



NPS / N. Lewis

2018 Weather in Review: Shenandoah National 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. Over this time period, annual mean temperature has increased at a rate of +0.15 °F per decade and annual total precipitation has increased +0.41 inches every ten years.

Information in this brief represents weather data averaged from all of the counties surrounding the park. These counties include Albemarle, Augusta, Greene, Madison, Page, Rappahannock, Rockingham, and Warren. More local weather data may vary slightly from what is reported here.

Temperature

In total, 2018 was the 13th 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 4 °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>.

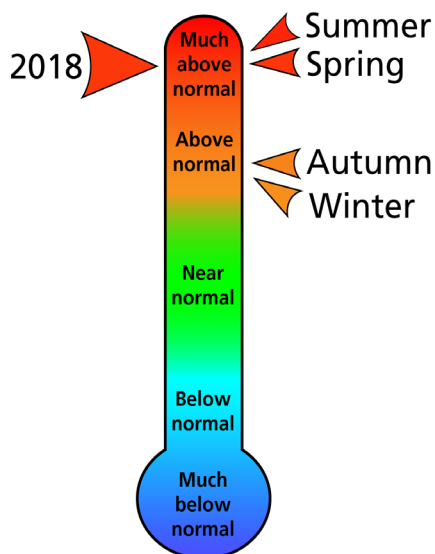


Figure 1. Seasonal and annual temperature rankings. An arrow at the top of the figure would represent the warmest year/season on record (since 1895); at the bottom, the coldest year/season on record. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

Month/ Year	Average temperature (°F)	Departure from average (°F)
January	31.5	-0.4
February	42.1	+8.4
March	38.6	-3.7
April	49.9	-2.1
May	68.2	+6.7
June	70.7	+1.5
July	73.7	+0.7
August	73.7	+2.3
September	69.6	+4.4
October	57.3	+3.0
November	41.5	-2.2
December	37.2	+2.7
2018	54.5	+1.8

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, 69.4 inches of precipitation had fallen, almost 29 inches more than long-term averages (Table 2).

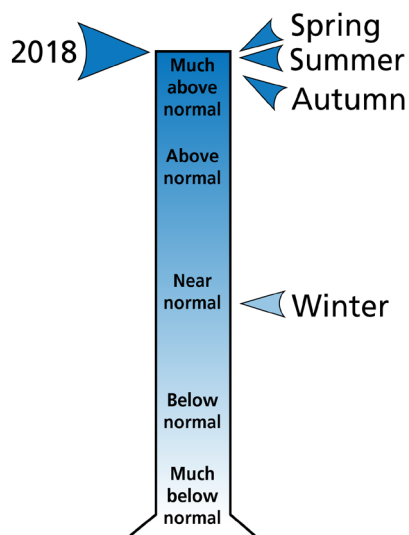


Figure 2. Seasonal and annual precipitation rankings. An arrow at the top of the figure would represent the wettest year/season on record (since 1895); at the bottom, the driest year/season on record. Data are available at <https://www.ncdc.noaa.gov/cag/county/rankings>.

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	2.0	-0.8
February	4.3	+1.9
March	1.8	-1.5
April	4.1	+0.9
May	8.9	+5.0
June	9.9	+5.8
July	5.9	+1.8
August	8.0	+4.0
September	9.0	+5.4
October	3.4	+0.0
November	6.1	+3.3
December	6.0	+3.1
2018	69.4	+28.9

Temperature and Precipitation Trends (1895–2018)

Data collected in surrounding counties since the late 1800s shows statistically significant increasing trends in temperature and precipitation (Figure 3). Annual average temperature is increasing at a rate of +0.15 °F per decade ($p < 0.05$, linear regression). Annual total precipitation is increasing at a rate of +0.41 inches per decade ($p < 0.05$, linear regression).

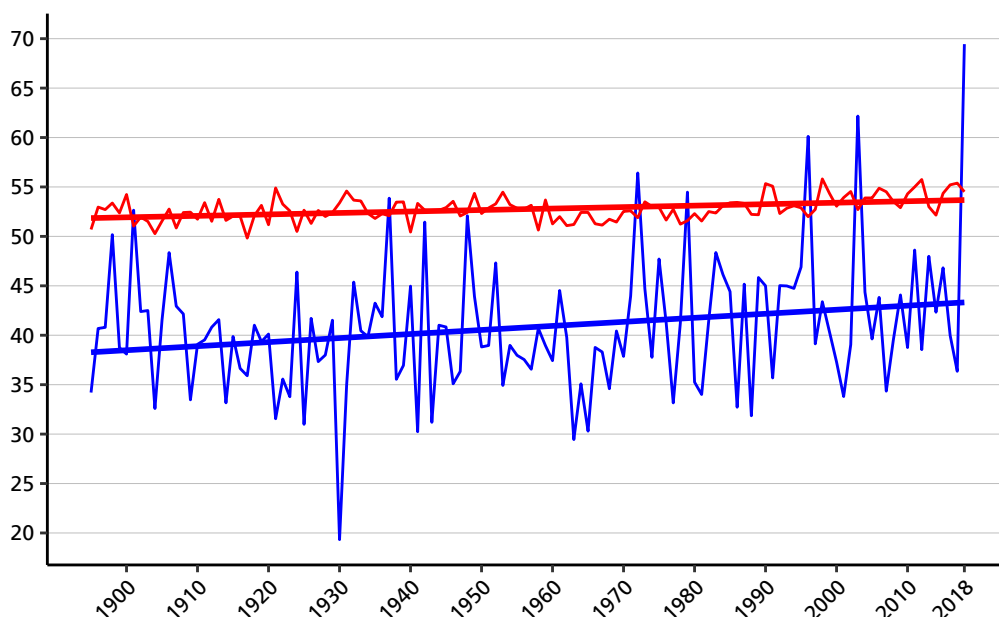


Figure 3. Annual average temperature (°F) and annual total precipitation (in.) for the counties surrounding Shenandoah Park from 1895–2018. Solid lines represent statistically significant trends ($p < 0.05$). Data are available at <https://www.ncdc.noaa.gov/cag/county/time-series>.

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