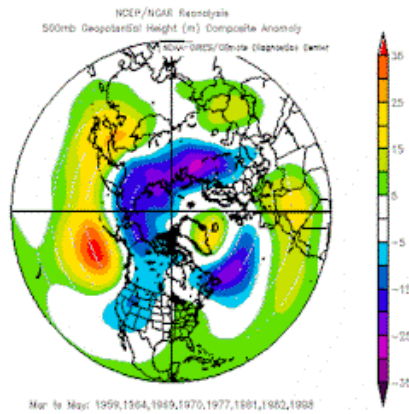


# The Pennsylvania Observer



## FEATURED CLIMATE HIGHLIGHT

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The peak of hurricane season occurs around early to mid-September. This means on average about half of all Atlantic tropical systems develop before the end of September's second week. The focus of this task is to examine years in which the bulk of named storms (>70%) occurred at or before the peak of the season. The peak season day chosen in this case is September 12<sup>th</sup>. Looking at all the years in which this scenario was true, the question asked is whether or not this resulted in a trend in temperatures in the latter months (November, December, and January) in PA following these early active years. The results of this task were organized into a contingency table showing whether these month's temperatures were much above, above, below, or much below mean values for each month. Much above and much below means temperatures observed were greater or less than the standard deviation respectively.

| November Temperatures Following Early Tropical Development |      |          |       |
|--|------|----------|-------|
|  | Much | Slightly | Total |
| Warmer   | 2    | 9        | 11    |
| Colder   | 5    | 3        | 8     |
| Total  | 7    | 12       | 19    |

Mean : 40.537 Std: 2.794

In the 19 years in which greater than 70 percent of tropical activity occurred before the 13<sup>th</sup> of September, 11 years saw temperatures that were warmer than average, as opposed to 8 years in which were colder than average. At the same time, out of the eight colder years, 5 years resulted in much colder Novembers. This could hint that in such years in which there is early active hurricane season, November's mean temperature will likely be slightly warmer or much colder than average. There is not a significant trend in one direction.

| December Temperatures Following Early Tropical Development |      |          |       |
|--|------|----------|-------|
|  | Much | Slightly | Total |
| Warmer   | 4    | 7        | 11    |
| Colder   | 5    | 3        | 8     |
| Total  | 9    | 10       | 19    |

Mean: 30.059 Std: 4.028

Similar to the results found in November. More years were warmer than colder. In the 8 cold years, 5 were much colder than normal. Again, there is no clear trend in one direction.

| January Temperatures Following Early Tropical Development |      |          |       |
|---|------|----------|-------|
|   | Much | Slightly | Total |
| Warmer  | 3    | 6        | 9     |
| Colder  | 4    | 6        | 10    |
| Total   | 7    | 12       | 19    |

Mean:26.524 Std:4.828

January observed temperatures were evenly distributed around the mean. Nine years found warmer than average temperatures, as opposed to ten years being colder. There seems to be no significant trend in January temperatures in this case.

In comparing precipitation trends for late autumn and early winter following early active hurricane seasons, the following shows the distributions of November, December, and January precipitation totals:

### **November**

|            |            |
|------------|------------|
| Above      | Below      |
| 2          | 8          |
| 6          | 3          |
| Much Above | Much Below |

The above contingency table shows that during the month of November following early active hurricane seasons, the precipitation was either much above and or much below normal.

### **December**

|            |            |
|------------|------------|
| Above      | Below      |
| 6          | 5          |
| 3          | 5          |
| Much Above | Much Below |

This above table shows that during the month of December, the precipitation tended to be below or much below normal.

### **January**

|            |            |
|------------|------------|
| Above      | Below      |
| 8          | 5          |
| 2          | 4          |
| Much Above | Much below |

The above table shows that during the month of January, the precipitation tended to be either much above or below normal.