

## Storm Data and Unusual Weather Phenomena - March 2011

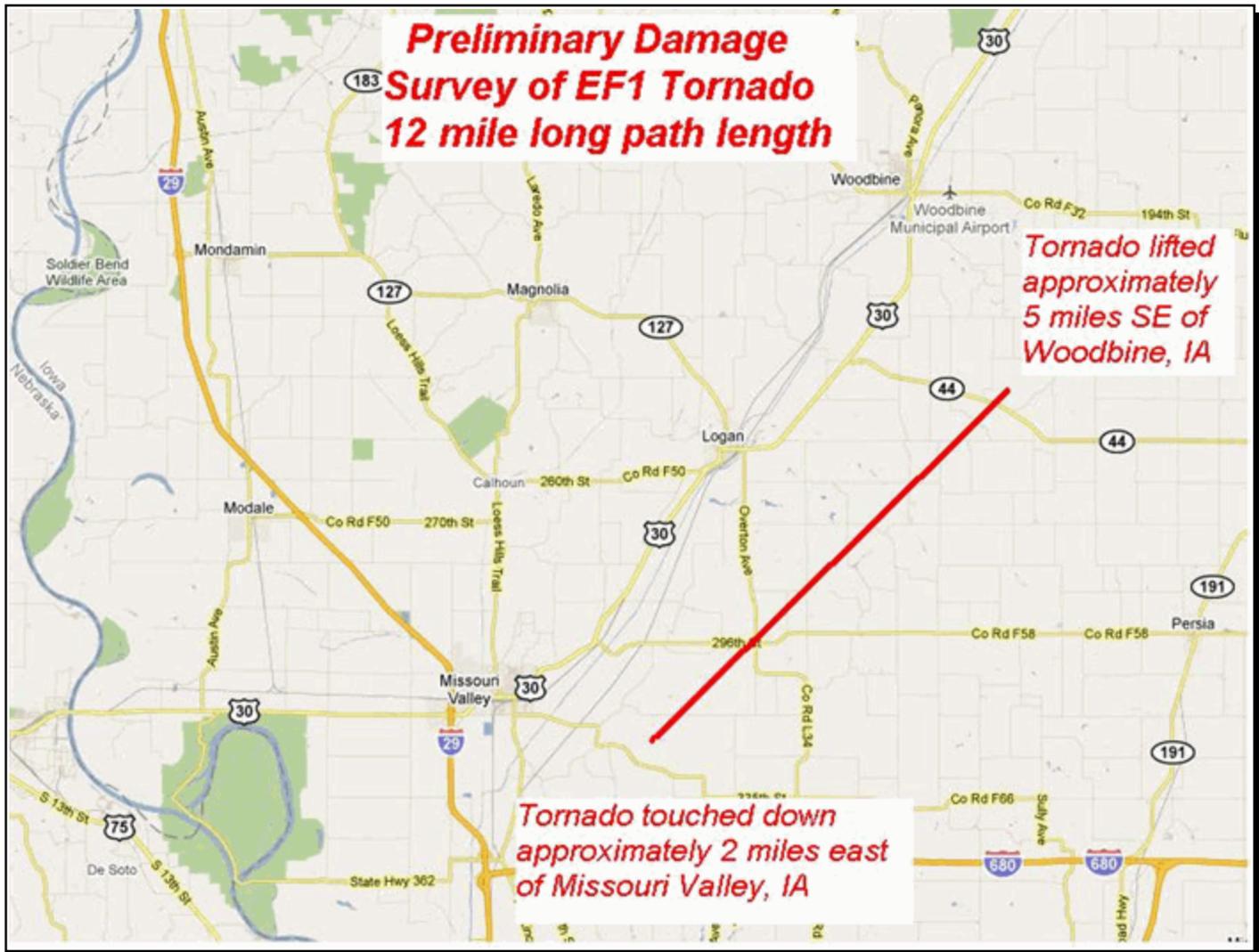
Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
<b>IOWA, Southwest</b>				
<b>PAGE COUNTY --- 0.7 S SHENANDOAH [40.76, -95.37]</b>				
	03/20/11 02:30 CST		0	Hail (1.00 in)
	03/20/11 02:30 CST		0	Source: Law Enforcement
<b>PAGE COUNTY --- ESSEX [40.83, -95.30]</b>				
	03/20/11 02:41 CST		0	Hail (1.00 in)
	03/20/11 02:43 CST		0	Source: Trained Spotter
Hail up to quarter-size fell for 2 minutes and covered the ground near Essex.				
Scattered thunderstorms developed north of a warm front from far southeast Nebraska into southwest Iowa. A few of the storms produced hail up to quarter-size.				
<b>MILLS COUNTY --- 3.0 SSW EMERSON [40.98, -95.42]</b>				
	03/22/11 15:40 CST		0	Hail (0.88 in)
	03/22/11 15:40 CST		0	Source: NWS Employee
Nickel-size hail was accompanied by thunderstorm wind gusts estimated at 60 mph near Emerson.				
<b>MILLS COUNTY --- 3.0 SSW EMERSON [40.98, -95.42]</b>				
	03/22/11 15:40 CST		0	Thunderstorm Wind (EG 52 kt)
	03/22/11 15:40 CST		0	Source: NWS Employee
Thunderstorm wind gusts were estimated at 60 mph by a NWS employee along with nickel-size hail.				
<b>MONTGOMERY COUNTY --- 0.9 SE RED OAK [41.01, -95.22], 1.4 N RED OAK [41.04, -95.23]</b>				
	03/22/11 15:56 CST		0	Hail (1.75 in)
	03/22/11 16:04 CST		0	Source: Trained Spotter
Hail up to golf ball-size was reported in and near Red Oak.				
<b>HARRISON COUNTY --- 1.5 NNE EUCLID [41.57, -95.84], 3.3 S WOODBINE MUNI ARPT [41.68, -95.67]</b>				
	03/22/11 16:00 CST		0	Tornado (EF1, L: 11.67 mi , W: 100 yd)
	03/22/11 16:19 CST	2	0	Source: NWS Storm Survey
A NWS storm survey assessment team confirmed a tornado tracked around 12 miles starting from a few miles east of Missouri Valley to around 5 miles southeast of Woodbine, Iowa. The tornado destroyed at least 1 mobile home, which caused minor injuries to 2 occupants, and caused outbuilding, home and vehicle damage along its path which reached around 100 yards wide at its widest. The strongest damage was estimated at EF1.				
<b>HARRISON COUNTY --- 1.0 E MISSOURI VLY [41.57, -95.88]</b>				
	03/22/11 16:03 CST		0	Hail (1.00 in)
	03/22/11 16:03 CST		0	Source: Trained Spotter
From the supercell thunderstorm that produced a tornado near this area.				
<b>HARRISON COUNTY --- 2.7 ENE EUCLID [41.56, -95.80]</b>				
	03/22/11 16:04 CST		0	Hail (1.75 in)
	03/22/11 16:04 CST		0	Source: Trained Spotter
From the same supercell that produced a tornado near the area.				
<b>HARRISON COUNTY --- LOGAN [41.65, -95.80]</b>				
	03/22/11 16:05 CST		0	Hail (1.75 in)
	03/22/11 16:10 CST		0	Source: Newspaper
Hail up to golf ball-size fell in the Logan area associated with the same supercell thunderstorm that produced a tornado near the area. The hail caused significant vehicle and roof and siding damage in and around town.				
<b>HARRISON COUNTY --- 0.9 NE WOODBINE [41.74, -95.71]</b>				

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	03/22/11 16:20 CST		0	Hail (1.00 in)
	03/22/11 16:20 CST		0	Source: Trained Spotter
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<b>SHELBY COUNTY --- 3.0 SW DEFIANCE [41.80, -95.39], 2.0 SW DEFIANCE [41.81, -95.38]</b>	03/22/11 16:47 CST		0	Tornado (EF0, L: 1.00 mi , W: 40 yd)
	03/22/11 16:50 CST		0	Source: Storm Chaser

A storm chaser caught a rope tornado on video southwest of Defiance . The narrow and weak tornado apparently caused no damage as it remained in an open field and was from the same supercell that spawned a larger tornado to the southwest in Harrison county a little earlier.

A strong upper level trough and associated cold front pushed across the region during the afternoon and evening of March 22. The upper level system caused low pressure to deepen over eastern Nebraska/northeast Kansas with a warm front extending northeast from the low into east central Nebraska and southwest Iowa. By mid afternoon, ahead of the cold front and south of the warm front, temperatures climbed into the upper 70s to lower 80s and dew point temperatures reached the upper 50s. The instability and shear near the low and warm front created a favorable environment for supercell development, a few of which produced damaging hail and at least 3 tornadoes in the area.



**THE TORNADO INITIALLY TOUCHED DOWN A FEW MILES EAST OF MISSOURI VALLEY AND TRACKED NORTHEAST. DAMAGE WAS CONFIRMED 6 MILES SOUTH OF LOGAN. IT APPEARS THAT THE TORNADO LIFTED APPROXIMATELY 5 MILES SOUTHEAST OF WOODBINE. THIS WOULD PUT THE PATH LENGTH AT AROUND 12 MILES.**

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<b>KNOX COUNTY --- 1.3 SW VERDEL [42.81, -98.22], 1.4 SSE VERDEL [42.80, -98.19], 2.8 ESE VERDEL [42.81, -98.15], 2.5 E VERDEL [42.82, -98.15], 0.3 WSW VERDEL [42.82, -98.21]</b>				
	03/12/11 09:00 CST		0	Flood (due to Ice Jam)
	03/12/11 23:00 CST		0	Source: Official NWS Observations
<p>Melting snow helped break loose ice which formed an ice jam near Verdel which caused minor flooding along Ponca Creek in the area . The creek near Verdel crested at a little over 15 feet around noon on March 12, flood stage is 12 feet. The flooding affected mainly agricultural lowlands and apparently caused little damage.</p> <p><b>Melting snow helped break loose ice which formed an ice jam near Verdel which caused minor flooding along Ponca Creek in the area.</b></p>				
<b>NEMAHA COUNTY --- 3.0 ENE HOWE [40.34, -95.77]</b>				
	03/20/11 01:48 CST		0	Hail (1.00 in)
	03/20/11 01:48 CST		0	Source: COOP Observer
<p>Hail up to quarter-size was reported by the Coop Observer near Auburn.</p> <p><b>Scattered thunderstorms developed north of a warm front from far southeast Nebraska into southwest Iowa. A few of the storms produced hail up to quarter-size.</b></p>				
<b>LANCASTER COUNTY --- 3.0 NNW MALCOLM [40.94, -96.87]</b>				
	03/22/11 14:30 CST		0	Hail (1.00 in)
	03/22/11 14:30 CST		0	Source: Emergency Manager
<p>Hail up to quarter-size was reported near Malcolm.</p>				
<b>WAYNE COUNTY --- 1.2 NE WAYNE [42.24, -97.00]</b>				
	03/22/11 14:32 CST		0	Hail (1.00 in)
	03/22/11 14:38 CST		0	Source: Trained Spotter
<p>Hail lasted for several minutes in Wayne and a bit east of town. The hail was mostly pea-size, but a few hailstones reached around quarter-size.</p>				
<b>LANCASTER COUNTY --- 2.7 ESE AGNEW [41.01, -96.78]</b>				
	03/22/11 14:35 CST		0	Hail (1.00 in)
	03/22/11 14:35 CST		0	Source: Emergency Manager
<b>OTOE COUNTY --- 0.7 N BURR [40.54, -96.30]</b>				
	03/22/11 14:45 CST		0	Thunderstorm Wind (EG 52 kt)
	03/22/11 14:45 CST		0	Source: Trained Spotter
<p>Thunderstorm wind gusts were estimated at 60 mph by a spotter near Burr along with half inch hail.</p>				
<b>OTOE COUNTY --- 4.7 WNW LORTON [40.60, -96.10]</b>				
	03/22/11 15:00 CST		0	Hail (0.75 in)
	03/22/11 15:00 CST		0	Source: Public
<p>Hail up to dime-size was accompanied by thunderstorm winds that were estimated at a little over 60 mph.</p>				
<b>OTOE COUNTY --- 4.7 WNW LORTON [40.60, -96.10]</b>				
	03/22/11 15:00 CST		10K	Thunderstorm Wind (EG 55 kt)
	03/22/11 15:00 CST		0	Source: Public
<p>Thunderstorm wind gusts estimated at over 60 mph ripped all of the vinyl siding off the side of a house southeast of Syracuse and two large sliding doors on a shed were blown off of their tracks. The winds were also accompanied by hail up to dime-size.</p>				
<b>DOUGLAS COUNTY --- 0.8 W VALLEY [41.32, -96.37], 1.3 NNW VALLEY [41.34, -96.36]</b>				
	03/22/11 15:13 CST		0.25M	Hail (1.75 in)
	03/22/11 15:18 CST		0	Source: Official NWS Observations

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Location	Date/Time	Deaths & Injuries	Property & Crop Dmg	Event Type and Details
Hail up to golf ball-size fell for around 5 minutes in the Valley area including at the NWS office near town . The hail was driven by winds estimated at least at 50 mph and caused extensive vehicle and property damage at the NWS office and to homes around a golf course near town . The damage to the Vehicles alone at the NWS was over \$100,000. Damage to property and vehicles near the golf course and to homes in Valley was probably well in excess of \$100,000.				

**DOUGLAS COUNTY --- 0.5 E BENNINGTON [41.37, -96.16]**

03/22/11 15:30 CST	0	Hail (2.50 in)
03/22/11 15:30 CST	0	Source: Public

Hail that was near tennis ball-size was reported near Bennington. The hail was from the same supercell that produced the damaging hail in the Valley area a few minutes earlier.

**WASHINGTON COUNTY --- 0.4 ESE WASHINGTON [41.40, -96.21], 0.9 SE BLAIR [41.54, -96.14]**

03/22/11 15:30 CST	0	Hail (1.50 in)
03/22/11 15:40 CST	0	Source: Trained Spotter

Hail up to 1.5 inches in diameter fell from around the Washington area to the southwest side of Blair . The larger hail stones were mainly around the Washington area which caused extensive vehicle and roof, siding and window damage around Washington .

**THURSTON COUNTY --- 0.9 SW PENDER [42.11, -96.71]**

03/22/11 15:31 CST	0	Hail (1.75 in)
03/22/11 15:31 CST	0	Source: Emergency Manager

Hail up to golf ball-size was reported in Pender by emergency management. The hail blanketed the ground and caused minor damage to some vehicles.

**WASHINGTON COUNTY --- 1.7 ESE FT CALHOUN BIL LO AR [41.46, -95.99]**

03/22/11 15:39 CST	0	Hail (1.25 in)
03/22/11 15:39 CST	0	Source: Trained Spotter

A spotter reported half dollar-size hail near Ft. Calhoun.

**BURT COUNTY --- 5.0 SSW CRAIG [41.71, -96.41], 2.7 SSW CRAIG [41.74, -96.38]**

03/22/11 15:40 CST	1.10M	Tornado (EF1, L: 2.42 mi , W: 75 yd)
03/22/11 15:45 CST	0	Source: NWS Storm Survey

A NWS storm survey team assessed that a tornado touched down around 5 miles south-southwest of Craig and lifted about 4 miles south-southwest of town causing damage up to weak EF1 intensity. An outbuilding and large storage bins were damaged, blown over or completely destroyed. A storage shed garage door was also blown out. Damage to the bins alone was estimated at close to \$1 million. Telephone poles were bent, two center pivots were flipped and a tree was topped along the path which was estimated at close to 2.5 miles long and around 75 yards wide.

**A strong upper level trough and associated cold front pushed across the region during the afternoon and evening of March 22. The upper level system caused low pressure to deepen over eastern Nebraska/northeast Kansas with a warm front extending northeast from the low into east central Nebraska and southwest Iowa. By mid afternoon, ahead of the cold front and south of the warm front, temperatures climbed into the upper 70s to lower 80s and dew point temperatures reached the upper 50s. The instability and shear near the low and warm front created a favorable environment for supercell development, a few of which produced damaging hail and at least 3 tornadoes in the area.**

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*Hailstones that collected in the back of a vehicle after smashing out the rear window at the NWS office near Valley.*