Flood Safety Awareness Week

Flood Hazards in the North Country

Northern New York and Vermont are at risk from flooding all year long. During the winter, the flood threat is from ice jams and a sudden snowmelt. The risk for snowmelt flooding grows into the spring as temperatures warm and the snowpack melts. Summertime thunderstorms can produce torrential downpours and cause flash flooding. In late summer into the fall, tropical storms can spread prolonged heavy rain across the region.

Snowmelt Flooding:
When melting snow is a major source of the water involved in a flood, it is considered a snowmelt flood. Unlike rainfall, which either runs off or percolates into the soil immediately, snowfall accumulates all winter long. When snowmelt finally occurs, it can be the equivalent of an entire season's precipitation running off all at once. Most often, spring melt of the snow pack is a relatively slow phenomenon. Snowmelt rates are usually comparable to light to moderate rainfall. However, if the snow melts quickly enough and is accompanied by moderate to heavy rainfall, flooding can result. Such was the case on April 26-27 l2011 when thunderstorms and melting snow led to flash flooding across portions of the northern Adirondacks and in the Lamoille River basin of Vermont.

The NWS provides extensive information about snowpack conditions across the country. A wide array of ground, airborne and satellite observations are used to monitor snow conditions. The NWS in Burlington issues a biweekly Winter/Spring Flood Potential Outlook which summarizes the risk of spring flooding based on the depth and water content of the snowpack, river flow and river ice conditions, and weather forecasts.

Ice Jams:
Ice jams occur when the solid cover of river ice is broken up by higher river flows, rather than slowly melting away. The large blocks of ice are carried downstream, until they are stopped by an obstruction in the river channel such as a sand bar or island, bridge abutment, or thicker ice cover on a deep pool or lake. The ice piles up to form an ice dam, forcing water levels to quickly rise.

Ice jams are unpredictable, and the depth and speed of rising water impounded by an ice jam can vary greatly. In March 1992 an ice jam developed in Montpelier VT at 7:00am, and by 8:00 a.m. the downtown area was flooded. During the next 11 hours, the business district was covered with 4 to 5 feet water.

Thunderstorms with Heavy Rain:
Summertime thunderstorms can produce torrential rainfall in a short amount of time, in addition to hazards including strong winds, hail, and deadly lightning. Runoff from the heavy rain can quickly overwhelm drainage areas, and cause small creeks and streams to become raging rivers. Runoff can damage roads, especially rural dirt roads, by washing away the road surface and carving out deep gullies. In order to produce the heavy rainfall, a thunderstorm may remain stationary over one location for an hour or more. Other times, a succession of several

thunderstorms may track over the same location, a phenomenon known as training.

Tropical Cyclones and Inland Flooding:
When it comes to tropical cyclones, a generic term for a hurricane, typhoon, or tropical storm, wind speeds and severity categories 1-5 do not tell the whole story. Intense rainfall, not directly related to the wind speed of a tropical cyclone, often causes more damage. Since the 1970s, inland flooding has been responsible for more than half of the deaths associated with tropical cyclones in the United States. Typically, greater rainfall amounts and flooding occur when tropical cyclones have a slow forward speed or antecedent soil moisture conditions are high. In Vermont, the two most significant floods in the state's history were a result of storms with tropical origins, including the devastating impacts from Tropical Storm Irene in 2011.

Flood Safety Awareness Week continues on Thursday with National Weather Service Water Resources Information.