

# **Real-Time, Ensemble-Based Probabilities of Tropical Cyclone Rapid Intensification**

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Tropical cyclone rapid intensification (RI) is a significant forecast challenge despite the varied statistical and dynamical guidance available to forecasters. The growing availability of real-time quasi-operational ensemble prediction systems could provide a new source of probabilistic guidance for TC intensity change. The purpose of this talk is to describe the RI probabilities that were computed from HWRF, GFDL, and COAMPS-TC output computed from retrospective cases from 2013-2015 and for cases during the 2016 season. The dissemination of this output was facilitated by the expansion of the ATCF e-deck format, which means it is available to operational forecasters. Verification of the ensemble-based guidance indicates that output from some systems, including the HWRF and COAMPS-TC systems, have comparable reliability to the statistical SHIPS-RI index. Individual case studies, such as Hurricane Matthew, suggest different performances for systems prior to genesis vs. after genesis. The talk will conclude by describing our plans for the 2017 season, which include expanding the intensity change probabilities beyond just RI and multi-model ensemble-based probabilities.