

An Objective Analog method for seasonal forecast of North Atlantic Hurricane Activity

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The tropical storm and hurricane activity during Aug-Sep-Oct (ASO) months over the North Atlantic Ocean undergoes significant interannual and multi decadal variability. Local meteorological and oceanic factors such as the SST and the low level wind shear near the main development region (MDR) and remote factors such as the Sahel rainfall and the lower tropospheric African easterly jet, and stratospheric QBO have been shown by others to influence the N.Atlantic hurricane activity. Long lead forecasts of the N. Atlantic hurricane activity have been issued for over two decades by Prof. Bill Gray of the Colorado State University and by NOAA since 1998. In this paper we describe an objective analog method for forecast of N.Atlantic hurricane activity. The paper will briefly describe the scientific basis of the forecast, but will give a detailed description of how the forecast probabilities are computed based on a) observed atmospheric and oceanic conditions in the months and seasons prior to the ASO period, and b) based on forecast atmospheric conditions during ASO by Ensemble Canonical Correlation (ECC) method. Results of forecasts made for ASO hurricane seasons from 1990 through 2002 will be described along with a discussion of cross validated skills and Heidke skill scores. Of particular importance will be discussion of whether the method captures the abrupt jump in the N.Atlantic hurricane activity during 1995. Future plans include extending the forecast method to other ocean basins in the Pacific and Indian Ocean sector.