

# Storm Of The Year: A Personal Account Of What It's Like To Be In A Tornadic Storm

**A**lthough by the time you read this the leaves are—as we say here in Texas—“fixin” to fall, I just have to tell you about the monster storm that roared through my town in late June. It caught almost everyone by surprise because it wasn't forecast to be a severe weather day.

As a storm spotter for the city I live in, I have written about my weather-related adventures in *Pop'Comm* before. I have stated (the obvious) how important solid radio communications links can be in times of trouble. On June 21, when a potential killer storm threatened my community, those communications links were pushed to the breaking point and beyond. Some links proved to work wonderfully, others failed miserably. Others (just by monitoring them) provided life-saving information.

## A Growing Threat

On that day, just to the northwest of Amarillo, a small thunderstorm began to grow. I knew it was there because I had done my daily afternoon check of the National Weather Service (NWS) radar for my area on the Internet. I had also checked out the hazardous weather forecast for the day, and although we had a slight chance of some severe thunderstorms, the chances for them to turn tornadic were slim or next to none.

The previous day we had had some real heavy rain-producing storms (with some small hail) and the same was forecast for today. Spotter activation was unlikely so I didn't even bother to gas up the car as I usually do during storm season. Besides, our severe storm season usually peaks in late May and early June and, as a result, I had dropped my guard and planned to take the day easy, playing with the grandkids and doing a bit of writing.

However, a unique set of circumstances set in motion a chain of events that turned your run-of-the-mill thunderstorm into a monster that would inflict over \$100 million in damage to my city.



*Two photos of what could have been a huge tornado threatening to touch down just a quarter-mile away from the author. (Photo by Steve Douglass)*

Now as I understand it (as the NWS would explain the next day) various macro-weather affecting “boundary-areas” existed just northwest of the city along the Canadian River breaks. In layman's terms, storms the night before had collapsed and sent out rippling waves of energy (like rocks dropped in a calm pool causing opposing waves) that collided with each other, making the normally small storm grow at an amazing rate. Since the moisture had nowhere to go but up, there was tremendous lift, resulting in a severe thunderstorm.

But just because the storm is big and severe doesn't mean it will spawn tornados. The formula for making a tornado is  $LIFT+SHEAR AT ALL LEVELS=TORNADOS$ . What is shear? Shear is best explained as winds at different levels moving in opposite directions. A contributing factor that increased shear that day was a weak low-pressure system in a neighboring county and a weak cold front in the northern Texas Panhandle that was slowly moving south. All these weather factors conspired to create a huge super-cell storm that began rotating like a top.

## Not Quite Impressed—Yet

While saying goodbye to the grandkids, as I buckled them in their mom's car, I glanced to the north and saw the first storm towers shooting up. I was not impressed. Since the risk of severe weather was “slight,” from the look of things the storm

was going to be another “toad floater,” like those of the other night, and would probably stay north of the city. Concerned, my daughter Jennifer asked me, “Are we going to have bad storms today?” “Probably some good rain but that's about it,” I replied. Boy, was I wrong!

An hour later, as I sat in front of my computer writing, I monitored a radiopage from the NWS (on a frequency reserved for alerting emergency management officials) requesting personnel to man the Emergency Operations Center (EOC) and alerting key managers that severe weather was forecast for the city.

Interesting, I thought. They must be predicting heavy rains for the city just like those that nearly drowned the small town of Gruver the previous night, when a heavy precipitation storm parked itself on the town and dropped over six inches of rain in as many hours.

I still wasn't thinking it would be the kind of storm that required city storm spotters, but just in case, I turned the volume on the scanner up a notch. I also turned on my Panasonic RF-4900 multi-band receiver and tuned it to the local AM news station, not to hear the weather report, but to monitor what the storm was broadcasting itself.

There's an old storm spotter's trick that works well: When storms are close you can monitor the storm intensity by listening for the static crashes of lightning strikes on any AM frequency. The more crashes you hear,



Composite photo showing the enormous inflow feature, known as a "beaver tail," an important component in tornado production. (Photo by Steve Douglass)

the more intense the storm. At first I only heard occasional crashes, but within 10 minutes the crashes came non-stop.

## A Monster Storm!

I decided to stick my head out the window to take another look at this storm. Looking to my north and toward my daughter's house (six miles as the crow flies) I was amazed to see a huge storm shooting up high into the atmosphere to an estimated 60,000 feet! At that moment my phone rang and I saw on the caller ID it was from the city Emergency Management Office and I knew immediately it was a full-scale call-out for city storm spotters to get geared up and on the road. I didn't even have to answer the phone. I grabbed my camera bag, portable two-way radio, my GMRS walkie-talkie, and cell phone and gave my wife the standard instructions on what to do if the worst happened. I told her, "You should be ready to leave and seek shelter at a moment's notice if I call you and tell you to take cover."

I parked one of my base scanners on our storm spotter's VHF channel and turned the volume way up. I also did a quick radio check on my GMRS frequency and set my Uniden BC-780 XLT to the weather alarm mode. I then gave her a quick kiss and headed out.

Before I could get out of the parking lot my wife called me on the GMRS and said, "Jennifer just called. She says the storm is bearing down on her home and she's all alone with the baby and is scared and doesn't know what she should do." I glanced at the northern sky and at the black clouds that were quickly turning mid-afternoon into night. "Tell her I'm on my way to her place. She should grab a few valuables and get the baby and be ready to leave when I get there!" I shouted back.

I then checked into the storm spotter's network on 151.115 MHz and told them I was available for storm watch duty and was heading into the storm north of Amarillo. It's fortunate that my daughter lived in the same direction the storm was coming in from. I would be able to stop at her house on my way to my standard storm watching point behind her house. Minutes later I monitored other spotters checking into the net. When I arrived at my daughter's home she had already readied her disaster kit: a big cloth bag containing essential items anyone would need in case a tornado should destroy their home.

Anyone in disaster prone areas (whether from fire, flood, earthquakes) should think about making their own emergency preparedness kit. What you put into it is your choice but you might consider as part of it a strong box containing personal documents such as deeds, stocks, birth certificates and other legal papers, a small AM/FM portable radio, a flashlight, extra money (or a credit card you rarely use), and irreplaceable personal photos. I have been on many disaster sites and one of the main things I've seen survivors searching for are photos of loved ones. You should also keep in your kit any medications or pre-

scriptions you or members of your family are currently on, and a list of contact numbers of friends and relatives so you can get help if the worst happens.

Glancing to the immediate west of my daughter's home I could see an enormous spinning wall cloud, one of the most impressive that I had ever seen, located just a few miles from her house. A wall cloud is an area of up-flow that spawns tornadoes. In most super cell storms, the up-flow area where the wall cloud exists is located right next to an adjacent area of down-flow or heavy rain and hail. Usually the stronger the up-flow the larger the hail can become, however at the moment it didn't look like the storm would contain much rain or hail and would be an "LP" storm, which stands for low precipitation. That was fine with me because LP storms are easier to spot tornadoes in. HP (high precipitation) storms can hide tornadoes and wrap them in curtains of rain.

On arrival at my daughter's place, even though the storm was moving very slowly (under 5 mph) I quickly helped her strap the grandkids into the car and told her to go into town and find shelter there. I said I'd be in contact by cell phone if things looked threatening and would alert them if they should seek shelter underground or elsewhere. My granddaughter, Caysi, could sense her mom's nervousness and touched her lightly on the arm and said quietly, "It will be okay mommy," obviously sensing mom needed some reassurance. She then gave me a hug and said, "I'm not scared granddad!" I gave her a kiss and hug and watched them drive off into town.

As I looked up at the huge menacing storm poised like a monster over my daughter's house I couldn't help but think it might be the last time I would see it intact. The entire subdivision looked incredibly small and fragile, like a Monopoly game about to be trampled by the neighborhood bully.

I checked back into the Amarillo Emergency Service Storm's Spotters network on VHF. I also turned on my ICOM-R3 scanning radio and put it in TV mode so I could see what the local weather guys were saying about the storm. Radar images showed it was growing even stronger, but still wasn't showing much movement. In fact if it was moving at all, it was doing so in the opposite direction of town. Maybe, just maybe, the city would be spared.

Leaving my daughter's place I traveled a few miles north to a point of high terrain to watch the storm. Sitting on top of a mesa I could see deep into the storm without any obstruction, so I had a clear view of its physical structure. Just to my north was an amazing horizontal cloud feature, called a beaver tail, that must have stretched for 20-plus miles feeding mid-level energy into the storm. This feature is a common site in severe storms with wall clouds and can contribute to mid-level rotation. I had observed beaver tails before but never one so pronounced. I radioed my observation to the EOC and—as always—proceeded to document the storm on video for future



Photo By Shelley Sparks

*This is what softball-sized hail will do to a new car. Damage in the Amarillo area may top \$150 million.*

study. While I was shooting I suddenly became aware of someone approaching me. It was a man who lived in the double-wide mobile home that I was parked in front of.

"Are we going to have a tornado?" he asked with a look of real concern in his eyes.

I didn't sugarcoat my answer. "From the looks of things I'd say yes."

Knowing the devastating effect that even high-winds can have on mobile homes I told him he might want to consider leaving to protect himself and his family.

"We have an underground storm shelter," he said. "You are welcome to join us if things get dangerous," he said kindly.

I thanked him for his offer but knew full well that my job as a tornado spotter meant that I and the other dedicated spotters in my group would have to remain out in the storm, and mobile at all times, trying to stay just ahead of the damaging weather, all the while reporting to the EOC what we were seeing.

Don't get me wrong. We aren't daredevils. The first rule of storm spotting is to be sure to protect your own life and property first, but you can't get the warning out from inside an underground storm shelter, can you?

Instead, storm spotters are trained to know a lot about storm structure and from where in the storm one can observe what is going on while remaining relatively safe. A television-equipped vehicle is a big help (for when weather broadcasters show the weather radar) because it is fairly easy to see where damaging weather features (such as tornados and large hail) are in relation to your position. I would rely heavily on their radar broadcasts on this day.

The first small tornados began touching down briefly just north of Interstate 40 near the small town of Bushland some 15 minutes later. They were short-lived funnels but potential killers nonetheless. Although not Oklahoma City-sized F-5 twisters, they could still blow the roof off a house or knock over dozens of cars and trucks on I-40. I witnessed a small tornado do that a few years earlier near the I-40 town of McClean.

The stationary storm finally began to move when the rear-flanking-downdraft (RFD) spilling out behind the storm gave it a push south. Suddenly at my location I began to receive occasional hail the size of golf balls. This was my cue that I should move further south. I decided to take Loop 335 (a highway that encircles Amarillo) south into town. As I did, other spotters and

I witnessed several more small tornados touch down directly to the west of the city. We reported them and the network went to "CODE RED," which meant all communications should cease except for those of an emergency nature.

As I came into town I was surprised to see hundreds of cars lining the road, all spectators sitting watching the storm move in. If indeed this storm produced a big tornado, no doubt a lot of these rubbernecks would be hurt or killed, either by the storm itself or in the resulting panic to flee the storm.

## The Sirens Go Off!

Just as I passed under I-40 going south the tornado sirens sounded on the West Side of the city. This was unfortunate timing because with their sounding the gawkers all decided to hit the road to seek shelter. Suddenly I found myself stuck in a major traffic jam with a huge tornadic thunderstorm bearing down on my position.

When I finally shook the traffic and was able to pull over to watch the storm from another of my prime pre-picked storm watching sites, I watched with amazement as the wall cloud spit out multiple tornados that began sucking dust up into the storm. All were short lived but the wall cloud was now so low to the ground that I was sure a multi-vortex tornado touchdown was imminent and the wall cloud was less than a mile away.

I decided I'd better call home to tell my family to take shelter. Picking up the cell phone I was not surprised to find the lines totally jammed. I could not place a call, undoubtedly because of the glut of people trying to do the same.

With that line of communication down, I radioed home on my GMRS. Although my home was over five miles to my east, I had no problem getting through. My wife radioed me back immediately and told me she was just going out the door with our daughter and grandkids in tow and asked which direction she should head. Since the storm was headed south I told her east. Storm spotter's rule is: *When threatened by a severe storm travel away from it at a right angle to avoid being chased.*

Again, golfball-sized hail began to pelt me so I said my goodbyes and told them I'd radio when the storm abated or if the lines weren't jammed I'd call her on the cell. It would be many hours after the storm when the cellular system finally came back up, so I was never able to call home on the cell that night. It just goes to show you that during emergencies nothing is more reliable than a good-ol' analog two-way radio! Both my GMRS and our VHF network performed flawlessly despite the huge amount of lightning contained in the storm, which also knocked some of the local TV stations off the air temporarily.

I headed south to try to stay ahead of the storm. At the same moment, other spotters in our group were under attack. Hailstones bigger than softballs were slamming into the city on the west side of town. "Seeking shelter!" calls started coming in from all of the spotters on the northwest side, where I had just been.

Not wanting to lose my windshield I began moving south and east on Loop 335, the radar image on my ICOM R3 helping me stay out of the bigger hail cores but still allowing me to stay close to the hook echo (the tell-tale radar signature that denotes the tornado producing mesocyclone) and in a safe viewing position.

It wasn't hard to spot the huge hook echo on radar. The classic fishhook signature was unmistakable. When I arrived at the



One of the eight small tornados that this storm produced. Radio communications were key in keeping the city warned. Amarillo Emergency Service storm spotters communicated with the Emergency Operations Center on 151.115 MHz. (Photo by Steve Douglass)

southern-most side of the loop I found myself enveloped in dust, caught in an inflow jet (moist air feeding the storm even more energy). These inflow jets are a very important component of tornado development. The stronger the winds being sucked into the mesocyclone are, the larger the tornado. During the infamous Oklahoma City F-5 tornado of a few years ago, the National Severe Storms laboratory clocked inflow winds into that tornado of 85 mph. In our storm (at ground level) winds were clocked by one of our spotters at 109 mph with the NWS clocking winds at 1,000 feet at 140 mph! As a result I was sure that we would have on the ground at any second a major killer F-5 tornado, the kind that sweeps houses clean off their foundations and can even scour the asphalt off roadways.

## The Biggest Funnel Cloud!

Minutes later I was looking up into the biggest funnel cloud I had ever seen. It couldn't have been more than a quarter of a mile away and seemed poised to descend on a fragile looking group of houses, but amazingly it just hung there. For some unknown reason the conditions were not just right and the beast just hovered a couple hundred feet in the air for about five minutes before it lost strength and dissipated.

Amarillo dodged a major bullet that day in the form of a killer tornado but the town did not get away unscathed. The golfball and softball-sized hail core that moved so slowly through the west side of town did over \$100 million in damage to roofs, windows, cars, and other property. Some who were caught in the onslaught of ice from the sky said huge hail fell non-stop for over 40 minutes. One of the local hospitals, a tall structure, lost every window on its east side. Patients had to be moved out into the hallways as the storm hurled huge chunks of ice *horizontally* through thick-paned windows. The biggest dollar amount of damage was done to new car lots, which had hundreds of cars totally pummeled.

Through all this madness, I was able to keep myself and my family safe by monitoring many radio frequencies. Not only was I able to keep tabs on the storm over the usual public safety channels, but I also got a great deal of information on just how intense

the storm was becoming from listening in on civil and military pilots in aircraft flying in the vicinity of the monster. I even heard an F-16 pilot (from nearby Cannon AFB) making a tornado sighting report to the FAA on 255.400 MHz!

I also monitored ham spotters on VHF and UHF, plus fielded storm reports on I-40 on CB Channel 19, as well as storm chasers on FRS and GMRS frequencies.

The moral of this true story: When disasters—natural or man-made—threaten you and yours, it's a good idea for radio monitors to listen to *everything*. You'll never know where that piece of information that could save your life could come from—local public safety communications or world-hopping HF military communications. Being informed is being forewarned. Consider the events that happened on 9/11 that took everyone by surprise. How could it not? But now we know what can happen, and chances are there is some group out there planning another attack, and it's sad to say it probably will occur.

Dedicated monitoring hobbyists have always had an advantage over those who don't know which knob on a radio turns it on. We are tuned into the world and are constantly in the know and on the inside track when it comes to what's going on in the world on many levels, some that have potential to affect our lives directly. Although it is "just" a hobby to the uninitiated, it could be the hobby that saves your family, friends, and maybe your own life.

