

July 2019 Review

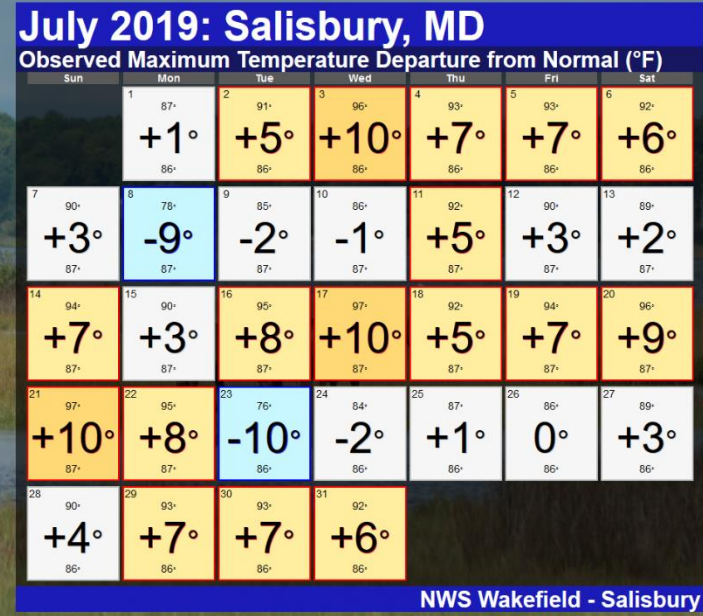
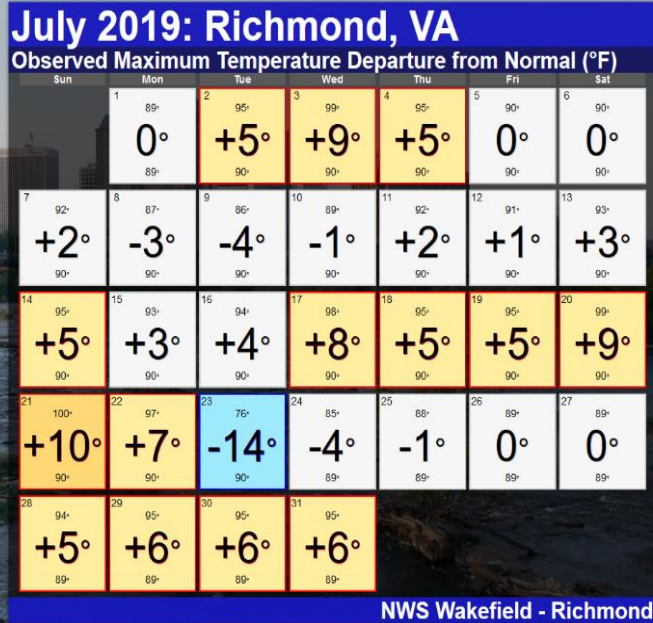
General Summary

July was generally warmer (hotter) than average across the local area, with most sites showing monthly temperature departures of 1 to 3 degrees warmer than the long term means. Richmond recorded its 7th warmest July on record while Norfolk fell a little short of a top ten warm ranking. Salisbury was 8th warmest and Elizabeth City was 10th, although rankings for these sites are not as significant given a shorter period of record than Richmond or Norfolk. The month generally began seasonably warm, but turned more consistently hot by mid-month. A heat wave dominated the pattern from the 17th through the 22nd; most of the area experienced multiple days with highs in the mid/upper 90s to around 100F and heat indices as high as 110F to 115F on the 20th and 21st. In terms of heat index, this was the most significant heat wave for the region since 2012. Due to the very humid air mass, actual high temperatures were not quite to record levels though a few record high minimums were set or tied at Norfolk and Elizabeth City, NC. A welcome respite from the heat prevailed from the 23rd through the 27th before conditions turned hot again (but not overly humid) to end the month.

Precipitation showed a lot of variability across the area for July 2019; this is typical during the summer months where locally heavy rainfall amounts occur from scattered hit or miss thunderstorms. Overall, the wettest region was located from the central Piedmont east through metro Richmond and to the lower VA eastern shore; amounts here averaged from 6 to 8 inches with a few locally higher amounts as well as some lower values. Conditions were somewhat dry compared to normal across much of the northern Piedmont to the northern Neck and MD eastern shore where monthly rainfall totals averaged from 2 to 4 inches (departures of 1.00" to 2.50" less than normal) . Far southern VA and NE NC generally received rainfall totals close to normal (within 1.00" of the long term means). There was still some local variation however, as NTU (Oceana/Virginia Beach) received nearly 9" for the month (almost 4" wetter than normal).

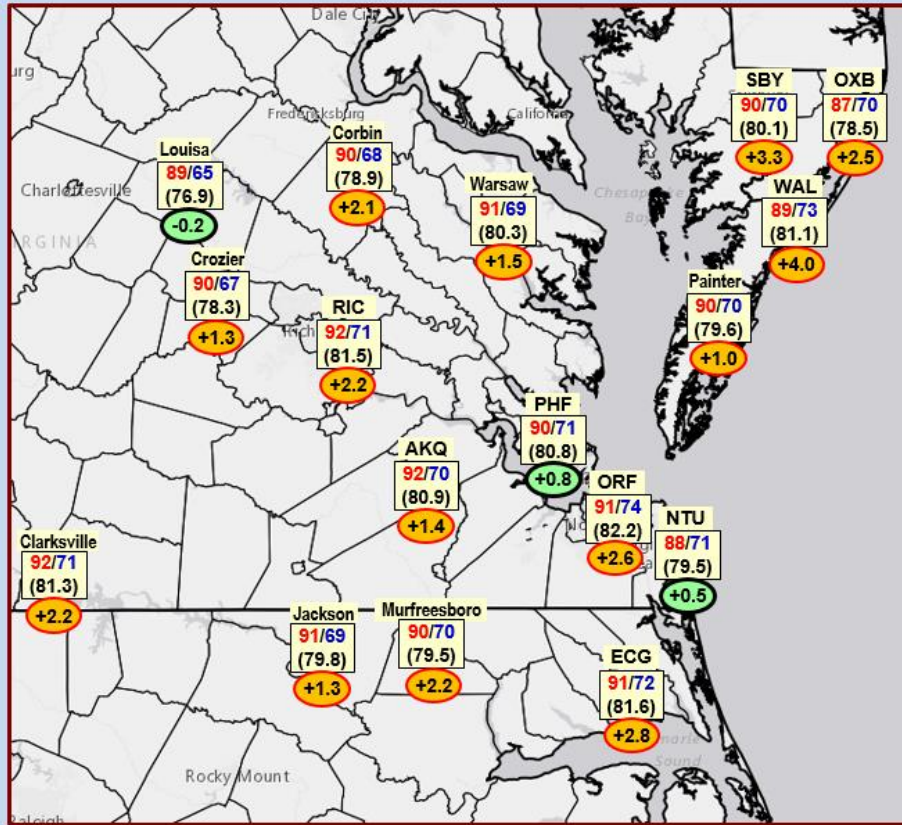
The series of pages that follow show various statistics for July 2019. The final page gives a climatological overview of what to expect for August.

Daily High Temperature Departures at Richmond & Salisbury

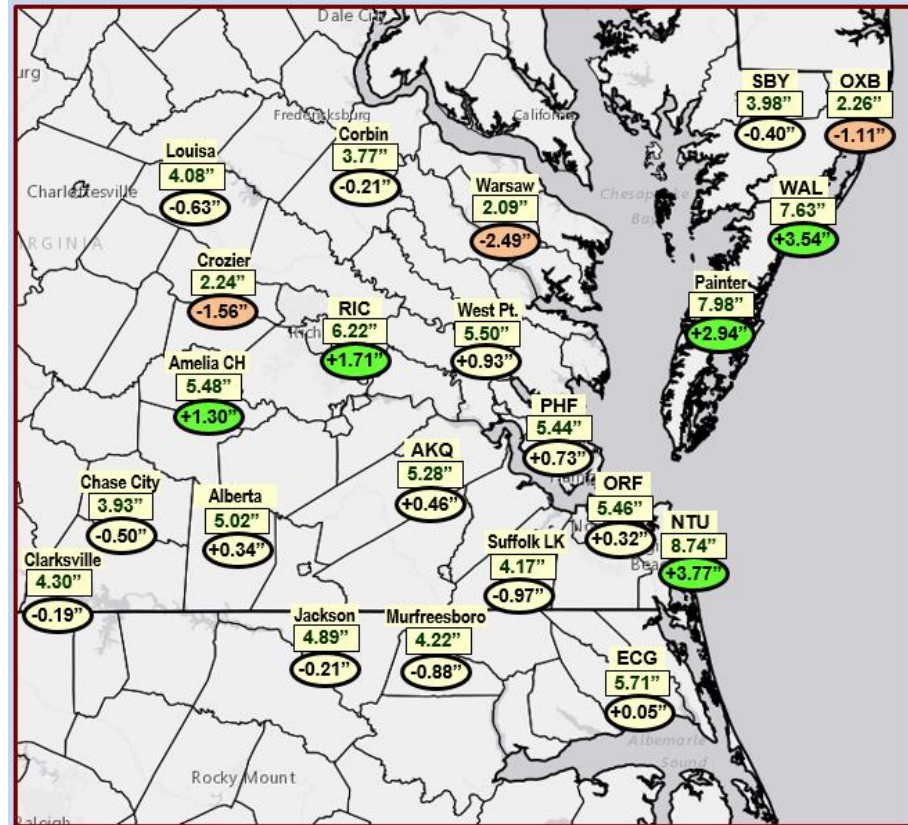


Regional Temperature & Precipitation Maps

July 2019 Temperature Data



July 2019 Precipitation Data



Departures from the 30-year normals (1981-2010) are shown for both **average temperature** and **total precipitation**. For temperature, the departures are shaded orange for 1 F or more warmer than average and blue for 1 F or more cooler than average (green shading indicates values within one degree of normal). Similarly, precipitation departures are shaded green for 1.00" or more wetter than average and tan for 1.00" or more drier than normal.

Tabular Summary of Data for Main Climate Sites:

July 2019 Temperature Summary Data *also on other dates									
Site	Avg Max		Avg Min		Avg Temp		Warmest	Coldest	Significance / Remarks (if Top Ten List, etc.)
	(°F)		(°F)		(°F)		(°F)	(°F)	
	Actual	Dep	Actual	Dep	Actual	Dep	Date	Date	
Richmond	92.3	2.6	70.8	1.9	81.5	2.2	100 on 21st	64 on 27th	7th Warmest on Record
Norfolk	90.7	3.3	73.7	1.8	82.2	2.6	100 on *22nd	67 on *10th	
Salisbury	90.4	3.9	69.8	2.8	80.1	3.3	97 on *21st	62 on 26th	8th Warmest on Record
Elizabeth City	90.9	3.4	72.3	2.3	81.6	2.8	97 on *22nd	63 on 28th	10th Warmest on Record
Wakefield	91.6	1.9	70.3	1.0	80.9	1.4	98 on *22nd	62 on 27th	N/A (data period too short)

July 2019 Precipitation & Snowfall Summary Data											
Site	Total Pre		# Pre Days		Greatest		Total Snow		# Snow Days		Significance / Remarks (if Top Ten List, etc.)
	(in.)		(≥0.01")		(in.)		(in.)		(≥0.1")		
	Actual	Dep	Actual	Dep	Actual	Date	Act	Dep	Act	Dep	
Richmond	6.22	1.71	11	0	2.05	4th	0.0	0.0	0	0	
Norfolk	5.46	0.32	8	-3	2.39	23rd	0.0	0.0	0	0	
Salisbury	3.98	-0.40	11	1	1.24	17th	0.0	0.0	0	0	
Elizabeth City	5.71	0.05	11	-1	2.94	23rd	0.0	0.0	0	0	
Wakefield	5.28	0.46	10	-1	1.91	23rd	0.0	0.0	0	0	

* **“Dep”= Departure** from the 30-year normals (1981-2010). Temperature departures are shaded orange for 1 F or more warmer than average and blue for 1 F or more cooler than average. Similarly, precipitation departures are shaded green for 0.50” or more wetter than average and tan for 0.50” or more drier than average and snowfall departures are shaded purple for 0.5” or more above average and tan for 0.5” or more below average.

Daily Records for Long Term Climate Sites:

Norfolk, VA Records (Period of Record 146 yrs./1874-2019)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: *80 (17th), *80 (21st)

Daily Precipitation: 2.39" (23rd).

Daily Snowfall: none set.

Richmond, VA Daily Records (Period of Record 123 yrs./1897-2019)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: none set.

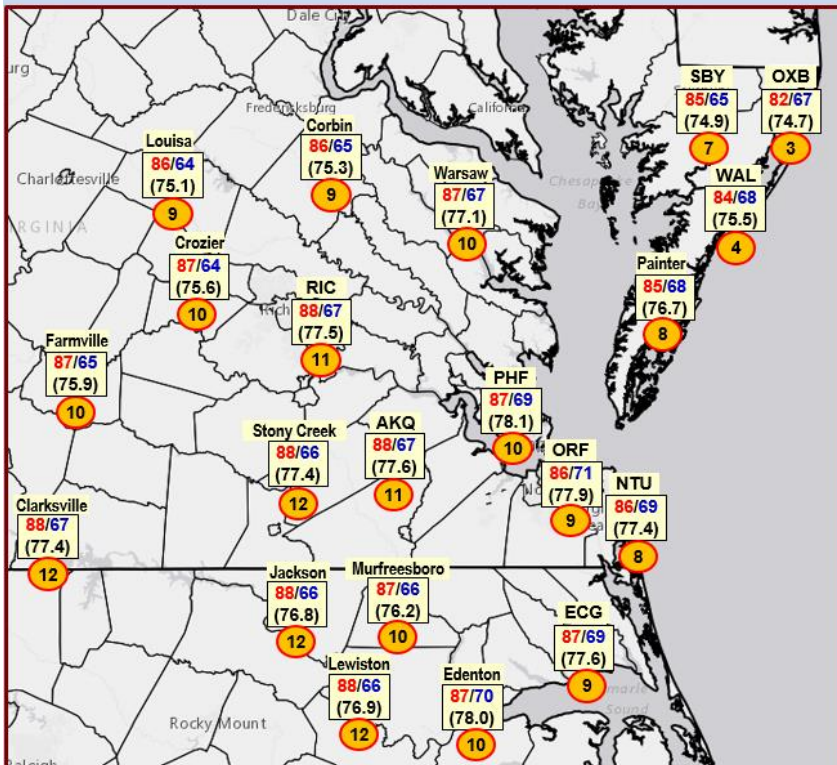
Daily Precipitation: 2.05" (4th).

Daily Snowfall: none set.

August Climatology

August is the final month of meteorological summer and on average experiences slightly cooler temperatures compared to July. There is enough year to year variability however that occasionally August will be the hottest month of the year. **Daily normal highs** average around 90F over the interior southern VA and NE NC during the first week of the month, falling to the mid to upper 80s by the end of the month. Near the coastal areas and over the northern interior, **daily highs** average in the upper 80s early in the month, falling to the mid 80s by month's end (locally highs are even a little cooler on the ocean side of the eastern shore). **Daily normal lows** generally range from the lower to mid 70s along the SE VA and NE NC coast, falling to around 70F by month's end. Inland, **daily lows** average in the upper 60s early in the month, falling to the mid 60s by the end of the month (over much of the central and northern Piedmont, lows are a little cooler, generally in the mid to upper 60s early, falling to the lower 60s by late in the month). Climatologically, August is the wettest month or among the wettest months of the year at most of our climate and co-op sites, however, the number of days with measurable rainfall is on average lower than in July. The following graphics depict the long term means for temperature and precipitation at various locations across the CWA. For temperature, the number shown in the **orange circle** is the mean number of days with a high of 90F or higher. Similarly for precipitation, the value in the **green circle** represents the mean number of days with measurable precipitation.

August Temperature (1981-2010 Climatology)



August Precipitation (1981-2010 Climatology)

