



Severe Weather

General

Severe weather affects the entire Commonwealth and can be expected any time of the year. Severe weather for Snyder County is considered to include: blizzards and/or heavy snowfall, heavy fog, hail, heavy precipitation (rain), high winds, ice storms, unseasonable temperature extremes, hurricanes, and severe thunderstorms.

Snowstorms occur approximately five times per year. Even though they are more prevalent in the northern and western regions of Pennsylvania, winter storms that include ice, high wind, and snow are seen in Snyder County.

Hurricanes, tropical storms, and windstorms occur in the County in the spring and summer. Most hurricanes that approach Snyder County are eventually downgraded to tropical storms or tropical depressions by the time they reach central Pennsylvania. Heavy rain and flooding produced by a hurricane, tropical storm, or tropical depression will have the greatest impact on the County.

Extreme temperatures can be devastating to any area. Extreme heat can cause sunburn, heat cramps, heat exhaustion, and heat/sun stroke. Likewise, extreme cold can cause hypothermia and frostbite.

History

Snyder County, as well as the entire Commonwealth, is vulnerable to a wide range of natural disasters. Typically, these disasters are caused by severe weather. A summary of disaster declarations from severe weather that affected Snyder County can be seen below.

Disaster Declarations Affecting Snyder County				
Winter Storms	Blizzards	Hurricanes / Tropical Storms*	Floods	Droughts
January 1966	February 1978	Agnes, 1972	October 1976	July 1991
February 1972	March 1993	Eloise, September 1975	January 1996	September 1995
January 1978	November 1996	Dennis, September 1999	-	December 1998
January 1994	-	Floyd, September 1999	-	July 1999
January 1996	-	Isabel/Henri, September 2003	-	-
February 2003	-	Ivan, September 2004	-	-

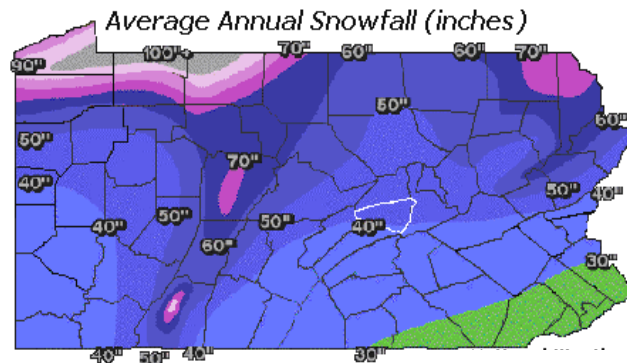
Source: Pennsylvania Emergency Management Agency (PEMA)

* Disaster declaration is typically the result of severe rainfall and flooding



Winter Storms

Snyder County is vulnerable to an array of winter weather. This weather has the ability to close businesses, close schools, and block or damage roadways in the County. Snyder County has been included in several statewide emergency declarations because of significant snow and ice accumulation and the resulting floods, which are common secondary effects. The average annual snowfall is depicted here.



Source: National Weather Service

The history of winter weather in Snyder County since 1994 is reflected below.

Severe Winter Weather			
Date	Type	Date	Type
11/27/1994	Freezing Rain And Sleet	1/2/1999	Winter Storm
12/9/1994	Freezing Rain	1/8/1999	Winter Storm
12/31/1994	Freezing Rain	1/14/1999	Winter Storm
1/1/1995	Snow Drought	3/14/1999	Heavy Snow
1/6/1995	Winter Storm	1/25/2000	Heavy Snow
1/11/1995	Freezing Rain	1/30/2000	Heavy Snow
1/31/1995	Freezing Rain	2/13/2000	Ice Storm
2/3/1995	Heavy Snow	2/18/2000	Winter Storm
2/15/1995	Freezing Rain	12/13/2000	Winter Storm
2/26/1995	Light Snow	3/4/2001	Heavy Snow
2/27/1995	Freezing Rain	1/6/2002	Heavy Snow
3/8/1995	Snow	12/5/2002	Heavy Snow
6/1/1995	Snow Drought	12/10/2002	Ice Storm
11/14/1995	Winter Storm	12/25/2002	Heavy Snow
12/19/1995	Winter Storm	2/16/2003	Heavy Snow
1/2/1996	Heavy Snow	2/3/2004	Heavy Snow
1/12/1996	Heavy Snow	2/6/2004	Ice Storm
3/7/1996	Heavy Snow	3/16/2004	Heavy Snow
2/13/1997	Winter Storm	3/19/2004	Heavy Snow
12/29/1997	Heavy Snow	1/5/2005	Winter Storm
1/15/1998	Ice Storm	2/24/2005	Heavy Snow
1/22/1998	Ice Storm	3/1/2005	Heavy Snow
2/23/1998	Heavy Snow		

Source: National Climatic Data Center (NCDC)



Spring and Summer Storms

Every year, Snyder County experiences severe spring and summer storms with associated lightning and tornadoes. These storms have an immediate impact, as well as longer lasting secondary effects. Over the past 30 years, these storms have caused significant damage. Four deaths and two injuries have been recorded from these events throughout Snyder County and the surrounding region. A table of regional severe storms since 1973 is presented here.

Severe Storms							
Location or County	Date	Time	Type	Magnitude	Death	Injury	Property Damage
Snyder County	6/6/1973	4:30 PM	Thunderstorm and Wind	57 kts.	0	0	0
Snyder County	8/10/1973	2:30 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	7/10/1974	2:00 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	8/2/1974	1:30 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	7/19/1977	2:45 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	6/5/1979	12:30 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	4/17/1982	4:15 PM	Thunderstorm and Wind	100 kts.	0	0	0
Snyder County	11/20/1989	6:50 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	7/9/1990	1:00 PM	Thunderstorm and Wind	0 kts.	0	0	0
Snyder County	5/13/1991	2:15 PM	Thunderstorm and Wind	0 kts.	0	0	0
Middleburg	6/24/1994	3:45 PM	Thunderstorm Wind	N/A	0	0	0
Middleburg	10/5/1995	8:55 PM	Thunderstorm Wind	N/A	0	0	0
Selinsgrove	10/14/1995	5:35 PM	Thunderstorm Wind	N/A	0	0	0
Middleburg	11/11/1995	6:30 PM	Thunderstorm Wind	N/A	0	0	0
Beaver Springs	4/23/1996	5:00 PM	Thunderstorm and Wind	0 kts.	0	0	0
Port Trevorton	6/12/1996	4:25 PM	Thunderstorm and Wind	0 kts.	0	0	0
Kreamer	7/26/1996	5:20 PM	Thunderstorm and Wind	50 kts.	0	0	0
Selinsgrove	10/18/1996	7:30 PM	Thunderstorm and Wind	50 kts.	0	0	0
Beaver Springs	11/8/1996	11:15 AM	Thunderstorm and Wind	50 kts.	0	0	0
Regional	3/1/1997	8:15 AM	High Wind	50 kts.	0	0	0
Mt Pleasant Mills	5/3/1997	3:10 PM	Thunderstorm and Wind	51 kts.	0	0	0
Shamokin Dam	5/19/1997	7:00 PM	Thunderstorm and Wind	51 kts.	0	0	0
Selinsgrove	8/16/1997	2:45 PM	Thunderstorm and Wind	51 kts.	0	0	0
Selinsgrove	6/16/1998	7:30 PM	Thunderstorm and Wind	51 kts.	0	0	0
Middleburg	6/30/1998	4:15 PM	Thunderstorm and Wind	51 kts.	0	0	0
McClure	9/7/1998	10:25 AM	Thunderstorm and Wind	51 kts.	0	0	0
Middleburg	7/9/1999	9:05 PM	Thunderstorm and Wind	0 kts.	0	0	\$10,000
Selinsgrove	8/13/1999	7:15 PM	Thunderstorm and Wind	0 kts.	0	0	\$10,000
Regional	9/16/1999	4:00 PM	High Wind	60 kts.	0	0	\$100,000
Regional	9/29/1999	8:00 PM	High Wind	60 kts.	0	0	\$100,000
Middleburg	9/29/1999	11:42 PM	Thunderstorm and Wind	0 kts.	0	0	\$5,000
Beaver Springs	6/2/2000	4:39 PM	Thunderstorm and Wind	0 kts.	0	0	\$2,000
Kratzerville	6/11/2000	6:30 PM	Thunderstorm and Wind	0 kts.	0	0	\$3,000
Shamokin Dam	6/11/2000	7:30 PM	Thunderstorm and Wind	0 kts.	0	0	\$3,000
Selinsgrove	6/21/2000	6:00 PM	Thunderstorm and Wind	0 kts.	0	0	\$2,000
Regional	12/12/2000	4:00 AM	High Wind	0 kts.	1	2	\$500,000
Selinsgrove	6/12/2001	5:00 PM	Thunderstorm and Wind	50 kts.	0	0	0
Selinsgrove	7/10/2001	4:15 PM	Thunderstorm and Wind	50 kts.	0	0	0
Port Trevorton	8/31/2001	4:47 PM	Thunderstorm and Wind	50 kts.	0	0	0
Regional	3/9/2002	7:30 PM	High Wind	50 kts.	0	0	\$50,000
Selinsgrove	3/9/2002	10:45 PM	Thunderstorm and Wind	50 kts.	0	0	0
Kratzerville	4/28/2002	4:47 PM	Thunderstorm and Wind	50 kts.	0	0	0
Beaver Springs	7/21/2003	3:30 PM	Thunderstorm and Wind	50 kts.	0	0	0
Shamokin Dam	8/17/2003	2:30 AM	Thunderstorm and Wind	50 kts.	0	0	0
Regional	11/13/2003	5:00 AM	High Wind	71 kts.	3	0	\$50,000
Shamokin Dam	6/17/2004	4:20 PM	Thunderstorm and Wind	50 kts.	0	0	0
Selinsgrove	8/4/2004	4:26 PM	Thunderstorm and Wind	50 kts.	0	0	0
Middleburg	8/10/2004	4:16 PM	Thunderstorm and Wind	50 kts.	0	0	0
TOTALS:					4	2	\$835,000

Source: National Climatic Data Center (NCDC)



Extreme Temperatures

This hazard is generally a regional problem and not necessarily confined to Snyder County. From 1994-1995, 106 people fell victim to excessive hot or cold conditions. Ordinarily, this affected are the elderly or fixed income individuals within the area. Extreme temperatures can result in unmanageable heating or cooling bills, or personal injury such as heat exhaustion or hypothermia. These instances can stretch the capacity of local emergency management services.

Extreme Temperatures					
Location or County	Date	Type	Death	Injury	Property Damage
Eastern Pennsylvania	6/13/1994	Heat Waves	5	0	0
Regional	7/6/1994	Heat Wave	0	0	0
Regional	11/1/1994	Unseasonably Warm	0	0	0
Regional	12/1/1994	Unseasonably Warm	0	0	0
Regional	1/1/1995	Unseasonably Warm	0	0	0
Regional	1/14/1995	Record Warmth	0	0	0
Regional	2/6/1995	Extreme Cold	1	0	0
Regional	7/1/1995	Excessive Heat	67	0	0
Regional	7/13/1995	Heat Wave	4	0	0
Regional	7/29/1995	Heat Wave	0	0	0
Regional	8/1/1995	Unseasonably Warm And Dry	29	0	0
Regional	8/12/1995	Heat Wave	0	0	0
Regional	8/29/1995	Heat Wave	0	0	0
TOTALS:			106	0	0

Source: National Climatic Data Center (NCDC)

Vulnerability

Winter Storms

Snyder County is vulnerable to severe winter weather. The economic impacts from snow removal, road and infrastructure repair, etc. impart a great strain on the budgets and material resources of local municipalities. Along with municipalities, other vulnerable entities in the County include

Snyder County Severe Winter Weather	
Heavy Snowstorm	Four inches or more of snow in a six hour period, or six inches or more in a 12 hour period
Sleet Storm	Significant accumulation of solid ice pellets causing slippery surfaces
Ice Storm	Significant accumulation of rain freezing on trees, power lines, causing slippery surfaces and damage
Blizzard	35-44 mph winds, 32-11°F temperatures, blowing snow, and frequent one-quarter mile visibility over an extended period of time.
Severe Blizzard	44+ mph winds, temperatures of 10°F or lower, a high density of blowing snow with visibility generally measured in feet for an extended period of time

Source: National Climatic Data Center

businesses and utility companies. Drivers experience automobile accidents and homeowners experience property damage. Municipalities are burdened with snow and ice removal,



businesses are constantly losing income from closures, and utility companies are tasked with repairing the damage done to critical infrastructure (fallen power lines, water main breaks, etc.).

Spring and Summer Storms

Snyder County is vulnerable to spring and summer storms. Hurricanes, tropical storms, and tropical depressions can also occur in this region. The difference in these types of storms is shown here. The chance of wind damage in the County increases as housing and commercial development continues. These storms can be expected from the spring to early fall months (hurricane season officially runs from June-November).

Storm Categories		
Type of Storm	Maximum Sustained Winds (mph)	Estimated Damage
Tropical Depression	Less than 39 mph	-
Tropical Storm	39 - 73 mph	-
Saffir -Simpson Scale		
Category 1 Hurricane	74 - 95 mph	Minimal damage to vegetation
Category 2 Hurricane	96 - 110 mph	Moderate damage to structures
Category 3 Hurricane	111 - 130 mph	Extensive damage to small structures
Category 4 Hurricane	131 - 155 mph	Extreme structural damage
Category 5 Hurricane	Greater than 155 mph	Catastrophic structural failure possible

Source: National Oceanic and Atmospheric Administration

Extreme Temperatures

Extreme temperatures are usually a regional problem. In relatively rural communities, such as Snyder County, crop damage can occur. This can be the result of excessive heat or unseasonably cold conditions.

Snyder County Averages and Records						
Month	Average High	Average Low	Mean Temperature	Average Precipitation	Record High	Record Low
January	35°F	18°F	26°F	3.06 in	72°F (1932)	-26°F (1994)
February	38°F	19°F	29°F	2.49 in	77°F (1985)	-21°F (1934)
March	48°F	27°F	38°F	3.20 in	87°F (1986)	-6°F (1934)
April	60°F	37°F	49°F	3.60 in	91°F (1990)	10°F (1943)
May	71°F	47°F	59°F	3.87 in	96°F (1996)	25°F (1978)
June	79°F	57°F	68°F	4.58 in	102°F (1952)	34°F (1926)
July	84°F	61°F	73°F	3.69 in	105°F (1988)	42°F (1979)
August	82°F	59°F	71°F	3.78 in	105°F (1930)	35°F (1982)
September	74°F	52°F	63°F	4.04 in	102°F (1953)	25°F (1947)
October	63°F	40°F	51°F	3.24 in	92°F (1941)	16°F (1976)
November	51°F	32°F	41°F	3.54 in	84°F (1950)	-5°F (1938)
December	39°F	23°F	31°F	3.00 in	73°F (1984)	-16°F (1951)

Source: The Weather Channel - www.weather.com



The elderly and youth populations are most vulnerable to severe weather due to their mobility challenges, disabilities, fixed income, etc.

Probability

There is a high probability of severe weather occurring in Snyder County, with an expected annual occurrence. Severe winter weather is expected to occur in Snyder County every five years or less.

Maximum Threat

Because of its size and location, severe weather is expected throughout all of Snyder County. Hurricanes, tropical storms, windstorms, and winter storms all affect the County.

Secondary Effect

Flooding and power outages are major secondary effects of severe weather. Heavy rain, as well as melting snow, can lead to a large amount of ground water that cannot be contained by streams and rivers. Power outages can be caused by large amounts of ice on power lines, as well as windstorms, winter storms, and heavy rain.