**2015 Tropical Cyclone Research Forum**

69th Interdepartmental Hurricane Conference

**Tropical Cyclone Operations and Research:  Setting our Future Course**

**AGENDA**

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| **DAY 1 - Monday, March 2, 2015** |

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|  | Working Group for Hurricane and Winter Storms Operations and Research (WG/HWSOR) Meeting | Dr. Edward Rappaport (NCEP/NHC)  Chairperson, WG/HWSOR |

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| **DAY 2 - Tuesday, March 3, 2015** |

**Opening Session**

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|  | Forum Opening   * Welcome * Setting the Stage | Mr. David McCarren  Acting Federal Coordinator for Meteorological Services and Supporting Research |
|  | Perspectives from the Florida Division of Emergency Management   * *Mr. Bryan Koon*, Director, Florida Division of Emergency Management (and/or State Meteorologist, Amy Godsey) * *Mr. Steven C. Woodard*, Director, Emergency Preparedness Division, Jacksonville Fire and Rescue Department | |

**Session 1: The 2014 Tropical Cyclone Season in Review**

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| Session Leader  Kathy Winters (Air Force/45th Weather Squadron) | | |
| (S1-01) | Review of the 2014 Central Pacific Tropical Cyclone Season and Preliminary Verification | *Thomas Birchard* (NOAA/NWS/CPHC) |
| (S1-02) | A Review of the 2014 Joint Typhoon Warning Center  Tropical Cyclone Season | *Robert J. Falvey* (JTWC) |
| (S1-03) | NOAA Aircraft Operations Center (AOC)  2014 Seasonal Summary and Future Plans | Jim McFadden, Devin R. Brakobb, and *Timothy Gallagher* (NOAA/AOC) |
| (S1-04) | 53d Weather Reconnaissance Squadron/AFRC 2014 Hurricane Season Summary | *Lt Col Jonathan Talbot* (53 WRS) |
| (S1-05) | 2014 AXBT Demonstration Project: Operations Summary and Research Update | *Elizabeth R. Sanabia* (U.S. Naval Academy) and  Peter G. Black (NRL/Monterey/SAIC) |

**Session 2: Research Priorities of the Operational Centers**

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| Session Leader  Eric W. Uhlhorn (NOAA/AOML/HRD) | | |
| (S2-01) | Tropical Cyclone Support Challenges and Strengths | *Col Rob Swanson* (Air Force Weather) |
| (S2-02) | Objective, Automatic Tracking of Pre-Genesis Tropical Disturbances within the Deviation Angle Variance Method for Genesis Prediction | *Elizabeth A. Ritchie*, Oscar G. Rodríguez-Herrera, Kimberly M. Wood, and J. Scott Tyo (University of Arizona) |
| (S2-03) | Deterministic Tropical Cyclone Genesis in Operational Global Numerical Weather Prediction Models as a Model Assessment Tool | *Mike Fiorino* (NOAA Earth System Research Lab) |
| (S2-04) | Towards Developing a Guidance Product for Tropical Cyclogenesis Probabilities Using a Comprehensive Historical Dataset of Precipitation and Environmental Properties | *Jonathan Zawislak* (Florida International University), Brandon Kerns (Univ. of Miami/RSMAS), and Haiyan Jiang (FIU) |
| (S2-05) | Measuring Gaps in Tropical Cyclone Rainbands Using Level II Radar Reflectivity Data | *Corene J. Matyas* (University of Florida) |
| (S2-06) | Evolution of the USGS Storm Tide Network | *Jeanne C. Robbins* (USGS-Raleigh, NC), John W. Fulton (USGS-Denver, CO), Ronald Busciolano (USGS-Coram, NY), and Robert R. Mason, Jr. (USGS-Reston, VA) |

**Session 3a: Transitioning Research to Operations (JHT and DTC), Part 1**

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| Session Leaders  Chris Landsea (NOAA/NCEP/NMC) and Shirley Murillo (NOAA/AOML/HRD) | | |
| (S3a-01) | The Joint Hurricane Testbed (JHT): A 2015 Update | *Chris Landsea* (NOAA/NHC) and Shirley Murillo (NOAA/AOML) |
| (S3a-02) | Guidance on Intensity Guidance | *Kieran T. Bhatiaa* and David S. Nolan(Univ. of Miami/RSMAS) and Andrea Schumacher (CIRA/CSU) |
| (S3a-03) | Upgrades to the Operational Monte Carlo Wind Speed Probability Program Principle: Joint Hurricane Testbed Year 2 Project Update | *Andrea Schumacher* (CIRA/CSU) |
| (S3a-04) | Developing a Tropical Cyclone Genesis Forecast Tool: Preliminary Results from 2014 Quasi-Operational Testing | *Daniel Halperin*, Robert Hart, and Henry Fuelberg (Florida St. Univ.) and Joshua Cossuth (NRL) |
| (S3a-05) | The ARCHER Automated TC Center-Fixing Algorithm: Updates on Real-Time Operations, Accuracy, and Capabilities | *Anthony (Tony) Wimmers* and Christopher Velden (Univ. of Wisconsin/CIMSS) |
| (S3a-06) | StormSurgeViz: A Visualization and Analysis Application for Coastal Storm Surge, Inundation, and Wave Modeling | *Brian Blanton* (Renaissance Computing Institute)and Rick Luettich (Univ. of North Carolina at Chapel Hill) |

**Session 3b: Transitioning Research to Operations (JHT and DTC), Part 2**

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| Session Leaders  Chris Landsea (NOAA/NCEP/NMC) and Shirley Murillo (NOAA/AOML/HRD) | | |
| (S3b-01) | Improvement to the Satellite-based 37 GHz Ring Rapid Intensification Index: A Year 2 Update | *Haiyan Jiang*, Yongxian Pei, Margie Kieper, and Joseph Zagrodnik (Florida International Univ.) |
| (S3b-02) | Upgrades to the GFDL/GFDN Operational Hurricane Models Planned for 2015 (A JHT-Funded Project) | *Morris A. Bender*, Matthew Morin, and Timothy P. Marchok (NOAA/GFDL); Isaac Ginis and Biju Thomas (University of Rhode Island); and  Robert E. Tuleya (Old Dominion University) |
| (S3b-03) | Improving the Ocean Component of the Operational HWRF and GFDN/GFDN Hurricane Models | *Isaac Ginis* and Biju Thomas (University of Rhode Island), Morris Bender (NOAA/GFDL), Vijay Tallapragada (NOAA/NCEP/EMC) |
| (S3b-04) | Demonstration Testbed for the Evaluation of Experimental Models for Tropical Cyclone Forecasting in Support of the NOAA Hurricane Forecast Improvement Project (HFIP) | *Paul A. Kucera*, Christopher L. Williams, Barbara G. Brown, and Louisa Nance (NCAR/Research Applications Laboratory) |
| (S3b-05) | Testing Hurricane WRF with Alternate Radiation and Partial Cloudiness Schemes | *Christina R. Holt* (NOAA/GSD, CIRES/CU, and DTC), Greg Thompson (NCAR), Ligia Bernardet (NOAA/GSD, CIRES/CU, and DTC), Mrinal Biswas (NCAR), and Craig Hartsough (NOAA/ GSD, CIRES/CU, and DTC) |

**1-Minute Poster Previews coordinated by *Elizabeth A. Ritchie* (Univ. of Arizona)**

| **Posters for the 2015 Tropical Cyclone Research Forum**  **Poster Session: Tuesday, March 3, 2015** | | |
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| P01 | Upper Ocean Observations in Hurricane Edouard | *Eric W. Uhlhorn* (NOAA/AOML/HRD), Benjamin Jaimes (UM/RSMAS), Joseph J. Cione (NOAA/ AOML/HRD) and Lynn K. (Nick) Shay (UM/RSMAS) |
| P02 | Observations and Modeling of Saharan Dust Interaction with a  Tropical Cyclone | *Scott A. Braun*, J. J. Shi, and W. K. Tao (NASA/GSFC) |
| P03 | An Update on Techniques Using the Deviation Angle Variance (DAV) for Tropical Cyclone Intensity, Genesis, and Surface Wind Field Estimation | *J. Scott Tyo*, Oscar G. Rodríguez-Herrera, Kim M. Wood, Klaus P. Dolling, and Elizabeth A. Ritchie  (University of Arizona) |
| P04 | Support for Users and Developers of the Hurricane WRF Model | Ligia Bernardet (NOAA GSD, CIRES/CU, and DTC), Vijay Tallapragada (NOAA/NCEP/ EMC),  Mrinal Biswas (NCAR), *Christina Holt* (NOAA GSD, CIRES/CU, and DTC), Samuel Trahan (NOAA/NCEP/ EMC and IMSG), and Laurie Carson (NCAR) |
| P05 | Evolution of the Upper-Level Outflow During Hurricanes Iselle and Julio (2014) in the Navy Global Environmental Model (NAVGEM) Analyses | *Sara C. Reynolds*, Bradford S. Barrett, and Elizabeth R. Sanabia (U.S. Naval Academy) |
| P06 | Observations of the Upper-Level Outflow During Hurricanes Iselle and Julio (2014) | *Julie K. Stapleton*, Anthony L. Borrego, Bradford S. Barrett, and Elizabeth R. Sanabia (U.S. Naval Academy) |
| P07 | The Effect of Landfall or Coastal Interaction on the Performance of Navy Tropical Cyclone Track and Intensity Forecasts | *Carey Dickerman* and Raymond C. Lee (Fleet Numerical Meteorology and Oceanography Center) |
| P08 | Impact of CYGNSS Data on Hurricane Analyses and Forecasts  in a Regional OSSE Framework | *Brian McNoldy*, Bachir Annane, Javier Delgado, Lisa Bucci, Robert Atlas, and Sharanya Majumdar  (University of Miami/RSMAS) |
| P09 | Wind Speed Retrievals with GPU Accelerated Matched Filter | *Eddie Massey III* (Claflin University) |
| P10 | On the Continued Need for Public-Private Partnerships  in the Observation of Land-falling Tropical Cyclones | *Marty Bell* (WeatherFlow, Inc.) |
| P11 | Kuroshio Extension Observatory (KEO) Measurements of the Upper-Ocean Response to Tropical Cyclones in the Western North Pacific | *Nicholas A. Bond* (University of Washington), Meghan F. Cronin and Hyun-Sook Kim (NOAA) |
| P12 | GOES-R is Coming - Are You Ready! | *StevenJ. Goodman* (NOAA/NESDIS) |

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| **DAY 3 - Wednesday, March 4, 2015** |

**Session 4a: Observations and Observing Strategies, Part 1**

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| Session Leaders  Scott A. Braun (NASA/GSFC) and Chris Velden (Univ. of Wisconsin/CIMSS) | | |
| (S4a-01) | NOAA’s Intensity Forecast Experiment (IFEX): Progress and Plans for 2015 | *Robert Rogers* (NOAA/AOML/HRD) |
| (S4a-02) | Hurricane and Severe Storm Sentinel (HS3): Results from the 2014 Deployment | *Scott A. Braun* and Paul A. Newman (NASA/GSFC) |
| (S4a-03) | Improved SFMR Surface Winds and Rain Rates | *Eric W. Uhlhorn* (NOAA/AOML/HRD) and  Bradley W. Klotz (UM/RSMAS/CIMAS and HRD) |
| (S4a-04) | HIWRAP Global Hawk Status and Future Plans | *Gerald Heymsfield* and M. Mclinden (NASA/GSFC), S. Guimond (U. Md ESSIC), and  A. Didlake (ORAU) |
| (S4a-05) | Hurricane Imaging Radiometer (HIRAD) | *Daniel J. Cecil* (NASA/MSFC), Sayak K. Biswas (USRA), and W. Linwood Jones (Univ. of Central Florida) |
| (S4a-06) | The Unique Capability of the Scatterometer in Measuring Stress in Tropical Cyclones | *W. Timothy Liu*, Wenqing Tang, and Xiaosu Xie (NASA/Jet Propulsion Laboratory) |

**Session 4b: Observations and Observing Strategies, Part 2**

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| Session Leaders  Scott A. Braun (NASA/GSFC) and Chris Velden (Univ. of Wisconsin/CIMSS) | | |
| (S4b-01) | Proof of Concept for Atmospheric Profiling with the High Definition Sounding System (HDSS) | *Peter Black* (SAIC/NRL/Monterey), James Doyle, Jon Moskaitis, Eric Hendricks, Lee Harrison, Mark Beaubien, and Will Jeffries (NRL/Monterey) |
| (S4b-02) | Airborne Phased Array Radar (APAR): The Next Generation of Airborne Polarimetric Doppler Weather Radar | *James A. Moore* and Wen-chau Lee (NCAR/  Earth Observing Facility) |
| (S4b-03) | Near-Real Time Ocean Surface Vector Winds from RapidScat | *Paul S. Chang*, Zorana Jelenak, and Seubson Soisuvarn (NOAA/NESDIS/STAR) and Faozi Said (Global Science and Technology, Inc.) |
| (S4b-04) | Coastal Ocean Current and Wave Response to Hurricane Jeanne Using High Frequency Radar Measurements: Implications for Surge Modeling | *Lynn K. Shay*, Jorge Martinez and Matthew Archer  (Univ. of Miami/RSMAS/MPO) |
| (S4b-05) | Air-Deployable Profiling Floats | *Steven R. Jayne*, W. Brechner Owens, and P. E. Robbins (Woods Hole Oceanographic Institution); Jim Dufour (MRV Systems LLC); and Elizabeth R. Sanabia (U.S. Naval Academy) |
| (S4b-06) | A Review of the 2014 Gulf of Mexico Wave Glider® Field Program | *Patrick J. Fitzpatrick*, Yee Lau, Robert Moorhead, and Adam Skarke (Mississippi State University);  Daniel Merritt, Keith Kreider, Chris Brown, Ryan Carlon, Graham Hine, and Teri Lampoudi (Liquid Robotics, Inc.); and Alan Leonardi (NOAA/OAR/ Ocean Exploration and Research) |
| (S4b-07) | The NASA CYGNSS Satellite Constellation: Probing the Inner Core of Hurricanes | *Christopher Ruf*, Aaron Ridley, and Derek Posselt (Univ. of Mich.); Scott Gleason and Randall Rose (Southwest Research Institute, Boulder, CO); and John Scherrer (Southwest Research Institute, San Antonio, TX) |

**Forum Luncheon**

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| Luncheon Talks:   * *Mr. Frederick Toepfer* (NOAA/NWS/OST)   + The Hurricane Forecast Improvement Project (HFIP): Progress and Accomplishments * *Dr. Ron Ferek* (Navy/ONR)   + Departmental Research Initiative—Tropical Cyclone Rapid Intensification |
| Presentation of the **Richard H. Hagemeyer Award** by *Mr. Ray Tanabe*, Meteorologist-in-Charge, NWS/Honolulu  Mr. John Pavone--2014  Dr. Jim McFadden--2013 Mr. Jeff Hawkins--2012 Dr. Peter G. Black -- 2011  Dr. Jim Goerss --2010  Dr. Mark DeMaria --2009  Mr. Robert Dumont--2008  Mr. Charles J. “Charlie” Neumann--2007  Dr. Joanne Simpson--2006  Dr. Frank D. Marks, Jr.--2005  Mr. Max Mayfield--2004  Mr. Chris Velden--2003  Prof. Russell Elsberry--2002 |

**Session 5a: Advances in Tropical Cyclone Model Development and Evaluation, Part 1**

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| Session Leaders  James D. Doyle (NRL/Monterey) and Vijay Tallapragada (NOAA/NCEP/EMC) | | |
| (S5a-01) | Advanced Operational Global Tropical Cyclone Forecasts from NOAA's High-Resolution HWRF Modeling System | *Vijay Tallapragada* (NOAA/NCEP/EMC) |
| (S5a-02) | The Basin-Scale HWRF System: Verification and Analysis | *Sundararaman G. Gopalakrishnan* (NOAA/AOML/HRD), Gus Alaka and Xuejin Zhang (UM/CIMAS and NOAA/AOML), Thiago Quirino (NOAA/AOML/HRD), Vijay Tallapragada (NOAA/NCEP/EMC), and Frank Marks Jr. (NOAA/AOML/HRD) |
| (S5a-03) | Hurricane Forecasts with Regional NMMB: Impact of HWRF Physics | *Weiguo Wang*, Vijay Tallapragada, and HWRF Team (NOAA/NCEP/EMC) |
| (S5a-04) | Identifying and Understanding Ocean Model Impacts on Coupled HWRF Forecasts | *Hyun-Sook Kim* (NOAA/NCEP/EMC) and George Halliwell (NOAA/AOML) |
| (S5a-05) | Direct Assimilation of Satellite-Derived AMVs into HWRF: First Results | *William Lewis* and Christopher Velden (University  of Wisconsin/CIMSS) and Vijay Tallapragada and  Jaime Daniels (NOAA/NCEP/EMC) |
| (S5a-06) | Proposed 2015 NCEP HWRF Hurricane Forecasting Model | *Samuel Trahan*, Zhan Zhang, Qingfu Liu, Weiguo Wang, Mingjing Tong, Banglin Zhang, Lin Zhu, Keqin Wu, and Vijay Tallapragada (NOAA/NCEP/EMC) |

**Session 5b: Advances in Tropical Cyclone Model Development and Evaluation, Part 2**

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| Session Leaders  James D. Doyle (NRL/Monterey) and Vijay Tallapragada (NOAA/NCEP/EMC) | | |
| (S5b-01) | Recent COAMPS-TC Development and Future Plans | *James D. Doyle* (NRL/Monterey), R. Hodur (SAIC), J. Moskaitis, S. Chen, E. Hendricks, H. Jin, Y. Jin, A. Reinecke, and S. Wang (NRL/Monterey) |
| (S5b-02) | Real-Time Probabilistic TC Prediction with Regional Dynamical Models: The COAMPS-TC Ensemble and the Combined COAMPS-TC/HWRF/GFDL Multi-Model Ensemble | *J. R. Moskaitis*, P. A. Reinecke, and J. Doyle  (NRL-Monterey) |
| (S5b-03) | Sensitivity of Ocean Sampling for Coupled COAMPS-TC Prediction | *Sue Chen* (NRL/Monterey), James Cummings (SAIC), Jerome Schmidt (NRL/Monterey), Peter Black (SAIC), Elizabeth Sanabia (U.S. Naval Academy, and L. K. (Nick) Shay (UM/RSMAS) |
| (S5b-04) | Further Exploring the Potential for Assimilation of Unmanned Aircraft Observations to Benefit Hurricane Analyses and Forecasts | *Jason A. Sippel* (IM Systems Group and NOAA/EMC), Fuqing Zhang and Yonghui Weng (Penn St. Univ.), Scott A. Braun (NASA/GSFC),  and Daniel J. Cecil (NASA/MSFC) |
| (S5b-05) | NOAA’s Use of the Coyote UAS in Hurricane Edouard to Enhance Basic Understanding and Improve Model Physics | *Joseph J. Cione* (NOAA/AOML/HRD at the Earth System Research Laboratory), Kristie Twining  NOAA/OAMO), Drew Osbrink and Eric Redweik  (Sensintel Corporation), Jim Etro and Dave Downer  (ItriCorp), Evan Kalina (University of Colorado),  Ligia Bernardet (NOAA/DTC), and Tony Brescia  (Naval Air Systems Command) |
| (S5b-06) | Evaluating Models and Understanding Hurricane Processes with the use of the JPL Tropical Cyclone Information System | *Svetla M. Hristova-Veleva* (NASA/JPL); M. Boothe (NPS-Monterey); S. Gopalakrishnan (NOAA/ AOML/HRD); Z. Haddad, M. P. Johnson, B. Knosp, B. Lambrigtsen, and P. P. Li (NASA/JPL); M. Montgomery (NPS/Monterey); N. Niamsuwan, W. L. Poulsen, and T.P. Shen (NASA/JPL); V. Tallapragada (NOAA/NCEP/EMC); S. Tanelli (NASA/JPL); S. Trahan (NOAA/NCEP/EMC); and F. J. Turk and Q. Vu (NASA/JPL) |

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| **DAY 4 - Thursday, March 5, 2015** |

**Session 6: The Future of the IHC—Agency Perspectives**

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| Session Moderator  Mr. David McCarren (OFCM) | |
|  | Open Discussion |

**Session 7: Products, Services, and Societal Impact**

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| Session Leader  CDR Elizabeth Sanabia (Navy/U.S. Naval Academy) | | |
| (S7-01) | A Global Investigation of the Impacts of Landfalling Tropical Cyclones on Societies | *Denise Balukas*, Elizabeth A. Ritchie, and Kim M. Wood (University of Arizona) |
| (S7-02) | The 2014 Satellite Proving Ground at the National Hurricane Center | *Mark DeMaria*, Jack Beven, Michael Brennan, Hugh Cobb, and Nelsie Ramos (NOAA/NCEP/NHC);  Andrea Schumacher (CIRA/CSU); and Michael Folmer (Univ. of Maryland/CICS) |
| (S7-03) | NRL Tropical Cyclone Satellite Web Resource | Jeff Hawkins, Kim Richardson, Rich Bankert, Mindy Surratt, Song Yang, and Jeremy Solbrig (NRL/ Monterey), *Josh Cossuth* (NRC/Monterey), Charles Sampson (NRL/Monterey), John Kent (SAIC), and Arunas Kuciauskas (NRL/Monterey) |
| (S7-04) | A Completed Hurricane Surge Visualization Model and Ongoing Efforts to Use the Model to Assess Public Understanding of Risks due to Storm Surge | *B. Lee Lindner*, Stephen Duke, and Janet Johnson (College of Charleston) and Frank Alsheimer (NOAA/NWS/Charleston) |

**Session 8: Tropical Cyclone Research Plan Mid-Course Assessment—Operational Needs and Research Priorities**

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| Panel Moderator | |
|  | Panelists: NHC: Dr. Richard Knabb  CPHC: Mr. Ray Tanabe  JTWC: Mr. Robert J. Falvey  Dr. Frank Marks, Jr., WG/TCR Co-Chair and Director, Hurricane Research Division (NOAA/AOML)  Dr. Ronald Ferek, WG/TCR Co-Chair and Program Officer, Marine Meteorology Program (ONR) |

**Final Plenary Session**

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| Session Leader  Daniel Melendez (NWS/OST) | | |
|  | WG/HWSOR: Action Item Review | Dr. Edward Rappaport (NCEP/NHC)  Chairperson, WG/HWSOR |
|  | Forum Wrap-Up | Mr. David McCarren  Acting Federal Coordinator for Meteorological Services and Supporting Research |
|  | Adjourn |  |