

Semi-annual Report for JHT Project entitled:  
**Prediction of Consensus TC Track Forecast Error and  
Correctors to Improve Consensus TC Track Forecasts**  
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## **Background**

Funded by my previous JHT Project, a new consensus forecast model (CONU) and a Predicted Consensus Error (PCE) product for the Atlantic and eastern North Pacific basins were installed on the ATCF for use by the NHC forecasters during the 2004 season. A PCE product for the western North Pacific basin was also installed on the ATCF for use by the JTWC forecasters.

## **Summary of Work**

The PCE product was verified for 2004 for the consensus models (CONU and GUNA for NHC and CONW for JTWC) for each forecast length for the Atlantic, eastern North Pacific, and western North Pacific basins by determining the percent of verifying TC positions contained within the circular areas depicted by the product. The PCE product was found to meet or exceed expectations (approximately 70-75 percent of verifying TC positions contained within the circular areas) for all basins and forecast lengths except for the Atlantic basin at 120 h. The sub par performance of the PCE product in the Atlantic at 120 h was found to be due to consistently large consensus model errors for Ivan despite better than normal agreement of the individual model forecasts. The performance of the PCE product in the Atlantic at 120 h for all other storms met expectations.

Using the PCE product's pool of predictors for the 2001-2004 seasons, revised regression models to be used for the 2005 season for all combinations of forecast length and basin were derived. In addition to the aforementioned basins, regression models were derived for the Southern Hemisphere basins within JTWC's area of responsibility. The new regression models for 2005 were installed on the ATCF's at NHC and JTWC for CONU and GUNA for the Atlantic and eastern North Pacific and for CONW for the western North Pacific and Southern Hemisphere.

Regression models were derived to predict CONU east-west and north-south forecast error for all forecast lengths in the Atlantic basin using the PCE product's pool of predictors for the 2001-2002 seasons and a corrected consensus (CCON) forecast was made for the 2003 Atlantic season. The CCON forecast errors were smaller than those for CONU for all forecast lengths greater than 24 h.

A manuscript entitled "Prediction of Consensus Tropical Cyclone Track Forecast Error" was prepared and submitted to **Monthly Weather Review**.

## **Remaining Work**

Derive regression models to predict CONU and GUNA east-west and north-south forecast error for all forecast lengths in the Atlantic and eastern North Pacific basins using the pool of predictors for the 2001-2003 and 2001-2004 seasons and verify CCON and CGUN forecasts for the 2004 and 2005 seasons for both basins. Using the pool of predictors for the 2001-2005 seasons, derive regression models and install CCON and CGUN experimental forecast models on the ATCF for use by the NHC forecasters during 2006.

Present progress of project at the Interdepartmental Hurricane Conference.

Prepare documentation of the software and prepare final report for the first year of the project.