

August 2023 Climate Review

Temperature Overview

August 2023 featured near to slightly warmer than normal temperatures across the local area, though there was a fair amount of day-to-day variation during the month. Across the continental US, the pattern continued to be dominated by a very strong upper-level ridge that was mostly in place from the west coast down through the central and southern tier of the nation, with an upper-level trough often anchored from the Great Lakes to New England (see Figure 1 for national temperature departures). Regionally, the state of Virginia was close to average (46th warmest August on record), while North Carolina had its 20th warmest, and Maryland its 33rd warmest (period of record is 129 years 1895-2023). Locally, average temperatures were mainly 0.5 to 1.5 degrees warmer than the long-term means, with a handful of sites almost exactly normal.

Looking at daily high temperature departures at Richmond and Norfolk (Figure 3), the month started off rather cool and pleasant following the heat wave that occurred at the tail end of July; highs were in the upper 70s to mid 80s with low humidity and Elizabeth City even set a daily record low of 59° on the 3rd. The middle portion of the month was hot with high levels of humidity; Elizabeth City set daily record highs from the 13th through the 15th and tied a record high min on the 13th when the low only dropped to sultry 79°. Heat indices on the 15th ranged from 100° to 105° across central Virginia, 105° to 110° across southeast Virginia, with values as high as 116° at Elizabeth City. Another hot period occurred going into the final weekend of the month with highs in the mid to upper 90s though humidity levels were not as high during this stretch. Richmond recorded 8 days with a daily high 5 or more degrees above normal while Norfolk had 6 such days. As for days with a high 5 or more degrees cooler than normal, Richmond had 5 while Norfolk had 8 such days.

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Precipitation Overview

August 2023 rainfall was generally drier than normal across the NWS Wakefield's County Warning Area (CWA), though as is the case in a summer scattered thunderstorm pattern, there were some notable exceptions to this as heavy downpours occurred over localized areas. Across Hampton Roads, Norfolk saw its 3rd consecutive month with above normal rainfall, enough to make the summer of 2023 (June-August) the 6th wettest on record since records began in 1874 with a 3-month total of 23.38". Meanwhile, not too far to the south, Elizabeth City recorded its 4th consecutive month with rainfall amounts significantly drier than average; the 3-month total for June-August of just 9.87" ranks as the 10th driest summer on record (since 1934). Similarly dry summer conditions prevailed just to the north of Richmond where the Ashland co-op station recorded just 2.24" for the month, the 4th consecutive month with well below normal rainfall.

Severe weather was observed on a few days of the month, the most notable being on the 7th when multiple strong wind and large hail reports were recorded, and on the 15th, when there were more high wind reports.

The following table on page 3 shows detailed temperature and precipitation statistics for August 2023 at many locations within the Wakefield CWA, followed by page 4 with the same table for meteorological summer (June-August). Page 5 shows national temperature departures and rankings. On page 6, daily high temperature departures are shown at Richmond and Norfolk, followed by monthly precipitation maps (page 7), with daily records set during the month at our 4 main climate sites on the last page.

Tabular Summary of Data for Selected Climate Sites (August):

August 2023 Temperature Summary Data																* also on other dates			All Normals are 1991-2020		
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	Dep	Actual	Date	Dep	Actual	Date	Dep	Actual		Date	Dep		
Richmond	88.8	1.3	69.0	1.4	78.9	1.4	97	*25th	0	78	28th	3	76	26th	1	61	*31st	2	14 days 90+		
Norfolk	86.5	-0.4	72.8	1.2	79.7	0.5	96	*15th	1	78	31st	2	78	13th	0	66	3rd	2	9 days 90+		
Salisbury	86.0	0.6	67.9	1.6	77.0	1.2	93	*26th	-2	75	4th	0	77	15th	2	57	31st	3	7 days 90+		
Wallops Island	84.2	0.0	70.5	1.8	77.4	0.9	95	13th	2	74	*31st	-1	78	14th	2	61	*31st	2	3 days 90+		
Elizabeth City	88.9	2.1	70.6	0.6	79.7	1.3	98	*15th	3	76	31st	-2	79	13th	2	59	3rd	0	14 days 90+		
Ashland, VA	86.8	1.7	66.9	0.7	76.9	1.2	96	13th	3	75	28th	1	78	14th	4	57	23rd	1	10 days 90+		
Corbin, VA	86.1	0.5	64.7	-0.4	75.4	0.0	96	25th	1	75	28th	1	74	15th	1	55	*23rd	1	11 days 90+		
Louisa, VA	85.2	-0.1	63.2	-0.4	74.2	-0.2	92	25th	-3	77	3rd	1	73	15th	1	50	19th	-2	5 days 90+		
Painter, VA	85.8	0.3	68.9	1.5	77.4	1.0	93	*16th	0	76	4th	0	77	15th	0	59	*20th	1	5 days 90+		
Wakefield, VA	87.5	-0.2	67.3	1.0	77.4	0.4	97	13th	1	75	4th	0	75	13th	1	58	*3rd	2	11 days 90+		
Williamsburg, VA	86.8	0.3	68.9	0.2	77.9	0.3	96	13th	1	76	28th	0	75	*26th	-1	61	*3rd	2	9 days 90+		
Edenton, NC	87.7	0.9	71.9	1.3	79.8	1.1	98	13th	4	80	*31st	1	78	13th	1	60	3rd	0	11 days 90+		

August 2023 Precipitation & Snowfall Summary Data													* also on other dates			All Normals are 1991-2020		
Site	Total Pre		# Pre Days		# Pre Days		Greatest		Total Snow		# Snow Days		# Snow Days		Greatest		Remarks	
	(in.)		(≥0.01")		(≥0.10")		(in.)		(in.)		(≥0.1")		(≥1.0")		(in.)			
	Actual	Dep	Actual	Dep	Actual	Dep	Act	Date	Act	Dep	Act	Dep	Act	Dep	Daily	Date		Storm
Richmond	2.08	-2.82	7	-2	4	-3	1.06	8th										
Norfolk	7.47	1.59	10	0	8	1	2.35	4th										
Salisbury	2.02	-3.25	9	0	3	-3	1.06	7th										
Wallops Island	2.73	-1.59	8	-1	5	-1	1.18	14th										
Elizabeth City	3.82	-1.50	10	-2	7	0	1.36	31st										
Ashland, VA	2.24	-1.67	9	1	5	-1	0.95	27th										
Corbin, VA	2.72	-0.77	9	1	6	0	1.10	29th										
Louisa, VA	1.85	-1.83	8	-1	7	1	0.44	3rd										
Painter, VA	2.09	-2.39	6	-4	5	-2	1.12	4th										
Wakefield, VA	5.80	0.30	10	0	8	1	1.87	28th										
Williamsburg, VA	5.96	0.28	12	1	7	0	3.35	28th										
Edenton, NC	7.05	0.89	10	1	7	-1	2.68	31st										

* **“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). 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). Snowfall departures are shaded purple for 1” or more above average and tan for 1” or more below average.

Tabular Summary of Data for Selected Climate Sites (June-August):

Summer (Jun-Jul-Aug) 2023 Temperature Summary Data																		* also on other dates		All Normals are 1991-2020	
Site	Avg Max		Avg Min		Avg Temp		Daily Highs						Daily Mins						# Days 90F+		
	(°F)		(°F)		(°F)		Warmest (°F)			Coldest (°F)			Warmest (°F)			Coldest (°F)			Summer	2023	
	Actual	Dep	Actual	Dep	Actual	Dep	Actual	Date	Dep	Actual	Date	Dep	Actual	Date	Dep	Actual	Date	Dep	(Jun-Aug)	(through 9/18)	
Richmond	87.5	0.0	67.4	0.3	77.5	0.2	98	7/28	-2	69	6/21	-2	77	7/28	0	51	6/5	-2	37	44	
Norfolk	85.6	-1.6	70.8	0.0	78.2	-0.8	97	7/3	-2	66	6/4	-4	80	7/29	0	52	6/5	-4	23	27	
Salisbury	85.6	0.3	66.2	0.5	75.9	0.4	94	*7/29	-4	68	6/22	0	80	7/28	2	50	6/9	4	23	30	
Wallops Island	83.4	-0.5	68.9	0.8	76.2	0.2	95	8/13	-1	65	6/4	-3	82	7/28	3	52	6/5	0	11	15	
Elizabeth City	87.1	0.3	68.7	-0.7	77.8	-0.3	98	*8/15	1	67	6/4	-6	80	7/14	1	46	6/5	-8	33	38	
Ashland, VA	85.4	0.5	64.9	-0.8	75.2	-0.1	96	*8/13	0	68	6/22	-2	78	8/14	3	51	*6/6	0	19	26	
Corbin, VA	85.2	-0.2	63.8	-1.0	74.5	-0.6	96	8/25	-2	66	6/22	-3	74	*8/15	-1	49	*6/9	1	23	29	
Louisa, VA	84.6	-0.5	61.4	-1.8	73.0	-1.1	94	7/28	-3	64	6/22	-6	75	7/28	1	44	6/9	-2	12	18	
Painter, VA	84.5	-1.0	67.7	0.6	76.1	-0.2	93	*8/16	-4	72	6/21	2	80	7/28	0	49	6/5	-3	17	22	
Wakefield, VA	86.7	-1.0	66.2	0.3	76.5	-0.3	97	8/13	-2	70	6/21	-1	78	7/28	2	49	6/5	0	32	40	
Williamsburg, VA	85.8	-0.7	67.8	-0.3	76.8	-0.5	96	8/13	-2	72	6/8	0	79	7/28	1	51	6/5	-1	23	29	
Edenton, NC	86.6	-0.7	70.0	-0.2	78.3	-0.4	98	*8/13	1	73	6/4	0	79	7/29	-1	49	6/5	-5	28	29	

Summer (Jun-Jul-Aug) 2023 Precipitation Summary Data												* also on other dates		All Normals are 1991-2020		
Site	Total Pre		# Pre Days		# Pre Days		Greatest	Total Snow		# Snow Days		# Snow Days		Greatest		Remarks
	(in.)		(≥0.01")		(≥0.10")		(in.)	(in.)		(≥0.1")		(≥1.0")		(in.)		
	Actual	Dep	Actual	Dep	Actual	Dep	Act	Date	Act	Dep	Act	Dep	Act	Dep	Daily	
Richmond	11.54	-2.37	32	1	17	-4	2.03	7/16								
Norfolk	23.38	6.99	30	-1	23	3	2.35	8/4								6th Wettest Summer
Salisbury	10.86	-3.17	30	-1	20	0	2.26	7/16								
Wallops Island	11.47	-0.61	31	1	18	0	1.74	6/21								
Elizabeth City	9.87	-5.81	33	-1	19	-4	1.97	7/3								10th Driest Summer
Ashland, VA	8.39	-4.39	23	-4	16	-4	1.82	7/16								
Corbin, VA	10.81	-0.61	25	-1	14	-5	2.57	7/17								
Louisa, VA	12.62	0.43	30	-1	21	0	2.81	7/16								
Painter, VA	15.80	1.89	22	-8	20	-1	2.85	6/20								
Wakefield, VA	17.66	1.91	33	1	24	2	1.87	8/28								
Williamsburg, VA	14.36	-1.40	33	-1	20	-3	3.35	8/28								
Edenton, NC	15.19	-1.93	29	2	21	-2	2.68	8/31								

* "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). 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). Snowfall departures are shaded purple for 1" or more above average and tan for 1" or more below average.

National Temperature Departure: August 2023

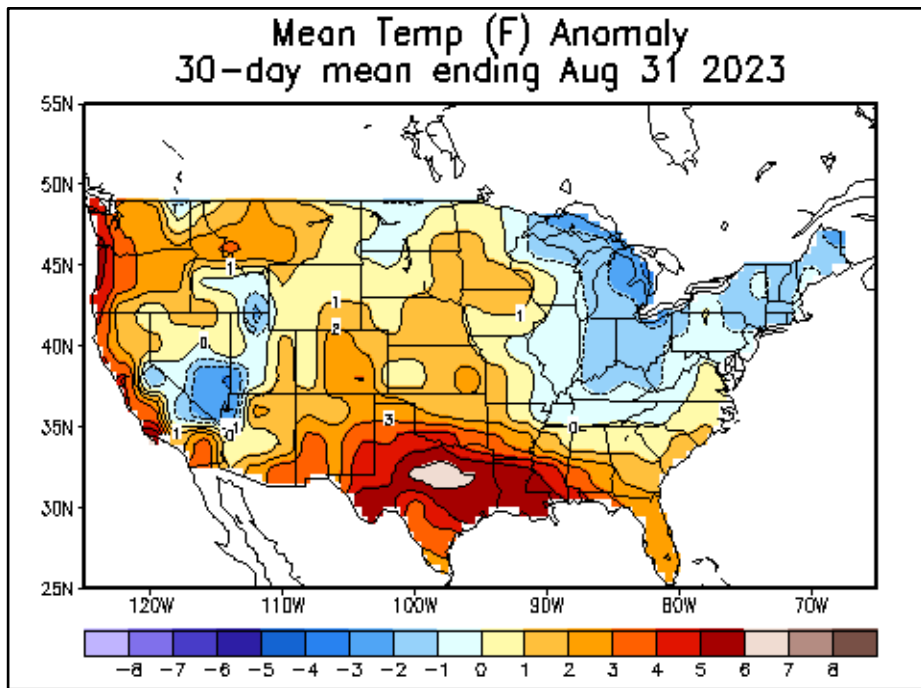
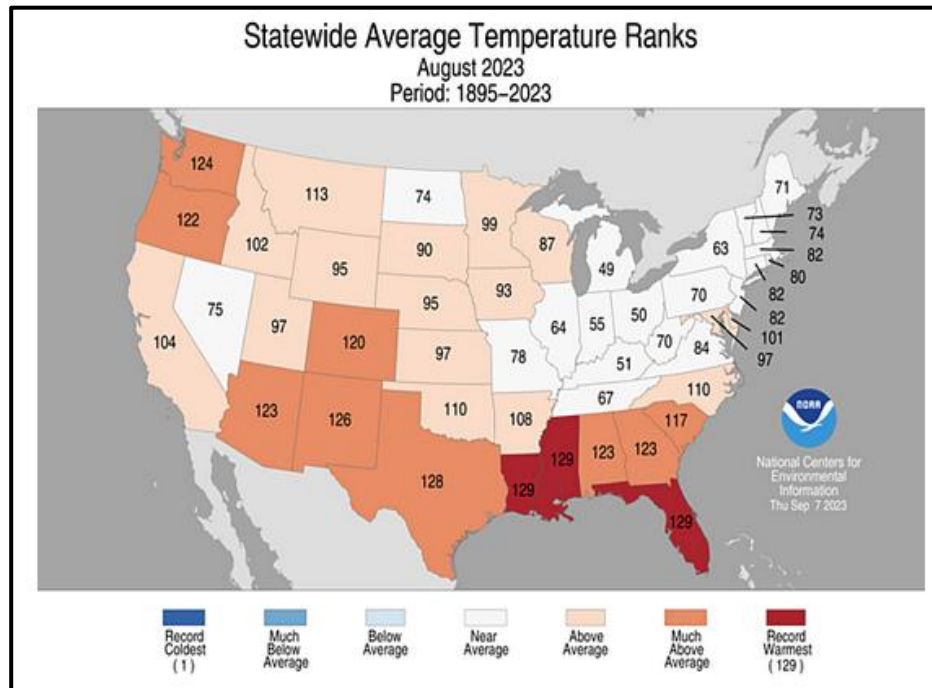


Figure 1: (source: CPC)



Daily High Temperature Departures at Richmond & Norfolk, VA

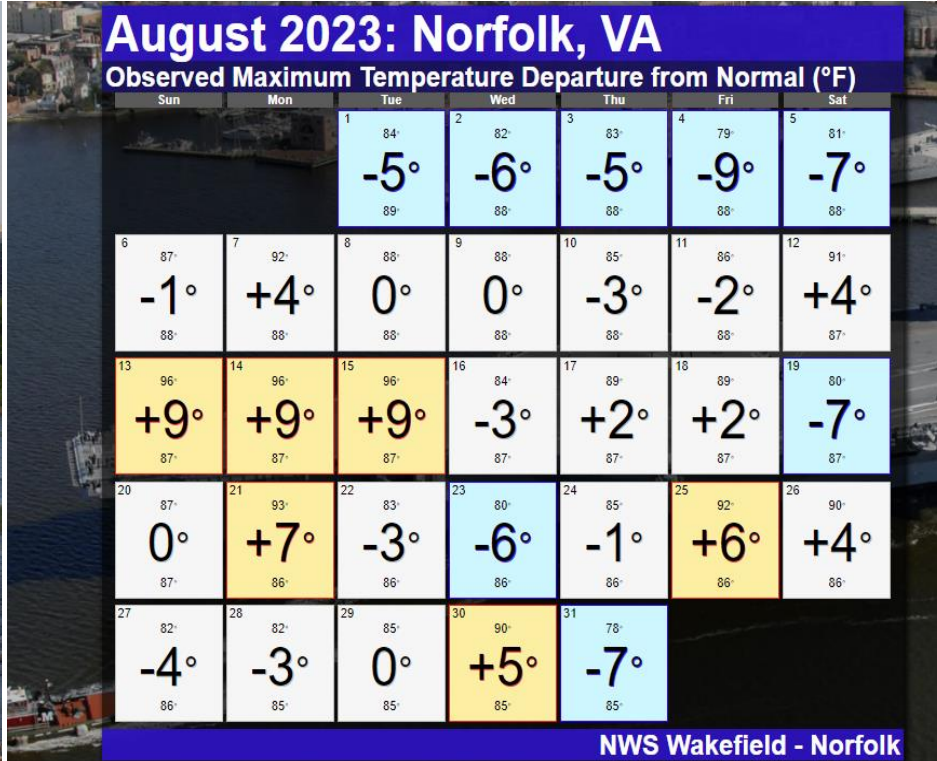
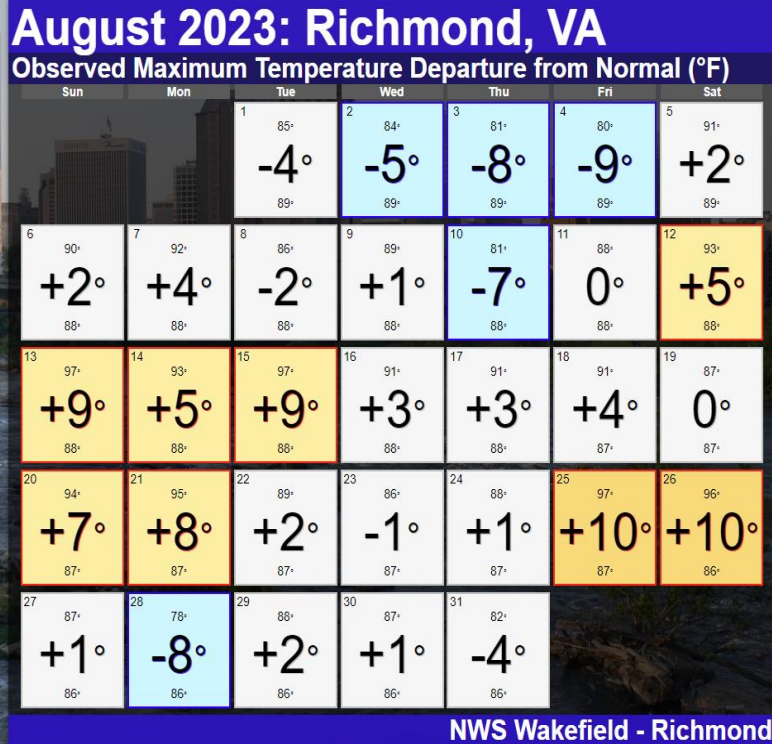
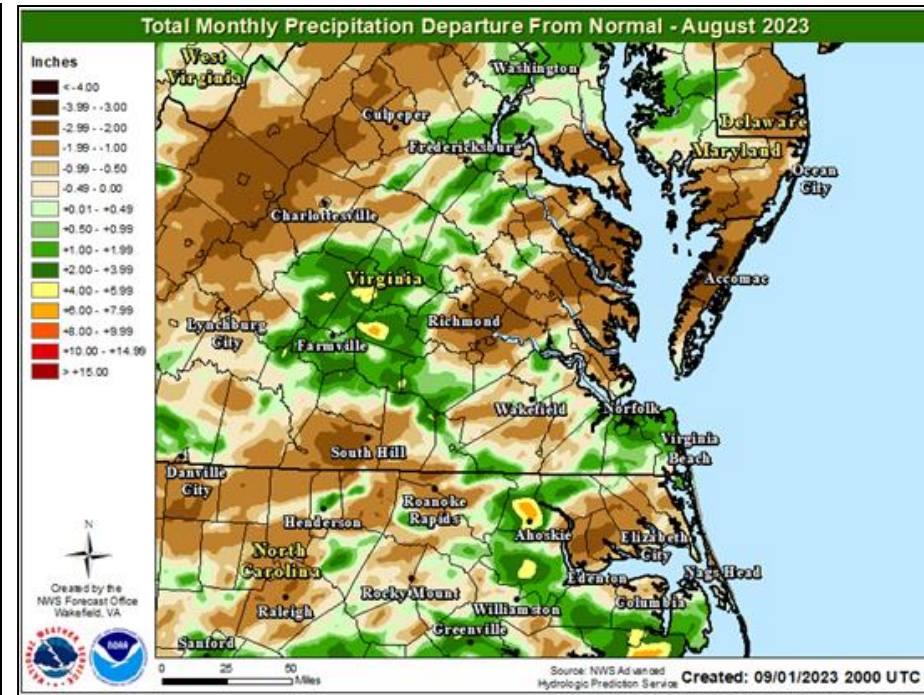
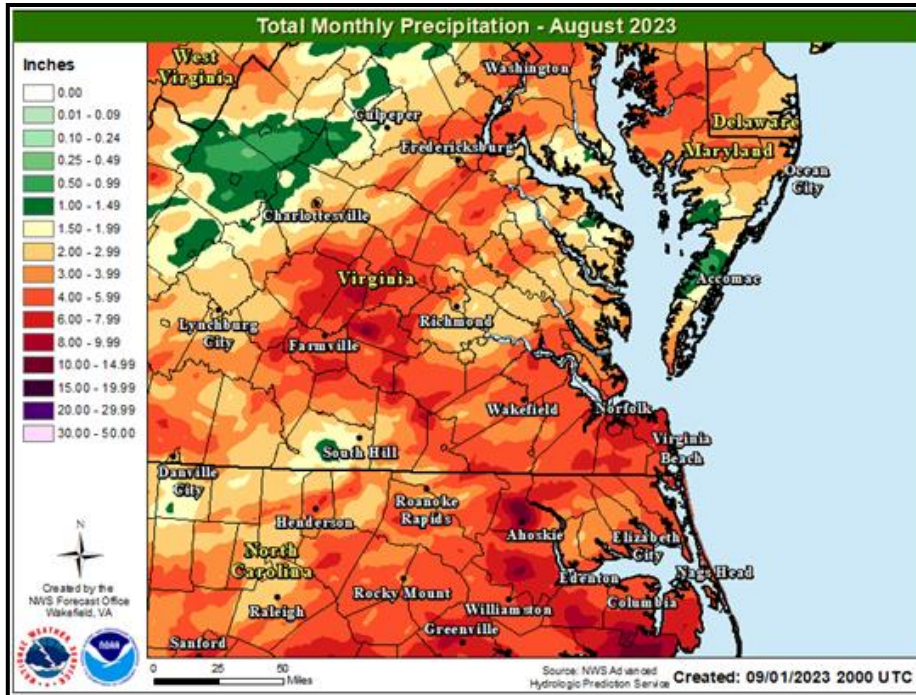


Figure 3: Daily High Temperature Departures at RIC and ORF

Regional Precipitation Maps: August 2023



Total Precipitation for the month is shown in the map on the left. **Departures** from the 30-year normals (1991-2020) are shown on the map on the right.

Daily Records for Long Term Climate Sites (August):

Norfolk, VA Records (Period of Record 150 yrs./1874-2023)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: 77 (26th).

Daily Precipitation: none set.

Richmond, VA Daily Records (Period of Record 127 yrs./1897-2023)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: 76 (26th).

Daily Precipitation: none set.

Salisbury, MD Daily Records (Period of Record 117 yrs./1907-2023)

**tie*

Record Highs: none set.

Record Low Maximums: none set.

Record Lows: none set.

Record High Minimums: 77 (15th).

Daily Precipitation: none set.

Elizabeth City, NC Daily Records (Period of Record 90 yrs./1934-2023)

**tie*

Record Highs: 98 (15th), 96 (14th), 98 (13th).

Record Low Maximums: none set.

Record Lows: 59 (3rd).

Record High Minimums: 79 *(13th).

Daily Precipitation: none set.