

2017 Tropical Cyclone Operations and Research Forum

71st Interdepartmental Hurricane Conference

DRAFT AGENDA

Monday, March 13, 2017

12:30–4:30pm Working Group for Disaster Impact Assessments and Plans: Weather and Water Data (WG/DIAP) Meeting, chaired by Mr. Robert Mason (USGS) and Dr. Marc Levitan (NIST)

Day 1: Tuesday, March 14, 2017

8:00 am Registration (8:00 am - 12:00 pm)

Morning Session Coordinator: Tony Ramirez, OFCM

8:15-8:30 am **Welcome:** Dr. William Schulz, Federal Coordinator for Meteorological Services and Supporting Research

8:30-10:00 am **Session 1: Tropical Cyclone Operations: Challenges in 2016; New Products and Services Planned for 2017 and 2018; New/Revised Requirements for Research.**

Session Leader: **Eric Blake (NHC)**

- NHC: Eric Blake
- CPHC: Tom Birchard
- JTWC: CDR Jillene Bushnell, USN
- AOC: CAPT Mike Silah, NOAA Corps
- 53 WRS: Kaitlyn Woods

10:00-10:30 am Morning Break

10:30-Noon **Session 2: Improved Capability to Observe the Tropical Cyclone and its Environment to Support Forecaster Analysis and Model Initialization.**

Session Leader: **Brian Strahl (JTWC)**

- “Impact of Global Hawk on GFS Hurricane Forecasts” Kate Howard (NOAA NWS NCEP/EMC), Jason Sippel (NOAA AOML/HRD), and Vijay Tallapragada (NOAA NWS NCEP/EMC)
- “Strategies for Utilizing SHOUT Rapid Response Global Hawk observations for Improving and Augmenting Hurricane track and Intensity Forecasting” Peter G Black (Unmanned Systems Division, Cherokee Nation Technologies), Robbie Hood (NOAA/ OAR/ UAS Program), Vijay Tallapragada (NOAA NWS NCEP/EMC), Avichal Mehra (NOAA NWS NCEP/EMC), Jason Sippel (NOAA/AOML HRD), and Holger Voemel (NCAR Earth Observing Laboratory)
- “NASA CYGNSS Satellite Constellation for Tropical Cyclone Observations” Christopher Ruf (University of Michigan), Scott Gleason (Southwest Research Institute - Boulder), Aaron Ridley (University of Michigan), Randy Rose (Southwest Research Institute - Boulder), and John Scherrer (Southwest Research Institute – San Antonio)

- “Impact of Tropical Cyclone Relocation and Assimilation of Surveillance Dropsondes in the Operational NCEP GFS/GDAS” Vijay Tallapragada (NOAA NWS NCEP/EMC), Daryl T. Kleist (NOAA NWS NCEP/EMC), Michael J. Brennan (NOAA NWS NCEP/NHC), Rahul B. Mahajan (NOAA NWS NCEP/EMC), Sharan J. Majumdar (University of Miami), and Avichal Mehra (NOAA NWS NCEP/EMC)

Noon-1:00 pm Lunch on your own

Afternoon Session Coordinator: Daniel Melendez, NWS

1:00-2:15 pm Session 3: Techniques to Improve the Utility of Microwave Satellite and Radar Data for Tropical Cyclone Intensity and Location Analysis (Pt 1).

Session Leader: **Bob Falvey (JTWC)**

- “Estimation of Tropical Cyclone Intensity Using Satellite Passive Microwave Observations Haiyan Jiang (FIU), Bo You (Yale University), and Cheng Tao (FIU)
- “Operational Ocean Heat Content Variability at NESDIS from Satellite Radar Altimetry Measurements for Intensity Forecasting” L. K. Shay (RSMAS, University of Miami), J. K. Brewster (RSMAS, University of Miami), E. Maturi (NESDIS), D. Donahue (NESDIS), and E. Leuliette (NESDIS)
- “Algorithm optimization for real-time reporting of hurricane wave field data products measured with the NOAA Wide Swath Radar Altimeter” Ivan PopStefanija (ProSensing Inc.) and Edward J. Walsh (NOAA ESRL)
- “The TROPICS Smallsat Tropical Cyclone Mission: High Temporal Resolution Microwave Imagery as Part of NASA's Third Earth Venture-Instrument (EVI-3) Program” Scott Braun (NASA), William Blackwell (Lincoln Laboratory (MIT)), Ralf Bennartz (University of Wisconsin), Chris Velden (University of Wisconsin), Mark DeMaria (NOAA NWS/NHC), and Robert Atlas (NOAA OAR AOML/HRD)

2:15-2:45 pm Afternoon Break

2:45-3:45 pm Session 4: Techniques to Improve the Utility of Microwave Satellite and Radar Data for Tropical Cyclone Intensity and Location Analysis (Pt 2).

Session Leader: **Jack Beven (NHC)**

- “Retrieving Ice Microphysical Information from Radar Measurements for Comparison with Tropical Cyclone Numerical Models” Evan A. Kalina (CIRES, NOAA ESRL), Sergey Y. Matrosov (CIRES, NOAA ESRL), Joseph J. Cione (NOAA ESRL), Frank D. Marks (NOAA OAR AOML HRD), Jothiram Vivekanandan (NCAR Earth Observing Laboratory), Robert A. Black (NOAA OAR AOML HRD), John C. Hubbert (NCAR Earth Observing Laboratory), Michael M. Bell (Colorado State University), David E. Kingsmill (CIRES), and Allen B. White (NOAA ESRL)
- “Hurricane Imaging Radiometer (HIRAD) Wind Speed Retrieval Assessment With Dropsondes” Daniel J. Cecil (NASA Marshall Space Flight Center) and Sayak K. Biswas (Universities Space Research Association)

3:45-4:30 pm Session 5: Enhancement to the Operational Environment.

Session Leader: **Tom Birchard (CPHC)**

- “Enhancements in Operational Tools to Improve Forecasting Efficiency” Thomas Birchard (NOAA NWS/CPHC) and Robert Ballard (NOAA NWS/CPHC)

- “Real-time Geospatial Data Sharing Across Platforms to Enhance NWS Operational Impact-based Decision Support Services to Core Partners” Dave Jones (StormCenter Communications, Inc)
- “ATCF/AWIPSII Plans/Developments Update” Mark DeMaria (NHC), Brian Strahl (JTWc), Frank Marks (HRD)

4:30-4:45 pm Closing Day 1 administrative remarks and adjournment

Day 2: Wednesday, March 15, 2017

Morning Session Coordinator: Tony Ramirez, OFCM

8:15–8:30 am Administrative remarks

8:30-9:30 am **Session 6: Guidance for Tropical Cyclone Intensity Change.**

Session Leader: **Eric Blake (NHC)**

- “Real-Time, Ensemble-Based Probabilities of Tropical Cyclone Rapid Intensification” Ryan D. Torn (University at Albany, SUNY) and Mark DeMaria (NOAA NWS/NHC)
- “Investigating the Utility of Multi-Lead- time Probabilistic Rapid Intensification Models” John Kaplan (NOAA OAR AOML/HRD), Christopher M. Rozoff (CIMSS/University of Wisconsin-Madison), and Mark DeMaria (NOAA NWS/NHC)
- “Precipitation Structure Upshear and Its Role in Tropical Cyclone Intensification” Robert F. Rogers (NOAA OAR AOML/HRD), Jon Zawislak (FIU), and Leon Nguyen (NOAA OAR AOML/HRD)

9:30-10:00 am Morning Break

10:00-11:45 am **Session 7: Regional Model Advances and Plans.**

Session Leader: **Stacy Stewart (NHC)**

- “Recent COamPS-TC Development and Future Plans” James D. Doyle (NRL), Jon Moskaitis (NRL), Richard Hodur (SAIC), Sue Chen (NRL), Hao Jin (NRL), Yi Jin (NRL), Will Komaromi (NRL), Alex Reinecke (NRL), and Shouping Wang (NRL)
- “Data Assimilation and Initialization in HWRF” Sim D. Aberson (NOAA OAR AOML/HRD), Altug Aksoy (NOAA OAR AOML/HRD), and Kathryn Sellwood (NOAA OAR AOML/HRD)
- “Ongoing and Future Improvements in HWRF Data Assimilation” Jason Sippel, Avichal Mehra, Mingjing Tong and Banglin Zhang (NOAA NWS NCEP EMC)
- “Planned FY17 Hurricane Modeling at NWS/NCEP: Upgrades for HWRF and Implementation of New HMON Model (replacement for GFDL Hurricane Model)” Avichal Mehra and Vijay Tallapragada (NOAA/NWS/NCEP/EMC)
- “Impact of Ocean Initial Conditions on Operational Hurricane Forecasting” George Halliwell (NOAA OAR AOML/PhOD), Hyun-Sook Kim (NOAA NWS/EMC), and Nick Shay (RSMAS, University of Miami)

11-45 am-12:45 pm Lunch on your own

Afternoon Session Coordinator: Glenn Austin/OFcm

12:45-2:45 pm **Session 8: Global Model Advances and Plans.**

Session Leader: **Chris Landsea (NHC)**

- “Evaluation and Operational Implementation Strategy for FV3 based Global Forecast System at NCEP” Vijay Tallapragada (NOAA NWS NCEP/EMC), Fanglin Yang (NOAA NWS NCEP/EMC), Jun Wang (NOAA NWS NCEP/EMC), Rusty Benson (NOAA OAR/GFDL), S.J. Lin (NOAA OAR/GFDL), and Fred Toepfer (NOAA NWS/OSTI)
- “Evaluation of Tropical Cyclone Forecasts from a High-Resolution Version of fvGFS” Andrew Hazelton (Princeton University, NOAA GFDL), Lucas Harris (GFDL), and Shian-Jiann Lin (GFDL)
- “Evaluation of Tropical Cyclone Forecasts with the GFDL FV3 Dynamical Core” Morris A. Bender (NOAA GFDL), Jan-Huey Chen (NOAA GFDL), Matthew Morin (NOAA GFDL), and Shian Jiann Lin (NOAA GFDL)
- “ECMWF Progress in Tropical Cyclone Forecasts” Fernando Prates (ECMWF)
- “Recent Research and Development at MRI/JMA to Improve Typhoon Forecasts” Munehiko Yamaguchi (MRI/JMA), Udai Shimada (MRI/JMA), Takeshi Iriguchi (MRI/JMA), Masahiro Sawada (MRI/JMA and NOAA NWS/NCEP), Vivekanandan and Hiromi Owada (JMA)
- “Extended-range TC Forecast Experiments” Tim Li (University of Hawaii)

2:45-3:00 pm Afternoon Break

3:00-4:30 pm **Working Group for Hurricane and Winter Storms Operations and Research (WG/HWSOR) Meeting**, chaired by Dr. Edward Rappaport (NCEP/NHC).

4:30-4:45 pm **Closing Day 2 administrative remarks and adjournment**

3:30-6:30 pm Poster Session (Sapphire Ballroom (20th Floor) Courtyard Miami Coconut Grove)-
Hors d'oeuvres and cash bar 5:00-6:30 pm

Day 3: Thursday, March 16, 2017

Morning Session Coordinator: Daniel Melendez, NWS

8:15-8:30 am Administrative remarks

8:30-10:15 am **Session 9: Research Supporting Operations (Pt 1): JHT Project Status.**

Session Leader: **Shirley Murillo (HRD)**

- “The Joint Hurricane Testbed (JHT): A 2017 Update” Christopher Landsea (NWS/NHC), Shirley Murillo (NOAA OAR AOML HRD), Mark DeMaria (NWS/NHC)
- JHT Project 1: “Transition of the Coastal and Estuarine Storm Tide Model to an Operational Model for Forecasting Storm Surges” Keqi Zhang (FIU)
- JHT Project 2: “Improved Eyewall Replacement Cycle Forecasting Using a Modified Microwave-Based Algorithm (ARCHER)” Tony Wimmers (U of Wisc./CIMSS) and Jim Kossin (NOAA/NCDC)
- JHT Project 3: “Improvement and Implementation of the Probability-based Microwave Ring Rapid Intensification Index for NHC/JTWC Forecast Basins” Haiyan Jiang (FIU) and Kate Musgrave (CSU/CIRA)
- JHT Project 4: “Probabilistic Prediction of Tropical Cyclone Rapid Intensification Using Satellite Passive Microwave Imagery” Chris Rozoff and Chris Velden (U of Wisc./CIMSS)
- JHT Project 5: “Improvements to the Tropical Cyclone Genesis Index (TCGI)” Jason Dunion (U of Miami/CIMAS/AOML), John Kaplan (NOAA OAR AOML), Andrea Schumacher (CSU/CIRA), Josh Cossuth (NRL), Kate Musgrave (CSU/CIRA), and Paul Leighton (NOAA OAR AOML)

- JHT Project 6: “Improvements in Operational Statistical Tropical Cyclone Intensity Forecast Models” Galina Chirokova (CSU/CIRA), John Knaff (NOAA, NESDIS, StAR), and Andrea Schumacher (CSU/CIRA)
- JHT Project 7: “Passive Microwave Data Exploitation via the NRL Tropical Cyclone Webpage” Josh Cossuth, Richard Bankert, Kim Richardson and Mindy Surratt (NRL)
- JHT Project 8: “Further Studies of Observational Undersampling of the Surface Wind and Pressure Fields in the Hurricane Inner-Core” Dave Nolan (U of Miami/RSMAS) and Brad Klotz (U of Miami/CIMAS/AOML)

10:15–10:30 am Morning Break

10:30-11:45 am **Session 10: Research Supporting Operations (Pt 2) Forum (Presentations and Discussion): Current Research and Plans for the Future**

Session Leader: **Sundararaman Gopalakrishnan (HRD)**

- **HFIP (NOAA) – Fred Toepfer (Frank Marks)**
- **ONR - Ron Ferek**
- **NASA – Scott Braun**
- **NSF - Chungu Lu**

11:45 am-1:00 pm **Final Plenary Session**

- **WG/HWSOR Report**, Dr. Edward Rappaport (NCEP/NHC), Chairperson
- **WG/DIAP Report**, Dr. Harry Jenter (USGS)
- **Conference action items**, Jud Stailey (OFCM)
- **GFDL Model Retrospective**, Sundararaman Gopalakrishnan (NOAA OAR AOML HRD)
- **Presentation of the Richard H. Hagemeyer Award**, Dr. William Schulz, Federal Coordinator for Meteorological Services and Supporting Research

1:00 pm Adjourn

Posters

- “Evaluation of the Impact of Synthetic CYGNSS Wind Speed Data on Tropical Cyclone Structure Analyses and Forecasts in a Regional OSSE” S. J. Majumdar (RSMAS), B. D. McNoldy (RSMAS), B. A. Annane, (CIMAS, NOAA OAR AOML), S. M. Leidner, (AER Inc.) R. Atlas, (NOAA OAR AOML), and R. N. Hoffman (CIMAS, NOAA OAR AOML)
- “The Next Generation of Airborne Polarimetric Doppler Weather Radar: NCAR/EOL Airborne Phased Array Radar (APAR) Development Update” James A. Moore and Wen-Chau Lee (NCAR Earth Observing Laboratory)
- “Effects of Parameterized Boundary Layer Structure on Vortex and Shear Interaction and Spin-up Dynamics in HWRF Forecasts of Hurricane Earl (2010)” Jun A. Zhang (NOAA OAR AOML HRD) and Robert F. Rogers (CIMAS)
- “Advancing Modeling Capabilities for Simulating the Combined Coastal and Inland Hazards from High-impact Hurricanes” Isaac Ginis, Tetsu Hara, Xuanyu Chen, David Ullman, and Biju Thomas (University of Rhode Island)
- “Global Investigation of the Impacts of Landfalling Tropical Cyclones on Societies” Elizabeth A. Ritchie (University of New South Wales), Kim M. Wood (Mississippi State University), and Denise Balukas (CIMMS)
- “Community Support and Testing of Advanced Physics with Hurricane WRF Model” M. Biswas (NCAR Research Application Laboratory and NOAA ESRL), K. Newman (NCAR Research Application Laboratory and NOAA ESRL), L. Carson (NCAR Research Application Laboratory and NOAA ESRL), L. Bernardet (CIRES and NCAR Research Application Laboratory), M. Iacono (AER Inc), J. Henderson (AER Inc), G. Thompson (NCAR Research Application Laboratory and NOAA ESRL), G. Grell (NOAA ESRL), E. Grell (NOAA ESRL), and J. Frimel (CIRES and NCAR Research Application Laboratory)
- “Event-based Flood Data Collection and Dissemination: The USGS Flood Event Viewer and Short-Term Network Database” Harry Jenter, Todd Koenig, Robert Mason, Marie Pepler (USGS Office of Surface Water)
- “The Hurricane Forecast Improvement Project Awards — Integrating Research-to-Operations Gains at the National Weather Service” Daniel Melendez (NOAA NWS), Fred Toepfer (NOAA NWS), Nkysheema Lett (NOAA NWS), Robert L. Gall (NOAA/NWS), Christopher Hedge (NOAA NWS), ViJay Tallapragada (NOAA NWS NCEP EMD), Frank D. Marks (NOAA OAR AOML HRD), S. G. Gopalakrishnan (NOAA OAR AOML HRD), Mark DeMaria (NOAA NWS NCEP NHC), and Avichal Mehra (NOAA NWS NCEP EMD).
- “An Update on Techniques Using the Deviation Angle Variance (DAV) for Tropical Cyclone Intensity, Genesis, and Surface Wind Field Estimation” Elizabeth A. Ritchie (University of New South Wales), J. Scott Tyo (University of New South Wales), Kim M. Wood (Mississippi State University), Klaus P. Dolling (Miami-Dade College), and Oscar G. Rodríguez-Herrera (Universidad Nacional Autónoma de México)
- “Further Improvement in the JMA/GSM SHIPS by Using GSMaP” Udai Shimada (MRI/JMA), Hiromi Owada (JMA), Munehiko Yamaguchi (MRI/JMA), Takeshi Iriguchi

(MRI/JMA), Masahiro Sawada (MRI/JMA and NOAA NWS/NCEP), Kazumasa Aonashi and Mark DeMaria (NOAA NWS NCEP HHC)