

What you need to know about TORNADOES

WISCONSIN FACTS...

An average of 21 tornadoes occur each year in Wisconsin... but some counties can have many tornado-free years in a row. On average, 1 person dies each year from tornado-related injuries. Tornadoes are a violently rotating column of air (circulation) extending from the cloud base to the ground. However, funnel clouds are defined as not touching the ground.

Peak tornado season is May through August, but tornadoes have occurred in every month but February. Most tornadoes occur between noon and 9 PM.. with 5 PM a favored time. Most Wisconsin tornadoes travel southwest to northeast or west to east, travel at speeds of 20 to 40 mph, and persist for less than 10 minutes with a path length of less 5 miles.

Roughly 80% of Wisconsin's tornadoes are weak with wind speeds of 65 mph. About 19% are rated as strong with wind speeds of 111 to 165 mph. Luckily, only 1% are violent with wind speeds 166 mph or higher.



THUNDERSTORM STRUCTURE - WHERE TO LOOK FOR A TORNADO...

Most tornadoes are found in, or very near a rotating "wall cloud", on the south or southwest side of a thunderstorm. The wall cloud is a distinct lowering of the rain-free (or almost rain-free) base of a thunderstorm. The rain-free base is found in the updraft (inflow) portion of a thunderstorm. Tornadoic thunderstorms possess a rotating updraft. If you can locate the inflow region of a thunderstorm, you've located the potential "hot spot", should a tornado develop.

Thunderstorms are classified as single-cell, multi-cell, or super-cell. Each "cell" contains an "inflow" updraft region and an "outflow" downdraft region. Updraft regions consist of moist, unstable, buoyant air rising upwards at speeds of 30 to 90 mph! Downdraft regions can consist of heavy rains, hail, poor visibilities, and strong, damaging downburst winds, sometime over 75 mph or more. Supercell thunderstorms, characterized with one large, long-lived, dominant updraft, are the most likely of the three types to produce a tornado, but do not always produce a tornado.

The "inflow" updraft region of a thunderstorm cell is usually rain-free, or nearly rain-free because the updraft is pushing air upwards into bellowing cloud towers. Sometimes, you will be able to spot a distinct wall cloud. Wall clouds that are persistent, and show signs of rotation, should be closely monitored for possible tornadic development.

Words of caution... not all rotating wall clouds produce a tornado. It is also possible to have a tornado with no wall cloud present. Research and video tape evidence strongly suggest that many tornadoes spin up at the ground level and grow upwards to the wall cloud or thunderstorm base....and in doing so, are nearly invisible. It may take several minutes for the "funnel cloud" to form inside the tornado. Look for dirt and debris violently rotating at ground level for confirmation. In other words, the funnel cloud is not the tornado. You may see the funnel cloud developing downward while at the same time the nearly invisible tornado winds are causing havoc at ground level. Consequently, the phrase "tornado touchdown" is not entirely correct all the time. Some tornadoes can become rain-wrapped and hard to see as rain in the rear-flank downdraft wraps around the tornado. Consequently, it is important for a severe weather spotter to monitor what is happening at ground level as well as at cloud base. In just about every thunderstorm over Wisconsin, one can usually find some cloud feature (scud clouds) that briefly resemble a tornado or funnel cloud. If the cloud feature you are watching isn't persistent, or rotating upon a vertical axis, it is probably not a funnel cloud or tornado.

WHAT YOU AND YOUR FAMILY CAN DO...

Know the county you live in. The National Weather Service (NWS) issues tornado warnings on a county basis. Keep a battery-operated NOAA Weather radio in your home or business to receive tone-alerted warnings.

Stay abreast of the latest forecast via NOAA Weather Radio, commercial radio or TV, or cable TV. Keep a watchful eye toward the sky, and consider postponing your outdoor activities. Remember, a tornado watch means weather conditions are favorable for the development of tornadoes in and close to a tornado watch "box." A tornado warning means a tornado is highly imminent, or is already on the ground.

Stay away from windows! Go into a basement and get under a heavy desk/table, covering your head with your arms, a mattress, or heavy blanket. If there is no basement, go to the lowest level, or an interior hall or closet. A bathtub can also be used as a last resort. Get out of large auditoriums or large warehouses. If caught outdoors or in a motor vehicle, lie flat in a roadside ditch, ravine, or culvert, and cover your head with your arms.

...Produced by Warning Coordination Meteorologists from the NWS Offices servicing the state of Wisconsin