



2023 Weather in Review: Shenandoah National Park

NPS

In all, 2023 was the warmest year on record (since 1895) for the counties surrounding the park. Data indicate that over the long term, annual average temperature and annual total precipitation have both increased (+0.2°F per decade and +0.38 inches per decade, respectively).

This brief provides county-scale weather data averaged from all of the counties surrounding the park, including data from 1895–2023 (i.e., period of record). These coun-

ties include Albemarle, Augusta, Greene, Madison, Page, Rappahannock, Rockingham, and Warren counties, VA. Individual weather station data may vary from what is reported here. In particular, high elevations in the park may have experienced weather conditions that are different from those displayed in this brief. 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 warmest year ever recorded in the counties surrounding the park, and all seasons except spring were warmer than normal (Figure 1). Ten months had higher than normal temperatures with January and February both being at least 9°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>.

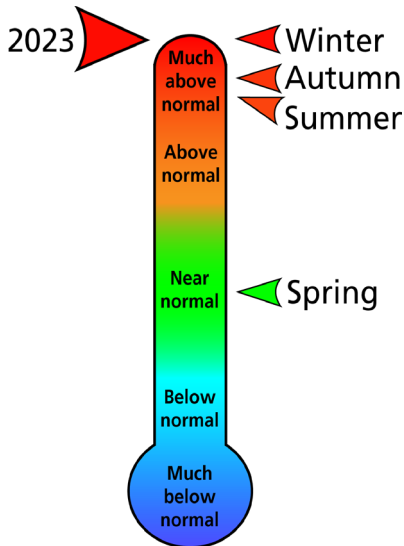


Figure 1. Seasonal and annual temperature rankings. An arrow at the top of the figure would represent the warmest year/season on record (since 1895); at the bottom, the coldest year/season on record. Winter = Jan–Mar, Spring = Apr–June, Summer = July–Sept, Autumn = Oct–Dec. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Month/ Year	Average temperature (°F)	Departure from average (°F)
January	41.3	+9.1
February	44.1	+10.0
March	45.5	+2.9
April	56.7	+4.4
May	60.0	–1.7
June	66.8	–2.6
July	75.9	+2.6
August	73.4	+1.8
September	67.3	+1.9
October	57.9	+3.4
November	44.6	+0.7
December	40.8	+5.9
2023	56.2	+3.2

Precipitation

The year 2023 was the 28th driest year recorded across the park's eight counties (Figure 2). All seasons were near normal or below normal for precipitation. In total, 36.1 inches of precipitation fell, 5.3 inches below long-term averages (Table 2).

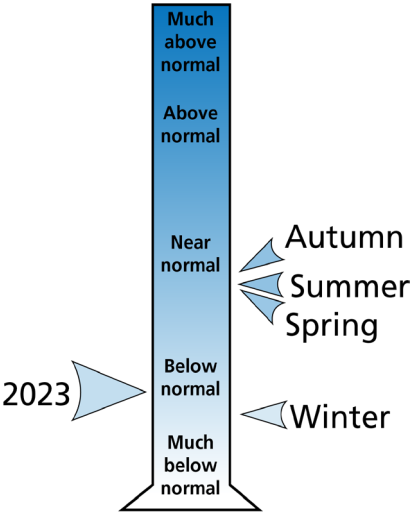


Figure 2. Seasonal and annual precipitation rankings. An arrow at the top of the figure would represent the wettest year/season on record (since 1895); at the bottom, the driest year/season on record. Winter = Jan–Mar, Spring = Apr–June, Summer = July–Sept, Autumn = Oct–Dec. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

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	1.86	–1.05
February	2.89	+0.37
March	1.59	–1.73
April	3.56	+0.27
May	2.34	–1.64
June	4.55	+0.41
July	4.66	+0.54
August	2.14	–1.96
September	4.04	+0.39
October	1.01	–2.39
November	2.90	0.00
December	4.50	+1.53
2023	36.06	–5.27

Temperature and Precipitation (1895–2023)

Data for counties surrounding the park indicate that annual average temperature has increased approximately +0.2°F per decade and annual total precipitation has increased approximately +0.38 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 3.1–8.8°F (from a best-case to worst-case scenario, respectively). Annual total precipitation is expected to increase by 8–14% (see [Gonzalez et al., 2018](#) for details).

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

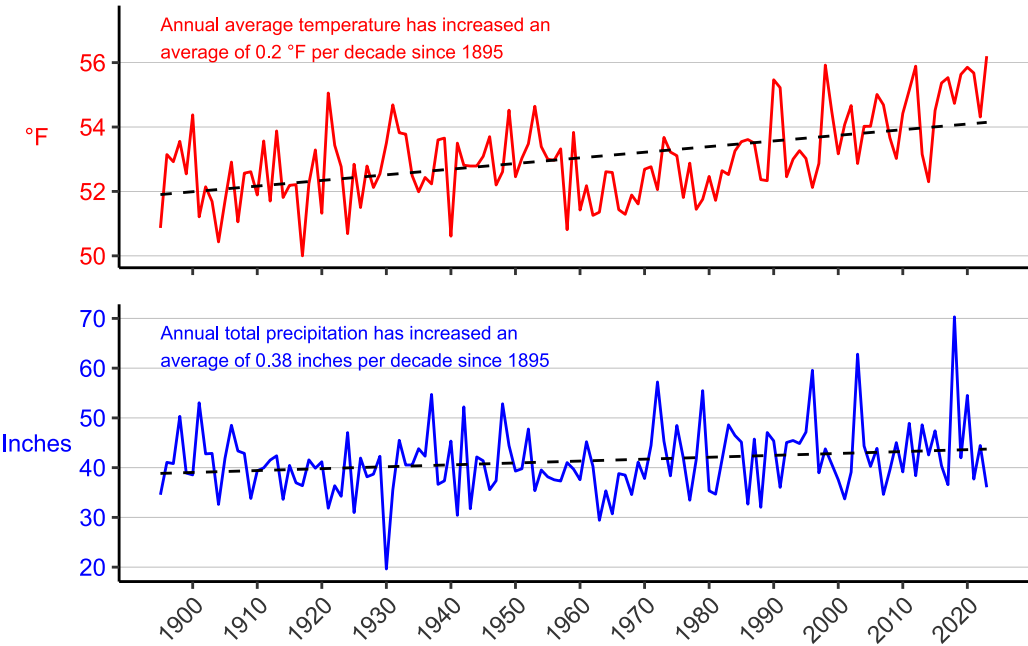


Figure 3. Annual average temperature (°F) and annual total precipitation (in.) from 1895–2023 for counties surrounding the park. Dashed lines represent linear estimates of change. Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.