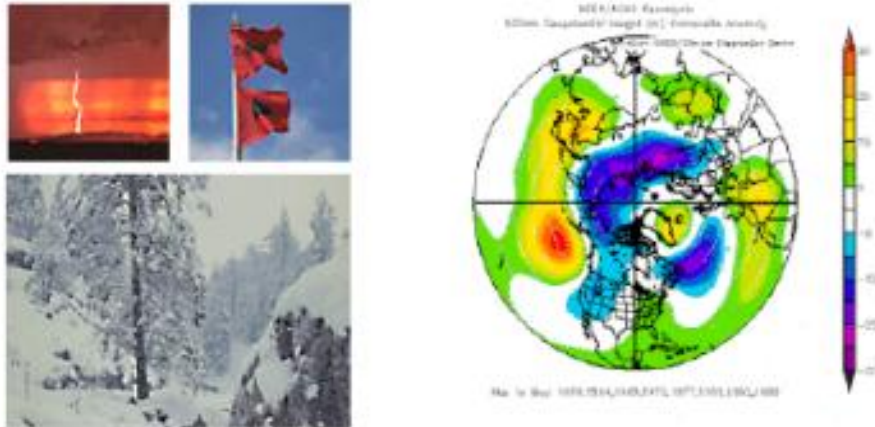


# *The Pennsylvania Observer*

## The Pennsylvania State Climatologist



### **April Climate Highlight:**

*Prepared by Tim Grotfelty*

April's Climate Highlight features an insight on the expected hurricane pattern for this year. The pattern was determined by using the Pacific Decadal Oscillation (PDO), Atlantic Multidecadal Oscillation (AMO), and Quasi-biennial Oscillation (QBO) values for March 2010 and comparing these values to the March values of these indices since 1950.

Three of the major indices that influence tropical cyclones in the Atlantic are the Pacific Decadal Oscillation (PDO), the Atlantic Multidecadal Oscillation (AMO), and the Quasi-biennial Oscillation (QBO). In order to come up with an expected hurricane pattern for this year the PDO, AMO, and QBO values for March 2010 were compared with the March values of these indices since 1950. The PDO, AMO and QBO values for March 2010 were 0.44, 0.335, and -19.68 respectively. For the PDO, a value was considered to be similar if it was within the 0.2-0.7 range. An AMO value was similar if it was within the 0.6-0.2 range. However, the QBO range was different because -19.68 was an extreme value, therefore any values that were very negative (<-16.00) were considered similar. After the similar values were found any index that had a year in common with one of the others was recorded. In this case the AMO and PDO had the years 2004, 2000, and 1958 in common, the PDO and the QBO had 1992 in common, and the AMO and QBO had no common years.

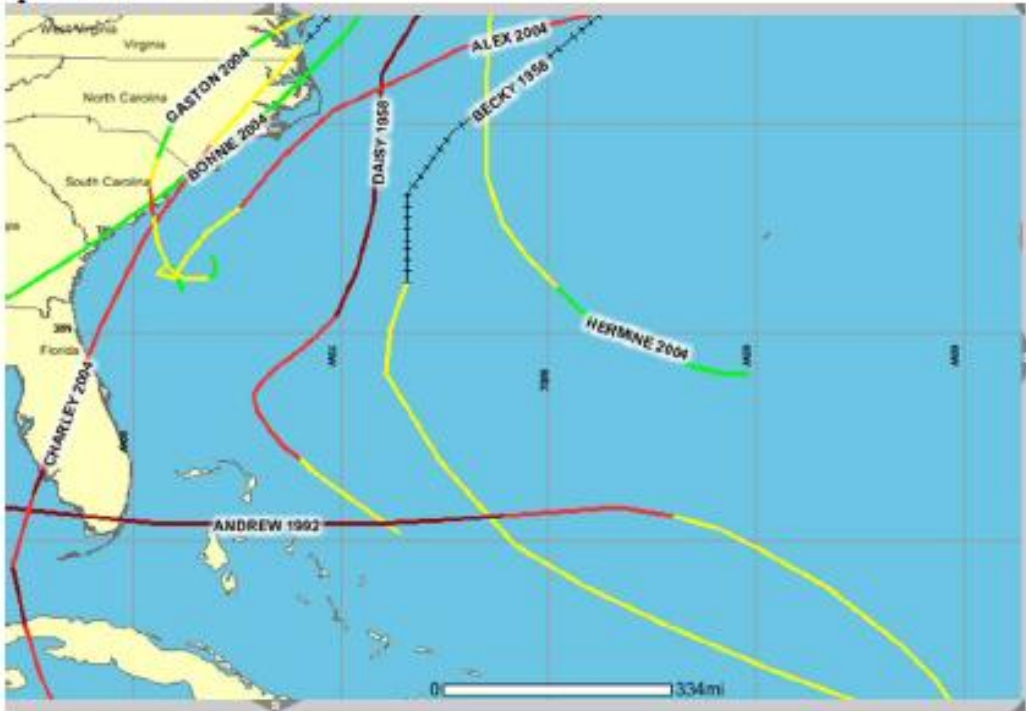
To gauge tropical cyclone tracks that these indices produced, the August, September and October storm tracks from these years were plotted on charts for each of the major coastal regions. The August charts revealed most tropical cyclones impacting the Gulf of Mexico made landfall on the west coast of Florida, with the exception of Hurricane Andrew that made landfall on the East coast of Florida and then again in Louisiana. The tropical cyclones that did impact the west coast of Florida continued to track northeast and both of them impacted the coast lines of the Carolinas. Along the East Coast the storms tended to follow the coastline but remain offshore, with the exception of Hermine in 2004 that impacted the Cape Cod area. This pattern continues in September with most storms making landfall from the west coast of Florida to Alabama. These storms all tracked off to the Northeast and impacted the Carolinas. All storms off the east coast continued to move off to the northeast and avoid landfall, with the exception of Danielle that made landfall at the Delmarva Peninsula. In October the number of tropical cyclones making landfall was significantly reduced. There were no landfalls along the East Coast and the majority of the cyclones that formed remained well out in the Atlantic. There was one landfall from Matthew in Louisiana during 2004 and Hurricane Keith made landfall in East Mexico in 2000. There was also an interesting case where Leslie formed on the east coast of Florida and continued out into the Atlantic. In summary, if the March values of these indices have an impact on the tropical cyclone pattern this year we should see landfalls along the west coast of Florida, that impact the country all the way to the Carolinas. The East Coast may see one or two landfalls in the Mid-Atlantic and Northeast regions, but these areas will be spared for the most part.

August:

Gulf Area



Cape Hatteras Area



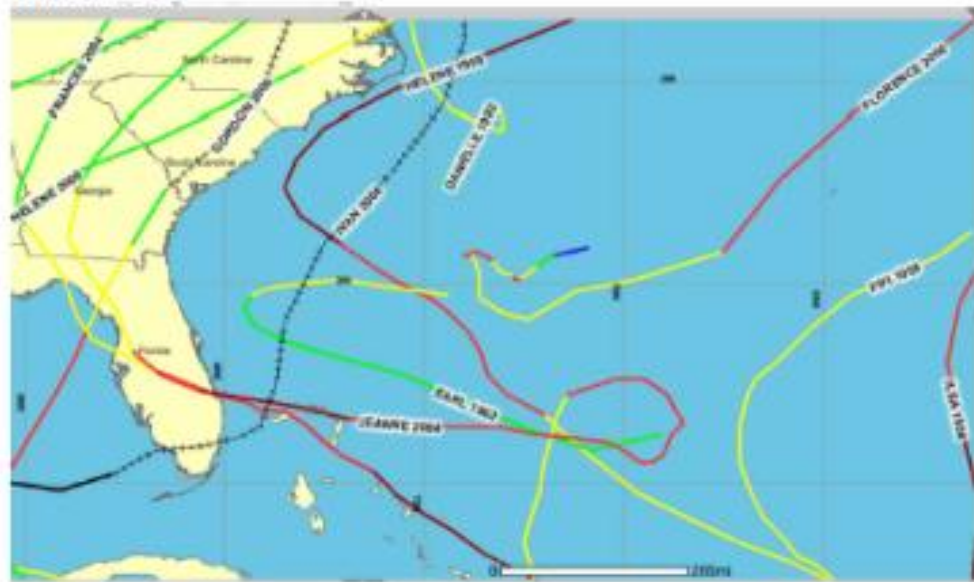
### Eastport Area



### September: Gulf Area



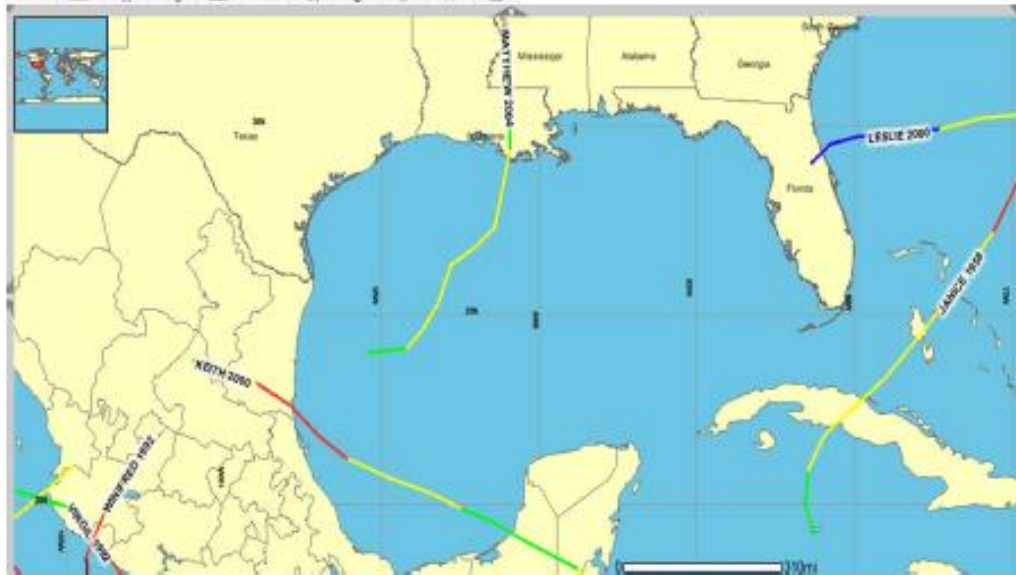
### Hatteras Area



### Eastport Area



October:  
Gulf Area:



Hatteras Area



# Eastport Area

