



NPS

2023 Weather in Review: Valley Forge National Historical Park

In all, 2023 was extremely warm but total precipitation was closer to normal. The year ended as the 4th warmest and 46th wettest on record (since 1895) for the park.

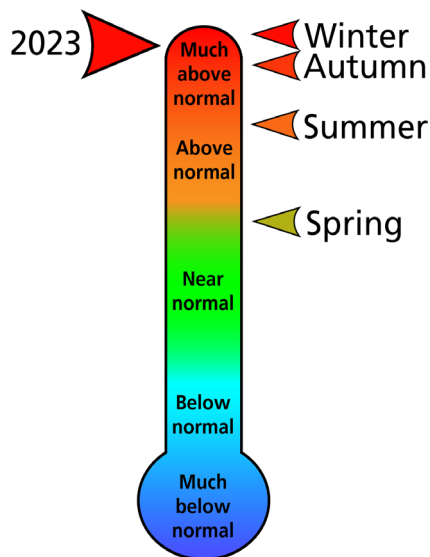
Data indicate that over the long term, annual average temperature and annual total precipitation have both increased in the counties surrounding the park (+0.3°F per decade and +0.33 inches per decade, respectively).

This brief provides county-scale weather data averaged from Chester and Montgomery counties, PA, including data from 1895–2023 (i.e., period of record). Data and analyses herein are courtesy of the National Oceanic and Atmospheric Administration's (NOAA) Climate at a Glance Program.

Temperature

In total, 2023 was the 4th warmest year ever recorded at the park with winter and autumn being particularly warm (Figure 1). Nine months had higher than normal temperatures with December, January, and February all being more than 7.5°F above long-term averages (Table 1).

Table 1. Average monthly, average annual, and departures from long-term average temperatures. Departures from average are based on a comparison of 2023 average temperatures to relevant averages from 1895–2022. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.



Month/ Year	Average temperature (°F)	Departure from average (°F)
January	40.2	+10.8
February	39.3	+8.4
March	42.2	+2.4
April	55.9	+5.4
May	59.5	–1.6
June	67.8	–1.9
July	76.8	+2.3
August	73.2	+0.8
September	67.4	+1.8
October	57.7	+3.5
November	42.6	–0.6
December	40.8	+7.6
2023	55.2	+3.2

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. Winter = Jan–Mar, Spring = Apr–June, Summer = July–Sept, Autumn = Oct–Dec. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Precipitation

The year 2023 was slightly above normal for total precipitation, with a wet autumn and spring and a dry winter. In all, it was the 46th wettest year recorded at the park (Figure 2), with 47.5 inches of total precipitation (Table 2).

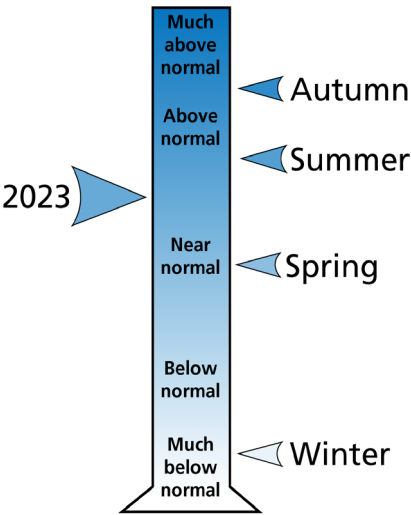


Figure 2. Seasonal and annual precipitation rankings. An arrow at the top of the figure would represent the wettest year/season on record (since 1895); at the bottom, the driest year/season on record. Winter = Jan–Mar, Spring = Apr–June, Summer = July–Sept, Autumn = Oct–Dec. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Table 2. Monthly and annual total precipitation and departure from long-term averages. Departures from average are based on a comparison of 2023 precipitation to relevant averages from 1895–2022. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.

Month/Year	Total precipitation (in.)	Departure from average (in.)
January	3.62	+0.20
February	1.50	–1.52
March	2.45	–1.34
April	4.16	+0.44
May	0.79	–3.18
June	6.25	+2.20
July	6.42	+1.82
August	2.91	–1.63
September	5.78	+1.79
October	1.56	–1.90
November	3.12	–0.24
December	8.96	+5.28
2023	47.52	+1.94

Temperature and Precipitation (1895–2023)

Data for Chester and Montgomery counties, PA indicate that annual average temperature has increased approximately +0.3°F per decade and annual total precipitation has increased approximately +0.33 inches per decade since 1895 (Figure 3).

National Park Service scientists have forecast future changes in climate too. Models estimate that by 2100, annual average temperature at the park will increase by 3.1–9.0°F (from a best-case to worst-case scenario, respectively). Annual total precipitation is expected to increase by 7–14% (see [Gonzalez et al., 2018](#) for details).

Data in this brief are preliminary and were retrieved from NOAA on 01/10/24.

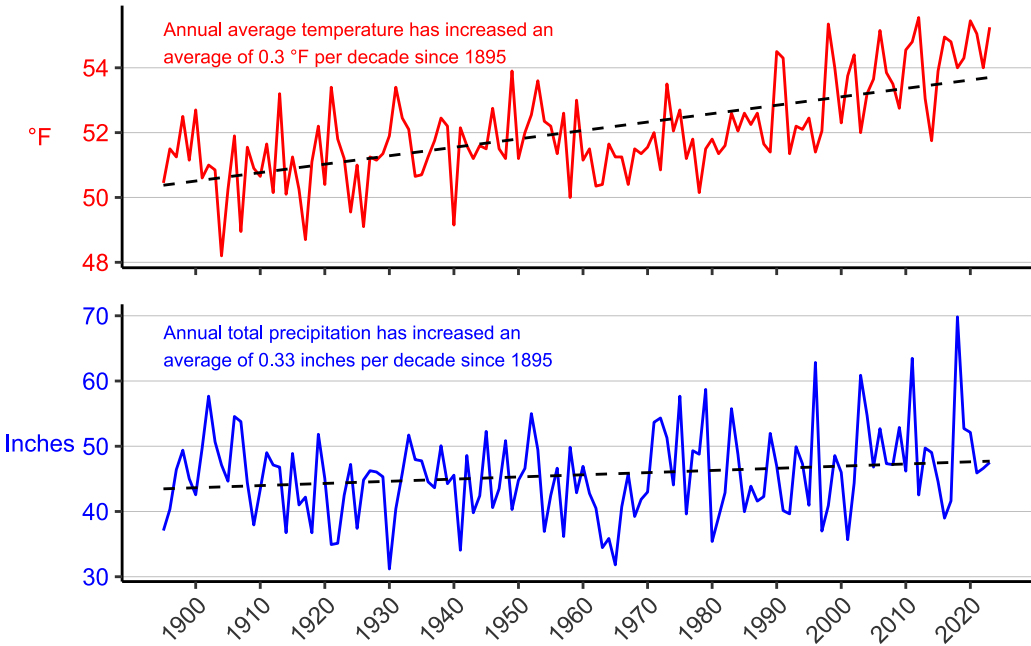


Figure 3. Annual average temperature (°F) and annual total precipitation (in.) from 1895–2023 for Chester and Montgomery counties, PA. Dashed lines represent linear estimates of change. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.