Improving Methodologies for Operational Forecasts of Wind Speed and Wind Gusts during Tropical Cyclones

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Current methodologies used by many National Weather Service forecasters to produce wind and wind gust forecasts during tropical cyclones (TCs) often lack a base in strong foundational research and can be poorly collaborated. The goal of this research was to try and address the existing problems with wind and wind gust forecasts for tropical cyclones. This effort was one component of a Collaborative Science, Technology, and Applied Research (CSTAR) project between NC State University and nearly dozen WFOs in the Southeast and three national centers. Major activities included a NDFD TC wind verification, a land decay study, a gust factor study, the creations of a climatologically-based bias correction for forecasters and improvements in the methodology and tools used by forecasters with the Graphical Forecast Editor (GFE). The result is a more consistent, science-based forecast process that allows improved collaboration and increased accuracy. Several case examples of recent tropical cyclones will be shown.