



# NOAA'S NATIONAL WEATHER SERVICE

## Severe Weather Preparedness Week in Indiana is March 5-11, 2006

Governor Mitch Daniels has proclaimed March 5 –11, 2006 as Severe Weather Preparedness Week in Indiana. A statewide test of communications systems and preparedness drills will be held on **Wednesday, March 8th between 10:00 AM and 10:30 AM EST and again between 7:00 PM and 7:30 PM EST.**

The National Weather Service will be working in conjunction with the Indiana Department of Homeland Security, Indiana State Police, Indiana Department of Education, Indiana Department of Transportation, American Red Cross, broadcast media and amateur radio operators.

The goals of Severe Weather Preparedness Week are to educate about the hazards of severe thunderstorms and tornadoes, to help everyone be prepared when severe weather strikes, and to have an understanding of severe weather terms and tornado safety rules. Daily statements will be issued on newswires and NOAA Weather Radio All-Hazards during the week. Your local National Weather Service office will be available for interviews or questions. **Drill details can be found on page 2.**



SPRING, 2006

### INSIDE THIS ISSUE:

Tornado Drill	2
Emergency Kits	2
Severe Weather Terms	3
Weather Radio Campaign	3
Evansville Tornado Event	4
Derecho Facts/Safety	5
Lightning and Flooding	6
School and Bus Safety	7
Severe Weather Safety	8
Skywarn Spotters	10
Public Alert Devices	11
Internet Websites	11

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## Other National Awareness Weeks

### FLOOD SAFETY WEEK

March 20-24, 2006

[www.nws.noaa.gov/floodsafety/](http://www.nws.noaa.gov/floodsafety/)

### RIP CURRENT AWARENESS

June 4-10, 2006

[www.ripcurrents.noaa.gov/](http://www.ripcurrents.noaa.gov/)



### LIGHTNING SAFETY AWARENESS WEEK

June 18-24, 2006

[www.lightningsafety.noaa.gov/](http://www.lightningsafety.noaa.gov/)



A full color version of this publication is available on-line at:

<http://www.weather.gov/ind>

and

<http://www.weather.gov/iwx/>

## How the Drill Will Work

**Two Drills** will be conducted on **Wednesday, March 8th**, with each drill consisting of a **Test Watch** issued by the Storm Prediction Center and disseminated by local National Weather Service offices serving Indiana, and then **Test Warnings** issued by National Weather Service offices serving Indiana.

The first test watch will be issued around **10:00 A.M. EST**, with test warnings then issued before **10:30 A.M. EST**. The second drill will duplicate the first drill, with a test watch issued around **7:00 P.M. EST** and then warnings following before **7:30 P.M. EST**.

The test watch and test warnings will be distributed through the National Warning System (NAWAS), the NOAA Weather Wire Service, news wire services, and broadcast live on NOAA Weather Radio All-Hazards (NWR) using the Tone Alert and Emergency Alert System (EAS). Cable television, broadcast television stations, and radio stations should either simulcast the test messages from NWR or EAS, or have the test messages read by radio and television broadcasters.

Please note, for EAS, NWS offices will use the **RWT (Required Weekly Test)** or **RMT (Required Monthly Test)** codes to transmit the test watches and warnings, not the TOR code. To ensure receipt, make sure your EAS equipment can accept both the **RMT** and **RWT** codes from the NWS.

**If weather postpones the tests, the make-up drill day is Thursday, March 9th.**

If you have any problems with the drill (e.g. you did not hear the tone alert or the broadcast), contact your local National Weather Service office immediately.

**TORNADO  
DRILL**

## Be Prepared—Emergency Kits and Disaster Plans

Living in this precarious world, you need to be prepared for any disaster that may unfortunately travel your way. You need to have reliable emergency supplies that you can count on during a time of emergency when stores or roads may be closed. Whether it be a natural disaster, such as a tornado or winter storm, or even a man made disaster, such as a terrorist attack or fire, you need to have emergency survival kits and disaster plans ready.

<http://www.ready.gov/america/index.html>  
<http://www.redcross.org/prepare/makeaplan.html>



**When preparing for a possible emergency situation, its always best to think first about the basics of survival:**

***fresh water, food, clean air, and warmth***



For more information on developing emergency preparedness plans for schools please visit:

The U.S. Department of Education at <http://www.ed.gov/emergency plan>  
 The American Red Cross at <http://www.redcross.org/disaster/masters/intro.html>

## Severe Weather Terms and Definitions

**Warning** — A product issued by the NWS indicating that a particular weather hazard is either imminent or is occurring. A warning indicates the need to take immediate action to protect life and property. Typical warnings include *tornado warning*, *severe thunderstorm warning*, and *flash flood warning*.

**Watch** — A product issued by the NWS indicating that conditions are favorable for a particular weather hazard. A watch is usually issued for a time period of several hours and indicates a need for planning, preparation, and an increased awareness of changing weather conditions. Typical watches include: *tornado watch*, *severe thunderstorm watch*, and *flood watch*.

**Tornado** — A violently rotating column of air in contact with the ground, descending from the base of a severe thunderstorm.

**Severe Thunderstorm** — A thunderstorm that produces a tornado, damaging winds of 58 mph or higher, and/or hail at least three-quarters of an inch in diameter.

**Flash flood** — A flood which happens within a few hours after a heavy rainfall or from the failure of a dam, levee, or ice jam.

**Flood** — A flood occurs when water overflows the confines of a stream or body of water, or accumulates in poorly drained low-lying or urban areas.

**Funnel cloud** — A violently rotating column of air that does not reach the ground. If the funnel cloud reaches the ground, it becomes a tornado.

**Straight line winds** — Thunderstorm wind that produces damage with little indication of any rotation, as opposed to tornado-produced damage that does exhibit a rotational damage pattern.

**Downburst** — A strong downdraft that exits the base of a thunderstorm and hits the earth's surface, resulting in strong gusty winds that may cause property damage.

**Squall line** — Any narrow band of thunderstorms...sometimes as much as several hundred miles long.

**Gust front** — The leading edge of a mass of cool, gusty air that flows ahead of a thunderstorm.

**Waterspout** — A rotating column of air descending from the base of a cumulus cloud over a large body of water, that reaches the water surface.

**Cold air funnels** — Weak funnel clouds that typically remain aloft. They form in cold unstable air masses and are not generally associated with severe thunderstorms.

## Enormous Weather Radio Campaign in the Evansville Area

Rick Shanklin, Warning Coordination Meteorologist  
WFO Paducah, KY

An extraordinary campaign to promote *NOAA Weather Radio All Hazards* resulted in more than 36,000 weather radios being distributed in the Tri-State Region of southwest Indiana, western Kentucky and southeast Illinois. This occurred during a period of about 2 months that followed deadly tornadoes in the region on November 6, 2005 and again November 15, 2005. In addition, the campaign participants joined NWS Paducah in weather radio programming events at Evansville's Eastland Mall and at Madisonville's Parkway Plaza Mall. Both of these 2 day events resulted in some 2000 weather radio owners having their new receivers successfully programmed.

The campaign to distribute weather radios was executed by NEWS 25 WEHT-TV, Buehler's Buy-Low grocery and Midland Radio Corporation, in cooperation with The Gleaner, the Evansville Courier and Press and Regent Communications. In addition, The Evansville-Vanderburgh County EMA is working with other local media, including Fox 7 in Evansville, to provide additional weather radios in the Evansville area. Another mall campaign is being planned in the early spring.

One of the greatest lessons learned from the 2 AM November 6 Tornado is the lifesaving importance of **everyone** owning a weather radio. These campaigns were perhaps the largest effort in the history of weather radio to work toward making that very thing a reality.

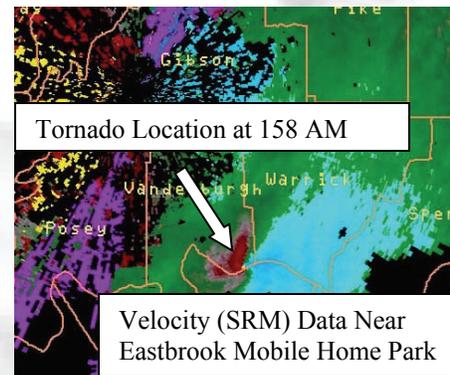
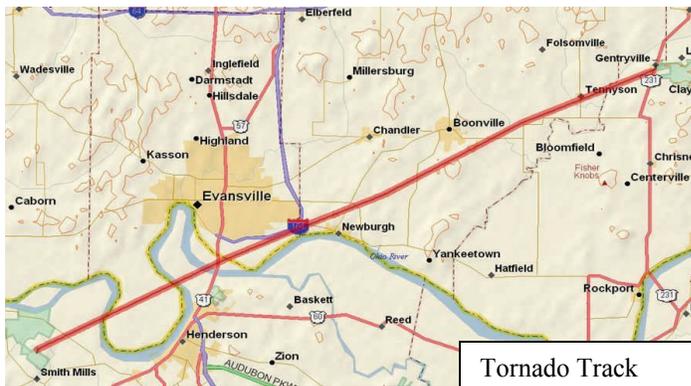
# Tornadoes

## The 2 AM Evansville Area Tornado

Rick Shanklin, Warning Coordination Meteorologist  
WFO Paducah, KY



November 6, 2005 started like many nights with thunderstorms, but ended with one of the deadliest, most destructive tornadoes to ever strike Indiana. At approximately 1:39 AM CST the tornado touched down in western Henderson County, KY about 15 miles southwest of Evansville. The tornado quickly gained strength and tracked rapidly northeast into southern Vanderburgh county, striking Eastbrook Mobile Home Park where it claimed 20 lives. The tornado then took a northeast track through Newburgh and across Warrick county where it claimed 5 additional lives. The tornado finally ended near the Warrick-Spencer county line, about 1.5 miles southwest of Gentryville, IN. The tornado scoured the countryside for a remarkable 41 miles (reference track map below).



Tornado Warnings were issued beginning at 1:32 AM for Henderson county and 1:46 AM for Vanderburgh county. The NWS, EMA, 911, law enforcement, radio broadcasters, and TV meteorologists pleaded for people to take action to protect themselves. At 1:59 AM the tornado struck Eastbrook Mobile Home Park in southern Vanderburgh county. Some had taken action earlier in the night, some when the watches were issued, others when the warnings were issued, yet others shortly thereafter barely arriving to safety before the tornado's wrath was unleashed. Some waited until the very end and tried to take action unsuccessfully. Still yet, many others slept. In some cases they were perhaps never really aware of the tornado as their lives ended.

### Facts from the Evansville Area Tornado

- Deadliest Tornado Outbreak in the U.S. Since May 3, 1999
- Deadliest Tornado in Indiana since April 3-4, 1974
- F3 Rating – Peak Wind 200 MPH
- Path Length of 41 Miles
- 275 Yard Average Path Width
- 60 mph Forward Movement
- 200 Plus Injuries
- 25 Fatalities



Tornado captured by webcam at Deaconess Women's Hospital in Evansville Indiana



EastBrook Mobile Home Park

## Derechos

### *Definition of a Derecho:*

*A widespread line of intense severe thunderstorms that can produce significant damage to property and pose a serious threat to life, primarily by downbursts or straight line winds.*

Path length will exceed 300 miles

Widths may vary from 50-300 miles

## DERECHO FACTS

**From 1986-2003**

### *Nationally:*

Accounted for over twice the number of fatalities compared to F0 and F1 tornadoes combined (88% of tornadoes that occur in the U.S. are rated F0 or F1)

Winds have been recorded as high as 134 mph-comparable to a Category 4 Hurricane

Nearly 50% of all fatalities were related to being in a vehicle or boat

### *Locally:*

37% of all casualties occurred in the Southern Great Lakes Region

On average a Derecho has occurred every year over the Southern Great Lakes Region

**July 16th, 1980 Derecho - Great Lakes Region**

**\$1.3 billion in damage (2003 dollar amt)**

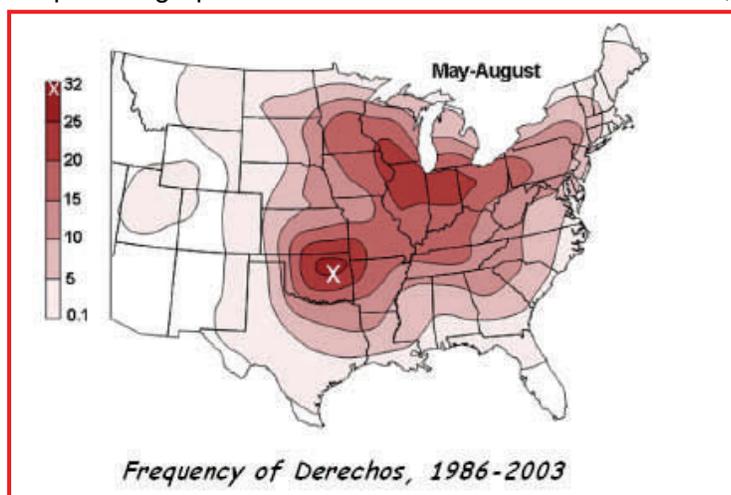
**\*\* Larger than damage estimates of any major tornado since 1890 \*\***

People in cars and trucks are also vulnerable to being hit by falling trees and power poles. People in high profile vehicles such as semi-trailer trucks, busses, and SUVs are at risk of their vehicles being blown over. At outside events like fairs and festivals, people risk being killed or injured by collapsing tents and other flying debris.

*An 18 year study suggests Derechos can be hazardous and are comparable in magnitude to most U.S. Tornadoes and Hurricanes*

### Derecho Fatalities In percentages

Vehicle	30 %
Boat	19%
Under a Tree	17%
Permanent Structure	10%



## Other Hazards

# Remember

Counting the number of seconds between a flash of lightning and the next clap of thunder, then dividing this number by 5, will determine the distance to the lightning in miles.

**30/30 Lightning Rule:** If after seeing lightning, you cannot count to 30 before hearing thunder, take shelter immediately. Stay indoors for 30 minutes after hearing the last clap of thunder.

For additional safety tips, brochures and color posters, visit :  
[www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov)

# Lightning Kills!

Anyone, Anywhere, Anytime

Lightning kills more people in the United States each year than tornadoes or hurricanes.

Each Year, an estimated 25 million lightning strikes hit the ground in the United States.

Warnings are not issued for lightning. You must know what to do when lightning threatens and how to protect yourself.

Many people are injured when lightning strikes nearby and travels through the ground or other objects.



## Play It Safe



**Hear Thunder? Seek Shelter!**  
**Lightning can strike from 10 miles away!**



Sam Lashley, NOAA/NWS KIWX

[www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov)



NOAA PA Number

## TURN AROUND DON'T DROWN™



Each year, more deaths occur due to flooding than from any other severe weather related hazard. The Centers for Disease Control report that over half of all flood-related drownings occur when a vehicle is driven into hazardous flood water. The next highest percentage of flood-related deaths is due to walking into or near flood waters. Why? The main reason is people underestimate the force and power of water. Many of the deaths occur in automobiles as they are swept downstream. Of these drownings, many are preventable, but too many people continue to drive around the barriers that warn you the road is flooded.

To learn more about the dangers of floods and flash floods and how to protect yourself and your loved ones, visit the **Turn Around Don't Drown** web page at: <http://www.weather.gov/os/water/tadd/index.shtml>. This page also features a tool kit for educators to help teach about the dangers of flooding. Download brochures, signs and much more!

## School and Bus Weather Safety Information

**GENERAL WEATHER SAFETY** – If warnings are issued or at the sign of impending severe weather, keep kids at home or at school. Make an attempt to move kids into a shelter at school if needed. On the bus route, keep children from walking or running through the severe elements. Being inside of the bus adds protection from lightning, hail and winds compared to being outside in the open. It is best to wait out bad weather at school. A programmable NOAA Weather Radio All-Hazards can alert you to the specific weather dangers anticipated.



**SEVERE THUNDERSTORMS/TORNADOES** – Severe thunderstorms and tornadoes are most common in late afternoon and early evening when children are being returned home from school. Listen to NOAA Weather Radio All-Hazards, commercial radio or television for watch and warning details. If warnings are in effect for your county, or severe weather in a neighboring county may move into your area, consider delaying bus routes and keeping children inside the school. If bus routes have already begun and severe weather threatens, have planned “safe locations” where children can quickly and safely be unloaded into a sturdy shelter.



**DENSE FOG** - Areas of dense fog can quickly form in the morning just before sunrise and after bus routes have already begun. The visibility may be near zero in some locations. Children waiting at bus stops or crossing roads are at risk. All drivers should slow down and use extreme caution when fog occurs during the school year. Parents should dress kids in bright colored coats, jackets, shirts, or even have them wear safety vests while waiting at rural bus stops.

Remember, severe weather can occur with little or no warning; right in the middle of a bus route. There are numerous dangers associated with severe thunderstorms including straight-line winds than can topple a school bus; lightning and hail that can injure or kill. Keep an ear to the weather radio; keep an eye on the sky and do not be afraid to delay routes if needed.

### SAMPLE SCHOOL BUS DRIVER TORNADO POLICY

- **Attend Severe Weather Observer Training from your local NWS office.**
- **Hold evacuation drills - using both doors.**
- **If time permits drive at a right angle to funnel path. You cannot outrun a tornado**
- **Don't drive during a "Tornado Warning".**
- **Evacuate students through both exits at nearest ditch or “safe location”**
- **Students should lie flat in a low place facing the funnel cloud.**
- **Move bus away from students, radio base station and remove first aid kit.**
- **Calm and supervise students.**

**Additional information available at**  
<http://www.doe.state.in.us/safety/WeatherEmergencies.html>

## Severe Weather Safety Tips

### At Home

- ▽ Move to the interior of the lowest floor possible
- ▽ Stay away from windows
- ▽ Interior bathrooms and basements offer excellent shelter
- ▽ Leave mobile homes immediately, and proceed to the nearest designated shelter

### At Large Public Gatherings

(Ball parks, stadiums, race tracks)

- ▽ Follow the guidance announced by officials at the facility
- ▽ Delay entering facilities if severe weather is imminent or occurring. Seek shelter in smaller, safer structures.



### At School

- ▽ Move students quickly into interior hallways on the lowest floor
- ▽ Stay out of rooms with large free-span ceilings such as gymnasiums and cafeterias
- ▽ Keep children at school beyond regular hours if severe weather is expected

### In a Vehicle

- ▽ Never try to outrun a tornado as they can change speed and direction without warning
- ▽ Leave the vehicle and find nearby safe shelter
- ▽ If no shelter is available, crouch in a ditch or ravine, covering your head. Be wary of flash flooding



### At Work

- ▽ Post a lookout
- ▽ Move quickly to the section of the building offering the greatest protection in accordance with severe weather emergency plans



**IT'S 2 AM...  
A TORNADO WARNING  
IS ISSUED FOR YOUR  
COMMUNITY.**

**HOW WILL YOU KNOW ?**

**GET THE INFORMATION  
YOU NEED 24 HOURS A  
DAY... 7 DAYS A WEEK.  
NOAA ALL-HAZARDS  
WEATHER RADIO!**



**SECONDS SAVE LIVES !**



**[WWW.WEATHER.GOV/NWR](http://WWW.WEATHER.GOV/NWR)**

Mark Trail image courtesy of North America Syndicate, Inc., World Rights Reserved



## Amateur Radio Operators and Skywarn Spotters

With training, anyone can become a Skywarn Spotter or Amateur Radio Operator! These people are the eyes and ears of the National Weather Service, observing and reporting to help improve warnings. The extra time you have to take cover may be due to these volunteers! To learn how to become a Skywarn Observer or an amateur radio operator, contact your local NWS office or visit <http://www.skywarn.org> or <http://www.arrl.org/>



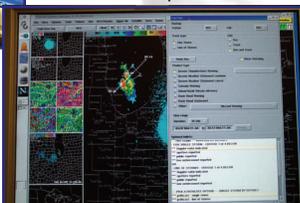
### RADIO OPERATORS AND SKYWARN SPOTTERS IN ACTION



A trained spotter observes a funnel cloud



The spotter reports the funnel cloud to the NWS through the amateur radio network or telephone



The radar operator at the NWS receives the report and makes better warning decisions

## NOAA Weather Radio All-Hazards - Not Just for Weather Anymore

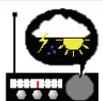
NOAA Weather Radio All Hazards (NWR) is a nationwide network of radio stations broadcasting continuous weather information directly from a nearby NWS office. NWR broadcasts National Weather Service warnings, watches, forecasts and other hazard information 24 hours a day.

In conjunction with Federal, State, and Local Emergency Managers and other public officials, NWR also broadcasts warning and post-event information for all types of hazards – including natural (such as earthquakes or avalanches), environmental (such as chemical releases or oil spills), and public safety (such as AMBER alerts or 911 Telephone outages).

Public Alert™ Devices



We can not recommend one brand of receiver over another, but we do suggest that you look for receivers which carry the Public Alert logo. The Public Alert Standard (CEA-2009) was developed by the [Consumer Electronics Association](#) in conjunction with the National Weather Service. Devices which carrying the Public Alert logo meet certain technical standards and come with all the features mentioned above.



For more information, visit <http://www.weather.gov/nwr/>



## Internet Sites

National Oceanic and Atmospheric Administration (NOAA)

<http://www.noaa.gov>



National Weather Service

<http://www.weather.gov>

National Weather Service Northern Indiana

<http://www.weather.gov/iwx>

National Weather Service Indianapolis

<http://www.weather.gov/ind>

National Weather Service Office of Meteorology

Severe Weather Awareness Page

<http://www.nws.noaa.gov/om/severeweather>

Storm Prediction Center

<http://www.spc.noaa.gov>

NOAA Weather Radio All-Hazards

<http://www.weather.gov/nwr>

Federal Emergency Management Agency

<http://www.fema.gov/>



American Red Cross

<http://www.redcross.org/>

Indiana Department of Homeland Security

<http://www.in.gov/dhs/>

Indiana State Police

<http://www.in.gov/isp>

Indiana Department of Education

<http://ideanet.doe.state.in.us/safety>

Indiana Department of Transportation

<http://www.ai.org/dot/>

Skywarn

<http://www.skywarn.org>

**NOAA's National Weather Service**

6900 West Hanna Avenue  
Indianapolis, IN 46241  
317-856-0360

Severe Weather Preparedness Week Material  
**OPEN IMMEDIATELY!**



**Central Indiana Severe Weather Symposium  
All Day Advanced Spotter Workshop  
March 18, 2006**



**For more information and registration**

**<http://www.weather.gov/ind>**

**Or contact Dave Tucek**

**317-856-0360 x726**

**[David.Tucek@noaa.gov](mailto:David.Tucek@noaa.gov)**



**Wanted:**

**Volunteer Severe Weather Observers**

**For a NWS/SKYWARN training session near you, contact your local NWS Office or look for a link to training dates on the internet homepage of your local NWS office.**