



Petersburg National Battlefield and Richmond National Battlefield Park: 2017 Weather in Review

In 2017, four weather stations were selected to report the weather of Petersburg National Battlefield (NB) and Richmond National Battlefield Park (NBP). The parks are located in the Eastern Piedmont and Tidewater climate divisions of Virginia. This brief provides a summary of 2017 weather conditions.

Highlights — 2017 was characterized by:

- *warmer than normal temperatures — in all, 2017 was the 3rd warmest year in 123 years of records;*
- *near-normal annual rainfall totals resulting in the 54th driest year since 1895;*
- *a growing season almost two weeks longer than average.*

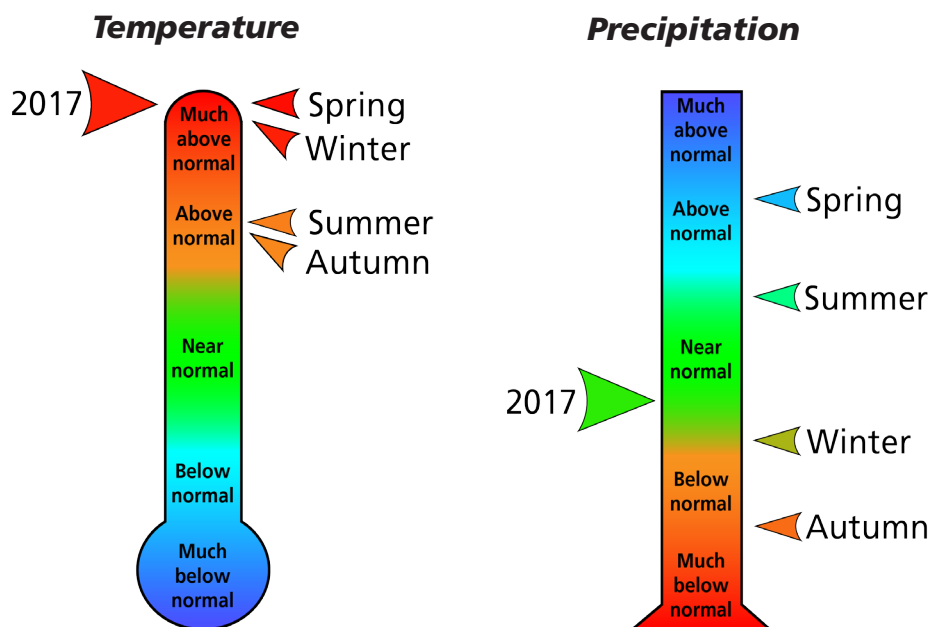
How does 2017 average temperatures and total precipitation in the Tidewater compare to the past?

Temperature and precipitation records collected since 1895 can be used to compare current climate conditions with those of the past. To do so, climate periods (e.g. seasons or years) can be ranked in order from the warmest to the coldest or the wettest to the driest. The figures below show these rankings over 123 years for Tidewater climate division of Virginia. The figures show how each season (and the year) ranks compared to the prior 123 seasons/years. A rank at the top of the figure would indicate the warmest or wettest season/year on record, and at the bottom, the coldest or driest on record.

2017 Temperature Ranking Statistics: It was the 3rd warmest spring on record, the 7th warmest winter, the 30th warmest summer, and the 33rd warmest autumn since 1895. In all, 2017 was the 3rd warmest year on record.

2017 Precipitation Ranking Statistics: It was the 27th wettest spring, the 50th wettest summer, the 41st driest winter, and the 25th driest autumn since 1895. In all, 2017 was the 54th driest year on record.

Source: [National Oceanic and Atmospheric Administration](#), 2018.



Temperature: Almost all of the temperature metrics calculated from stations around Petersburg NB and Richmond NBP indicate that 2017 was a warm year. Several months of the year had much higher than average temperatures. February was particularly warm with temperatures almost 7.2°F (4.0°C) above normal. A number of stations were missing some data over the year. Richmond airport had a full record, and for the year, the Richmond station reported average annual temperatures 1.5°F (0.9°C) above normal. Average annual maximum and average annual minimum temperatures were also above average at Richmond. Even so, the number of hot days (days with maximum temperatures > 90°F (32°C)) was normal (42 days). Given relatively few sub-freezing days (61 days vs. long-term average of 74 days), the growing season was almost two weeks longer than normal at Richmond airport. Ultimately, all of the seasons ranked warmer than average, and the spring of 2017 tied as the 3rd warmest ever recorded. In all, 2017 was the 3rd warmest year in the Tidewater since 1895.

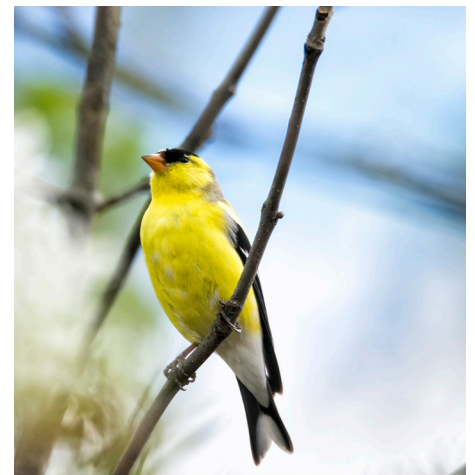
Precipitation: In total, the year's precipitation was near to long-term averages, and the year ranked as the 54th driest on record in the Tidewater. Richmond ultimately recorded 38.0 inches (965 mm) of precipitation over the year. February was one of the driest months with only 21% of normal rainfall. In contrast, May had 195% of normal precipitation. The wettest day of the year occurred on August 29th with 3.0 inches (75 mm) of rain. The longest dry spell occurred from mid-September through early-October with a period of 30 days without any precipitation. The number of heavy precipitation days (days with ≥1.0 in (25 mm) rain) was just below normal (9 days vs. a long-term average of 11 days). Dry conditions in the winter and autumn resulted in moderate drought conditions during February, March, and December. No drought conditions occurred during other parts of the year.

For the full 2017 Petersburg NB and Richmond NBP weather report, see Wofford (2018) as cited below.

Climate Change - Bird communities are expected to change at Petersburg NB and Richmond NBP

National Park Service and National Audubon Society scientists recently studied the potential effects of climate change on seasonal bird communities in national parks. They predict that major changes in bird communities may occur at Petersburg National Battlefield and Richmond National Battlefield Park by 2050. Under a high-emissions scenario, 21 new bird species may colonize Petersburg NB in summer and 47 new species in the winter season. At Richmond NBP, 19 new species may colonize the park in summer and 58 in winter. Despite the large number of potential colonizing species, other birds may find future park climates inhospitable. By mid-century, the climate at Petersburg NB may become unsuitable for 23 species of birds that currently reside there in summer and 8 species of birds that currently overwinter. Similarly, at Richmond NBP, 26 species in summer and 8 species in winter may be seasonally extirpated.

It is important to note that this study only assessed the impact of changing climate conditions and not potential changes in habitat or other ecosystem factors. Therefore, projections noted above should be interpreted as primarily revealing potential trends in species richness. Bird monitoring in the park will assess these potential community changes over the coming decades. For more information on park specific results, visit <https://www.nps.gov/subjects/climatechange/birdsinparks.htm>.



By 2050, under a high-emissions scenario, the summer climate at Petersburg National Battlefield and Richmond National Battlefield Park is expected to become unsuitable for the American goldfinch. It's possible that in a few decades goldfinches won't be found in either of the parks during summer months.

Citations and Credits

Wofford, J.E.B. 2018. Weather of Petersburg National Battlefield and Richmond National Battlefield Park: Mid-Atlantic Network summary report for 2017. Natural Resource Data Series NPS/MIDN/NRDS—2018/1168. National Park Service, Fort Collins, CO. Available here: <https://irma.nps.gov/DataStore/Reference/Profile/2253212>

Photographs : Cover photo, "Fort Stedman - Petersburg, VA" by Ron Zanoni (CC BY-NC-ND 2.0); back page photo, courtesy of André Chivinski

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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