

# Michigan Severe Weather Awareness



*Flooding on I-27 near Mason, Michigan*

The Michigan Committee for Severe Weather Awareness (MCSWA) was formed in 1991 to promote safety awareness and coordinate public information efforts regarding tornadoes, flooding, and winter weather.

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# 2011 Severe Weather Review

According to the National Weather Service, there were four deaths and 31 injuries in Michigan from severe weather in 2011. All of the deaths and injuries resulted from either lightning or thunderstorm winds. Flooding, severe thunderstorms and tornadoes were responsible for about \$150 million in damages in 2011, down from the \$360 million in damages in 2010.

Michigan had below average severe weather activity across much of upper and northern lower Michigan last year. However, severe weather increased in 2011 across southern lower Michigan. The character of the severe weather in southern lower Michigan was not as significant as 2010, but still took a substantial toll on the state.

## **Flooding**

Flooding in 2011 was more widespread than in the 2010. There were a total of 38 flooding and flash flooding events statewide, resulting in \$10 million in damages. The most significant flood event hit Lansing and much of Ingham County on July 28. Six to eight inches of rain fell over Ingham County in about 30 hours. This caused widespread flash flooding which closed numerous roads. Water reached as high as street side mailboxes in Lansing where boat rescues were necessary and five homes were destroyed. Twenty additional homes suffered significant damage. In all, the flooding around Lansing on July 28 caused about \$5 million in damages.

Another significant flood event occurred in Mecosta County on April 4. A local State of Emergency was declared for the county as a result of extensive heavy rainfall and melting snow. Numerous roads were washed out or covered with water, including M-20. Over a dozen homes were surrounded with water up to their foundations. The total damage was estimated over \$1 million.

## **Tornadoes and Severe Thunderstorms**

In 2011, there were 15 tornadoes across the state, which is very close to the average of 16. Fortunately, only four of the 15 tornadoes in 2011 caused significant damage, and six of the 15 tornadoes didn't cause any damage. It could be argued that prior to the proliferation of cameras over the past couple of decades that those six non-damaging tornadoes may have never been recorded.

Severe thunderstorms occurrences were sparse across northern lower and the Upper Peninsula as many locations had their second driest summer on record. Across southern lower Michigan, severe weather activity was above average, but with below average number of significant events.

Despite the relatively quiet severe weather pattern across the northern portions of the state, the first severe weather event hit northwest lower Michigan. On April 10, wind gusts were measured to 79 mph at Manistee Harbor, 62 mph at Manistee Blacker Airport and 85 mph in Lake City. The most intense damage was on the north side of downtown Manistee and on the south side of Lake Missaukee. Numerous trees were blown down, resulting in roof and structural damage to many homes and businesses.

The next severe weather event occurred on April 26 across western lower Michigan from the same storm system that produced the super outbreak of tornadoes in the south. While the Michigan severe weather was not to the same degree as the severe weather in Alabama, Tennessee, Mississippi and Georgia, it did have an impact on the state. There were numerous reports of wind damage and hail up to the size of golf balls. The hail across the Grand Rapids and Kalamazoo areas caused over \$20 million in damages. The first Michigan tornado hit a turkey farm in Allegan County and produced EF-0 damage over its three-mile track. Nine people were injured when lightning struck a soccer field in Portage at Westfield Park. The injured were a mix of adults and students.

May started quietly with no significant severe weather until the end of the month. Severe weather with some large hail and minor thunderstorm wind damage hit western lower Michigan on May 22 and then moved into the southeast lower part of the state on May 23

The storms traveled from northern Illinois across southern lower Michigan between 2 p.m. and 6 p.m. The storms strengthened as they reached far southern lower Michigan and produced widespread winds estimated to 100 mph. Battle Creek and St. Joseph County were the hardest hit with over \$25 million in damages. In Battle Creek, approximately 600 homes and 21 businesses were damaged. The May 29 squall line also produced three EF-1 tornadoes in St. Joseph, Branch and Ingham/Shiawassee Counties.

May ended with another severe weather event across northern and central lower Michigan. One tornado was recorded in Bay County on May 31. The tornado was on the ground for over eight miles damaging homes, garages and barns.

June brought a return of periodic severe weather episodes. Severe weather was reported from Central Upper Michigan and from all corners of Lower Michigan during June 8 and into the early morning hours of June 9. Another severe weather event hit southern lower Michigan on June 21, including a thunderstorm wind gust that damaged two hangers at the Gerald R. Ford International Airport. Unfortunately, the wind gust and subsequent hanger damage resulted in four injuries.

By early July, hot and humid air had invaded all of Michigan. But then a cold front moved across upper Michigan on July 1 and then across lower Michigan on July 2. The combination of the cold front and the hot and humid air mass triggered severe weather events in upper Michigan and southeast lower Michigan. July took a deadly turn for Michigan when next severe thunderstorms moved across southern lower Michigan on July 11. Unfortunately, a man was killed inside his garage when a large tree fell over in the wind and on top of the garage. One week later, severe thunderstorms affected southeast Michigan on July 18. The severe thunderstorm winds cause sporadic wind damage and some downed power lines. A man in Detroit was killed when a power line fell due to the thunderstorm winds. A family was on a tubing outing on the Au Sable River on July 23 when a thunderstorm rapidly developed, and they attempted to exit the river and find shelter. They had just exited the river when three of the individuals were struck by lightning. Two women were pronounced dead at the scene. A man was transported to a hospital in Saginaw in critical condition. He would survive, but require a 10-day hospital stay and considerable physical therapy. The survivor had no recollection of the incident.

August brought a return of less violent severe weather. Severe thunderstorms moved through southern lower Michigan on August 13, 20, and 24. The last severe weather event of 2011 affected southern lower Michigan on September 3. These severe thunderstorms forced the University of Michigan to end their opening football game early. The storms also hit River Rouge where they were holding a festival. A tent collapsed under the force of the strong winds and 10 people were injured.



# Tornado and Thunderstorm Safety

## **Preparing for a tornado or thunderstorm:**

- Plan ahead. Be sure everyone in your household knows where to go and what to do in case of a tornado or thunderstorm warning.
- Know the safest location for shelter in your home, workplace, and school. Load-bearing walls near the center of the basement or lowest level generally provide the greatest protection.
- Know the location of designated shelter areas in local public facilities, such as schools, shopping centers, and other public buildings.
- Have emergency supplies on hand, including a battery-operated NOAA Weather Radio, flashlight, and a supply of fresh batteries, first-aid kit, water, and cell phone.
- Keep a three-day supply of food on hand. Keep some food in your supply kit that doesn't require refrigeration. For more information on food safety following an emergency, visit [www.bt.cdc.gov/disasters/poweroutage/needtoknow.asp](http://www.bt.cdc.gov/disasters/poweroutage/needtoknow.asp).
- Make an inventory of household furnishings and other possessions. Supplement it with photographs of each room and keep it in a safe place.
- Sign up to receive text or e-mail alerts from your local media, weather provider or the Weather Channel at [www.weather.com](http://www.weather.com).

## **What to do when a thunderstorm approaches your area:**

- Stay tuned to your weather radio or local news station for the latest updates from the National Weather Service or go to the National Weather Service Web site, [www.nws.gov](http://www.nws.gov).
- Seek safe shelter when you first hear thunder or when you see dark threatening clouds developing overhead or see lightning. To determine the proximity of the severe weather, count the seconds between the time you see lightning and hear thunder. If the time between is less than 30 seconds, ensure you are in a safe location and stay inside until 30 minutes after you last hear thunder or see lightning. Remember, lightning can strike more than 10 miles away from any rainfall.
- When you hear thunder, run to the nearest large building or a fully enclosed vehicle (soft-topped convertibles are not safe). It is not safe anywhere outside.
- If you are boating or swimming, get to land and seek shelter immediately.
- Telephone lines and metal pipes can conduct electricity. Any item plugged into an electrical outlet may cause a hazard during a tornado or thunderstorm. Do not use corded (plug-in) telephones except in an emergency.

## **What to do when a tornado warning is issued for your area:**

- Quickly move to shelter in the basement or lowest floor of a permanent structure.
- In homes and small buildings, go to the basement and get under something sturdy, like a workbench or stairwell. If a basement is not available, go to an interior part of the home on the lowest level. A good rule of thumb is to put as many walls between you and the tornado as possible.
- In schools, hospitals, and public places, move to the designated shelter areas. Interior hallways on the lowest floors are generally best.
- Stay away from windows, doors, and outside walls. Broken glass and wind blown projectiles cause more injuries and deaths than collapsed buildings. Protect your head with a pillow, blanket, or mattress.
- If you are caught outdoors, a sturdy shelter is the only safe location in a tornado.
- If you are boating or swimming, get to land and seek shelter immediately.

## **After a tornado or thunderstorm:**

- Inspect your property and motor vehicles for damage. Write down the date and list the damages for insurance purposes. Check for electrical problems and gas leaks, and report them to the utility company at once.
- Watch out for fallen power lines. Stay out of damaged buildings until you are sure they are safe and will not collapse. Secure your property from further damage or theft.
- Use only chlorinated or bottled supplies of drinking water.
- Check on your food supply. Food stored in a refrigerator or freezer can spoil when the power goes out.



# Tornado and Thunderstorm Facts

## 1. What is a severe thunderstorm?

A severe thunderstorm produces large hail that is one inch in diameter or larger, damaging winds of 58 mph or greater, and/or a tornado.

## 2. What is a tornado?

A tornado is a column of violently rotating winds extending down from a thunderstorm cloud and touching the surface of the earth.

## 3. What is the difference between a tornado and a funnel cloud?

A funnel cloud is also a column of violently rotating winds extending down from a thunderstorm; however, it does not touch the earth as a tornado does.

## 4. How many tornadoes usually occur in Michigan every year?

Michigan experiences an average of 16 tornadoes annually. Since 1950, 243 persons have been killed due to tornadoes. During this same time, Michigan has experienced 965 tornadoes.

## 5. When do tornadoes generally occur?

Most tornadoes occur during the months of May, June, July, and August primarily in the late afternoon and evening hours. However, tornadoes can occur anytime of the day or night in almost any month during the year.

## 6. How fast do tornadoes travel?

Tornadoes generally travel from the southwest at an average speed of 30 mph. However, some tornadoes have very erratic paths, with speeds approaching 70 mph.

## 7. How far do tornadoes travel once they touch the ground?

The average Michigan tornado is on the ground for less than 10 minutes and travels a distance of about five miles. However, they do not always follow the norm and have been known to stay on the ground for more than an hour and travel more than 100 miles.

## 8. When is a tornado or severe thunderstorm watch issued?

A tornado or severe thunderstorm watch is issued whenever conditions exist for severe weather to develop. Watches are usually for large areas about two-thirds the size of Lower Michigan and are usually two-to-six hours long. Watches give you time to plan and prepare.

## 9. When is a tornado or severe thunderstorm warning issued?

The local National Weather Service (NWS) office issues a tornado warning whenever NWS Doppler Radar indicates a thunderstorm is capable of producing a tornado or when a tornado has been sighted by a credible source. A severe thunderstorm warning is issued whenever a severe thunderstorm is observed or NWS Doppler Radar indicates a thunderstorm is capable of producing damaging winds or large hail.

Warnings are issued for even smaller areas, such as parts of counties. These "storm-based" NWS warnings are issued for the threatened area in a shape of a polygon. The "polygon" warnings only include sections of a county or group of counties and usually last for 30 to 90 minutes in length. You must act immediately when you first hear the warning. If severe weather is reported near you, seek shelter immediately. If not, keep a constant lookout for severe weather and stay near a shelter.

## 10. What is a special marine warning?

The NWS will issue a special marine warning for the Great Lakes and the connecting waterways when a strong or severe thunderstorm develops or moves over the water. The special marine warning is issued for boaters, both recreational and commercial. For residents and visitors of Michigan's many coastal communities, the special marine warning provides valuable information about a storm that is about to move onshore.

## 11. How do I find out about a warning if my electricity is already out?

A NOAA Weather Radio All Hazards with battery back-up capability is your best source to receive the warning. In some areas, civil emergency sirens may be your first official warning. In addition, if your television or radio has battery back-up capability, you may receive NOAA's National Weather Service warnings from local media.



# Flood Preparation and Planning

## Steps to Prepare for a Flood

Flooding can occur during any season in Michigan. Planning in advance can afford you extra critical time when a flood is coming, and can help you increase the odds of protecting your valuable documents, your real estate, and your personal property – including cherished belongings. Developing a flood plan is one of the advance methods your family, business, or community can put together to help you respond quickly in the event of a flood near your property. A “rapid-response” plan can be as simple as a one-page plan that answers the following questions:

### 1. How will we find out about a coming flood?

The first part of a Flood Plan is putting you in a position to get some advance warning of an unfolding situation. Large-scale flooding on the main stem of a river may occur over many hours or several days, but flash floods can strike in minutes. Important steps you can take include signing up for flood alerts and monitoring weather patterns and local conditions. Flooding in Michigan can happen any time of year.

- Sign up for National Weather Service Flood Alerts at [www.focusonfloods.org/flood-alerts](http://www.focusonfloods.org/flood-alerts)
- Monitor river levels via NOAA Watch at [www.noaawatch.gov/floods.php](http://www.noaawatch.gov/floods.php)
- Determine your property’s proximity to waterways by learning about and reviewing flood hazard maps at [www.floodsmart.gov/floodsmart/pages/flooding\\_flood\\_risks/understanding\\_flood\\_maps.jsp](http://www.floodsmart.gov/floodsmart/pages/flooding_flood_risks/understanding_flood_maps.jsp)

### 2. At what river level does our property begin to flood?

First, determine “What’s Your Number?” by learning the flood stage at the stream gage nearest you. This information is available through the National Weather Service’s Advanced Hydrologic Prediction Services web site at <http://water.weather.gov/ahps>. Then, determine the level at which floodwaters begin to affect your property. This step may take research or personal experience to determine, such as talking to neighbors to find out how high the river was during recent floods, and at what point flooding began in your neighborhood. Each neighborhood and each property has its own unique terrain and placement to consider when determining this factor, and it is safest to err on the side of caution.

### 3. How can we prepare for floods?

Preparing your household for a flood involves steps that will improve your readiness for many different types of disasters. Give yourself plenty of time to evacuate by developing an emergency kit including first aid supplies, a three-day supply of non-perishable food, bottled water, a battery-powered radio, flashlights, and extra batteries. Also, have personal items ready like rubber boots, a rain jacket, warm clothes, and hygiene and sanitation products. Learn additional ways to prepare at [www.ready.gov/floods](http://www.ready.gov/floods)

### 4. How will we learn about evacuation orders?

Contact your local emergency management office to find out how your community notifies residents of floods and how it will issue evacuation orders. Make a commitment to follow evacuation orders the first time to help prevent emergency personnel from having to return to the affected area for a rescue when travel is no longer safe.

## 5. What access roads can we use to evacuate in the case of rising waters?

Research indicates the majority of flood-related fatalities occur when cars become trapped on roads that are known to flood. To prevent this, follow instructions from emergency personnel and before a flood happens talk to neighbors, emergency personnel, and others to determine when and where flooding typically occurs on access roads leading to your home. Know what roads you regularly travel and whether or not they will flood, and plan alternate routes when needed.

## 6. What steps should we take to prepare our property?

Research the flood-proofing options available to you. Can you install a quick-disconnect furnace, or elevate electrical and mechanical equipment? Are there steps you can take to alleviate pressure on your structure and to prevent extensive damage to doors and windows if flooding does occur? For additional information about protecting your property from floods, visit [www.mcswa.com](http://www.mcswa.com).

## 7. Where should our family meet if we are separated during a flood event?

Before a flood or other emergency strikes, designate a safe place away from your home where your family members can all meet. Make sure that all family members know the location, you have a plan for contacting each other, and you have an emergency kit ready to take with you. In addition, it is important to know whether your child's school or family members' work place is in a flood zone. If so, what provisions are in place to ensure their safety?

## 8. How do I keep my family safe during a flood?

Floods are among the most frequent and costly natural disasters. For information on keeping your family safe before, during and after a flood, please visit [www.mcswa.com](http://www.mcswa.com)

### Other Considerations

- A written plan is essential for helping individuals and household members to think through important issues in advance. You should also research whether there are similar plans in place for your work and children's daycare and school, as well as to see how they work with your plan.
- Expect roadways to be blocked during a flood. Contact your friends and family to ensure they are safely sheltered. Listen to local media for flood-prone roads as well as making contact with neighbors in your area..
- Remember, the most common things people regret planning to protect during an emergency include pets, photographs, and computers. Can you pack all these in a vehicle and drive to higher ground in time? Ensure you have a plan in place to protect your pets and keepsakes before an emergency.

### Helpful Flood Terms

- **Flood Watch:** Flooding is possible. Tune in to your NOAA Weather Radio, local radio, or television for information and check the flood alert sites on the Internet.
- **Flash Flood Watch:** Flash flooding is possible. Be prepared to move to higher ground and tune in to your NOAA Weather Radio, commercial radio, or television for information.
- **Flood Warning:** Flooding is occurring or will occur soon. If advised to evacuate, do so immediately.
- **Flash Flood Warning:** A flash flood is occurring. Seek higher ground immediately.



# Flood Insurance

## Why Buy Flood Insurance?

Flooding can occur during any season in Michigan. The National Flood Insurance Program (NFIP) estimates that 90 percent of all natural disasters involve flooding. A small amount of water can bring a tremendous amount of damage, and many property owners are unaware that their properties are at risk for flooding. A home located in the floodplain has a four times greater risk of flooding than burning, during the course of a 30-year mortgage.

What's worse: many property owners don't realize that their homeowners' or property owners' insurance doesn't cover flood damage. To be covered from flood damage, one must purchase National Flood Insurance through an insurance agent. Consider that even just an inch of water can require a property to replace carpet, drywall, floor boards, moldings, doors and other belongings. Additionally, clean-up of mud and residue can be costly, as can repairing any mold and mildew damage that may occur.

To help calculate flood damage that might occur to your home, visit [www.floodsmart.gov](http://www.floodsmart.gov) and click on the link to learn more about "What Could Flooding Cost Me?"

### 1. Is flood damage covered by my homeowners insurance?

Flood damage is excluded in nearly all homeowners and renters insurance policies but, if desired, can be purchased as a separate policy.

### 2. Where do I get flood insurance?

Any licensed property/casualty insurance agent can sell a flood insurance policy. If you experience trouble in locating an agent, contact the National Flood Insurance Program's agent referral program at 1-888-CALL-FLOOD.

### 3. Is there a waiting period before my flood insurance policy becomes effective?

There is a 30-day waiting period before a new or modified flood insurance policy becomes effective. You can also locate an agent by completing your "One-step risk profile" at [www.floodsmart.gov](http://www.floodsmart.gov).

### 4. Do I need to live in a floodplain to get flood insurance?

It is important to note that nearly 30 percent of all flood claims come from outside the "100-year-floodplain" as determined by the National Flood Insurance Program. The fact that a property is outside of the "legal" floodplain does not mean that the river or stream can't still reach that property. You do not need to live in a floodplain to purchase flood insurance – coverage is available to any building located in a community that has qualified for the National Flood Insurance Program. For a listing of Michigan communities participating in the NFIP, you may visit [www.fema.gov/cis/MI.html%20](http://www.fema.gov/cis/MI.html%20).

### 5. Is water back up in basements covered by a flood insurance policy?

Coverage for water back up in basements (drains/sewers) is excluded from the flood insurance policy.

### 6. Can I get coverage for water back up in basements?

Although basement water back up is excluded under most homeowners' insurance policies, coverage can be obtained by purchasing an endorsement. Most insurance companies offer sewer and drain back up as optional coverage. Coverage and limits vary by insurance company, so check with your agent/company about specifics. Some insurers include full coverage for sump pump failure while others specify items that are covered.



# Lightning Safety

Lightning can provide a spectacular display of light on a dark night, but this awesome show of nature can also cause death and destruction. Lightning is the visible discharge of electrical energy. It is often accompanied by thunder, which is a sonic boom created by the same discharge. If you hear thunder, lightning is a threat, even if the storm seems miles away and the sky is blue. The electrical energy from lightning seeks a path to the ground – your home, the trees in your yard, or even *you* can be the chosen path.

## **SAFETY TIPS**

1. Plan your evacuation and safety measures. At the first sign of lightning or thunder, activate your emergency plan. Lightning often precedes rain, so do not wait for the rain to begin before suspending activities. No place is absolutely safe from lightning; however, some places are much safer than others. The safest location during lightning activity is a large enclosed building. The second safest location is an enclosed metal topped vehicle, but NOT a convertible, bike, or other topless or soft-top vehicle.
2. If outdoors, get inside a suitable shelter **IMMEDIATELY**. Your only safe choice is to get to a protected building or vehicle. Avoid seeking shelter under a tree as a tree can attract lightning. In the event you are outdoors without a safe vehicle or shelter, follow outdoor safety tips at [www.lightningsafety.noaa.gov/outdoors.htm](http://www.lightningsafety.noaa.gov/outdoors.htm). Although these tips will not prevent you from being hit, they can HELP lessen the odds.
3. If indoors, avoid water, doors, windows, and using the telephone and headsets. Lightning could strike exterior wires, inducing shocks to inside equipment. Any item plugged into an electrical outlet may cause a hazard.
4. Do not resume activities until 30 minutes following the last observed lightning or thunder.
5. Injured persons do not carry an electrical charge and can be handled safely. If you are qualified to do so, apply first aid procedures to a lightning victim. Call 911 or send for help immediately.

**For additional information, visit NOAA's lightning safety Web site:**  
[www.lightningsafety.noaa.gov](http://www.lightningsafety.noaa.gov)



# Disaster Preparedness for Pets

The following information, prepared by the Humane Society of the United States, will help you become better prepared to care for your pets in a disaster or emergency.

## **Don't Forget Identification**

- Your pets should be wearing up-to-date identification at all times.
- In addition to your phone number, include the number of a friend or relative. If your pet is lost, you want to provide a number on the tag that will be answered when you are away from your home.

## **Find a Safe Place Ahead of Time**

- Don't wait until a disaster strikes to do your research.
- Evacuation shelters do not generally accept pets, except for service animals. Plan ahead to ensure your family and pets will have a safe place to stay.
- If you have more than one pet, you may have to prepare to board them separately. Make a list of boarding facilities and veterinary offices that might be able to shelter animals, including 24-hour telephone numbers.
- Ask your local animal shelter if it provides foster care or shelter for pets during an emergency. Animal shelters have limited resources so this should be your last resort.
- Contact hotels and motels outside of your immediate area to check policies on accepting pets. Ask about any restrictions on number of animals, size, and species, as well as whether a "no pet" policy would be waived during an emergency.
- Make a list of pet-friendly places and keep it handy. Call ahead for a reservation as soon as you think you might have to leave your home.
- Check with friends, relatives, or others outside of your immediate area. Ask if they would be able to shelter you and/or your animals, if necessary.

## **If You Evacuate, Take Your Pets**

- The single most important thing you can do to protect your pets if you evacuate is to take them with you. If it's not safe for you to stay in the disaster area, then it's not safe for your pets.
- Animals left behind in a disaster can easily be injured, lost, or killed.
- Animals left inside your home can escape through storm-damaged areas, such as broken windows.
- Animals turned loose to fend for themselves are likely to become victims of exposure, starvation, predators, contaminated food or water, or other accidents.
- Do not leave your animals tied or chained outside during a disaster; this can be deadly.
- If you leave, even if only for a few hours, take your animals. You have no way of knowing if you will be allowed back into the area to care for your pet.
- Leave early; don't wait for a mandatory evacuation order. An unnecessary trip is better than waiting too long, making it unsafe to leave.
- Take pet food, medications, and special items with you such as leashes, toys, or a litter box.

## **In Case You Are Not Home**

- An evacuation order may be issued, or a disaster may strike, when you're at work or out of the house. Make arrangements well in advance for a trusted neighbor to take your pets and meet you at a specified location.
- If you arrange for someone to take your pets, be sure the person is comfortable with your pets, knows where your animals are likely to be, knows where your disaster supplies are kept, and has a way to access your home.
- If you use a pet sitting service, discuss the possibility of getting their assistance well in advance.

# NOAA Weather Radio All Hazards

NOAA Weather Radio All Hazards is a service provided by the National Weather Service (NWS). It provides continuous broadcasts of the latest weather information and forecasts from your local NWS office. NOAA Weather Radio All Hazards broadcasts important forecast and warning information as quick as possible.

With NOAA Weather Radio All Hazards, you will always have access to potentially life-saving emergency information. During severe weather, NWS personnel can interrupt routine weather broadcasts and insert warning messages concerning immediate threats to life and property. A special alert tone can also be activated that triggers an alerting feature on specifically equipped receivers. In the simplest case, this signal activates audible or visual alarms indicating that an emergency condition exists within the broadcast area of the station. In the most sophisticated alerting system, receivers equipped with Specific Area Message Encoding (SAME) technology allow listeners to choose which counties and for what events their radio will sound an alarm for when official NWS watches and warnings are issued.

NOAA Weather Radio All Hazards broadcasts warning and post-event information for all types of emergencies, both natural and technological. Working with other federal and local agencies, NOAA Weather Radio is an “all hazards” radio network. This makes NOAA Weather Radio All Hazards the single source for the most comprehensive weather and emergency information available to the public.

NOAA Weather Radio All Hazards is the voice of the NWS and is provided as a public service by the U.S. Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA). These life-saving receivers, that should be as common as home smoke detectors, can be purchased at many retail stores and through mail order catalogues including web sites that sell electronic merchandise. It provides the timeliest forecast and warning information from your local NWS office. This information can save your life.

Please take the time to learn more about NOAA Weather Radio All Hazards. For more information, including where you can buy a NOAA Weather Radio, visit [www.nws.noaa.gov/nwr](http://www.nws.noaa.gov/nwr).



# ***NATIONAL WEATHER SERVICE OFFICES***

## **MARQUETTE: MQT**

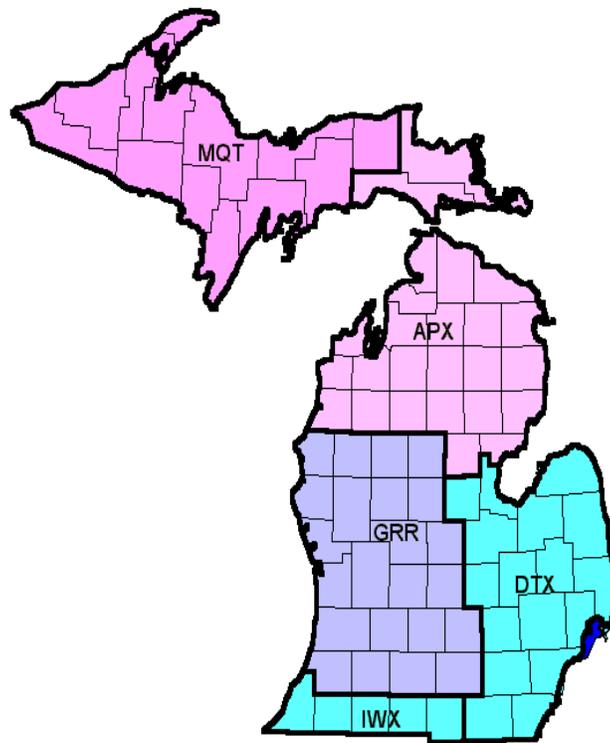
NWS Office, NOAA  
112 Airport Dr. South  
Negaunee, MI 49866  
(906) 475-5782, Ext. 726  
Contact: Matt Zika  
Matthew.Zika@noaa.gov  
<http://www.weather.gov/mqt/>

## **GAYLORD: APX**

NWS Office, NOAA  
8800 Passenheim Rd.  
Gaylord, MI 49735-9454  
(989) 731-3384, Ext. 726  
Contact: Jim Keysor  
James.Keysor@noaa.gov  
<http://www.weather.gov/apx/>

## **GRAND RAPIDS: GRR**

NWS Office, NOAA  
4899 South Complex Dr. SE  
Grand Rapids, MI 49512-4034  
(616) 949-0643, Ext. 726  
Contact: Jim Maczko  
James.Maczko@noaa.gov  
<http://www.weather.gov/grr/>



## **NORTHERN INDIANA: IWX**

NWS Office, NOAA  
7506 East 850 N.  
Syracuse, IN 46567  
(574) 834-1104, Ext. 726  
Contact: Michael Lewis  
Michael.Lewis@noaa.gov  
<http://www.weather.gov/iwx/>

## **DETROIT/PONTIAC: DTX**

NWS Office, NOAA  
9200 White Lake Rd.  
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Contact: Rich Pollman  
Richard.Pollman@noaa.gov  
<http://www.weather.gov/dtx/>