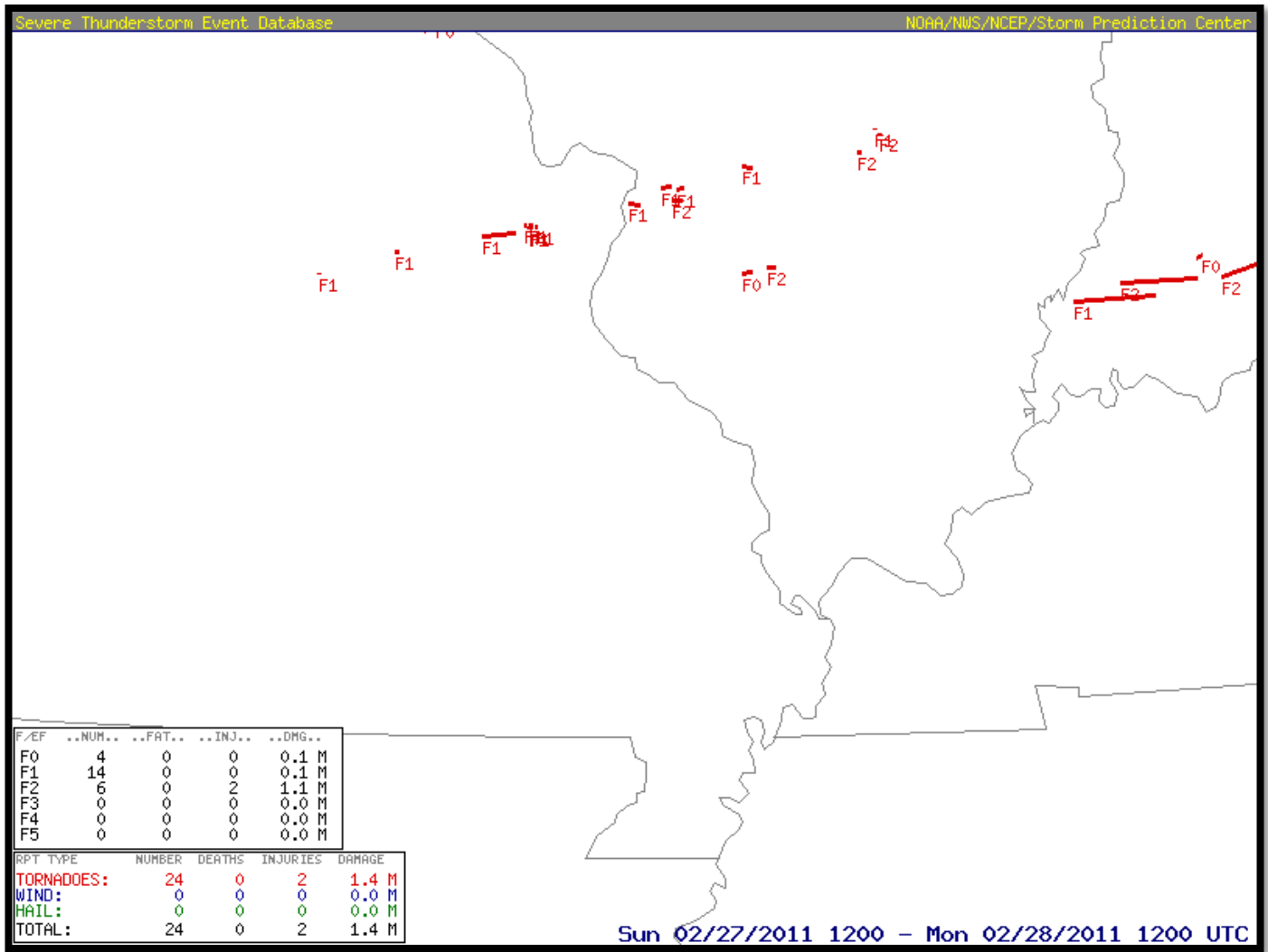


Tornadoes and Straight-Line Winds

February 27th-28th, 2011

Overview

A late winter storm system brought another round of severe thunderstorms to the region. Many reports of wind damage and hail (1/2 to 1 inch in diameter) were relayed to the National Weather Service. A total of twenty-two tornadoes have been confirmed so far from this event. Damage survey details and an interactive google damage survey map of the tornadoes are presented.



Damage Surveys

Franklin County, St. Charles County, St. Louis County and the City of St. Louis - Straight Line Wind Damage

A storm survey team from the National Weather Service Forecast Office in St. Louis examined damage from storms which occurred on Sunday Night. Sporadic wind damage was noted across much of St. Louis City, St. Louis County, St. Charles County and Franklin County. Three areas of localized, intense wind damage were noted along Big Bend Road in Richmond Heights where numerous power poles were snapped and several miles southeast of Washington in Franklin County where a large barn was flattened with debris thrown several hundred yards. All of the damage patterns indicated straight line, west to east winds typical of embedded strong microbursts within a squall line. There were no indications of rotation, however the degree of damage indicated wind speeds which likely approached 100 mph in those very localized microbursts.



Damage to power poles in Richmond Heights, Missouri. Photo courtesy of Tim Breckinridge.



Power line damage in Hazelwood along Fee Fee Road south of McDonnell Douglas Blvd.

Carport collapses in St. Peters, near Woodlands Park, damaging ten cars.



Damage Surveys

Southwest St. Charles County to Northeast Franklin County - EF1 Tornado

The tornado touched down near the Balducci Winery, about 3 miles west-northwest of Augusta. The tornado then continued to the east, producing intermittent damage along Highway 94 before moving into the Missouri River Valley about 4 miles southwest of Defiance. The tornado crossed the Missouri River and eventually lifted just east of St. Albans in extreme northeast Franklin County. The total path length was 9.4 miles, with a width that ranged from 50 to 200 yards. Maximum damaged, noted at several locations along the path, was estimated at EF1. Some of the more significant damage included the total removal of a roof from a century old home at the Balducci Winery, significant tree and home damage 1 to 2 miles east of the winery, large trees snapped at a Catholic Church 1 mile northwest of Augusta, and structural damage to a home just northeast of Klondike Park.



Damage Surveys

Western St. Louis County - 5 EF1 Tornadoes

Personnel from the National Weather Service Forecast Office in St. Louis investigated the storm damage that occurred across parts of western St. Louis County on Sunday evening February 27th. The damage was a result of five short-lived EF1 tornadoes. Much of the damage was located in and near Babler Memorial State Park.



Damage Surveys

Shelby County - EF1 and EF0 Tornadoes

A storm survey team from the National Weather Service Forecast Office in St. Louis has examined damage from storms which occurred near Shelbina on Sunday Night around 645 PM. It appears that the damage in the area was produced by a combination of two small tornadoes and straight line winds.

One tornado initially touched down 1.5 miles south of Shelbina just west of Highway 15, damaging a small storage building and scattering debris across Highway 15. The tornado then continued to the east-northeast, severely damaging a large metal farm building. The debris from this building was blown downwind over one-half mile. The maximum damage was rated EF1, with a maximum wind speed around 90 mph. Total length of this tornado was around 1 mile, with a maximum width of 20 to 30 yards.

Another tornado initially touched down just southwest of the intersection of Highway 15 and Route WW, damaging several metal machine sheds and tossing debris over one quarter mile downwind. The tornado continued moving east-northeast, striking a farmstead just north of County Line Road. At this location two small grain bins were destroyed, one of which was wrapped around a power pole one-quarter mile to the east. A larger grain bin was partially shifted off its foundation, and suffered a partial collapse on its west side. A nearby windmill was also destroyed. The maximum damage was rated EF0, with a maximum wind speed around 80 mph. Total length of this tornado was 0.8 miles, with a maximum width of 20 yards.

In addition to the tornadoes it was also apparent that damaging straight line winds occurred throughout the area, primarily on an axis from 3 miles southwest of Shelbina to 3 miles east of Shelbina. The strongest straight line winds, approaching 90 mph, appear to have occurred east of Shelbina and just south of Highway 36, where power poles were snapped off by the high winds. Just north of Highway 36, the west side of a large machine shed also suffered significant straight line wind damage.



Damage Surveys

Granite City, Illinois - EF1 Tornado

A National Weather Service Storm Survey Team investigated storm damage in Granite City in Madison County, Illinois from the storms that occurred on February 27th. It was determined that an EF1 tornado cut a 100 yard wide, 3 mile long path through the city. The tornado first touched down at approximately 11:35 PM near the intersection of Illinois Route 3 and Rock Road. There, a large storage facility lost much of its roof. The tornado rapidly moved eastward at nearly 60 mph, causing significant tree and roof damage. The tornado reached Maryville Road at around 11:38 PM where it dissipated.



Damage Surveys

Troy, Illinois - EF2 Tornado

A National Weather Service Storm Survey Team investigated storm damage in Troy in Madison County, Illinois from the storms that occurred on February 27th. It was determined that a tornado touched down on Weathervane Road on the west side of town at approximately 11:45 PM. It was there that the tornado was at its strongest, an EF2, as it completely removed the roof from a well constructed home. One occupant received a serious head laceration and was treated at a local hospital. The tornado moved eastward at 60 mph, with a damage path of 100 to 200 yards wide. The tornado continued to near the intersection of North Dewey Street and East Clay Street, where it lifted at approximately 11:48 PM. The path length was 2.7 miles long.



Damage Surveys

Pike County, Missouri - Two EF0 Tornadoes

Personnel from the National Weather Service Forecast Office in St. Louis investigated damage from two squall line systems which moved across the northern third of Pike County, Missouri during the evening of February 27th. The first storm system moved across northern Pike County between 7:55 and 8:10 PM. The damage with this system spawned a weak tornado. The second severe squall line moved across parts of northern Pike County and spawned a second weak tornado and also caused severe straight line winds between 10:00 and 10:10 PM.

The first tornado initially touched down at approximately 9:05 PM on County Road 122 between Highways B and YY. A narrow swath of tree damage was found at this point. Several large pine trees were severed about half way up the trunk. The tops of the pine trees could not be found. The tornado skipped and caused additional tree damage 1/4 mile south of intersection of County Road 120 and Highway B. The final area of tree damage was found crossing Highway 79 approximately 1 mile east of the intersection of Highways B and 79. The width of the damage area ranged from 30 to 40 yard and was rated EF0. The damage track length was approximately 2.3 miles.

The second tornado initially touched down just south of Highway B, 1.9 miles east of Frankford, Missouri at approximately 10:05 PM. A machine shed was severely damaged at this location, and several missiles from the machine shed were embedded into the ground. This tornado destroyed three more machine sheds along its path. Debris was tossed between 1/4 to 1/3 mile to the east-northeast. The width of the damage ranged from 30 to 40 yards while the length of the tornado track was 1.4 miles. The damage was rate EF0.

Another path of straight line wind damage was found just south of the second tornadic damage track. Damage to silos, medium to large trees were damaged, along with three homes were found. This damage area extended along and south of Highway B to County Road 123 and west of County Road 124. Shingles were mainly removed from the roofs of the three homes while both pine and oak trees were either snapped at the base or uprooted. Winds ranged from 65 to 75 mph over this area. The wind damage occurred between 10:00 and 10:10 PM.



Damage Surveys

Ralls County, Missouri - Straight Line Wind Damage

Personnel from the National Weather Service Forecast Office in St. Louis investigated the storm damage that occurred across Ralls County, Missouri on Sunday Evening February 27th. It appears that straight line winds was responsible for the damage that occurred across the area.

The wind damage began east of Perry, just east and southeast of the intersection of Highway 19 and 154, and spread east to Highway F near the Ralls-Pike County border. The damage path was about 9 miles long, with a width of approximately 5 miles. Eyewitness accounts indicate that these high winds occurred in the 9:50 to 10:00 PM time frame. The damage that occurred in this swath suggest the area experienced strong straight line winds of 60 to 75 mph, with localized areas of much more intense winds that produced extreme damage. These areas of intense winds are called microbursts, and the damage indicates that the winds in some of these microbursts exceeded 100 mph.

On Highway Y, 5 homes sustained varying degrees of damage, from the loss of a few shingles to the partial removal of roofing material down to rafters. The most extreme damage on Highway Y was to a barn that was totally flattened, and its debris was tossed to the east almost one-quarter mile. A wide variety of damage was also observed on Highway P. The greatest damage occurred just south of the intersection of Highway P and County Road 234, where one barn was flattened, another shed sustained major damage, and a third outbuilding sustained moderate damage. To the east of this area, 4 high voltage power poles were snapped by the high wind. On Highway F, 2 to 3 miles north of Vandalia, a series of power poles were snapped off and pushed over by the extreme wind. Previous engineering studies have indicated that it takes winds of over 100 mph to snap this type of a power pole.



Damage Surveys

Bond County - EF1 Tornado

A storm survey team from the National Weather Service Forecast Office in St. Louis examined damage from storms which occurred in Bond County, Illinois just after midnight on February 28th, 2011.

Sporadic damage from straight line winds was noted at several locations across the county including along Illinois Route 140 near Old Ripley, along Illinois Route 140 approximately 1/4 mile east of Pokey Road, and north of Interstate 70 between Pocahontas and Greenville.

A tornado touched down approximately 2.5 miles north of Pocahontas at a farm and residence along File Avenue. A concentrated area of extensive tree damage was found next to a house. Every hardwood and softwood tree in this area was snapped at the trunk. Tree tops were thrown 30 to 50 yards. Several trees were also uprooted. The house sustained shingle damage and two supporting posts on the house were blown out. A granary was destroyed with debris thrown between 50 and 100 yards. A large metal storage shed lost its roof and two walls were blown out with debris scattered between 1/4 and 1/2 mile. The tornado skipped east, hitting another farmstead on Shawnee Road, causing damage to a silo and roof. The debris was tossed to the north over 300 yards. The maximum damage was rated EF1 with a maximum wind speed around 100 mph. The total length of the tornado was 2.7 miles with a maximum width of 50 yards.



Damage Surveys

Fayette County - Two EF2 Tornadoes and One EF1 Tornado

A storm survey team from the National Weather Service Forecast Office in St. Louis examined damage from storms which occurred in Fayette County, Illinois between midnight and 1:00 AM on February 28th, 2011.

Sporadic damage from straight line winds was found at numerous locations throughout the county. Widespread damage from straight line winds was found in Shobonier and at a subdivision in St. Elmo. A few mobile homes were damaged in Shobonier including one which rolled on its side and collapsed. Several homes in the subdivision sustained significant roof damage and all outbuildings were destroyed. Many trees in the subdivision were also downed with all debris blown to the east. Three tornadoes were also found in Fayette County.

A tornado touched down in Confidence, Illinois approximately 8 miles southwest of St. Elmo or 9.5 miles east-southeast of Vandalia. The tornado touched down near County Road 1750 East and County Road 1275 North and damaged a residence, trees, and outbuildings. A convergent pattern was found in the debris. The tornado then continued east northeast and damaged several residences and farm buildings along County Road 1275 North. One residence was shifted 22 feet off the foundation and another was shifted 6 feet off the foundation. Lumber from the roof was driven into the siding and into the foundation at a third residence. The tornado then skipped through a wooded area north of County Road 1275 North before lifting west of Route 185. The maximum damage was rated EF2 with a maximum wind speed around 120 mph. The total length of this tornado was approximately 1.3 miles with a maximum width of 90 yards.

Another tornado briefly touched down near the County Line between Fayette and Effingham Counties approximately 0.2 miles south of County Road 1800 North. Two large farm buildings were destroyed and debris was thrown 1 mile to the east into Effingham County. Other farm buildings also sustained damage. There were four spots on the property with evidence that heavy debris, including a cinderblock, was thrown a substantial distance to the northwest. Several 2X4s were driven several feet into the ground. The maximum damage was rated EF2 with a maximum wind speed around 115 mph. The total length of this tornado was 175 yards with a maximum width of 50 yards.

A tornado also briefly touched down approximately 1 mile southeast of St. Elmo at a farm building located 0.1 miles south of Interstate 70 and 0.2 miles north of County Road 1900 North along County Road 2250 East. The south facing wall of a large metal farm storage building was blown out with debris scattered over one half mile into an adjacent field. Several 2X4s were driven several feet into the ground. A billboard just south of the farm building supported by 16 wooden posts, each 5 to 10 inches in diameter. All of these posts were snapped but there was no damage to the power poles directly across the road. Since the billboard was found on the road directly in front of the posts rather than farther downstream, it appears that straight line winds caused damage to the billboard while the tornado was responsible for damage to the farm building. The maximum damage was rated EF1 with a maximum wind speed around 95 mph. The total length of this tornado was 120 yards with a maximum width of 10 yards.



Damage Surveys

Washington County, Illinois - EF0 and EF2 Tornadoes

Personnel from the National Weather Service Forecast Office in St. Louis conducted a storm survey in Clinton and Washington Counties in Illinois in response to damage that occurred from the storms on Sunday night February 27th. Two short lived tornadoes were discovered in Washington County.

The first tornado in Washington County formed just to the southwest of Okawville. The tornado moved across the south side of town and damaged the local grain elevator, produced some minor roof and exterior damage to houses along the south side of East Schumacher Street. The Emmanuel Lutheran School also sustained some minor roof damage. The tornado continued to the east where it produced some additional damage and snapped a 8-10 inch diameter tree trunk approximately 6 feet off the ground. The tornado continued east until it damaged a house on Hummingbird Road. This house suffered an unknown amount of roof damage because it was in the process of being repaired. There was also minor tree damage and an outbuilding that was destroyed with the debris scattered several hundred yards to the northeast. The tornado lifted just to the east of this location. Path length was 2.8 miles with a maximum width of 50 yards and rated EF0.

The second tornado in Washington County started approximately 6 miles east of Okawville on Illinois Highway 177 near the Kuhl Lumber and Pallet Company. Minor roof and siding damage occurred to an ongoing construction project at the saw mill. A few trees along a tree line to the east of the complex were topped. The tornado continued east where it struck a farmstead causing considerable damage. A 48 by 96 foot machine shed was completely destroyed with much of the debris scattered up to almost one mile to the east. Another building was lost at this location as well as a grain bin. Two other barns sustained damage with one being pushed off the foundation by several feet. The debris from the machine shed impacted the house, garage and workshop with several missiles not only in the ground but also into other structures. The home sustained several broken windows from flying debris. The roof of the home had at least five rafters damaged when an unknown heavy object hit the roof, but was blown away during the storm. The tornado continued to the east and dissipated approximately one mile from New Minden. The path length was 2.3 miles with a maximum intensity of EF2 due to the damage at the farmstead. Maximum damage width was 100 yards.



Damage Surveys

Madison County - Glen Carbon to Edwardsville - EF1 Tornado

Personnel from the National Weather Service Forecast Office in St. Louis conducted a storm survey in Madison County in Illinois in response to the damage from the storms on Sunday night February 27th. One short lived tornado was identified.

The tornado in Madison County first touched down between Edwardsville and Glen Carbon near the intersection of Ginger Creek Drive and Illinois Highway 157. There were several cedar trees uprooted at this location. The tornado continued east-northeast through the Ginger Creek Subdivision to the intersection of Center Grove Road and Illinois Highway 159. This is where a metal industrial building sustained roof and siding damage. The tornado also crossed the intersection of Center Grove Road and Troy Road where a few signs of local businesses were damaged and a Home Depot sustained some damage to small reconstructed sheds sitting outside. The tornado continued east-northeast to near the intersection of Gerber Road and Governors Parkway where several houses sustained minor roof and siding damage. The tornado dissipated just beyond this location. The path length of this tornado was 2.4 miles long. Most of the damage along the path was rated EF0 with the maximum intensity rated EF1 for some tree damage and the industrial building damage. The maximum path width was near 150 yards.



Damage Surveys

Osage County - EF1 Tornado

Personnel from the National Weather Service Forecast Office in St. Louis investigated the storm damage that occurred across southern Osage County in central Missouri on Sunday evening February 27th. The damage was a result of a short-lived tornado and several areas of damaging winds.

The tornado hit a farmstead around 10:10 PM one-half mile south of the intersection of County Roads 804 and 811 on a ridge. A large barn was totally destroyed while a brick ranch home had several broken windows on the west side. Roofing materials were also removed. A few trees and pines were snapped about half way up and tossed over 40 to 50 yards to the east. The width of the damage track was approximately 50 yards while damage intensity was rated EF1. The damage length was approximately one half mile. Damage intensity was rated EF1.

Also along County Road 811 on large tree fell through a house trailer cutting the trailer in half. Tree damage was also noted about one half mile to the north of the house trailer. Further east two machine sheds were severely damaged by localized high winds along County Road 806 or about one half mile east of the intersection of County Roads 806 and 807. Debris from the machine sheds extended 1/4 to 1/3 mile to the east-northeast. Winds were estimated around 90 mph over this area. The wind damage occurred around 10:15 PM.

Roof damage occurred to Fatima R3 School. Much of the roofing materials were removed from the gymnasium at the school. This damage occurred around 10:00 PM and was caused by straight line winds around 70 mph.



Damage Surveys

I-55 East of Edwardsville - EF1 Tornado

The tornado formed just west of Interstate 55 near Mick Road approximately 2 miles north of the Interstate 55/70/255 Interchange where a few power poles were knocked over. The tornado crossed Interstate 55 and produced minor tree damage. It continued east-northeast where it produced roof and siding damage to a couple of homes. One home had part of the roof decking on the south side of the house removed while another had a flag pole located well to the north of the structure bent over almost to ground level. This pole was pointing south. Further along the path, a barn was destroyed along Staunton Road with debris strewn several hundred yards across the road into an open field. The tornado continued east-northeast until it snapped several mature pine trees off several feet above the ground along Nearly Lane. The tornado dissipated before reaching Illinois Highway 4. The path length was 2.0 miles. The tornado had a maximum width of 50 yards and maximum intensity of EF1 for the destroyed barn and the snapped pine trees.



Damage Surveys

Gasconade County - NE of Drake - EF1 Tornado

A tornado touched down about half a mile west of the intersection of Lone Grove School Road and Hesseran Road. In this location it broke off and uprooted numerous trees. As it travelled to the east it blew over a hay wagon and overturned a couple of tanks and farm equipment. A nearby home sustained minor roof damage and a shed was completely flattened. It blew over more trees before crossing Lone Grove School Road. At this location it blew part of the roof off of a large barn. It travelled a little further to the east blowing down a few more trees near Grannemann Road before lifting and dissipating. The maximum width of the tornado was 175 yards and was on the ground for three quarters of a mile. The damage was rated EF1.



Please note that while the severe weather data presented in this event synopsis has been quality controlled, it is still considered unofficial. Official reports & statistics for severe weather events can be found in the **Storm Data** publication (<http://www.ncdc.noaa.gov/IPS/sd/sd.html>) or **Storm Events Database** (<http://www.ncdc.noaa.gov/stormevents/>), available from the National Centers for Environmental Information (NCEI) web page [formerly the National Climate Data Center (NCDC)].

More detailed tornado track information can be accessed using the National Weather Service Damage Assessment Toolkit for all tornadoes beginning in 2012. <https://apps.dat.noaa.gov/StormDamage/DamageViewer/>

Any questions regarding this event review should be address to w-lsx.webmaster@noaa.gov