Tornado myths (read the following, then take this <u>QUIZ</u>)

As a powerful force of nature, tornadoes have become a source of some persistent urban legends and common misconceptions. These urban legends are typically in the form of folk wisdom on how to find safe shelter from a tornado, or how to minimize property damage.

Using highway overpasses as shelter

Myth: Highway overpasses are adequate shelter if a tornado approaches while you are on a road.

Sensational footage taken by a television crew hiding from a tornado under an overpass during the 1991 Andover, Kansas Tornado Outbreak helped to convince some that bridges are good shelters when a tornado is nearby. The members of the television crew (and several other travelers) survived by huddling high underneath the bridge and bracing themselves against support columns while a weak tornado appeared to pass directly over the bridge.

In reality, when directly hit by tornadoes, the confined spaces beneath overpasses increase the speed of the winds due to the Venturi effect, and thus make them potentially less safe (somewhat like being in a wind tunnel). In the case of the Andover tornado footage, it was discovered that the tornado did not pass directly over the bridge, but instead over the ground slightly south of the bridge and camera crew, exposing them to much weaker winds.

Tornado behavior

Myth: Tornadoes sometimes "skips houses".

It is true that a house that is in between two destroyed homes can be "untouched", but this is not the result of a tornado "skipping" as was previously thought. After the Super Outbreak, Dr. Fujita studied many films of tornadoes from that day. Included in his review was damage and tornado film footage of F4 and F5 tornadoes. Fujita concluded that the multiple vortices of an F-4 or F-5, which are highly volatile but small vortices that dance around the main funnel, are responsible for making tornadoes appear to "skip houses".

The way it works is that the main funnel, moving along in a general straight path, will miss several houses that are just to the left or just to the right of it. However, the "multiple vortices", which are dancing in circles around the main funnel, do hit these houses, since they swing out and around, in a circle around the funnel. But because they are constantly spinning in circles around the main funnel as it moves forward, then a multi-vortex may hit one house as the main funnel passes by, but that same multi-vortex

may already have moved to other side of the main funnel, by the time the main funnel passes the next house...making it appear that the main funnel "skipped over" a house.

Myth: I don't have to worry about skinny tornadoes, only the fat ones are strong

A lethal myth. In the first place, all tornadoes are dangerous, and should never be dismissed as "not powerful". Secondly, although large tornadoes are generally more powerful, this is not always the case. There have been many instances where "classic" funnels (normal size) or even skinny funnels were deadly F-4 or F-5 tornadoes, where-as a large 1/2 mile wide "wedge" tornado (which make up a lot of F-4 or F-5's) might be an F-3. So the width of a tornado is *not a good indicator* of how powerful it is, and all tornadoes should be taken very seriously.

Myth: Tornadoes don't happen at night

Not only is this a fatal myth, but tornadoes at night are among the most dangerous of all, since most people are asleep and don't hear the warnings when they happen. It is true that the vast majority of tornadoes happen in the daytime, generally in the late afternoon during the high heating of the day, but tornadoes *can*, *and do* happen at anytime of the day...or night.

Myth: Tornadoes always follow a straight path

Although tornadoes normally move in one direction, there are rare instances where they can change direction, and in fact even double back.

Opening windows or doors

Myth: Most tornado damage is due to the low pressure in the tornado causing the house to explode. Opening your windows or doors while a tornado approaches will equalize atmospheric pressure and help prevent property damage.

Since windows are typically the most fragile external feature of a house, they are in more danger from flying debris. Opening them during an active tornado wastes time and effort that could be spent on other, more useful protective measures. Homes do not "explode" when hit by a tornado, though it often appears so. Commonly, a tornado will break the windows first, allowing strong winds to enter the home. These winds may then push on the underside of the roof upwards, blowing it off. Without the roof, the walls lose structural support and will often fall outwards. Observing the wreckage after the collapse may give the impression the house was pushed apart from the inside. Other ways a house may be perceived to have been "blown apart" is from the winds pushing up against the roof where it meets the walls, ripping the roof off, and causing the walls to collapse.

Flying debris or wind from a tornado will break the windows anyway, so opening them only wastes valuable time and is even counterproductive to the soundness of the structure. It is the debris and wind that breaks windows, not the difference in pressure.

As a note, this also applies to homes or structures that are hit by a hurricane. Studies from the National Hurricane Center suggest that closed containers do not *explode* during high wind scenarios. But rather, an opening, such as a broken window, will allow the hurricane force winds to enter a room and subsequently destroy an entire building.

Mobile home and trailer parks

Myth: Twisters are attracted to mobile homes and/or trailer parks.

Trailer parks consist of low-cost mobile homes with less structural integrity than traditional houses. A weak storm that leaves little damage to well-built structures might devastate a trailer park. Mobile homes do not attract tornadoes; they are just more susceptible to damage from them.

Myth: In a trailer or mobile home, the best place to be is in a closet or bathroom

You do not want to be anywhere inside a mobile home or trailer when a tornado strikes. Unlike a house, a mobile home is easily ripped apart by even the weakest tornadoes. So if there is no underground shelter nearby, a ditch or low lying area would be better than staying inside a mobile home.

Safest location in a house

Myth: During a tornado, the southwest corner of a building is the safest.

An unfortunately fatal belief, and for a long time it was considered sound advice but without any proof of safety compared to any other parts of a building. After the increase in tornado research during the turn of the millennium, the US National Weather Service has now adopted the advice that the central-most-room on the lowest level of a structure is the safest, with centrally-located rooms in an underground level being far safer than any above-ground location. In reality, a tornado can hit any part of a building thereby making any part of the exterior subject to damage from rapidly changing winds.

Some of the *worst* places during a tornado are in a room with many windows, any room with an exterior wall, or a large theater-like room such as a church or indoor basketball court. The *best* places are small rooms like closets or bathrooms. Bathrooms are considered particularly safe as the plumbing fixtures strengthen the walls and anchor them to the ground, while a bathtub can provide some degree of protection from flying debris. The void space underneath a stairwell is also a recommended shelter, as the stairway itself braces and strengthens the walls.

Bank vaults are probably the safest above-ground shelters from tornadoes; in a number of cases, small towns have been entirely swept away by violent tornadoes, but the vault at the local bank was left undamaged. Other potential shelters in commercial buildings include restaurant walk-in freezers and interior stairwells.

Escaping a Tornado

Myth: The best thing to do when a twister approaches, is to get in a car and drive away

It depends. This can be the worst thing to do, since a car is the last place you want to be "caught" when a tornado strikes. This is where you must use great judgment; if a tornado is far enough away (several miles), and you can judge the direction that it is moving, then driving away from it would be acceptable. But if the tornado is too close and only minutes away, or if you cannot judge its direction of movement, then an automobile is a horrible place to be, since a tornado can easily pick up a car and turn it into a flying missile. In that case, the best place to be is in a basement or storm cellar, or if those do not exist, then interior closet or bathroom. Also, even if the tornado is very far away and you can easily judge its direction of movement, if you live in a city, it is best never to attempt to drive away since the possibilities are good that you may be caught in a traffic jam.

Tornadoes in rough terrain and crossing rivers

Myth: Tornadoes cannot form near rivers or cross them.

Myth: Tornadoes cannot follow terrain into steep valleys.

Myth: Tornadoes cannot travel over steep hills or mountains.

During the Super Outbreak, a tornado formed near Sayler Park section of Cincinnati, Ohio (near the Ohio River). It was among the six F5s of the outbreak. The city of Cairo, Illinois, which lies at the confluence of the Ohio and Mississippi Rivers, was also hit by a tornado that day.

The Tri-state tornado of 1925 crossed the Mississippi river and the Wabash river, and possibly several other small bodies of water.

The F5 tornado of May 3, 1999 crossed the Yukon River in Oklahoma before it hit Moore, Oklahoma.

The Windsor - Tecumseh, Ontario Tornado of 1946 crossed the Detroit River from River Rouge, Michigan into downtown Windsor, Ontario, where the river is roughly 3/4 of a mile wide. The F3 tornado that struck on July 2, 1997 also crossed the river into Windsor.

During the Super Outbreak, after destroying three schools, the Monticello tornado crossed over a 60-foot bluff and the Tippecanoe River and damaged several homes.

During the Super Outbreak, the Huntsville tornado crossed Monte Sano Mountain (1,650 feet) and gained in intensity as it descended the mountain.

During the same outbreak, an F4 tornado caused damage in Murphy, NC after crossing a 3,000-foot ridge, and F2 tornadoes were confirmed in Roanoke, VA and Great Smoky Mountains National Park, NC. Tornadoes formed elsewhere in West Virginia, western Virginia, southwestern North Carolina, and north Georgia - regions of four states that are in the ranges of the Appalachian Mountains.

Appalachia has been struck by other destructive tornado outbreaks: during the "Enigma" outbreak (Feb. 19, 1884), at least one major tornado family struck the mountains of SW North Carolina. On May 1, 1929, a destructive tornado outbreak swept from SW to NE up the Appalachians from Alabama to Maryland, spawning destructive tornadoes at Rye Cove, VA, Morgantown, WV, and in a series moving from Rappahannock County, VA to Frederick, MD. In 1944, a devastating tornado outbreak swept from NW to SE through parts of Ohio, West Virginia, Pennsylvania, Maryland, and Virginia, with the worst damage seen in mountainous areas between Pittsburgh and Washington, DC. And in May 1985, several large tornadoes associated with a wide outbreak crossed the Alleghenies in central Pennsylvania.

High altitudes are not necessarily an impediment to tornado formation - the 1999 Salt Lake City Tornado in Utah formed at elevations of over 4000 feet and produced F3 damage in the downtown area. Farther north, a 1989 tornado shredded timber and left a mile-wide path of F4 damage over extremely rugged terrain in the Teton Wilderness in Wyoming, crossing the continental divide at an elevation of over 11,000 feet. However, it should be noted (for other climatological reasons) that it is a rare occurrence for tornadoes to form west of the Rocky Mountains.

Tornadoes in urban areas

Myth: You're safe from a tornado in a big city.

Closely related to the "terrain" story (See Salt Lake City tornado just above), it is commonly believed that a tornado will dissipate in an urban area because of the tall skyscrapers. The May 3, 1999 tornado outbreak, which struck urban Oklahoma City, and the tornado that ripped through the heart of downtown Fort Worth, Texas in May of 2000 are just two of many examples that negate this belief. While urban areas seem to be less susceptible to tornado strikes than rural areas, it is simply a matter of percentage of land area covered by these types of regions. Urban areas take up a relatively tiny surface area compared with the sprawling suburbs and the thousands of rural communities. Downtown Dallas is no less likely to have a tornado cross through it than an empty field in southern Oklahoma. While it is true that the typical urban building is a much more rugged structure than many comparable rural structures, it is not to be assumed that there is an increased measure of safety.

Some research has indicated that tornadoes are less likely to *form* over urban areas, as the skyscrapers tend to dissipate the vortex before it can reach the ground; however, the effect of the buildings is not enough to disrupt a fully-formed tornado that enters the urban area from a more rural area.

Tornadoes in far-northern latitudes or in winter

Tornadoes **can**, **and do**, form in extreme northern latitudes. Tornadoes that form in winter are rare, but have also been documented, when warm air meets a strong storm front, causing a tornado that becomes a brilliant white (instead of a dirt-brown) from picking up snow on the ground.

- The Edmonton Tornado of 1987 struck the Metropolitan Edmonton, Alberta area, which is located 53.57 degrees north. See article for more in-depth information.
- A funnel cloud was sighted on Upper Garry Lake, Northwest Territories, the most northerly funnel cloud on record in Canada. August 10, 1973.
- Yellowknife Tornado of 1978. A tornado touches down near Yellowknife, Northwest Territories toppling a tower and destroying a transmission tower at Rae-Edzo. It is the **third** tornado in 16 years there.
- White Point Beach, Nova Scotia Tornado of January 30, 1954. A great deal of hail and lightning along the coast, touched down near Liverpool, Nova Scotia
- November 1989 Tornado Outbreak. A tornado touches down on November 16, in Mont Sainte Hillarie, a suburb of Montreal. It was rated F2.

Conditions that are favorable to tornadoes

Myth: What about tornadoes with no cloud attached? They are tornadoes too.

A rotating vortex that is not connected to any cloud is a "Dust devil", not a tornado. In fact, dust devils are famous for appearing on clear days in the hot desert SW of the United States, as well as many other desert areas of the world, but they may appear at any place, and at any time. Dust devils are very weak and generally not very dangerous...however, large ones have been known to have 65 MPH winds. Therefore, entering one is not advised, since they can throw small debris around which can be a hazard.

Source: http://www.answers.com/topic/tornado-myths

Tornado: Myth or Fact?

Indicate whether each of the following statements about tornadoes is fact or myth.

- 1. The wider a tornado, the more dangerous it is.
- 2. Tornadoes are attracted to mobile home communities.
- 3. Tornadoes typically occur in rural areas rather than urban.
- 4. Dust devils are mini-tornadoes.
- 5. Tornadoes can be made up of 2 or more smaller tornadoes called multiple vortices.
- 6. Tornadoes cannot form during the winter months.
- 7. Tornadoes cannot hit downtown areas.
- 8. Tornadoes only rotate counter-clockwise.
- 9. It is a rare occurrence for tornadoes to form west of the Rocky Mountains.
- 10. If there is a tornado warning you should open all the windows in your house or apartment.
- 11. When the tornado siren goes off, you should grab your video camera and go outside to catch it on film.
- 12. If you are driving in a car on the highway and see a tornado behind you then you should try to outrun it.
- 13. If you are driving in your car see a tornado behind you, find the nearest overpass and hide under it.
- 14. When the tornado siren goes off you should go to the most interior room on the lowest level of your house.