2021 WEATHER ALMANAC

abc 27 NEWS

WeatheRate

YOUR MOST ACCURATE LOCAL FORECAST

JANUARY

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
					1 38 | 64 (2005) 24 | -2 (2018) .09 | 1.48 (1948) 0.2 | 7.3 (1971)	**2** 38 | 62 (2000) 24 | -5 (1968) .09 | 0.99 (1892) 0.2 | 9.2 (1925)
3 38 | 60 (1950) 24 | -1 (2018) .09 | 1.68 (1944) 0.2 | 8.2 (1919)	**4** 37 | 68 (2000) 24 | 3 (1918) .09 | 1.05 (1982) 0.3 | 7.3 (1942)	**5** 37 | 64 (1950) 23 | -5 (1904) .09 | 1.3 (1949) 0.2 | 3.5 (2001)	**6** 37 | 67 (2007) 23 | -3 (1904) 0.1 | 1.66 (1905) 0.2 | 4.0 (2002)	**7** 37 | 65 (2008) 23 | 0 (2014) .09 | 1.64 (1996) 0.3 | 19.8 (1996)	**8** 37 | 68 (1998) 23 | 0 (1970) .09 | 1.12 (1953) 0.3 | 4.6 (1906)	**9** 37 | 64 (1998) 23 | -3 (1942) .09 | 1.39 (1964) 0.2 | 6.5 (1926)
10 37 | 58 (2046) 23 | 2 (2004) .09 | 1.34 (2016) 0.3 | 7.6 (1965)	**11** 37 | 71 (1975) 23 | -1 (1988) 0.1 | 1.01 (1922) 0.2 | 7.5 (1922)	**12** 37 | 69 (2020) 23 | -4 (1981) 0.1 | 2.29 (1915) 0.3 | 10.8 (1996)	**13** 37 | 72 (1932) 23 | -5 (1912) 0.1 | 1.16 (1964) 0.3 | 14 (1964)	**14** 37 | 73 (1952) 23 | -14 (1912) 0.1 | 1.91 (1958) 0.3 | 11.4 (1910)	**15** 37 | 67 (1937) 23 | -3 (1964) 0.1 | 1.44 (1918) 0.3 | 8 (1918)	**16** 37 | 62 (1990) 23 | -4 (1893) .09 | 2.12 (1924) 0.3 | 19.7 (1945)
17 37 | 65 (1990) 23 | -6 (1982) 0.1 | 1.42 (1994) 0.3 | 14.3 (1994)	**18** 37 | 66 (1990) 23 | -7 (1994) 0.1 | 1.32 (1926) 0.3 | 10 (1930)	**19** 37 | 66 (1951) 22 | -14 (1994) .09 | 1.99 (1936) 0.3 | 13.6 (1936)	**20** 37 | 68 (1951) 22 | -16 (1994) 0.1 | 1.79 (1995) 0.3 | 8.5 (1978)	**21** 37 | 64 (1959) 22 | -22 (1994) .09 | 1.56 (1902) 0.3 | 5.1 (1917)	**22** 37 | 64 (1906) 22 | -9 (1984) .09 | 1.1 (1918) 0.2 | 11.2 (1987)	**23** 37 | 67 (1967) 22 | -6 (1936) 0.1 | 2.49 (2016) 0.3 | 26.4 (2016)
24 37 | 71 (1967) 22 | -2 (1936) .09 | 2.09 (1979) 0.3 | 9.9 (1948)	**25** 37 | 71 (1967) 22 | 0 (1936) .09 | 1.48 (2020) 0.3 | 5.4 (1988)	**26** 37 | 73 (1950) 22 | -2 (1948) .08 | 1.84 (1976) 0.4 | 6.4 (2011)	**27** 37 | 69 (1974) 22 | 2 (1936) .09 | 1.3 (1967) 0.3 | 5 (1941)	**28** 37 | 65 (1944) 23 | -1 (1935) .09 | 1.19 (1918) 0.3 | 12.2 (1943)	**29** 37 | 68 (2002) 23 | -4 (1963) .09 | 1.72 (1990) 0.4 | 5.5 (1945)	**30** 37 | 70 (1947) 23 | 2 (2014) .09 | 1.44 (1939) 0.3 | 8.2 (1966)
31 38 | 67 (1974) 23 | 2 (1948) .09 | 1.01 (1926) 0.4 | 6.3 (1949)						

JANUARY SUNRISE/SUNSET

DAY	AM	PM
1	7:30	4:52
2	7:30	4:53
3	7:30	4:54
4	7:30	4:55
5	7:30	4:56
6	7:30	4:57
7	7:30	4:58
8	7:30	4:59
9	7:29	5:00
10	7:29	5:01
11	7:29	5:02
12	7:29	5:03
13	7:28	5:04
14	7:28	5:05
15	7:28	5:06
16	7:27	5:07
17	7:27	5:08
18	7:26	5:09
19	7:26	5:10
20	7:25	5:12
21	7:25	5:13
22	7:24	5:14
23	7:23	5:15
24	7:23	5:16
25	7:22	5:18
26	7:21	5:19
27	7:20	5:20
28	7:19	5:21
29	7:19	5:22
30	7:18	5:24
31	7:17	5:25

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

WHAT IS THE POLAR VORTEX?

by Adis Juklo

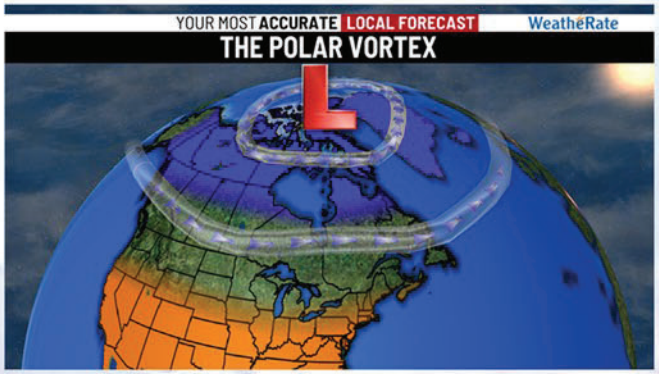
Ever since 2014, you've heard in national news. "The Polar Vortex is set to bring record cold next week!" But what is it exactly, and is it a new phenomenon? The answer to the latter question is no. The polar vortex has been documented as early as the mid-1800s and is a naturally occurring 'blob' of low pressure that rotates around the North Pole each winter. The polar vortex meteorologists specifically refer to is in the stratosphere, which is located roughly 10-30 miles above the surface of the earth

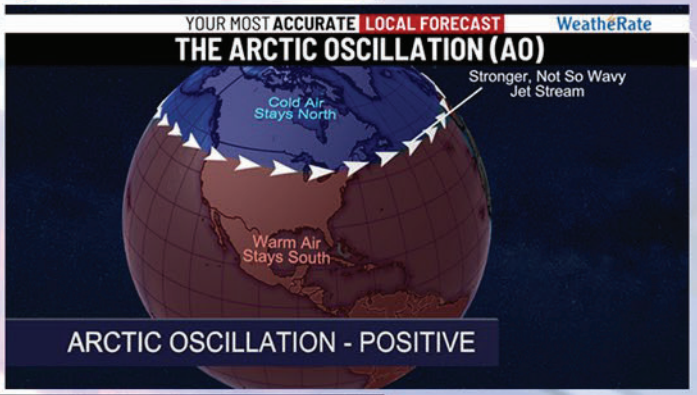
So how can something so high up in the atmosphere over the North Pole influence our weather? When the polar vortex is strong, it keeps the cold well north of our region as powerful jet stream winds blow west to east over the Arctic. However, when waves in the atmosphere trigger warming in the stratosphere, the polar vortex can become disrupted and displace cold air further south. Notable stratospheric warming events such as in January 2015 have been responsible for brutally cold months to follow in the northeast United States.

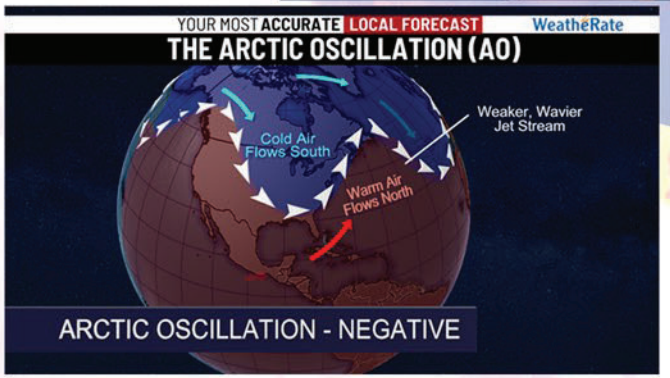
As important as the polar vortex can be for our temperature, it can also play a factor with snow. A sudden stratospheric warming event occurred at the end of January 2010, which arranged the northern hemispheric pattern so that cold and snow were locked into Pennsylvania for much of February. It ended up being Harrisburg's snowiest month on record.

Not every stratospheric warming event leads to frigid cold and snow outbreaks for us, but the more frequent and intense these events are, the greater the probability for disruptive winter weather in the eastern US. Last winter, the polar vortex was in one of the its strongest states on record, which lead to the record warm and uneventful winter for us as most of the cold air remained bottled north.

The 'Arctic Oscillation' is a good index to use when analyzing the current and future state of the Polar Vortex. A positive AO is synonymous to a strong polar vortex and is unfavorable for severe winter weather in the eastern US. A negative AO is just the opposite and can foreshadow potential cold and snow outbreaks. A good place to find this information is here
https://www.cpc.ncep.noaa.gov/products/precip/CWlink/daily_ao_index/ao.shtml







abc 27 NEWS YOUR MOST ACCURATE LOCAL FORECAST

2021 WEATHER ALMANAC

FEBRUARY

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
	1 38 | 70 (1989) 23 | -1 (1920) .09 | 2.36 (2008) 0.4 | 7.9 (1908)	**2** 38 | 59 (1988) 23 | -1 (1960) .08 | 1.03 (1981) 0.4 | 7.6 (1916)	**3** 38 | 66 (2020) 23 | 1 (1905) .09 | 1.32 (1972) 0.4 | 6.5 (2014)	**4** 38 | 65 (1991) 23 | -1 (1918) .09 | 2.12 (1920) 0.4 | 7.6 (1920)	**5** 38 | 74 (1890) 23 | -5 (1918) .08 | 1.23 (2014) 0.4 | 8.5 (1907)	**6** 39 | 66 (2008) 23 | -4 (1895) .08 | 2.35 (1896) 0.4 | 11.8 (2010)
7 39 | 57 (2009) 23 | -4 (1935) .09 | 1.92 (1965) 0.4 | 11.3 (1967)	**8** 39 | 65 (1965) 24 | 8 (2007) .08 | 0.91 (1890) 0.3 | 5 (1994)	**9** 39 | 61 (2001) 24 | -11 (1934) .08 | 0.74 (1894) 0.4 | 8.6 (1906)	**10** 39 | 62 (1960) 24 | -13 (1899) .08 | 1.02 (1970) 0.4 | 12.3 (2010)	**11** 40 | 63 (2009) 24 | -10 (1899) .08 | 2.0 (1983) 0.4 | 24 (1983)	**12** 40 | 74 (1999) 24 | 0 (1979) .08 | 1.84 (1985) 0.4 | 6 (1899)	**13** 40 | 63 (1974) 25 | 1 (1917) .08 | 1.86 (1966) 0.4 | 9 (2014)
14 40 | 64 (1946) 25 | -13 (1905) .08 | 2.12 (2007) 0.4 | 10 (1940)	**15** 41 | 74 (1954) 25 | -2 (1899) .08 | 1.12 (1908) 0.4 | 6.8 (1958)	**16** 41 | 75 (1954) 25 | 0 (2015) .08 | 1.25 (2003) 0.4 | 12.6 (2003)	**17** 41 | 67 (2011) 25 | -1 (1896) .08 | 0.88 (1954) 0.4 | 7.8 (1903)	**18** 41 | 69 (2011) 26 | -5 (1979) .09 | 0.96 (1960) 0.4 | 9.7 (1964)	**19** 42 | 69 (2017) 26 | 0 (1959) .09 | 1.57 (1972) 0.4 | 13 (1972)	**20** 42 | 77 (2018) 26 | 0 (2015) .08 | 1.5 (1921) 0.4 | 15 (1921)
21 42 | 79 (2018) 26 | 4 (2015) .09 | 1.65 (1902) 0.4 | 8 (1929)	**22** 43 | 71 (1974) 27 | 4 (1963) .09 | 1.02 (1971) 0.3 | 12 (1893)	**23** 43 | 75 (2017) 27 | 6 (2015) .08 | 1.59 (1981) 0.4 | 6.5 (1914)	**24** 43 | 76 (2017) 27 | -4 (2015) .09 | 1.75 (2016) 0.3 | 8 (2005)	**25** 44 | 74 (1930) 28 | 3 (1900) 0.1 | 1.31 (1926) 0.3 | 3.6 (1966)	**26** 44 | 70 (1976) 28 | 0 (1914) .09 | 1.04 (1929) 0.3 | 7.5 (1894)	**27** 44 | 78 (1997) 28 | 4 (1934) .09 | 1.61 (1958) 0.3 | 2.2 (1940)
28 45 | 68 (1978) 28 | -1 (1934) 0.1 | 1.15 (1917) 0.3 | 7.8 (1917)						

FEBRUARY SUNRISE/SUNSET

DAY	AM	PM
1	7:16	5:26
2	7:15	5:27
3	7:14	5:28
4	7:13	5:30
5	7:12	5:31
6	7:11	5:32
7	7:10	5:33
8	7:08	5:35
9	7:07	5:36
10	7:06	5:37
11	7:05	5:38
12	7:04	5:39
13	7:02	5:41
14	7:01	5:42
15	7:00	5:43
16	6:59	5:44
17	6:57	5:45
18	6:56	5:46
19	6:55	5:48
20	6:53	5:49
21	6:52	5:50
22	6:50	5:51
23	6:49	5:52
24	6:48	5:53
25	6:46	5:55
26	6:45	5:56
27	6:43	5:57
28	6:42	5:58

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
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NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

LA NINA

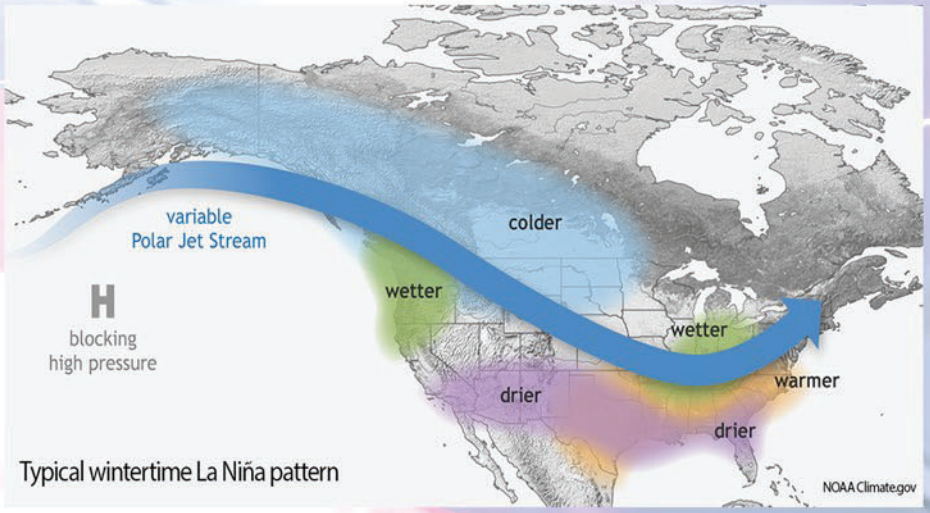
by Brett Thackara

La Nina has started in the Pacific Ocean and will likely persist through this upcoming winter and into 2021. The phenomenon is a natural occurring oceanic-atmospheric connection marked by cooler than normal sea surface temperatures over the central and eastern Pacific Ocean near the Equator. The opposite is, of course, El Nino which features warmer than normal sea surface temperatures in the same region. As La Nina started to take shape this past summer, it likely played a role in the tropical season of 2020.

Last September saw a very active Atlantic basin filled with up to 5 named storms at once. While September is usually active in the tropics given the time of year (very warm waters), last year was extremely busy. La Nina years can lead to an increase in Atlantic tropical cyclone activity because wind shear (changing of wind speed with height) is weaker over the Caribbean and Atlantic Basin. If wind shear is high, it rips storms apart and doesn't allow them to reach their full potential. With a lack of shear, storms can blossom over warm waters and continue to grow into major hurricanes. The developing La Nina could have certainly played a role in the very high count of tropical systems last year.

Meteorologists at the national level believe La Nina will be in place through at least February 2021. What does this mean for the U.S. weather and our local forecast? Typically, La Nina brings above average precipitation and colder than normal temperatures for the northern part of the country with drier weather and warmer conditions for the southern U.S. The last time La Nina occurred was during the winter of 2017-2018. That winter locally featured nothing impressive. Looking back, the mean temperature was 1° above normal and our snowfall was below normal by almost 7". That certainly bucked the typical La Nina signals for northern parts of the country.

But given the hot summer last season and the active tropics from last fall, perhaps this La Nina is going to be stronger than the previous one. We also had almost no snow locally last winter, so perhaps we are due to stay busy this year. Time will tell!



(This image depicts a typical La Nina pattern and its effects on the U.S. weather. The southern part of the country is usually dry while the north is cold and wetter toward the Northeast. Depending on where the polar jet stream sets up shop, the winter will either be quite active for us locally, or warm air from the south will win out and prevent a lot of snow if the cold air stays bottled up in the northern Plains.)

MARCH

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
	1 Normal High: 45 Normal Low: 29 Normal Precip: .09 Normal Snow: 0.3 Record High: 69 (1972) Record Low: 7 (1980) Record Precip: 1.33 (1900) Record Snow: 6.4 (1952)	**2** Normal High: 45 Normal Low: 29 Normal Precip: .09 Normal Snow: 0.2 Record High: 74 (1972) Record Low: 10 (1980) Record Precip: 1.04 (1994) Record Snow: 8 (1994)	**3** Normal High: 46 Normal Low: 29 Normal Precip: .09 Normal Snow: 0.3 Record High: 70 (1923) Record Low: 9 (1925) Record Precip: 1.53 (1906) Record Snow: 10.5 (1960)	**4** Normal High: 46 Normal Low: 30 Normal Precip: .09 Normal Snow: 0.2 Record High: 79 (1974) Record Low: 8 (1943) Record Precip: 2.13 (1889) Record Snow: 6.3 (1917)	**5** Normal High: 46 Normal Low: 30 Normal Precip: .08 Normal Snow: 0.4 Record High: 74 (1946) Record Low: 10 (1978) Record Precip: 1.76 (2008) Record Snow: 13 (1902)	**6** Normal High: 47 Normal Low: 30 Normal Precip: .08 Normal Snow: 0.4 Record High: 72 (1946) Record Low: 0 (2015) Record Precip: 2.27 (2011) Record Snow: 9.4 (1989)
7 Normal High: 47 Normal Low: 30 Normal Precip: .09 Normal Snow: 0.4 Record High: 74 (1921) Record Low: -1 (2015) Record Precip: 1.63 (1930) Record Snow: 4.9 (1941)	**8** Normal High: 47 Normal Low: 31 Normal Precip: .08 Normal Snow: 0.3 Record High: 84 (2000) Record Low: 8 (2007) Record Precip: 0.94 (1892) Record Snow: 8.9 (1941)	**9** Normal High: 48 Normal Low: 31 Normal Precip: .08 Normal Snow: 0.4 Record High: 79 (2016) Record Low: 8 (1989) Record Precip: 1.31 (1928) Record Snow: 8.5 (1928)	**10** Normal High: 48 Normal Low: 31 Normal Precip: .08 Normal Snow: 0.4 Record High: 79 (2016) Record Low: 5 (1984) Record Precip: 2.55 (2011) Record Snow: 6.4 (1907)	**11** Normal High: 49 Normal Low: 32 Normal Precip: .08 Normal Snow: 0.4 Record High: 69 (1977) Record Low: 12 (1960) Record Precip: 1.78 (1952) Record Snow: 6 (1896)	**12** Normal High: 49 Normal Low: 32 Normal Precip: .08 Normal Snow: 0.4 Record High: 84 (1990) Record Low: 11 (1900) Record Precip: 0.94 (1968) Record Snow: 4.1 (1959)	**13** Normal High: 49 Normal Low: 32 Normal Precip: .08 Normal Snow: 0.4 Record High: 83 (1990) Record Low: 8 (1896) Record Precip: 1.95 (1977) Record Snow: 20.3 (1993)
14 DAYLIGHT SAVINGS BEGINS Normal High: 50 Normal Low: 33 Normal Precip: .08 Normal Snow: 0.4 Record High: 82 (1990) Record Low: 6 (1896) Record Precip: 1.78 (1986) Record Snow: 14.7 (2017)	**15** Normal High: 50 Normal Low: 33 Normal Precip: .08 Normal Snow: 0.4 Record High: 82 (1990) Record Low: 7 (1993) Record Precip: 1.4 (1912) Record Snow: 6.8 (1900)	**16** Normal High: 50 Normal Low: 33 Normal Precip: .08 Normal Snow: 0.4 Record High: 83 (1945) Record Low: 12 (1911) Record Precip: 1.09 (2007) Record Snow: 9.5 (2007)	**17** Normal High: 51 Normal Low: 33 Normal Precip: .08 Normal Snow: 0.4 Record High: 82 (1945) Record Low: 11 (1900) Record Precip: 1.24 (1936) Record Snow: 5.1 (1965)	**18** Normal High: 51 Normal Low: 34 Normal Precip: .09 Normal Snow: 0.4 Record High: 76 (2011) Record Low: 5 (1900) Record Precip: 1.07 (1983) Record Snow: 12.1 (1928)	**19** Normal High: 51 Normal Low: 34 Normal Precip: .09 Normal Snow: 0.4 Record High: 76 (2011) Record Low: 8 (1993) Record Precip: 1.2 (1975) Record Snow: 7 (1906)	**20** Normal High: 52 Normal Low: 34 Normal Precip: .08 Normal Snow: 0.4 Record High: 81 (1945) Record Low: 15 (1923) Record Precip: 1.74 (2003) Record Snow: 5 (1965)
21 Normal High: 52 Normal Low: 34 Normal Precip: .09 Normal Snow: 0.4 Record High: 83 (1948) Record Low: 12 (1965) Record Precip: 2.62 (2000) Record Snow: 11.9 (2018)	**22** Normal High: 53 Normal Low: 35 Normal Precip: .09 Normal Snow: 0.3 Record High: 80 (1938) Record Low: 16 (1965) Record Precip: 1.48 (1977) Record Snow: 2.2 (1992)	**23** Normal High: 53 Normal Low: 35 Normal Precip: .08 Normal Snow: 0.4 Record High: 79 (2012) Record Low: 14 (1934) Record Precip: 1.92 (1903) Record Snow: 3 (1896)	**24** Normal High: 53 Normal Low: 35 Normal Precip: .09 Normal Snow: 0.3 Record High: 79 (1939) Record Low: 13 (1896) Record Precip: 1.51 (1969) Record Snow: 1.2 (1990)	**25** Normal High: 54 Normal Low: 36 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 81 (1939) Record Low: 16 (1940) Record Precip: 0.96 (1930) Record Snow: 3.1 (1993)	**26** Normal High: 54 Normal Low: 36 Normal Precip: .09 Normal Snow: 0.3 Record High: 80 (1921) Record Low: 22 (1955) Record Precip: 1.76 (1978) Record Snow: 1.0 (1930)	**27** Normal High: 55 Normal Low: 36 Normal Precip: .09 Normal Snow: 0.3 Record High: 85 (1998) Record Low: 19 (1894) Record Precip: 2.04 (1913) Record Snow: 10 (1891)
28 Normal High: 55 Normal Low: 36 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 84 (1989) Record Low: 18 (1923) Record Precip: 1.68 (1984) Record Snow: 8.0 (1891)	**29** Normal High: 55 Normal Low: 37 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 86 (1945) Record Low: 14 (1923) Record Precip: 1.49 (1984) Record Snow: 9.0 (1942)	**30** Normal High: 56 Normal Low: 37 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 87 (1998) Record Low: 12 (1970) Record Precip: 2.02 (2014) Record Snow: 1.8 (1959)	**31** Normal High: 56 Normal Low: 37 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 85 (1998) Record Low: 16 (1923) Record Precip: 1.08 (1934) Record Snow: 1.8 (1961)			

MARCH SUNRISE/SUNSET

DAY	AM	PM
1	6:40	5:59
2	6:39	6:00
3	6:37	6:01
4	6:36	6:02
5	6:34	6:03
6	6:32	6:05
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8	6:29	6:07
9	6:28	6:08
10	6:26	6:09
11	6:25	6:10
12	6:23	6:11
13	6:21	6:12
14	7:20	7:13
15	7:18	7:14
16	7:17	7:15
17	7:15	7:16
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21	7:08	7:20
22	7:07	7:22
23	7:05	7:23
24	7:03	7:24
25	7:02	7:25
26	7:00	7:26
27	6:59	7:27
28	6:57	7:28
29	6:55	7:29
30	6:54	7:30
31	6:52	7:31

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
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abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

COVID-19 AND BROADCAST METEOROLOGY

by Dan Tomaso

As with the rest of the world, meteorologists had to quickly adjust to safety and health protocols due to COVID-19. Weather does not stop for anything and coming out of winter into spring we had to be prepared for late season snows and the potential for thunderstorms and severe weather.

Our workstation and weather center are right in the news studio and we often see many people during the day as shows and recordings take place. However, most of that activity slowed down as newsroom staffing adapted to working at home. We also paused staffing two meteorologists per day in the weather center, so suddenly it was a quiet studio with one meteorologist handling the forecasting and live shows. But all four members of the abc27 weather team were quite busy during the mandatory country-wide shutdowns. One meteorologist per day was working from home, remotely connecting into our weather computer systems to create graphics and content. In addition, this person was the immediate fill-in for the worst-case scenario that there would be a COVID-19 exposure/outbreak in our studio/newsroom. We were prepared to stay on-the-air and online with any necessary weather forecasts and information for our viewers!

Perhaps the most interesting transition was moving weekend evening weather (6 & 11 PM) to be exclusively at-home. This was to keep me isolated from coming into the building in case a meteorologist on our team was exposed to or contracted COVID-19. I was also the meteorologist tasked with testing the technology and making it happen on live TV. I ended up using a personal tripod and extra lighting at home to turn my living room into a mini studio. Perhaps the coolest piece of technology was an app that allowed my iPhone to broadcast HD quality video and clear audio back to the studio in real time. Utilizing this new technology and managing my weather graphics remotely comes with some challenges, however I am happy to report that we provided each broadcast without any major technical errors! This will certainly be a time in my career that I will never forget, and it is comforting to know that we always have this technology available to help keep our team working in case of any health/safety emergency. Most importantly, we managed as a weather team to have no down time in our forecasting and broadcasting, while staying safe.

APRIL

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
				1 Normal High: 57 Normal Low: 38 Normal Precip: .11 Normal Snow: 0 Record High: 85 (1978) Record Low: 11 (1923) Record Precip: 1.34 (2004) Record Snow: 8.0 (1924)	**2** Normal High: 57 Normal Low: 38 Normal Precip: .12 Normal Snow: 0.1 Record High: 87 (1993) Record Low: 22 (1964) Record Precip: 1.92 (2005) Record Snow: 3.9 (2018)	**3** Normal High: 57 Normal Low: 38 Normal Precip: .11 Normal Snow: 0 Record High: 86 (1963) Record Low: 22 (1896) Record Precip: 1.58 (1960) Record Snow: 1.0 (1985)
4 Normal High: 58 Normal Low: 38 Normal Precip: 0.1 Normal Snow: 0 Record High: 82 (1999) Record Low: 24 (1964) Record Precip: 1.12 (1973) Record Snow: 0.7 (1957)	**5** Normal High: 58 Normal Low: 39 Normal Precip: 0.1 Normal Snow: 0 Record High: 83 (1910) Record Low: 23 (1898) Record Precip: 1.43 (1957) Record Snow: 2.2 (1989)	**6** Normal High: 59 Normal Low: 39 Normal Precip: 0.1 Normal Snow: 0 Record High: 89 (2010) Record Low: 28 (1898) Record Precip: 1.62 (1924) Record Snow: 6.3 (1982)	**7** Normal High: 59 Normal Low: 39 Normal Precip: 0.1 Normal Snow: 0.1 Record High: 87 (2010) Record Low: 19 (1982) Record Precip: 1.11 (1962) Record Snow: 2.0 (2003)	**8** Normal High: 60 Normal Low: 40 Normal Precip: .11 Normal Snow: 0 Record High: 89 (1929) Record Low: 23 (1982) Record Precip: 1.26 (1940) Record Snow: 6.0 (1916)	**9** Normal High: 60 Normal Low: 40 Normal Precip: .11 Normal Snow: 0 Record High: 83 (1991) Record Low: 25 (1977) Record Precip: 1.23 (1998) Record Snow: 4.0 (1996)	**10** Normal High: 60 Normal Low: 40 Normal Precip: .11 Normal Snow: 0 Record High: 86 (1922) Record Low: 26 (1985) Record Precip: 1.88 (1993) Record Snow: 5.0 (1894)
11 Normal High: 61 Normal Low: 40 Normal Precip: 0.1 Normal Snow: 0 Record High: 86 (2017) Record Low: 26 (1909) Record Precip: 1.04 (1894) Record Snow: 13 (1894)	**12** Normal High: 61 Normal Low: 41 Normal Precip: 0.1 Normal Snow: 0 Record High: 86 (1977) Record Low: 26 (1926) Record Precip: 1.14 (2004) Record Snow: 3.1 (1959)	**13** Normal High: 62 Normal Low: 41 Normal Precip: 0.1 Normal Snow: 0.1 Record High: 85 (1945) Record Low: 25 (1990) Record Precip: 1.35 (2020) Record Snow: 0.4 (1961)	**14** Normal High: 62 Normal Low: 41 Normal Precip: 0.1 Normal Snow: 0 Record High: 89 (1941) Record Low: 21 (1950) Record Precip: 1.31 (2002) Record Snow: 2.0 (1923)	**15** Normal High: 62 Normal Low: 42 Normal Precip: 0.1 Normal Snow: 0 Record High: 87 (1941) Record Low: 27 (1943) Record Precip: 2.17 (1983) Record Snow: 0.3 (1923)	**16** Normal High: 63 Normal Low: 42 Normal Precip: .09 Normal Snow: 0 Record High: 89 (2002) Record Low: 25 (1943) Record Precip: 3.46 (2011) Record Snow: 0.1 (1943)	**17** Normal High: 63 Normal Low: 42 Normal Precip: 0.1 Normal Snow: 0 Record High: 91 (2002) Record Low: 29 (2020) Record Precip: 1.01 (1910) Record Snow: Trace (2018)
18 Normal High: 64 Normal Low: 43 Normal Precip: .09 Normal Snow: 0 Record High: 92 (1896) Record Low: 28 (1948) Record Precip: 1.14 (1924) Record Snow: Trace (2001)	**19** Normal High: 64 Normal Low: 43 Normal Precip: 0.1 Normal Snow: 0 Record High: 92 (1896) Record Low: 29 (2020) Record Precip: 1.64 (1943) Record Snow: 0.9 (1983)	**20** Normal High: 64 Normal Low: 43 Normal Precip: .11 Normal Snow: 0.1 Record High: 92 (1941) Record Low: 26 (1904) Record Precip: 1.80 (1940) Record Snow: 0.4 (1983)	**21** Normal High: 65 Normal Low: 44 Normal Precip: 0.1 Normal Snow: 0 Record High: 89 (1985) Record Low: 30 (1956) Record Precip: 1.64 (1992) Record Snow: Trace (1953)	**22** Normal High: 65 Normal Low: 44 Normal Precip: .11 Normal Snow: 0 Record High: 93 (1985) Record Low: 31 (1981) Record Precip: 1.24 (2006) Record Snow: 0.6 (1993)	**23** Normal High: 65 Normal Low: 44 Normal Precip: .11 Normal Snow: 0 Record High: 91 (1960) Record Low: 30 (1989) Record Precip: 1.91 (1921) Record Snow: Trace (1986)	**24** Normal High: 66 Normal Low: 45 Normal Precip: 0.1 Normal Snow: 0 Record High: 90 (1960) Record Low: 30 (1930) Record Precip: 1.74 (1983) Record Snow: Trace (2015)
25 Normal High: 66 Normal Low: 45 Normal Precip: 0.1 Normal Snow: 0 Record High: 93 (1915) Record Low: 30 (1956) Record Precip: 1.28 (1914) Record Snow: Trace (1919)	**26** Normal High: 66 Normal Low: 45 Normal Precip: .11 Normal Snow: 0 Record High: 91 (1990) Record Low: 32 (1892) Record Precip: 1.50 (1998) Record Snow: Trace (1919)	**27** Normal High: 67 Normal Low: 46 Normal Precip: 0.1 Normal Snow: 0 Record High: 92 (2009) Record Low: 33 (1928) Record Precip: 1.79 (1928) Record Snow: 1.5 (1928)	**28** Normal High: 67 Normal Low: 46 Normal Precip: 0.1 Normal Snow: 0 Record High: 90 (1957) Record Low: 33 (1934) Record Precip: 1.55 (2011) Record Snow: 0.9 (1928)	**29** Normal High: 67 Normal Low: 46 Normal Precip: .11 Normal Snow: 0 Record High: 90 (1974) Record Low: 32 (2001) Record Precip: 0.76 (1996) Record Snow: 0.2 (1909)	**30** Normal High: 68 Normal Low: 47 Normal Precip: 0.1 Normal Snow: 0 Record High: 92 (1942) Record Low: 35 (2012) Record Precip: 2.58 (2014) Record Snow: Trace (1925)	

APRIL SUNRISE/SUNSET

DAY	AM	PM
1	6:50	7:32
2	6:49	7:33
3	6:47	7:34
4	6:46	7:35
5	6:44	7:36
6	6:42	7:37
7	6:41	7:38
8	6:39	7:39
9	6:38	7:40
10	6:36	7:41
11	6:35	7:42
12	6:33	7:43
13	6:32	7:44
14	6:30	7:45
15	6:28	7:46
16	6:27	7:47
17	6:26	7:48
18	6:24	7:49
19	6:23	7:50
20	6:21	7:51
21	6:20	7:52
22	6:18	7:53
23	6:17	7:54
24	6:15	7:55
25	6:14	7:56
26	6:13	7:57
27	6:11	7:59
28	6:10	8:00
29	6:09	8:01
30	6:08	8:02

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

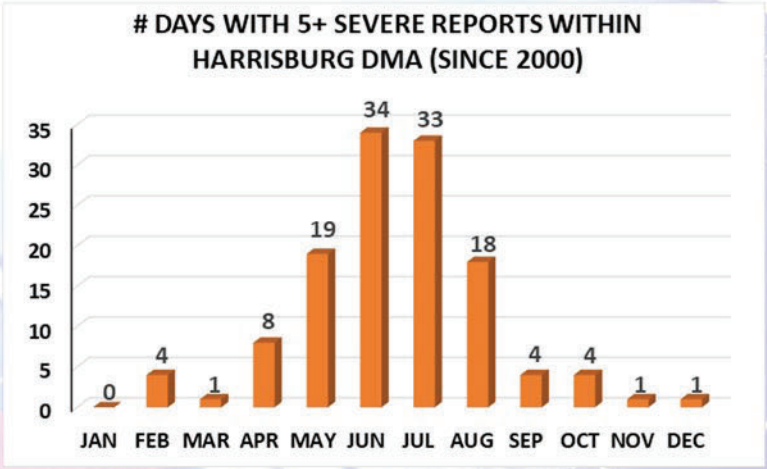
YOUR MOST ACCURATE LOCAL FORECAST

SEVERE WEATHER

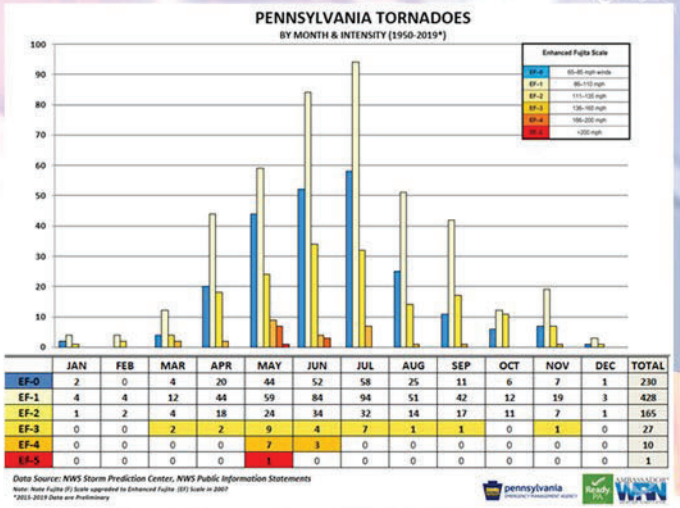
by Adis Juklo

In central PA, severe weather can happen anytime throughout the year. However, there is a climatological peak when it comes to our worst severe weather days. I looked back to find the number of days with five or more severe weather reports in our viewing area since 2000. Keep in mind, this combines reports of hail, damaging wind, and tornadoes. It's no surprise that June or July are our most active months, with 34 and 33 days of five or more severe weather reports, respectively. Severe weather frequency diminishes significantly by September and October, with only two 5+ severe weather report days occurring between November and January since 2000. So, while severe weather has certainly happened during the fall and winter, when it does happen, it tends to be much more isolated.

In the entire state of Pennsylvania, tornadoes specifically are also most common in the months of June and July. However, by looking at the orange and red colored bars (which represent strong tornadoes), you'll note that EF3+ intensity tornadoes are most common during the months of May and June. This is mainly because higher amounts of wind shear (changing of wind with height) are present in the lower atmosphere during the late spring when compared to summer. Two examples of tornado outbreaks during this time are May 31, 1985 and June 2, 1998. This year featured a well below average year when it comes to tornadoes, with zero tornadoes confirmed in our viewing area as of early December.



Data obtained via https://www.spc.noaa.gov/exper/archive/events/



	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
EF-0	2	0	4	20	44	52	58	25	11	6	7	1	230
EF-1	4	4	12	44	59	84	94	51	42	12	19	3	428
EF-2	1	2	4	18	24	34	32	14	17	11	7	1	165
EF-3	0	0	2	2	9	4	7	1	1	0	1	0	27
EF-4	0	0	0	0	7	3	0	0	0	0	0	0	10
EF-5	0	0	0	0	1	0	0	0	0	0	0	0	1

Graph via https://www.weather.gov/ctp/SevereWeatherClimatology

MAY

SUN	MON	TUE	WED	THU	FRI	SAT
						1 68 | 97 (1942) 47 | 35 (1978) .12 | 1.53 (1932) 0 | Trace (1963)
2 68 | 88 (1930) 47 | 34 (1903) .13 | 2.71 (1929) 0 | 0	**3** 69 | 90 (2018) 48 | 35 (1963) .12 | 1.67 (2010) 0 | 0	**4** 69 | 91 (1949) 48 | 35 (2002) .13 | 1.58 (1893) 0 | 0	**5** 69 | 93 (1949) 48 | 34 (1966) .13 | 2.23 (1989) 0 | 0	**6** 70 | 91 (1949) 49 | 36 (1891) .12 | 1.56 (1991) 0 | Trace (1891)	**7** 70 | 93 (2000) 49 | 34 (1968) .11 | 1.88 (1944) 0 | 0	**8** 70 | 92 (2000) 49 | 34 (1947) .12 | 2.63 (1960) 0 | Trace (2020)
9 70 | 93 (1963) 50 | 32 (1947) .12 | 1.07 (1972) 0 | Trace (2020)	**10** 71 | 95 (1963) 50 | 30 (2020) .12 | 1.46 (1990) 0 | 0	**11** 71 | 92 (1948) 50 | 31 (1966) .11 | 1.72 (1952) 0 | 0	**12** 71 | 90 (1944) 51 | 36 (1907) .12 | 1.56 (1980) 0 | 0	**13** 71 | 90 (1944) 51 | 36 (1967) .11 | 1.82 (1897) 0 | 0	**14** 72 | 92 (1940) 51 | 34 (1996) .13 | 1.37 (1978) 0 | 0	**15** 72 | 94 (1962) 52 | 37 (1939) .12 | 1.55 (1950) 0 | 0
16 72 | 92 (1998) 52 | 38 (1973) .12 | 2.28 (1942) 0 | Trace (1956)	**17** 72 | 91 (2017) 52 | 34 (1956) .12 | 1.42 (1985) 0 | Trace (1953)	**18** 73 | 94 (1962) 53 | 36 (1973) .12 | 1.46 (2011) 0 | 0	**19** 73 | 95 (1962) 53 | 35 (1973) .12 | 2.16 (1890) 0 | 0	**20** 73 | 94 (1996) 54 | 38 (2002) .12 | 1.55 (1889) 0 | 0	**21** 73 | 95 (1941) 54 | 38 (2002) .12 | 1.82 (1919) 0 | 0	**22** 74 | 96 (1941) 54 | 38 (1895) .13 | 1.42 (1983) 0 | 0
23 74 | 94 (1925) 55 | 40 (2002) .12 | 1.41 (1979) 0 | Trace (1950)	**24** 74 | 91 (1964) 55 | 35 (1963) .13 | 1.91 (1910) 0 | Trace (1938)	**25** 75 | 92 (1991) 55 | 35 (1956) .12 | 2.44 (1997) 0 | 0	**26** 75 | 93 (1991) 56 | 41 (1972) .12 | 2.37 (1953) 0 | 0	**27** 75 | 92 (1991) 56 | 41 (1915) .12 | 1.13 (1946) 0 | 0	**28** 75 | 93 (1941) 56 | 41 (1983) .12 | 2.58 (1982) 0 | 0	**29** 76 | 95 (1969) 57 | 40 (1949) .13 | 2.45 (1990) 0 | 0
30 76 | 95 (1895) 57 | 41 (1949) .14 | 1.39 (1953) 0 | 0	**31** 76 | 97 (1939) 57 | 43 (1996) .13 | 4.66 (1889) 0 | 0					

MAY SUNRISE/SUNSET

DAY	AM	PM
1	6:06	8:03
2	6:05	8:04
3	6:04	8:05
4	6:03	8:06
5	6:01	8:07
6	6:00	8:08
7	5:59	8:09
8	5:58	8:10
9	5:57	8:11
10	5:56	8:12
11	5:55	8:13
12	5:54	8:14
13	5:53	8:15
14	5:52	8:16
15	5:51	8:16
16	5:50	8:17
17	5:49	8:18
18	5:48	8:19
19	5:47	8:20
20	5:47	8:21
21	5:46	8:22
22	5:45	8:23
23	5:44	8:24
24	5:44	8:25
25	5:43	8:25
26	5:42	8:26
27	5:42	8:27
28	5:41	8:28
29	5:41	8:29
30	5:40	8:29
31	5:40	8:30

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

2021 WEATHER ALMANAC

PRECIPITABLE WATER

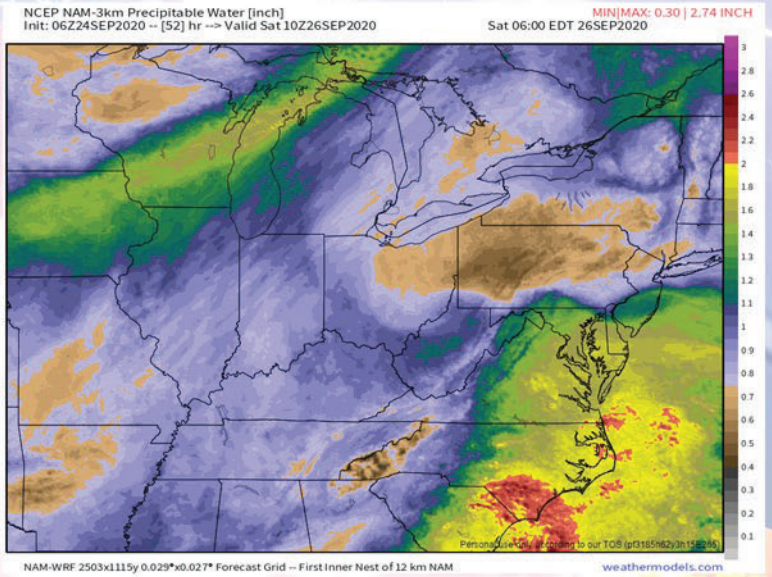
by Brett Thackara

There are many ways to measure moisture in the atmosphere including relative humidity and dew point. Another way you may not have heard about is called precipitable water and meteorologists use this value quite a bit when making forecasts. Precipitable water indicates the amount of moisture in the atmosphere above a fixed location. It isn't used to predict how much rain will fall, but rather how much moisture is in the air. The precipitable water (PW) number works like this: higher values indicate greater availability of moisture IF precipitation develops. High PW values don't indicate rain will develop, but rather how much moisture the atmosphere has available.

Let's say the PW value is 1.00". This doesn't mean 1.00" of rain will fall over that given backyard, but rather it means that all the moisture above that point would equal 1" if it were to be condensed out of the air. The PW value is also instantaneous, meaning it could rain more than the PW value for two reasons: moisture convergence can occur due to other factors like cold and warm fronts, and rain falls over a period of time rather than all at once. This may sound a bit complex, but let's break it down by actual numbers.

A general rule for understanding PW values is as follows: 0.50" or less means low moisture content above a certain location. Moderate moisture content would be 1.00-2.00". Anything over 2.00" values indicates high moisture content. If a PW value is over 2.00", it is likely that should rain develop, it would be on the heavy side and could create flooding concerns. Looking at the PW values can help meteorologists with forecasts in a variety of ways.

Flooding is the obvious implication over a certain area when PW values are high. If a meteorologist notices higher than normal PW values (relative to climatological normals) then flooding has a higher probability of happening when rain develops. High PW amounts in the atmosphere also can lead to numerous lightning strikes given other unstable parameters. More moisture in the atmosphere can help reduce wind gusts over a certain area as well because high wind gusts need a dry layer in the atmosphere to help them develop. Hail chances are also reduced in highPW environments since air parcels can't travel as high up within a cloud due to the heavy moisture content.



(This image shows precipitable water values over the Mid-Atlantic region as a tropical system affects the Carolinas and dry air from Canada invades northern PA. The tan color across northern PA shows PW values of less than 0.50" while values surge to over 2.00" across North Carolina. Clearly, more moisture is a vailable within the tropical system than with dry, Canadian air farther north.)

JUNE

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
		1 77 | 97 (1895) 58 | 45 (2009) .11 | 3.12 (1889) 0 | 0	**2** 77 | 96 (1895) 58 | 45 (1907) .12 | 2.74 (1959) 0 | 0	**3** 77 | 96 (1919) 58 | 44 (1929) .11 | 1.25 (1910) 0 | 0	**4** 78 | 98 (1925) 59 | 46 (1977) .11 | 1.17 (1892) 0 | 0	**5** 78 | 99 (1925) 59 | 46 (1990) .12 | 1.25 (1975) 0 | 0
6 78 | 99 (1925) 59 | 43 (1945) .12 | 1.15 (1919) 0 | 0	**7** 78 | 96 (1999) 60 | 43 (1958) .13 | 2.06 (1931) 0 | 0	**8** 79 | 96 (1999) 60 | 43 (1977) .12 | 1.91 (1955) 0 | 0	**9** 79 | 97 (1933) 60 | 44 (1913) .12 | 1.75 (1937) 0 | 0	**10** 79 | 96 (1984) 61 | 47 (1988) .12 | 1.7 (2009) 0 | 0	**11** 80 | 96 (1911) 61 | 40 (1980) .12 | 1.32 (1996) 0 | 0	**12** 80 | 92 (2017) 61 | 44 (1980) .13 | 1.88 (1890) 0 | 0
13 80 | 96 (2017) 62 | 45 (1979) .13 | 1.47 (1982) 0 | 0	**14** 81 | 97 (1945) 62 | 44 (1979) .12 | 1.22 (1927) 0 | 0	**15** 81 | 97 (1994) 62 | 48 (1978) .12 | 1.48 (1989) 0 | 0	**16** 81 | 96 (1991) 62 | 41 (1961) .12 | 1.84 (2011) 0 | 0	**17** 82 | 98 (1939) 63 | 45 (1961) .12 | 1.59 (1930) 0 | 0	**18** 82 | 97 (1957) 63 | 48 (1958) .12 | 1.52 (1937) 0 | 0	**19** 82 | 98 (1994) 63 | 52 (1954) .12 | 1.87 (1996) 0 | 0
20 83 | 98 (1931) 64 | 48 (1926) .11 | 2.27 (1987) 0 | 0	**21** 83 | 98 (1923) 64 | 48 (1940) .12 | 5.81 (1972) 0 | 0	**22** 83 | 97 (1988) 64 | 46 (1940) .12 | 9.13 (1972) 0 | 0	**23** 83 | 97 (1965) 64 | 48 (1992) .12 | 1.38 (1974) 0 | 0	**24** 84 | 98 (1966) 64 | 49 (1902) .13 | 1.72 (2017) 0 | 0	**25** 84 | 98 (1997) 65 | 45 (1979) .12 | 3.95 (2006) 0 | 0	**26** 84 | 100 (1952) 65 | 47 (1979) .12 | 1.88 (1978) 0 | 0
27 84 | 100 (1966) 65 | 54 (1981) .12 | 2.4 (1975) 0 | 0	**28** 85 | 98 (1969) 65 | 52 (1988) .11 | 1.34 (2016) 0 | 0	**29** 85 | 100 (1934) 65 | 53 (1956) .12 | 2.07 (1928) 0 | 0	**30** 85 | 97 (1991) 65 | 49 (1988) .13 | 1.38 (1904) 0 | 0			

JUNE SUNRISE/SUNSET

DAY	AM	PM
1	5:39	8:31
2	5:39	8:32
3	5:39	8:32
4	5:38	8:33
5	5:38	8:34
6	5:38	8:34
7	5:38	8:35
8	5:37	8:35
9	5:37	8:36
10	5:37	8:36
11	5:37	8:37
12	5:37	8:37
13	5:37	8:38
14	5:37	8:38
15	5:37	8:39
16	5:37	8:39
17	5:37	8:39
18	5:37	8:40
19	5:37	8:40
20	5:37	8:40
21	5:38	8:40
22	5:38	8:40
23	5:38	8:41
24	5:38	8:41
25	5:39	8:41
26	5:39	8:41
27	5:39	8:41
28	5:40	8:41
29	5:40	8:41
30	5:41	8:41

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

TROPICAL NAMING CONVENTIONS

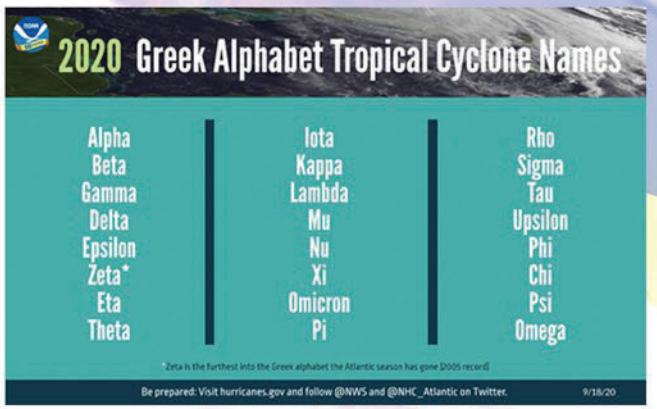
by Brett Thackara

Tropical cyclone names are nothing new. In fact, the convention of naming storms started in the early 1950s, when just female names were used. The reason for doing this, according to the National Hurricane Center, is that by giving storms short, exclusive names people are more likely to pay attention and remember them rather than using latitude/longitude coordinates like in the past. Exchanging data between weather sites, coastal areas, and naval ships is much easier using names, especially when giving out detailed information about the storm itself. So, where do the names originate, and how does the naming work each year?

The World Meteorological Organization has a prepared list of 21 potential storm names each year. The names are from A to W and don't include names that start with Q, U, X, Y, or Z because there aren't many from which to choose. There are 6 lists of names that rotate, so each 7th year one list gets repeated. This is why there can be multiple storms with the same name and some names sound familiar. The only time a name is changed on a pre-produced list is when a storm turns out to be historic, costly, and deadly. That name is retired and replaced on that specific list. For example, there will never be another K storm named Katrina.

Last season, the Atlantic Basin was so active with tropical cyclones, that the 2020 list ran out of names to use. After "Wilfred" developed, there were no more names on the list. When this happens, the Greek alphabet is used for naming storms. Any storm that develops after the W name, is called Alpha, Beta, Gamma, Delta, and so on. This only happened once before in 2005. That year was an extremely active season in the tropics. Six letters of the Greek alphabet were used and the last cyclone that season was Tropical Storm Zeta.

Back in 2005, Alpha was used with a storm that formed on October 22nd. Last season, Alpha was put into rotation over a month earlier, on September 18th. 2005 was the most active hurricane season on record with 27 named storms. As of this writing, 23 storms formed during the 2020 season. It is certainly true that names help us remember storms much better than a more generic way to identify them. Below you will find the names for the 2021 season along with the Greek alphabet names too.



JULY

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
				1 Normal High: 85 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 100 (1931) Record Low: 50 (1943) Record Precip: 1.28 (1995) Record Snow: 0	**2** Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 104 (1966) Record Low: 50 (1982) Record Precip: 2.18 (1924) Record Snow: 0	**3** Normal High: 85 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 107 (1966) Record Low: 51 (1939) Record Precip: 1.65 (1978) Record Snow: 0
4 Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 104 (1966) Record Low: 54 (1979) Record Precip: 1.58 (1989) Record Snow: 0	**5** Normal High: 86 Normal Low: 66 Normal Precip: .13 Normal Snow: 0 Record High: 102 (1999) Record Low: 51 (1979) Record Precip: 1.87 (2006) Record Snow: 0	**6** Normal High: 86 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 102 (1999) Record Low: 51 (1979) Record Precip: 1.37 (1896) Record Snow: 0	**7** Normal High: 86 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 101 (2012) Record Low: 52 (1983) Record Precip: 1.06 (2017) Record Snow: 0	**8** Normal High: 86 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 101 (1988) Record Low: 53 (1983) Record Precip: 2.84 (1998) Record Snow: 0	**9** Normal High: 86 Normal Low: 66 Normal Precip: .17 Normal Snow: 0 Record High: 103 (1936) Record Low: 53 (1963) Record Precip: 1.89 (1970) Record Snow: 0	**10** Normal High: 86 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 103 (1936) Record Low: 52 (1894) Record Precip: 1.38 (2010) Record Snow: 0
11 Normal High: 86 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 100 (1936) Record Low: 53 (1983) Record Precip: 1.4 (1920) Record Snow: 0	**12** Normal High: 86 Normal Low: 67 Normal Precip: .15 Normal Snow: 0 Record High: 97 (1966) Record Low: 49 (1945) Record Precip: 2.52 (1949) Record Snow: 0	**13** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 99 (1966) Record Low: 54 (1978) Record Precip: 2.48 (1989) Record Snow: 0	**14** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 101 (1954) Record Low: 51 (1940) Record Precip: 1.84 (1960) Record Snow: 0	**15** Normal High: 86 Normal Low: 67 Normal Precip: .15 Normal Snow: 0 Record High: 99 (1997) Record Low: 53 (1895) Record Precip: 1.73 (1919) Record Snow: 0	**16** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 104 (1988) Record Low: 52 (1946) Record Precip: 1.59 (1947) Record Snow: 0	**17** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 100 (1999) Record Low: 54 (1987) Record Precip: 1.39 (1949) Record Snow: 0
18 Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 101 (1999) Record Low: 54 (1982) Record Precip: 3.12 (1945) Record Snow: 0	**19** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 101 (1991) Record Low: 54 (1939) Record Precip: 2.67 (1961) Record Snow: 0	**20** Normal High: 86 Normal Low: 67 Normal Precip: .16 Normal Snow: 0 Record High: 101 (1991) Record Low: 53 (1965) Record Precip: 1.9 (1981) Record Snow: 0	**21** Normal High: 86 Normal Low: 67 Normal Precip: .15 Normal Snow: 0 Record High: 101 (2011) Record Low: 52 (1965) Record Precip: 3.84 (1994) Record Snow: 0	**22** Normal High: 86 Normal Low: 67 Normal Precip: .15 Normal Snow: 0 Record High: 103 (2011) Record Low: 50 (1890) Record Precip: 2.34 (2013) Record Snow: 0	**23** Normal High: 86 Normal Low: 67 Normal Precip: .15 Normal Snow: 0 Record High: 103 (1991) Record Low: 54 (1983) Record Precip: 4.71 (2017) Record Snow: 0	**24** Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 96 (2001) Record Low: 54 (1947) Record Precip: 2.22 (1918) Record Snow: 0
25 Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 99 (1940) Record Low: 53 (1953) Record Precip: 2.38 (2011) Record Snow: 0	**26** Normal High: 85 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 100 (1966) Record Low: 53 (1976) Record Precip: 1.17 (1991) Record Snow: 0	**27** Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 99 (1941) Record Low: 52 (1962) Record Precip: 2.74 (1969) Record Snow: 0	**28** Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 99 (1941) Record Low: 51 (1962) Record Precip: 1.43 (1898) Record Snow: 0	**29** Normal High: 85 Normal Low: 66 Normal Precip: .13 Normal Snow: 0 Record High: 98 (1940) Record Low: 56 (1978) Record Precip: 1.86 (1889) Record Snow: 0	**30** Normal High: 85 Normal Low: 66 Normal Precip: .15 Normal Snow: 0 Record High: 98 (1940) Record Low: 53 (1956) Record Precip: 2.13 (1891) Record Snow: 0	**31** Normal High: 85 Normal Low: 66 Normal Precip: .14 Normal Snow: 0 Record High: 100 (1954) Record Low: 53 (1895) Record Precip: 1.58 (1892) Record Snow: 0

JULY SUNRISE/SUNSET

DAY	AM	PM
1	5:41	8:41
2	5:42	8:40
3	5:42	8:40
4	5:43	8:40
5	5:43	8:40
6	5:44	8:39
7	5:45	8:39
8	5:45	8:39
9	5:46	8:38
10	5:47	8:38
11	5:47	8:38
12	5:48	8:37
13	5:49	8:37
14	5:50	8:36
15	5:50	8:35
16	5:51	8:35
17	5:52	8:34
18	5:53	8:33
19	5:54	8:33
20	5:54	8:32
21	5:55	8:31
22	5:56	8:30
23	5:57	8:30
24	5:58	8:29
25	5:59	8:28
26	6:00	8:27
27	6:00	8:26
28	6:01	8:25
29	6:02	8:24
30	6:03	8:23
31	6:04	8:22

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

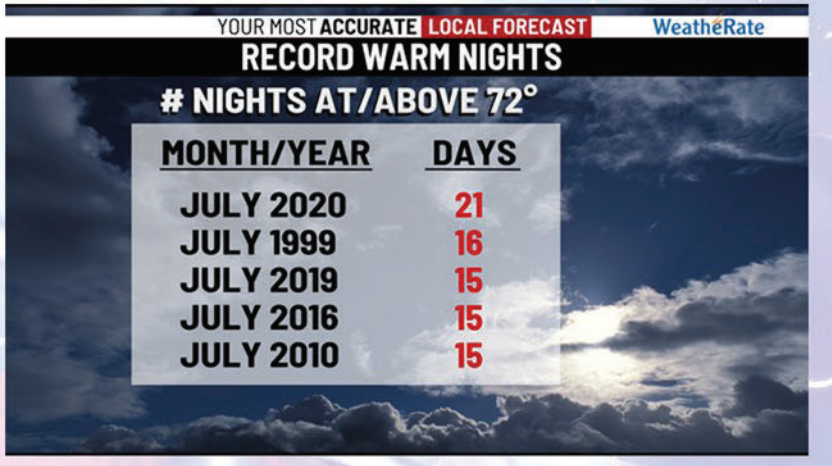
YOUR MOST ACCURATE LOCAL FORECAST

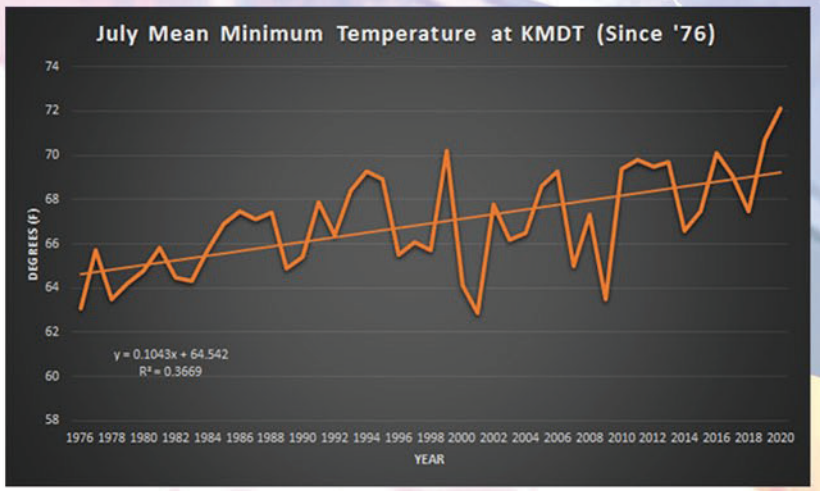
JULY HEAT

by Adis Juklo

Summer 2020 was Harrisburg's hottest summer on record, mainly because July turned out to be the hottest month on record! We normally think of summertime heat as coming from the south, but this summer, strong high pressure over Canada allowed for plenty of warmth to flush into the Mid-state from the west and northwest as well. The lack of rain (1.35" total – 12th driest July) also helped assure most days reached the maximum temperature potential.

You may think, "I don't remember breaking any high temperatures records." That would be correct! Our high temperatures were consistently warm but never achieved record status for any one day. In fact, when you look at July 2020's high temperatures, we ranked 8th highest, behind notable summers such as 2011 and 1966. However, July 2020's morning lows were what pushed the month's average temperature above any other month. The average low temperature was 77 degrees, 2.5 degrees above the second rank which was 1955. July 2020 featured more nights at or above 72 degrees than any other month in our recorded history. In fact, in the last 30 years, there has been a notable warming trend in low temperatures at Harrisburg. This can be attributed to several factors, including higher dew points, elevated winds, and perhaps topographic influences.





AUGUST

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
1 85 | 97 (2002) 66 | 55 (1964) .11 | 2.05 (2004) 0 | 0	**2** 85 | 100 (2002) 66 | 53 (1947) .12 | 2.28 (1894) 0 | 0	**3** 85 | 99 (1930) 66 | 51 (1959) .11 | 2.54 (1971) 0 | 0	**4** 85 | 103 (1930) 66 | 53 (1912) .12 | 1.6 (2017) 0 | 0	**5** 85 | 100 (1955) 66 | 49 (1951) .11 | 2.55 (1986) 0 | 0	**6** 85 | 104 (1918) 66 | 50 (1994) .12 | 2.77 (1913) 0 | 0	**7** 84 | 104 (1918) 66 | 53 (1964) .10 | 2.07 (1920) 0 | 0
8 84 | 99 (2001) 66 | 51 (1989) .11 | 2.87 (1925) 0 | 0	**9** 84 | 98 (2001) 66 | 52 (1989) .10 | 2.78 (1991) 0 | 0	**10** 84 | 98 (1949) 65 | 53 (1989) .11 | 2.37 (1898) 0 | 0	**11** 84 | 99 (1944) 65 | 50 (1972) .09 | 0.91 (2015) 0 | 0	**12** 84 | 101 (1944) 65 | 52 (1968) .10 | 2.55 (2014) 0 | 0	**13** 84 | 100 (1944) 65 | 50 (1930) .10 | 1.94 (1955) 0 | 0	**14** 84 | 97 (2002) 65 | 47 (1961) .10 | 2.75 (2012) 0 | 0
15 85 | 99 (1988) 64 | 51 (1983) .10 | 1.09 (1935) 0 | 0	**16** 84 | 97 (1997) 65 | 50 (1963) .09 | 1.76 (2013) 0 | 0	**17** 84 | 99 (1999) 65 | 48 (1979) .10 | 2.08 (1994) 0 | 0	**18** 83 | 97 (2019) 65 | 48 (1981) .09 | 2.46 (1920) 0 | 0	**19** 83 | 97 (1966) 64 | 50 (1963) .10 | 2.7 (1989) 0 | 0	**20** 83 | 100 (1983) 64 | 50 (1964) .10 | 1.97 (2004) 0 | 0	**21** 86 | 97 (1916) 64 | 50 (2000) .09 | 4.3 (1915) 0 | 0
22 83 | 99 (1983) 64 | 50 (1988) .10 | 1.65 (1990) 0 | 0	**23** 83 | 97 (1968) 64 | 50 (1981) .11 | 4.66 (1933) 0 | 0	**24** 83 | 96 (1968) 64 | 49 (1952) .10 | 2.07 (1945) 0 | 0	**25** 82 | 97 (1975) 63 | 48 (1963) .11 | 2.48 (1905) 0 | 0	**26** 82 | 99 (1948) 63 | 46 (1944) .10 | 1.8 (1899) 0 | 0	**27** 82 | 97 (1948) 63 | 48 (1944) .10 | 2.4 (1971) 0 | 0	**28** 82 | 100 (1973) 63 | 49 (1968) .10 | 2.26 (1903) 0 | 0
29 82 | 97 (1953) 62 | 46 (1982) .11 | 1.23 (1911) 0 | 0	**30** 81 | 98 (1953) 62 | 47 (1986) .10 | 1.85 (1947) 0 | 0	**31** 81 | 98 (1953) 62 | 45 (1976) .10 | 2.61 (1940) 0 | 0				

AUGUST SUNRISE/SUNSET

DAY	AM	PM
1	6:05	8:21
2	6:06	8:20
3	6:07	8:19
4	6:08	8:18
5	6:09	8:17
6	6:10	8:15
7	6:11	8:14
8	6:12	8:13
9	6:13	8:12
10	6:14	8:10
11	6:15	8:09
12	6:16	8:08
13	6:17	8:06
14	6:18	8:05
15	6:18	8:04
16	6:19	8:02
17	6:20	8:01
18	6:21	8:00
19	6:22	7:58
20	6:23	7:57
21	6:24	7:55
22	6:25	7:54
23	6:26	7:52
24	6:27	7:51
25	6:28	7:49
26	6:29	7:48
27	6:30	7:46
28	6:31	7:45
29	6:32	7:43
30	6:33	7:41
31	6:34	7:40

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

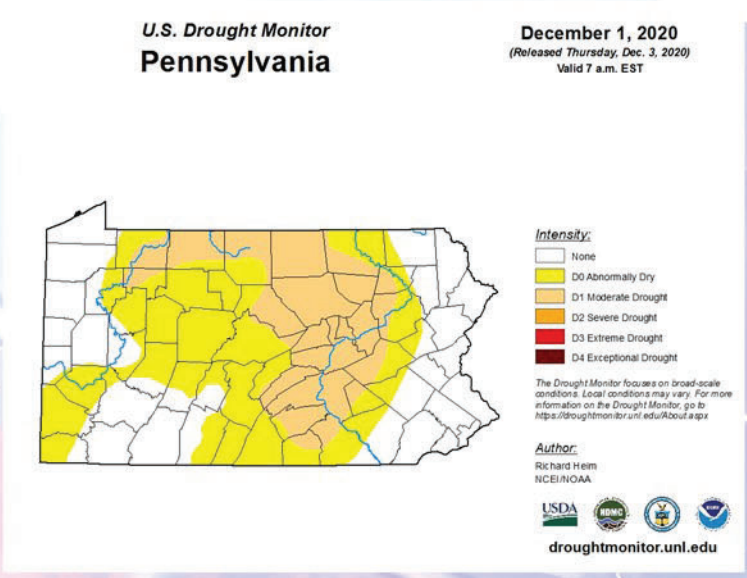
YOUR MOST ACCURATE LOCAL FORECAST

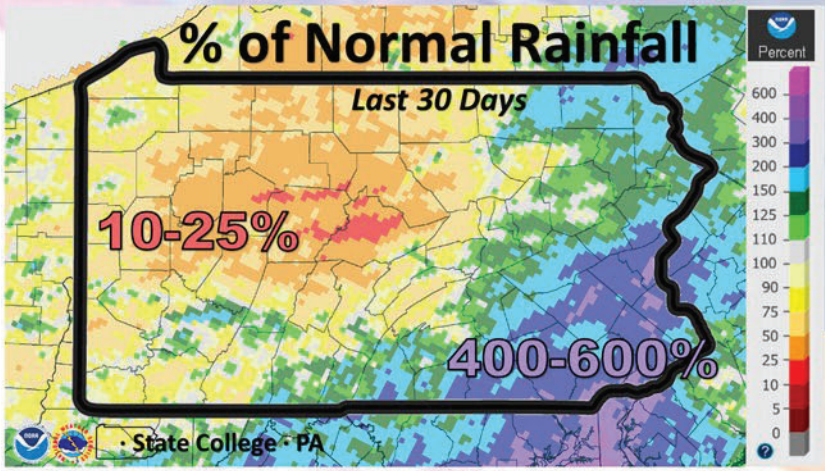
FEAST OR FAMINE

by Eric Finkenbinder

Due to the pandemic, many of us decided to take weekend trips or small vacations across Pennsylvania over the summer of 2020. Even if you traveled locally, you may have noticed a difference in the farm fields or the local streams. While the western half of the Midstate was dealing with a developing drought, the eastern third of Pennsylvania was receiving a weekly dose of thunderstorms and downpours. Check out the image showing the extreme rainfall differences. During the month of August parts of Lebanon, Lancaster and York counties received between 200–400 percent of their average August rainfall while Perry, Juniata and Mifflin counties received between 30 and 50 percent of their August rain.

A moderate drought developed across much of central PA toward the end of summer and continued to expand as we moved into fall. A severe drought developed just north of us across much of Centre and Lycoming counties.





abc 27 NEWS YOUR MOST ACCURATE LOCAL FORECAST

2021 WEATHER ALMANAC

SEPTEMBER

2021 WEATHER ALMANAC

YOUR MOST ACCURATE LOCAL FORECAST

SUN	MON	TUE	WED	THU	FRI	SAT
			1 81 | 98 (1953) 62 | 47 (1967) .11 | 3.6 (1952) 0 | 0	**2** 81 | 102 (1953) 61 | 45 (1949) .12 | 2.69 (2006) 0 | 0	**3** 80 | 102 (1953) 61 | 43 (1967) .12 | 1.52 (1993) 0 | 0	**4** 80 | 93 (2015) 61 | 46 (1946) .12 | 1.33 (2011) 0 | 0
5 80 | 94 (2018) 60 | 47 (1974) .12 | 1.92 (1979) 0 | 0	**6** 79 | 96 (1983) 60 | 46 (1988) .12 | 2.59 (2008) 0 | 0	**7** 79 | 96 (1985) 60 | 46 (1976) .11 | 7.71 (2011) 0 | 0	**8** 79 | 99 (1939) 59 | 45 (1988) .13 | 2.25 (1993) 0 | 0	**9** 78 | 96 (1941) 59 | 47 (1986) .12 | 2.54 (2018) 0 | 0	**10** 78 | 97 (1983) 59 | 42 (1956) .13 | 4.37 (2015) 0 | 0	**11** 78 | 97 (1964) 58 | 40 (1917) .13 | 2.17 (2009) 0 | 0
12 77 | 97 (1931) 58 | 41 (1917) .13 | 1.98 (2015) 0 | 0	**13** 77 | 93 (1952) 57 | 40 (1943) .14 | 1.54 (1944) 0 | 0	**14** 76 | 90 (2016) 57 | 39 (1964) .15 | 4.34 (1973) 0 | 0	**15** 76 | 94 (1942) 57 | 41 (1963) .16 | 3.63 (1916) 0 | 0	**16** 76 | 96 (1970) 56 | 42 (1988) .15 | 3.15 (1999) 0 | 0	**17** 75 | 93 (1972) 56 | 41 (1959) .15 | 2.46 (2004) 0 | 0	**18** 75 | 92 (1965) 55 | 40 (1990) .14 | 3.38 (2004) 0 | 0
19 74 | 92 (1983) 55 | 37 (1943) .15 | 3.18 (2000) 0 | 0	**20** 74 | 93 (1895) 55 | 37 (1979) .15 | 1.45 (1938) 0 | 0	**21** 74 | 94 (1895) 54 | 35 (1956) .14 | 2.8 (1979) 0 | 0	**22** 73 | 95 (1970) 54 | 37 (1904) .14 | 1.12 (2002) 0 | 0	**23** 73 | 94 (1970) 53 | 36 (1963) .14 | 1.76 (2011) 0 | 0	**24** 72 | 97 (1970) 53 | 30 (1963) .15 | 1.94 (1975) 0 | 0	**25** 72 | 93 (1970) 52 | 31 (1963) .14 | 4.28 (1975) 0 | 0
26 71 | 91 (1970) 52 | 36 (1943) .14 | 4.59 (1975) 0 | 0	**27** 71 | 91 (2017) 52 | 34 (1947) .15 | 2.81 (2007) 0 | 0	**28** 71 | 88 (2019) 51 | 32 (1947) .14 | 3.51 (2004) 0 | 0	**29** 70 | 89 (1953) 51 | 35 (1942) .14 | 2.98 (1924) 0 | 0	**30** 70 | 89 (1986) 50 | 35 (1942) .14 | 3.22 (2010) 0 | 0		

SEPTEMBER SUNRISE/SUNSET

DAY	AM	PM
1	6:35	7:38
2	6:36	7:37
3	6:37	7:35
4	6:38	7:33
5	6:39	7:32
6	6:40	7:30
7	6:41	7:29
8	6:41	7:27
9	6:42	7:25
10	6:43	7:24
11	6:44	7:22
12	6:45	7:20
13	6:46	7:19
14	6:47	7:17
15	6:48	7:15
16	6:49	7:14
17	6:50	7:12
18	6:51	7:10
19	6:52	7:09
20	6:53	7:07
21	6:54	7:05
22	6:55	7:04
23	6:56	7:02
24	6:57	7:00
25	6:58	6:59
26	6:59	6:57
27	7:00	6:55
28	7:01	6:54
29	7:02	6:52
30	7:03	6:50

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

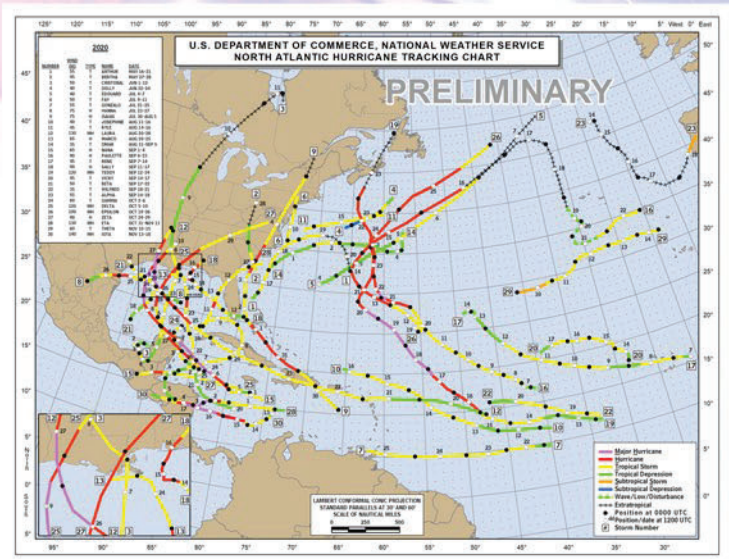
DESPITE RECORD TROPICAL SEASON, SUMMER DROUGHT WORSENED FOR MUCH OF PA

by Eric Finkenbinder

A record tropical season yielded 30 named storms for the 2020 hurricane season and the National Hurricane Center had to revert to the Greek Alphabet after all the 2020 storm names were used. The only other time the NHC used the Greek Alphabet was in 2005 which was the same year of Katrina, Rita and Wilma. The summer of 2005 yielded a very wet July, but that was certainly not the case for July 2020.

Our region normally receives rain from tropical disturbances in late summer, but our recent summer was dominated by persistent high pressure systems that blocked tropical systems from tracking into the state. It wasn't until October until we finally received rain from the remnants of Hurricane Delta and Hurricane Zeta, each producing over an inch of rain locally.

Check out the tropical tracks of all 30 tropical systems. Much of the activity remained along the Gulf or the east coast. Only one system, Isaias, tracked through Pennsylvania which brought rain to the far eastern third of the state in late summer.



OCTOBER

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
					1 69 | 90 (1927) 50 | 35 (1947) .13 | 3.06 (1913) 0 | 0	**2** 69 | 93 (2019) 49 | 34 (1899) .12 | 3.95 (1929) 0 | 0
3 68 | 88 (1919) 49 | 32 (1899) .12 | 2.44 (1927) 0 | 0	**4** 68 | 88 (1941) 49 | 31 (1974) .12 | 2.54 (1962) 0 | 0	**5** 68 | 97 (1941) 48 | 34 (1961) .13 | 2.38 (1932) 0 | Trace (1892)	**6** 67 | 93 (1941) 48 | 32 (1958) .12 | 1.02 (1938) 0 | 0	**7** 67 | 97 (1941) 48 | 33 (1964) .12 | 3.97 (2005) 0 | 0	**8** 67 | 88 (2007) 47 | 31 (1964) .12 | 1.3 (1998) 0 | 0	**9** 66 | 89 (2007) 47 | 30 (2001) .12 | 3.87 (1976) 0 | Trace (1895)
10 66 | 89 (1939) 46 | 30 (1895) .12 | 4.02 (2013) 0 | Trace (1979)	**11** 66 | 86 (1949) 46 | 31 (1993) .11 | 5.72 (2013) 0 | 0	**12** 65 | 88 (1954) 46 | 27 (1964) .11 | 2.32 (1896) 0 | 0	**13** 65 | 85 (1954) 45 | 31 (1988) .10 | 1.1 (1978) 0 | 0	**14** 65 | 85 (1975) 45 | 30 (1988) .10 | 2.5 (1955) 0 | Trace (1894)	**15** 64 | 84 (1897) 45 | 32 (2006) .10 | 1.57 (1954) 0 | 0	**16** 64 | 86 (1897) 44 | 30 (1944) .10 | 1.47 (1942) 0 | Trace (1982)
17 64 | 86 (1908) 44 | 31 (1937) .10 | 2.49 (1932) 0 | 0	**18** 63 | 84 (2016) 44 | 30 (1982) .10 | 1.64 (1996) 0 | Trace (1972)	**19** 63 | 85 (2016) 44 | 28 (1976) .11 | 1.64 (1937) 0 | 1.2 (1972)	**20** 63 | 82 (1969) 43 | 28 (1992) .10 | 1.72 (1944) 0 | 0.1 (1940)	**21** 63 | 84 (1947) 43 | 29 (1972) .10 | 2.74 (1995) 0 | Trace (1972)	**22** 62 | 83 (1947) 42 | 25 (1940) .09 | 2.18 (1929) 0 | Trace (1969)	**23** 62 | 86 (1947) 42 | 29 (1982) .10 | 1.86 (1990) 0 | Trace (1969)
24 62 | 80 (2001) 42 | 23 (1969) .09 | 1.77 (1917) 0 | Trace (1960)	**25** 61 | 75 (1963) 42 | 28 (1962) .09 | 2.19 (1980) 0 | Trace (1962)	**26** 61 | 79 (1939) 42 | 27 (1952) .09 | 2.5 (1943) 0 | Trace (1962)	**27** 61 | 82 (1963) 41 | 27 (1988) .09 | 1.54 (1987) 0 | Trace (1957)	**28** 60 | 80 (1984) 41 | 24 (1976) .10 | 2.09 (2015) 0 | Trace (1965)	**29** 60 | 79 (1946) 41 | 26 (1965) .09 | 2.93 (2012) 0 | 5.5 (2011)	**30** 60 | 81 (2016) 40 | 24 (1965) .09 | 1.39 (1917) 0 | 2.1 (1925)
31 59 | 81 (1950) 40 | 24 (1988) .09 | 2.63 (2019) 0 | 0						

OCTOBER SUNRISE/SUNSET

DAY	AM	PM
1	7:04	6:49
2	7:05	6:47
3	7:06	6:46
4	7:07	6:44
5	7:08	6:42
6	7:09	6:41
7	7:10	6:39
8	7:11	6:38
9	7:12	6:36
10	7:13	6:34
11	7:14	6:33
12	7:14	6:31
13	7:16	6:30
14	7:17	6:28
15	7:18	6:27
16	7:19	6:25
17	7:20	6:24
18	7:21	6:22
19	7:22	6:21
20	7:23	6:19
21	7:25	6:18
22	7:26	6:17
23	7:27	6:15
24	7:28	6:14
25	7:29	6:13
26	7:30	6:11
27	7:31	6:10
28	7:32	6:09
29	7:33	6:07
30	7:35	6:06
31	7:36	6:05

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

HYPERACTIVE TROPICS OF 2020

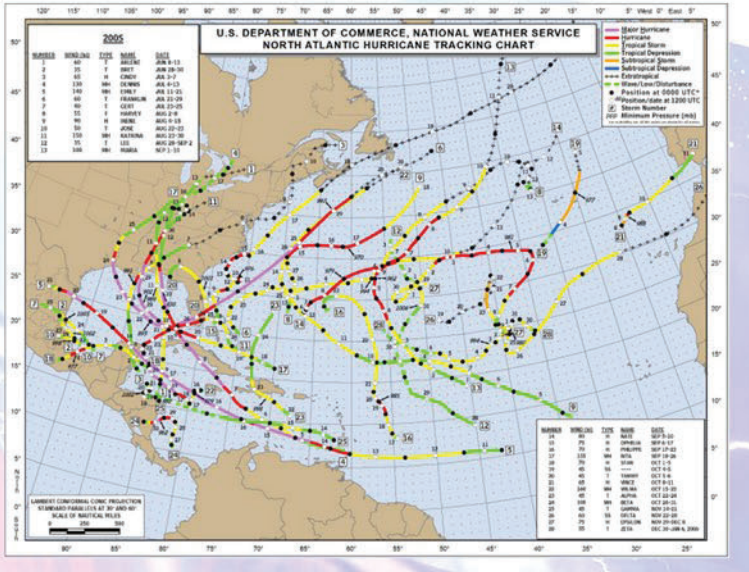
by Dan Tomaso

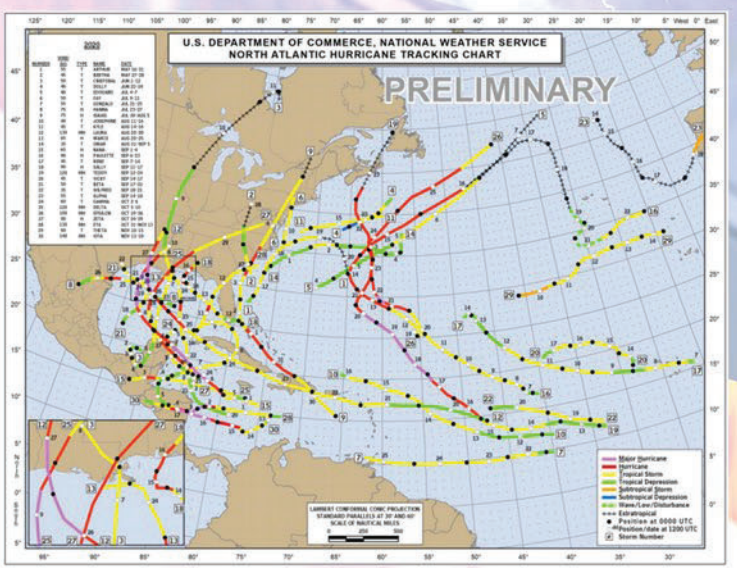
The historic hurricane season of 2005 perked my young meteorological intrigue pushing me harder to learn more about the weather and hurricanes. Little did I know that only 15 years later I would experience another record hurricane season during my professional career. Forecasters knew and predicted correctly that the 2020 hurricane season would be active. The meteorological stage was set. A neutral El Niño Southern Oscillation (ENSO) episode fading to a La Niña episode during summer and fall was key, plus very warm Atlantic Ocean waters. But an even bigger ingredient set this year apart- favorable wind shear.

Wind shear is defined as the difference or change in wind with respect to speed and direction. When little wind shear is present, a storm system like a hurricane can form uninterrupted by changes in the wind and environment. Add in more shear and the environment becomes less conducive to strengthening storms. During the hurricane season of 2020 low wind shear meant more storms forming and strengthening (rapidly in several cases).

The season started with Tropical Storm Arthur named on May 16. And after that it was off to the races! Only a few lulls in between named storms meant the season was on a record pace, often exceeding the normal date for the first letter of the named storm (for instance the "M" or "O" storm) by weeks. In fact, the only named storms that did not form ahead of the normal formation date were Arthur, Bertha, and Dolly. The naming convention entered the Greek alphabet list for only the second time in Atlantic hurricane record history. The other year was 2005 when the names ended at Tropical Storm Zeta, which was named on December 30! Tropical Storm Alpha in 2005 was named on October 22, while the fast pace of 2020's season led to a Tropical Storm Alpha of its own on September 18- over a month ahead of 2005!

Hurricanes lead to wide areas of damage to homes and businesses along with changing the landscape in the strongest storm surge cases. The 2020 hurricane season broke the record for named storms making a United States landfall (at the time of this writing 12 landfalling storms). In addition, the number of named storms exceeded the 2005 record of 28 storms. Truly the 2020 hurricane season has represented the worst of what an active tropical season can bring. While so many storms can lead to a lot of intrigue, the toll these landfalls take is certainly not something worth repeating. Some estimates at the time of this writing have calculated over $30 billion in damage across the United States as a result of the landfalling storms.

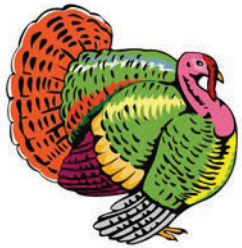




NOVEMBER

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
	1 59 / 84 (1950) 40 / 29 (1964) .10 / 1.86 (1932) 0 / Trace (1993)	**2** 59 / 82 (1971) 39 / 27 (1930) .11 / 1.96 (2018) 0 / 1.8 (1954)	**3** 58 / 78 (2003) 39 / 23 (1951) .10 / 1.16 (1962) 0 / 4.0 (1962)	**4** 58 / 78 (1994) 39 / 24 (1951) .10 / 1.56 (1982) 0 / Trace (1983)	**5** 58 / 79 (1975) 39 / 25 (1991) .10 / 1.68 (1896) 0 / 1.0 (1891)	**6** 57 / 77 (1948) 38 / 23 (1991) .10 / 1.26 (1963) 0 / 6.5 (1953)
7 DAYLIGHT SAVINGS ENDS 57 / 75 (1938) 38 / 24 (1962) .10 / 1.55 (1963) 0 / 8.9 (1953)	**8** 56 / 76 (1975) 38 / 22 (1960) .11 / 2.92 (1943) 0 / 1.2 (1910)	**9** 56 / 75 (1895) 37 / 23 (1992) .10 / 1.16 (1889) .10 / 4.8 (1892)	**10** 56 / 73 (1888) 37 / 24 (2017) .10 / 1.7 (1990) 0 / 4.3 (1987)	**11** 55 / 74 (1949) 37 / 20 (2017) .09 / 1.12 (1947) 0 / 4.8 (1987)	**12** 55 / 73 (1964) 36 / 22 (1957) .10 / 2.36 (1925) 0 / 3.0 (1968)	**13** 54 / 72 (1964) 36 / 21 (1911) .10 / 2.53 (1937) 0 / 0.6 (1995)
14 54 / 74 (1989) 36 / 19 (1986) .10 / 1.74 (1995) 0 / 7.6 (1908)	**15** 54 / 76 (1993) 35 / 15 (1908) .11 / 1.3 (2018) 0 / 8.3 (2018)	**16** 53 / 73 (1931) 35 / 11 (1908) .10 / 1.89 (2006) 0 / 0.5 (2018)	**17** 53 / 72 (1953) 35 / 16 (1933) .10 / 1.25 (1935) 0 / 4.0 (1980)	**18** 52 / 76 (1928) 34 / 16 (1959) .11 / 1.3 (1892) 0 / 0.5 (2007)	**19** 52 / 72 (1928) 34 / 18 (1924) .11 / 1.55 (1932) 0 / 4.6 (1965)	**20** 51 / 77 (1942) 34 / 20 (2000) .11 / 1.78 (1952) .10 / 3.4 (1961)
21 51 / 74 (1900) 33 / 19 (1959) .11 / 1.78 (1952) 0 / 1.4 (2008)	**22** 50 / 73 (1931) 33 / 16 (1964) .12 / 1.8 (2011) 0 / 0.6 (1989)	**23** 50 / 71 (1931) 33 / 14 (1964) .10 / 0.99 (1934) .10 / 1.5 (1897)	**24** 49 / 69 (1914) 32 / 19 (2000) .11 / 1.83 (1980) 0 / 6.8 (1938)	**25** 49 / 70 (1979) 32 / 16 (1959) .12 / 2.21 (1950) 0 / 3.4 (1938)	**26** 49 / 70 (1979) 32 / 13 (1938) .11 / 1.29 (2013) .10 / 2.8 (1898)	**27** 48 / 71 (1896) 31 / 13 (1938) .13 / 1.44 (1993) 0 / 4.0 (1978)
28 48 / 70 (1990) 31 / 13 (1930) .12 / 1.84 (1984) .10 / 3.0 (1892)	**29** 47 / 69 (1998) 31 / 13 (1955) .13 / 2.33 (1987) 0 / 3.1 (1995)	**30** 47 / 70 (1933) 30 / 10 (1929) .13 / 1.22 (1977) .10 / 6.4 (1967)				



NOVEMBER SUNRISE/SUNSET

DAY	AM	PM
1	7:37	6:04
2	7:38	6:03
3	7:39	6:01
4	7:40	6:00
5	7:42	5:59
6	7:43	5:58
7	6:44	4:57
8	6:45	4:56
9	6:46	4:55
10	6:47	4:54
11	6:49	4:53
12	6:50	4:52
13	6:51	4:52
14	6:52	4:51
15	6:53	4:50
16	6:54	4:49
17	6:55	4:48
18	6:57	4:48
19	6:58	4:47
20	6:59	4:46
21	7:00	4:46
22	7:01	4:45
23	7:02	4:45
24	7:03	4:44
25	7:04	4:44
26	7:05	4:43
27	7:07	4:43
28	7:08	4:42
29	7:09	4:42
30	7:10	4:42

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

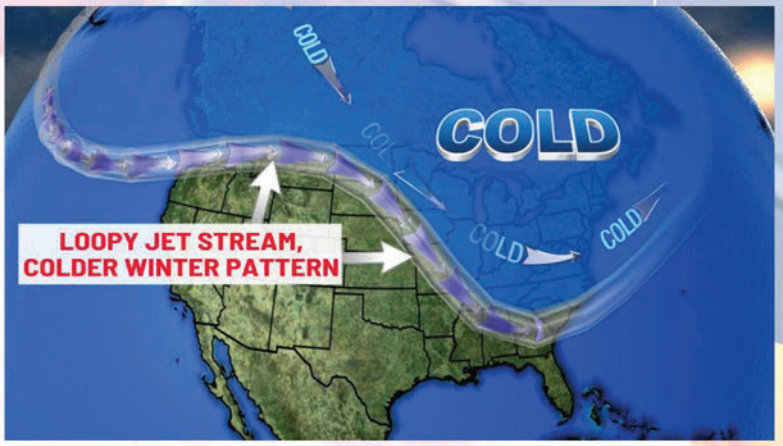
UNDERSTANDING THE JETSTREAM

by Dan Tomaso

The jet stream is the main "mover" of weather across the Continental US and the Northern Hemisphere. This fast-moving ribbon of wind at about 35,000 feet up in the atmosphere is generated by the difference of warm air near the equator and cold air at the North Pole. When the temperature difference is more extreme in the wintertime, the jet stream is stronger. Conversely, the jet stream is weakest in the summertime when there is less of a temperature difference north to south across the Continental US.

The normal state of the jet stream in winter is a rapid weather machine delivering cold shots of air via fronts like Alberta Clippers, but those systems usually do not deliver big, local snows. To get a bigger snowstorm, you want to look for slower, looping sections of the jet that dip deep to south and rise to the north. These types of patterns allow cold air to settle into the Northeast and Mid-Atlantic, while also bringing in a lot of moisture. (An old forecasting trick is to predict the cold air first, then predict the snow.) Similarly, a loopy, slow jet stream pattern is also responsible for heavy rainstorms as the centers of low pressure do not leave areas quickly, while bringing a lot of moisture along with them.

By watching daily changes in the jet stream pattern, you can learn a lot about the upcoming weather while also understanding the dynamics of what goes into the bigger storm systems. Happy forecasting!



DECEMBER

2021 WEATHER ALMANAC

SUN	MON	TUE	WED	THU	FRI	SAT
			1 46 | 74 (2006) 30 | 12 (1967) .11 | 2.69 (1934) .10 | 2.0 (1890)	**2** 46 | 67 (1970) 30 | 9 (1967) .12 | 1.53 (1986) .10 | 5.0 (1929)	**3** 45 | 72 (1998) 30 | 12 (1976) .12 | 1.6 (1990) .10 | 4.5 (1907)	**4** 45 | 74 (1998) 29 | 11 (1940) .11 | 1.92 (1950) .10 | 5.0 (1957)
5 45 | 73 (2001) 29 | 12 (1926) .12 | 2.05 (1993) 0.2 | 6.8 (1902)	**6** 44 | 73 (1998) 29 | 12 (2002) .12 | 1.88 (1962) .10 | 5.8 (1996)	**7** 44 | 75 (1998) 28 | 9 (2002) .12 | 1.52 (1914) 0.2 | 4.3 (1959)	**8** 44 | 68 (1980) 28 | 12 (2002) .11 | 1.25 (1917) .10 | 6.6 (1917)	**9** 43 | 68 (1946) 28 | 7 (1989) .10 | 1.54 (1973) .12 | 8.0 (2005)	**10** 43 | 71 (1946) 28 | 6 (1917) .12 | 1.51 (1969) .10 | 4.5 (1904)	**11** 42 | 63 (1897) 27 | 6 (1968) .11 | 2.29 (2008) 0.2 | 6.9 (1960)
12 42 | 67 (1979) 27 | 6 (1988) .11 | 0.86 (1983) 0.2 | 4.1 (1960)	**13** 42 | 64 (2015) 27 | 6 (1960) .11 | 2.73 (1983) .10 | 6.7 (1966)	**14** 42 | 66 (2015) 27 | 4 (2005) .10 | 1.5 (1991) 0.2 | 7.0 (1917)	**15** 41 | 63 (2008) 27 | 4 (1914) .11 | 1.16 (1901) .10 | 3.0 (1981)	**16** 41 | 63 (1971) 26 | 4 (1951) .10 | 1.31 (1974) 0.2 | 6.0 (1973)	**17** 41 | 59 (1939) 26 | 0 (1951) .09 | 1.69 (2000) 0.2 | 6.1 (1973)	**18** 40 | 64 (2006) 26 | 2 (1919) .10 | 1.23 (1977) .10 | 9.0 (1951)
19 40 | 63 (1929) 26 | 5 (1989) .10 | 1.07 (2008) .10 | 9.2 (1948)	**20** 40 | 63 (1957) 26 | 3 (1942) .09 | 1.98 (1957) 0.2 | 5.4 (1966)	**21** 40 | 64 (1923) 25 | 2 (1942) .10 | 1.01 (1973) .10 | 6.8 (1960)	**22** 39 | 70 (2013) 25 | -1 (1960) .10 | 1.38 (1918) 0.2 | 3.1 (1969)	**23** 39 | 65 (1990) 25 | -8 (1960) .11 | 0.97 (2015) 0.2 | 10.1 (1963)	**24** 39 | 70 (2015) 25 | -1 (1983) .10 | 1.55 (1986) .10 | 9.7 (1961)	**25** 39 | 66 (1889) 25 | -3 (1983) .10 | 1.01 (1945) 0.2 | 8.0 (2002)
26 39 | 66 (1889) 25 | 0 (1983) .09 | 1.54 (1957) 0.2 | 8.8 (1969)	**27** 38 | 59 (2016) 25 | 1 (1914) .10 | 1.13 (1930) 0.2 | 7.0 (1894)	**28** 38 | 65 (1982) 24 | 0 (1960) .09 | 1.16 (2018) 0.2 | 6.8 (1967)	**29** 38 | 75 (1984) 24 | -2 (1917) .08 | 1.22 (1901) 0.3 | 6.0 (1962)	**30** 38 | 64 (1984) 24 | -3 (1917) .09 | 1.23 (1948) 0.2 | 3.2 (2017)	**31** 38 | 65 (1992) 24 | -3 (1963) .08 | 0.98 (1895) 0.2 | 5.8 (1967)	

DECEMBER SUNRISE/SUNSET

DAY	AM	PM
1	7:11	4:41
2	7:12	4:41
3	7:13	4:41
4	7:14	4:41
5	7:15	4:41
6	7:15	4:41
7	7:16	4:41
8	7:17	4:41
9	7:18	4:41
10	7:19	4:41
11	7:20	4:41
12	7:21	4:41
13	7:21	4:41
14	7:22	4:42
15	7:23	4:42
16	7:23	4:42
17	7:24	4:43
18	7:25	4:43
19	7:25	4:43
20	7:26	4:44
21	7:26	4:44
22	7:27	4:45
23	7:27	4:45
24	7:28	4:46
25	7:28	4:47
26	7:28	4:47
27	7:29	4:48
28	7:29	4:49
29	7:29	4:49
30	7:29	4:50
31	7:30	4:51

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

abc 27 NEWS

YOUR MOST ACCURATE LOCAL FORECAST

MONTHLY RECORDS

by Eric Finkenbinder

The year 2020 will be known for a record number of California wildfires and a record number of tropical systems in the Atlantic. Locally, we have plenty of records too. From the least snowy winter on record to the hottest summer on record, our weather favored a very warm and mainly dry pattern for nearly the entire year! One exception was our chilly May which proved difficult for farmers. The growing season was impacted by our coldest May temperature on record along with a trace of snow. Below is a list of monthly records for winter, spring and summer of 2020:

MONTHLY AND SEASONAL RECORDS OF 2020

JANUARY	10TH WARMEST
FEBRUARY	2ND WARMEST, LEAST SNOWY ON RECORD
MARCH	6TH WARMEST
APRIL	9TH WETTEST
MAY	ALL-TIME COLDEST LO 30°, RECORD SNOW (TRACE)
JULY	HOTTEST JULY , ALL-TIME HOTTEST MONTH
AUGUST	2ND WARMEST
SUMMER	HOTTEST SUMMER (JUN/JUL/AUG) ON RECORD
NOVEMBER	3RD WARMEST
FALL	7TH WARMEST FALL (SEPT/OCT/NOV) ON RECORD