

Severe Weather

General

Severe weather affects the entire Commonwealth and can be expected any time of the year. Severe weather for Juniata 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. (Tornados will be discussed in a separate profile.)

Snowstorms occur approximately five times per year. These storms are more prevalent in the northern and western regions of Pennsylvania and include ice and high wind. They are frequently seen in Juniata County.

Hurricanes, tropical storms, and windstorms occur in Juniata County in the spring and summer. Most hurricanes that approach Juniata County are 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 frost bite.

History

Juniata 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 Juniata County can be seen below.

Disaster Declarations Affecting Juniata County				
Winter Storms	Blizzards	Hurricanes/ Tropical Storms*	Floods	Droughts
Jan-66	Feb-78	Agnes, June 1972	Sep-75	Jul-91
Feb-72	Mar-93	Windstorm, April 1975	Oct-76	Jul-99
Jan-78	–	Floyd, September 1999	Jan-96	–
Jan-94	–	Hurricane Isabel/Henri, September 2003	Sep-96	–
Jan-96	–	Tropical Depression Ivan, September 2004	Aug-99	–
Feb-03	–	Hurricane Katrina, September 2005	Jun-06	–

Source: National Climatic Data Center

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

Winter Storms

Juniata 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. Juniata County has been included in several statewide emergency declarations because of significant snow and ice accumulation and resulting floods, which are common secondary effects. The average annual snowfall in Juniata County, according to the National Weather Service, is 40 inches. The following chart defines various winter weather conditions:

Juniata County Severe Winter Weather	
Heavy Snow Storm	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, 32-11degrees Fahrenheit temperatures, blowing snow, and frequent one-quarter mile visibility over an extended period of time.
Severe Blizzard	44+ mph winds, temperatures of 10 degrees Fahrenheit or lower, a high density of blowing snow with visibility generally measured in feet for an extended period of time.

Source: National Climactic Data Center

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

Juniata County Severe Winter Weather History			
Date	Type	Date	Type
1/4/1994	Heavy Snow	1/30/2000	Heavy Snow
1/17/1994	Heavy Snow	2/13/2000	Ice Storm
1/27/1994	Ice	2/18/2000	Winter Storm
3/2/1994	Heavy Snow/Blizzard/Avalanche	12/13/2000	Winter Storm
1/4/1995	Heavy Snow	3/4/2001	Heavy Snow
1/7/1995	Ice	1/6/2002	Heavy Snow
11/14/1995	Winter Storm	12/5/2002	Heavy Snow
12/19/1995	Winter Storm	12/10/2002	Ice Storm
1/12/1996	Heavy Snow	12/25/2002	Heavy Snow
11/28/1996	Heavy Snow	2/16/2003	Heavy Snow
2/13/1997	Winter Storm	12/5/2003	Heavy Snow
3/14/1997	Ice Storm	2/3/2004	Heavy Snow
11/14/1997	Heavy Snow	2/6/2004	Ice Storm
12/29/1997	Heavy Snow	3/16/2004	Heavy Snow
1/15/1998	Ice Storm	3/19/2004	Heavy Snow
2/23/1998	Heavy Snow	1/5/2005	Winter Storm
1/2/1999	Winter Storm	1/8/2005	Ice Storm
1/8/1999	Winter Storm	2/24/2005	Heavy Snow
1/14/1999	Winter Storm	3/1/2005	Heavy Snow
3/14/1999	Heavy Snow	12/9/2005	Heavy Snow
1/25/2000	Heavy Snow	12/16/2005	Winter Storm

Source: National Climactic Data Center

Spring and Summer Storms

Every year, Juniata County experiences severe spring and summer storms with associated lightning and tornados. These storms have an immediate impact, as well as longer lasting secondary effects. Over the past 37 years, these storms have caused significant damage. A table of regional severe storms since 1959 to 2006 is presented here.

Juniata County Severe Storms, 1959-2006			
Date	Type	Date	Type
5/11/1959	Thunderstorm/Wind	8/13/1999	Thunderstorm/Wind
5/28/1966	Thunderstorm/Wind	9/29/1999	High Wind
7/19/1977	Thunderstorm/Wind	9/29/1999	Thunderstorm/Wind
8/6/1986	Thunderstorm/Wind	10/13/1999	Thunderstorm/Wind
5/23/1987	Thunderstorm/Wind	1/10/2000	High Wind
11/20/1989	Thunderstorm/Wind	3/25/2000	Thunderstorm/Wind
7/5/1990	Thunderstorm/Wind	4/9/2000	High Wind
4/9/1991	Thunderstorm/Wind	6/21/2000	Thunderstorm/Wind
5/29/1991	Thunderstorm/Wind	12/12/2000	High Wind
4/15/1994	High Wind	2/10/2001	High Wind
8/25/1994	Thunderstorm/Wind	6/20/2001	Thunderstorm/Wind
11/6/1994	High Winds	7/1/2001	Thunderstorm/Wind
11/27/1994	High Winds	3/9/2002	High Wind
7/6/1995	Thunderstorm/Wind	5/26/2002	Thunderstorm/Wind
7/16/1995	Thunderstorm/Wind	7/21/2003	Thunderstorm/Wind
11/11/1995	Thunderstorm/Wind	11/13/2003	High Wind
6/12/1996	Thunderstorm/Wind	5/15/2004	Thunderstorm/Wind
7/30/1996	Thunderstorm/Wind	8/4/2004	Thunderstorm/Wind
10/18/1996	Thunderstorm/Wind	9/17/2004	Strong Wind
11/8/1996	Thunderstorm/Wind	5/14/2005	Thunderstorm/Wind
5/19/1997	Thunderstorm/Wind	6/6/2005	Thunderstorm/Wind
6/18/1997	Thunderstorm/Wind	6/6/2005	Thunderstorm/Wind
7/18/1997	Thunderstorm/Wind	7/27/2005	Thunderstorm/Wind
6/16/1998	Thunderstorm/Wind	7/27/2005	Thunderstorm/Wind
6/30/1998	Thunderstorm/Wind	11/6/2005	Thunderstorm/Wind
9/7/1998	Thunderstorm/Wind	5/30/2006	Thunderstorm/Wind
9/7/1998	Thunderstorm/Wind	7/2/2006	Thunderstorm/Wind
7/9/1999	Thunderstorm/Wind	11/16/2006	Thunderstorm/Wind
7/30/1999	Thunderstorm/Wind	12/1/2006	High Wind
8/13/1999	Thunderstorm/Wind		

Source: National Climatic Data Center

Extreme Temperatures

Temperatures are generally a regional problem and not necessarily confined to Juniata County. Ordinarily, those 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.

Juniata County Extreme Temperatures, 1994-2006	
Date	Type
1/14/1994	Extreme Cold
7/17/2006	Heat
8/1/2006	Heat

Source: National Climatic Data Center

Vulnerability

Winter Storms

Juniata 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 business and utility companies. Drivers experience automobile accidents while 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

Juniata County is vulnerable to spring and summer storms. Hurricanes, tropical storms, and tropical depressions can also occur in this region. The difference between these types of storms is shown in the chart. 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

Extreme Temperatures

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

Juniata County Averages and Records						
Month	Average High	Average Low	Mean	Average Precipitation	Record High	Record Low
Jan	36°F	19°F	27°F	2.73 in.	72°F (1967)	-17°F (1994)
Feb	40°F	20°F	30°F	2.42 in.	78°F (1954)	-12°F (1961)
Mar	50°F	28°F	39°F	3.37 in.	87°F (1998)	3°F (1993)
Apr	62°F	38°F	50°F	3.23 in.	92°F (1985)	15°F (1982)
May	73°F	47°F	60°F	4.15 in.	97°F (1962)	28°F (1981)
Jun	80°F	56°F	68°F	4.58 in.	102°F (1952)	38°F (1986)
Jul	84°F	61°F	73°F	4.18 in.	102°F (1988)	41°F (1980)
Aug	83°F	59°F	71°F	3.18 in.	103°F (1948)	35°F (1981)
Sep	75°F	52°F	64°F	3.58 in.	103°F (1953)	29°F (1963)
Oct	64°F	40°F	52°F	3.03 in.	95°F (1953)	21°F (1988)
Nov	52°F	32°F	42°F	3.47 in.	85°F (1950)	8°F (1976)
Dec	40°F	24°F	32°F	2.93 in.	75°F (1984)	-16°F (1960)

Source: *The Weather Channel* - www.weather.com

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

Probability

There is a high probability of severe weather affecting Juniata County. Hurricanes and tropical storms, heavy fog, high winds, unseasonable temperatures, and winter weather all affect Juniata County.

Maximum Threat

Severe weather can come in many forms. Most often, instances of severe weather are regional events affecting large areas. The maximum threat to Juniata County is damage to property, facilities, and infrastructure as a result of severe weather.

Secondary Effect

Flooding and power outages are major secondary effects of severe weather. Heavy rain and melting snow can lead to large amounts of ground water that cannot be contained by streams and rivers. If the flooding is extreme, it may lead to dam failures. Power outages can be caused by heavy winds, strong storms, and large amounts of snow and ice that weigh on power lines, as well as from strains placed on power grids as they surge to meet demand.

Transportation accidents are likely to increase as weather conditions deteriorate. Flooding and traffic accidents increase the likelihood of a hazardous materials spill. Subsidence caused by flooding and extreme temperatures can damage vital lifelines such as gas and water pipelines. Essential services may experience limited disruptions and threaten the health and safety of at-risk populations in the affected area. Prolonged severe weather conditions can also have a major impact on the economic and financial condition of the County, as shortages in supplies and inflation of prices occurs.