These dangerous and deceptively risky weather events can be hard to predict. Here's what you need to know to weather the storm.

Flash Floods in Illinois

Story By Stanley A. Changnon
Photos By Paul Osman

Flash floods are one of the major weather-caused dangers in Illinois. They serve as threats to hunters, boaters, campers or anyone caught along a river course when the flooding occurs. On average, floods in Illinois cause six deaths a year. Flood damage produces property losses that average $257 million a year—larger than losses from any other weather extreme—and the Illinois flood loss amount is the sixth-highest state flood loss value in the nation.

What Are Flash Floods?

Most flash floods result from sudden, intense, short-duration rainstorms and account for 58 percent of all floods in the state.

An occasional break of a river ice jam can cause a downstream flash flood, but this is an infrequent event. In addition to flash floods, Illinois experiences flooding from spring snow melt after winters with heavy snows and from prolonged periods (weeks and months) of moderate to heavy precipitation, as occurred in 1993.

Intense rainstorms causing flash floods typically occur 15-20 times a year in the Prairie State.

The intense rainstorms that cause flash floods occur sufficiently often to create 15 to 20 flash floods a year in Illinois. River basins, such as the Big Muddy, Sangamon, Vermilion, Little Wabash and Rock rivers, average one or two flash floods each year. Flash floods occur mostly during the April-September period and are most frequent in June and July.

Two types of heavy rain events create flash floods.

One type consists of a difficult-to-forecast, late-afternoon thunderstorm that develops in a near-stationary atmos-

The majority of flash floods occur at night when people are asleep and unaware of developing dangerous conditions.

pheric environment. A few more convective clouds merge with it and heavy rainfall typically begins around 6 p.m. The storm often lasts three to four hours and often produces 6 to 8 inches of rain. The area with moderate (1 inch) to heavy rainfall usually covers 500 to 650 square miles. The rainfall pattern produced usually has a west-east orientation with an elliptical shape, being 80 to 100 miles long and 40 to 50 miles wide.

The other type of flash-flood-producing rainstorm in Illinois is larger and tends to evolve from a large thunderstorm in a slowly moving squall line with four or five storm cells ultimately moving from west to east across the first storm's area. The resulting peak rainfall is usually 8 to 10 inches. Rainfall in excess of 1 inch typically falls over 2,500 square miles, and the storm has an elliptical shape, being 200 to 250 miles long on a west-east orientation and 90 to 100 miles wide.

Heavy rains quickly fall at the beginning of both types of storms. Flood water rapidly accumulates and begins moving downstream and along river courses. Some of the water accumulates in flat crop lands. The amount of flooding depends on pre-storm conditions. If it has been dry, then pre-flood stream levels are low, and soils are able to soak up some of the heavy rain.

Property losses due to flood damage are higher than those resulting from any other weather-related event.

What are the Impacts?

One of the major dangers of flash floods is that they are created at night when visibility is poor and most persons are asleep and unaware of the event. The exact locations where the localized severe rainstorms develop are difficult for meteorologists to forecast. Hence, flash flood forecasts are seldom, but

intense rainfall is seen on weather radars and, once in progress, reports of incipient flood conditions can and are issued. Unfortunately, this often is late at night when most in danger are asleep.

Most deaths from flash floods are to persons caught in autos, often trying to drive through a flooded street/road, campers or persons entering basements of flooded homes.

Environmental damages from flash floods include uprooted trees and vegetation, and sizable soil erosion. Not only do these losses occur in the area where the storm occurs, but also along stream courses draining the rapidly flowing flood waters.

(Photos this page by Kathy Andrews.)

Property damages, including damage to vehicles, can be sizable, particularly to property in the heavy-rain area and along the stream courses carrying flood waters. Insured property losses from flash floods in Illinois average $134 million annually. Much of this is a result of flood damage to houses and businesses. Flash floods in the Chicago metropolitan area also have done considerable damage to vehicles and railroads, and led to the stoppage of traffic. In the spring and summer of 2008, flash floods caused railroads in Iowa and Illinois to experience $123 million in losses due to damage to rail lines and bridges, and resultant train wrecks. Revenue losses included those from delayed train movements.

Streets, roads and viaducts often are badly flooded from flash floods, stopping traffic and damaging parked vehicles. In some instances, bridges and boats are damaged and considerable crop damage occurs from flooded fields that drain slowly.

Recreational activities are popular along Illinois' rivers. Outdoor enthusiasts should remain alert to changing weather conditions.

Deaths as a result of flash floods usually are persons trapped in a car or camper or those entering the basement of a flooded home.

What Can Be Done to Protect Life and Property?

Forecasts of flash-flood storms seldom are issued in advance of a storm-flood event; however, warnings of heavy rains and flooding can be issued once the event is in progress. This means that one must utilize the media (radios and/or TV) to get warnings. Outdoor enthusiasts are advised to keep a radio available.

Having structures in flood plains can be a dangerous situation. Property located along or near streams and rivers should be covered by flood insurance.

Never attempt to drive a vehicle through a flooded city street, a viaduct or a country road as the water may be deeper than expected and the fast-moving water may quickly push a car or truck off a road. Also, avoid entering flooded basements as they may be deeper than realized, and electrical circuits can lead to electrocutions.

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