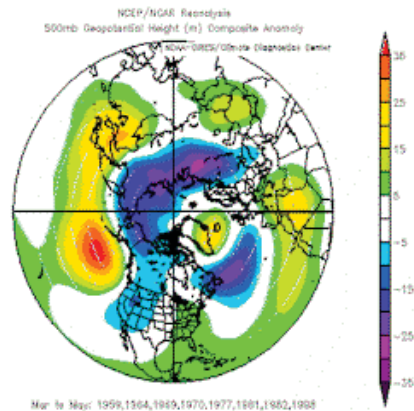


# *The Pennsylvania Observer*

## The Pennsylvania State Climatologist



### **April Climate Highlight:**

*Prepared by Chris Slocum*

April's Climate Highlight analyzes years that received below average precipitation in the months of January, February, and March (JFM) to see if there are any trends in temperature and precipitation for the months of June, July, and August (JJA) in those years.

This year the Commonwealth of Pennsylvania experienced extremely dry conditions from January to March. The JFM 2009 total precipitation received was 5.250 inches (13.34 centimeters). This would make it the second driest JFM period on record (see Table I). The 114-year (1895-2008) average for total JFM precipitation is 8.752 inches (22.23 centimeters).

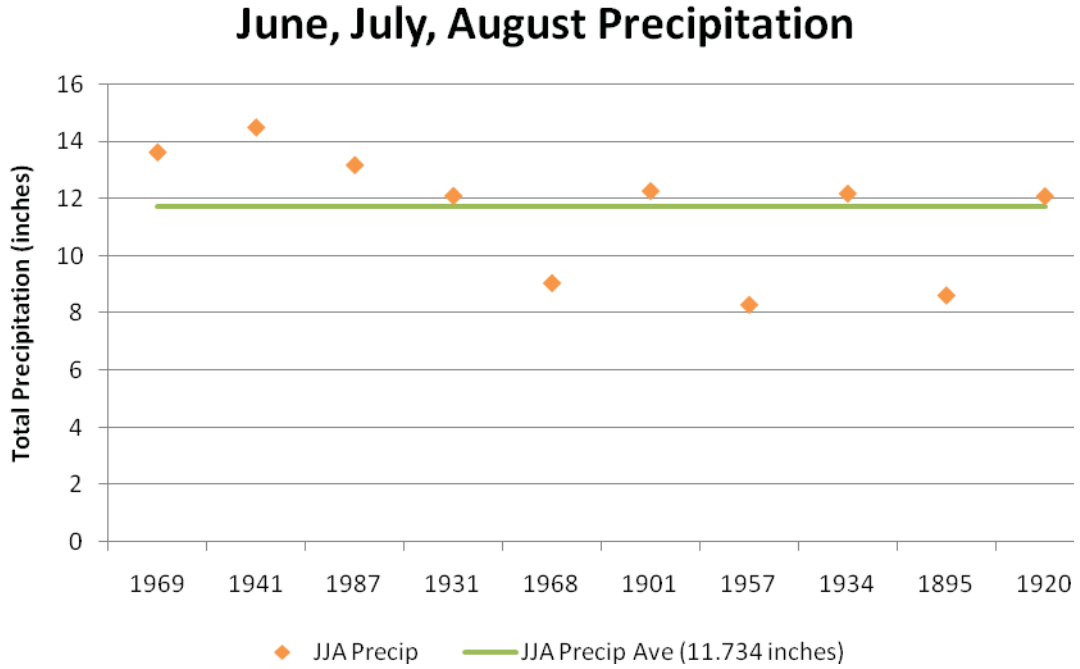
Year	Total JFM Precipitation, in (cm)
1969	4.29 (10.89)
1941	5.65 (14.35)
1987	6.04 (15.34)
1931	6.13 (15.57)
1968	6.14 (15.59)
1901	6.47 (16.43)
1957	6.60 (16.76)
1934	6.62 (16.81)
1895	6.69 (16.99)
1920	6.83 (17.35)

**Table I: 10 Years with the Lowest JFM Precipitation (1895-2008)**

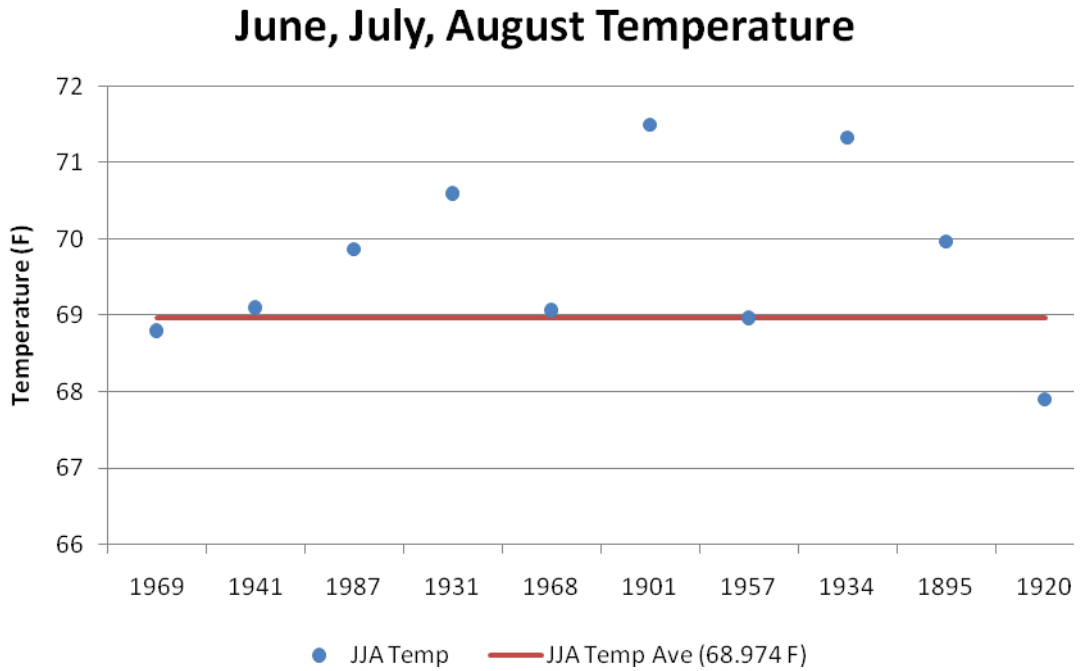
The JJA total precipitation and average temperature records for the 10 years with the lowest JFM precipitation levels (see Table II) were analyzed to determine if any trends are associated with dry JFM conditions.

Year	Total JJA Precipitation, in (cm)	JJA Avg. Temperature, °F (°C)
1969	13.62 (34.59)	68.800 (20.444)
1941	14.49 (36.80)	69.100 (20.611)
1987	13.17 (33.45)	69.867 (21.037)
1931	12.09 (30.71)	70.600 (21.444)
1968	9.03 (22.94)	69.067 (20.593)
1901	12.26 (31.14)	71.500 (21.944)
1957	8.27 (21.00)	68.967 (20.537)
1934	12.17 (30.91)	71.333 (21.852)
1895	8.60 (20.47)	69.967 (21.093)
1920	12.08 (30.68)	67.900 (19.944)

**Table II: JJA Precipitation and Temperature Data for the 10 Lowest JFM Precipitation Years (1895-2008)**



**Figure 1: JJA Precipitation for the 10 Lowest JFM Precipitation Years (1895-2008)**



**Figure 2: JJA Average Temperatures for the 10 Lowest JFM Precipitation Years (1895-2008)**

The 114-year (1895-2008) average for total JJA precipitation is 11.734 inches (29.80 centimeters) and the 114-year (1895-2008) average for average temperature is 68.974°F (20.54°C). For the 10 years with lowest JFM precipitation, the average total precipitation received by the Commonwealth is 11.237 inches (28.542 centimeters) and the average temperature is 69.817 °F (21.009 °C). A graph of total JJA precipitation for the 10 lowest JFM precipitation years (Figure 1) does not show a pattern. A graph of the JJA average temperature for the 10 lowest JFM precipitation years (Figure 2) indicates above average temperatures for those years.

To determine the statistical significance of the departures from normal for the JJA temperature and precipitation, a one-sample z-test was conducted. The total precipitation graph (Figure 1) does not indicate a strong departure from normal. There is also no statistically significant evidence indicating an effect related to below average JFM precipitation to JJA precipitation. As seen in the Figure 2, there is statistical evidence to support above average JJA average temperatures for years with below average JFM precipitation.