



July 2021 Review

General Summary

While temperatures were generally near normal and precipitation amounts were not overly excessive, July 2021 was an eventful month with numerous severe thunderstorm events primarily associated with a northwest flow aloft and with tropical storm Elsa affecting the region on the 8th and 9th. Elsa tracked through south central and southeast Virginia on the late evening hours of the 8th and eventually passed off the Delmarva coast early morning on the 9th bringing heavy rainfall to portions of the local area and strong winds near the coast with a few tornadoes across far southeast Virginia and northeast North Carolina. A relatively quiet but hot period followed from the 10th through the 16th with above normal temperatures and only spotty instances of showers and thunderstorms. The heat was then broken by a cold front pushing into the area on the 17th and this brought some severe thunderstorms to portions of the local area. From the 21st through the end of the month, a northwest flow aloft was in place much of the time and there were several active days with numerous strong to severe thunderstorms, particularly across the northeast half of the CWA.

The series of pages that follow discuss temperature and precipitation amounts in more details and show statistics for July 2021 in comparison to the new 1991-2020 normals.



Temperature

July 2021 was near normal for temperature across the region. While there was some local variation, the vast majority of sites ended up within one degree of the long term means. Temperature variation throughout the month was generally less than normal, with no major heat waves and conversely no periods with well below normal temperatures. At our 4 main climate sites with a long period of record, no record highs or record lows were set or tied; record warm minimums were set at Norfolk on the 17th (80) and at Elizabeth City on the 12th (77). Elizabeth City also recorded a record coolest maximum of 77 on the 19th. Most sites within the region recorded between 10 and 15 days with a high temperature at or above 90 F, with a few sites seeing between 15 and 20 days and some near the coast recording less than 10 such days. These values are near the long term 1991-2020 means.

The table below depicts the observed values compared to the new 1991-2020 normals.

July 2021 Temperature Summary Data <small>* also on other dates All Normals are 1991-2020</small>																			
Site	Avg Max		Avg Min		Avg Temp		Daily Highs						Daily Mins						Remarks
	(°F)		(°F)		(°F)		Warmest (°F)			Coldest (°F)			Warmest (°F)			Coldest (°F)			
	Actual	Dep	Actual	Dep	Actual	Dep	Actual	Date	Normal	Actual	Date	Normal	Actual	Date	Normal	Actual	Date	Normal	
Richmond	89.2	-0.3	69.8	0.6	79.5	0.1	96	1st	(99)	80	2nd	(78)	77	30th	(76)	61	*4th	(61)	
Norfolk	90.0	0.6	73.3	0.5	81.7	0.6	97	17th	(98)	81	*31st	(78)	80	17th	(79)	66	4th	(65)	
Salisbury	88.1	0.6	69.6	1.3	78.9	1.0	94	27th	(97)	77	2nd	(76)	77	13th	(77)	59	24th	(56)	
Wallops Island	85.7	-0.4	70.0	-0.4	77.8	-0.4	93	30th	(96)	75	2nd	(76)	75	*16th	(78)	62	*24th	(61)	
Elizabeth City	88.0	-0.2	71.0	0.0	79.5	-0.1	94	30th	(96)	77	19th	(80)	77	*17th	(78)	63	*24th	(62)	
Ashland, VA	88.7	2.0	68.3	0.7	78.5	1.3	95	29th	(95)	77	*3rd	(76)	75	30th	(75)	56	3rd	(58)	
Corbin, VA	88.1	0.7	66.8	0.0	77.4	0.3	93	*17th	(97)	79	3rd	(76)	74	*17th	(74)	56	3rd	(56)	
Louisa, VA	87.3	0.6	64.7	-0.5	76.0	0.0	92	1st	(96)	79	2nd	(77)	73	13th	(72)	53	3rd	(54)	
Norfolk South, VA	88.3	0.3	70.8	-0.3	79.5	0.0	94	*17th	(97)	78	19th	(77)	78	17th	(78)	63	23rd	(61)	
Painter, VA	88.0	0.4	70.5	1.1	79.3	0.8	95	1st	(96)	79	3rd	(78)	77	1st	(79)	61	23rd	(59)	
Wakefield, VA	88.9	-0.8	68.2	0.2	78.6	-0.2	94	*30th	(98)	77	2nd	(77)	75	*13th	(76)	57	4th	(58)	
Williamsburg, VA	87.3	-1.2	70.5	0.3	78.9	-0.4	92	*17th	(97)	75	2nd	(78)	77	30th	(77)	62	3rd	(60)	
Edenton, NC	87.9	-1.1	71.8	-0.2	79.9	-0.6	93	15th	(96)	80	19th	(80)	77	*30th	(79)	65	*29th	(62)	

* "Dep" = Departure from the 30-year normals (1991-2020). Temperature departures are shaded orange for 1 F or more warmer than average (dark red for 4 F or greater anomalies) and blue for 1 F or more cooler than average (dark blue for 4 F or more below normal).



Precipitation

July 2021 displayed a lot of variability from site to site with respect to total precipitation amounts. In general, amounts were above normal across south central Virginia and interior sections of southeast Virginia, with either near normal or below normal amounts recorded elsewhere. This variation was a result of heavy rainfall from localized thunderstorm activity, a typical occurrence in the summer months. In addition, tropical storm Elsa moving across the area on the night of the 8th through the early morning hours of the 9th brought the heaviest rainfall to south central and interior southeast VA with lesser amounts recorded to the northwest of metro Richmond and over northeast NC and Norfolk/Virginia Beach. Locally in excess of 4.00” was recorded from Elsa but most locations in the higher swath received between 1.50” and 3.00” of rainfall. At our 4 long term climate sites, the only daily precipitation record that was set was at Richmond on the 8th (1.94”). In terms of the number of days with precipitation for the month, most sites recorded less than the normal number of days for both measurable and 0.10” or greater, the exception being at the Wakefield office where 15 days of measurable rain was significantly above normal.

The table below depicts the observed values compared to the new 1991-2020 normals.

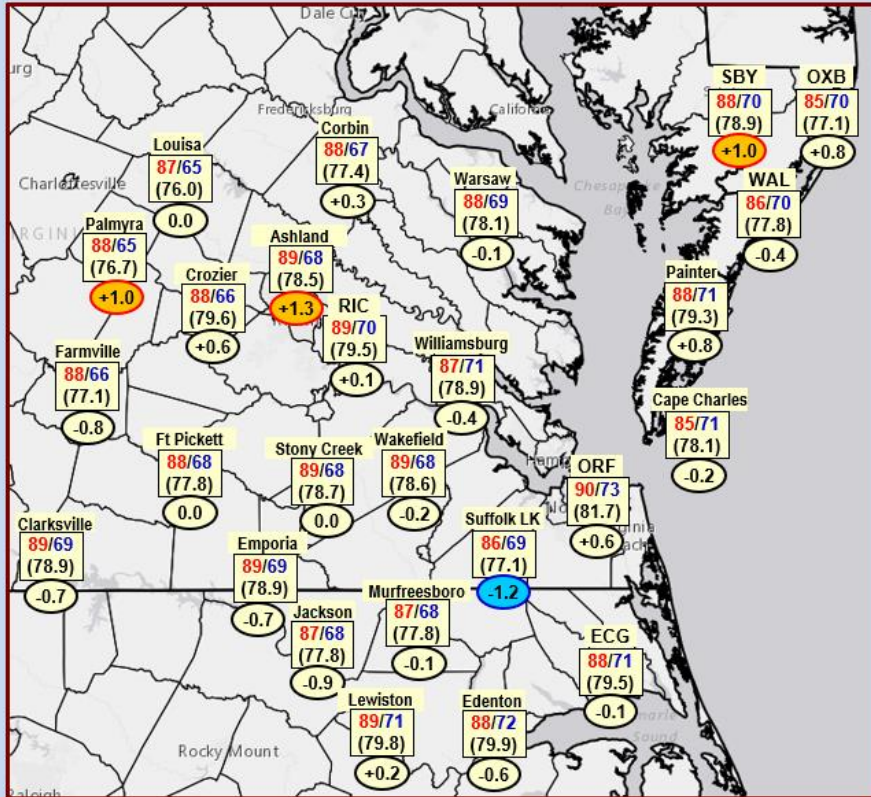
July 2021 Precipitation Summary Data										* also on other dates		All Normals are 1991-2020					
Site	Total Pre		# Pre Days (≥0.01")		# Pre Days (≥0.10")		Greatest (in.)		Total Snow (in.)		# Snow Days (≥0.1")		# Snow Days (≥1.0")		Greatest (in.)		Remarks
	Actual	Dep	Actual	Dep	Actual	Dep	Act	Date	Act	Dep	Act	Dep	Act	Dep	Actual	Date	
Richmond	6.59	2.22	7	-4	6	-2	1.94	8th									3 days 1.00" or more
Norfolk	2.63	-3.45	10	-1	3	-4	1.31	2nd									
Salisbury	4.22	-0.51	8	-2	5	-2	1.48	8th									
Wallops Island	4.97	0.60	9	-2	5	-2	1.52	8th									
Elizabeth City	4.04	-1.61	11	-1	9	1	0.88	8th									
Ashland, VA	3.33	-0.96	6	-4	3	-4	2.15	2nd									>50% of monthly total in one day
Corbin, VA	6.58	2.62	9	0	7	1	1.54	1st									4 days 1.00" or more
Louisa, VA	3.60	-0.58	11	0	7	0	0.87	25th									
Norfolk South, VA	2.88	-2.83	10	-1	5	-3	1.09	8th									
Painter, VA	5.92	0.93	8	-2	6	-1	3.81	2nd									>50% of monthly total in one day
Wakefield, VA	9.54	4.07	15	4	7	-1	2.30	8th									4 days 1.00" or more
Williamsburg, VA	8.19	2.27	11	-1	9	0	2.17	1st									
Edenton, NC	4.42	-1.62	10	0	8	0	1.65	8th									

* “Dep”= Departure from the 30-year normals (1991-2020). Precipitation departures are shaded green for 0.50” or more wetter than average (dark green for 2.00” or more) and tan for 0.50” or more drier than average (dark brown for 2.00” or more drier).

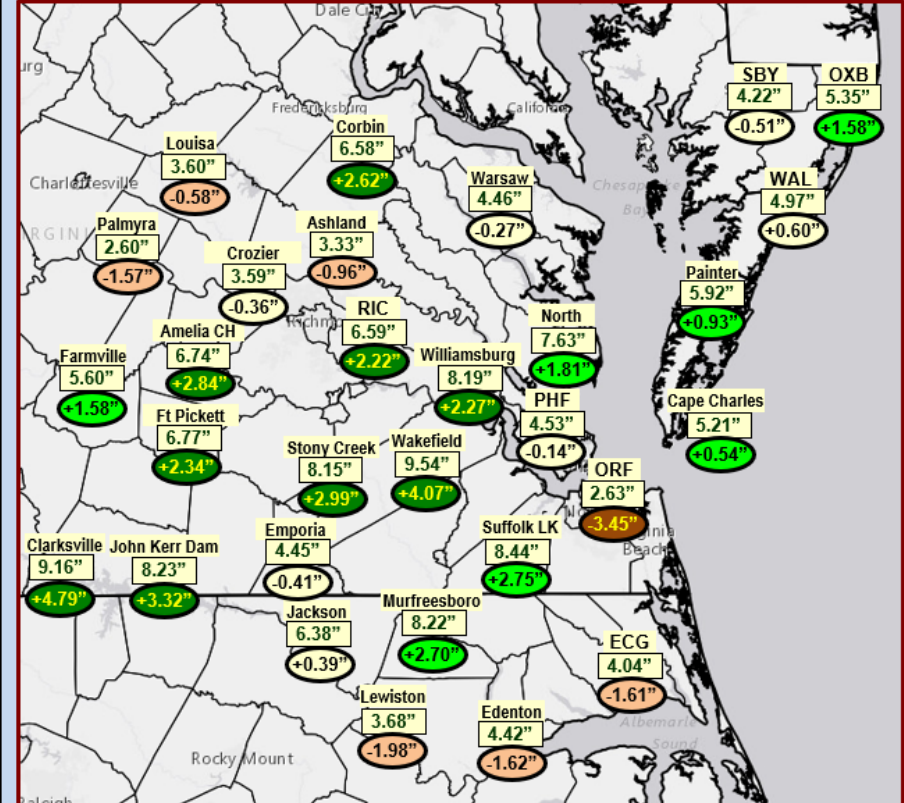


Regional Temperature & Precipitation Maps

July 2021 Temperature Data



July 2021 Precipitation Data



Departures from the 30-year normals (1991-2020) 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 (values within one degree of normal are shaded the same color as the temperature box). Similarly, precipitation departures are shaded green for 0.50" or more wetter than average (dark green for 2.00" or more) and tan for 0.50" or more drier than average (dark brown for 2.00" or more drier). Near normal values (within 0.50" of normal) are shaded the same color as the precipitation amount box.



Daily Records for Long Term Climate Sites (July):

Norfolk, VA Records (Period of Record 148 yrs./1874-2021)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: 80 (17th).

Daily Precipitation: none set.

Richmond, VA Daily Records (Period of Record 125 yrs./1897-2021)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: none set.

Daily Precipitation: 1.94" (8th)

Salisbury, MD Daily Records (Period of Record 115 yrs./1907-2021)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: none set.

Daily Precipitation: none set.

Elizabeth City, NC Daily Records (Period of Record 88 yrs./1934-2021)

**tie*

Record Highs: none set.

Record Low Maximums: 77 (19th)

Record Lows: none set.

Record High Minimums: 77 (12th)

Daily Precipitation: none set.