New projects to be tested during the 2016 and 2017 hurricane seasons

During the 2016 and 2017 hurricane seasons, forecasters at the National Hurricane Center (NHC) will be testing new tools that have the potential to improve the analysis and prediction of tropical storms and hurricanes. Eight new projects are funded with a total of $1.4 million through the Joint Hurricane Testbed (JHT). The mission of the JHT is to transfer more rapidly and smoothly new technology, research results, and observational advances of the United States Weather Research Program within the National Oceanic and Atmospheric Administration (NOAA), its sponsoring agencies, the academic community and other groups into improved tropical cyclone analysis and prediction at operational centers.

The eight new projects to be tested are:

1. "Passive Microwave Data Exploitation via the Naval Research Laboratory (NRL) Tropical Cyclone Webpage" by Dr. Josh Cossuth and colleagues at the Naval Research Laboratory in Monterey, California. This project provides improved real-time microwave imagery of tropical storms and hurricanes, and includes an archive going back to 1987.

2. "Improvements in Operational Statistical Tropical Cyclone Intensity Forecast Models" by Dr. Andrea Schumacher at the NOAA Cooperative Institute for Research in the Atmosphere in Fort Collins, Colorado. This project aims to upgrade maximum wind and size prediction tools available to forecasters.

3. "Improvement and Implementation of the Probability-based Microwave Ring Rapid Intensification Index for NHC/the Joint Typhoon Warning Center (JTWC) Forecast Basins" by Prof. Haiyan Jiang at Florida International University in Miami, Florida. This project is focused upon development of techniques to forecast rapid intensification of tropical cyclones around the world based in part upon microwave imagery.

4. "Guidance on Observational Undersampling over the Tropical Cyclone Lifecycle" by Prof. Dave Nolan at the University of Miami in Miami, Florida. This project will provide guidance to forecasters on how to best estimate maximum winds in tropical storms and hurricanes based upon available observations from aircraft, satellite, and in situ platforms.

5. "Probabilistic Prediction of Tropical Cyclone Rapid Intensification Using Satellite Passive Microwave Imagery" by Dr. Chris Rozoff and Mr. Chris Velden at the NOAA Cooperative

Institute for Meteorological Satellite Studies in Madison, Wisconsin. This project will provide a revised technique for forecasting rapid intensification of tropical storms and hurricanes based in part upon microwave imagery.

6. "Improved Eyewall Replacement Cycle Forecasting Using a Modified Microwave-Based Algorithm (ARCHER)" by Dr. Tony Wimmers at the NOAA Cooperative Institute for Meteorological Satellite Studies in Madison, Wisconsin and Dr. Jim Kossin at National Centers for Environmental Information in Asheville, North Carolina. This project looks to enhance guidance for predicting maximum wind speed changes during eyewall replacement cycles in strong hurricanes.

7. "Transition of the Coastal and Estuarine Storm Tide (CEST) Model to an Operational Model for Forecasting Storm Surges" by Prof. Keqi Zhang at Florida International University in Miami, Florida.   This project will test the feasibility of using the CEST storm surge model for operational ensemble-based predictions when tropical storms and hurricanes make landfall in the United States.

8. "Improvements to the Tropical Cyclone Genesis Index (TCGI)" by Mr. Jason Dunion at NOAA Cooperative Institute for Marine and Atmospheric Sciences in Miami, Florida. This project expects to improve guidance on the formation of tropical cyclones in the Atlantic and Northeast Pacific basins.

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