2022 WEATHER ALMANAC

Beyond the Forecast!

WeatheRate
CERTIFIED MOST ACCURATE
9 YEARS STRAIGHT!

SUN	MON	TUE	WED	THU	FRI	SAT
						1 40 | 64 (2005) 25 | -2 (2018) .09 | 1.48 (1948) 0.2 | 7.3 (1971)
2 40 | 62 (2000) 25 | -5 (1968) .09 | 0.99 (1892) 0.2 | 9.2 (1925)	**3** 39 | 60 (1950) 25 | -1 (2018) 0.1 | 1.68 (1944) 0.2 | 8.2 (1919)	**4** 39 | 68 (2000) 24 | 3 (1918) .09 | 1.05 (1982) 0.2 | 7.3 (1942)	**5** 39 | 64 (1950) 24 | -5 (1904) .01 | 1.3 (1949) 0.2 | 3.5 (2001)	**6** 39 | 67 (2007) 24 | -3 (1904) 0.9 | 1.66 (1905) 0.2 | 4.0 (2002)	**7** 39 | 65 (2008) 24 | 0 (2014) .01 | 1.64 (1996) 0.2 | 19.8 (1996)	**8** 39 | 68 (1998) 24 | 0 (1970) .09 | 1.12 (1953) 0.3 | 4.6 (1906)
9 39 | 64 (1998) 24 | -3 (1942) .09 | 1.39 (1964) 0.3 | 6.5 (1926)	**10** 39 | 58 (2046) 23 | 2 (2004) .01 | 1.34 (2016) 0.2 | 7.6 (1965)	**11** 39 | 71 (1975) 23 | -1 (1988) 0.1 | 1.01 (1922) 0.3 | 7.5 (1922)	**12** 38 | 69 (2020) 23 | -4 (1981) 0.1 | 2.29 (1915) 0.3 | 10.8 (1996)	**13** 38 | 72 (1932) 23 | -5 (1912) 0.1 | 1.16 (1964) 0.3 | 14 (1964)	**14** 38 | 73 (1952) 23 | -14 (1912) 0.1 | 1.91 (1958) 0.3 | 11.4 (1910)	**15** 38 | 67 (1937) 23 | -3 (1964) 0.1 | 1.44 (1918) 0.4 | 8 (1918)
16 38 | 62 (1990) 23 | -4 (1893) 0.1 | 2.12 (1924) 0.3 | 19.7 (1945)	**17** 38 | 65 (1990) 23 | -6 (1982) 0.1 | 1.42 (1994) 0.3 | 14.3 (1994)	**18** 38 | 66 (1990) 23 | -7 (1994) 0.1 | 1.32 (1926) 0.3 | 10 (1930)	**19** 38 | 66 (1951) 22 | -14 (1994) 0.1 | 1.99 (1936) 0.3 | 13.6 (1936)	**20** 38 | 68 (1951) 22 | -16 (1994) 0.1 | 1.79 (1995) 0.3 | 8.5 (1978)	**21** 38 | 64 (1959) 22 | -22 (1994) 0.1 | 1.56 (1902) 0.4 | 5.1 (1917)	**22** 38 | 64 (1906) 22 | -9 (1984) 0.1 | 1.1 (1918) 0.3 | 11.2 (1987)
23 38 | 67 (1967) 22 | -6 (1936) 0.1 | 2.49 (2016) 0.3 | 26.4 (2016)	**24** 38 | 71 (1967) 22 | -2 (1936) 0.1 | 2.09 (1979) 0.3 | 9.9 (1948)	**25** 38 | 71 (1967) 22 | 0 (1936) 0.1 | 1.48 (2020) 0.3 | 5.4 (1988)	**26** 38 | 73 (1950) 22 | -2 (1948) 0.1 | 1.84 (1976) 0.4 | 6.4 (2011)	**27** 39 | 69 (1974) 22 | 2 (1936) 0.1 | 1.3 (1967) 0.3 | 5 (1941)	**28** 39 | 65 (1944) 22 | -1 (1935) .09 | 1.19 (1918) 0.4 | 12.2 (1943)	**29** 39 | 68 (2002) 22 | -4 (1963) 0.1 | 1.72 (1990) 0.3 | 5.5 (1945)
30 39 | 70 (1947) 22 | 2 (2014) 0.1 | 1.44 (1939) 0.4 | 8.2 (1966)	**31** 39 | 67 (1974) 22 | 2 (1948) 0.1 | 1.01 (1926) 0.4 | 6.3 (1949)					

JANUARY

JANUARY SUNRISE/SUNSET

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

NEW

FIRST 1/4

FULL

LAST 1/4

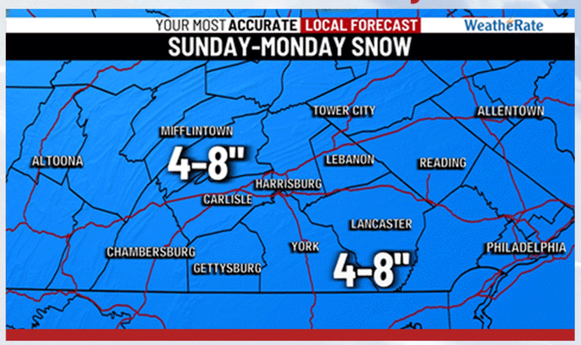
ALMANAC KEY

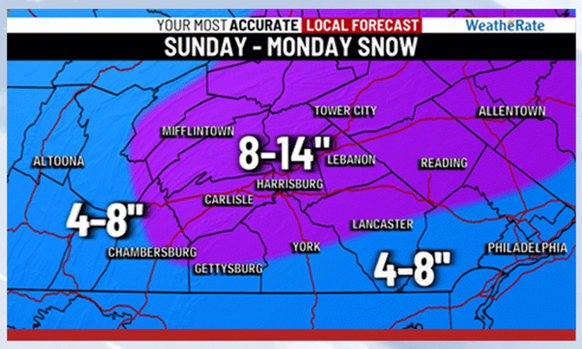
NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

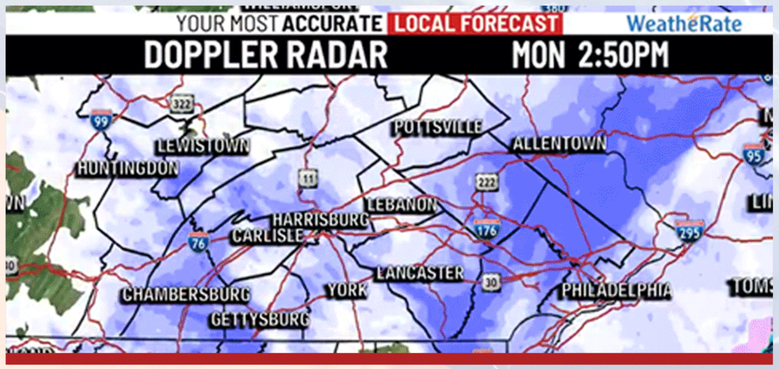
ONE OF BIGGEST SNOW STORMS IN WINTER 2020-2021 CAME IN TWO ROUNDS

by Dan Tomaso

Perhaps one of the hardest forecasts I have been a part of as a member of the abc27 weather team arrived Sunday, January 31st through Monday, February 1st, 2021. We knew there was going to be snow, and likely 4-8 inches of it as a storm to the west of us transitioned to a coastal storm (see original snow map below). However, the devil of this forecast was definitely in the details!

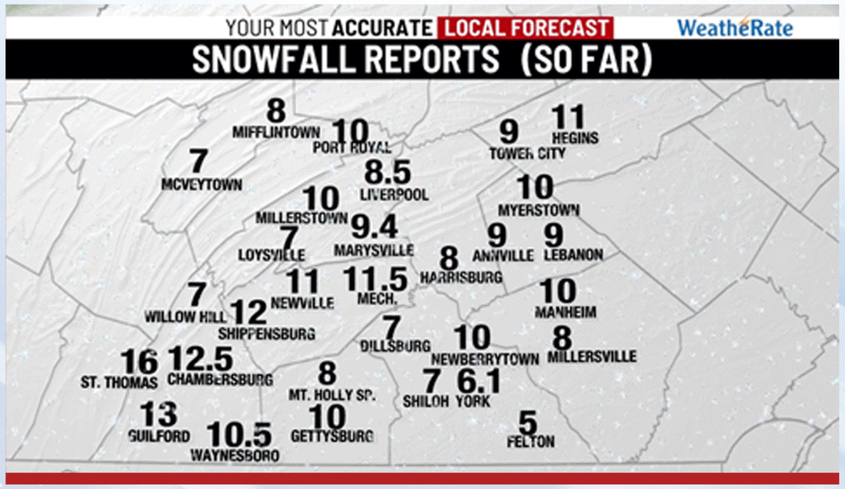


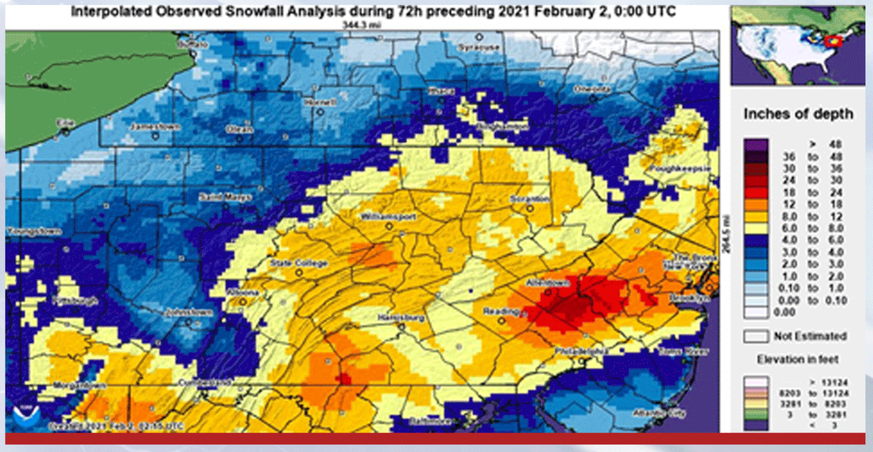




As the storm to the west on Sunday brought an initial round of snow across the Midstate via a warm front moving south to north things seemed to be going as planned. A few inches of snow fell, especially along and south of Route 30. But even the highest snow totals were manageable and most schools and businesses could likely re-open for Monday morning. By Sunday evening though the latest rounds of forecast guidance started to show the heavy precipitation from the developing coastal storm shifting west during the day Monday. To make the forecast even harder was the substantial jump in snow totals, that were almost hard to believe given how Sunday played out with relatively small snow totals. As I sat with Adis in the weather center that Sunday evening with Brett and Eric on speakerphone, we knew we had to increase totals for Monday. And we had to make clear in the forecast that there would be a lull in the snow Monday morning before things would pick back up for midday Monday. We know from experience that lulls in snow tend to make people think the heavy snow is over and the storm is wrapping up. We were banking on a round of heavy snow arriving for Monday afternoon and evening, and we wanted to make sure viewers would not be caught off guard when waking up to only a little snow to start the day.

By 11 AM Monday heavy bands of snow were on the move from east to west from New Jersey into eastern Pennsylvania. And by 1-2 PM our local counties were in some of highest snowfall rates across the region (at least 1-2 inch per hour rates). By the evening conditions started to quiet down as the snow tapered. In total, most areas picked up at least 8 inches of combined snowfall from Sunday into Monday. The Midstate was not even the hardest hit area! Northeastern PA near Allentown nearly ended with 2 feet of snow and north-central New Jersey had reports of 30 or more inches of snow! (see interpolated snowfall analysis below) This was a storm that will not be forgotten in this area and the Mid-Atlantic region- not only for the end result of big snow totals but also for the large changes/swings in the forecast.





SUN	MON	TUE	WED	THU	FRI	SAT
		1 39 | 70 (1989) 23 | -1 (1920) 0.1 | 2.36 (2008) 0.4 | 7.9 (1908)	**2** 39 | 59 (1988) 23 | -1 (1960) 0.1 | 1.03 (1981) 0.4 | 7.6 (1916)	**3** 39 | 66 (2020) 23 | 1 (1905) .09 | 1.32 (1972) 0.4 | 6.5 (2014)	**4** 40 | 65 (1991) 23 | -1 (1918) 0.1 | 2.12 (1920) 0.4 | 7.6 (1920)	**5** 40 | 74 (1890) 23 | -5 (1918) 0.1 | 1.23 (2014) 0.3 | 8.5 (1907)
6 40 | 66 (2008) 23 | -4 (1895) .09 | 2.35 (1896) 0.4 | 11.8 (2010)	**7** 40 | 57 (2009) 23 | -4 (1935) .09 | 1.92 (1965) 0.4 | 11.3 (1967)	**8** 40 | 65 (1965) 23 | -3 (1934) .09 | 0.91 (1890) 0.3 | 5 (1994)	**9** 41 | 61 (2001) 23 | -11 (1934) .08 | 0.74 (1894) 0.4 | 8.6 (1906)	**10** 41 | 62 (1960) 24 | -13 (1899) .09 | 1.02 (1970) 0.3 | 12.3 (2010)	**11** 41 | 63 (2009) 24 | -10 (1899) .08 | 2.0 (1983) 0.3 | 24 (1983)	**12** 41 | 74 (1999) 24 | 0 (1979) .09 | 1.84 (1985) 0.4 | 6 (1899)
13 41 | 63 (1974) 24 | 1 (1917) .09 | 1.86 (1966) 0.3 | 9 (2014)	**14** 42 | 64 (1946) 24 | -3 (1905) .09 | 2.12 (2007) 0.3 | 10 (1940)	**15** 42 | 74 (1954) 25 | -2 (1899) .09 | 1.12 (1908) 0.4 | 6.8 (1958)	**16** 42 | 75 (1954) 25 | 0 (2015) .09 | 1.25 (2003) 0.3 | 12.6 (2003)	**17** 42 | 67 (2011) 25 | -1 (1896) .09 | 0.88 (1954) 0.4 | 7.8 (1903)	**18** 43 | 69 (2011) 25 | -5 (1979) 0.1 | 0.96 (1960) 0.3 | 9.7 (1964)	**19** 43 | 69 (2017) 26 | 0 (1959) .09 | 1.57 (1972) 0.4 | 13 (1972)
20 43 | 77 (2018) 26 | 0 (2015) .09 | 1.5 (1921) 0.3 | 15 (1921)	**21** 44 | 79 (2018) 26 | 4 (2015) .09 | 1.65 (1902) 0.3 | 8 (1929)	**22** 44 | 71 (1974) 26 | 4 (1963) .09 | 1.02 (1971) 0.3 | 12 (1893)	**23** 44 | 75 (2017) 26 | 6 (2015) .09 | 1.59 (1981) 0.3 | 6.5 (1914)	**24** 45 | 76 (2017) 27 | -4 (2015) 0.1 | 1.75 (2016) 0.3 | 8 (2005)	**25** 45 | 74 (1930) 27 | 3 (1900) 0.1 | 1.31 (1926) 0.3 | 3.6 (1966)	**26** 45 | 70 (1976) 27 | 0 (1914) .09 | 1.04 (1929) 0.3 | 7.5 (1894)
27 45 | 78 (1997) 28 | 4 (1934) 0.1 | 1.61 (1958) 0.2 | 2.2 (1940)	**28** 46 | 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	5:29
5	7:12	5:31
6	7:11	5:32
7	7:10	5:33
8	7:09	5:34
9	7:08	5:35
10	7:06	5:37
11	7:05	5:38
12	7:04	5:39
13	7:03	5:40
14	7:01	5:41
15	7:00	5:43
16	6:59	5:44
17	6:58	5:45
18	6:56	5:46
19	6:55	5:47
20	6:54	5:48
21	6:52	5:50
22	6:51	5:51
23	6:49	5:52
24	6:48	5:53
25	6:46	5:54
26	6:45	5:55
27	6:44	5:56
28	6:42	5:58

NEW

FIRST 1/4

FULL

LAST 1/4

FEBRUARY

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 **2022 WEATHER ALMANAC**

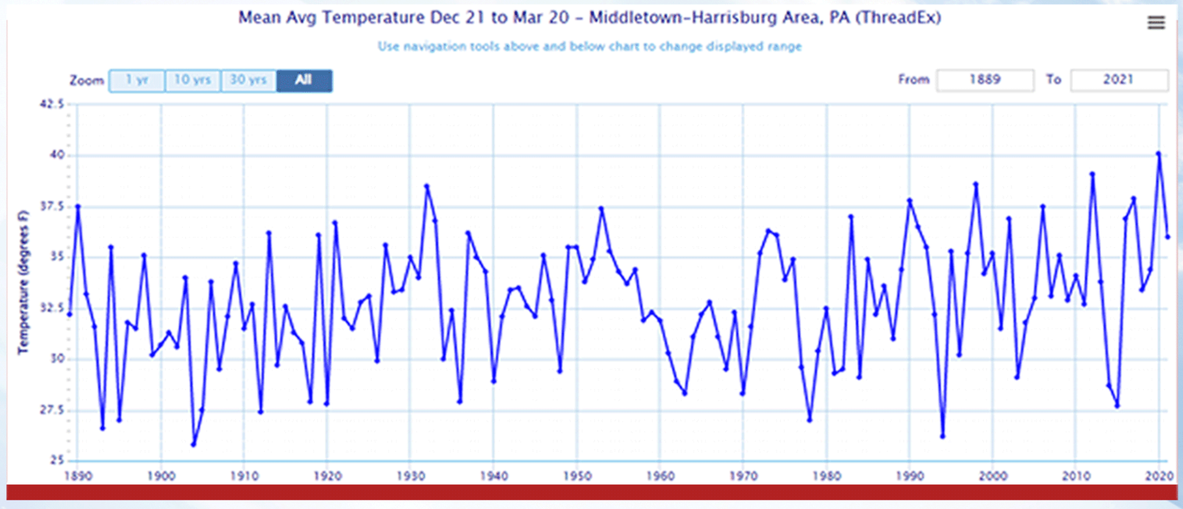
TRENDS IN RECENT WINTERS

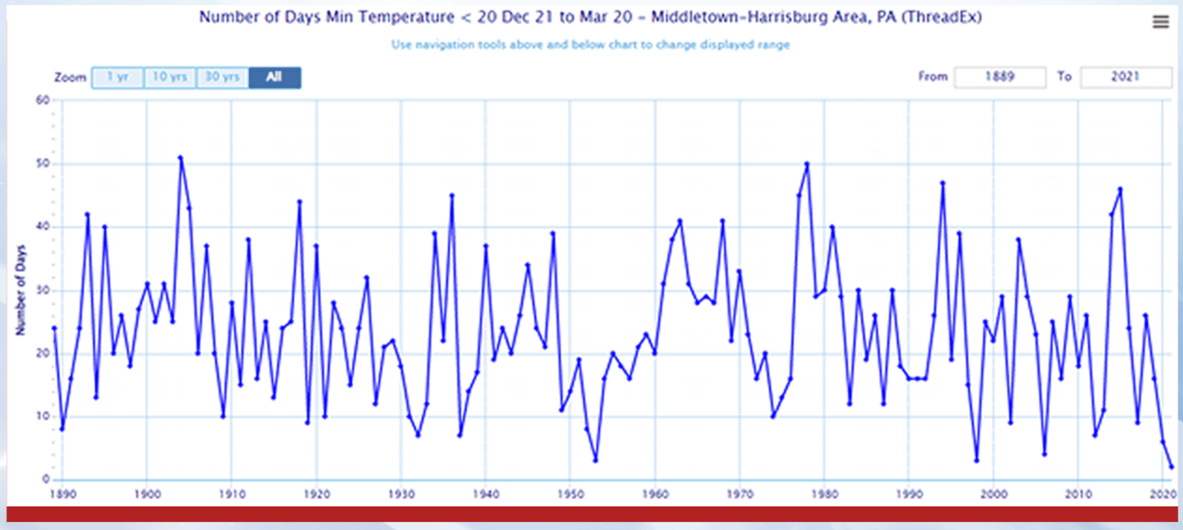
by Adis Juklo

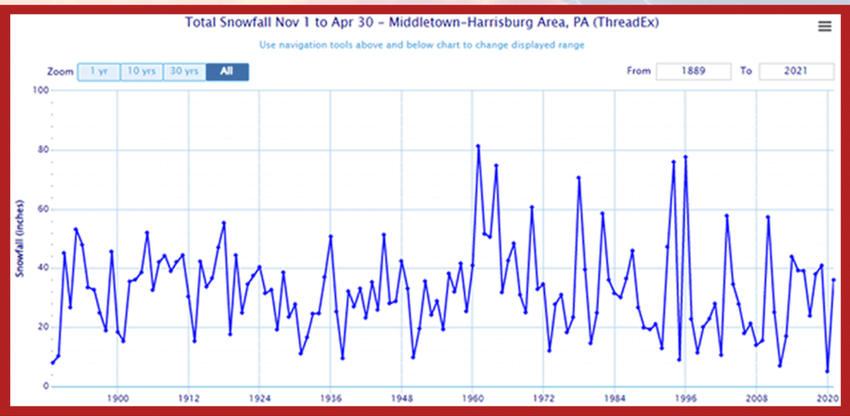
For some, winter is the best time of year...full of holidays, time indoors with family, and snow! But much like with global trends, winters aren't what they used to be in south-central PA.

Of all the four seasons, winters have been warming the fastest in Harrisburg. Looking at the average temperature for each winter over time tells the story. Not only are we seeing warmer days and nights, but the frequency of these warm spells is increasing. The average temperature during the winter of 2019-20 was the highest on record, near 40 degrees. In the early 1960s, the average winter temperature was near 30 degrees, and now the 5-year average is above 36 degrees.

Another way to show temperature trends over time is to break down how many cold nights we've had by season. The number of mornings spent below 20 degrees is displayed in the next graph and shows how drastically the number has dropped. In each of the last two winters, less than eight mornings were spent below 20 degrees, a far cry from some winters in the 1960s, 70s, and 80s where over 40 nights were spent below 20 degrees! This trend has been especially noticed in the summer too, where recent years have featured the greatest number of overnight lows above 70 on record.







The warming climate has also meant gradually less snow over the years. Since some of the blockbuster winters of the 1960s, snow has been on a gradual decline. While snowier than average winters have still been common, a memorable winter like 2009-10 and 1996-97 has not materialized in quite some time. Just two winters ago, we set a record for our least snowy winter with only 5.1 inches of snow falling all season. Even when it has snowed in recent years, the snow hasn't stuck around very long given the warmer days and nights.

MARCH

SUN	MON	TUE	WED	THU	FRI	SAT
		1 Normal High: 46 Normal Low: 28 Normal Precip: .11 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: 46 Normal Low: 28 Normal Precip: 0.1 Normal Snow: 0.2 Record High: 74 (1972) Record Low: 10 (1980) Record Precip: 1.04 (1994) Record Snow: 8 (1994)	**3** Normal High: 47 Normal Low: 29 Normal Precip: 0.1 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: 47 Normal Low: 29 Normal Precip: .11 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: 47 Normal Low: 29 Normal Precip: 0.1 Normal Snow: 0.3 Record High: 74 (1946) Record Low: 10 (1978) Record Precip: 1.76 (2008) Record Snow: 13 (1902)
6 Normal High: 48 Normal Low: 29 Normal Precip: .11 Normal Snow: 0.2 Record High: 72 (1946) Record Low: 0 (2015) Record Precip: 2.27 (2011) Record Snow: 9.4 (1989)	**7** Normal High: 48 Normal Low: 30 Normal Precip: .12 Normal Snow: 0.3 Record High: 74 (1921) Record Low: -1 (2015) Record Precip: 1.63 (1930) Record Snow: 4.9 (1941)	**8** Normal High: 48 Normal Low: 30 Normal Precip: .12 Normal Snow: 0.2 Record High: 84 (2000) Record Low: 8 (2007) Record Precip: 0.94 (1892) Record Snow: 8.9 (1941)	**9** Normal High: 49 Normal Low: 30 Normal Precip: .12 Normal Snow: 0.3 Record High: 79 (2016) Record Low: 8 (1989) Record Precip: 1.31 (1928) Record Snow: 8.5 (1928)	**10** Normal High: 49 Normal Low: 31 Normal Precip: .12 Normal Snow: 0.2 Record High: 79 (2016) Record Low: 5 (1984) Record Precip: 2.55 (2011) Record Snow: 6.4 (1907)	**11** Normal High: 49 Normal Low: 31 Normal Precip: .11 Normal Snow: 0.2 Record High: 76 (2021) Record Low: 12 (1960) Record Precip: 1.78 (1952) Record Snow: 6 (1896)	**12** Normal High: 50 Normal Low: 31 Normal Precip: .12 Normal Snow: 0.2 Record High: 84 (1990) Record Low: 11 (1900) Record Precip: 0.94 (1968) Record Snow: 4.1 (1959)
13 Normal High: 50 Normal Low: 31 Normal Precip: .11 Normal Snow: 0.2 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: 32 Normal Precip: .13 Normal Snow: 0.2 Record High: 82 (1990) Record Low: 6 (1896) Record Precip: 1.78 (1986) Record Snow: 14.7 (2017)	**15** Normal High: 51 Normal Low: 32 Normal Precip: .12 Normal Snow: 0.2 Record High: 82 (1990) Record Low: 7 (1993) Record Precip: 1.4 (1912) Record Snow: 6.8 (1900)	**16** Normal High: 51 Normal Low: 32 Normal Precip: .13 Normal Snow: 0.2 Record High: 83 (1945) Record Low: 12 (1911) Record Precip: 1.09 (2007) Record Snow: 9.5 (2007)	**17** Normal High: 52 Normal Low: 33 Normal Precip: .13 Normal Snow: 0.2 Record High: 82 (1945) Record Low: 11 (1900) Record Precip: 1.24 (1936) Record Snow: 5.1 (1965)	**18** Normal High: 52 Normal Low: 33 Normal Precip: .13 Normal Snow: 0.1 Record High: 76 (2011) Record Low: 5 (1900) Record Precip: 1.07 (1983) Record Snow: 12.1 (1928)	**19** Normal High: 52 Normal Low: 33 Normal Precip: .12 Normal Snow: 0.2 Record High: 76 (2011) Record Low: 8 (1993) Record Precip: 1.2 (1975) Record Snow: 7 (1906)
20 Normal High: 53 Normal Low: 33 Normal Precip: .13 Normal Snow: 0.1 Record High: 81 (1945) Record Low: 15 (1923) Record Precip: 1.74 (2003) Record Snow: 5 (1965)	**21** Normal High: 53 Normal Low: 34 Normal Precip: .13 Normal Snow: 0.2 Record High: 83 (1948) Record Low: 12 (1965) Record Precip: 2.62 (2000) Record Snow: 11.9 (2018)	**22** Normal High: 53 Normal Low: 34 Normal Precip: .12 Normal Snow: 0.1 Record High: 80 (1938) Record Low: 16 (1965) Record Precip: 1.48 (1977) Record Snow: 2.2 (1992)	**23** Normal High: 54 Normal Low: 34 Normal Precip: .12 Normal Snow: 0.1 Record High: 79 (2012) Record Low: 14 (1934) Record Precip: 1.92 (1903) Record Snow: 3 (1896)	**24** Normal High: 54 Normal Low: 35 Normal Precip: .12 Normal Snow: 0.2 Record High: 79 (1939) Record Low: 13 (1896) Record Precip: 1.51 (1969) Record Snow: 1.2 (1990)	**25** Normal High: 55 Normal Low: 35 Normal Precip: .13 Normal Snow: 0.1 Record High: 81 (1939) Record Low: 16 (1940) Record Precip: 0.96 (1930) Record Snow: 3.1 (1993)	**26** Normal High: 55 Normal Low: 35 Normal Precip: .12 Normal Snow: 0.1 Record High: 80 (1921) Record Low: 22 (1955) Record Precip: 1.76 (1978) Record Snow: 1.0 (1930)
27 Normal High: 56 Normal Low: 36 Normal Precip: .12 Normal Snow: 0.2 Record High: 85 (1998) Record Low: 19 (1894) Record Precip: 2.04 (1913) Record Snow: 10 (1891)	**28** Normal High: 56 Normal Low: 36 Normal Precip: .13 Normal Snow: 0.1 Record High: 84 (1989) Record Low: 18 (1923) Record Precip: 1.68 (1984) Record Snow: 8.0 (1891)	**29** Normal High: 56 Normal Low: 36 Normal Precip: .12 Normal Snow: 0.1 Record High: 86 (1945) Record Low: 14 (1923) Record Precip: 1.49 (1984) Record Snow: 9.0 (1942)	**30** Normal High: 57 Normal Low: 37 Normal Precip: .12 Normal Snow: 0 Record High: 87 (1998) Record Low: 12 (1970) Record Precip: 2.02 (2014) Record Snow: 1.8 (1959)	**31** Normal High: 57 Normal Low: 37 Normal Precip: .13 Normal Snow: 0.1 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	6:41	5:59
2	6:39	6:00
3	6:37	6:01
4	6:36	6:02
5	6:34	6:03
6	6:33	6:04
7	6:31	6:05
8	6:30	6:06
9	6:28	6:08
10	6:27	6:09
11	6:25	6:10
12	6:23	6:11
13	7:22	7:12
14	7:20	7:13
15	7:19	7:14
16	7:17	7:15
17	7:15	7:16
18	7:14	7:17
19	7:12	7:18
20	7:10	7:19
21	7:09	7:20
22	7:07	7:21
23	7:05	7:22
24	7:04	7:23
25	7:02	7:24
26	7:01	7:25
27	6:59	7:26
28	6:57	7:27
29	6:56	7:28
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)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

WHY IS THE SKY BLUE?

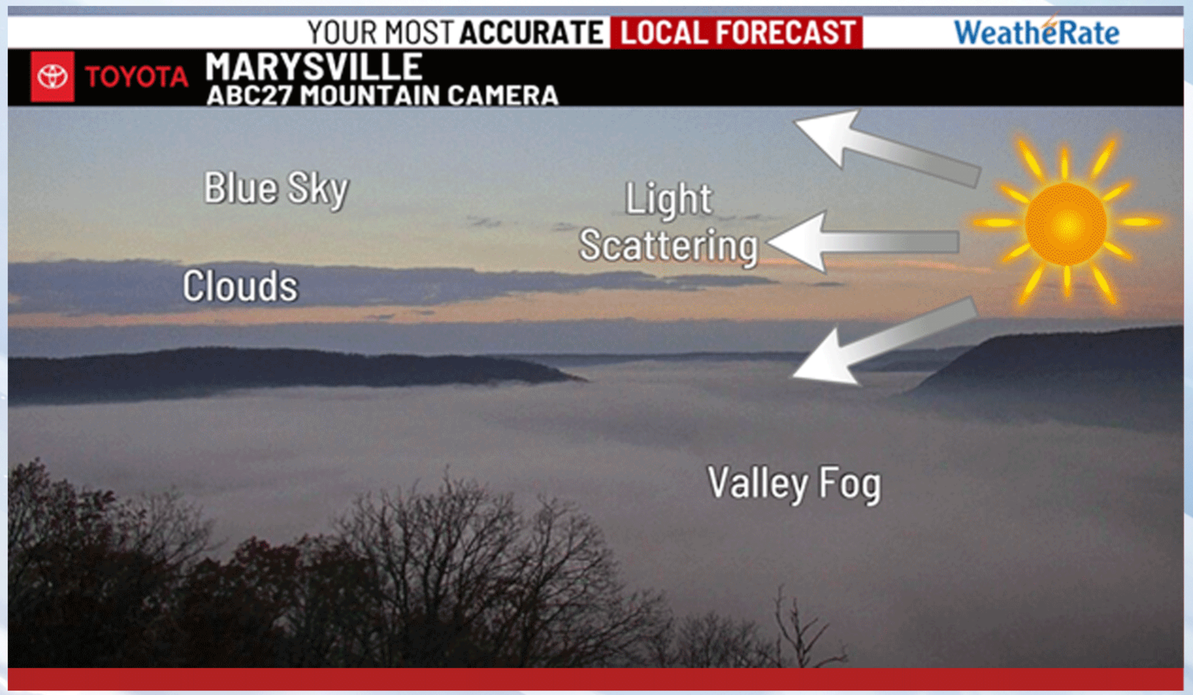
by Brett Thackara

If you have ever looked up and wondered why the sky is such a brilliant blue on a clear day, you aren't alone. The reason is complex but simple to understand. It all goes back to the color table, the electromagnetic spectrum, and our old friend Roy G. Biv. Science can be beautiful, and this is just one example!

Although sunlight appears white, it is actually made up of all the colors of the rainbow. Just as black is the absence of color, white is all colors. We can separate these colors through a prism. White light is broken up into all its colors using a prism and this is where the acronym Roy G. Biv comes from. As the light is broken up, several different colors appear: red, orange, yellow, green, blue, indigo, and violet. Think of it another way: light energy passes through the atmosphere like waves pass through the ocean. Some light travels in short waves, while some light travels in long waves. Keep that in mind as we dig deeper into how the sun's light travels toward earth.

Light waves travel in a straight line unless something gets in the way to divert them. Sometimes light is reflected, like in a mirror or a pond. Other times light is bent, which is exactly what happens with a prism as described above. Finally, light can be scattered, like the molecules of air in the atmosphere or marbles on a table. As sunlight travels through space and enters our atmosphere, it gets scattered in all directions by the gaseous molecules in the air. Blue light scatters in all directions because blue light is a shorter and smaller wave than other colors. This means blue scatters more than other colors and it scatters more easily than other colors. Hence, we see blue sky most of the time. So, the short answer to the question 'why is the sky blue?' is because blue light scatters easiest.

What about different colors around sunrise or sunset? For example, sometimes the sky is lit up as a fiery red or orange. These types of colors make for beautiful Instagram photos, but what causes the phenomena? As the sun gets lower in the sky, the light from it must pass through a greater amount of the atmosphere to reach us. This means that even more blue light is scattered, and the reds and oranges can reach our eyes. Remember, all the colors are present, it just is a matter of which ones are scattered by the air molecules and how much scattering occurs.



The above image was taken by our Marysville Mountain Camera. It depicts sunlight being scattered and shows blue sky above some clouds. Valley fog sits between the hilltops.

SUN	MON	TUE	WED	THU	FRI	SAT
					1 58 | 85 (1978) 37 | 11 (1923) .12 | 1.34 (2004) 0 | 8.0 (1924)	**2** 58 | 87 (1993) 38 | 22 (1964) .12 | 1.92 (2005) 0.1 | 3.9 (2018)
3 59 | 86 (1963) 38 | 24 (1896) .12 | 1.58 (1960) 0 | 1.0 (1985)	**4** 59 | 82 (1999) 38 | 24 (1964) .12 | 1.12 (1973) 0.1 | 0.7 (1957)	**5** 59 | 83 (1910) 39 | 23 (1898) .11 | 1.43 (1957) 0 | 2.2 (1989)	**6** 60 | 89 (2010) 39 | 22 (1898) .11 | 1.62 (1924) 0 | 6.3 (1982)	**7** 60 | 87 (2010) 39 | 19 (1982) .11 | 1.11 (1962) 0 | 2.0 (2003)	**8** 61 | 89 (1929) 40 | 23 (1982) .12 | 1.26 (1940) 0 | 6.0 (1916)	**9** 61 | 83 (1991) 40 | 25 (1977) .12 | 1.23 (1998) 0 | 4.0 (1996)
10 62 | 86 (1922) 40 | 26 (1985) .12 | 1.88 (1993) 0.1 | 5.0 (1894)	**11** 62 | 86 (2017) 41 | 26 (1909) .12 | 1.76 (2021) 0 | 13 (1894)	**12** 63 | 86 (1977) 41 | 26 (1926) .11 | 1.14 (2004) 0 | 3.1 (1959)	**13** 63 | 85 (1945) 42 | 25 (1990) .12 | 1.35 (2020) 0.1 | 0.4 (1961)	**14** 63 | 89 (1941) 42 | 21 (1950) .11 | 1.31 (2002) 0 | 2.0 (1923)	**15** 64 | 87 (1941) 42 | 27 (1943) .11 | 2.17 (1983) 0 | 0.3 (1923)	**16** 64 | 89 (2002) 43 | 25 (1943) .11 | 3.46 (2011) 0 | 0.1 (1943)
17 65 | 91 (2002) 43 | 29 (2020) .11 | 1.01 (1910) 0 | Trace (2018)	**18** 65 | 92 (1896) 43 | 28 (1948) .12 | 1.14 (1924) 0.1 | Trace (2001)	**19** 65 | 92 (1896) 44 | 29 (2020) .12 | 1.64 (1943) 0 | 0.9 (1983)	**20** 66 | 92 (1941) 44 | 26 (1904) .12 | 1.80 (1940) 0 | 0.4 (1983)	**21** 66 | 89 (1985) 45 | 30 (1956) .12 | 1.64 (1992) 0 | Trace (1953)	**22** 67 | 93 (1985) 45 | 31 (1981) .13 | 1.24 (2006) 0 | 0.6 (1993)	**23** 67 | 91 (1960) 45 | 30 (1989) .12 | 1.91 (1921) 0 | Trace (1986)
24 67 | 90 (1960) 46 | 30 (1930) .12 | 1.74 (1983) 0 | Trace (2015)	**25** 68 | 93 (1915) 46 | 30 (1956) .12 | 1.28 (1914) 0 | Trace (1919)	**26** 68 | 91 (1990) 46 | 32 (1892) .13 | 1.50 (1998) 0 | Trace (1919)	**27** 68 | 92 (2009) 47 | 33 (1928) .12 | 1.79 (1928) 0 | 1.5 (1928)	**28** 69 | 90 (1957) 47 | 33 (1934) .12 | 1.55 (2011) 0 | 0.9 (1928)	**29** 69 | 90 (1974) 48 | 32 (2001) .13 | 0.76 (1996) 0 | 0.2 (1909)	**30** 69 | 92 (1942) 48 | 35 (2012) .12 | 2.58 (2014) 0 | Trace (1925)

APRIL SUNRISE/SUNSET

DAY	AM	PM
1	6:51	7:32
2	6:49	7:33
3	6:48	7:34
4	6:46	7:35
5	6:44	7:36
6	6:43	7:37
7	6:41	7:38
8	6:40	7:39
9	6:38	7:40
10	6:37	7:41
11	6:35	7:42
12	6:33	7:43
13	6:32	7:44
14	6:30	7:45
15	6:29	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	6:19	7:53
23	6:17	7:54
24	6:16	7:55
25	6:14	7:56
26	6:13	7:57
27	6:12	7:58
28	6:10	7:59
29	6:09	8:00
30	6:08	8:01

NEW

FIRST 1/4

FULL

LAST 1/4

APRIL

ALMANAC KEY

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

SUN	MON	TUE	WED	THU	FRI	SAT

1	2	3	4	5	6	7
70 | 97 (1942) 48 | 35 (1978) .12 | 1.53 (1932) 0 | Trace (1963)	70 | 88 (1930) 49 | 34 (1903) .13 | 2.71 (1929) 0 | 0 (2021)	70 | 90 (2018) 49 | 35 (1963) .12 | 1.67 (2010) 0 | 0 (2021)	71 | 91 (1949) 49 | 35 (2002) .13 | 1.58 (1893) 0 | 0 (2021)	71 | 93 (1949) 50 | 34 (1966) .13 | 2.23 (1989) 0 | 0 (2021)	71 | 91 (1949) 50 | 36 (1891) .13 | 1.56 (1991) 0 | Trace (1891)	71 | 93 (2000) 50 | 34 (1968) .12 | 1.88 (1944) 0 | 0 (2021)
8	**9**	**10**	**11**	**12**	**13**	**14**
72 | 92 (2000) 51 | 34 (1947) .12 | 2.63 (1960) 0 | Trace (2020)	72 | 93 (1963) 51 | 32 (1947) .13 | 1.07 (1972) 0 | Trace (2020)	72 | 95 (1963) 51 | 30 (2020) .12 | 1.46 (1990) 0 | 0 (2021)	72 | 92 (1948) 52 | 31 (1966) .12 | 1.72 (1952) 0 | 0 (2021)	73 | 90 (1944) 52 | 36 (1907) .12 | 1.56 (1980) 0 | 0 (2021)	73 | 90 (1944) 52 | 36 (1967) .13 | 1.82 (1897) 0 | 0 (2021)	73 | 92 (1940) 53 | 34 (1996) .12 | 1.37 (1978) 0 | 0 (2021)
15	**16**	**17**	**18**	**19**	**20**	**21**
73 | 94 (1962) 53 | 37 (1939) .12 | 1.55 (1950) 0 | 0 (2021)	74 | 92 (1998) 53 | 38 (1973) .12 | 2.28 (1942) 0 | Trace (1956)	74 | 91 (2017) 54 | 34 (1956) .12 | 1.42 (1985) 0 | Trace (1953)	74 | 94 (1962) 54 | 36 (1973) .12 | 1.46 (2011) 0 | 0 (2021)	74 | 95 (1962) 54 | 35 (1973) .13 | 2.16 (1890) 0 | 0 (2021)	75 | 94 (1996) 54 | 38 (2002) .12 | 1.55 (1889) 0 | 0 (2021)	75 | 95 (1941) 55 | 38 (2002) .12 | 1.82 (1919) 0 | 0 (2021)
22	**23**	**24**	**25**	**26**	**27**	**28**
75 | 96 (1941) 55 | 38 (1895) .13 | 1.42 (1983) 0 | 0 (2021)	76 | 94 (1925) 55 | 40 (2002) .12 | 1.41 (1979) 0 | Trace (1950)	76 | 91 (1964) 56 | 35 (1963) .13 | 1.91 (1910) 0 | Trace (1938)	76 | 92 (1991) 56 | 35 (1956) .12 | 2.44 (1997) 0 | 0 (2021)	76 | 93 (1991) 56 | 41 (1972) .12 | 2.37 (1953) 0 | 0 (2021)	77 | 92 (1991) 57 | 41 (1915) .12 | 1.13 (1946) 0 | 0 (2021)	77 | 93 (1941) 57 | 41 (1983) .12 | 2.58 (1982) 0 | 0 (2021)
29	**30**	**31**				
77 | 95 (1969) 57 | 40 (1949) .12 | 2.45 (1990) 0 | 0 (2021)	77 | 95 (1895) 58 | 41 (1949) .13 | 1.39 (1953) 0 | 0 (2021)	78 | 97 (1939) 58 | 43 (1996) .13 | 4.66 (1889) 0 | 0 (2021)				

MAY

MAY
SUNRISE/SUNSET

DAY	AM	PM
1	6:07	8:02
2	6:05	8:03
3	6:04	8:04
4	6:03	8:05
5	6:02	8:06
6	6:01	8:07
7	5:59	8:08
8	5:58	8:09
9	5:57	8:10
10	5:56	8:11
11	5:55	8:12
12	5:54	8:13
13	5:53	8:14
14	5:52	8:15
15	5:51	8:16
16	5:50	8:17
17	5:49	8:18
18	5:48	8:19
19	5:48	8:20
20	5:47	8:21
21	5:46	8:22
22	5:45	8:23
23	5:45	8:24
24	5:44	8:24
25	5:43	8:25
26	5:43	8:26
27	5:42	8:27
28	5:41	8:28
29	5:41	8:28
30	5:40	8:29
31	5:40	8:30

NEW

FIRST 1/4

FULL

LAST 1/4

ALMANAC KEY

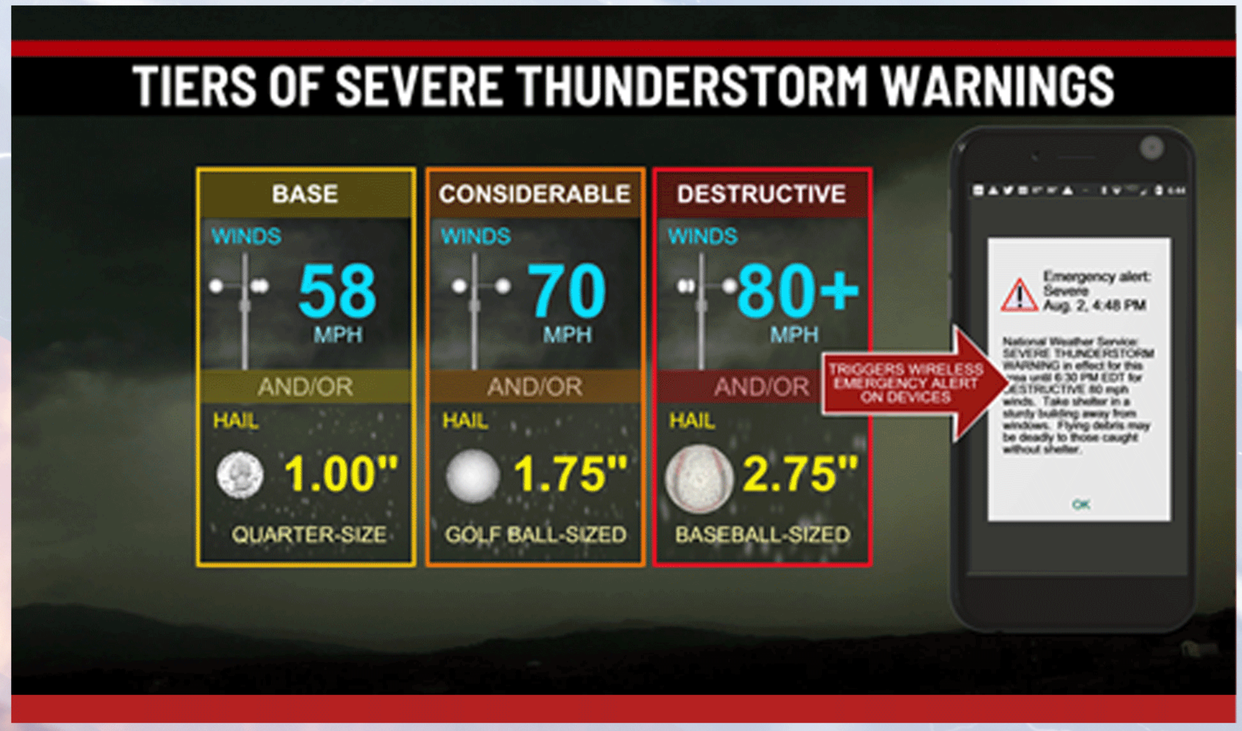
NORMAL HIGH	RECORD HIGH (YEAR)
NORMAL LOW	RECORD LOW (YEAR)
NORMAL PRECIP	RECORD PRECIP (YEAR)
NORMAL SNOW	RECORD SNOW (YEAR)

NEW TIERED SYSTEM FOR SEVERE THUNDERSTORM WARNINGS

by Dan Tomaso

As mentioned in a previous article about changes to winter weather bulletins, the National Weather Service is making an effort to simplify its message to the public. Severe thunderstorm warnings are bulletins not often understood by the public and new changes to the warnings are putting more emphasis on the impact of the thunderstorms. By definition, a severe thunderstorm is a storm detected on radar or reported by an observer containing 1" or quarter-sized diameter hail and/or wind gusts over 58 miles per hour. A severe thunderstorm warning is never issued due to the amount of lightning in a storm.

This new tiered system which rolled out in July 2021 has "base", "considerable", and "destructive" levels of severe thunderstorm warnings. The majority of severe thunderstorms in the Midstate fall in the new "base" level category or just below (many spring and summer storms contain wind gusts of 30 to 50 mph). Only the rarest storms or lines of storms fall into the new "considerable" category when the strongest gusts reach 70 mph or higher. If a storm reaches wind gusts of 80 mph or higher than it is considered to be in the "destructive" category. This category will set off Emergency Alert System (EAS) on mobile devices if you are located in the warning. Golf ball-sized hail and bigger are simply phenomena we do not see in Pennsylvania, so the only way we would see a "considerable" or "destructive" level storm is very strong wind gusts over 70 mph.



JUNE

SUN	MON	TUE	WED	THU	FRI	SAT
			1 78 | 97 (1895) 58 | 45 (2009) .13 | 3.12 (1889)	**2** 78 | 96 (1895) 59 | 45 (1907) .12 | 2.74 (1959)	**3** 79 | 96 (1919) 59 | 44 (1929) .12 | 1.25 (1910)	**4** 79 | 98 (1925) 59 | 46 (1977) .13 | 1.17 (1892)
5 79 | 99 (1925) 60 | 46 (1990) .12 | 1.25 (1975) 0.2 (1938)	**6** 80 | 99 (1925) 60 | 43 (1945) .13 | 1.15 (1919)	**7** 80 | 96 (1999) 60 | 43 (1958) .14 | 2.06 (1931) 0.1 (1931)	**8** 80 | 96 (1999) 61 | 43 (1977) .13 | 1.91 (1955)	**9** 81 | 97 (1933) 61 | 44 (1913) .14 | 1.75 (1937) Trace (1993)	**10** 81 | 96 (1984) 61 | 47 (1988) .14 | 1.7 (2009)	**11** 81 | 96 (1911) 62 | 40 (1980) .14 | 1.32 (1996)
12 82 | 92 (2017) 62 | 44 (1980) .14 | 1.88 (1890) Trace (1934)	**13** 82 | 96 (2017) 62 | 45 (1979) .14 | 1.47 (1982)	**14** 82 | 97 (1945) 62 | 44 (1979) .14 | 1.22 (1927)	**15** 82 | 97 (1994) 63 | 48 (1978) .14 | 1.48 (1989)	**16** 83 | 96 (1991) 63 | 41 (1961) .13 | 1.84 (2011)	**17** 83 | 98 (1939) 63 | 45 (1961) .14 | 1.59 (1930)	**18** 83 | 97 (1957) 64 | 48 (1958) .13 | 1.52 (1937)
19 84 | 98 (1994) 64 | 52 (1954) .12 | 1.87 (1996) Trace (2021)	**20** 84 | 98 (1931) 64 | 48 (1926) .13 | 2.27 (1987)	**21** 84 | 98 (1923) 65 | 48 (1940) .13 | 5.81 (1972)	**22** 84 | 97 (1988) 65 | 46 (1940) .13 | 9.13 (1972)	**23** 85 | 97 (1965) 65 | 48 (1992) .14 | 1.38 (1974)	**24** 85 | 98 (1966) 65 | 49 (1902) .14 | 1.72 (2017) Trace (1992)	**25** 85 | 98 (1997) 66 | 45 (1979) .14 | 3.95 (2006)
26 85 | 100 (1952) 66 | 47 (1979) .13 | 1.88 (1978)	**27** 86 | 100 (1966) 66 | 54 (1981) .13 | 2.4 (1975)	**28** 86 | 98 (1969) 66 | 52 (1988) .12 | 1.34 (2016) Trace (1936)	**29** 86 | 100 (1934) 66 | 53 (1956) .13 | 2.07 (1928)	**30** 86 | 98 (2021) 67 | 49 (1988) .14 | 1.38 (1904)		

JUNE SUNRISE/SUNSET

DAY	AM	PM
1	5:40	8:31
2	5:39	8:31
3	5:39	8:32
4	5:38	8:33
5	5:38	8:33
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 MOON

FIRST 1/4

FULL

LAST 1/4

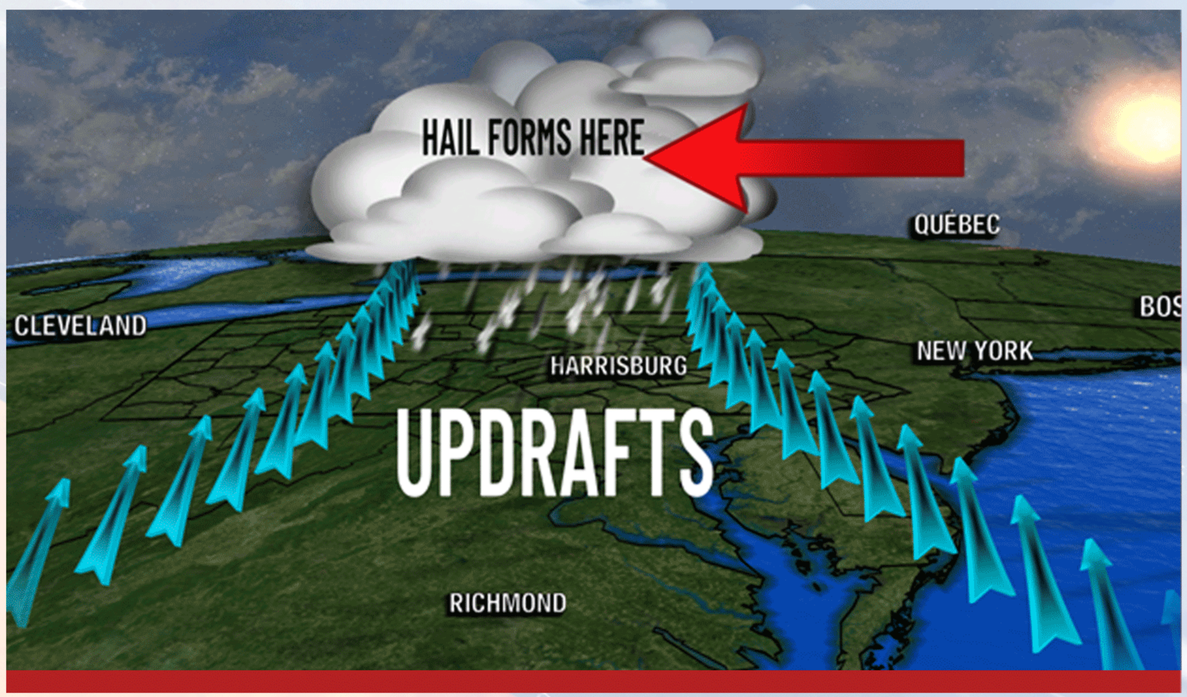
ALMANAC KEY

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

HAIL

by Brett Thackara

Hail is a type of precipitation that is commonly confused with forms of wintery precipitation like sleet or wet snow. However, hail is formed within convective environments and occurs during thunderstorms, often during the hot summer months. How does ice form and fall during some of the hottest months of the year? It's a great question and why people often get confused when it comes to hail. Let's delve in and take a closer look at how and why hail forms.



Hailstones are spherical in shape and must have a diameter of 0.2". Other icy forms of precipitation that are smaller than this are not classified as hail, such as snow, sleet, or graupel. Hailstones are formed when updrafts in thunderstorms shove raindrops upward into very cold levels of the atmosphere. Strong lift in thunderstorm updrafts is a key ingredient that helps hail to develop. Hailstones grow by collision with supercooled water drops. Supercooled refers to liquid drops surrounded by air that is below freezing, which is common in tall thunderstorms. The drops, however, remain in liquid form, despite the sub-freezing air. There are two methods in which hail grows: the wet process and the dry process.

During the wet process, a small hailstone is surrounded by below freezing air but not much colder than freezing. As the small hailstone collides with supercooled water drops, these drops do not instantly freeze around the small piece of ice that is the hailstone. Rather, the liquid water spreads across falling hailstones and slowly freezes. This is a slower process and results in clearer hailstones. The wet process can resemble how freezing rain develops. The dry process occurs when the air temperature is well below freezing and a water drop or even water vapor instantly freezes as it collides with a falling tiny hailstone. This process results in cloudy looking hailstones.

Hail is constantly on the move within a thunderstorm. It gets tossed up and down several times before falling to the ground as an ice pellet. A strong updraft is required within a storm cloud to move the hail higher and higher so the hailstones can continue to accrete ice in those cold layers of the atmosphere. Eventually, the hailstone will become large and heavy enough that the updraft can no longer support its upward momentum and it will fall to the surface. Often hail will melt before it reaches the ground, and it will turn into big, heavy raindrops. But if the conditions are right, hail can fall rapidly and do damage to cars, homes, and even people. Sometimes, if hail falls at a rapid rate, it can cover lawns and resemble a winter storm. Hail, however, only falls within thunderstorms and it is mainly a summer phenomenon.

JULY

SUN	MON	TUE	WED	THU	FRI	SAT
					1 86 | 100 (1931) 67 | 50 (1943) .14 | 1.28 (1995) Trace (1954)	**2** 86 | 104 (1966) 67 | 50 (1982) .14 | 2.18 (1924) Trace (1954)
3 87 | 107 (1966) 67 | 51 (1939) .14 | 1.65 (1978)	**4** 87 | 104 (1966) 67 | 54 (1979) .14 | 1.58 (1989)	**5** 87 | 102 (1999) 67 | 51 (1979) .13 | 1.87 (2006)	**6** 87 | 102 (1999) 68 | 51 (1979) .13 | 1.37 (1896)	**7** 87 | 101 (2012) 68 | 52 (1983) .13 | 1.06 (2017)	**8** 87 | 101 (1988) 68 | 53 (1983) .14 | 2.84 (1998)	**9** 87 | 103 (1936) 68 | 53 (1963) .15 | 1.89 (1970) 0.1 (1930)
10 87 | 103 (1936) 68 | 52 (1894) .15 | 1.38 (2010)	**11** 87 | 100 (1936) 68 | 53 (1983) 2.17 (2021) Trace (1928)	**12** 87 | 97 (1966) 68 | 49 (1945) .15 | 2.52 (1949)	**13** 87 | 99 (1966) 68 | 54 (1978) .16 | 2.48 (1989)	**14** 87 | 101 (1954) 68 | 51 (1940) .16 | 1.84 (1960)	**15** 87 | 99 (1997) 68 | 53 (1895) .16 | 1.73 (1919)	**16** 87 | 104 (1988) 68 | 52 (1946) .16 | 1.59 (1947)
17 87 | 100 (1999) 68 | 54 (1987) .16 | 1.39 (1949)	**18** 87 | 101 (1999) 68 | 54 (1982) .17 | 3.12 (1945) Trace (1926)	**19** 87 | 101 (1991) 68 | 54 (1939) .16 | 2.67 (1961) Trace (1951)	**20** 87 | 101 (1991) 68 | 53 (1965) .17 | 1.9 (1981)	**21** 87 | 101 (2011) 68 | 52 (1965) .16 | 3.84 (1994)	**22** 87 | 103 (2011) 68 | 50 (1890) .17 | 2.34 (2013) Trace (1932)	**23** 87 | 103 (1991) 68 | 54 (1983) .15 | 4.71 (2017) Trace (1928)
24 87 | 96 (2001) 68 | 54 (1947) .16 | 2.22 (1918)	**25** 87 | 99 (1940) 68 | 53 (1953) .16 | 2.38 (2011) Trace (1934)	**26** 87 | 100 (1966) 68 | 53 (1976) .15 | 1.17 (1991)	**27** 87 | 99 (1941) 68 | 52 (1962) .16 | 2.74 (1969)	**28** 86 | 99 (1941) 68 | 51 (1962) .14 | 1.43 (1898)	**29** 86 | 98 (1940) 68 | 56 (1978) .15 | 1.86 (1889)	**30** 86 | 98 (1940) 68 | 53 (1956) .16 | 2.13 (1891)
31 86 | 100 (1954) 68 | 53 (1895) .16 | 1.58 (1892)						

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	8:40
7	5:45	8:39
8	5:45	8:39
9	5:46	8:39
10	5:47	8:38
11	5:47	8:38
12	5:48	8:37
13	5:49	8:37
14	5:49	8:36
15	5:50	8:36
16	5:51	8:35
17	5:52	8:34
18	5:53	8:34
19	5:53	8:33
20	5:54	8:32
21	5:55	8:31
22	5:56	8:31
23	5:57	8:30
24	5:58	8:29
25	5:59	8:28
26	5:59	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

ALMANAC KEY

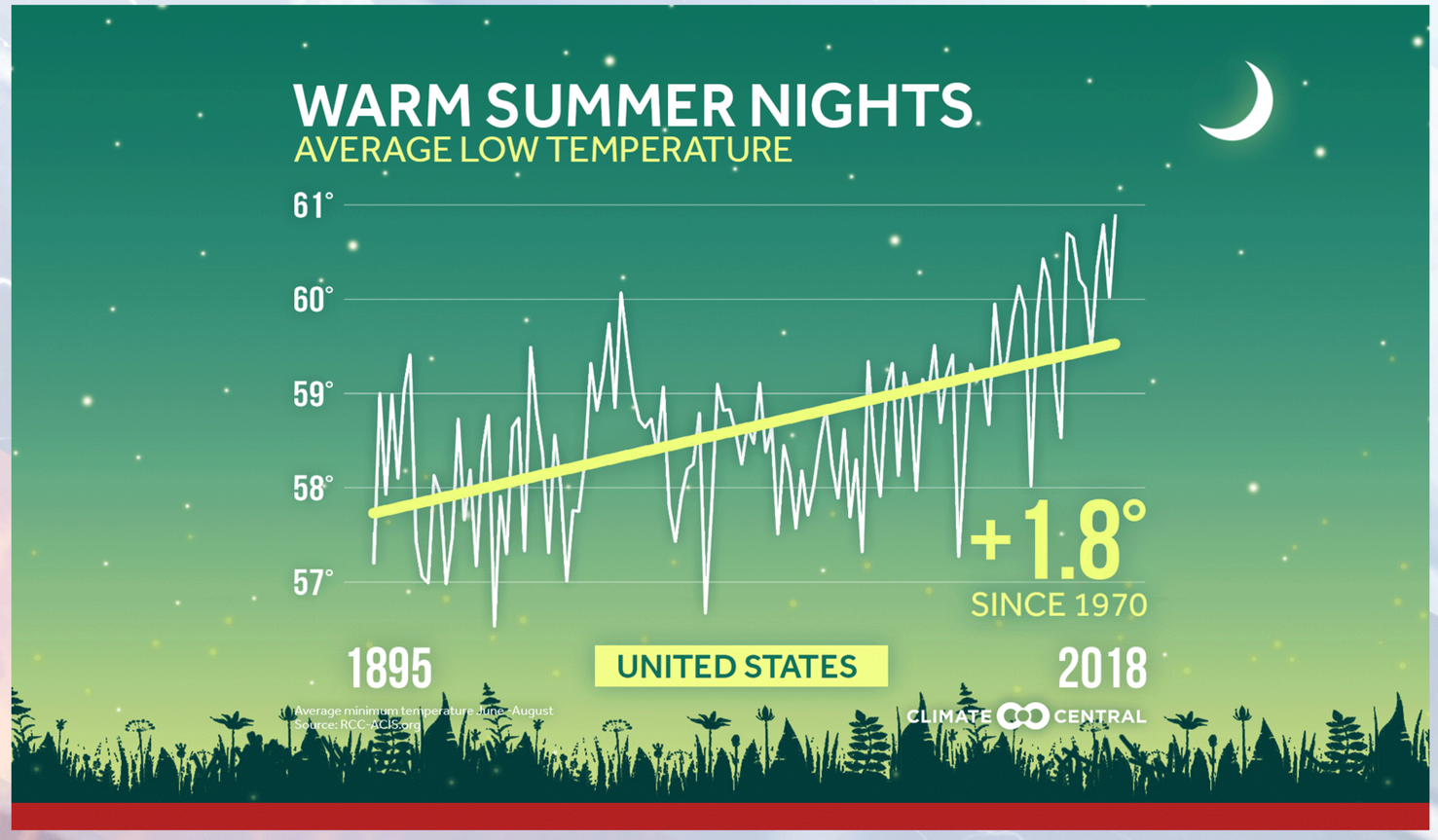
NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

NEW
FIRST 1/4
FULL
LAST 1/4

WARM NIGHTS CONTRIBUTING TO RECORD HOT SUMMERS

by Eric Finkenbinder

The summer of 2020 was the hottest summer on record and our recent summer also ranks in the top 5 hottest summers on record. The number of 90 degree days exceeded the average for both of these summers. We sweated through 32 days of 90 degree heat between June and August of 2021. In an average summer we would expect roughly 20 days of 90 degree heat. What was equally impressive (and oppressive) was the extremely warm nights. We had 43 summer nights with low temperatures in the 70s. Warmer than average overnight temperatures are now more common for us and not just during the summer.



AUGUST

SUN	MON	TUE	WED	THU	FRI	SAT
	1 86 / 68 55 (1964) .14 / 2.05 (2004)	**2** 86 / 68 100 (2002) / 53 (1947) .14 / 2.28 (1894)	**3** 86 / 67 99 (1930) / 51 (1959) .15 / 2.54 (1971)	**4** 86 / 67 103 (1930) / 53 (1912) .14 / 1.6 (2017)	**5** 86 / 67 100 (1955) / 49 (1951) .14 / 2.55 (1986)	**6** 86 / 67 104 (1918) / 50 (1994) .14 / 2.77 (1913)
7 86 / 67 104 (1918) / 53 (1964) .12 / 2.07 (1920)	**8** 86 / 67 99 (2001) / 51 (1989) .13 / 2.87 (1925)	**9** 86 / 67 98 (2001) / 52 (1989) .12 / 2.78 (1991)	**10** 85 / 67 98 (1949) / 53 (1989) .11 / 2.37 (1898)	**11** 85 / 67 99 (1944) / 50 (1972) .12 / 1.27 (2021)	**12** 85 / 67 101 (1944) / 52 (1968) .11 / 2.55 (2014)	**13** 85 / 66 100 (1944) / 50 (1930) .11 / 1.94 (1955) Trace (1993)
14 85 / 66 97 (2002) / 47 (1961) .11 / 2.75 (2012)	**15** 85 / 66 99 (1988) / 51 (1983) .12 / 1.09 (1935)	**16** 85 / 66 97 (1997) / 50 (1963) .11 / 1.76 (2003)	**17** 85 / 66 99 (1999) / 48 (1979) .10 / 2.08 (1994)	**18** 85 / 66 97 (2019) / 48 (1981) .11 / 2.46 (1920)	**19** 85 / 66 97 (1966) / 50 (1963) .11 / 2.7 (1989)	**20** 84 / 65 100 (1983) / 50 (1964) .11 / 1.97 (2004)
21 84 / 65 97 (1916) / 50 (2000) 0.1 / 4.3 (1915)	**22** 84 / 65 99 (1983) / 50 (1988) .11 / 1.65 (1990)	**23** 84 / 65 97 (1968) / 50 (1981) .12 / 4.66 (1933)	**24** 84 / 65 96 (1968) / 49 (1952) .12 / 2.07 (1945)	**25** 84 / 65 97 (1975) / 48 (1963) .13 / 2.48 (1905)	**26** 84 / 64 99 (1948) / 46 (1944) .13 / 1.8 (1899)	**27** 83 / 64 97 (1948) / 48 (1944) .12 / 2.4 (1971)
28 83 / 64 100 (1973) / 49 (1968) .13 / 2.26 (1903) Trace (1934)	**29** 83 / 64 97 (1953) / 46 (1982) .12 / 1.23 (1911)	**30** 83 / 64 98 (1953) / 47 (1986) .13 / 1.85 (1947)	**31** 83 / 63 98 (1953) / 45 (1976) .12 / 2.61 (1940)			

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	8:16
7	6:11	8:14
8	6:12	8:13
9	6:13	8:12
10	6:13	8:11
11	6:14	8:09
12	6:15	8:08
13	6:16	8:07
14	6:17	8:05
15	6:18	8:04
16	6:19	8:03
17	6:20	8:01
18	6:21	8:00
19	6:22	7:58
20	6:23	7:57
21	6:24	7:56
22	6:25	7:54
23	6:26	7:53
24	6:27	7:51
25	6:28	7:50
26	6:29	7:48
27	6:30	7:47
28	6:31	7:45
29	6:32	7:43
30	6:33	7:42
31	6:34	7:40

ALMANAC KEY

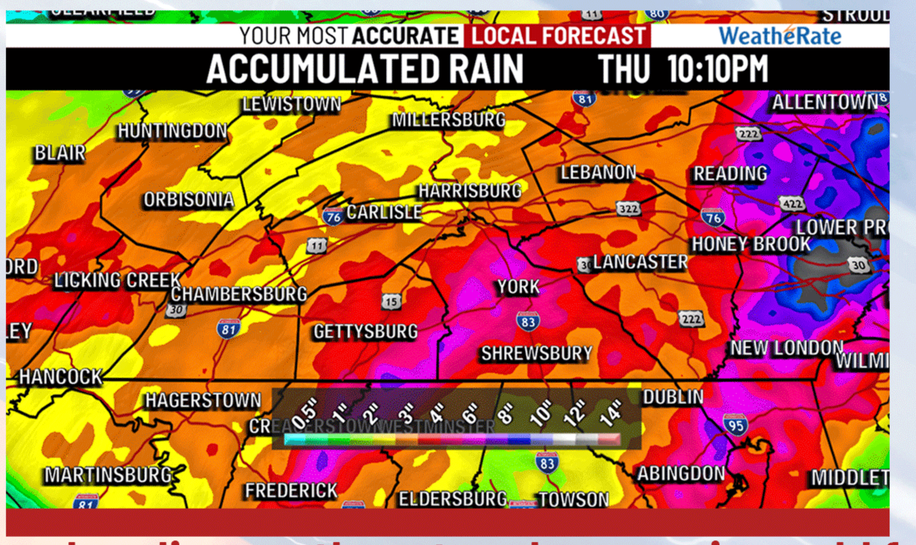
NORMAL HIGH | RECORD HIGH (YEAR)
NORMAL LOW | RECORD LOW (YEAR)
NORMAL PRECIP | RECORD PRECIP (YEAR)
NORMAL SNOW | RECORD SNOW (YEAR)

NEW
FIRST 1/4
FULL
LAST 1/4

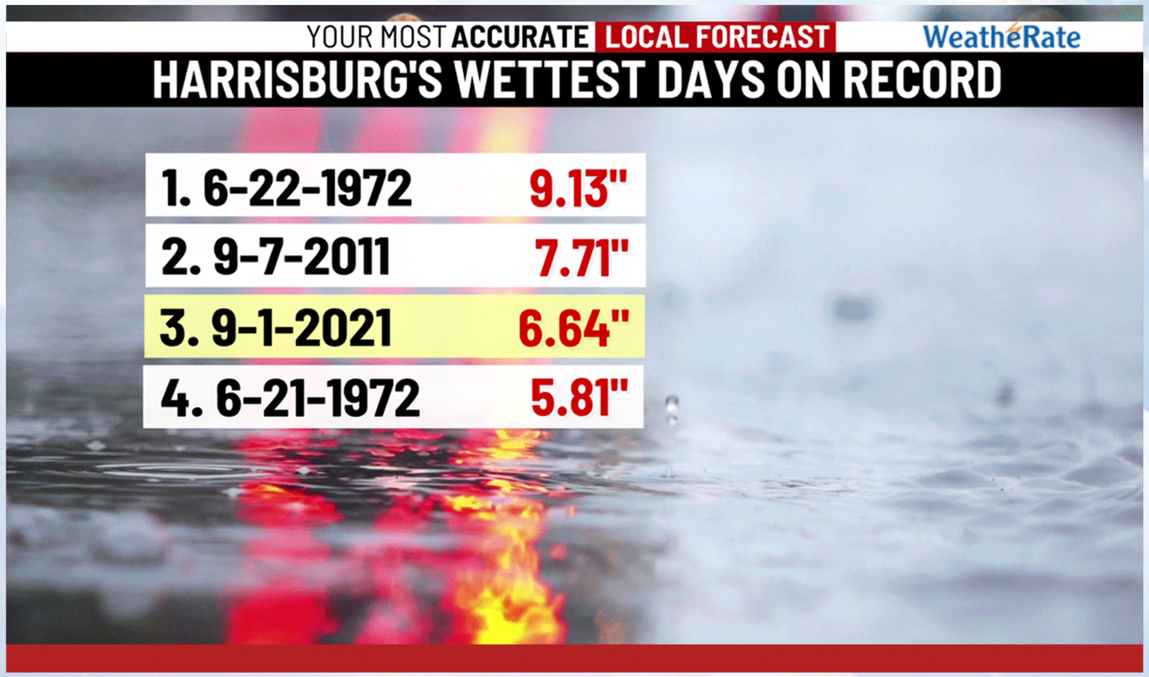
RECORD RAIN FROM IDA

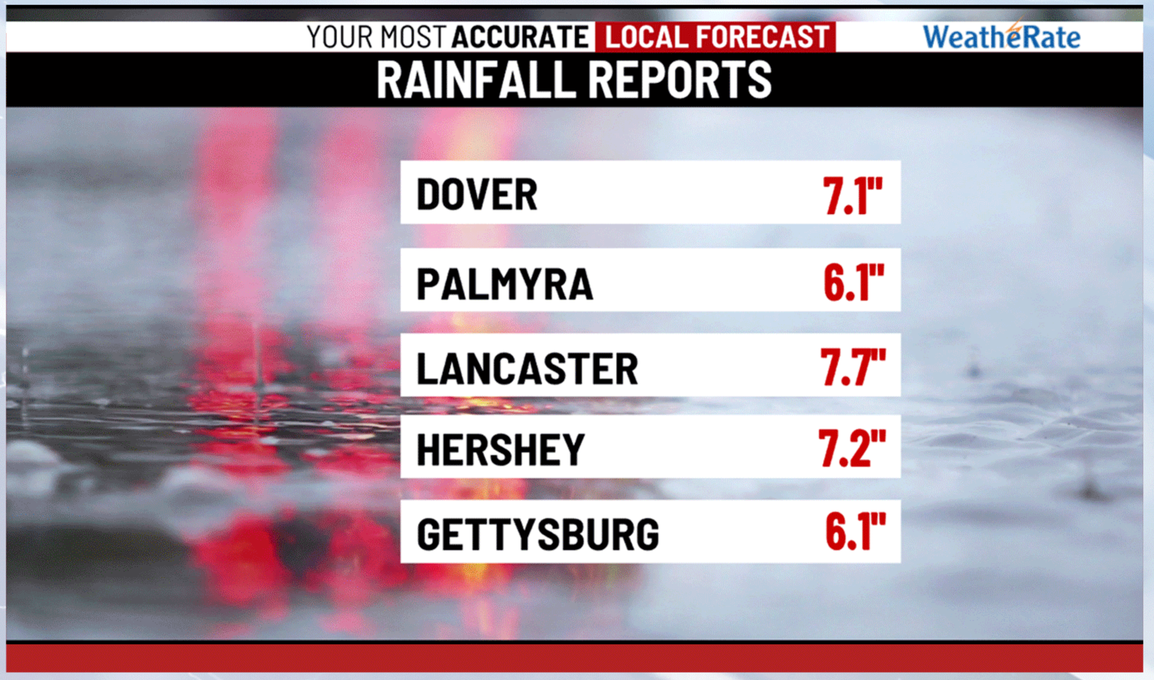
by Eric Finkenbinder

In late August of 2021 Hurricane Ida moved into the Gulf of Mexico and quickly strengthened into a category 4 major hurricane. It made landfall as a category four hurricane with winds of 105mph, tying with the Last Island Hurricane (1856) and Hurricane Laura (2020) for the strongest max sustained winds for a Louisiana landfalling hurricane on record. Ida lost strength as it moved further inland but still packed plenty of tropical moisture.



As Ida was heading northeast, a slow-moving cold front was sinking south across central PA. Both systems combined to create historic heavy rain across parts of Pennsylvania, New Jersey and New York City. When Ida finally cleared Wednesday evening, the Midstate received between 4 to 8 inches of rain. Harrisburg International Airport measure 6.64" of rain, the third wettest day on record, joining other historical record days from Agnes in 1972 and Lee in 2011. Although the Susquehanna River did not flood, many streams in the area experienced moderate to major flooding, closing many schools on Wednesday.





SEPTEMBER

SUN	MON	TUE	WED	THU	FRI	SAT
				1 82 | 98 (1953) 63 | 47 (1967) .15 | 6.64 (2021)	**2** 82 | 102 (1953) 63 | 45 (1949) .15 | 2.69 (2006)	**3** 82 | 102 (1953) 63 | 43 (1967) .16 | 1.52 (1993)
4 82 | 93 (2015) 62 | 46 (1946) .15 | 1.33 (2011)	**5** 81 | 94 (2018) 62 | 47 (1974) .15 | 1.92 (1979)	**6** 81 | 96 (1983) 62 | 46 (1988) .15 | 2.59 (2008)	**7** 81 | 96 (1985) 61 | 46 (1976) .15 | 7.71 (2011)	**8** 81 | 99 (1939) 61 | 45 (1988) .16 | 2.25 (1993)	**9** 80 | 96 (1941) 61 | 47 (1986) .16 | 2.54 (2018)	**10** 80 | 97 (1983) 60 | 42 (1956) .15 | 4.37 (2015)
11 80 | 97 (1964) 60 | 40 (1917) .16 | 2.17 (2009)	**12** 79 | 97 (1931) 60 | 41 (1917) .17 | 1.98 (2015)	**13** 79 | 93 (1952) 59 | 40 (1943) .16 | 1.54 (1944)	**14** 78 | 90 (2016) 59 | 39 (1964) .18 | 4.34 (1973)	**15** 78 | 94 (1942) 59 | 41 (1963) .18 | 3.63 (1916)	**16** 78 | 96 (1970) 58 | 42 (1988) .18 | 3.15 (1999)	**17** 77 | 93 (1972) 58 | 41 (1959) .18 | 2.46 (2004)
18 77 | 92 (1965) 58 | 40 (1990) .17 | 3.38 (2004)	**19** 77 | 92 (1983) 57 | 37 (1943) .18 | 3.18 (2000)	**20** 76 | 93 (1895) 57 | 37 (1979) .17 | 1.45 (1938)	**21** 76 | 94 (1895) 56 | 35 (1956) .17 | 2.8 (1979)	**22** 75 | 95 (1970) 56 | 37 (1904) .15 | 1.12 (2002)	**23** 75 | 94 (1970) 56 | 36 (1963) .16 | 1.76 (2011)	**24** 74 | 97 (1970) 55 | 30 (1963) .15 | 1.94 (1975)
25 74 | 93 (1970) 55 | 31 (1963) .15 | 4.28 (1975)	**26** 74 | 91 (1970) 54 | 36 (1943) .15 | 4.59 (1975)	**27** 73 | 91 (2017) 54 | 34 (1947) .16 | 2.81 (2007)	**28** 73 | 88 (2019) 53 | 32 (1947) .16 | 3.51 (2004)	**29** 72 | 89 (1953) 53 | 35 (1942) .16 | 2.98 (1924)	**30** 72 | 89 (1986) 53 | 35 (1942) .16 | 3.22 (2010)	

SEPTEMBER SUNRISE/SUNSET

DAY	AM	PM
1	6:35	7:39
2	6:36	7:37
3	6:37	7:35
4	6:37	7:34
5	6:38	7:32
6	6:39	7:31
7	6:40	7:29
8	6:41	7:27
9	6:42	7:26
10	6:43	7:24
11	6:44	7:22
12	6:45	7:21
13	6:46	7:19
14	6:47	7:17
15	6:48	7:16
16	6:49	7:14
17	6:50	7:12
18	6:51	7:11
19	6:52	7:09
20	6:53	7:07
21	6:54	7:06
22	6:55	7:04
23	6:56	7:02
24	6:57	7:01
25	6:58	6:59
26	6:59	6:57
27	7:00	6:56
28	7:01	6:54
29	7:01	6:52
30	7:02	6:51

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

2022 WEATHER ALMANAC

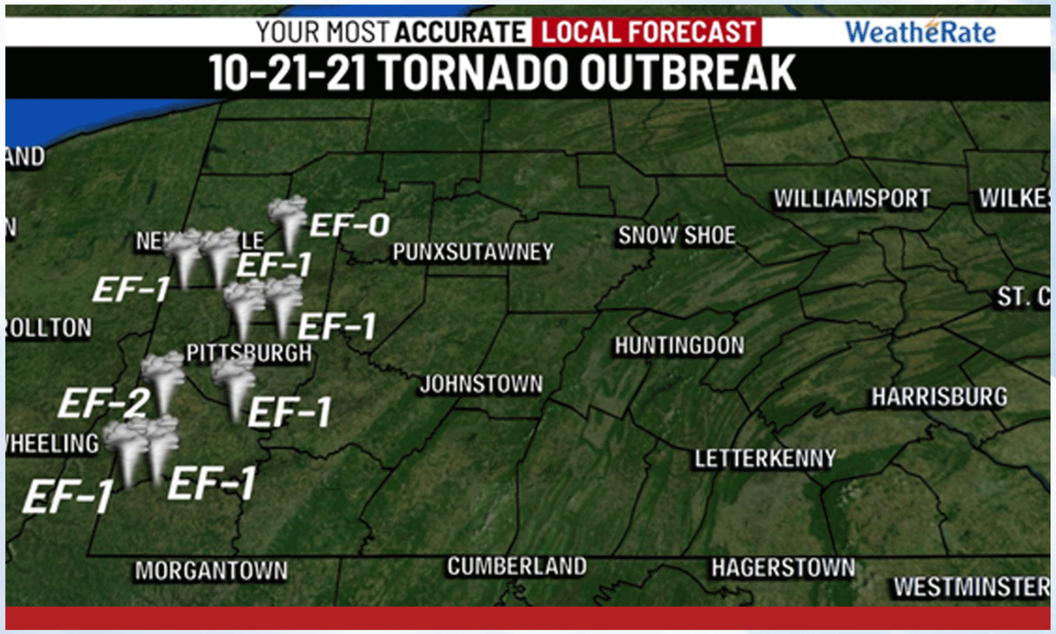
OCTOBER 21, 2021

WESTERN PA TORNADO OUTBREAK

by Adis Juklo

On October 21st, 2021, Pennsylvania was reminded there is no place immune from tornadoes no matter the time of year. On that Thursday evening, a total of 9 tornadoes touched down in the western tier of the state. Even with mainly weaker EF0 or EF1 tornadoes, it occurred during an extremely unlikely time of year and time of day, with most tornadoes touching down between 7 and 9pm.

A cold front was responsible for the outbreak, and while temperatures only warmed into the low 60s that day, providing only weak instability, there was plenty of low-level shear or 'spin' associated with faster winds aloft. The storms also stayed discrete or separate from each other, allowing the individual updrafts to strengthen and spin for longer periods of time.



Within the National Weather Service Pittsburgh's coverage area, which includes eastern Ohio and northern West Virginia, a total of 11 tornadoes were confirmed with this event, with 16 total tornadoes during the month. This is more than the total number of October tornadoes from 1950-2020! Incredibly, despite the tornadoes occurring at night, no injuries or deaths were reported with this outbreak. As of late November, a total of 44 tornadoes have touched down in the commonwealth this year, the second most of any other year, only beaten by 1998 which featured 59 tornadoes.

Locally, only 4 tornadoes touched down in our immediate viewing area this year. Three occurred with the remnants of Fred on August 18th, with the fourth occurring back on July 29th in extreme eastern Lebanon county.

OCTOBER

SUN	MON	TUE	WED	THU	FRI	SAT
						1 72 | 90 (1927) 52 | 35 (1947) .14 | 3.06 (1913) 0 | 0 (2021)
2 71 | 93 (2019) 52 | 34 (1899) .14 | 3.95 (1929) 0 | 0 (2021)	**3** 71 | 88 (1919) 51 | 32 (1899) .14 | 2.44 (1927) 0 | 0 (2021)	**4** 70 | 88 (1941) 51 | 31 (1974) .13 | 2.54 (1962) 0 | 0 (2021)	**5** 70 | 97 (1941) 50 | 34 (1961) .14 | 2.38 (1932) 0 | Trace (1892)	**6** 70 | 93 (1941) 50 | 32 (1958) .13 | 1.02 (1938) 0 | 0 (2021)	**7** 69 | 97 (1941) 50 | 33 (1964) .14 | 3.97 (2005) 0 | 0 (2021)	**8** 69 | 88 (2007) 49 | 31 (1964) .13 | 1.3 (1998) 0 | 0 (2021)
9 68 | 89 (2007) 49 | 30 (2001) .13 | 3.87 (1976) 0 | Trace (1895)	**10** 68 | 89 (1939) 48 | 30 (1895) .13 | 4.02 (2013) 0 | Trace (1979)	**11** 68 | 86 (1949) 48 | 31 (1993) .13 | 5.72 (2013) 0 | 0 (2021)	**12** 67 | 88 (1954) 47 | 27 (1964) .11 | 2.32 (1896) 0 | 0 (2021)	**13** 67 | 85 (1954) 47 | 31 (1988) .12 | 1.1 (1978) 0 | 0 (2021)	**14** 66 | 85 (1975) 47 | 30 (1988) .12 | 2.5 (1955) 0 | Trace (1894)	**15** 66 | 84 (1897) 46 | 32 (2006) .12 | 1.57 (1954) 0 | 0 (2021)
16 66 | 86 (1897) 46 | 30 (1944) .12 | 1.47 (1942) 0 | Trace (1982)	**17** 65 | 86 (1908) 46 | 31 (1937) .13 | 2.49 (1932) 0 | 0 (2021)	**18** 65 | 84 (2016) 45 | 30 (1982) .12 | 1.64 (1996) 0 | Trace (1972)	**19** 65 | 85 (2016) 45 | 28 (1976) .13 | 1.64 (1937) 0.1 | 1.2 (1972)	**20** 64 | 82 (1969) 44 | 28 (1992) .13 | 1.72 (1944) 0 | 0.1 (1940)	**21** 64 | 84 (1947) 44 | 29 (1972) .12 | 2.74 (1995) 0 | Trace (1972)	**22** 63 | 83 (1947) 44 | 25 (1940) .12 | 2.18 (1929) 0 | Trace (1969)
23 63 | 86 (1947) 43 | 29 (1982) .12 | 1.86 (1990) 0 | Trace (1969)	**24** 63 | 80 (2001) 43 | 23 (1969) .12 | 1.77 (1917) 0 | Trace (1960)	**25** 62 | 75 (1963) 43 | 28 (1962) .12 | 2.19 (1980) 0 | Trace (1962)	**26** 62 | 79 (1939) 42 | 27 (1952) 0.1 | 2.5 (1943) 0 | Trace (1962)	**27** 62 | 82 (1963) 42 | 27 (1988) .11 | 1.54 (1987) 0 | Trace (1957)	**28** 61 | 80 (1984) 42 | 24 (1976) .11 | 2.09 (2015) 0.1 | Trace (1965)	**29** 61 | 79 (1946) 41 | 26 (1965) 0.1 | 2.93 (2012) 0 | 5.5 (2011)
30 61 | 81 (2016) 41 | 24 (1965) 0.11 | 1.39 (1917) 0 | 2.1 (1925)	**31** 60 | 81 (1950) 41 | 24 (1988) 0.1 | 2.63 (2019) 0 | 0 (2021)					

OCTOBER SUNRISE/SUNSET

DAY	AM	PM
1	7:03	6:49
2	7:04	6:48
3	7:05	6:46
4	7:06	6:44
5	7:07	6:43
6	7:09	6:41
7	7:10	6:39
8	7:11	6:38
9	7:12	6:36
10	7:13	6:35
11	7:14	6:33
12	7:15	6:32
13	7:16	6:30
14	7:17	6:29
15	7:18	6:27
16	7:19	6:26
17	7:20	6:24
18	7:21	6:23
19	7:22	6:21
20	7:23	6:20
21	7:24	6:18
22	7:25	6:17
23	7:26	6:16
24	7:28	6:14
25	7:29	6:13
26	7:30	6:12
27	7:31	6:10
28	7:32	6:09
29	7:33	6:08
30	7:34	6:07
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)

CHANGES COMING TO THE LAYERS OF WINTER WEATHER BULLETINS

by Dan Tomaso

The National Weather Service is listening to feedback from the public, broadcasters, and forecasters as changes are considered for forward-facing weather bulletins. For as long as I can remember as a weather enthusiast/nerd growing up, winter weather advisories, winter storm watches, and winter storm warnings have been common terms and bulletins issued as snow, sleet, and ice move into the region.

"Wind Advisory in effect"

could become...

"WINDY: Westerly winds today gusting to 40 mph"

==========

"Coastal Flood Advisory in effect"

could become...

"CAUTION:Coastal flooding expected today"

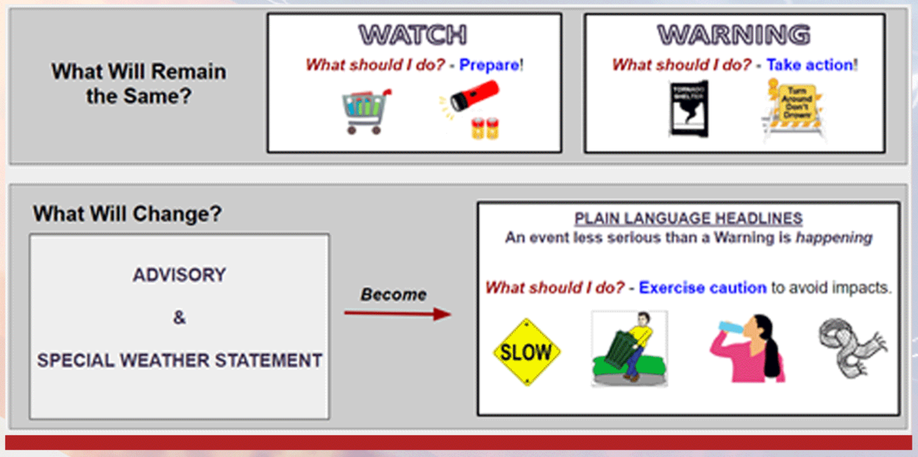
==========

"Wind Chill Advisory in effect"

could become...

"VERY COLD TONIGHT: Wind chills between -5F and -10F"

When you dive into each bulletin, there are certain thresholds for the amount of snow and ice that determine if you need to issue an advisory, watch, or warning. The lead time and duration of the winter precipitation also plays a role in deciding which bulletin to issue. These criteria also change from north to south across the region and have changed over time. All of this can be confusing to the public and even to forecasters and broadcasters.



See the examples below for the bulletins issued before and during the snow storm of December 15-15, 2020, one of the most impactful storms of the 2020-2021 season. The steps between the issued advisory to the elevation of a watch to a warning appears tedious and not necessary for public consumption- in other words too many unnecessary details!

```
PAZ036-057-059-063>066-150645-
/O.CON.KCTP.WW.Y.0017.000000T0000Z-201214T2100Z/
/O.CON.KCTP.WS.A.0001.201216T1500Z-201217T1500Z/
Franklin-Dauphin-Lebanon-Cumberland-Adams-York-Lancaster-
Including the cities of Chambersburg, Harrisburg, Hershey,
Lebanon, Carlisle, Gettysburg, York, and Lancaster
144 PM EST Mon Dec 14 2020

...WINTER WEATHER ADVISORY REMAINS IN EFFECT UNTIL 4 PM EST THIS
AFTERNOON...
...WINTER STORM WATCH REMAINS IN EFFECT FROM WEDNESDAY MORNING
THROUGH THURSDAY MORNING...

* WHAT...For the Winter Weather Advisory, wet snow expected. Total
  snow accumulations ranging from a coating to 1 inch in the
  valleys, to as much as 3 inches in the higher terrain. For the
  Winter Storm Watch, heavy snow possible with snow accumulations in
  excess of 12 inches possible.

* WHERE...Portions of central Pennsylvania.

* WHEN...For the Winter Weather Advisory, until 4 PM EST this
  afternoon. For the Winter Storm Watch, from Wednesday morning
  through Thursday morning.

* IMPACTS...Light additional snow accumulations, mainly on grassy
  areas this afternoon. Slippery conditions are on untreated roads
  that run along the north slopes of the ridges. Heavy snow on
  Wednesday may make travel difficult to impossible, particularly
  for the Wednesday evening commute and Wednesday night.

* ADDITIONAL DETAILS...Bands of heavy snow creating snowfall rates
  in excess of 2 inches per hour are likely Wednesday afternoon and
  Wednesday night.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

The Pennsylvania Department of Transportation and Pennsylvania
Turnpike Commission remind motorists to adjust speeds based on
driving conditions as winter weather impacts will include snow
covered roads and limited visibility.

Call 5 1 1 or visit www.511pa.com for the latest travel, roadway and
traffic conditions.
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PAZ026>028-035-036-056-057-059-063>066-152130-
/O.UPG.KCTP.WS.A.0001.201216T1500Z-201217T1500Z/
/O.NEW.KCTP.WS.W.0003.201216T1500Z-201217T1200Z/
Huntingdon-Mifflin-Juniata-Fulton-Franklin-Perry-Dauphin-Lebanon-
Cumberland-Adams-York-Lancaster-
Including the cities of Huntingdon, Mount Union, Lewistown,
Mifflintown, McConnellsburg, Chambersburg, Newport, Harrisburg,
Hershey, Lebanon, Carlisle, Gettysburg, York, and Lancaster
430 AM EST Tue Dec 15 2020

...WINTER STORM WARNING IN EFFECT FROM 10 AM WEDNESDAY TO 7 AM
EST THURSDAY...

* WHAT...Heavy snow expected. Total snow accumulations of 12 to 18
  inches with locally higher amounts possible.

* WHERE...South central Pennsylvania.

* WHEN...From 10 AM Wednesday to 7 AM EST Thursday.

* IMPACTS...Travel could be very difficult to impossible. The
  hazardous conditions could impact the morning or evening
  commute.

* ADDITIONAL DETAILS...Bands of heavy snow with accumulation rates
  of 2 to 3 inches per hour are likely Wednesday evening and
  Wednesday night.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

The Pennsylvania Department of Transportation and Pennsylvania
Turnpike Commission strongly encourage motorists to heed all
travel restrictions and delay unnecessary travel as significant
winter weather conditions will make travel very hazardous.

Call 5 1 1 or visit www.511pa.com for the latest travel, roadway
and traffic conditions.

To report snow or ice, post to the NWS State College Facebook
page, use Twitter @NWSStateCollege, or visit weather.gov/ctp.
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Disclaimer: This article is not meant to criticize the National Weather Service, including our local forecast office in State College. Weather forecasting and communications is a complicated field and we continue to learn from weather events and the public's response to them. This article serves as an update for positive changes to the way winter weather bulletins will be issued.

NOVEMBER

SUN	MON	TUE	WED	THU	FRI	SAT
		1 60 / 84 (1950) 40 / 29 (1964) 0.1 / 1.86 (1932) 0 / Trace (1993)	**2** 59 / 82 (1971) 40 / 27 (1930) 0.1 / 1.96 (2018) 0 / 1.8 (1954)	**3** 59 / 78 (2003) 40 / 23 (1951) 0.1 / 1.16 (1962) 0 / 4.0 (1962)	**4** 59 / 78 (1994) 39 / 24 (1951) 0.1 / 1.56 (1982) 0.1 / Trace (1983)	**5** 58 / 79 (1975) 39 / 25 (1991) 0.1 / 1.68 (1896) 0 / 1.0 (1891)
6 DAYLIGHT SAVINGS ENDS 58 / 77 (1948) 39 / 23 (1991) .09 / 1.26 (1963) 0 / 6.5 (1953)	**7** 57 / 75 (1938) 38 / 24 (1962) 0.1 / 1.55 (1963) 0 / 8.9 (1953)	**8** 57 / 76 (1975) 38 / 22 (1960) 0.1 / 2.92 (1943) 0 / 1.2 (1910)	**9** 57 / 75 (1895) 38 / 23 (1992) 0.1 / 1.16 (1889) 0 / 4.8 (1892)	**10** 56 / 73 (1888) 37 / 24 (2017) 0.1 / 1.7 (1990) 0.1 / 4.3 (1987)	**11** 56 / 74 (1949) 37 / 20 (2017) 0.1 / 1.12 (1947) 0 / 4.8 (1987)	**12** 55 / 73 (1964) 37 / 22 (1957) 0.1 / 2.36 (1925) 0 / 3.0 (1968)
13 55 / 72 (1964) 36 / 21 (1911) .09 / 2.53 (1937) 0 / 0.6 (1995)	**14** 55 / 74 (1989) 36 / 19 (1986) .09 / 1.74 (1995) 0 / 7.6 (1908)	**15** 54 / 76 (1993) 36 / 15 (1908) 0.1 / 1.3 (2018) 0 / 8.3 (2018)	**16** 54 / 73 (1931) 36 / 11 (1908) 0.1 / 1.89 (2006) 0 / 0.5 (2018)	**17** 53 / 72 (1953) 35 / 16 (1933) .09 / 1.25 (1935) 0 / 4.0 (1980)	**18** 53 / 76 (1928) 35 / 16 (1959) .01 / 1.3 (1892) 0 / 0.5 (2007)	**19** 53 / 72 (1928) 35 / 18 (1924) .09 / 1.55 (1932) 0 / 4.6 (1965)
20 52 / 77 (1942) 34 / 20 (2000) 0.1 / 1.78 (1952) 0 / 3.4 (1961)	**21** 52 / 74 (1900) 34 / 19 (1959) 0.1 / 1.78 (1952) 0.1 / 1.4 (2008)	**22** 51 / 73 (1931) 34 / 16 (1964) 0.1 / 1.8 (2011) 0 / 0.6 (1989)	**23** 51 / 71 (1931) 34 / 14 (1964) 0.1 / 0.99 (1934) 0 / 1.5 (1897)	**24** 50 / 69 (1914) 33 / 19 (2000) .09 / 1.83 (1980) 0.1 / 6.8 (1938)	**25** 50 / 70 (1979) 33 / 16 (1959) 0.1 / 2.21 (1950) 0 / 3.4 (1938)	**26** 50 / 70 (1979) 33 / 13 (1938) .11 / 1.29 (2013) 0.1 / 2.8 (1898)
27 49 / 71 (1896) 33 / 13 (1938) 0.1 / 1.44 (1993) 0 / 4.0 (1978)	**28** 49 / 70 (1990) 32 / 13 (1930) .11 / 1.84 (1984) 0.1 / 3.0 (1892)	**29** 49 / 69 (1998) 32 / 13 (1955) .11 / 2.33 (1987) 0 / 3.1 (1995)	**30** 48 / 70 (1933) 32 / 10 (1929) .11 / 1.22 (1977) 0.1 / 6.4 (1967)			

NOVEMBER SUNRISE/SUNSET

DAY	AM	PM
1	7:37	6:04
2	7:38	6:03
3	7:39	6:02
4	7:40	6:01
5	7:41	6:00
6	6:42	4:58
7	6:44	4:57
8	6:45	4:56
9	6:46	4:55
10	6:47	4:54
11	6:48	4:53
12	6:49	4:53
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	6:56	4:48
19	6:57	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	7:06	4:43
28	7:07	4:42
29	7:08	4:42
30	7:09	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)

abc 27 NEWS YOUR MOST ACCURATE LOCAL FORECAST **2022 WEATHER ALMANAC**

WHY ARE SNOW SQUALLS SO DANGEROUS?

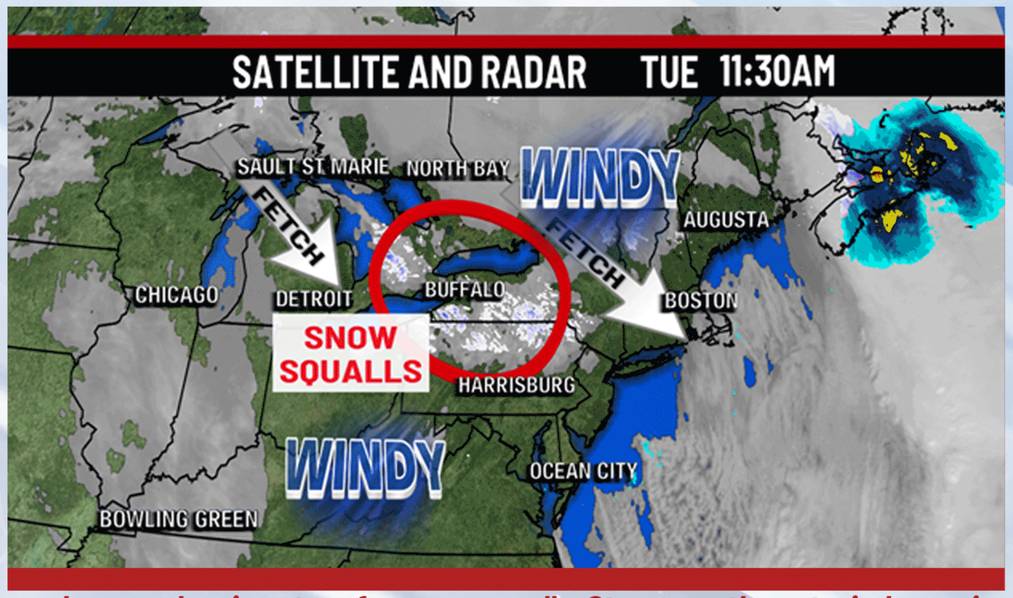
by Brett Thackara

According to the National Weather Service, a snow squall is defined as an intense, but limited duration, period of moderate to heavy snowfall, accompanied by strong, gusty surface winds and possibly lightning (generally moderate to heavy snow showers). Snow accumulation may be significant within certain squalls. This is a fine definition but doesn't really give an impression of how dangerous this type of weather phenomena can be, especially to drivers. Snow squalls are common here across Pennsylvania and it's always important to review what causes them, why they are a major concern, and how we can try and avoid getting caught unprepared.

Snow squalls are the cold weather equivalent to a summertime convective thunderstorm. Typically, short in duration, they can pack a brutal punch. Think about those downpours during the hot summer months. These brief bursts of convective rains sound thunderous on their own, without any thunder necessarily present, they can put down a ton of rain in a short amount of time, and they can wash away and erode landscaping and create street flooding. These convective cells are caused by several atmospheric ingredients that work together to form a mini nightmare over a small area for a brief amount of time. Snow squalls are similar. These are often formed by strong winds behind a frontal system. The winds pick up moisture from the Great Lakes and depending on how strong they are, create a long fetch over land areas where the moisture can be dumped. Locally, these snow squalls typically affect northwestern Pennsylvania. But if the winds are just right, and the fetch is long enough, these convective squalls can reach Central PA too.

Just like during a downpour in the summer, these squalls can create hazardous driving conditions, not just because the roads could ice over. The main danger during a snow squall is low visibility. Snow falling very heavily while winds whip within the center of a cell create chaos. White-out conditions create a deteriorating driver-friendly environment with the roads becoming slick too. This yields a double whammy of trouble and often leads to pileups, traffic jams, and even mass causalities during particularly dangerous squalls.

The best way to avoid getting stuck in a dangerous or even deadly snow squall is to listen to the forecast first. Sometimes, snow squalls are easy to predict. If we mention that conditions favor squalls later in the day, heed the forecast and maybe adjust plans. You can always download the free abc27 Weather app and check the radar before driving too. These are ways to avoid the threat at all. Sometimes, snow squalls are difficult to predict and other times there is simply no way to avoid getting caught in one. The best thing to do, as soon as possible, if you can do it safely, is to get off the road. Either pull over to the shoulder, or better yet, get off an exit and wait the squall out in a safer environment. Be smarter than other drivers. Don't trust other drivers to keep you safe. You keep yourself safe. Snow squalls can lead to deadly consequences. Low visibility, slick roads, and drivers that don't heed warnings are a dangerous combination. Snow squall warnings are now automatically sent out to cell phones to try and get people's attention. This is another tool in a vast toolbox to try and save lives. Use common sense and listen to our forecasts and you'll be safe. Just don't be caught off guard!



This image shows a classic set-up for snow squalls. Strong northwest winds coming off the lakes behind a cold front provide the fuel. These winds pick up moisture from the lakes and dump snow squalls across northern PA, New York, and parts of Canada.

DECEMBER

SUN	MON	TUE	WED	THU	FRI	SAT
				1 Normal High: 48 Normal Low: 32 Record High: 74 (2006) Record Low: 12 (1967) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 2.69 (1934) Record Snow: 2.0 (1890)	**2** Normal High: 47 Normal Low: 31 Record High: 67 (1970) Record Low: 9 (1967) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.53 (1986) Record Snow: 5.0 (1929)	**3** Normal High: 47 Normal Low: 31 Record High: 72 (1998) Record Low: 12 (1976) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.6 (1990) Record Snow: 4.5 (1907)
4 Normal High: 47 Normal Low: 31 Record High: 74 (1998) Record Low: 11 (1940) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.92 (1950) Record Snow: 5.0 (1957)	**5** Normal High: 46 Normal Low: 31 Record High: 73 (2001) Record Low: 12 (1926) Normal Precip: .13 Normal Snow: 0.1 Record Precip: 2.05 (1993) Record Snow: 6.8 (1902)	**6** Normal High: 46 Normal Low: 30 Record High: 73 (1998) Record Low: 12 (2002) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.88 (1962) Record Snow: 5.8 (1996)	**7** Normal High: 46 Normal Low: 30 Record High: 75 (1998) Record Low: 9 (2002) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.52 (1914) Record Snow: 4.3 (1959)	**8** Normal High: 45 Normal Low: 30 Record High: 68 (1980) Record Low: 12 (2002) Normal Precip: .11 Normal Snow: 0.2 Record Precip: 1.25 (1917) Record Snow: 6.6 (1917)	**9** Normal High: 45 Normal Low: 30 Record High: 68 (1946) Record Low: 7 (1989) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.54 (1973) Record Snow: 8.0 (2005)	**10** Normal High: 45 Normal Low: 30 Record High: 71 (1946) Record Low: 6 (1917) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 1.51 (1969) Record Snow: 4.5 (1904)
11 Normal High: 44 Normal Low: 29 Record High: 63 (1897) Record Low: 6 (1968) Normal Precip: .12 Normal Snow: 0.1 Record Precip: 2.29 (2008) Record Snow: 6.9 (1960)	**12** Normal High: 44 Normal Low: 29 Record High: 67 (1979) Record Low: 6 (1988) Normal Precip: .12 Normal Snow: 0.2 Record Precip: 0.86 (1983) Record Snow: 4.1 (1960)	**13** Normal High: 44 Normal Low: 29 Record High: 64 (2015) Record Low: 6 (1960) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 2.73 (1983) Record Snow: 6.7 (1966)	**14** Normal High: 44 Normal Low: 29 Record High: 66 (2015) Record Low: 4 (2005) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 1.5 (1991) Record Snow: 7.0 (1917)	**15** Normal High: 43 Normal Low: 28 Record High: 63 (2008) Record Low: 4 (1914) Normal Precip: .12 Normal Snow: 0.2 Record Precip: 1.16 (1901) Record Snow: 3.0 (1981)	**16** Normal High: 43 Normal Low: 28 Record High: 63 (1971) Record Low: 4 (1951) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 1.31 (1974) Record Snow: 9.3 (2020)	**17** Normal High: 43 Normal Low: 28 Record High: 59 (1939) Record Low: 0 (1951) Normal Precip: 0.1 Normal Snow: 0.2 Record Precip: 1.69 (2000) Record Snow: 6.1 (1973)
18 Normal High: 43 Normal Low: 28 Record High: 64 (2006) Record Low: 2 (1919) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 1.23 (1977) Record Snow: 9.0 (1951)	**19** Normal High: 42 Normal Low: 28 Record High: 63 (1929) Record Low: 5 (1989) Normal Precip: .11 Normal Snow: .2 Record Precip: 1.07 (2008) Record Snow: 9.2 (1948)	**20** Normal High: 42 Normal Low: 27 Record High: 63 (1957) Record Low: 3 (1942) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 1.98 (1957) Record Snow: 5.4 (1966)	**21** Normal High: 42 Normal Low: 27 Record High: 64 (1923) Record Low: 2 (1942) Normal Precip: 0.1 Normal Snow: 0.2 Record Precip: 1.01 (1973) Record Snow: 6.8 (1960)	**22** Normal High: 42 Normal Low: 27 Record High: 70 (2013) Record Low: -1 (1960) Normal Precip: .11 Normal Snow: 0.1 Record Precip: 1.38 (1918) Record Snow: 3.1 (1969)	**23** Normal High: 41 Normal Low: 27 Record High: 65 (1990) Record Low: -8 (1960) Normal Precip: .11 Normal Snow: 0.2 Record Precip: 0.97 (2015) Record Snow: 10.1 (1963)	**24** Normal High: 41 Normal Low: 26 Record High: 70 (2015) Record Low: -1 (1983) Normal Precip: 0.1 Normal Snow: 0.1 Record Precip: 1.55 (1986) Record Snow: 9.7 (1961)
25 Normal High: 41 Normal Low: 26 Record High: 66 (1889) Record Low: -3 (1983) Normal Precip: 0.11 Normal Snow: 0.2 Record Precip: 1.01 (1945) Record Snow: 8.0 (2002)	**26** Normal High: 41 Normal Low: 26 Record High: 66 (1889) Record Low: 0 (1983) Normal Precip: 0.1 Normal Snow: 0.2 Record Precip: 1.54 (1957) Record Snow: 8.8 (1969)	**27** Normal High: 41 Normal Low: 26 Record High: 59 (2016) Record Low: 1 (1914) Normal Precip: 0.1 Normal Snow: 0.2 Record Precip: 1.13 (1930) Record Snow: 7.0 (1894)	**28** Normal High: 40 Normal Low: 26 Record High: 65 (1982) Record Low: 0 (1960) Normal Precip: 0.1 Normal Snow: 0.1 Record Precip: 1.16 (2018) Record Snow: 6.8 (1967)	**29** Normal High: 40 Normal Low: 25 Record High: 75 (1984) Record Low: -2 (1917) Normal Precip: 0.1 Normal Snow: 0.2 Record Precip: 1.22 (1901) Record Snow: 6.0 (1962)	**30** Normal High: 40 Normal Low: 25 Record High: 64 (1984) Record Low: -3 (1917) Normal Precip: .01 Normal Snow: 0.2 Record Precip: 1.23 (1948) Record Snow: 3.2 (2017)	**31** Normal High: 40 Normal Low: 25 Record High: 65 (1992) Record Low: -3 (1963) Normal Precip: .09 Normal Snow: 0.2 Record Precip: 0.98 (1895) Record Snow: 5.8 (1967)

DECEMBER SUNRISE/SUNSET

DAY	AM	PM
1	7:10	4:42
2	7:11	4:41
3	7:12	4:41
4	7:13	4:41
5	7:14	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	7:20	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	4:42
18	7:24	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	4:46
26	7:28	4:47
27	7:29	4:48
28	7:29	4:48
29	7:29	4:49
30	7:29	4:50
31	7:30	4:51

ALMANAC KEY

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

NEW

FIRST 1/4

FULL

LAST 1/4

abc 27 NEWS YOUR MOST ACCURATE LOCAL FORECAST

2022 WEATHER ALMANAC