# Severe Weather Preparedness Week

### Indiana Severe Weather Preparedness Week-March 12-18, 2023

The National Weather Service (NWS), in conjunction with the Indiana State Police and Public Safety Commission, Indiana Department of Homeland Security, Department of Education, the Indiana Broadcaster's Association, the Red Cross, and Amateur Radio Operators will conduct a **statewide test** of communication systems on **Tuesday, March 14** 

at 10:15 A.M. EDT/ 9:15 A. M. CDT. If weather postpones the tests, a make-up test is Wednesday, March 15 at the same time listed.

The goal of Severe Weather Preparedness Week is to build towards a Weather Ready Nation where Hoosiers are prepared for and respond to all dangerous weather and flood hazards. This packet contains information about severe weather terms, safety rules, and some tornado events that affected Indiana. Daily statements will be issued on newswires and NOAA All Hazards Radio during the week. Your local National Weather Service office and our partners are available for interviews.

#### **NWS Indianapolis**

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## **Preparedness Week Daily Focus**

Sunday March 19	Kick-off. Discuss the roles of You NWS Media				
Sunday, March 12	Emergency Response Officials, Homeland Security, and Red Cross during severe weather	Inside this issue:			
		Tornado Facts & Safety	2		
Monday, March 13	Severe Weather Outlook & Watch: The roles at the Outlook and Watch stages of an	Be Red Cross Ready	2		
	event	Extreme Rainfall/ Flash Flooding			
Tuesday, March 14	<b>Warning:</b> The roles in Warnings; Tornado Drill at 10:15 am EDT/ 9:15 am CDT	Lightning Safety	4		
Wednesday, March 15	<b>Response:</b> The roles in responding to disasters	Definitions; Red Cross Kits			
	in real-time	Heat Information	6		
Thursday, March 16	<b>Recovery:</b> The roles in the recovery process after a disaster	Flood Products	6		
Friday March 17	Weather Ready Nation · Ready your commu-	Volunteers Needed!	7		
i induy, mur ch 17	nity for extreme weather, water, and climate events	Flood Tips & Facts	7		
Saturday, March 18	<b>Wrap up:</b> The importance of preparedness and action during threatening hazards	Weather Ready Nation			
	action during threatening hazards	Send Us Your Reports	9		

## Tornadoes

- $\zeta$  In 2021, Indiana saw 20 tornadoes while the annual average is 25. This year is the ten year anniversary of the Henryville tornado of 2012, which is last time a tornado related fatality occurred in Indiana. The record number of tornadoes in a year for Indiana is 72 tornadoes in 2011
- $\zeta$  Most tornadoes travel northeast. Forward speeds average near 30 mph but can reach 60 mph. Other favored directions are from the northwest
- $\zeta$  Tornadoes occur year round but are most likely to occur from April to June. Primary hours are from 3 pm to 8 pm with a second peak from 12 am to 3 am

## **Tornado Safety**

#### **IN HOMES OR SMALL BUILDINGS:**

Go to the basement (if available) or to an interior room on the lowest floor, such as a closet or bathroom. Wrap yourself in overcoats or blankets to protect yourself.

#### IN SCHOOLS, HOSPITALS, FACTORIES, OR SHOPPING CENTERS:

Go to interior areas on the lowest floor. Stay away from glass and very large rooms. Follow the instructions of the facility safety officials.

#### **IN HIGH-RISE BUILDINGS:**

Go to interior rooms, stairwells, or halls. Avoid exterior walls or glass.

#### **IN CARS OR MOBILE HOMES:**

Most tornado deaths occur in cars and mobile homes. If you have time, leave them for a substantial structure or designated tornado shelter. As last resort, lie flat in your car or nearby ditch and use your hands to cover your head.

# Be Red Cross Ready Get A Kit. Make A Plan. Be Informed.

#### **Emergency Preparedness Kit** for your home

- Food and water for 3 days (1 gallon of water per person per day)
- Flashlights and extra batteries
- Battery-powered or handcrank radio (NOAA Weather Radio, if possible)
- First aid kit
- Medications (7-day supply) and medical items

- Multi-purpose tool
- Personal hygiene items
- Copies of personal documents
- Extra cash
- Emergency blanket
- Baby and pet supplies



Page 3

### 2022 U.S. Extreme Rainfall/Flash Flooding – Indiana included!

By Julia Dian-Reed, NWS Wilmington

2022 extreme rainfall events and major flash flooding occurred in many locations across the U.S. Some memorable and devastating extreme rainfall events occurred <u>near St. Louis</u>, <u>Dallas</u>, and in <u>eastern Kentucky</u>. These flash floods garnered national attention to the extreme damage and <u>loss of life</u> they caused.



Radar/Rain gauge estimated rainfall centered near Bennington in Switzerland County. Much of the rain fell between 3-7PM, with an estimated 5" between 4-5PM alone. Over Labor Day weekend in Switzerland and Jefferson Counties in southeast Indiana, the Hoosier state was struck by a smaller scale, but equally extreme, flash flood.

An estimated 9-11" of rain fell in just a little more than 4 hours over western Switzerland County, with some of this extreme rain running downstream into neighboring Jefferson County. Radar estimates in the 4-5PM time frame alone were as high as 5". Tragically, there was one fatality in Jefferson County due to the flash flooding, along with significant losses to homes and roads/bridges in both counties.

The extreme magnitude of this rainfall can't be understated (per the <u>NOAA Atlas 14</u> <u>Rainfall Frequency</u>): this heavy rain was estimated as a "1 in 1000 rainfall frequency", meaning that, in any given year, there is just a 0.1% chance of this magnitude of rain occurring.

While the rainfall frequency atlas analysis of this flash flood may make it seem like a rare occurrence, we are seeing such extreme rainfall on a more frequent basis across the country, including Indiana.

What does this mean to you? Ensuring you have **<u>multiple means</u>** of receiving warnings enables you to have more lead time to react to flash floods, tornadoes and severe storms. What are some of these multiple means?

- Ensuring your phone has <u>Wireless Emergency</u> <u>Alerts</u> enabled
- Having a NOAA Weather Radio in your home/ school/church/workplace, with a battery backup!
- Downloading your favorite weather app with warning alert feature

Remember, most flood deaths occur from driving into or walking into flood waters. While you may not live in a floodplain, are you aware of flood prone locations on your way to work, school, etc? Driving around barricades into flooded areas could cost you: you could be fined for this action, you could severely damage your vehicle, or worst of all - it could cost you your life. Remember - Turn Around, Don't Drown!



NWS Damage Surveyor stands on the remains of bridge along a flood-scoured Smith Ridge Road in Switzerland County (September 2022)

**NWS Indianapolis** 

## **Lightning Safety**

**All thunderstorms produce lightning and are dangerous:** Lightning can be 5 times hotter than the surface of the sun. 25 million cloud-to-ground lightning strikes occur in the U.S. each year.

You are in danger from lightning if you can hear thunder. If you can hear thunder, lightning is close enough that it could strike your location at any moment. Get inside! "<u>When thunder roars go</u> indoors!"

**Lightning injuries can lead to permanent disabilities or death:** On average, 10% of strike victims die; 70% of survivors suffer serious long term effects.

**Blue Skies and Lightning:** Lightning can travel sideways for up to 10 miles. Even when the sky looks blue and clear, be cautious. If you hear thunder, take cover. At least 10% of lightning occurs without visible clouds overhead in the sky. Don't wait until the last minute before seeking shelter.

- ✓ Inside a building with wiring or plumbing is safest. Inside a hard-topped vehicle is safer than outside but avoid contact with metal or outside parts of the vehicle
- If you can't get to a shelter, stay away from trees or open areas where you may be the tallest object
- Avoid metal! Avoid leaning against vehicles. Get off bicycles and motorcycles. Don't hold on to metal items such golf clubs, fishing rods, tennis rackets or tools
- ✓ Get out of the water, it's a great conductor of electricity. Don't stand in puddles of water, even if wearing rubber boots
- Move away from a group of people. Stay several yards away from other people. Don't share a bleacher bench or huddle in a group



## **Lightning Deaths**

- 80% of fatalities are men
- 63% of lightning fatalities occur during leisure activities such as fishing, hiking, walking, soccer, golfing, baseball, boating, etc.
- 17% of lightning fatalities occur during work activities such as farming, construction, roofing, lawn care, etc.
- 16% of lightning fatalities occur during daily routine activities such as heading to/ from home or a car, yard work, taking out the trash, etc.

## Severe Weather Terms and Definitions

### Watch

Hazardous weather may occur. Watch for information; review safety plans.

#### Warning

A weather hazard is imminent or reported and requires **immediate action** to protect life and property.

#### Severe Thunderstorm

A thunderstorm is classified as severe if it produces a tornado, hail one inch or more in diameter, or winds of 50 knots (58 mph) or more.

## **Understanding Severe Thunderstorm Risk Categories**

THUNDERSTORMS	1 - MARGINAL	2 - SLIGHT	3 - ENHANCED	4 - MODERATE	5 - HIGH
(no label)	(MRGL)	(SLGT)	(ENH)	(MDT)	(HIGH)
No severe*	Isolated severe	Scattered	Numerous	Widespread	Widespread
thunderstorms	thunderstorms	severe storms	severe storms	severe storms	severe storms
expected	possible	possible	possible	likely	expected
Lightning/flooding threats exist with <u>all</u> thunderstorms	Limited in duration and/or coverage and/or intensity	Short-lived and/or not widespread, isolated intense storms possible	More persistent and/or widespread, a few intense	Long-lived, widespread and intense	Long-lived, very widespread and particularly intense
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\* NWS defines a severe thunderstorm as measured wind gusts to at least 58 mph, and/or hail to at least one inch in diameter, and/or a tornado. All thunderstorm categories imply lightning and the potential for flooding. Categories are also tied to the probability of a severe weather event within 25 miles of your location.



## National Weather Service

www.spc.noaa.gov



## NOAA All Hazards Radio



Keep ahead of the storm by listening to NOAA Weather Radio for the latest weather watches, warnings, and advisories. In addition to routine broadcasts, the Specific Area message Encoding (SAME) feature of NOAA Weather Radio Activates the Emergency Alert System (EAS). EAS is used to provide notifications of emergencies to the public.

Did you know?? Special needs NOAA Weather Radios designed to meet the needs of the hearing impaired are available. For more information, visit: www.nws.noaa.gov/nwr/ info/special\_needs.html

For more information, visit: www.nws.noaa.gov/ nwr/



## Heat Wave- How to prepare and stay safe

- Wear light clothes, sunglasses, and a hat to protect yourself from the sun
- Drink plenty of water, eat light meals, do not over exert yourself
- Stay out of the sun when possible
- #heatstrokekills #checkforbaby #lookbeforeyoulock

In 2019, there were 53 child vehicular deaths in the U.S.

NWS Heat Index Temperature (°F)																
	80	82	84	86	88	90	92	94	96	98	100	102	104	106	108	110
40	80	81	83	85	88	91	94	97	101	105	109	114	119	124	130	136
45	80	82	84	87	89	93	96	100	104	109	114	119	124	130	137	
50	81	83	85	88	91	95	99	103	108	113	118	124	131	137		
55	81	84	86	89	93	97	101	106	112	117	124	130	137			
60	82	84	88	91	95	100	105	110	116	123	129	137				
65	82	85	89	93	98	103	108	114	121	128	136					
70	83	86	90	95	100	105	112	119	126	134						
75	84	88	92	97	103	109	116	124	132							
80	84	89	94	100	106	113	121	129								
85	85	90	96	102	110	117	126	135								
90	86	91	98	105	113	122	131								n	AR
95	86	93	100	108	117	127										- )
100	87	95	103	112	121	132										HERE'S
Likelihood of Heat Disorders with Prolonged Exposure or Strenuous Activity																
Caution Extreme Caution								Danger		E)	ktreme	Dange	er			

## **Critical NWS Flood Products**

#### Hydrologic Outlook

This product alerts the public when flood producing rainfall is expected in 36 to 72 hours. During the months of February and March, this product also contains information on the potential for flooding from the spring snow melt.

#### **Flood Watch**

A flood or flash flood watch is issued when conditions are favorable for flooding or flash flooding to develop.

#### **Flash Flood Warning**

A warning is issued when rapid flooding is imminent. Flash floods quickly develop within 6 hours of a heavy rainfall event.

#### **Flood Warning**

These warnings are issued for river floods or for widespread flooding across a county. River flooding mostly occurs with longer periods of rain which result in slower rises in flood waters and a prolonged flood event.

## **Citizen Scientists Wanted!**

Volunteers may join the CoCoRaHS network, a non-profit community based network of volunteer weather observers to report daily rainfall as well as hail and snow. www.cocorahs.org

The mPING project is also looking for volunteers to report precipitation to the National Severe Storms Laboratory. Reports are plotted on a national map. The data helps NWS forecasters relate surface observations to what is detected by radar. Visit: mping.nssl.noaa.gov/



Skywarn Storm Spotter training is conducted each spring to help people better understand signs for severe weather and report storm information to the National Weather Service. See your local NWS office home page for storm spotter talks in your area. For a schedule of the Indianapolis office's talks, go to **SKYWARN** weather.gov/ind/spotter\_talks

## **Flood Safety Tips and Facts**

- Monitor NOAA All Hazards Radio or your favorite news source for vital weather information
- If flooding occurs, get to higher ground, away from areas subject to flooding 4
- Avoid areas already flooded and do not attempt to cross flowing streams
- Do not drive around barriers that warn you the road is flooded. Some cities and ۵ counties issue a fine to motorists who ignore barriers!
- ٠ Never drive through flooded roadways as roads may be washed out under flood waters
- If your vehicle is suddenly caught in rising water, leave it immediately and seek ٠ higher ground
- ۵ Do not camp or park your vehicle along streams and washes if there is a threat of flooding. Be especially cautious at night when it is harder to recognize flood dangers

## According to FEMA:

- ۵ The average annual U.S. flood losses from 1996-2014 was more than \$8.8 billion (via the Hydrologic Information Center–Flood Loss Data)
- Hurricanes, winter storms, and snow melt are common, but often overlooked, ۵ causes of flooding
- In 2008, major spring, summer, and fall floods resulted in FEMA Disaster Dec-٠ larations for most Indiana counties

### **River Flooding**

The Advanced Hydrologic **Prediction Service** (AHPS) page is a great tool to check the latest in river flood information including flood stage, flood impacts, and any current river flood warnings.

Visit: water.weather.gov /ahps/



## Weather Ready Nation

NOAA's Weather-Ready Nation (WRN) is about building community resilience in the face of increasing vulnerability to extreme weather and water events. In recent years, increasing numbers of major storm and flood events have resulted in the greatest number of billion dollar disasters in our Nation's history. The NWS is transforming its operations to help America respond. In turn, officials, businesses and the public can make better, faster decisions to save lives and livelihoods.

The initiative includes several activities in every area of our work, from observing current conditions to increasing lead times on severe weather warnings to improving how we communicate our forecasts to the public. Building a Weather-Ready Nation starts with these internal actions, but requires the action of a vast nationwide network of partners including other government agencies and emergency managers, researchers, the media, insurance industry, non-profits, the private sector, the Weather Enterprise and more.

The goal of the WRN initiative is to support the mission of the National Weather Service by reducing risk and increasing community resilience for future extreme events.

#weatherreadynation see: www.weather.gov/wrn/

## WRN Ambassador

An offshoot of WRN is the Weather-Ready Nation Ambassador<sup>™</sup> initiative. The Ambassador program is a way we recognize our partners and other entities who are improving America's resilience against extreme weather, water, and climate events. As a WRN Ambassador, partners commit to working with NOAA and other Ambassadors to strengthen national resilience against extreme weather. In effect, the WRN Ambassador initiative helps unify efforts across many disciplines, making the nation more ready, responsive, and resilient against extreme environmental hazards.

A Weather-Ready Nation (WRN) is where society's response should be equal to the risk from all extreme weather, water, and climate hazards. The WRN Ambassador initiative is a unifying effort that is actionoriented and serves as a force multiplier where new partnerships can lead to more partnerships. To be officially recognized as a WRN Ambassador, an organization must commit to: promoting Weather-Ready Nation messages and themes to their stakeholders; exploring innovative approaches for collaboration with your organization; engaging with NOAA personnel on potential collaboration opportunities; sharing success stories of preparedness and resiliency; serving as an example by educating others.

We in turn will help you, keeping Ambassadors informed of upcoming hazards or providing toolkits tied to weather safety campaigns.

See: www.weather.gov/wrn/amb-tou

#### **NWS Indianapolis**

## Send Us Your Reports

We need to know what's really going on where you are! Send us a tweet @NWSIndianapolis or comment on our Facebook page to let us know what type of precipitation is falling, how much snow you've measured, if there's any ice accumulation, or if you measure any strong wind gusts. Better yet, you can sent us pictures or video to really show us what you're seeing! But don't forget to include your location and the time during which this took place.

## Find us on Social Media!

- @NWSIndianapolis, @NWSIWX, @NWSILN, @NWSLouisville, @NWSPaducah, @NWSChicago
- **F** US National Weather Service Indianapolis Indiana US National Weather Service Northern Indiana US National Weather Service Wilmington OH US National Weather Service Louisville Kentucky US National Weather Service Paducah Kentucky US National Weather Service Chicago Illinois

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# Protecting life & property

## **Tools for Decision Making**

Two new pages have been created in order to better assist with decision making for event planning or personal use. These pages allow you to view a variety of data all in one stop.

### **Indiana Briefing**

The first is the Indiana weather briefing page to assist in decision support where you can find statewide maps for various parameters such as temperatures, rain, snow, severe weather, etc. Weather stories and graphics from each office that forecasts for Indiana are also available all in this one location. This page can be viewed at www.weather.gov/ind/INwxbrief.

### **Graphical Hazardous Weather Outlook**

The second is a Graphical Hazardous Weather Outlook (GHWO) where you can select a hazard and specific day to see a corresponding map of each threat for an individual forecast office. For the Indianapolis office, visit www.weather.gov/crh/ghwo?sid=ind. To view this page for other offices, replace the last three letters of the link (ind) with the abbreviation for the desired office: NWS Chicago = lot, NWS Northern Indiana = iwx, NWS Wilmington = iln, NWS Louisville = lmk, NWS Paducah = pah, and NWS Lincoln = ilx.