

2019 WEATHER SUMMARY

Springfield Park, Glen Allen, VA

Unusual Events for 2019

The weather treated Springfield Park much better this year than last. There were no major snowstorms and the snow total was only 4.7 inches the least since 2011 and the 2nd least on Springfield Park records. The only threatening Hurricane was Dorian which went so far to the east of Springfield Park that no rain was recorded. The Airport had only 0.38 inches on September 6, 2019 from the remnants of Dorian. Also, no tornado scares this year like last year with the remnants of Florence and no hail occurred this year in the Springfield Park area and no class five thunderstorms. There were 31 thunderstorms and all were rated less than five. The only thunderstorm that was a class four was on August 8th and earned this rating for an hour of rather intense lightning. So, what was 2019 known for?

It was mainly heat and variability in precipitation.

Four months Apr, May, Sep, Oct were the second warmest on record and July was the third warmest in the past 11 years.

Feb, Jun, Aug were the wettest months on record and September was the driest on record with 0.17 inches. September was also the driest of all months. From August 29th to Oct 12th a 45-day period only 0.22 inches of precipitation was recorded at Springfield Park. This was the longest period with so little rain on record at Springfield Park. It is fortunate that August was the wettest on record.

Thunderstorms

The strongest thunderstorm, category 4, was on August 8, 2019 that earned this rating for an hour of intense lightning. This storm passed just north of Springfield Park. Thunder was heard on 31 days in 2019 at Springfield Park and tied for the least on record. The average is 36 days per year. The record is 47 days in 2012. August and September had 9 thunder days which was the greatest in a month for 2019. Most were weak as 16 of the 31 were rated as category one. Category one is the weakest rating and may have had only one thunder heard.

16 (Cat. 1), 7 (Cat. 2), 7 (Cat. 3), 1 (Cat. 4), 0 (Cat. 5)

Temperature

YEAR- The mean temperature for 2019 at Springfield Park was 60.49°F which was above the average of 59.28°F and a departure of 1.2°F. The warmest year at the Springfield Park station was 2012 with a mean average of 60.52°F. The Richmond International Airport had a mean of 61.0°F for 2019 which is above the average for the year of 58.9°F. Springfield Park had 70 days that the maximum temperature was ≥90°F; only 2010 had more with 72 days. The average is only 46.4 days. But Springfield Park's nights weren't as warm as there were only 49 night-time minimums that stayed 70°F or greater which is average. The maximum temperature at Springfield Park was ≤32°F for the high temperature on only 3 days. Springfield Park had 78 days when the minimum temperature was ≤32°F, the average 78.6 days. The lowest minimum temperature of 2019 was 10.7°F on January 22nd. The highest temperature for the year was 102°F on July 21, 2019. This was highest temperature recorded since July 8, 2012 when it was 105.1°F.

SEASONS-

Spring was the 4th driest on record and 3rd warmest on record with a temp. departure of 1.5°F.

Summer was the 2nd wettest on record and 4th warmest on record with a temp. departure of 0.5°F.

Autumn was the 2nd driest on record and 3rd warmest on record with a temp. departure of 1.1°F.

Winter of 2018-2019 was the 3rd wettest on record and 5th warmest on record with a temp. departure of 0.9°F.

MONTHS- Negative temperature departures-

The coldest month for 2019 was January with a mean temperature of 38.4°F. January also had the greatest number of days (20) with the minimum temperature $\leq 32^\circ\text{F}$. The 10.7°F minimum on January 22nd was the low minimum temperature for the year. This was the warmest annual minimum temperature since 2013 and was the 3rd warmest on record. November had the greatest negative departure from average of -3.5°F and March took 2nd place with a -1.5°F departure. November's mean temperature of 45.4°F was the lowest on record.

MONTHS- Positive temperatures departures-

July was the hottest month with a mean temp. of 81.8°F a departure of 1.9°F. May's mean temperature of 72.6°F had the greatest positive departure from normal +4.0°F. September had the second greatest positive departure of 3.9°F. September's mean was 75.76°F and was the 2nd warmest September on record; the previous record was 74.8°F set in 2019. All of months of 2019 had positive departures except for March, June, November, and December at Springfield Park. July had 24 days with the maximum temperature $\geq 90^\circ\text{F}$ which was the greatest number ever for any month. July also had 20 nights that the minimum temperature was 70°F or more; the record is 26. The warmest minimum temperature for the year was 78°F on July 20th our warmest night. The number of days that the minimum temperature was $\geq 70^\circ\text{F}$ in 2019 was 49 days and the average is 49.3 at Springfield Park. October 3, 2019 set a new record high maximum for October of 98.4°F; the previous record was 91.2 in 2019.

DAY-

The hottest maximum temperature of 2019 at Springfield Park was 102.3°F that occurred July 21st. The average highest annual maximum temperature for this station is 99.1°F. This was the warmest temperature recorded at Springfield Park since July 8, 2012. The lowest minimum temperature for 2019 at Springfield Park was 10.7°F recorded on January 22, 2019. The hottest day was July 21st with a daily mean of 89.7°F and the coldest day of the year occurred on January 31st with the daily mean temperature of 21.4°F. The lowest maximum temp. for 2019 was 28.9°F on January 21st which was the highest since 2012.

RANGE-

The greatest temperature range for the year at Springfield Park was 41.0°F, which occurred on April 3rd with a high of 71.0°F and a low of 30.0°F and on March 24th. The smallest temperature range for the year at Springfield Park was 3.3°F, which occurred on January 13, 2019 with a high temperature of 32.5°F and a low temperature of 29.2°F. The maximum monthly range was 61.9°F for October 2019. Spring had the highest average temperature range of 22.3°F and the winter 2018-2019 had the lowest temperature range of 19.5°F. April had the highest average temperature range of 23.4°F and January had the lowest average range of only 18.7°F.

PRECIPITATION

YEAR- Precipitation

Springfield Park's total precipitation was 48.91 inches. The total number of days this year with measurable precipitation at Springfield Park was 126 days. The ten-year average annual precipitation for Springfield Park is 47.73 inches or a positive departure of 1.18 inches. The total precipitation for 2019 at the Airport was 42.88 inches. The average annual precipitation for Richmond is 43.60 inches or a positive departure of negative 0.72 inches.

Season- Precipitation

The Summer season was the second wettest on record with 19.18 inches; the record was 19.75 inches in 2013.

The Autumn season was the second driest on record with 9.71 inches; the average is 12.10 inches.

The winter season of 2018-19 was the third wettest on record.

MONTH- Precipitation

There were 78 days with a daily precipitation amount ≥ 0.10 inches. There were 14 days with daily precipitation amount ≥ 1.00 inch and 1 day with more than 2.00 inches; the record was 5 days in 2018.

February was the wettest February with 5.42 inches and the previous record for February was 4.42 inches in 2016.

June with 8.44 inches was the wettest June on record; the previous record was 8.43 inches in 2018. June was also the wettest month of the year and had the second greatest positive departure

August was the wettest on record with 7.96 inches; the previous record was 6.65 inches in 2011 and had the greatest positive departure of 3.90 inches.

September with 0.17 inches set a new record for not only the driest September but also the driest of any month on record; the previous driest September was 1.52 inches in 2013. The previous driest month was November of 2012 with 0.46 inches. September had a negative departure of -4.00 inches.

Months with the greatest number of precip. days were Feb., Jun. and Aug. all with 13 days.

The least was 5 in Sep. which tied the record for the least which also occurred in Sep. 2013.

CALENDAR-

The most precipitation recorded in a calendar day occurred on June 7, 2019 with 3.81 inches which was the greatest calendar day June rainfall on record. The previous record was 3.08 inches in 2018.

24-HOUR PERIOD-

The maximum precipitation in a 24-hour period for 2019 was 4.32 inches on June 7th – 8th. The record for Springfield Park was 6.10 inches that occurred on May 17th -18th, 2018.

HOUR-

The greatest one-hour rainfall intensity during 2019 was 2.40 inches on June 7th; the June record is 2.63 inches in 2018. The 2.63 inches in one-hour is now the record for all of the months. The least one-hour rainfall intensity during 2019 for all months was 0.05 inches on September 11th; the previous minimum record for all months was 0.08 inches in February 2009.

Five-Minutes-

The greatest five- minute rain in 2019 was 0.35 inches on August 4th; the previous all month record was 0.67 inches in 2013.

DROUGHT-

The main drought of 2019 was a 45-day period from August 29 to October 12 with only 0.22 inches of precipitation. The longest dry period of 2019 without any measurable rain was 13 days on two occasions from (April 28th to Sep 10th) & (June 21st to July 3rd). There was one 11-day period with no measurable rain from Sep 27th to October 7th. The monthly precipitation was below average for 7 of the 12 months in 2019.

WIND

YEAR-

The highest wind gust for the year was 42 mph from the south that occurred on October 31st at 1557 hours in a thunderstorm. This was the highest wind at Springfield Park since 5-14-2018 when a 47-mph gust also occurred in a thunderstorm. The total wind run for the year was 24,333 miles.

MONTH-

The windiest month in 2019 was March with a wind run of 2,740.5 miles. August was the month with the least wind of 1554.1 miles. The highest average monthly wind run for the year was 88.4 miles that also occurred in March. The lowest average monthly wind run for the year was 50.1 miles that also occurred in August. The highest average maximum wind gust for the 12 months was April with an average gust of 20 mph and the next highest month was March with 18.8 mph. The lowest was September with 14.2 mph average.

DAY-

The windiest day for 2019 was on March 15th with a wind run of 214.1 miles. This was also the highest daily wind run recorded at Springfield Park since April 13, 2018 when 214.1 miles was also recorded. The second windiest day was November 16, 2019 when a wind run of 182.8 miles was recorded. The highest wind run ever recorded for Springfield Park during a calendar day was 284.1 miles set during Hurricane Irene on August 27, 2011.

SNOW

YEAR-

The 2019 Springfield Park total snowfall was 4.7 inches and the total for the winter (2018-2019) was 16.4 inches. There were 7 days with measurable snow. (average is 9.2 days) The largest snowfall to occur in one calendar day at the Springfield Park Station was 2.0 on January 13th. There were only 5 days in 2019 with more than a trace of snow on the ground at sunset. The maximum snow on the ground at sunset during 2019 was 2.5 inches on January 14th.

MONTH-

The greatest monthly snowfall total for Springfield Park in 2019 was 3.0 inches in the month of January which averages 5.5 inches.

STORM-

The most snow to fall in any one storm was 2.0 inches that occurred on January 13th. The greatest snow in a calendar day in 2019 was also 2.0 inches on January 13th

BAROMETRIC PRESSURE

YEAR-

The highest barometric pressure recorded for the year was 30.77 inches of mercury on January 22, 2019. The lowest barometric pressure for the year was 29.29 inches of mercury which was recorded on January 20th that was associated with a low pressure that passed to our northwest. This was the lowest barometric pressure since January 23, 2017 when the pressure also dropped to 29.29 inches.

MONTH-

February had the highest average barometric pressure of any month in 2019 averaging 30.30 inches which is the 2nd highest for all February months back to 2009. June had the lowest average barometer reading of any month at 29.88 inches.

RELATIVE HUMIDITY

YEAR-

The highest average relative humidity was recorded in October with an average relative humidity 77.0%. March had the lowest average relative monthly humidity of 65.7% for 2019. The lowest daily relative humidity for the year was 17% recorded on February 25, 2019. This was the lowest relative humidity since March 2017 when 15% was recorded. January and April set new record high relative humidity averages for the month. The year's average is 73.2%.

SKY COVER

The cloudiness average value is based on (0 as clear), (1 as partly cloudy), and (2 as cloudy).

MONTH-

2019 average cloud cover for the year was an average of 1.09 units. February with (1.38) was the cloudiest month of 2019 and April was the 2nd cloudiest month on record at Springfield Park. July with (0.77) was the clearest month of 2019 and the third lowest on record for July at this station. The cloudiest season was the spring with the average 1.14; the normal is 1.12. Summer was 0.98 with a normal of 1.04. The fall season was 1.01 with the normal of 1.02. The winter of 2018-2019 season was 1.36 with the normal of 1.09 units; this is because December of 2018 was very cloudy with 1.56 units.

SEASON RECORDS

Springfield Park Winter – Dec. 2018 to February 2019

This past winter was the 5th warmest on record with a 0.9°F departure and was the 3rd wettest on record with only 12.87 inches of precipitation. The precipitation departure was 1.05 inches. But a large snowfall of 11.9 inches that fell on December 9th 2018 set a new snowfall record amount for December.

Springfield Park Spring – March 2019 to May 2019

Spring was 1.5°F warmer than average and had the greatest positive departure for the four seasons. The first 90°F day came on May 19, 2019. Spring was the 4 driest on record with 10.94 inches. This was a -0.44 inch departure from average. This was the first spring with no snow which was a first for this station. In 2017 a trace was recorded in the spring but never zero.

Springfield Park Summer – June 2019 to August 2019

Summer was the fourth warmest on record with a 0.5°F departure and was the second wettest on record with 19.18 inches of precipitation for the summer. The summer had 50 days the maximum temperature was 90°F or more.

Springfield Park Autumn – September 2019 to November 2019

Autumn was the 3rd warmest on record with a 1.1°F departure and was the 2nd driest fall on record with only 7.21 inches of precipitation. The precipitation departure was -1.63 inches.

Annual Records

The precipitation total for 2019 at Springfield Park was **48.91** inches, a **1.18** inch departure based on the 11-year average of **47.73** inches.

2019 was the 5th wettest year on record for Springfield Park. Richmond International Airport had **42.88** inches which was a - **0.72** inch departure based on the 30-year average of 43.60 inches.

Springfield Park's 2019 annual temperature average was 60.5°F which was a +1.2°F departure from the 11-year average and the warmest year since 2012. The Richmond International Airport's 2019 annual temperature average was 61.0°F with a 2.1°F departure based on the 30-year average of 58.9°F.

In 2019 Springfield Park had the 2nd least snowfall on record with 4.8 inches. The 11-year average is 17.1 inches or a departure of 5.8 inches.

The Richmond International Airport had 2.6 inches in 2019.

Springfield Park in 2019 had a wind run of 24,333 miles. The average annual wind run at Springfield Park is 19,638 miles.

During the Year 2019 at Springfield Park there was a total of:

2 Days with Glaze

0 Days with Hail

3 Days with Sleet

7 Days with Measurable Snow

23 Days with Fog

31 Days with Thunder

59 Days with Frost

166 Days with Dew

126 Days with Measurable Rainfall

Climate Change for Richmond

Temperature for 2019					
140 Yr. Average			11 Yr. Average		
Airport			Springfield Park		
Spring 2019					
6th warmest			3rd warmest		
Mean	Average		Mean	Average	
60.7	57.19		60.27	58.76	
Departure	3.5°F		Departure	1.5°F	
Summer 2019					
7th warmest			4th warmest		
Mean	Average		Mean	Average	
78.77	76.47		78.4	77.92	
Departure	2.3°F		Departure	0.5°F	
Autumn 2019					
13th warmest			3rd warmest		
Mean	Average		Mean	Average	
62.04	59.76		61.46	60.35	
Departure	2.3°F		Departure	1.1°F	
Winter 2018 - 2019					
39th warmest			5th warmest		
Mean	Average		Mean	Average	
41.91	39.45		41.91	40.27	
Departure	2.3°F		Departure	1.6°F	
Year - 2019					
140 Yr. Average			11 Yr. Average		
4th warmest			2nd warmest		
Mean	Average		Mean	Average	
60.85	58.21		60.49	59.32	
Departure	2.6°F		Departure	1.2°F	

Because of the recent warm years note that all of Springfield Park's averages are larger and all departures are positive. Also, that the average temperature over the longer time period is less than a recent period of time.