



The Month in Review: March 2021
National Weather Service
Charleston, WV

Photo courtesy of the National
Weather Service Charleston, WV

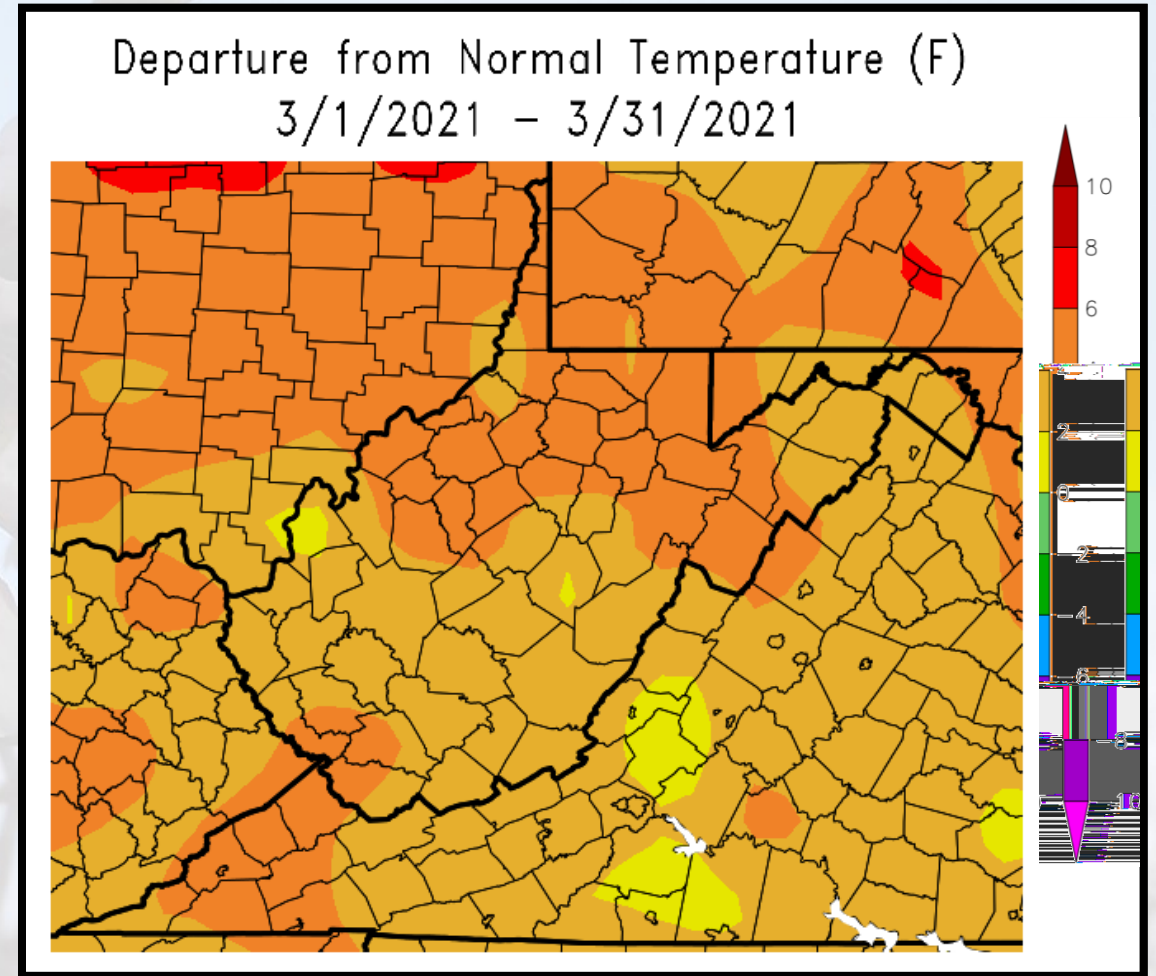
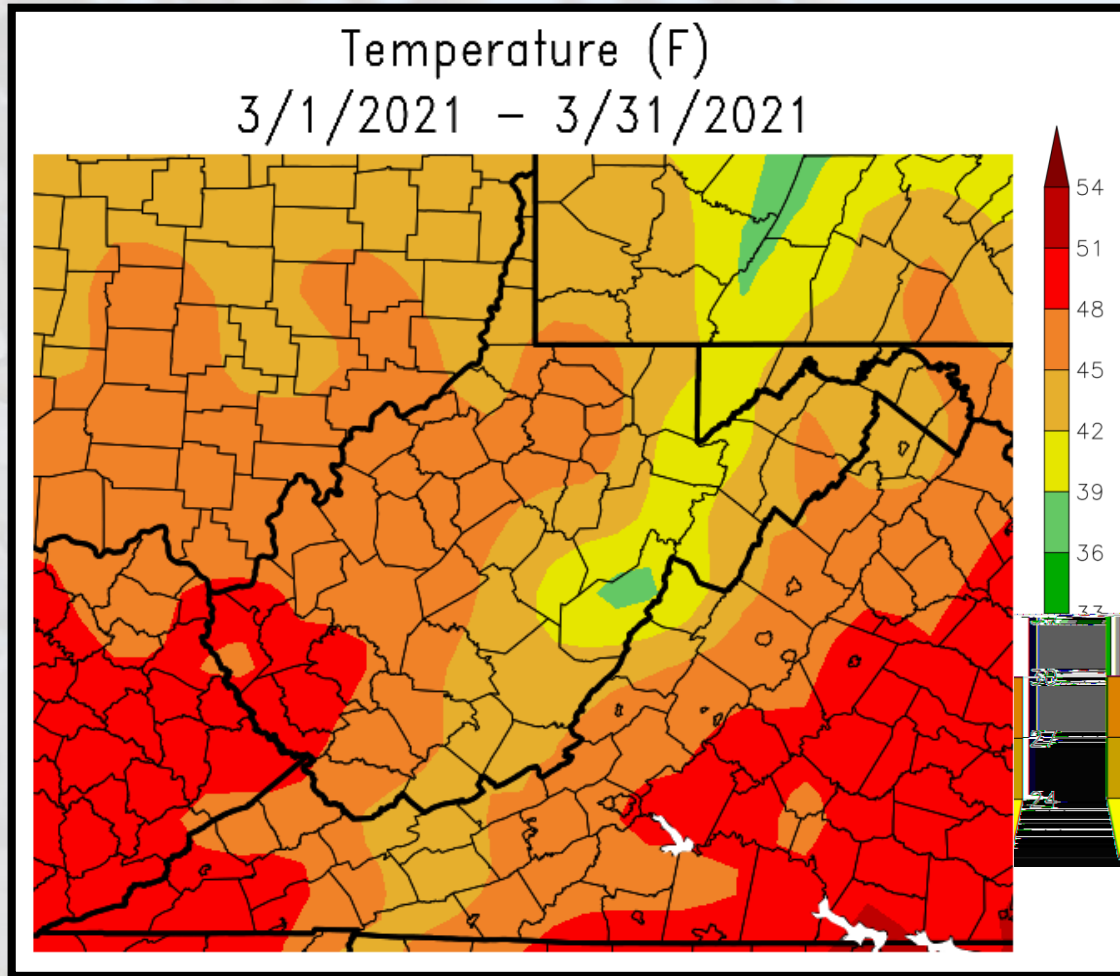
March 2021 Climate Summary

March was characterized by above normal temperatures across the region. Precipitation totals however varied significantly, with above normal precipitation in southwest locations, and below normal precipitation for areas further north and east. Snowfall was well below normal to non-existent in spots. Records for the least snowiest March were tied at Beckley (Trace), Charleston (0.0"), Elkins (Trace), and Huntington (0.0").

After an active start to the month with heavy rainfall and flooding (including moderate river flooding on some local rivers across the region), the area experienced an extended period of quiet weather, going from a flooding threat, to that of a fire threat within the course of a week! Active weather would move back in near mid-month as severe thunderstorms affected the region on March 18th with large hail, damaging winds, and isolated flash flooding. The month would wrap up with a few systems affecting the area, with the main impacts being high wind on March 25-26th and heavy rainfall/high wind on March 27-28th. A strong cold front would move through on the last day of the month, ushering in much colder weather for the start of April.

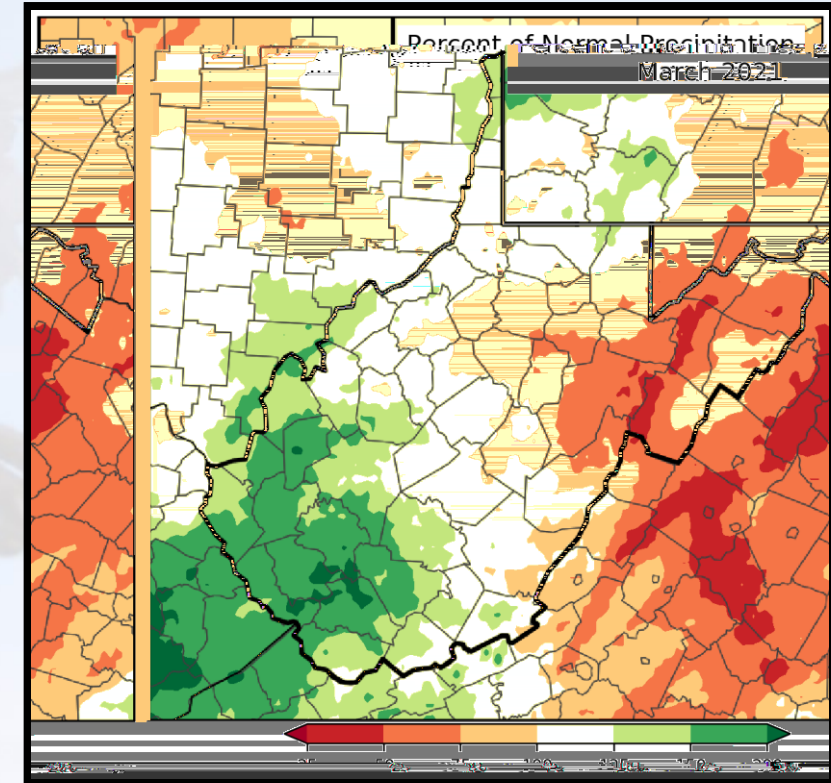
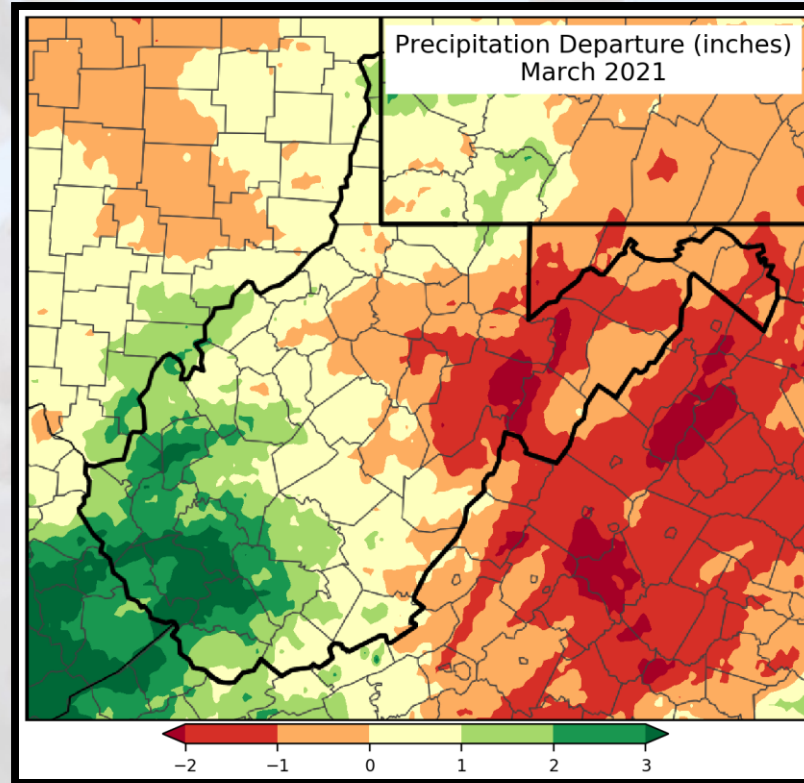
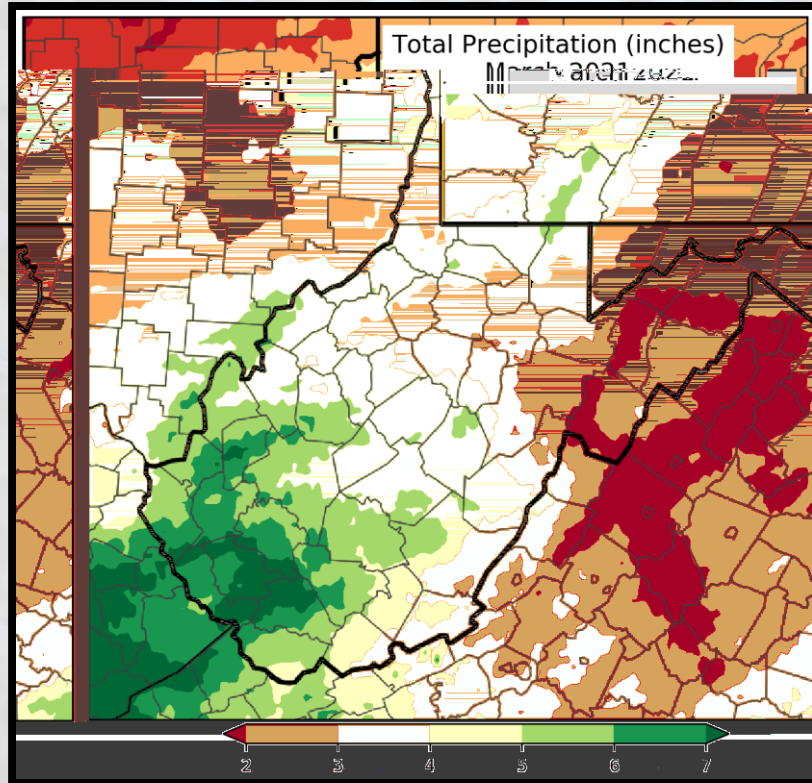
Event summaries for significant events will be provided, along with temperature/precipitation departures for March and year to date. In addition, a record events list for the month of March as well as temperature/precipitation outlooks are also included.

March 2021 Average Temperature/Departure



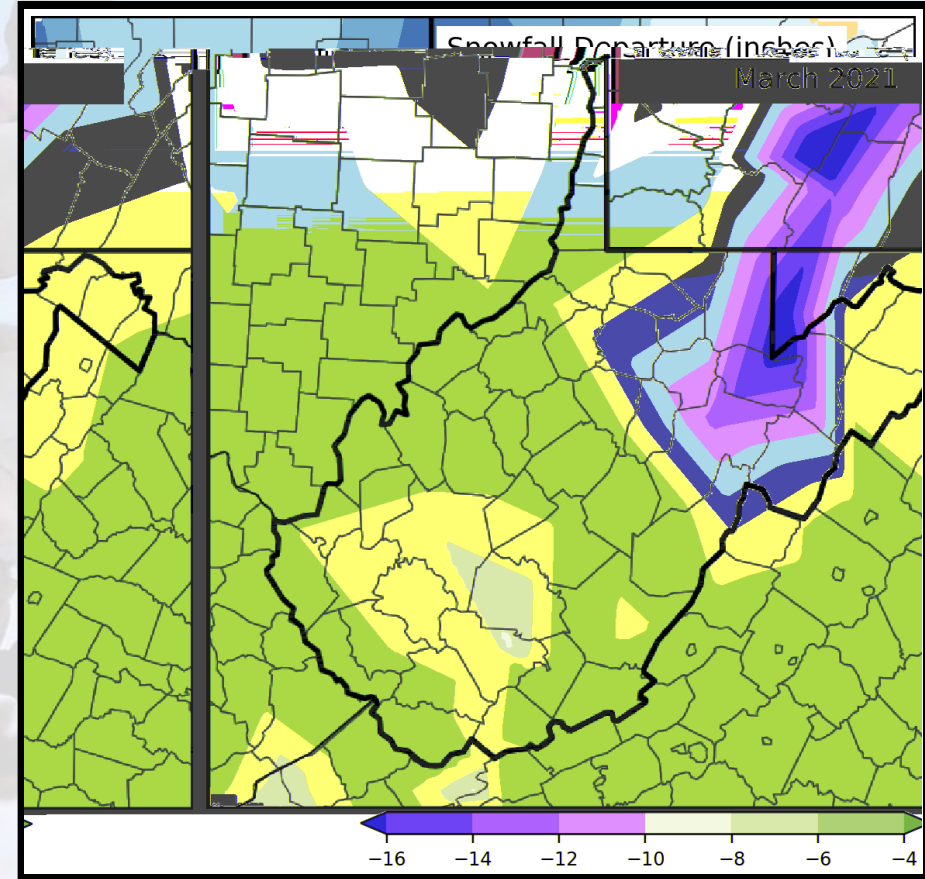
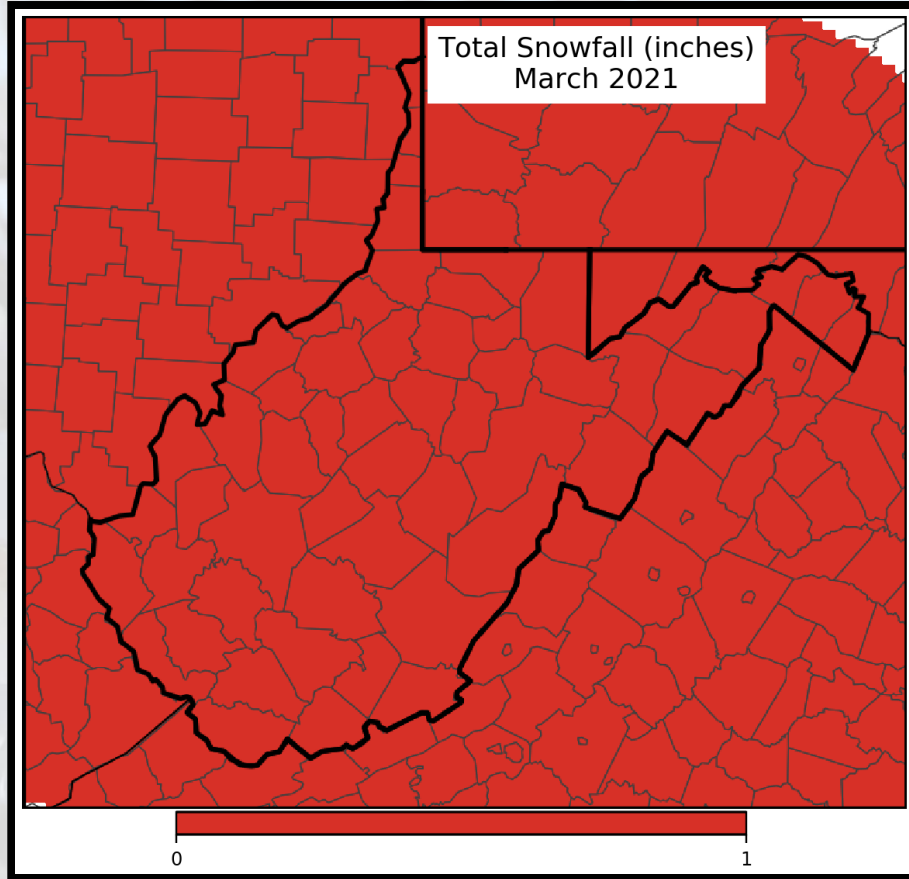
Temperatures areawide were above normal for the month, generally ranging from 2-6 degrees above normal.

March 2021 Precipitation/Departure/Percent of Normal



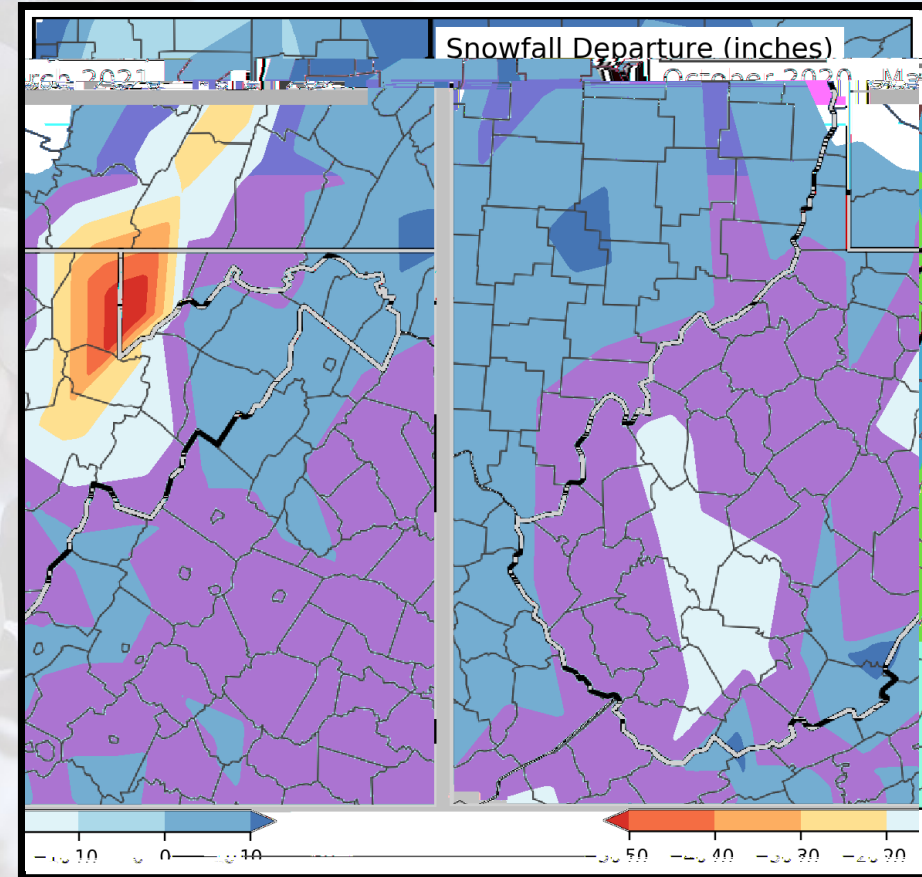
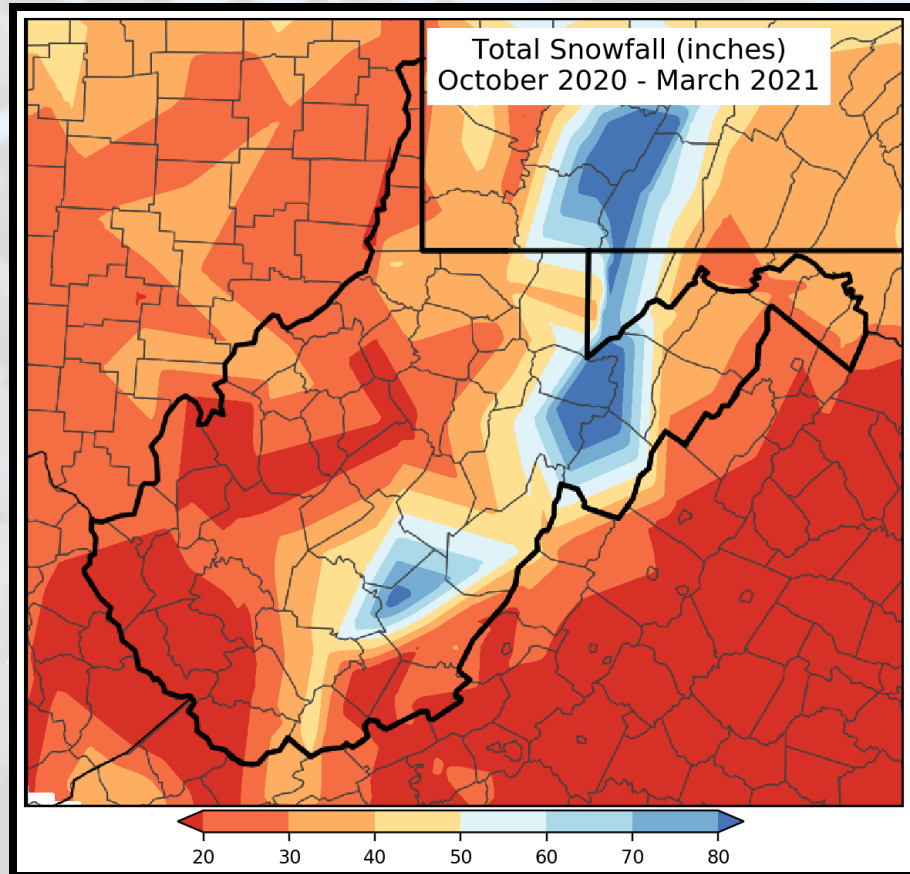
March featured a significant spread in precipitation totals from southwest heading north and east across the region. Above normal precipitation was seen across southwest locations, while further north and eastward it was a fairly dry month, with amounts well below normal. For example, Beckley at 4.85" had over twice the rainfall of that of Elkins at 2.27"!

March 2021 Snowfall/Departure



March was significantly below normal for snowfall in the area, with generally less than an inch being reported even at the higher elevations. Some locations at lower elevations ended with 0.0" or a trace for the month, resulting in records for least snowfall being tied in several locations. Snowfall departures were largest in the higher terrain across the eastern portions of the region.

Seasonal Snowfall to Date/Seasonal Departure (Through the end of March)



Seasonal snowfall departures vary across the region, with a large portion of West Virginia being below normal (to varying degrees). Some neighboring areas outside of West Virginia are close to normal or in a slight surplus for the season (e.g., Northeast Kentucky and portions of Southeast Ohio).

March 2021 Drought Monitor

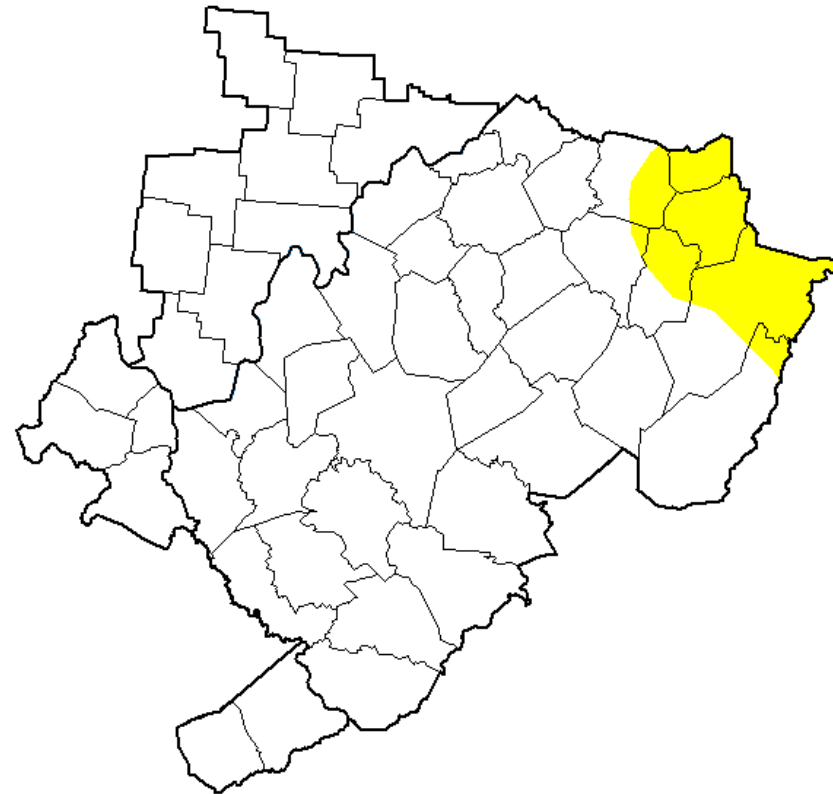
With well below normal precipitation across the far northeast portions of the region for the month, a D0 (abnormally dry) area was present by the end of March. It encompassed approximately 7.4% of the area.

U.S. Drought Monitor Charleston, WV WFO

March 30, 2021
(Released Thursday, Apr. 1, 2021)
Valid 8 a.m. EDT

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	92.63	7.37	0.00	0.00	0.00	0.00
Last Week 03-23-2021	100.00	0.00	0.00	0.00	0.00	0.00
3 Months Ago 12-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
Start of Calendar Year 12-29-2020	100.00	0.00	0.00	0.00	0.00	0.00
Start of Water Year 09-29-2020	94.33	5.67	0.00	0.00	0.00	0.00
One Year Ago 03-31-2020	100.00	0.00	0.00	0.00	0.00	0.00



Intensity:

- None
- D0 Abnormally Dry
- D1 Moderate Drought
- D2 Severe Drought
- D3 Extreme Drought
- D4 Exceptional Drought

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. For more information on the Drought Monitor, go to <https://droughtmonitor.unl.edu/About.aspx>

Author:

Brad Pugh
CPC/NOAA



droughtmonitor.unl.edu

March 2021 Temperature Statistics for Selected Cities

	Avg Maximum Temperature	Avg Maximum Temperature Departure	Avg Minimum Temperature	Avg Minimum Temperature Departure	Average Temperature	Average Temperature Departure
Beckley	58.0	6.2	34.5	2.2	46.3	4.2
Charleston	62.8	6.6	35.6	0.2	49.2	3.4
Clarksburg	60.4	8.5	32.5	0.9	46.5	4.8
Elkins	60.1	8.4	28.1	0.1	44.1	4.3
Huntington	62.5	5.9	37.5	2.2	50.0	4.1
Parkersburg	62.2	8.1	33.5	0.7	47.9	4.4

Abbreviations: Avg, Average

Notes: Temperatures/Departures are in degrees Fahrenheit

March 2021 Precipitation Statistics for Selected Cities

	Precipitation	Precipitation Departure	Precipitation Year to Date	Precipitation Year to Date Departure
Beckley	4.85	1.28	13.45	4.31
Charleston	3.61	-0.30	10.99	0.89
Clarksburg	2.81	-1.19	7.34	-3.25
Elkins	2.27	-1.69	9.19	-1.10
Huntington	3.03	-0.87	10.70	0.76
Parkersburg	3.62	-0.11	9.47	0.09

Notes: All units are in inches. Precipitation Year to Date corresponds to precipitation since January 1st.

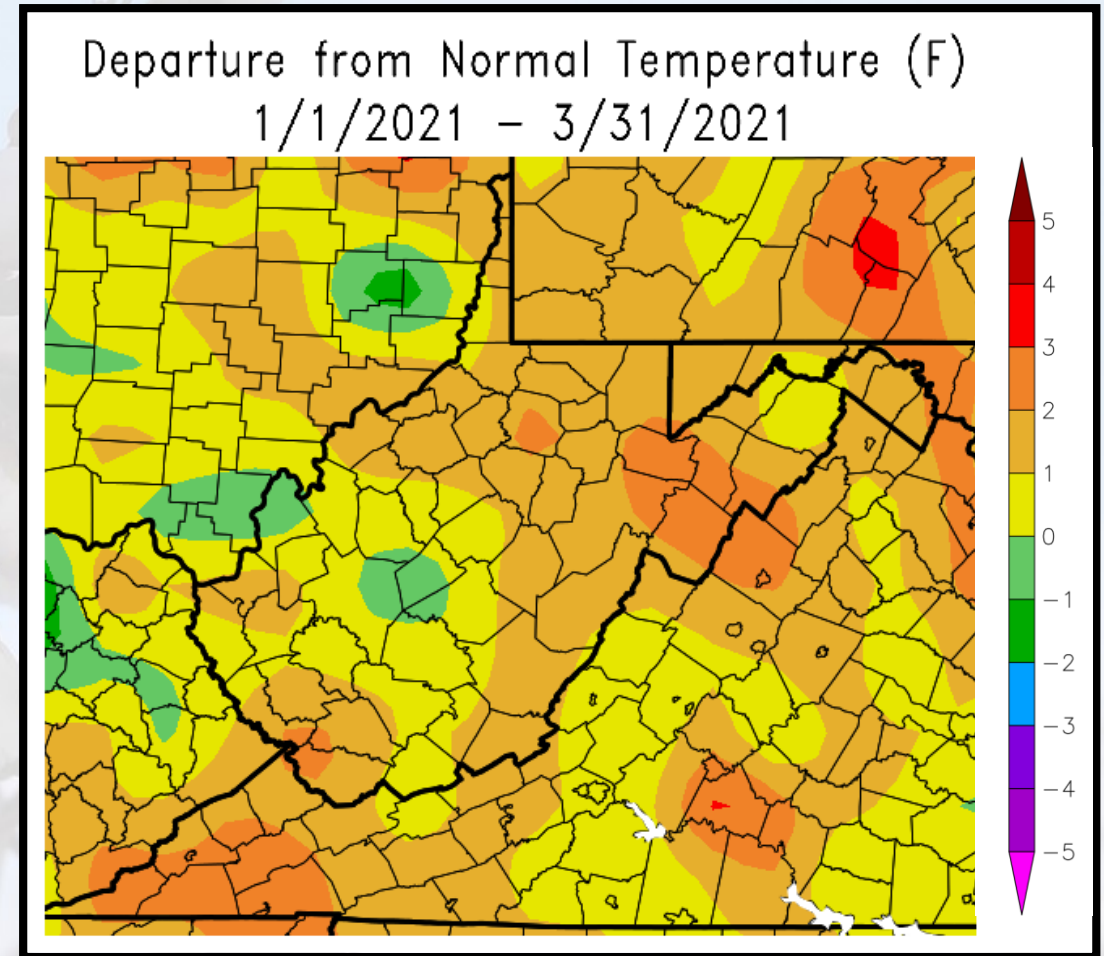
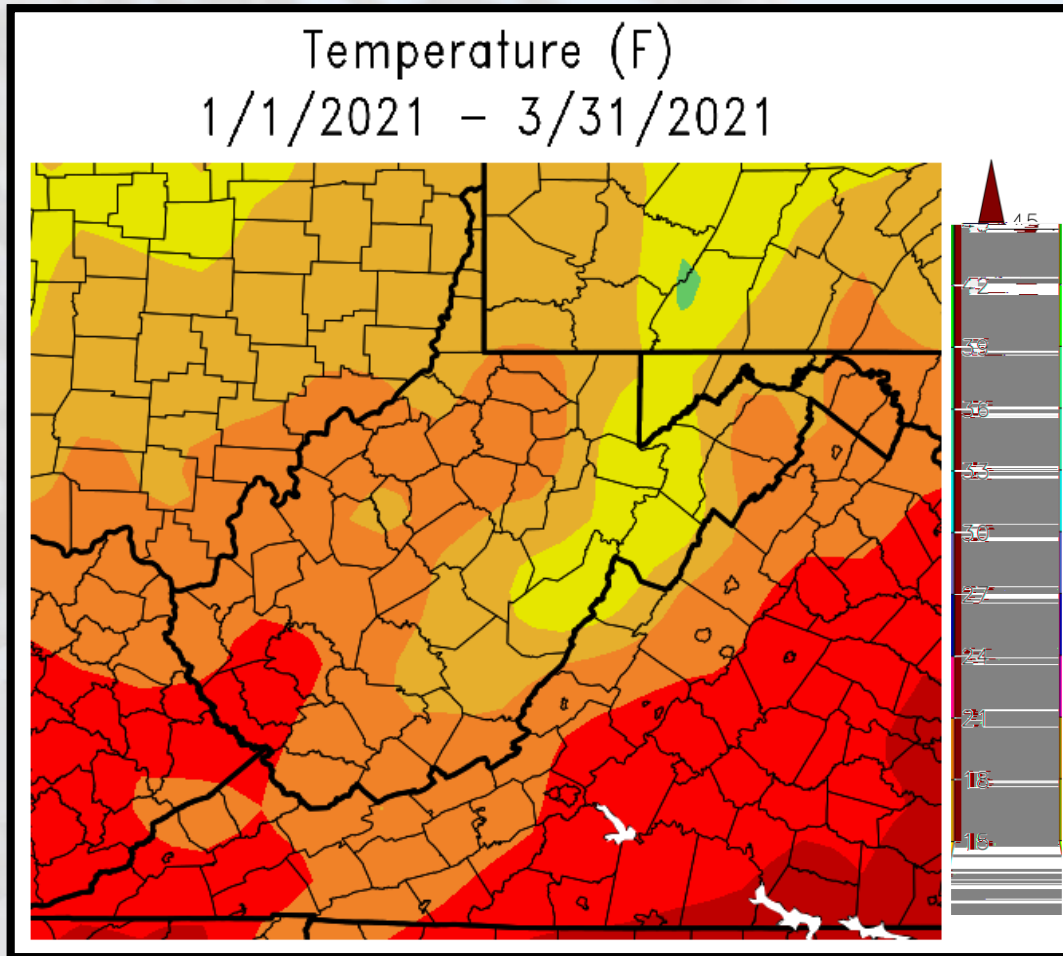
March 2021 Snowfall Statistics for Selected Cities

	Snowfall	Snowfall Departure	Seasonal Snowfall	Seasonal Snowfall Dep
Beckley	Trace	-8.5	43.6	-15.4
Charleston	0.0	-5.8	23.5	-11.5
Clarksburg	M	M	M	M
Elkins	Trace	-12.5	54.0	-24.0
Huntington	0.0	-3.8	11.4	-11.3
Parkersburg	M	M	M	M

Abbreviations: Dep, Departure; M, Missing

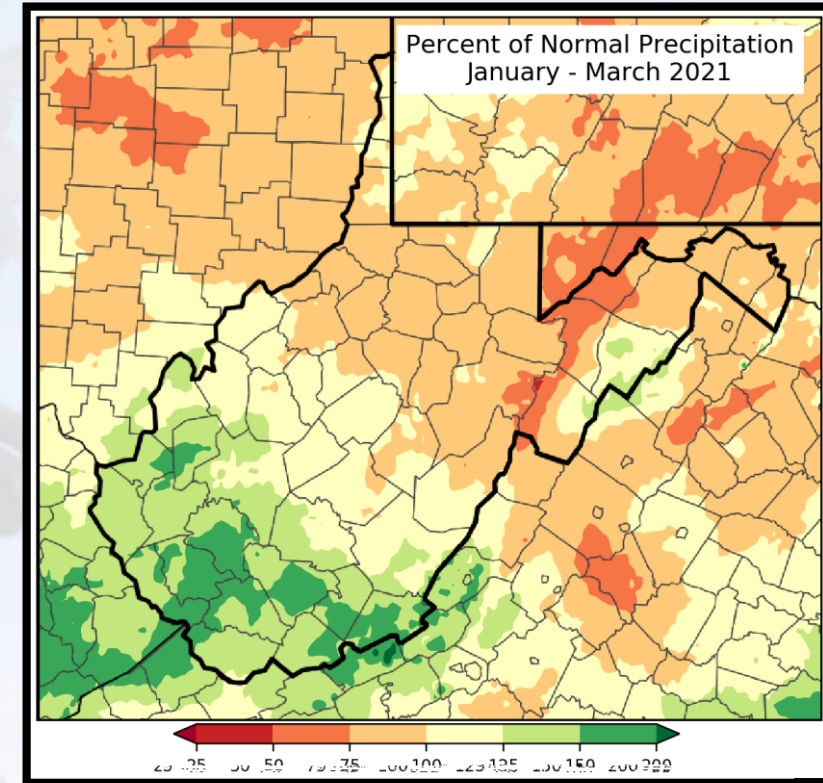
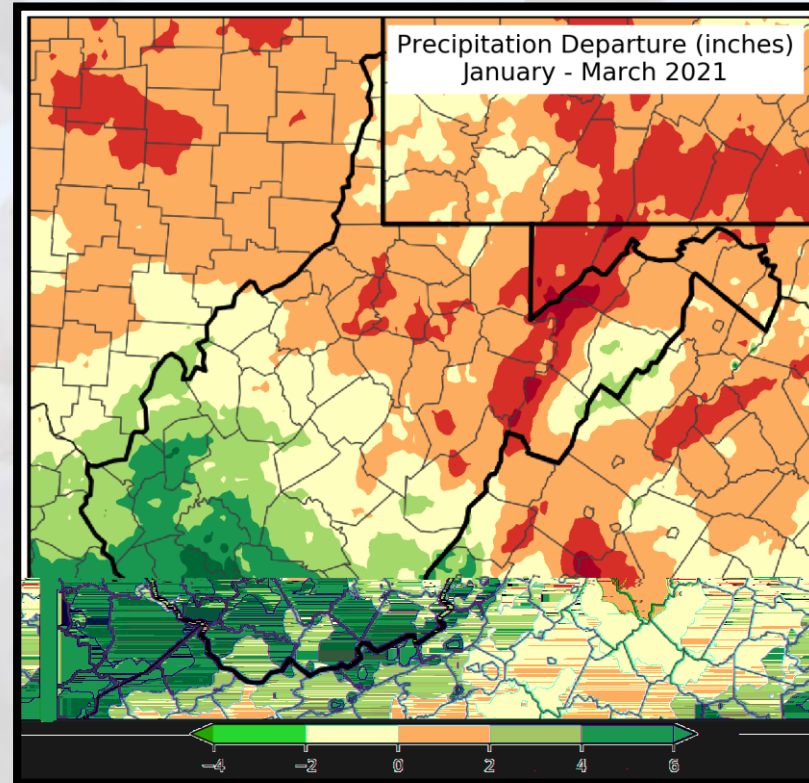
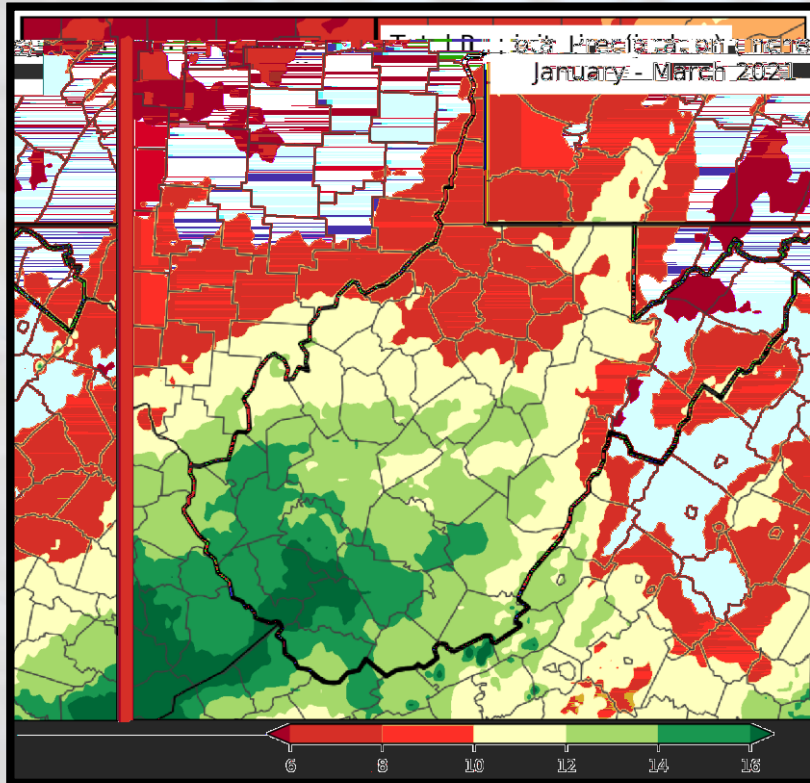
Notes: All units are in inches. Seasonal snowfall and the corresponding seasonal snowfall departures include all snowfall tallied from the first snow in the fall, through the end of March.

Year to Date Average Temperature/Departure



Temperatures year to date have generally been near normal, to slightly above normal for most of the area, with a few spots being slightly below thus far. The largest departures are located across the southern, eastern, and northern regions with average temperatures through March 31st being 1-3 degrees above normal in spots.

Year to Date Precipitation/Departure/Percent of Normal



A rather drastic gradient has been observed this year through March 31st across the region, with southwest portions being well above normal for precipitation, while the northern and eastern portions are below normal. For example, Clarksburg, WV only received 7.34" over this period, while Grundy in Southwest Virginia had 15.75", or nearly 215% of that of Clarksburg!

Record Events for March

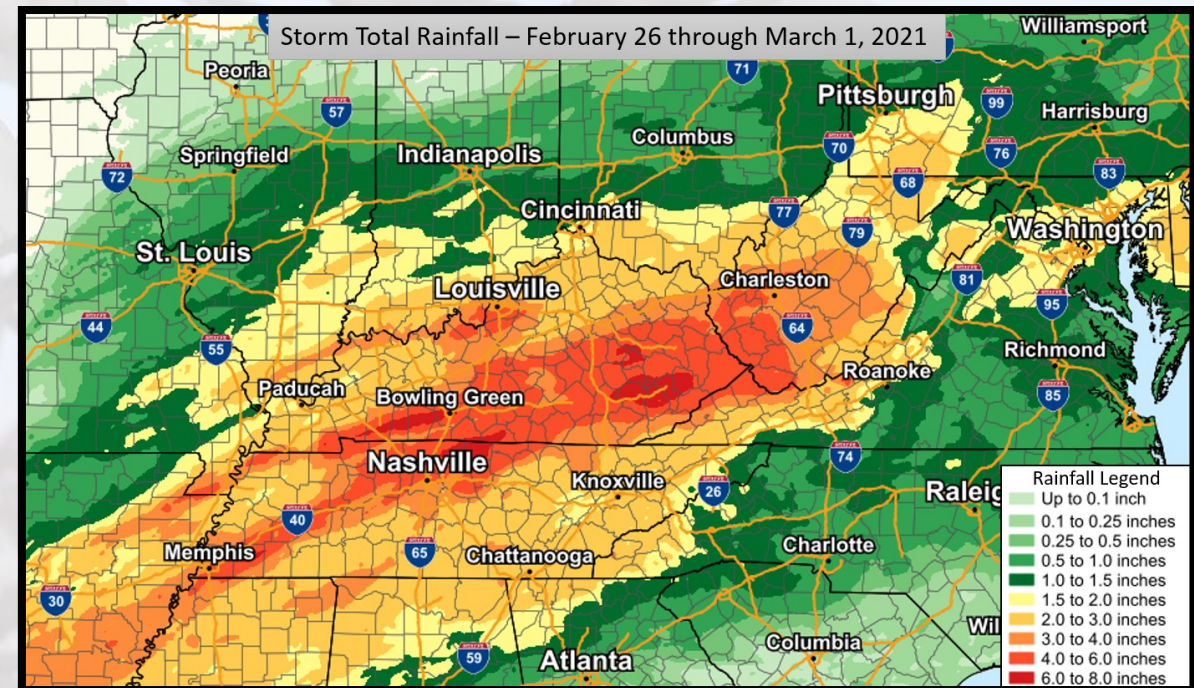
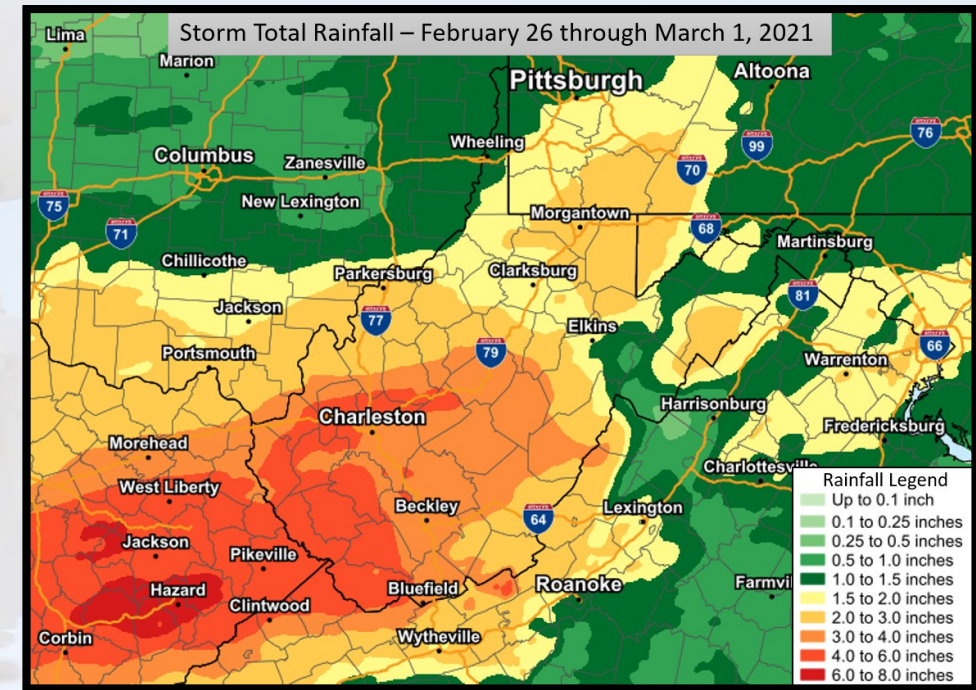
- March: Least snowiest March on record set at Beckley, WV. A trace of snow was observed at Beckley for the month of March. This ties the old record of a trace set in 1918, 1927, 1938, 1939, 1948, 1955, and 2008.
- March: Least snowiest March on record set at Charleston, WV. There was no snow observed or measured at Charleston for the month of March. This ties the old record of 0.0" set in 1910, 1913, 1918, 1921, 1925, and 1929.
- March: Least snowiest March on record set at Elkins, WV. A trace of snow was observed at Elkins for the month of March. This ties the old record of a trace set in 1918, 1921, 1927, and 1946.
- March: Least snowiest March on record set at Huntington, WV. There was no snow observed or measured at Huntington for the month of March. This ties the old record of 0.0" set in 1921.
- March 18th: Record daily maximum rainfall set at Charleston, WV. A record rainfall of 0.91" was set at Charleston, breaking the old record of 0.89" set in 1998.

March Noteworthy Events

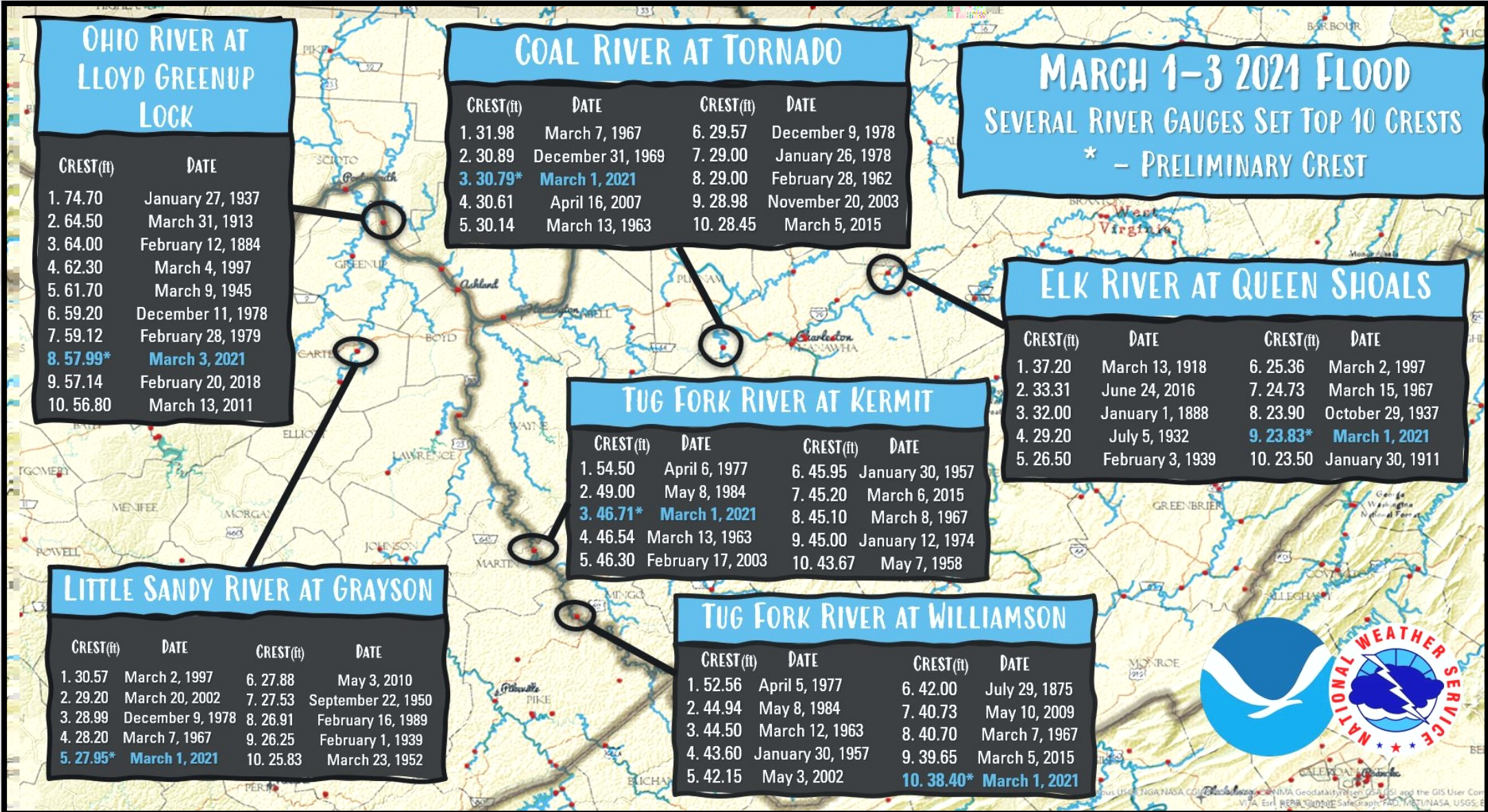
- February 26th - March 1st Heavy Rainfall and Flooding
- March 18th Severe Weather
- March 25-26th High Wind and Rainfall
- March 27-28th Heavy Rainfall and High Wind

February 26th - March 1st Heavy Rainfall and Flooding

Waves of rain, heavy at times, moved across the region from the afternoon hours of Friday February 26th through the morning of Monday March 1st. By the time the event was over, 4 inches or more of rain had accumulated over parts of northeast Kentucky, central and southwest West Virginia, and southwest Virginia. 4.89" was reported in Big Rock, Virginia. This rainfall across the area led to moderate river flooding on the Coal, Guyandotte, Mud, Tug Fork, Little Sandy and Ohio Rivers, with several river gauges setting top 10 crests (seen on the next page). Lesser rainfall occurred for southeast Ohio and the rest of West Virginia, but minor flooding was observed on several rivers in these areas as well. Storm total rainfall graphics both locally and regionally can be seen with the associated figures on the right.



February 26th - March 1st Heavy Rainfall and Flooding (Continued)



OHIO RIVER AT LLOYD GREENUP LOCK

CREST(ft)	DATE
1. 74.70	January 27, 1937
2. 64.50	March 31, 1913
3. 64.00	February 12, 1884
4. 62.30	March 4, 1997
5. 61.70	March 9, 1945
6. 59.20	December 11, 1978
7. 59.12	February 28, 1979
8. 57.99*	March 1, 2021
9. 57.14	February 20, 2018
10. 56.80	March 13, 2011

COAL RIVER AT TORNAO

CREST(ft)	DATE	CREST(ft)	DATE
1. 31.98	March 7, 1967	6. 29.57	December 9, 1978
2. 30.89	December 31, 1969	7. 29.00	January 26, 1978
3. 30.79*	March 1, 2021	8. 29.00	February 28, 1962
4. 30.61	April 16, 2007	9. 28.98	November 20, 2003
5. 30.14	March 13, 1963	10. 28.45	March 5, 2015

MARCH 1-3 2021 FLOOD

SEVERAL RIVER GAUGES SET TOP 10 CRESTS

* - PRELIMINARY CREST

ELK RIVER AT QUEEN SHOALS

CREST(ft)	DATE	CREST(ft)	DATE
1. 37.20	March 13, 1918	6. 25.36	March 2, 1997
2. 33.31	June 24, 2016	7. 24.73	March 15, 1967
3. 32.00	January 1, 1888	8. 23.90	October 29, 1937
4. 29.20	July 5, 1932	9. 23.83*	March 1, 2021
5. 26.50	February 3, 1939	10. 23.50	January 30, 1911

TUG FORK RIVER AT KERMIT

CREST(ft)	DATE	CREST(ft)	DATE
1. 54.50	April 6, 1977	6. 45.95	January 30, 1957
2. 49.00	May 8, 1984	7. 45.20	March 6, 2015
3. 46.71*	March 1, 2021	8. 45.10	March 8, 1967
4. 46.54	March 13, 1963	9. 45.00	January 12, 1974
5. 46.30	February 17, 2003	10. 43.67	May 7, 1958

LITTLE SANDY RIVER AT GRAYSON

CREST(ft)	DATE	CREST(ft)	DATE
1. 30.57	March 2, 1997	6. 27.88	May 3, 2010
2. 29.20	March 20, 2002	7. 27.53	September 22, 1950
3. 28.99	December 9, 1978	8. 26.91	February 16, 1989
4. 28.20	March 7, 1967	9. 26.25	February 1, 1939
5. 27.95*	March 1, 2021	10. 25.83	March 23, 1952

TUG FORK RIVER AT WILLIAMSON

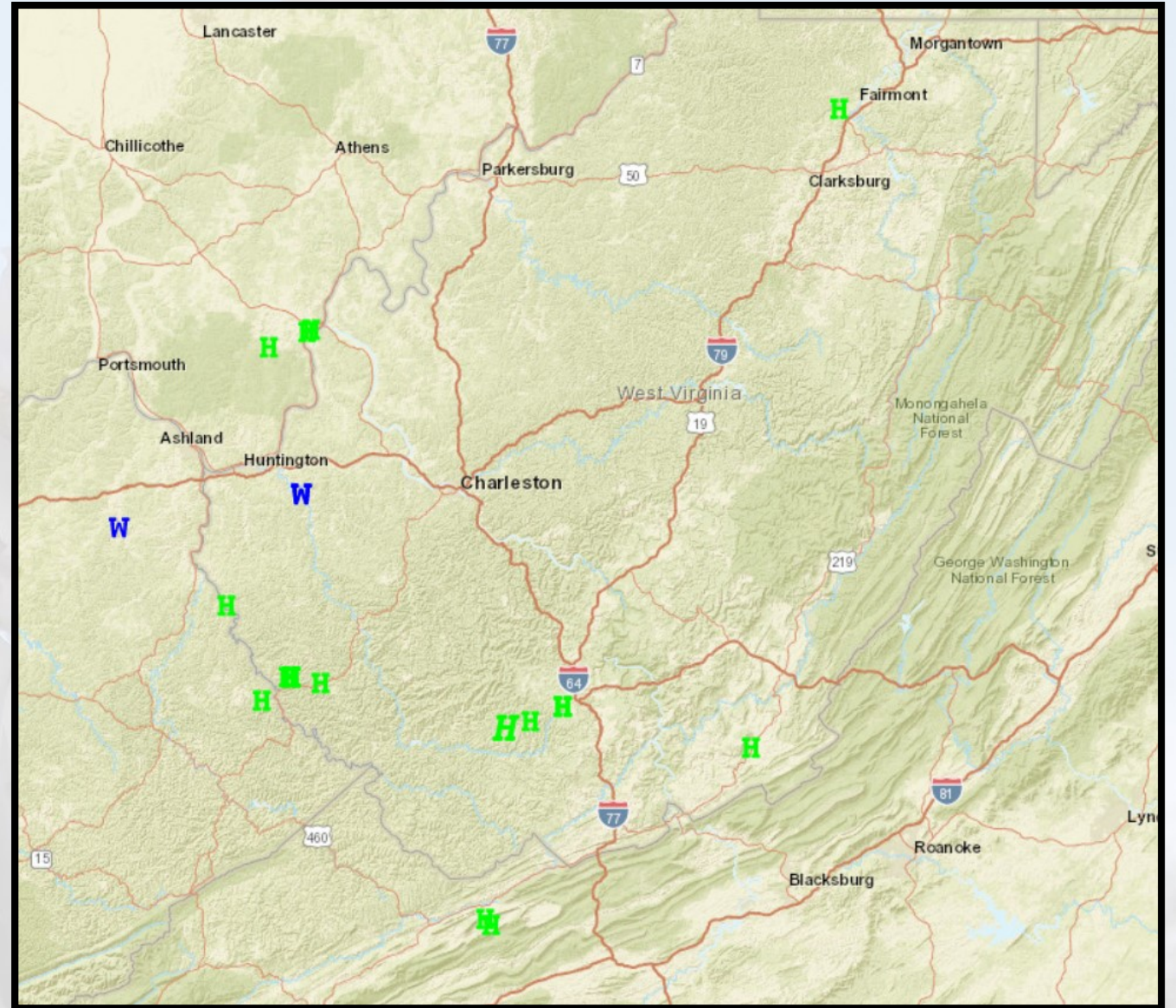
CREST(ft)	DATE	CREST(ft)	DATE
1. 52.56	April 5, 1977	6. 42.00	July 29, 1875
2. 44.94	May 8, 1984	7. 40.73	May 10, 2009
3. 44.50	March 12, 1963	8. 40.70	March 7, 1967
4. 43.60	January 30, 1957	9. 39.65	March 5, 2015
5. 42.15	May 3, 2002	10. 38.40*	March 1, 2021



Map uses NGA/NASA Color Shaded Relief DEM, NIMA Geodatasets, and the GIS User Core V1.4.1. ERI, NGA/SIDR/Sales/Graphic/PROJ/USGS/1

March 18th Severe Weather

A low pressure system approaching from the west would set the stage for damaging hail, winds, and isolated flash flooding across the region. Scattered showers in the early hours of March 18th cleared out, allowing for conditions to destabilize and severe weather to begin shortly after 1 PM. The threat for severe weather would continue through the late evening hours. In total, 16 Severe Thunderstorm Warnings and 5 Flash Flood Warnings were issued. Many hail reports came in, with the largest being 2" (bigger than golf ball size) in Saulsville, WV causing car and roof damage.



Preliminary Storm Reports for March 18th. Green 'H' denotes a hail report, while a blue 'W' denotes a wind report.

March 25-26th High Wind and Rainfall

A system would begin to impact the region during the afternoon on March 25th, exiting during the early morning hours of March 26th. Although a few strong storms and rainfall of slightly over half an inch were associated with it, the biggest impact was due to the high winds as the associated cold front passed through the region. Wind gusts of 35-60 mph were reported in parts of the area, with a 60 mph gust being reported north of Stockport, Ohio in Morgan County. See the figure to the right for other wind reports from across the area.

...HIGHEST WIND REPORTS...

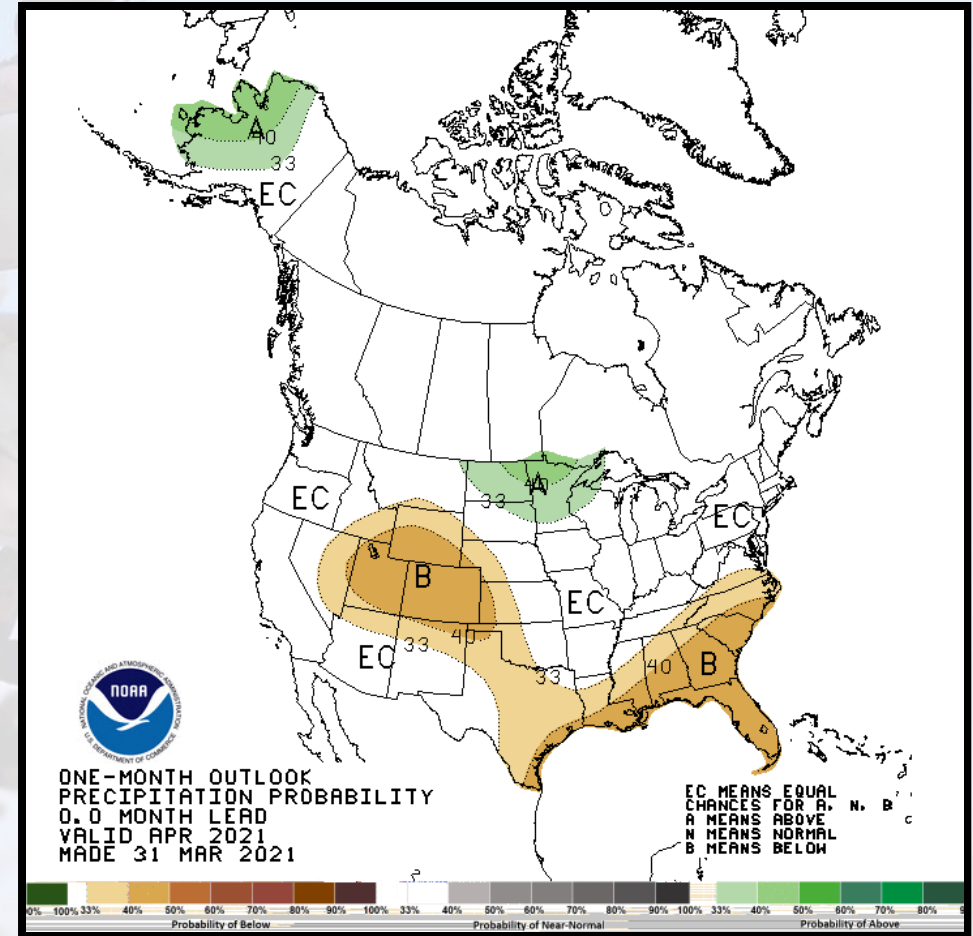
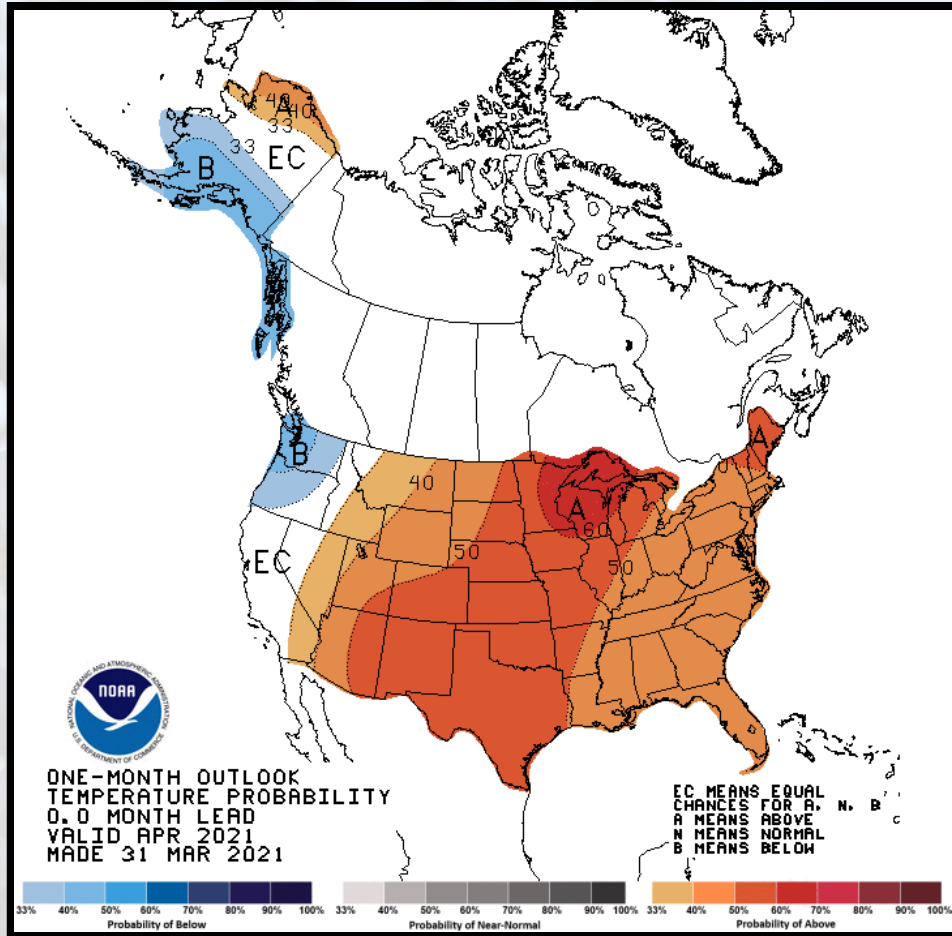
Location	Speed	Time/Date
...Kentucky...		
...Greenup County...		
Ashland Airport	35 MPH	0632 AM 03/26
...Ohio...		
...Athens County...		
2 W Albany	44 MPH	0555 AM 03/26
...Jackson County...		
James A Rhodes Airport	40 MPH	0655 AM 03/26
...Morgan County...		
4 N Stockport	60 MPH	0609 AM 03/26
2 E Trimble	35 MPH	0557 AM 03/26
...West Virginia...		
...Barbour County...		
Bridgeport	38 MPH	1016 AM 03/26
...Harrison County...		
...Kanawha County...		
726 Charleston Airport	51 MPH	0302 AM 03/26
4 SW Marmet	48 MPH	0617 AM 03/26
...Logan County...		
Logan Cnty Airport	35 MPH	0855 PM 03/25
...Mason County...		
5 SW MASON	51 MPH	0316 AM 03/26
...Pleasant County...		
0926 AM 03/26	46 MPH	0901 AM 03/26
...Randolph County...		
1143 AM 03/26	35 MPH	3 NNE Beverly
...St. Albans County...		
0909 AM 03/26	39 MPH	HARTSVILLE
...Taylor County...		
1204 PM 03/26	35 MPH	Grafton
...Tyler County...		
1016 AM 03/26	40 MPH	Conaway Lake
...Upshur County...		
0235 AM 03/26	46 MPH	3 WNW Buckhannon
...Wayne County...		
0507 AM 03/26	36 MPH	Huntington Airport
...Wood County...		
1054 AM 03/26	41 MPH	Parkersburg Airport

March 27-28th Heavy Rainfall and High Wind

Rainfall began on the afternoon of March 27th across central and southern portions of the area. After a reprieve during the evening hours, rainfall would move back in during the early morning hours of March 28th and linger throughout most of the day. Rainfall would be heavy at times, resulting in isolated flooding across Buchanan and Dickenson counties in Virginia, where up to 2.92” was reported near Vansant. Strong gusty winds would remain in place following the passage of the associated cold front. See the figure on the right for a list of some of the higher reported precipitation totals associated with this event.

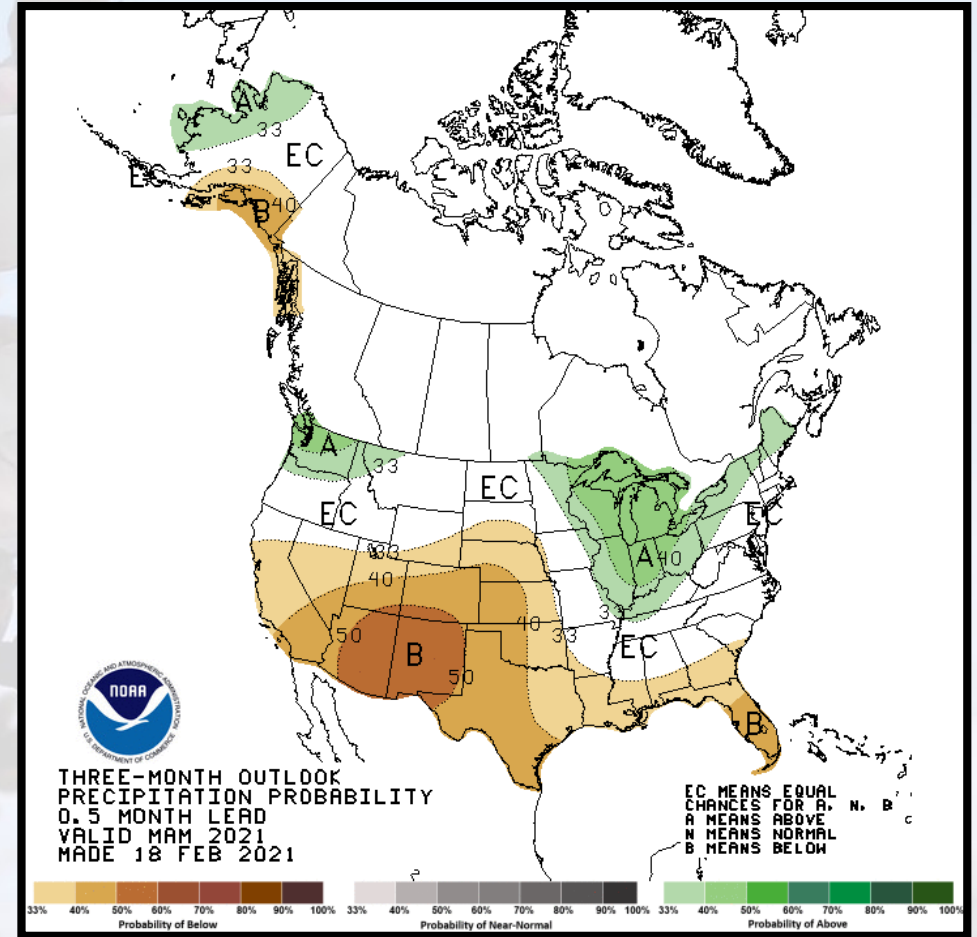
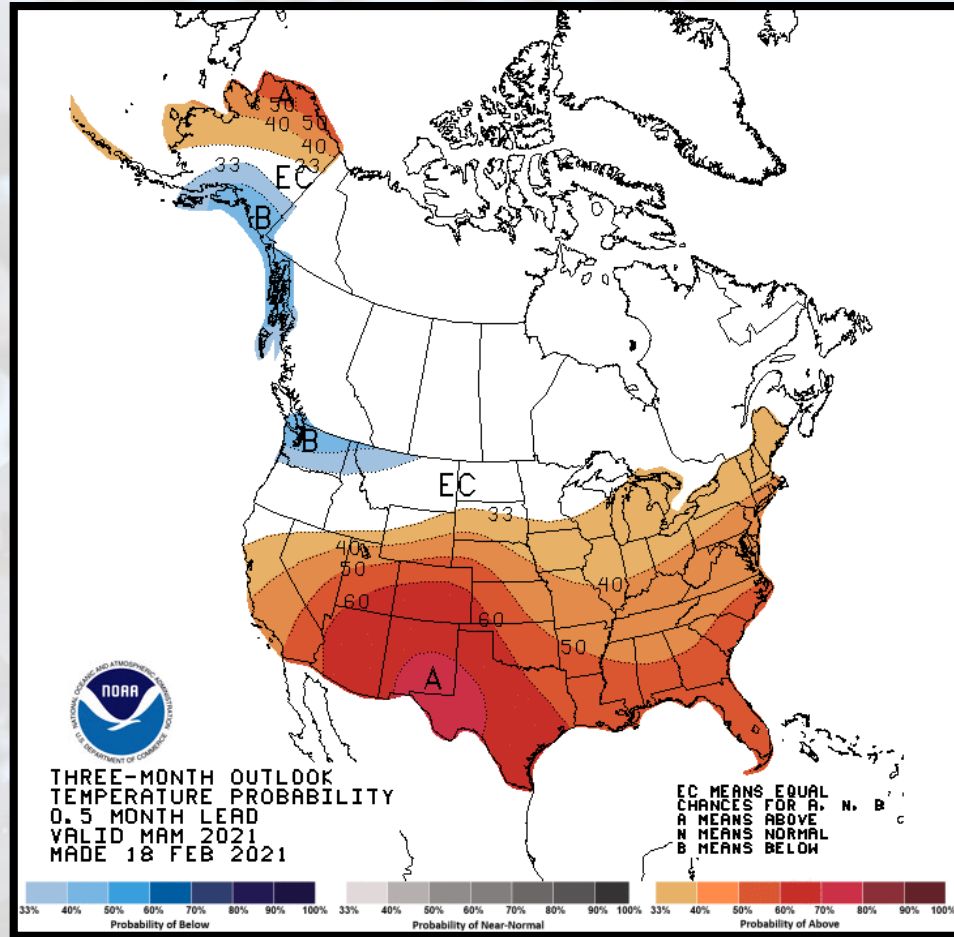
...PRECIPITATION REPORTS...		
Location	Amount	Time/Date
2.4 W Vansant (RR)	2.92 in	1100 AM 03/28
Haysi	2.71 in	1045 AM 03/28
Clintwood	2.71 in	1100 AM 03/28
7.4 NW Glen Burke (RR)	2.44 in	1100 AM 03/28
John Flannagan Lake	2.27 in	1030 AM 03/28
1.5 NE John Flannagan Lake	2.25 in	1000 AM 03/28
2.0 NW Gary	2.14 in	1045 AM 03/28
7.0 SW Bradshaw	2.10 in	1045 AM 03/28
4.6 N Dye (RR)	2.08 in	0400 PM 03/28
6.3 SW Oceana	2.04 in	1030 AM 03/28
Elkhorn	2.03 in	1017 AM 03/28
4.6 NE Oceana	2.03 in	1045 AM 03/28
0.5 W R.d. Bailey Lake	1.98 in	1045 AM 03/28
Nora 4 SSE	1.95 in	0700 AM 03/28
2 SE Haysi	1.95 in	1104 AM 03/28
2.1 SE Clintwood	1.94 in	1030 AM 03/28
Welch	1.93 in	1045 AM 03/28
5.3 SE Hurley (RR)	1.92 in	1100 AM 03/28
1.7 W Delbarton (RR)	1.92 in	1100 AM 03/28
4.6 N Dye (RR)	1.88 in	1100 AM 03/28
Grundy	1.86 in	0700 AM 03/28
0.6 S Pineville (RR)	1.84 in	1045 AM 03/28
5.1 SW Holden (RR)	1.84 in	1100 AM 03/28
2.2 SE Toonerville	1.75 in	1030 AM 03/28
4.6 NE Davy	1.75 in	1045 AM 03/28
4.2 W Flat Top	1.70 in	1100 AM 03/28
0.8 SE Logan	1.59 in	1045 AM 03/28
R.D. Bailey Lake	1.54 in	0700 AM 03/28
7.4 NW Cleveland (RR)	1.48 in	1100 AM 03/28
Cool Ridge	1.47 in	1103 AM 03/28
2.9 N Bradshaw	1.44 in	1100 AM 03/28
Beckley	1.42 in	1101 AM 03/28
Logan	1.41 in	0800 AM 03/28
Goodview	1.37 in	1101 AM 03/28
0.7 N Davenport	1.35 in	1030 AM 03/28
Logan	1.28 in	1014 AM 03/28
Williamson	1.21 in	0700 AM 03/28
Mullens 3 E	1.21 in	0700 AM 03/28
Beckley Airport	1.18 in	1051 AM 03/28
Beckley	1.10 in	0700 AM 03/28
4.6 S Washington (RR)	1.07 in	1100 AM 03/28
3.9 W Arnoldsburg (RR)	1.00 in	1000 AM 03/28
Grandview	1.00 in	1005 AM 03/28
10.7 NW Blennerhassett (RR)	1.00 in	1100 AM 03/28
6.2 NE Coeburn (RR)	0.96 in	1100 AM 03/28
Parkersburg	0.93 in	1103 AM 03/28
Cool Ridge 0.4 NE	0.92 in	0600 AM 03/28

April Outlook



Climate Prediction Center One-Month Temperature and Precipitation Outlook for the United States.

Spring Outlook



Climate Prediction Center Three-Month Temperature and Precipitation Outlook for the United States: covering meteorological spring (March, April, and May).

We are looking for volunteer observers!

Are you interested in weather? If so, we would love for you to consider being a volunteer observer for CoCoRaHS! We are always looking for new volunteers across our area. If interested, please see the flyer to the right. More information is available at this website! →



WANTED!

**VOLUNTEERS OF ALL AGES
TO HELP SCIENTISTS STUDY STORMS**

Measure precipitation in your own backyard with CoCoRaHS!

The **Community Collaborative Rain, Hail and Snow Network (CoCoRaHS)** needs you! Everyone can participate, both young, old, and in-between. The only requirements are an enthusiasm for watching and reporting weather conditions and a desire to learn more about how weather can affect and impact our lives.



CoCoRaHS needs your help!

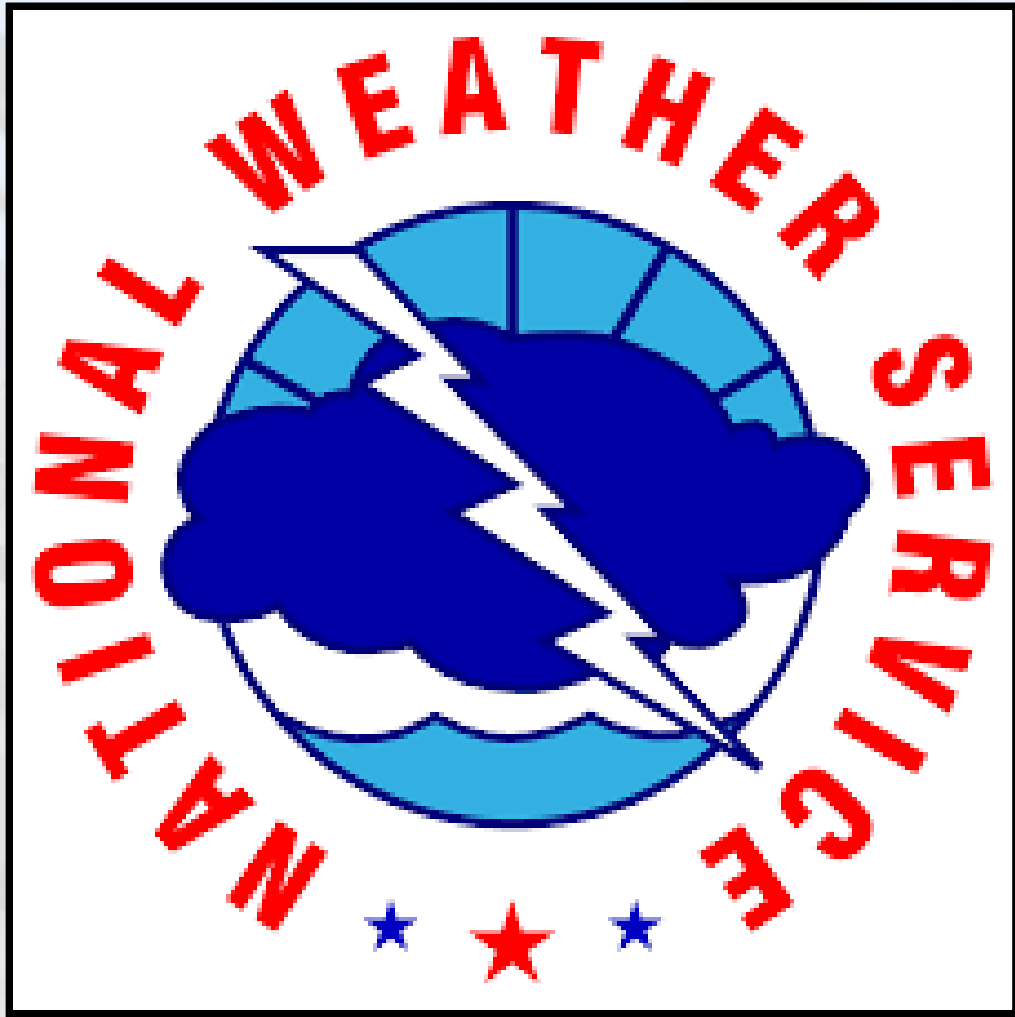


To learn more or to become a volunteer observer, please visit our web site at:

www.cocorahs.org

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Thank You!