, National Taiwan University, Taipei, Taiwan; C. C. Wu

3:50 P.M.

Discussion.

3:00 P.M.—4:00 P.M.

34HURR

Session 8C: OPERATIONAL FORECASTING I

Chair: John A. Knaff, NOAA/NESDIS, Fort Collins, CO

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

8C.1 *Baroclinic Influences on 2019 Atlantic Tropical And Subtropical Cyclones.* **John L. Beven**, NOAA/NWS/NCEP, Miami, FL

8C.2 *WITHDRAWN*

3:15 P.M.

8C.3 *An Ensemble-Based Statistical Hurricane Intensity Prediction Scheme: Computing Ships from the European Centre for Medium Range Weather Forecasts Ensemble Prediction System..* **Matthew Onderlinde**, NHC, Miami, FL; M. DeMaria

3:20 P.M.

8C.4 *A New Framework for Statistical-Dynamical Tropical Cyclone Intensity Forecast Models.* **Mark DeMaria**, CIRA, Fort Collins, CO; M. Onderlinde

3:25 P.M.

8C.5 *SST, SST-cooling, and new predictors in the Operational Statistical Tropical Cyclone Intensity Forecast Models.* **Galina Chirokova**, CIRA / Colorado State University, Fort Collins, CO; M. DeMaria, J. J. Cione, G. R. Foltz, J. Kaplan, J. Knaff

3:30 P.M.

8C.6 *A New Method for Quantifying Pre-Storm Sea Surface Temperature Gradients to Assess Their Influence on Tropical Cyclone Intensity Change.* **B. Matthew Holliday**, Mississippi State Univ., Mississippi State, MS; K. M. Wood

3:35 P.M.

8C.7 *Development of a Multi-model Global Ensemble Based Tropical Cyclone Wind Speed Probability Model.* **Alan Brammer**, CIRA/Colorado State Univ., Fort Collins, CO; A. B. Schumacher, K. D. Musgrave

3:40 P.M.

8C.8 *A Compilation of Tropical Cyclone Precipitative Characteristics Observed in Passive Microwave 37 GHz Imagery from 2003-2019.* **Margaret E. Kieper**, Florida International Univ., Miami, FL

3:45 P.M.

8C.9 *An Evaluation of Numerical Model TC Rainfall Forecasts for the 2020 Atlantic Season.* **Timothy Marchok**, GFDL, Princeton, NJ; M. Morin, K. Gao, L. Harris, W. Stern, L. Zhou, J. H. Chen

3:50 P.M.

8C.10 *Use of Ensemble Model Sensitivity Patterns to Optimize GIV Aircraft Surveillance Strategy for Dropsonde Deployment to Improve Model Prediction.* **Peter G Black**, I.M. Systems Group, Miami, FL; A. Mehra, R. D. Torn, X. Wu, V. Tallapragada, C. W. Landsea, M. J. Brennan, A. B. Penny

3:55 P.M.

Discussion.

Wednesday, May 12

10:00 A.M.–11:00 A.M.

34HURR

Session 9A: SUBSEASONAL-TO-DECADAL (S2D) PREDICTION OF TROPICAL CYCLONE ACTIVITY

Chairs: Philip J. Klotzbach, Colorado State Univ., Fort Collins, CO; Carl J. Schreck, NOAA, Asheville, NC

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

9A.1 *Tropical Cyclone Prediction on Subseasonal Time-Scales.* **Suzana J. Camargo**, Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY; C. Y. Lee, F. Vitart, A. H. Sobel, M. K. Tippett, S. Wang, J. Camp

10:10 A.M.

9A.2 *Identifying Intraseasonal Variability Relevant to Atlantic Tropical Cyclone Activity.* **Kurt Hansen**, Univ. of Miami/RSMAS, Miami, FL; S. J. Majumdar, B. Kirtman

10:15 A.M.

9A.3 *Statistical-Dynamical Forecasting of North Atlantic Tropical Cyclone Activity on Subseasonal Time Scales.* **Michael Maier-Gerber**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. H. Fink, M. Riemer, E. Schoemer, C. Fischer, B. Schulz

10:20 A.M.

9A.4 *Summertime Stationary Waves Integrate Tropical and Extratropical Impacts on Tropical Cyclone Activity.* **Zhuo Wang**, Univ. of Illinois at Urbana–Champaign, Urbana, IL; G. Zhang, T. J. Dunkerton, F. F. Jin

10:25 A.M.

9A.5 *Tropical and Subtropical North Atlantic Vertical Wind Shear and Seasonal Tropical Cyclone Activity.* **Jhordanne J. Jones**, Colorado State Univ., Fort Collins, CO; M. M. Bell, P. J. Klotzbach

10:30 A.M.

9A.6 *Summertime Stationary Waves: Variability, Projected Changes and Implications for Tropical Cyclone Activity.* **Chuan-Chieh Chang**, Univ. of Illinois at Urbana–Champaign, Urbana, IL; Z. Wang

9A.7 *WITHDRAWN*

10:35 A.M.

9A.7A *An Analysis of Tropical Cyclone Occurrence Dates in the Eastern North Pacific Basin.* **Nicholas S. Grondin**, Univ. of Tennessee, Knoxville, TN; K. N. Ellis

10:40 A.M.

9A.8 *Two-Week Tropical Cyclone Formation Forecasting at the Joint Typhoon Warning Center.* **Matthew Kucas**, JTWC, Pearl Harbor, HI

10:45 A.M.

9A.9 *Seasonal Prediction of Northern West Pacific Tropical Cyclones in the Met Office GloSea5 Seasonal Forecast System: The Role of ENSO and Beyond.* **Xiangbo Feng**, NCAS-Climate, Department of Meteorology, University of Reading, Reading, United Kingdom; N. P. Klingaman, K. I. Hodges

10:50 A.M.

9A.10 *Pacific Subsurface Ocean Temperature as a Long-range Predictor of South China Tropical Cyclone Landfall.* **Nathan Sparks**, Imperial College London, London, United Kingdom; R. Toumi

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 9B: INTERDISCIPLINARY RESEARCH TO IMPROVE THE HURRICANE FORECASTING–WARNING–RESPONSE SYSTEM: PAST, CURRENT, AND FUTURE FOCI

Chairs: Joshua J. Alland, NCAR, Boulder, CO; Rebecca E. Morss, NCAR, Boulder, CO

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

9B.1 *Advancing Hurricane Risk Communication in NOAA via the Social, Behavioral, and Economic Sciences.* **Robbie Berg**, NOAA/NWS/National Hurricane Center, Miami, FL; J. Sprague-Hilderbrand, J. L. Schauer, G. Eosco, C. Williams, M. Olson

10:10 A.M.

9B.2 *Graphical Hurricane Risk Communication for Vulnerable Populations.* **Sharanya J. Majumdar**, University of Miami, Miami, FL; B. Millet, K. Broad, A. Cairo, S. Evans, B. D. McNoldy

10:15 A.M.

9B.3 *The Perceived Value of Improving Hurricane Forecast Accuracy.* **Brian D. McNoldy**, Univ. of Miami/RSMAS, Miami, FL; R. Molina, D. Letson, P. Mozumder, M. A. Varkony

10:20 A.M.

9B.4 *Economic Value of Skilled Tropical Cyclone Conditions of Readiness Forecasting.* **Sneh Gulati**, Florida International University, Miami, FL; C. R. Sampson

10:25 A.M.

9B.5 *Diffusion of and Responses to Hurricane Risk Images Posted on Twitter During the 2017 Hurricane Season.* **Robert Prestley**, NCAR, Boulder, CO; R. E. Morss, M. Bica, J. L. Demuth

10:30 A.M.

9B.6 *An Agent-Based Modeling Framework to Examine the Hurricane Evacuation Dynamics: Proof of Concept and Early Results.* **Austin R Harris**, University of Wisconsin-Milwaukee, Milwaukee, WI; P. J. Roebber, R. E. Morss

10:35 A.M.

9B.7 *Evacuation Decision-Making During Hurricane Michael (2018).* **Joshua J. Alland**, National Center for Atmospheric Research, Boulder, CO; R. E. Morss, S. Bergin, C. M. Barton, C. A. Davis, J. Boehnert, O. Wilhelmi

10:40 A.M.

9B.8 *Updates on The Hurricane Risk Calculator: App Capabilities, Risk Messaging, and Pilot Testing.* **Jonathan L. Vigh**, NCAR, Boulder, CO; D. J. Smith, D. T. Hahn, J. Lin, A. Bol, D. O. Prevatt, D. B. Roueche, J. M. Collins, B. R. Ellingwood, G. Nain, J. E. Rovins, K. Emanuel, T. Ross-Lazarov, P. Mozumder, S. Pilkington, S. J. Weaver, G. Wong-Parodi, L. Myers, A. A. Merdjanoff, P. A. Kucera, C. Wang, T. Kloetzke, S. Joslyn, E. Holland, B. G. Brown, Y. P. Sheng, F. Tormos-Aponte, C. M. Appendini Albrechtsen, B. Goldhammer, H. Greatrex, M. Moulton, J. M. Done, E. A. Hendricks, C. M. Rozoff, J. J. Alland, M. Ge, C. Arthur

10:45 A.M.

9B.9 *Real-Time Consequence Modeling for Extreme Weather Events in the Ocean State.* **Samuel W. Adams**, University of Rhode Island, Kingston, RI

10:50 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 9C: OPERATIONAL FORECASTING II

Chair: Mark DeMaria, CIRA, Fort Collins, CO

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

9C.1 *Tropical Storm Track Forecasts from NCEP's Upgraded Ensemble Model.* **Frank P. Colby**, Univ. of Massachusetts, Lowell, MA

10:10 A.M.

9C.2 *Clustering and Pruning Multi-Model Ensembles to Improve Medium-Range Track Forecasts.* **Alex M. Kowaleski**, Cooperative Institute for Research in the Atmosphere/Colorado State University, Fort Collins, CO; J. L. Evans

10:15 A.M.

9C.3 *On the Track Dependence of the Tropical Cyclone Intensity Forecast Errors in the COAMPS-TC Model.* **Cole Evans**, Indiana University, Bloomington, IN; Y. Jin, J. D. Doyle, H. Jin, J. R. Moskaitis, C. Kieu

10:20 A.M.

9C.4 *Evaluation of Global Wave Probabilities Consistent with Official Forecasts.* **Charles R. Sampson**, NRL, Monterey, CA; E. A. Serra, J. A. Knaff, J. Cossuth

10:25 A.M.

9C.5 *Multi-Model Tropical Cyclone Wind Field Forecasting.* **Michael E. Kozar**, Risk Management Solutions, Tallahassee, FL; M. D. Powell

10:30 A.M.

9C.6 *A Super Best Track Data Set for Tropical Cyclone Forecasting.* **Mike Fiorino**, CIRES, Boulder, CO

10:35 A.M.

9C.7 *On the Limitation in Evaluating TC Intensity Forecast Skill.* **Kosuke Ito**, University of the Ryukyus, Okinawa, Japan; U. Shimada, H. Yamada, K. Tsuboki

9C.8 *WITHDRAWN*

10:45 A.M.

9C.9 *Sea Breeze, Trade Wind, and Terrain Influence on Rainfall Location over Western Puerto Rico.* **Angelie T. Nieves Jiménez**, UCAR, Boulder, CO; R. Ríos-Berrios, K. K. Werner

10:50 A.M.

9C.10 *Skill Validating ECMWF's Forecast Errors for Tropical Cyclones Affecting Vietnam for the Period 2012-2019.*

Nang Quang Tran, Vietnam National center for Hydro-Meteorological Forecasting, Hanoi, Viet Nam; T. D. Du, L. R. Hole, T. T. Tran, K. H. Mai

10:55 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 10A: ADVANCES IN NOWCASTING, DATA ASSIMILATION AND VERIFICATION FOR DATA-SPARSE TROPICAL REGIONS

Chairs: A. Back, NOAA/ESRL/GSD and CIRA/Colorado State Univ., Boulder, CO; Jennifer Keith, Atmospheric Science Graduate Group at the University of California - Davis, Moffett Field, CA

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

10A.1 *Convection-Permitting Ensemble Tropical Cyclone Initializations with All-sky Satellite Radiance Assimilation: Performances Through an Entire Hurricane Season.* **Masashi Minamide**, JPL, California Institute of Technology, Pasadena, CA; D. J. Posselt

11:40 A.M.

10A.2 *Reducing Displacement Errors in the Analysis and Prediction of Hurricane Patricia (2015) Using a Multiscale Alignment Data Assimilation Method.* **Yue (Michael) Ying**, NCAR, Boulder, CO

11:45 A.M.

Paper 10A.3 is now Poster 112..

11:50 A.M.

10A.4 *Verification of Satellite and Reanalysis Rainfall Estimates for a Severe Flood Against Dense Rain Gauge Monitoring Network in Ghana, West Africa.* **Jacob Agyekum**, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; L. K. Amekudzi, T. Stein, J. N. A. Aryee, W. A. Atia, E. A. Adefisan, S. K. Danuor

11:55 A.M.

10A.5 *First Aircraft Observations of the Lake Victoria Lake–Land Breeze Circulation from the Hyvic Pilot Flight Campaign.* **Beth J Woodhams**, University of Leeds, Leeds, United Kingdom; P. A. Barrett, J. H. Marsham, C. E. Birch, C. Bain, J. Fletcher, A. J. Hartley, S. Webster

12:00 A.M.

10A.6 *Impact of Users' Feedback on Weather Forecast Evaluation in Ghana, West Africa.* **Maureen Abia Ahiataku**, Ghana Meteorological Agency, Accra, Ghana; J. N. A. Aryee, S. O. Ansah, B. Yahaya, F. Otu-Larbi, A. J. Dougill, E. Visman, A. Taylor, T. Stein, P. Antwi-Agyei

12:05 A.M.

10A.7 *Warm Starting: A New Technique to Improve Operational Regional Model Forecasts over the Tropics.* **James L Warner**, UKMO, Exeter, United Kingdom

12:10 A.M.

10A.8 *Convection-Permitting Ensembles for Tropical East Africa: An Evaluation of Rainfall Forecasts.* **Carlo Cafaro**, University of Reading, Reading, United Kingdom; B. Woodhams, T. Stein, C. E. Birch, S. Webster, C. L. Bain, S. Clarke, A. Hartley, P. G. Hill

12:15 A.M.

10A.9 *Impact of Land Surface processes on convective initiation over West Africa in ensemble model simulations: A case study using the UKMO model.* **Valiyaveetil Shamsudheen Semeena**, UK Centre for Ecology and Hydrology, Wallingford, United Kingdom; C. Taylor, C. Klein

12:20 A.M.

10A.10 *Sub-Seasonal Predictability of Climate Driving Meningitis Outbreak over the African Meningitis Belt.* **Cheikh Dione**, Centre Africain des Applications de la Météorologie pour le Développement, Niamey, Niger; M. D. DIOUF, N. Ward, C. Taylor, D. Parker, A. H. Fink, J. Talib

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 10B: CLIMATE CHANGE IN THE TROPICS I

Chair: Kerry H. Cook, Univ. of Texas, Austin, TX

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

10B.1 *Detected Climate Change in Global Tropical Cyclone Frequency of Occurrence.* **Hiroyuki Murakami**, GFDL, Princeton, NJ; T. L. Delworth, W. F. Cooke, M. Zhao, B. Xiang, P. C. Hsu

11:40 A.M.

10B.2 *Climate Change Signal in Hurricanes Today and in the Future.* **Adam H. Sobel**, Columbia Univ., New York, NY; C. Y. Lee, S. Camargo, M. K. Tippett

11:45 A.M.

10B.3 *Changes in Characteristics of Rapidly Intensifying Western North Pacific Tropical Cyclones Related to Climate Regime Shifts.* **Haikun Zhao**, Nanjing University of Information Science & Technology, Nanjing, China; X. Duan, G. B. Raga, P. J. Klotzbach

11:50 A.M.

10B.4 *Tropical Cyclones and Climate Change Assessment: Detection & Attribution and Projections.* **Thomas R. Knutson**, NOAA, Princeton, NJ

11:55 A.M.

10B.5 *Roles of the Ocean Mixed Layer Depth in the Increased Proportion of Intense Typhoons during 1980-2015.* **Liguang Wu**, Fudan University, Shanghai, China

12:00 A.M.

10B.6 *Changes in the Length of the Season with Favorable Environmental Conditions for Tropical Cyclones.* **Robert Korty**, Texas A&M Univ., College Station, TX; Y. Wu

12:05 A.M.

10B.7 *A Shortening of the Life-Cycle of Major Tropical Cyclones.* **Ralf Toumi**, Imperial College London, London, United Kingdom; S. Wang

12:10 A.M.

10B.8 *Normalized US Hurricane Damage Estimates using Area of Total Destruction.* **Aslak Grinsted**, University of Copenhagen, Copenhagen N, Denmark; P. Ditlevsen, J. H. Christensen

12:15 A.M.

10B.9 *A Multivariate Approach to Future Tropical Cyclone Tracks.* **Louis Rivoire**, Harvard University, CAMBRIDGE, MA

12:20 A.M.

10B.10 *Projected Changes in North Atlantic Tropical Cyclone Characteristics under Future RCP Scenarios using Climate Model Ensembles.* **Alyssa M. Stansfield**, Stony Brook University, Stony Brook, NY; K. A. Reed, C. M. Zarzycki

12:25 A.M.

10B.11 *Tropical Cyclone Derived Ocean Waves Under Climate Change.* **Christian M. Appendini**, Universidad Nacional Autonoma de Mexico, Mérida, Mexico; P. Ruiz-Salcines, R. Meza-Padilla, A. Ramirez-Manguilar

11:30 A.M.–12:30 P.M.

34HURR

Session 10C: TROPICAL CYCLONE LANDFALL AND BOUNDARY LAYER

Chairs: Stephanie N. Stevenson, NHC, Miami, FL; Chanh Kieu, Bloomington, IN

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

10C.1 *Structural Evolution of Hurricane Earl's (2010) Boundary Layer Following Peak Intensity in a Full-Physics Simulation.* **Kyle Ahern**, Florida State Univ., Tallahassee, FL; M. A. Bourassa, R. E. Hart

11:40 A.M.

10C.2 *A Simplified Approach to Understanding Boundary Layer Impacts on Tropical Cyclone Structure and Intensity.* **Eleanor G. Casas**, Colorado State University, Fort Collins, CO; M. M. Bell

11:45 A.M.

10C.3 *Doppler Radar Observations of the Symmetric Hurricane Boundary Layer Structure.* **Jun A. Zhang**, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; R. F. Rogers

11:50 A.M.

10C.4 *Application of a Hurricane Boundary Layer Model for Improved Surface Wind Forecast.* **Mansur Ali Jisan**, University of Rhode Island, Narragansett, RI; I. Ginis

11:55 A.M.

10C.5 *A Novel Wind Field Dynamical Downscaling Method Based on Aerodynamical Parameters of the Simplified Terrain.* **Shengming Tang**, Shanghai Typhoon Institute of China Meteorological Administration, Shanghai, China; P. Fang, H. Yu

12:00 A.M.

10C.6 *Impacts of Soil Moisture on the Numerical Simulation of a Post-Landfall Storm.* **Feimin Zhang**, Lanzhou Univ., Lanzhou, China; Z. Pu, C. Wang

12:05 A.M.

10C.7 *Sensitivity of an Idealized Tropical Cyclone to Soil Moisture Availability and Roughness Length.* **Andrew Michael Thomas**, The Univ. of Georgia, Athens, GA; J. M. Shepherd, J. A. Santanello

10C.8 *WITHDRAWN*

12:10 A.M.

10C.8A *Characteristics of Gravity Waves in Hurricanes from Surface Weather Station Observations.* **Jun A. Zhang**, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; D. S. Nolan

12:15 A.M.

10C.9 *The Slow Weakening of TC Kelvin After Landfall: A Case of the “Brown Ocean Effect”?* **Clair Stark**, University of New South Wales, Canberra, Australia; E. A. Ritchie, J. Courtney

12:20 A.M.

10C.10 *Understanding Tropical Cyclone Maintenance or Intensification (TCMI) after Landfall: Case Studies of TC Kelvin (2018) and TS Bill (2015).* **Jinwoong Yoo**, Univ. of Maryland, College Park, College Park, MD; J. A. Santanello, J. M. Shepherd, S. V. Kumar, P. Lawston, A. M. Thomas

12:25 A.M.

Discussion.

1:00 P.M.–2:05 P.M.

34HURR

Session 11A: TROPICAL WAVES II

Chair: Anantha R. Aiyer, North Carolina State Univ., Raleigh, NC

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

11A.1 *On the Role of Tropical Waves in Sulawesi Flood of January 22, 2019: A Multi-Scale Interaction Perspective.*

Beata Latos, Polish Academy of Sciences, Warsaw, Poland

1:10 P.M.

11A.2 *Convectively Coupled Kelvin Waves Contribution to Hazardous Weather in Sumatra..* **Dariusz B. Baranowski**,

Polish Academy of Sciences, Warsaw, Poland

1:15 P.M.

11A.3 *Upper Level Forcing of Interaction between Convectively Coupled Kelvin Waves and Local Diurnal Cycle over Sumatra..* **Wojciech Szkolka**, Polish Academy of Sciences, Warsaw, Poland; D. B. Baranowski

1:20 P.M.

11A.4 *A Systematic Comparison of Tropical Waves over Western and Eastern Equatorial Africa.* **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. Schlueter, R. van der Linden, J. G. Pinto

1:25 P.M.

11A.5 *Intraseasonal Soil Moisture-Atmosphere Feedbacks on the West African Monsoon Circulation.* **Joshua Talib**, UK Centre of Ecology and Hydrology, Wallingford, United Kingdom; C. Taylor, C. Klein, B. Harris

1:30 P.M.

11A.6 *Case Study Analysis of the Dynamics of West African Storms.* **Marian A. Osei**, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; L. K. Amekudzi

1:35 P.M.

11A.7 *Mechanisms and Processes Causing Extreme Rainfall during the March-May Seasons of 2018, 2019 and 2020 over Eastern Africa.* **WILSON GITAU**, University of Nairobi, Kenya, NAIROBI, Kenya

1:40 P.M.

11A.8 *Relationship between West African monsoon onset and the Madden Julian Oscillation.* **Coumba NIANG**, Cheikh Anta Diop University, Dakar, Senegal

1:45 P.M.

11A.9 *Atmospheric Conditions Accompanying the Eastern Africa Short Rains Onset.* **Masilin Gudoshava**, ICPAC, Nairobi, Kenya; C. M. Wainwright, L. C. Hiron, Z. Segele, H. S. Endris, S. J. Woolnough

1:50 P.M.

11A.10 *The Impact of the Madden-Julian Oscillation on Extreme Winter Weather over the United States.* **Stephen Robert Foskey**, University of Oklahoma, Norman, OK; N. Sakaeda

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session 3: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 11B: CLIMATE CHANGE IN THE TROPICS II

Chairs: Robert Korty, Texas A&M Univ., College Station, TX; Kerry H. Cook, Univ. of Texas, Austin, Austin, TX

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

11B.1 *Attributing Changes in Hazards Associated with Recent Devastating North Atlantic Hurricanes to Climate Change.*

Kevin A. Reed, Stony Brook Univ., SUNY, Stony Brook, NY; M. F. Wehner, A. M. Stansfield, C. M. Zarzycki

1:10 P.M.

11B.2 *Decadal Variability of Tropical Cyclones: Natural Variability or Anthropogenic Influence?.* **PINELOPI LOIZOU**,

UNIVERSITY OF READING, READING, United Kingdom

1:15 P.M.

11B.3 *Untangling Impacts of Global Warming and Interdecadal Pacific Oscillation on Tropical Cyclone Track Density over the North Pacific.* **Jiuwei Zhao**, Nanjing University of Information Science and Technology; Pohang University of Science and Technology, Nanjing, China

1:20 P.M.

11B.4 *Projections of the Economic Cost of Hurricanes in the U.S. Under a Changing Climate.* **Tanja Dallafior**, Risk Management Solutions, London, UK; A. L. Dobbin, S. Khare

1:25 P.M.

11B.5 *Influence of Entrainment on the Response of the Walker Circulation to Climate Warming.* **Margaret L. Duffy**, MIT, Cambridge, MA; P. A. O'Gorman

1:30 P.M.

11B.6 *Observing and Projecting Climate Change in the Congo Basin.* **Kerry H. Cook**, Univ. of Texas, Austin, TX; E. K. Vizy

1:35 P.M.

11B.7 *Limits to Survivability in Extreme Heat.* **Yi-Chuan Lu**, University of California, Berkeley, Berkeley, CA; D. M. Romps

1:40 P.M.

11B.8 *Future Changes to El Niño Teleconnections over the North Pacific and North America in CMIP6 Simulations.* **Jonathan D Beverley**, University of Exeter, Exeter, United Kingdom; M. Collins, F. H. Lambert, R. Chadwick

1:45 P.M.

11B.9 *Diagnostics of Climate Change Related Extreme Rainfall Events over Accra.* **Michael Padi**, Ghana Meteorological Agency, Accra, Ghana

1:50 P.M.

11B.10 *Scenarios of Climate Change for Madagascar using High Resolution Regional Climate Simulation (ALADIN-Climat v6).* **Stephason François KOTOMANGAZAFY**, Direction Inter-Régionale de Météo-France pour L'Océan Indien, Sainte-Clotilde, Reunion

1:55 P.M.

11B.11 *Climate change in the Southwest Indian Ocean : observations and projections.* **SAID RIDHOINE ABDOUL-OIKIL**, Direction Interrégionale de Météo-France pour l'Océan Indien (DIROI), La Réunion, France

2:00 P.M.

Poster Session 3: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 11C: TROPICAL CYCLONE STRUCTURE AND SIZE

Chairs: Daniel Stern, UCAR, Monterey, CA; Jennifer C. DeHart, UCAR, Monterey, CA

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

11C.1 *Waveguide Thinking and the Analogy between TC Rainbands and Extratropical Cyclones.* **Hugh E. Willoughby**, Florida International Univ., Miami, FL; I. Gonzalez III

1:10 P.M.

11C.2 *Thermodynamic and Kinematic Properties of Isolated Convective Cells in the Rainband Region of Atlantic Hurricanes.* **Wesley D. Terwey**, Univ. of South Alabama, Mobile, AL; S. Sangster, P. Barlow

1:15 P.M.

11C.3 *Deep Hub Clouds in the Eye of Tropical Cyclone Trami (2018).* **Soichiro Hirano**, Univ. of the Ryukyus, Nishihara-cho, Nakagami-gun, Japan; K. Ito, H. Yamada

1:20 P.M.

11C.4 *How does the Outer-core Structure Affect the Two Types of Typhoon Eye formation: Deepening Formation and Banding Formation?* **Yueh-Li Chen**, National Taiwan University, Taipei, Taiwan; C. C. Wu

1:25 P.M.

11C.5 *Effect of Tropical Cyclone Fullness on Storm Intensity and intensification.* **Xi Guo**, Jiangsu Meteorological Observatory, Nanjing, Jiangsu, China; Z. M. Tan

1:30 P.M.

11C.6 *A Data-based Analytical Model of Hurricanes' Intensity-Size Relation.* **Jie Sun**, Florida State University, Tallahassee, FL; R. Yan, M. Cai

1:35 P.M.

11C.7 *On the Contributions of Incipient Vortex Circulation and Environmental Moisture to Tropical Cyclone Expansion.* **Jonathan Martinez**, NCAR, Boulder, CO; C. C. Nam, M. M. Bell

1:40 P.M.

11C.8 *The Growth of Tropical Cyclone Outer Size.* **Shuai Wang**, Imperial College London, London, United Kingdom; R. Toumi

1:45 P.M.

11C.9 *The Impact of Upper Ocean Thermal Structure on Tropical Cyclone Size.* **Chien-Hsuan Yen**, National Taiwan University, Taipei, Taiwan; C. C. Wu

1:50 P.M.

11C.10 *Hurricane Size Is Strongly Limited By the Rhines Scale: Barotropic Experiments.* **Kuan-Yu Lu**, Purdue University, West Lafayette, IN; D. R. Chavas

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session 3: Welcoming Remarks.

34HURR

Poster Session 3: ADVANCES IN NOWCASTING, DATA ASSIMILATION AND VERIFICATION FOR DATA-SPARSE TROPICAL REGIONS

Chair: A. Back, NOAA/ESRL/GSD and CIRA/Colorado State Univ., Boulder, CO

76 *The Influence of DACCWA Radiosonde Data on the Quality of ECMWF Analyses and Forecasts.* **Andreas H. Fink**, Karlsruhe Institute of Technology, Karlsruhe, Germany; R. van der Linden, P. Knippertz, B. Ingleby, M. Maranan, A. Benedetti

77 *The First Tropical African Testbed for Nowcasting and Synoptic Forecasting.* **Jennifer Fletcher**, Univ. of Leeds, Leeds, United Kingdom; A. Diop, D. Parker, B. Lamptey, L. H. Youds, E. A. Adefisan, B. Chanzu, J. Gacheru, S. J. Clarke, S. Kyei-Manuh, C. Dione, T. Popoola, B. Mutai, A. J. Roberts, T. Stein, D. Koros, C. E. Birch, B. J. Woodhams, H. Burns, V. Indasai, O. Konte, P. Antwi-Agyei, E. Visman, O. Ndiaye

78 *NASA SPoRT Suite of Legacy and Current Satellite Products in Support of Tropical Analysis and Forecasting.* **Anita LeRoy**, Univ. of Alabama in Huntsville, Huntsville, AL; P. T. Duran, E. L. Duran, J. L. Case, E. B. Berndt, F. J. LaFontaine

79 *Evaluating the Performance of NWCSAF for Enhanced Nowcasting in Ghana, West Africa.* **Jeffrey N. A. Aryee**, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; L. K. Amekudzi, M. A. Osei, J. Agyekum

80 *Verification of Multi-Resolution Model Forecasts of Heavy Rainfall Events of 23rd-26th August 2017 over Nigeria.* **Imoleayo Ezekiel Gbode**, Federal University of Technology Akure, Akure, Nigeria; V. O. Ajayi, E. A. Adefisan, E. C. Okogbue

81 *Evaluation of Nowcasting Products: A Case Study of June 2018 Rainfall in Ghana, West Africa.* **Samuel Owusu Ansah**, Ghana Meteorological Agency, Accra, Ghana; J. Portuphy, M. A. Ahiataku, M. Padi, J. Ameho, J. Ashong, B. Yahaya, J. Agyekum, W. A. Atia, J. N. A. Aryee, F. A. Baffuor, L. K. Amekudzi, B. Lamptey

82 *Satellite Precipitation Nowcasting Developments within GCRF African SWIFT.* **Ben S. Pickering**, University of Leeds, Leeds, United Kingdom; P. Hill, A. J. Roberts, J. Fletcher, J. Groves, J. H. Marsham, D. Parker, A. M. Blyth, T. Stein, E. A. Adefisan, R. Burton, V. O. Ajayi, C. Dione, A. Diop, K. A. Foamouhoue, K. Lawal, J. Mutemi, M. Padi, T. Popoola, B. J. Woodhams, E. D. Coning, M. Gijben, R. Barette, P. Rípodas

112 *Characteristics of Mesoscale Convective Systems: The Case of Heavy Rainfall during the Minor Rainfall Season in Southern Ghana.* **Winifred Ayinpogbilla Atia**, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana

34HURR

Poster Session 3: CLIMATE CHANGE IN THE TROPICS - POSTERS

Chairs: Robert Korty, Texas A&M Univ., College Station, TX; Kerry H. Cook, Univ. of Texas, Austin, TX

84 *Atlantic Multidecadal Variability and Tropical Cyclones in Current and Future Climates.* **Jinjun Liu**, Texas A&M Univ., College Station, TX; R. Korty

85 WITHDRAWN

86 *Tropical Cyclone Motion in a Changing Climate.* **Gan Zhang**, Princeton University, Princeton, NJ; H. Murakami, T. R. Knutson, R. Mizuta, K. Yoshida

87 *Anthropogenic Influences on the African Easterly Jet-African Easterly Wave System.* **Emily Bercos-Hickey**, LBNL, Berkeley, CA; C. M. Patricola

88 *Climate Projection Towards the End of the Century for the Republic of Mauritius.* **Philippe Jean Michel VEERABADREN**, WMO, Port Louis, Mauritius

34HURR

Poster Session 3: CYGNSS POSTERS

Chair: D. J. Posselt, JPL, Pasadena, CA

83 *Cyclone Global Navigation Satellite System (CYGNSS): Mission Overview.* **Christopher S. Ruf**, Univ. of Michigan, Ann Arbor, MI

34HURR

Poster Session 3: SYNOPTIC-SCALE SYSTEMS ASSOCIATED WITH MONSOONS

Chair: James O H Russell, Atmospheric Sciences, William Browning Building, Salt Lake City, UT

90 WITHDRAWN

91 *Diurnal Cycle of Rainfall and Convective Properties over West and Central Africa.* **Ayodeji Richard Balogun**, FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE NIGERIA, AKURE, Nigeria; E. A. Adefisan, D. Z. Adeyewa, E. C. Okogbue

92 *The Interaction Between African Easterly Waves and Convection.* **James O H Russell**, Atmospheric Sciences, William Browning Building, Salt Lake City, UT; A. Ayyer

34HURR

Poster Session 3: TROPICAL CYCLONES- POSTERS

Chair: Daniel R. Chavas, Purdue University, West Lafayette, IN

93 *A Preliminary Investigation of the Thermodynamics Supporting Non-/Weakly Baroclinic Tropical Cyclone Overland Maintenance and Intensification.* **Michael P. Vossen**, UW-Milwaukee, Milwaukee, WI; C. Evans

94 *Real-Time Multi-Model Verification and Evaluation for Tropical Cyclones.* **Hao Jin**, NRL, Monterey, CA

95 *The Roles of Nearby Terrain and the TUTT in Driving Regional TC Occurrence and Motion in the Southwest North Atlantic Basin.* **Samuel Sangster**, Florida State University, Tallahassee, FL; R. E. Hart

96 *Vertical Development of the Vorticity Tower in Hurricane Michael (2018).* **Alexander J DesRosiers**, Colorado State Univ., Fort Collins, CO; M. M. Bell

97 *Investigating Axisymmetric and Asymmetric Signals of Secondary Eyewall Formation Using Observations-Based Modeling of Tropical Cyclone Boundary Layer.* **Chau Lam Yu**, Pennsylvania State University, State College, PA; A. C. Didlake Jr., F. Zhang, J. D. Kepert

98 *Examining Environmental Factors Associated with Downshear Reformation in Tropical Cyclones.* **Nathalie Rivera Torres**, SUNY, Albany, NY

99 *The Dynamics of Vortex Rossby Waves and Secondary Eyewall Development in Hurricane Matthew (2016): New Insights from Radar Measurements.* **Stephen R. Guimond**, UMBC/JCET, Baltimore, MD; P. D. Reasor, G. M. Heymsfield, M. McLinden

101 *A Comparison of Hurricane Dorian (2019) and Hurricane Michael (2018).* **Jay S. Hobgood**, Ohio State Univ., Columbus, OH

102 *Diagnosis on the Characteristics of the Mesoscale Inner-core Potential Vorticity in Intensity-maintaining Typhoon Fitow(2013).* **Liu JianWen**, BAMI=Beijing Aviation Meteorological Institute, Beijing, China; L. QiHua, B. Jie

103 *Effects of the Assimilation of Relative Humidity Reproduced from T-PARCI and Himawari-8 Satellite Imagery using Dynamical Initialization and Ocean-Coupled Model. Part I: A Case Study of Typhoon Lan (2017).* **Jae-Deok LEE**, Department of Physics and Earth Sciences, University of the Ryukyus, Okinawa, Japan; D. S. R. Park, K. Ito, C. C. Wu

104 WITHDRAWN

105 *A New Index of Accumulated Cyclone Energy Considering TC Size and Asymmetry.* **Yushan Han**, Pennsylvania State University, State College, PA; X. Chen, F. Zhang

106 *Size and Structure of Dry and Moist Reversible Tropical Cyclones.* **Danyang Wang**, Tsinghua University, Beijing, China; Y. Lin

107 *A Simple Physically-Based Model to Predict the Radius of Maximum Wind from Outer Size.* **Daniel R. Chavas**, Purdue Univ., West Lafayette, IN; J. Knaff

108 *Tropical Cyclones Landfalling Information in the North Indian Ocean.* **Rubaiya Kabir**, University of New South Wales, Canberra, Australia; E. A. Ritchie, Z. Jovanoski

109 *Understanding Forecast Busts in the Met Office's Convection Permitting Ensemble Forecasts.* **John Ashcroft**, Univ. of Leeds, Leeds, UK; J. Schwendike, S. D. Griffiths, A. N. Ross, C. Short, S. Webster

110 *Distinct Intensification Pathways for a Shallow-Water Vortex Subjected to Asymmetric 'Diabatic' Forcing.* **David A. Schecter**, NorthWest Research Associates, Boulder, CO

111 *On the Instabilities of Tropical Cyclones Generated by Cloud Resolving Models.* **David A. Schecter**, NorthWest Research Associates, Boulder, CO

34HURR

Poster Session 3: HURRICANES AT LANDFALL IN THE URBAN ENVIRONMENT

Chair: Eric A. Hendricks, NCAR, Boulder, CO

89 *Hurricane Laura Damage Survey.* **Tim Marshall**, HAAG ENGINEERING CO., Flower Mound, TX

3:00 P.M.–4:30 P.M.

34HURR

Panel Discussion 12: CLIMATE CHANGE AND TCS

Moderator: Adam H. Sobel, LDEO, Palisades, NY

Panelists: Suzana Camargo, Lamont-Doherty Earth Observatory, Columbia Univ., Palisades, NY; Kerry Emanuel, Massachusetts Institute of Technology, Cambridge, MA; Thomas R. Knutson, NOAA, Princeton, NJ; Christina M. Patricola, Lawrence Berkeley National Laboratory, Berkeley, CA

Thursday, May 13

10:00 A.M.–11:00 A.M.

34HURR

Session 13A: DATA ASSIMILATION AND OBSERVING STRATEGIES II

Chairs: Altug Aksoy, CIMAS Cooperative Institute for Marine and Atmospheric Studies, Miami, FL, , Univ. of Miami/CIMAS and NOAA/AOML/HRD, Miami, FL; D. Herndon, Cooperative Institute for Meteorological Satellite Studies, Madison, WI, , CIMSS, Madison, WI

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

13A.1 *Bias Correction with the Symmetric Cloud Proxy Variable and its Influence on Assimilating All-Sky GOES-16 Brightness Temperatures.* **Chengfeng Feng**, Univ. of Utah, Salt Lake City, UT; Z. Pu

10:10 A.M.

13A.2 *All-Sky Radiance Assimilation for COAMPS-TC. Part II: Impact on Tropical Cyclone Inner Core Structure and Rapid Intensification.* **Yi Jin**, NRL, Monterey, CA; Q. Zhao, N. L. Baker, J. D. Doyle, F. Zhang, R. G. Nystrom, X. Chen, Y. Zhang

10:15 A.M.

13A.3 *A Process-Based Validation of GPM IMERG and its Sources Using a Mesoscale Rain Gauge Network in the West African Forest Zone.* **Marlon Maranan**, Karlsruhe Institute of Technology, Karlsruhe, Germany; A. H. Fink, P. Knippertz, L. K. Amekudzi, W. A. Atiah, M. Stengel

13A.4 *WITHDRAWN*

10:25 A.M.

13A.5 *SMART-R Observations of Landfalling Hurricanes.* **Michael I. Biggerstaff**, Univ. of Oklahoma, Norman, OK; G. D. Carrie, A. A. Alford

10:30 A.M.

13A.6 *Improved Prediction of Landfalling Tropical Cyclone in China Based on Assimilation of Radar Radial Winds with New Super-Observation Processing .* **Jianing Feng**, Chinese Academy of Meteorological Sciences, Beijing, China; Y. Duan, Q. Wan, H. Hu, Z. Pu

10:35 A.M.

13A.7 *Strongly Coupled Assimilation of a Hypothetical Ocean Current Observing Network within a Regional Ocean-Atmosphere Coupled Model: An OSSE Case Study of Typhoon Hato.* **Luke Phillipson**, Imperial College London, London, United Kingdom; L. Yi, R. Toumi

13A.8 *WITHDRAWN*

10:45 A.M.

13A.9 *An Expanding Role for Coastal Ocean Observing Systems in Tropical Cyclone Forecasting and Research.* **Travis Miles**, Rutgers University, New Brunswick, NJ; M. Aristizabal, S. Glenn

10:50 A.M.

13A.10 *Estimating Moist Static Energy and Surface Enthalpy Flux Variance in a Mature Hurricane: Modeling and an Observational Case Study.* **Jacob D. Carstens**, Florida State University, Tallahassee, FL; M. V. Kopelman, A. A. Wing

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 13B: SYNOPTIC-SCALE SYSTEMS ASSOCIATED WITH MONSOONS

Chair: James O H Russell, Atmospheric Sciences, William Browning Building, Salt Lake City, UT

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

13B.1 *Low Pressure System and the Spatial Extent of Extreme Rainfall Events of the Indian Summer Monsoon.*

Akshaya Nikumbh, Indian Institute of Science, Bangalore, India; A. Chakraborty, G. S. Bhat, D. Frierson

10:10 A.M.

13B.2 *Climatology of Middle Tropospheric Cyclones Over South East Asia.* **Pradeep Kushwaha**, Indian Institute of Science, Bengaluru, Karnataka 560012, Bangalore, India; J. Sukhatme, R. S. Nanjundiah

10:15 A.M.

13B.3 *Mechanisms Contributing to the Heavy Rainfall Associated with a Meiyu Front near Taiwan.* **Jennifer C.**

DeHart, Colorado State Univ., Fort Collins, CO; M. M. Bell

10:20 A.M.

13B.4 *Convective Coupling in Tropical-Depression-Type Waves: Rainfall Characteristics and Moisture Budget.* **Tao Feng**, Hohai University, Nanjing, China

10:25 A.M.

13B.5 *Convection-Circulation Interactions over West Africa in Simulations with Explicit and Parameterised Convection.*

Francesca A Morris, University of Leeds, Leeds, United Kingdom; J. Schwendike, D. Parker, C. Bain

10:30 A.M.

13B.6 *Diurnal Variation of Rainfall and Low-Level Wind Features over West Africa during the Pre-Monsoon and Monsoon Seasons.* **Lidia Huaman**, Texas A&M University, College Station, TX; C. Schumacher, E. Buttitta, A. H. Fink

10:35 A.M.

13B.7 *Evolution and Characteristics of Westward Propagating Storms during 17th - 25th August, 2017.* **Ifeoluwa**

Adebowale Balogun, FEDERAL UNIVERSITY OF TECHNOLOGY, AKURE NIGERIA, AKURE, Nigeria; A. R. Balogun, V. O. Ajayi

10:40 A.M.

13B.8 *Over View on the Extreme Rain Case Event of June 27, 2018 in Senegal.* **Abdou Lahat DIENG**, Laboratoire de Physique de l'Atmosphere et de l'OCEAN/Cheikh Anta Diop University, Dakar, Senegal; D. WANE, C. NIANG, H. Senghor, A. Diop

10:45 A.M.

13B.9 *Diurnal Cycle of Rainfall in Amount, Frequency, Intensity, Durations and the Intraseasonal Variability over Senegal.*

CHEIKH MODOU NOREYNI FALL, University Cheikh Anta Diop of Dakar, Dakar, Senegal; D. WANE, C. Dione, A. T. G. GAYE

10:50 A.M.

13B.10 *Nocturnal Offshore Rainfall from Western Sumatra: Characteristics, Formation, and Interaction with the MJO.*

Hedanqiu Bai, Texas A&M Univ., College station, TX; C. Schumacher

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 13C: TROPICAL CYCLONE PRECIPITATION AND ITS PREDICTABILITY I

Chairs: Liguang Wu, Fudan University, Shanghai, China; Fumin Ren, Chinese Academy of Meteorological Sciences (CAMS), Beijing, China; Robert Rogers, Hurricane Research Division, AOML, Miami, FL

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

13C.1 *The Impact of Microphysics on Flooding Resulting from Landfalling Hurricanes.* **K. Ryder Fox**, University of Miami, Miami, FL; B. McNoldy, D. Nolan

10:10 A.M.

13C.2 *Development of a Probabilistic Tropical Cyclone Rainfall Model.* **Frank Marks**, Hurricane Research Division, AOML, Miami, FL; B. McNoldy, M. C. Ko, A. B. Schumacher

10:15 A.M.

13C.3 *A Dynamical-Statistical-Analog Ensemble Forecast Model: Theory and Its Application to Heavy Rainfall Forecasts of Landfalling Tropical Cyclones.* **Fumin Ren**, Chinese Academy of Meteorological Sciences (CAMS), Beijing, China; C. Ding, D. L. Zhang

10:20 A.M.

13C.4 *Estimating Long-Term Tropical Cyclone Rainfall Frequency - A Physics-Based Approach.* **Monika Feldmann**, ETH Lausanne, Lausanne, Switzerland; K. Emanuel, L. Zhu, U. Lohmann

10:25 A.M.

13C.5 *Focused, Persistent Heavy Rain Bands with Inland Tropical Cyclones: Their Predictability and Role in the Right of Track Maximum.* **David Roth**, NOAA/NWS/NCEP Weather Prediction Center, College Park, MD; A. Lamers, G. W. Carbin, M. Klein

10:30 A.M.

13C.6A *Key Factors Influencing the Severity of Fluvial Flood Hazard from Tropical Cyclones.* **Helen A. Tittley**, Met Office, Exeter, UK; H. L. Cloke, S. Harrigan, F. Pappenberger, C. Prudhomme, J. Robbins, E. Stephens, E. Zsoter

13C.6 *WITHDRAWN*

10:35 A.M.

13C.7 *A Modeling Study of the Principal Rainband in Hurricane Matthew (2016) and the Influence of Remote Terrain on Hurricane Structure During its Intensification in the Southern Caribbean.* **Stephanie Zick**, Virginia Tech, Blacksburg, VA; A. Updike

10:40 A.M.

13C.8 *Tropical Cyclone Rainfall-driven Flooding Risk Under A Warming Climate.* **Ali Sarhadi**, Massachusetts Institute of Technology, Cambridge, MA; K. Emanuel

10:45 A.M.

13C.9 *Representation of Tropical Cyclone Precipitation in Global Reanalysis Datasets.* **Evan Jones**, Florida State Univ., Tallahassee, FL; A. A. Wing, R. Parfitt

10:50 A.M.

13C.10 *Analysis of the Heavy Rainfall Mechanisms in Australian Tropical Cyclones.* **Elizabeth A Ritchie**, Univ. of New South Wales, Canberra, Australia; D. Deng, C. Stark

10:55 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 14A: AIR-SEA INTERACTION I

Chairs: Kosuke Ito, University of the Ryukyus, Okinawa, Japan; Isaac Ginis, University of Rhode Island, Narragansett, RI

11:30 A.M.

Welcoming Remarks.

14A.1 WITHDRAWN

11:40 A.M.

14A.2 *Evaluating the Radii at which Ocean-Air Fluxes Contribute to Tropical Cyclone Intensity.* **Alex M. Kowaleski**, Cooperative Institute for Research in the Atmosphere/Colorado State University, Fort Collins, CO; J. L. Evans

11:45 A.M.

14A.3 *Multi-Fluid-Type Modeling of Sea Spray Influence on a Vertical Heat Transport in Atmosphere Under High Wind Conditions.* **Yevgenii Rastigejev**, North Carolina A&T State Univ., Greensboro, NC; S. A. Suslov

11:50 A.M.

14A.4 *Ocean Observations under Hurricanes Irma (2017) and Florence (2018): Evolution of the Response across the Storm Wakes.* **Elizabeth R. Sanabia**, U.S. Naval Academy, Annapolis, MD; S. R. Jayne

11:55 A.M.

14A.5 *Evaluating the Ocean Response to Hurricanes Irma and Florence in the ECMWF Model.* **Steven R. Jayne**, WHOI, Woods Hole, MA; K. Mogensen, E. R. Sanabia, L. Magnusson, C. R. Densmore, G. M. Rovira-Melendez, S. J. Sun

12:00 A.M.

14A.6 *Dynamics and Energetics of a Wake-Modulated Mesoscale Warm Core Eddy after the Passage of Hurricane Irma.* **Johna E. Rudzin**, National Research Council/Naval Research Laboratory, Monterey, CA; S. Chen

12:05 A.M.

14A.7 *Influence of Surfactants on Sea Spray Generation Under Tropical Cyclone Conditions.* **Breanna Vanderplow**, Nova Southeastern University, Dania Beach, FL; A. Soloviev, C. Dean, B. K. Haus, R. Lukas, I. Ginis

14A.8 WITHDRAWN

12:15 A.M.

14A.9 *Boundary Layer Wind Profiles, the Prediction of the Drag Coefficient, and Their Radial Dependence in Tropical Cyclones.* **David H. Richter**, Univ. of Notre Dame, South Bend, IN; C. Wainwright, D. R. Chavas, D. Stern, G. H. Bryan, G. Wang

12:20 A.M.

14A.10 *Impact of Shoaling Waves on Wind Stress and Drag Coefficient during Tropical Cyclone Landfall.* **Isaac Ginis**, University of Rhode Island, Narragansett, RI; X. Chen, T. Hara

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 14B: OTREC: ORGANIZATION OF TROPICAL EAST PACIFIC CONVECTION

Chairs: Stipo Sentic, New Mexico Institute of Mining and Technology, Socorro, NM; Zeljka Fuchs, New Mexico Institute of Mining and Technology, Socorro, NM

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

14B.1 *Overview and Highlights of OTREC.* **Zeljka Fuchs-Stone**, New Mexico Tech, Socorro, NM; D. J. Raymond, S. Sentic

11:40 A.M.

14B.2 *Examining the Shape of Vertical Motion Profiles during OTREC.* **Larissa Back**, University of Wisconsin, Madison, WI; M. A. Bernardez

11:45 A.M.

14B.3 *WTG Modeling of OTREC Convection.* **David J. Raymond**, New Mexico Tech, Socorro, NM; Z. Fuchs-Stone

11:50 A.M.

14B.4 *Towards a Mechanistic Understanding of Precipitation over the Far Eastern Tropical Pacific and Western Colombia, One of the Rainiest Spots on Earth: Otrec Contributions.* **John F. Mejia**, DRI, Reno, NV; J. Yepes, J. J. Henao, G. Poveda, M. D. Zuluaga, D. J. Raymond, Z. Fuchs-Stone

11:55 A.M.

14B.5 *Evaluation of Synoptic and Mesoscale Conditions over the Far Eastern Tropical Pacific during the Chocojex Observations.* **Johanna Yepes**, Universidad Nacional de Colombia, Medellin, Colombia; J. F. Mejia, G. Poveda, B. E. Mapes

12:00 A.M.

14B.6 *The Role of Low-Level Wind Jets in the Dynamics of East Pacific Easterly Waves.* **Justin W. Whitaker**, Colorado State Univ., Fort Collins, CO; E. D. Maloney

12:05 A.M.

14B.7 *Horizontal and Vertical Structure of Extreme Convective Storms Leading to Severe Weather-Impacts in Vulnerable Regions of South America.* **Manuel D. Zuluaga**, Climate Forecast Applications Network, Reno, NV; D. A. Suarez, S. Gomez, L. Herrera, C. D. Hoyos, Y. Cardona

12:10 A.M.

14B.8 *Measurements of Stable Water Isotopes in Rainwater during Otrec.* **Zhiming Kuang**, Harvard Univ., Cambridge, MA; A. M. Durán-Quesada, F. Lamraoui, D. Ma, R. Sánchez-Murillo, N. O. Vargas, A. M. Vesga-Güiza

12:15 A.M.

14B.9 *NCAR NRD41 Dropsonde Observations of Thermodynamic Parameters and Wind during OTREC.* **Holger Vömel**, NCAR/EOL, Boulder, CO; T. Hock, M. Goodstein, L. Tudor, I. Suhr, J. C. Witte

12:20 A.M.

14B.10 *Surface GPS and Meteorological Network across Costa Rica during OTREC.* **Ben Lintner**, Rutgers, State Univ. of New Jersey, New Brunswick, NJ; A. M. Durán-Quesada, Y. L. Serra, D. J. Gochis, D. K. Adams, M. Garbonzo-Salas

12:25 A.M.

14B.11 *HIAPER Cloud Radar Observations in Developing and Decaying Convection during OTREC.* **Stipo Sentic**, New Mexico Institute of Mining and Technology, Socorro, NM; Z. Fuchs-Stone, D. J. Raymond

11:30 A.M.–12:30 P.M.

34HURR

Session 14C: TROPICAL CYCLONE OUTFLOW, MID-LATITUDE FLOW INTERACTIONS AND DOWNSTREAM DEVELOPMENT

Chairs: Clark Evans, Univ. of Wisconsin–Milwaukee, Milwaukee, WI; Gregory Tripoli, University of Wisconsin, Madison, WI

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

14C.1 *Predictability of the Extratropical Transition of Karl and Downstream Impact.* **James D. Doyle**, NRL, Monterey, CA; M. G. Fearon, P. M. Finocchio, C. Reynolds

11:40 A.M.

14C.2 *Jet Stream Characteristics that Affect the Downstream Response to Recurring Tropical Cyclones.* **Peter Finocchio**, National Research Council, Monterey, CA; J. D. Doyle

11:45 A.M.

14C.3 *A Climatology of Indirect Tropical Cyclone Interactions in the North Atlantic and Western North Pacific Basins.* **Kevin C. Prince**, Univ. of Wisconsin–Milwaukee, Milwaukee, WI; C. Evans

11:50 A.M.

14C.4 *North Pacific Tropical-Midlatitude Interactions that Resulted in Downstream Multiple Extreme Weather Occurrences.* **Lance F. Bosart**, Univ. at Albany, SUNY, Albany, NY; T. C. Leicht

11:55 A.M.

14C.5 *Downstream Baroclinic Development and Associated High-Impact Weather Events over the CONUS Linked to Recurring and Transitioning Western Pacific Supertyphoon Nuri (2014).* **Tyler C. Leicht**, Univ. at Albany, SUNY, Albany, NY; L. F. Bosart

12:00 A.M.

14C.6 *Tropical Cyclone Outflow Interactions with the Environment.* **Gregory J. Tripoli**, Univ. of Wisconsin–Madison, Madison, WI

12:05 A.M.

14C.7 *Diurnal Oscillations in Tropical Cyclone Outflow, Structure, and Intensity in Two Full-Physics Hurricane Simulations.* **Rebecca C. Evans**, University of Miami, Miami, FL; D. S. Nolan

12:10 A.M.

14C.8 *Evolving Tropical Cyclone Outflow Fate in NASA's GEOS-5 Global Mesoscale Simulation.* **Morgan O'Neill**, Stanford University, Stanford, CA; I. Dey, H. Tang

12:15 A.M.

14C.9 *Sensitivity of Tropical Cyclone Intensity to Outflow Layer Perturbations.* **Michael C. Morgan**, Univ. of Wisconsin–Madison, Madison, WI

12:20 A.M.

14C.10 *Tropical Cyclone Intensity Change During Trough Interaction.* **Kristen L. Corbosiero**, Univ. at Albany, SUNY, Albany, NY; C. M. Peirano, B. H. Tang

12:25 A.M.

14C.11 *Tropical Cyclone-Trough Interactions: Idealized Experiments and Structure Effects.* **Brian H. Tang**, Univ. at Albany, SUNY, Albany, NY; C. M. Peirano, K. L. Corbosiero

1:00 P.M.–2:05 P.M.

34HURR**Session 15A: RAPID INTENSIFICATION / AIR-SEA INTERACTION II**

Chairs: Scott A. Braun, GSFC, Greenbelt, MD; Kosuke Ito, Univ. of the Ryukyus, Nishihara-cho, Nakagami-gun, Japan

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

15A.1 *Rapid Decay of Slowly Moving Typhoon Soulik (2018) due to Interactions with the Cold Wake in the Northern East China Sea.* **Jae-Hyoung Park**, Korea Institute of Ocean Sciences and Technology, Busan Metropolitan City, Korea, Republic of (South); D. E. Yeo, K. Lee, H. Lee, S. W. Lee, S. W. Lee, S. Noh, S. Kim, J. Shin, Y. Choi, S. Nam

1:10 P.M.

15A.2 *On the Rapid Weakening of Typhoon Trami (2018): Strong SST Cooling Associated with Slow Translation Speed.* **Kuo-Feng Chang**, National Taiwan University, Taipei, Taiwan; C. C. Wu

1:15 P.M.

15A.3 *The Role of WISHE in the Rapid Intensification of Tropical Cyclones - Additional Ensemble and Idealized Simulations.* **Chieh-Jen Cheng**, National Taiwan University, Taipei, Taiwan; C. C. Wu

1:20 P.M.

15A.4 *Parameter Estimation of Tropical Cyclone Air-Sea Enthalpy and Momentum Exchange Coefficients by Ensemble Data Assimilation.* **Robert G. Nystrom**, The Pennsylvania State Univ., Univ. Park, PA; F. Zhang, S. J. Greybush

1:25 P.M.

15A.5 *Observed Ocean-Atmosphere Interactions During Hurricane Michael Over the Gulf.* **Lynn K. Shay**, Univ. of Miami/RSMAS, Miami, FL; B. Jaimes, J. B. Wadler, L. Centurioni, J. Zhang, J. Brewster, L. Hiron

1:30 P.M.

15A.6 *Is the Abnormal Ocean Heat Content Responsible for the Rapid Intensification and Record Rainfall during Hurricane Harvey, 2017?* **Jaison Kurian**, Texas A&M Univ., College Station, TX; C. Y. Hsu, D. Fu, P. Chang, Y. Liu

1:35 P.M.

15A.7 *Rapid Intensification of Hurricane Michael (2018) and Its Sensitivity to Upper Ocean Temperature.* **Benjamin W. Barr**, University of Washington, Seattle, WA; S. S. Chen

1:40 P.M.

15A.8 *Different Environmental Conditions of Tropical Cyclone Rapid Intensification in the Western North Pacific.* **Udai Shimada**, MRI, Tsukuba, Japan

1:45 P.M.

15A.9 *Numerical Study of Rapid Intensification for Super Typhoon Hagibis (2019).* **Hao Jin**, NRL, Monterey, CA; Y. Jin, J. R. Moskaitis, J. D. Doyle

1:50 P.M.

Discussion.

2:00 P.M.

Poster Session 4: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 15B: CLIMATE AND LARGE-SCALE CIRCULATION I

Chair: Martina Bramberger, NorthWest Research Associates, Boulder, CO

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

15B.1 *The Significance of the Nontraditional Coriolis Terms in Tropical Large-Scale Dynamics.* **Hing Ong**, University at Albany, State University of New York, Albany, NY; P. E. Roundy

1:10 P.M.

15B.2 *The Vertical Structure of Tropical Overturning Circulations.* **Martin S. Singh**, Monash University, Clayton, Australia

1:15 P.M.

15B.3 *Mean Climate and Circulation of Mock-Walker Simulations.* **Nicholas Lutsko**, SIO, La Jolla, CA; T. W. Cronin

1:20 P.M.

15B.4 *Dependences of Climate on Background Pressure: a Convection-Circulation Coupled Feedback.* **Ji Nie**, Peking Univ., Beijing, China; J. Xiong, J. Yang

1:25 P.M.

15B.5 *On the Relationship between the Madden-Julian Oscillation and the Hadley and Walker Circulations.* **Juliane Schwendike**, Univ. of Leeds, Leeds, UK; G. J. Berry, M. J. Reeder, K. Fodor

15B.6 *WITHDRAWN*

1:30 P.M.

15B.6A *The Impact of Quasi-Biweekly Extensions of the Monsoon Winds on the Philippine Diurnal Cycle.* **Michael Natoli**, Colorado State Univ., Fort Collins, CO; E. D. Maloney

1:35 P.M.

15B.7 *Exploring the Role of Low-Level Dynamics in East Pacific Northern and Double ITCZ Events.* **Alex O. Gonzalez**, Iowa St. University, Ames, IA; I. Ganguly, M. C. McGraw, J. Larson

1:40 P.M.

15B.8 *Contrasting Recent and Future ITCZ Changes from Distinct Tropical Warming Patterns.* **Wenyu Zhou**, Pacific Northwest National Laboratory, Richland, CA; R. Leung, J. Lu, D. Yang, F. Song

1:45 P.M.

15B.9 *Physical Linkages between Deep Convection and Subtropical Low Cloud Feedback.* **Kathleen Schiro**, Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA; H. Su, J. Jiang, J. D. Neelin

15B.10 *WITHDRAWN*

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session 4: Welcoming Remarks.

1:00 P.M.–2:05 P.M.

34HURR

Session 15C: TROPICAL CYCLOGENESIS I

Chairs: Zhuo Wang, Univ. of Illinois at Urbana–Champaign, Urbana, IL; James H. Ruppert, University of Oklahoma, Norman, OK

1:00 P.M.

Welcoming Remarks.

1:05 P.M.

15C.1 *Analysis and Forecast Characteristics of Developing and Non-Developing African Easterly Waves.* **Sharanya J. Majumdar**, University of Miami, Miami, FL; L. Magnusson, Q. Lawton, G. Rizzuto, A. Walker, K. Dotterer, C. D. Thorncroft

1:10 P.M.

15C.2 *Tropical Cyclone Genesis in the GFDL SHIELD.* **Jan-Huey Chen**, NOAA/GFDL, UCAR, Princeton, NJ; P. Ginoux, X. Chen, L. Zhou, L. Harris, M. A. Bender

1:15 P.M.

15C.3 *Numerical Simulations of Tropical Cyclone Formation within the Monsoon Trough: Development of the Precursor Disturbance.* **Huijun Zong**, Nanjing University of Information Science and Technology, Nanjing, China; L. Wu

1:20 P.M.

15C.4 *Effects of Mountain Gap Winds on Tropical Cyclogenesis in the Eastern Pacific.* **Adolfo Lugo Rios**, SUNY, University at Albany, NY; C. Thorncroft

1:25 P.M.

15C.5 *Synoptic and Topographic Influences on the Formation of Tropical Storm Hermine (2010).* **Alex K. Mitchell**, Univ. at Albany, SUNY, Albany, NY; L. Bosart

1:30 P.M.

15C.6 *Evidence of High Aerosol Concentrations Near Atlantic Cloud Clusters That Developed into Tropical Cyclones.* **Christopher C. Collimore**, NOAA-CESSRST, New York, NY; E. J. Fetzer, R. G. Fovell

1:35 P.M.

15C.7 *Favorable Monsoon Environment over Eastern Africa for Subsequent Tropical Cyclogenesis of African easterly waves.* **Kelly Nunez Ocasio**, The Pennsylvania State Univ., Univ. Park, PA; A. Brammer, J. L. Evans, G. S. Young, Z. L. Moon

1:40 P.M.

15C.8 *Thermodynamic Evolution in Developing and Nondeveloping Tropical Disturbances Observed from Passive Infrared and Microwave Sensors.* **Jimmy Yunge**, Rosenstiel School of Marine and Atmospheric Science, Miami, FL; J. Zawislak

1:45 P.M.

15C.9 *Impact of GPS Radio Occultation Data on the Prediction of Tropical Cyclogenesis.* **Ying-Hwa (Bill) Kuo**, UCAR, Boulder, CO; S. Y. Chen, H. F. Teng, C. Y. Huang

1:50 P.M.

15C.10 *Cyclongenesis of TS Cindy (2017): CPEX Observations and Coupled Modeling.* **Edoardo Mazza**, University of Washington, Seattle, WA; S. S. Chen

1:55 P.M.

Discussion.

2:00 P.M.

Poster Session 4: Welcoming Remarks.

34HURR

Poster Session 4: AIR-SEA INTERACTION

Chair: Kosuke Ito, University of the Ryukyus, Okinawa, Japan

I 12 *Sea Surface Salinity Response to Tropical Cyclones based on Satellite Observations*. **Jingru Sun**, Princeton University, PRINCETON, NJ; G. A. Vecchi, B. J. Soden

I 13 *Simulated Atmosphere-Ocean-Biogeochemical Interaction Under the Passage of Tropical Cyclone Trami (2018)*. **Kosuke Ito**, University of the Ryukyus, Okinawa, Japan; T. Toyoda, K. Sakamoto

I 14 *Consistent Impacts of Surface Enthalpy and Drag Coefficient Uncertainty between an Analytical Model and Simulated Tropical Cyclone Maximum Intensity and Storm Structure*. **Robert G. Nystrom**, The Pennsylvania State Univ., Univ. Park, PA; R. Rotunno, C. A. Davis, F. Zhang

I 15 *Wind Limits on Ocean Rain Layers and Diurnal Warm Layers*. **Elizabeth J Thompson**, NOAA PSL, Boulder, CO; J. N. Moum, C. Fairall, S. A. Rutledge

I 16 *Impact of the Ocean-Atmosphere Background State in the Tropical Cyclones Cold Wake Magnitude Variability*. **Mauricio Zapata**, Universidad Nacional de Colombia, Medellín, Medellín, Colombia; C. D. Hoyos, Y. Cardona

34HURR

Poster Session 4: HURRICANE OBSERVATIONS: DATA INTEGRATION, VISUALIZATION, AND MINING

Chairs: Jonathan Zawislak, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; Heather M. Holbach, The Florida State Univ., Northern Gulf Institute, and NOAA/AOML/HRD, Tallahassee, FL; Jason Dunion, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL

I 17 *Adaption of the SHARPPy Sounding Analysis Toolkit for Tropical Cyclone Applications*. **Nicholas E. Johnson**, University of Alabama in Huntsville, Huntsville, AL; J. Dunion, E. L. Duran, P. Duran, E. Berndt

I 18 *Operational Use of SMART Radar Analyses in Landfalling Hurricanes*. **A. Addison Alford**, Univ. of Oklahoma, Norman, OK; M. I. Biggerstaff, G. D. Carrie

I 19 *The JPL Tropical Cyclone Information System: Integrating a Wealth of Data for Quickly Advancing the Physical Understanding and Forecasting of Hurricanes*. **Svetla Hristova-Veleva**, JPL/California Institute of Technology, Pasadena, CA; P. P. Li, B. W. Knosp, Q. A. Vu, F. J. Turk, W. L. Poulsen, Z. S. Haddad, B. H. Lambrigtsen, B. W. Stiles, T. P. J. Shen, N. Niamsuwan, S. Tanelli, O. O. Sy, H. Su, D. G. Vane, Y. Chao, P. S. Callahan, R. S. Dunbar, M. T. Montgomery, M. A. Boothe, V. Tallapragada, S. Trahan, A. Wimmers, R. Holz, J. Reid, F. D. Marks Jr., T. Vukicevic, S. Bhalachandran, H. Leighton, S. Gopalakrishnan, A. Navarro, F. J. Tapiador

I 20 *Toward a Real Time, AWIPS2 Compatible Future Pass Prediction Product*. **Christopher Selman**, NRL, Washington, DC; J. Cossuth

34HURR

Poster Session 4: NUMERICAL MODELING

Chair: Ryan D. Torn, Univ. at Albany, SUNY, Albany, NY

I 21 WITHDRAWN

I 23 *Hurricane Simulations with High-Resolution land-sea Mask in HWRF for COASTAL Act*. **Zaizhong Ma**, IMSG @ NOAA/NCEP/EMC, College Park, MD; B. Liu, A. Mehra

I 24 *Understanding Atypical Mid-Level Wind Speed Maxima in Hurricane Eyewalls*. **Daniel P. Stern**, UCAR/NRL, Monterey, CA; J. D. Kepert, G. H. Bryan, J. D. Doyle

I 25 *Upscale Energy Cascades on an Idealized Multilayer Shallow Earth*. **Yair Cohen**, California Institute of Technology, Pasadena, CA; J. Schröttle, N. Harnik, E. Heifetz, D. L. Suhas, J. Sukhatme

126 *WRF Modeling of Historical Landfalling New England Tropical Cyclones.* **Ryan Remondelli**, Florida State Univ., Tallahassee, FL; R. E. Hart

127 *Connecting Turbulent Eddies in Mature Hurricanes through Wavelet Analysis on Synthetic Aperture Radar (SAR) and Imaging Wind and Rain Airborne Profiler (IWRAP) Data.* **Devin Protzko**, UMBC - NASA/JCET, Baltimore, MD; S. R. Guimond, C. Jackson

128 *Impact of Nonlinear Effects and Asymmetric Dynamics on Tropical Cyclone Intensification.* **Yassine Tissaoui**, New Jersey Institute of Technology (NJIT), Newark, NJ; A. Sridhar, Y. Cohen, S. Guimond, C. Kawczynski, A. Jaruga, S. Byrne, L. Wilcox, J. Kozdon, F. X. Giraldo, S. Marras, T. Schneider

129 *Enhancements to Cloud Overlap Radiative Effects for Tropical Cyclone Prediction.* **Michael J. Iacono**, AER, Lexington, MA; J. M. Henderson, L. R. Bernardet, E. Kalina, M. K. Biswas, K. Newman, B. Liu, Z. Zhang

130 *Process Oriented Diagnostics of Tropical Cyclones in Reanalyses Using Moist Static Energy Budgets.* **Caitlin A. Dirkes**, Florida State University, Tallahassee, FL; A. A. Wing

34HURR

Poster Session 4: PREPARATIONS FOR THE NASA TROPICS EARTH VENTURE MISSION

Chair: William J. Blackwell, MIT Lincoln Laboratory, Lexington, MA

131 *NASA TROPICS Earth Venture Mission: Data Products and Radiance Modelling.* **R. Vincent Leslie**, MIT Lincoln Laboratory, Lexington, MA; W. J. Blackwell, S. A. Braun, R. Bennartz, C. S. Velden, M. DeMaria, T. Matsui, L. E. Gumley, C. Kidd, T. Greenwald, D. Herndon, G. Chirokova, Z. L. Li

34HURR

Poster Session 4: TROPICAL CYCLOGENESIS

Chairs: Zhuo Wang, The university of illinois at Urbana Champaign, Champaign, IL; Kelly Nunez Ocasio, The Pennsylvania State Univ., Univ. Park, PA

132 *Tropical Cyclogenesis within the Monsoon Onset Vortex.* **Shreyas Rajendra Dhavale**, North Carolina State University, Raleigh, NC; A. Aiyer

133 *Machine Learning Investigation on the Relative Importance among Various Attributes Affecting Tropical Cyclogenesis.* **MINHEE CHANG**, Gwanak-ro 1, Seoul, Korea, Republic of (South); C. H. Ho

134 *Idealized Experiments of the Influence of the Monsoon Trough on Tropical Cyclone Formation.* **Huijun Zong**, Nanjing University of Information Science and Technology, Nanjing, China; L. Wu

135 *Verifying Tropical Cyclone Genesis Forecasts using TC-Gen in the Model Evaluation Tools (MET).* **Daniel J. Halperin**, Embry-Riddle Aeronautical Univ., Daytona Beach, FL; K. M. Newman, J. E. Halley Gotway, T. L. Jensen

136 *Estimating Zonal Ekman Transport along Coastal Senegal during passage of Hurricane Fred, 30-31 August 2015.* **Abdou L. Dieng**, Université Cheikh Anta Diop de Dakar (UCAD), Dakar, Senegal; S. NDOYE Jr., G. Jenkins, S. M. SALL, A. T. G. GAYE

34HURR

Poster Session 4: TROPICAL CYCLONE PRECIPITATION AND ITS PREDICTABILITY

Chairs: Robert F. Rogers, Hurricane Research Division, AOML, Miami, FL; Liguang Wu, Fudan University, Shanghai, China

137 *Extreme Rainfall in the Carolinas during the Extratropical Transition of Hurricane Matthew (2016).* **Scott W. Powell**, Naval Postgraduate School, Monterey, CA; M. M. Bell

138 *Quantifying Extreme Precipitation Throughout the Tropical Cyclone Life Cycle in Observations and Models.* **Erica Bower**, Stony Brook University, Stony Brook, NY; K. A. Reed, P. Ullrich, C. M. Zarzycki, A. Pendergrass

139 *South Alabama Mesonet Observations of Rainfall Characteristics in Landfalling Tropical Systems.* **Sytske Kimball**, Univ. of South Alabama, Mobile, AL; E. Prunty

140 *Influence of Large-Scale Environmental Conditions on Tropical Cyclone Rainfall over the North Atlantic.* **Dasol Kim**, Seoul National University, Seoul, Korea, Republic of (South); C. H. Ho, H. Murakami, D. S. R. Park

141 *Evaluation of Accuracy of GPM Precipitation Products for Estimating Local Surface Precipitation in a Complex Terrain Region in Northern South America.* **Julian Sepulveda**, Universidad Nacional de Colombia, Medellín, Medellín, Colombia; C. D. Hoyos

142 *Tropical Cyclone-Related Precipitation over the Northwest Tropical Pacific in Met Office Global Operational Forecasts.* **Simon Christopher Peatman**, University of Leeds, Leeds, United Kingdom; N. P. Klingaman, K. I. Hodges

143 *Improvement of DSAEF_LTP Models's Heavy Rainfall Forecasting Performance by Introducing TC Intensity over South China.* **Chenchen Ding**, Chinese Academy of Meteorological Sciences, Beijing, China; F. Ren

144 *Object-based verification of precipitation structure in the HWRF forecast of Hurricane Isaias (2020).* **Shakira Stackhouse**, Virginia Tech, Blacksburg, VA; S. Zick

34HURR

Poster Session 4: TROPICAL-EXTRATROPICAL INTERACTIONS

Chair: Gan Zhang, Princeton University, Princeton, NJ

145 *An Updated Investigation of Post-Transition Intensity, Structural, and Timing Extremes for Extratropically Transitioning Tropical Cyclones.* **Giorgio M. Sarro**, University of Chicago, Chicago, IL; C. Evans

146 *Does Tropical Cyclone Outer Size Increase during Extratropical Transition?.* **Dzuy Nguyen**, University of Oklahoma, Norman, OK; B. Schenkel

147 *Synoptic Analysis of Dry Season Extreme Precipitation Events in Hispaniola.* **Steven J. Fuhrman**, Innovim, Greenbelt, MD; W. M. Thiaw

3:00 P.M.–4:00 P.M.

34HURR

Session 16A: CLIMATE AND LARGE-SCALE CIRCULATION II

Chair: Juliane Schwendike, University of Leeds, Leeds, United Kingdom

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

16A.1 *Getting Tropical Gravity Wave Details Right to Improve Global Forecast Models.* **Martina Bramberger**, NorthWest Research Associates, Boulder, CO; M. J. Alexander, C. Liu, J. Bacmeister, A. Hertzog, J. Richter, R. Vincent

3:10 P.M.

16A.2 *Using Statistical Models to Implement a Lightning Parameterization in a GCM.* **Montana Etten-Bohm**, Texas A&M Univ., College Station, TX; C. Schumacher, M. Jun, Y. Xu

3:15 P.M.

16A.3A *Future Storm Surge Scenarios from Pseudo-Global Warming Hurricane Simulations.* **Jeanne Camelo**, University of Central Florida, ORLANDO, FL; T. Mayo, E. Gutmann

16A.3 *WITHDRAWN*

3:20 P.M.

16A.4 *A Simple Theory for Increasing Unevenness in Tropical Rainfall with Warming.* **Yi Zhang**, Princeton University, Princeton, NJ; S. Fueglistaler

16A.5 WITHDRAWN

3:30 P.M.

16A.6 *Cold Air Rises in the Tropics.* **Seth Seidel**, LBNL, Berkeley, CA; D. Yang

3:35 P.M.

16A.7 *Regional Variability of Diabatic Heating Profiles by Cloud Type Associated with ITCZ Extremes.* **Morgan M Stessman**, University of Kansas, Lawrence, KS; J. P. Stachnik

3:40 P.M.

16A.8 *The role of the Tibetan Plateau in Amplifying Impacts of Global Warming on Typhoon Tracks.* **Xiaofang Feng**, Nanjing Univ. of Information Science and Technology, Nanjing, China; L. Wu

3:45 P.M.

16A.9 *Synoptic Timescale Linkage between Midlatitude Winter Troughs Sahara Temperature Patterns and Northern Congo Rainfall: A Building Block of Regional Climate Variability.* **Neil Ward**, University of Leeds, Leeds, United Kingdom; A. H. Fink, R. J. Keane, F. Guichard, J. H. Marsham, D. Parker, C. Taylor

3:50 P.M.

16A.10 *Climate Change Projections of the Australian Monsoon Are Sensitive to the Simulation of Large-Scale Tropical Circulations.* **Sugata Narsey**, BoM, Docklands, Australia

3:55 P.M.

Panel Discussion.

3:00 P.M.—4:00 P.M.

34HURR

Session 16B: HURRICANE OBSERVATIONS: DATA INTEGRATION, VISUALIZATION, AND MINING

Chairs: Jonathan Zawislak, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL; Heather M. Holbach, The Florida State Univ., Northern Gulf Institute, and NOAA/AOML/HRD, Tallahassee, FL; Jason Dunion, Univ. of Miami/Cooperative Institute for Marine and Atmospheric Studies and NOAA/AOML/HRD, Miami, FL

3:00 P.M.

Welcoming Remarks.

3:05 P.M.

16B.1 *3D Visualization of Tropical Cyclone Model Forecasts and Observations.* **Rachel Zelinsky**, CIRA, Fort Collins, CO; K. Musgrave, M. DeMaria, J. Franklin, E. S. Blake

3:10 P.M.

16B.2 *Tropical Convective Organization Observed by Radar and its Relation to the Large-Scale..* **Matthias Heinz Retsch**, Monash University, Melbourne, Australia; C. Jakob, M. S. Singh

3:15 P.M.

16B.3 *Variations in Tropical Cyclone Precipitation in the Continental North America from Daily Rain Gauges.* **Laiyin Zhu**, Western Michigan Univ., Kalamazoo, MI

3:20 P.M.

16B.4 *Internal Hurricane State.* **Bryan Kerman**, AES, Port Dover, Canada

3:25 P.M.

16B.5 *Analyzing Satellite Observations of Tropical Cyclones Via Open-Source Tools: A Storm-Centric Perspective.* **Kimberly M. Wood**, Mississippi State Univ., Mississippi State, MS

3:30 P.M.

16B.6 *New Perspectives on Empirical Tropical Cyclone Retrievals Using Deep Learning with Satellite Data.* **Anthony Wimmers**, CIMSS, Madison, WI; S. M. Griffin, C. Velden, T. Olander, J. Cossuth

3:35 P.M.

16B.7 *Clustering Analysis of Multi-Channel Microwave Satellite Imagery to Classify Tropical Cyclone Intensity.* **Dhruvil Shukla**, DigiPen Institute of Technology, Redmond, WA; N. N. Solorzano, B. Bede, J. N. Thomas, C. Bracy

3:40 P.M.

16B.8 *Principal Component and Linear Discriminant Analysis of Satellite Microwave Imagery to Classify Tropical Cyclone Intensity.* **Lux Cardell**, DigiPen Institute of Technology, Redmond, WA; N. Solorzano, J. Thomas, D. Shukla

3:45 P.M.

16B.9 *Tropical: A Python Package for Analyzing Tropical Cyclones and More.* **Tomer Burg**, Univ. of Oklahoma, Norman, OK; S. P. Lillo

3:50 P.M.

Discussion.

3:00 P.M.–4:00 P.M.

34HURR

Session 16C: TROPICAL CYCLOGENESIS II

Chairs: Rosimar Rios-Berrios, NCAR, Boulder, CO; Kelly Nunez Ocasio, Penn State University, Univ. Park., PA
3:00 P.M.

Welcoming Remarks.

3:05 P.M.

16C.1 *The Influence of Convectively Coupled Kelvin Waves (CCKWs) on the African Easterly Wave (AEW) Pathway to Tropical Cyclogenesis.* **Quinton A. Lawton**, Univ. of Miami/Rosenstiel School of Marine and Atmospheric Science, Miami, FL; S. J. Majumdar, K. Dotterer, C. Thorncroft

3:10 P.M.

16C.2 *A 2020 Seasonal Overview of Convectively Coupled Kelvin Wave (CCKW) Impacts on Atlantic Tropical Cyclogenesis.* **Krista Dotterer**, Univ. at Albany, Albany, NY; C. Thorncroft, Q. A. Lawton, S. J. Majumdar

16C.3 *WITHDRAWN*

3:20 P.M.

16C.4 *Tropical Cyclogenesis Mechanisms in Radiative-Convective Equilibrium Simulations of Varying Rotation.* **Jacob D. Carstens**, Florida State Univ., Tallahassee, FL; A. A. Wing

3:25 P.M.

16C.5 *Large-Scale Dynamics of Tropical Cyclone Formation Associated with ITCZ Breakdown.* **Chanh Kieu**, Atmospheric Science Program, Bloomington, IN; Q. Wang

3:30 P.M.

16C.6 *Exploring Subseasonal Variability of Tropical Cyclogenesis with MPAS-Aquaplanet Simulations.* **Rosimar Ríos-Berrios**, NCAR, Boulder, CO; G. H. Bryan, F. Judt

3:35 P.M.

16C.7 *Helical Tropical Cyclogenesis: Detection of Pre-Depression Large-Scale Vortex Instability.* **Galina V. Levina**, Space Research Institute, Russian Academy of Sciences, Moscow, Russian Federation

3:40 P.M.

16C.8 *Examining the Impact of Cloud Radiative Effect on the Development of Tropical Cyclone.* **Shun-Nan Wu**, Univ. of Miami, Miami, FL; B. J. Soden, D. S. Nolan, G. J. Alaka Jr.

3:45 P.M.

16C.9 *The Importance of Radiative Feedbacks in Tropical Cyclogenesis in Idealized Simulations.* **Allison A. Wing**, Florida State Univ., Tallahassee, FL

3:50 P.M.

16C.10 *The Critical Role of Cloud–Longwave Radiation Feedback in the Formation and Rapid Intensification of Typhoon Haiyan (2013) and Hurricane Maria (2017).* **James Ruppert**, The Pennsylvania State University, University Park, PA; A. A. Wing, X. Tang, E. Duran

3:55 P.M.

Discussion.

Friday, May 14

10:00 A.M.–11:00 A.M.

34HURR

Session 17A: NUMERICAL MODELING I

Chairs: Ghassan J. Alaka, NOAA/AOML/HRD, Miami, FL; Ryan D. Torn, SUNY, Albany, NY

10:00 A.M.

Introductory Remarks.

10:05 A.M.

17A.1 *Exploring the Structure and Short-timescale Variability of the Hadley Circulation in a Global Cloud-Resolving Model.* **Lucas M. Harris**, GFDL, Princeton, NJ; X. Chen, L. Zhou, J. Huff

10:10 A.M.

17A.2 *The Met Office Global Model: Recent Operational Performance and Trial Results for Tropical Cyclone Prediction.* **Julian T. Heming**, Met Office, Exeter, UK

10:15 A.M.

17A.3 *Tropical Cyclone Prediction with Global High-Resolution Models.* **Falko Judt**, NCAR, Boulder, CO

10:20 A.M.

17A.4 *Improving Simulated Tropical Cyclone Credibility with Advanced Climatological Metrics.* **Colin M. Zarzycki**, The Pennsylvania State Univ., University Park, PA; P. Ullrich

10:25 A.M.

17A.5 *A GRAPES-based mesoscale EPS for TC forecasting: configuration and performance.* **Xubin Zhang**, Institute of Tropical and Marine Meteorology, CMA, Guangzhou, China

10:30 A.M.

17A.6 *Ensemble Correlation Structure and Data Assimilation of Satellite All-Sky Microwave Observations for the Analysis and Prediction of Hurricane Harvey (2017).* **Yunji Zhang**, The Pennsylvania State University, University Park, PA; S. Sieron, Y. Lu, X. Chen, R. G. Nystrom, E. E. Clothiaux

10:35 A.M.

17A.7 *Adjoint Response Functions for Tropical Cyclone Intensity: Evaluation of Sensitivities and Perturbation Evolution.* **Zoe A. Zibton**, Univ. of Wisconsin–Madison, Madison, WI; M. C. Morgan

10:40 A.M.

17A.8 *Well Balanced Discontinuous Galerkin scheme for the shallow water equations in spherical geometry for storm surge simulations.* **Luca Arpaia**, BRGM French Geological Survey, Orléans, France; M. Ricchiuto, A. Filippini, R. Pedreros

10:45 A.M.

17A.9 *Performance Evaluation of a High Resolution Regional Model over West Africa for Operational Use: a Case Study of August 2017.* **Eniola Olaniyan**, Nigerian Meteorological Agency, Abuja, Nigeria; K. Lawal, C. Cafaro

10:50 A.M.

17A.10 *Dynamical Processes and Interaction Scale Regimes in Dry and Wet Events in East Africa.* **Anthony Mwanthi**, University of Nairobi, NAIROBI, Kenya; J. Mutemi, W. Gitau, B. Mutai, E. Bosire, R. Barette, J. Gacheru, M. Gudoshava, Z. Segele

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 17B: TROPICAL CYCLONE WORLDS

Chair: Martin Velez Pardo, MIT, Cambridge, MA

10:00 A.M.

Welcoming Remarks.

10:05 A.M.

17B.1 *Hurricane-like Vortices in the Conditionally Unstable Moist Convection.* **Mu-Hua Chien**, Center for Atmosphere Ocean Science, Courant Institute, New York University, New York, NY; O. Pauluis

10:10 A.M.

17B.2 *Tropical Cyclone Frequency under Varying SSTs in Aquaplanet Simulations.* **Adam C. Burnett**, Stanford University, Stanford, CA; A. Sheshadri, L. Silvers, T. E. Robinson Jr.

10:15 A.M.

17B.3 *A Numerical Study of the Global Formation of Tropical Cyclones.* **The-Anh Vu**, Indiana University, Bloomington, IN; C. Kieu, Q. Wang, D. R. Chavas

10:20 A.M.

17B.4 *Tropical Cyclone Genesis and Size on the Rotating Sphere.* **Daniel R. Chavas**, Purdue Univ., West Lafayette, IN; K. A. Reed

10:25 A.M.

17B.5 *Seeding Explains the Uncertainty in Tropical Cyclone Frequency Response to Warming.* **Tsung-Lin Hsieh**, Princeton Univ., Princeton, NJ; W. Yang, G. A. Vecchi

10:30 A.M.

17B.6 *Evaluation of Tropical Cyclone Activity for OSSE Applications.* **Paulo D. Paz**, Univ. of Miami/CIMAS, Miami, FL; L. Cucurull

10:35 A.M.

17B.7 *Tropical Cyclones and Ocean Heat Transport on an Aquaplanet with Dynamic Ocean.* **Xiaoning Wu**, SUNY Stony Brook, Stony Brook, NY; K. A. Reed, S. Bachman, F. O. Bryan, C. L. P. Wolfe, G. Marques

10:40 A.M.

17B.8 *Spontaneous Cyclogenesis Without Radiative and Surface-Flux Feedbacks.* **Argel Ramírez-Reyes**, University of California at Davis, Davis, CA; D. Yang

10:45 A.M.

17B.9 *Response of Tropical Cyclone Formation and Intensification Rates to Climate Warming in Idealized Simulations.* **Hamish A. Ramsay**, CSIRO, Aspendale, Australia; M. S. Singh, D. R. Chavas

10:50 A.M.

17B.10 *Response of a Tropical Cyclone to a Subsurface Ocean Eddy and the Role of Boundary Layer Dynamics.* **Arjun Unnithan Kumar**, MPI for Meteorology, Hamburg, Germany; N. Brueggemann, J. Marotzke

10:55 A.M.

Discussion.

10:00 A.M.–11:00 A.M.

34HURR

Session 17C: TROPICAL-EXTRATROPICAL INTERACTIONS I

Chair: Gan Zhang, Princeton University, Princeton, NJ

10:00 A.M.

Welcoming Remarks.

17C.1 *WITHDRAWN*

10:10 A.M.

17C.2 *Two Extratropical Pathways to Forcing Tropical Convection.* **Yuan-Ming Cheng**, NOAA/ESRL, Boulder, CO; S. N. Tulich, G. N. Kiladis

10:15 A.M.

17C.3 *Understanding the Extratropical Atmospheric Circulation: Local Versus Tropical Forcing.* **Pallav Ray**, Florida Institute of Technology, Melbourne, FL; X. Zhou, H. Tan, J. Dudhia, M. Moncrieff

10:20 A.M.

17C.4 *In Search of The Optimal Atmospheric River Index for US Precipitation: A Multifactorial Analysis.* **Chen Zhang**, Purdue Univ., West Lafayette, IN; W. W. Tung, W. S. Cleveland

10:25 A.M.

17C.5 *Simulating and Predicting Tropical - Extratropical Moisture Transport.* **Carolyn Reynolds**, NRL, Monterey, CA; N. P. Barton, M. Flatau, M. A. Janiga, J. G. McLay, W. Crawford, P. P. Papin, A. Huang, S. Frolov, P. Hogan, E. J. Metzger

10:30 A.M.

17C.6 *Tropical-Extratropical Interaction During the Formation of TC Peipah (2007) over the Western North Pacific.* **MINHEE CHANG**, Gwanak-ro 1, Seoul, Korea, Republic of (South); C. H. Ho, J. C. L. Chan, M. S. Park, S. W. Son, J. Kim

10:35 A.M.

17C.7 *Examining the Processes Responsible for Tropical Cyclone Expansion and Intensification.* **Emily A. Paltz**, Univ. at Albany, Albany, NY; K. L. Corbosiero, B. Tang

10:40 A.M.

17C.8 *Historical Variability and Landfall Characteristics of North Atlantic Post-Tropical Cyclones.* **Alexander Baker**, University of Reading, Reading, United Kingdom; K. I. Hodges, R. Schiemann, P. L. Vidale

10:45 A.M.

17C.9 *The Extratropical Transition of Tropical Cyclones in a Changing Climate.* **Gary M. Lackmann**, North Carolina State University, Raleigh, NC; A. C. Michaelis, C. jung

10:50 A.M.

17C.10 *Impacts of Extratropical Weather Perturbations on Tropical Cyclone Activity: Idealized Sensitivity Experiments with a Regional Atmospheric Model.* **Gan Zhang**, Princeton University, Princeton, NJ; T. R. Knutson, S. T. Garner

10:55 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 18A: HURRICANES HAZARDS AT LANDFALL

Chairs: Jason C. Knievel, NCAR, Boulder, CO; James Hlywiak, RSMAS/Univ. of Miami, Miami, FL

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

18A.1 *How Does the Relationship between Ambient Deep-Tropospheric Vertical Wind Shear and Tropical Cyclone Tornadoes Change between Coastal and Inland Environments?* **Ben Schenkel**, CIMMS, Norman, OK; M. Coniglio, R. Edwards

11:40 A.M.

18A.2 *Small-Scale Vortices in the Eyewall of Landfalling Hurricanes Harvey (2017) and Laura (2020).* **Thomas J. Galarneau**, CIMMS, Norman, OK; K. A. Kosiba

11:45 A.M.

18A.3 *Toward Large-Eddy Simulations (LES) of Hurricane Winds in the Urban Canopy with Cloud Model 1 (CM1).* **Yi Wang**, NCAR, BOULDER, CO; G. H. Bryan, E. A. Hendricks, J. C. Knievel, D. S. Nolan, F. J. Masters, R. A. Caterelli

11:50 A.M.

18A.4 *Sensitivities of the Near-Surface Tropical Cyclone Wind Field to Inland Surface Roughness Length and Soil Moisture Content.* **James Hlywiak**, RSMAS, Miami, FL; D. S. Nolan

11:55 A.M.

18A.5 *Evaluation of Planetary Boundary Layer Schemes in Hurricanes Over Land through Comparison of Surface Winds in Observations and Simulations of Hurricane Wilma (2005).* **David S. Nolan**, RSMAS/Univ. of Miami, Miami, FL; B. D. McNoldy, J. Y. Ge, F. J. Masters, I. M. Giammanco

12:00 A.M.

18A.6 *Evaluation of Boundary-Layer and Urban-Canopy Parameterizations for Simulating Wind in Miami's Urban Canopy during Hurricane Irma (2017).* **Eric A. Hendricks**, NCAR, Boulder, CO; J. C. Knievel, D. S. Nolan

12:05 A.M.

18A.7 *Wind Gust Distributions of Recent Landfalling Hurricanes.* **John Kaplan**, NOAA/AOML/HRD, Miami, FL; J. A. Zhang, P. P. Peter Dodge, C. J. Slocum

12:10 A.M.

18A.8 *Southeast Asia Landfalling Tropical Cyclones: Measuring Early and Total Physical Impacts.* **Thao Linh Tran**, University of New South Wales, Canberra, Australia; E. A. Ritchie, C. Stark

12:15 A.M.

18A.9 *Catastrophe Modeling of the 2018 United States Mainland Hurricanes.* **Justin Brolley**, CoreLogic, Oakland, CA; A. Haseemkunj, M. Khater, D. F. Smith

12:20 A.M.

18A.10 *Risk Implications of Nonstationarity in Interannual Clustering of Tropical Cyclone Landfalls in the United States.* **Susan E. Tolwinski-Ward**, AIR Worldwide, Boston, MA; A. Clarke, P. J. Sousounis, S. Lorsolo

12:25 A.M.

18A.11 *Surface Pressure a More Skillful Predictor of Normalized Hurricane Damage than Maximum Sustained Wind.* **Philip J. Klotzbach**, Colorado State Univ., Fort Collins, CO; M. M. Bell, S. G. Bowen, E. J. Gibney, K. R. Knapp, C. J. Schreck III

11:30 A.M.–12:30 P.M.

34HURR

Session 18B: NUMERICAL MODELING II

Chair: Falko Judt, NCAR, Boulder, CO

11:30 A.M.

Welcoming Remarks.

18B.1 *WITHDRAWN*

11:35 A.M.

18B.1A *Recent Progress and Challenges in Tropical Cyclone Intensity Prediction Using COAMPS-TC.* **James D. Doyle**, NRL, Monterey, CA; J. R. Moskaitis, Y. Jin, W. A. Komaromi, S. Chen, H. Jin, P. A. Reinecke, Q. Zhao, D. P. Stern

11:40 A.M.

18B.2 *Analysis of the October 2014 event using two high-resolution numerical weather prediction models.* **Lara Qutián Hernández**, Complutense University of Madrid, Madrid, Spain

11:45 A.M.

18B.3 *"Frictional Boost" of Tropical Cyclones Close to Land.* **Minghao Zhou**, Univ. at Albany, SUNY, Albany, NY; R. G. Fovell, K. L. Corbosiero

11:50 A.M.

18B.4 *Coherent Structures Associated with Peak Wind Gusts and Gust Factors in Large-Eddy Simulations of Tropical Cyclones.* **George H. Bryan**, NCAR, Boulder, CO; D. P. Stern, R. Rotunno

11:55 A.M.

18B.5 *Investigating the Role of Momentum Flux on Tropical Cyclone Wind Profiles in Climate Models.* **Kyle M. Nardi**, The Pennsylvania State Univ., Univ. Park, PA; C. M. Zarzycki, V. E. Larson, G. H. Bryan

12:00 A.M.

18B.6 *The Sensitivity of Eyewall Replacement Cycles to Shortwave Radiation.* **Benjamin C. Trabling**, Colorado State Univ., Fort Collins, CO; M. M. Bell

18B.7 *WITHDRAWN*

12:10 A.M.

18B.8 *The Role of Radiative Interactions in Tropical Cyclone Development under Realistic Boundary Conditions.* **Bosong Zhang**, RSMAS, Miami, FL; B. Soden, G. Vecchi, W. Yang

12:15 A.M.

18B.9 *Diurnal Pulsing within Recent Atlantic Basin Tropical Cyclones as Seen by HRRR Forecasts and Analyses.* **Jeremiah O. Piersante**, University at Albany, SUNY, Albany, NY; K. L. Corbosiero, R. G. Fovell

12:20 A.M.

18B.10 *Three-Dimensional Aspects of the Fujiwara Effect.* **Jae-Deok LEE**, Kyungpook National University, Department of earth science education, Korea, Daegu, Korea, Republic of (South); K. Ito, J. C. L. Chan

12:25 A.M.

Discussion.

11:30 A.M.–12:30 P.M.

34HURR

Session 18C: PREPARATIONS FOR THE NASA TROPICS EARTH VENTURE MISSION

Chair: W. J. Blackwell, MIT Lincoln Laboratory, Lexington, MA

11:30 A.M.

Welcoming Remarks.

11:35 A.M.

18C.1 *Overview and Status of the NASA TROPICS Earth Venture Mission.* **W. J. Blackwell**, MIT Lincoln Laboratory, Lexington, MA; K. Clark, R. V. Leslie, S. A. Braun, R. Bennartz, C. S. Velden, T. Greenwald, D. Herndon, M. DeMaria, G. Chirokova, R. Atlas, J. Dunion, F. Marks, R. F. Rogers, H. Christophersen, B. Annane, B. A. Dahl

11:40 A.M.

18C.2 *TROPICS Research Objectives and Products for Investigations with Cubesat Sensors.* **Scott A. Braun**, NASA GSFC, Greenbelt, MD; W. J. Blackwell, R. Bennartz, T. Greenwald, R. V. Leslie, T. Matsui, C. Kidd, E. B. Munsell, C. S. Velden

11:45 A.M.

18C.3 *Tropical Cyclone Intensity Estimation from the TROPICS Smallsat Satellite Constellation.* **Derrick Herndon**, CIMSS/Univ. of Wisconsin, Madison, WI; C. Velden, G. Chirokova, W. J. Blackwell, R. V. Leslie, R. Bennartz, S. Braun, T. Greenwald, M. DeMaria, R. Atlas, F. Marks, R. Rogers, J. Dunion, B. Annane, H. Christophersen, B. A. Dahl

11:50 A.M.

18C.4 *TROPICS Radiance Impact on Tropical Cyclone Prediction in an OSSE.* **Hui Christophersen**, Navy Research Laboratory, Monterey, CA; B. A. Dahl, R. Rogers, F. Marks, J. P. Dunion, R. Atlas, W. Blackwell

11:55 A.M.

18C.5 *Use of Microwave Satellite Data in National Hurricane Center Operations: How the TROPICS Constellation Data Will Help.* **John L. Beven**, NOAA/NWS/NCEP, Miami, FL; M. DeMaria

12:00 A.M.

18C.6 *NASA TROPICS Applications and Early Adopter Program.* **E. Berndt**, NASA Marshall Space Flight Center, Huntsville, AL; J. P. Dunion, W. Blackwell, S. Braun, D. S. Green

12:05 A.M.

Discussion.

12:30 P.M.–1:00 P.M.

34HURR

Session: AWARD SESSION