



Garen Meguerian / Flickr

2018 Weather in Review: Valley Forge National Historical Park

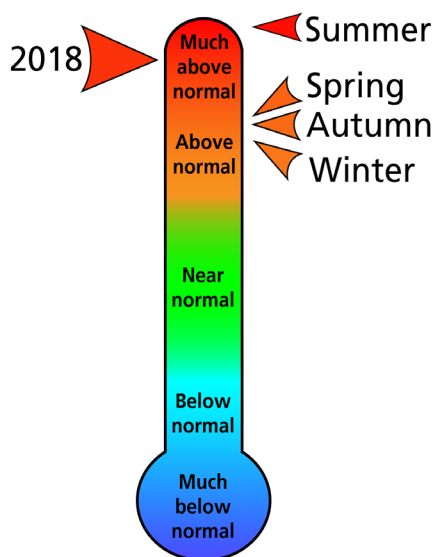
In all, 2018 was warm and extremely wet. In fact, it was a record setting year for precipitation, with higher totals than ever recorded. Weather data collected since 1895 reveals that annual average temperature and annual total precipitation are increasing, though the increase in precipitation is not statistically significant.

Information in this brief represents weather data averaged from all of the counties surrounding the park. These include Chester and Montgomery counties, PA. More local weather data may vary slightly from what is reported here.

Temperature

In total, 2018 was the 9th warmest year at the park since 1895, and all seasons were warmer than long-term averages (Figure 1). Eight months had higher than normal temperatures, with February, May, and September all being more than 5 °F above normal (Table 1).

Table 1. Average monthly, average annual, and departures from long-term average temperatures. Departures from average are based on a comparison of 2018 average temperatures to relevant averages from 1895-2017. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.



Month/ Year	Average temperature (°F)	Departure from average (°F)
January	29.0	-0.4
February	39.1	+8.5
March	37.7	-2.1
April	48.3	-2.2
May	66.2	+5.3
June	70.7	+1.1
July	76.5	+2.1
August	77.2	+4.9
September	70.7	+5.2
October	56.5	+2.4
November	42.0	-1.2
December	37.7	+4.7
2018	54.3	+2.4

Figure 1. Seasonal and annual temperature rankings. An arrow at the top of the figure would represent the warmest year/season on record (since 1895); at the bottom, the coldest year/season on record. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Precipitation

In total, 2018 was a record setting year at the park — it was the wettest year since 1895 (Figure 2). By the end of the year, 69.7 inches of precipitation had fallen, almost 25 inches more than long-term averages (Table 2).

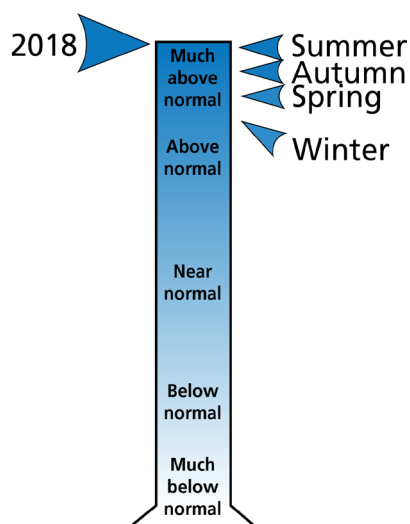


Figure 2. Seasonal and annual precipitation rankings. An arrow at the top of the figure would represent the wettest year/season on record (since 1895); at the bottom, the driest year/season on record. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Table 2. Monthly and annual total precipitation and departure from long-term averages. Departures from average are based on a comparison of 2018 precipitation to relevant averages from 1895–2017. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.

Month/ Year	Total precipitation (in.)	Departure from average (in.)
January	2.4	-1.0
February	6.2	+3.3
March	4.0	+0.2
April	3.7	+0.0
May	6.6	+2.7
June	5.1	+1.1
July	8.0	+3.4
August	7.9	+3.4
September	9.4	+5.4
October	2.9	-0.5
November	8.3	+5.0
December	5.1	+1.4
2018	69.7	+24.5

Temperature and Precipitation Trends (1895–2018)

Data collected in Chester and Montgomery counties since the late 1800s shows a statistically significant increasing trend of +0.24 °F per decade in annual average temperature ($p < 0.05$, linear regression). The increasing trend in precipitation (+0.30 inches per decade) is not statistically significant.

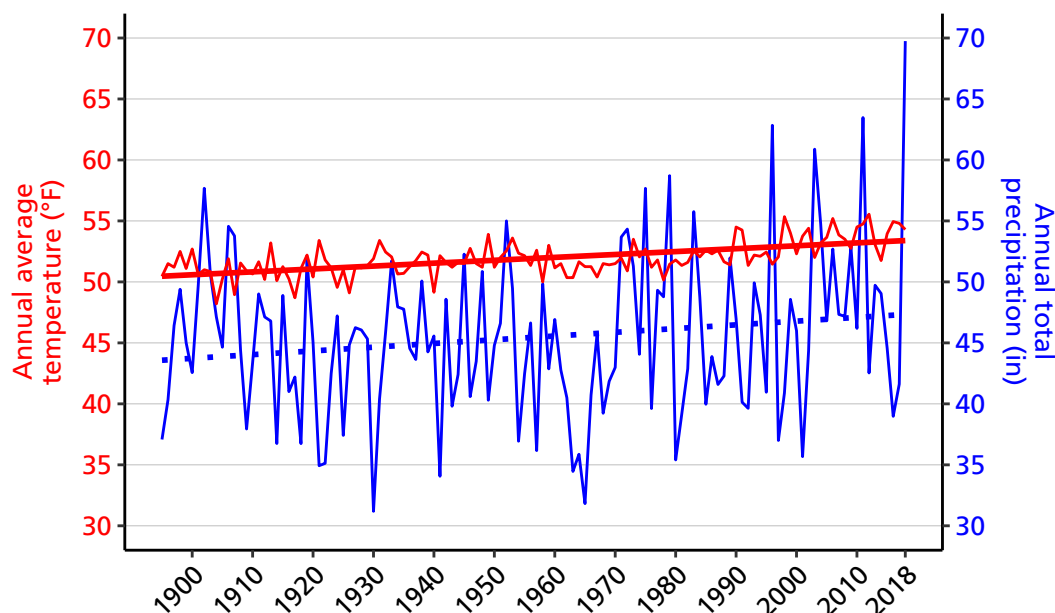


Figure 3. Annual average temperature (°F) and annual total precipitation (in.) for Chester and Montgomery counties, PA from 1895–2018. Solid lines represent statistically significant trends ($p < 0.05$). Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.

Lead Scientist

Jeb Wofford
Jeb_Wofford@nps.gov
Biologist/Science Writer

Mid-Atlantic Network

120 Chatham Lane
Fredericksburg, VA 22405
www.nps.gov/im/midn

Parks monitored: Appomattox Court House NHP • Booker T. Washington NM • Eisenhower NHS • Fredericksburg & Spotsylvania NMP • Gettysburg NMP • Hopewell Furnace NHS • Petersburg NB • Richmond NBP • Shenandoah NP • Valley Forge NHP