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Uncertainty Quantification in Hurricane Path Forecasts using Evidence Theory SVETLANA POROSEVA, Florida State University, JULIE LETSCHERT, INSA, Lyon, France, M. YOUSUFF HUSSAINI, Florida State University — Results of any computations are of practical value only if information on their accuracy is also available. It is especially true of forecasting hurricane paths where accuracy is of vital importance. Most current forecasts lack such information. The present study investigates the potential of evidence theory to provide a quantitative assessment of the forecast accuracy and to develop a reliable procedure of combining different forecasts to produce the best possible prediction. Results of testing the approach in quantifying uncertainty of turbulence models encourage us to apply a similar approach to hurricane path forecasts, and it requires considerable customization to suit the hurricane forecast problem. The database for hurricanes of 1998-2001 in the Pacific Ocean is used to quantify uncertainty in forecasts produced by global models from two operational centers – the U.S. Navy Operational Global Atmospheric Prediction System (NOGAPS) and European Centre for Medium-Range Weather Forecasts (ECMRWF). The performance of these two models is compared for each year. We also track the efficiency of annual modifications in each model. The data for hurricanes of year 2000 are used to evaluate the present approach that fuses different forecasts to improve the quality of prediction.

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