

# OCEANIC PRECIPITATION VARIABILITY ASSOCIATED WITH THE NORTH ATLANTIC OSCILLATION: TROPICAL – EXTRATROPICAL INTERACTIONS

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The North Atlantic Oscillation (NAO) is characterized by an inverse correlation of sea level pressure anomalies in the high and mid-latitudes over the Atlantic Ocean, and an associated alternation between faster than normal zonal flow (high index conditions) and weaker (low index) flow from North America to Europe. Pronounced temperature and precipitation anomalies on time scales from daily to seasonal associated with the NAO have been identified over eastern North America, Europe and the Mediterranean Sea, extending into the Middle East. The observed precipitation anomalies have been ascribed to systematic changes in the storm track over the North Atlantic. The oceanic manifestations, and associated variability in other parts of the world, of the NAO have not been thoroughly described.

The extended time series of global precipitation analyses produced by the Climate Prediction Center (CMAP) enable us to describe the oceanic precipitation variations associated with the NAO for the period from 1979-present, and to examine manifestations outside the North Atlantic. The circulation analyses of the NCEP/NCAR reanalysis make it possible to describe the relationships between these phenomena and the behavior of the large-scale circulation on various time scales. In this paper, we will present a statistical description of the impact of the NAO on Atlantic precipitation and atmospheric circulation, and the associated variations in tropical precipitation. We will utilize the pentad version of CMAP to investigate the dependence of our findings on time scale. The extension of CMAP back to 1950 will enable us to describe decadal variability in the results. Implications of our findings for potential predictability of the NAO will be discussed.