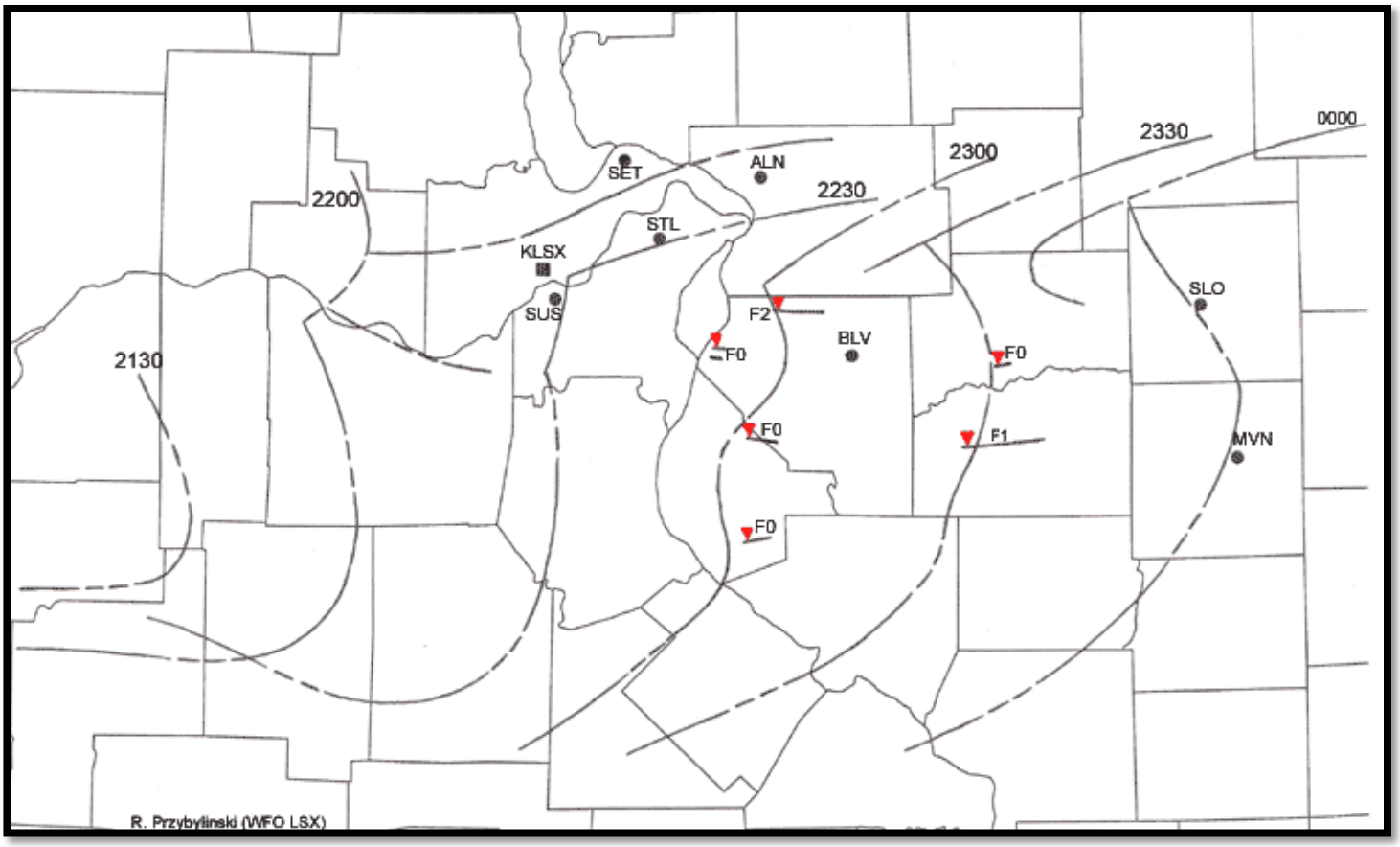
St. Louis

Bow Echo Event

July 10th, 2003

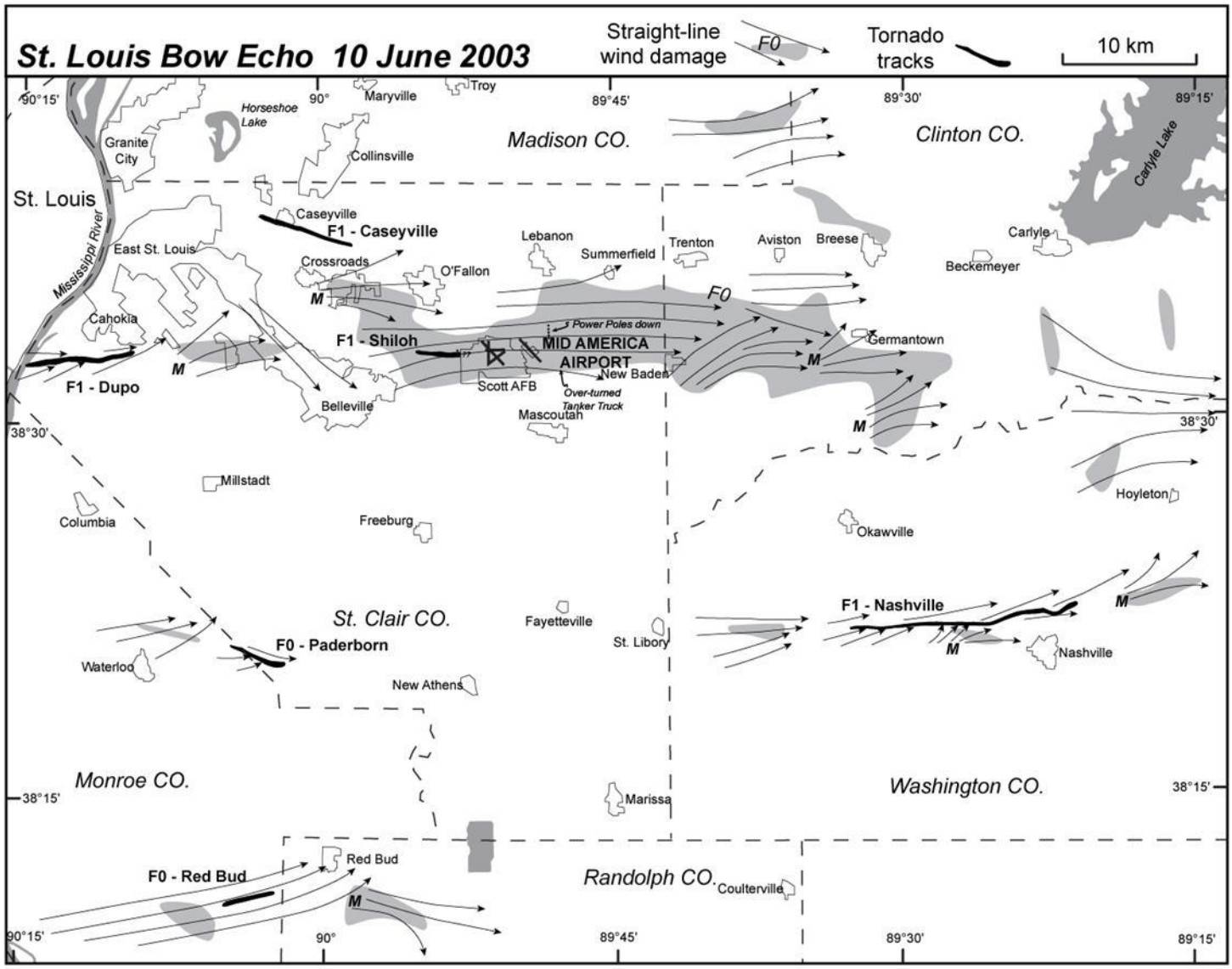
Overview

During the afternoon hours on 10 June 2003, a damaging bow echo moved eastward over the greater Saint Louis area during the Bow Echo and MCV Experiment (BAMEX). The mesoscale convective system produced a straight-line wind damage swath approximately 50 km in length and eleven mesovortices of which five were tornadic.



Map of the June 10th, 2003 squall line positions every 30 minutes. Small inverted red triangles represents location of tornado touchdown with the bow echo system. Time is denoted in UTC.

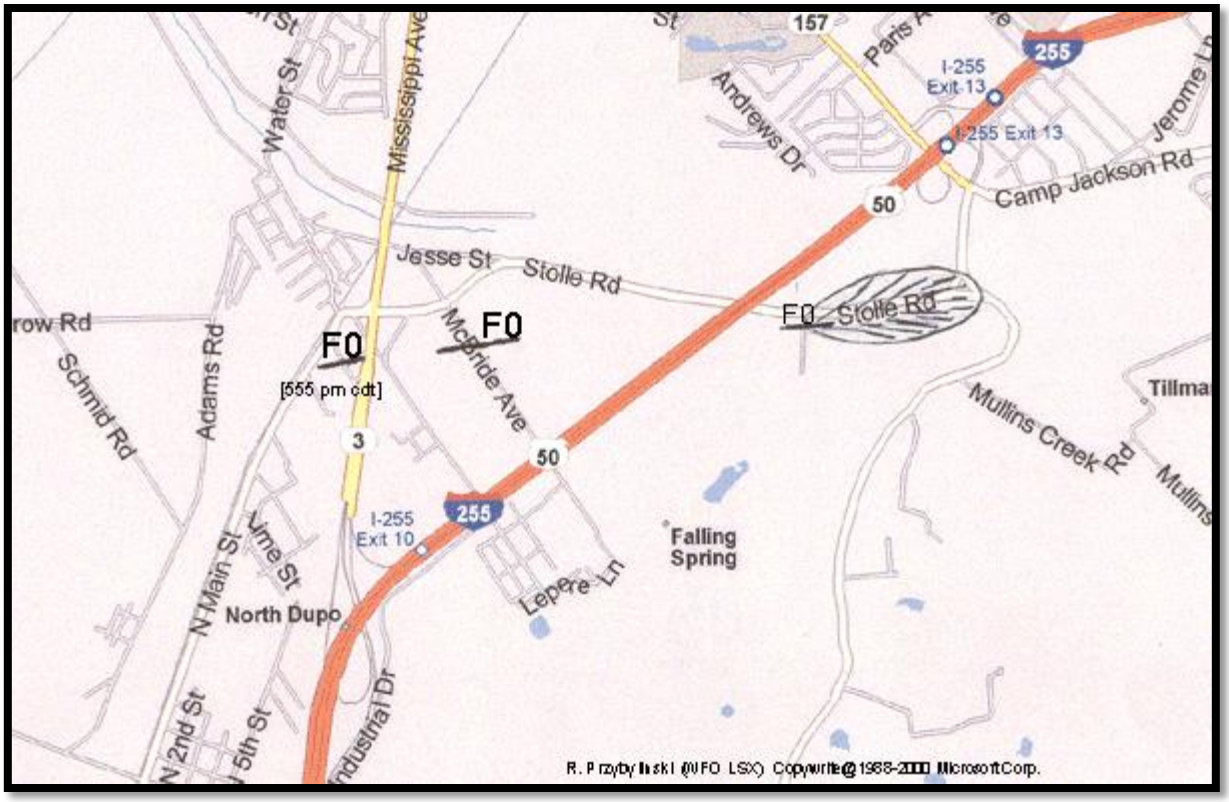
Damage Map


St. Louis Bow Echo 10 June 2003
Straight-line wind damage
F0
Tornado tracks
10 km
90°15'
90°
89°45'
89°30'
89°15'
Horseshoe Lake
Maryville
Troy
Granite City
Collinsville
Madison CO.
Clinton CO.
Carlyle Lake
St. Louis
Caseyville
F1 - Caseyville
Mississippi River
East St. Louis
Lebanon
Summerfield
Trenton
Aviston
Breese
Carlyle
Beckemeyer
Crossroads
O'Fallon
M
F0
Cahokia
5 Power Poles down
F1 - Shiloh
MID AMERICA AIRPORT
Germantown
F1 - Dupo
Scott AFB
New Baden
Over-turned Tanker Truck
Belleville
Mascoutah
38°30'
Millstadt
Hoyleton
Columbia
Freeburg
Okawville
St. Clair CO.
Fayetteville
F1 - Nashville
F0 - Paderborn
St. Libory
Nashville
Waterloo
New Athens
Monroe CO.
Washington CO.
38°15'
Marissa
F0 - Red Bud
Red Bud
Randolph CO.
Coulterville

Damage Surveys

Dupo, Illinois Tornado

The first tornado touchdown occurred around 5:55 PM CDT and just west of Highway 3 - 1.5 miles north of Dupo, Illinois. The roof of one home was partially lifted while several large trees were severed or uprooted. The roof of a nearby garage was also lifted and tossed 80 yards across Highway 3. The tornado touched down a second time on McBride Ave between Highway 3 and Interstate 255 and damaged four homes and four house trailers. Parts of the roof of each home were tossed 50 to 70 yards to the east. Two of the four house trailers sustained considerable damage. Small 2 x 2 missiles of debris were driven into two of the four house trailers. Several large trees were severed or snapped at the base of the trunk. Along Interstate 255, one tractor trailer was overturned. On Stolle Road (1/2 mile east of Interstate 255, several large trees were either uprooted or snapped at the base. The damage was suggested of both a small tornado and downburst winds. Total length of the tornadic damage path was approximately 1/2 mile long while the width of the damage path varied from 50 to 75 yards. The tornadic damage was rated F0 over these areas.



Map of the Dupo, Illinois Tornadic Damage Track (St. Clair County, Illinois

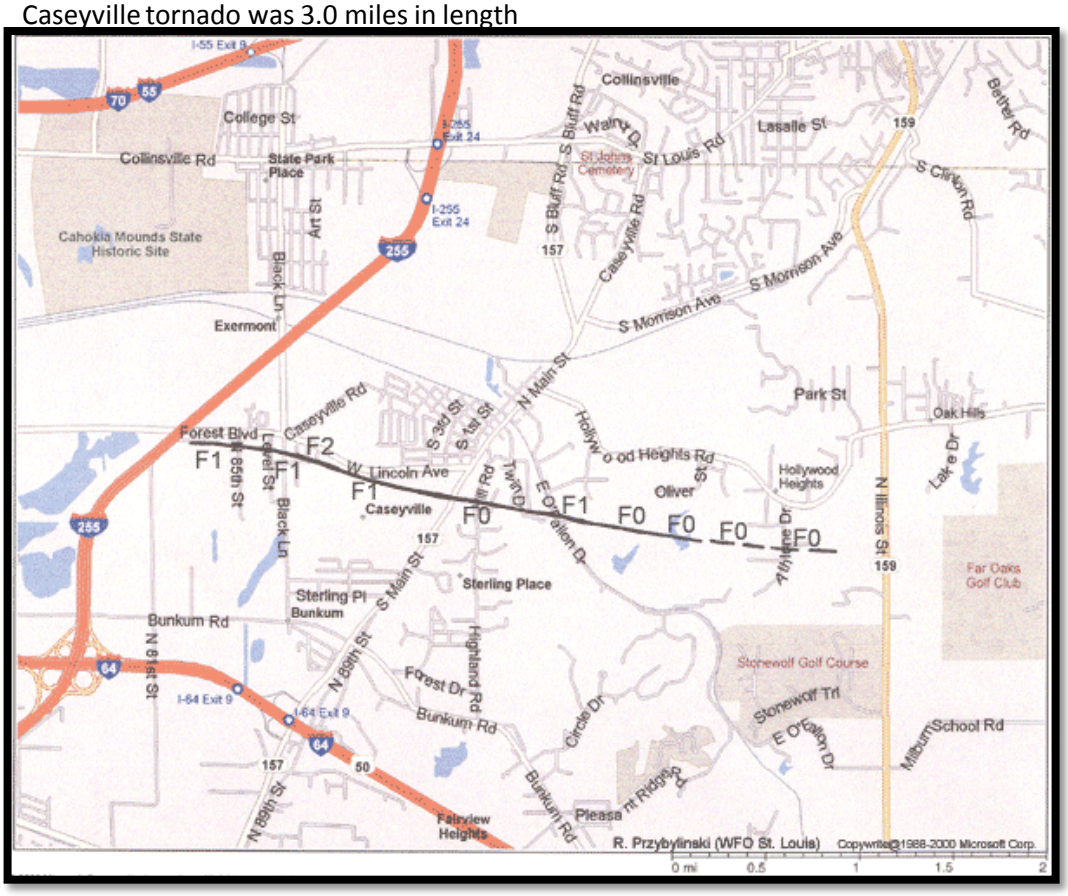
Damage Surveys

Caseyville, Illinois Tornado

The second tornado touchdown occurred along the southwest and south sides of the town of Caseyville, Illinois. The tornado initially touched down at approximately 6:05 pm CDT along Forest Blvd 1/5 mile east of Interstate 255. Over twelve witnesses observed the tornado along the leading edge of the bowing squall line as they saw debris tossed several hundred feet into the air. The tornado traveled east slightly southeast along Forest Blvd and West Lincoln Avenue. Three house trailers were severely damaged by the tornado between 85th and Black Lane. Two injuries occurred in two of the three house trailers. Numerous large trees were severed or downed by the tornado. The roof of a large machine shed on Black Lane was uplifted and displaced several hundred yards to the east. The tornado then ripped through a auto salvage area where several vehicles were over-turned, damaged or destroyed. The width of this damage area was 50 to 100 yards wide while damage intensity was rated F1. The tornado continued to travel eastward causing damage to two homes and a camper and completely destroying another house trailer. Some of the remains of this house trailer were observed 3/4 mile to the east just west of Highway 157. Pieces of metal were wrapped around snapped power poles while one 2 x 4 was driven into the front windshield of a pickup truck. The width of this damage area varied from 50 to 75 yards while the damage intensity was rated high-end F1 - low-end F2.

The tornado continued eastward and caused showed a convergence pattern in a nearby wheat field south of West Lincoln Ave. The tornado then caused minor damage to six new homes 100 to 300 yards south of West Lincoln Ave and 1/4 to 1/2 mile west of Highway 159. Roofs from five homes were partially uplifted and tossed 200 to 400 yards downwind to the east. One home under construction was completely destroyed. The width of the damage area varied from 75 to 150 yards. The damage intensity was rated the lower end of F1.

The tornado continued eastward up the ridge east of Highway 157. Several large trees were snapped or uprooted just east of 157. Additional tree damage was found along Hill Road east of Highway 157. One home on Hill Road sustained minor roof damage. The tornado crossed East O'Fallon Drive and severed or uprooted several large trees. One home sustained minor roof damage while machine shed and garage near a second home was severely damaged. The tornadic damage track ending just west of Highway 159. Width of the damage area again varied from 75 to 100 yards while the damage intensity was rated between F0 and lower end of F1. Total damage track of the Caseyville tornado was 3.0 miles in length



Map of the Caseyville,Illinois Tornadic Damage Track (St. Clair County, Illinois)

Caseyville Damage Photos

Vehicles overturned and destroyed 1/6 mile east of Black Lane (Caseyville, IL)

Roof of a large machine shed located on the east side of Black Lane severely damaged (Caseyville, IL)

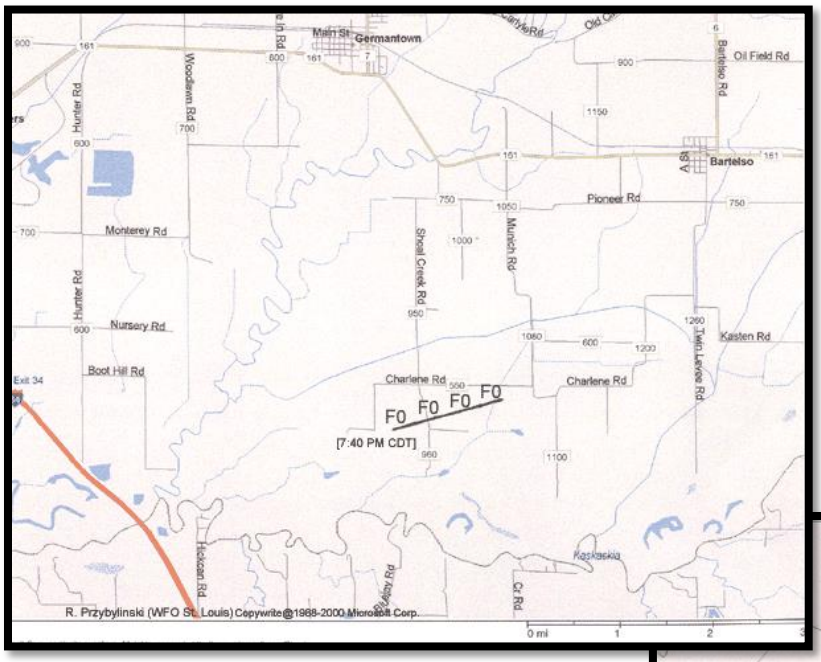
Damage to one of the three house trailers between 85th and Black Lane (Caseyville, IL)

Damage Surveys

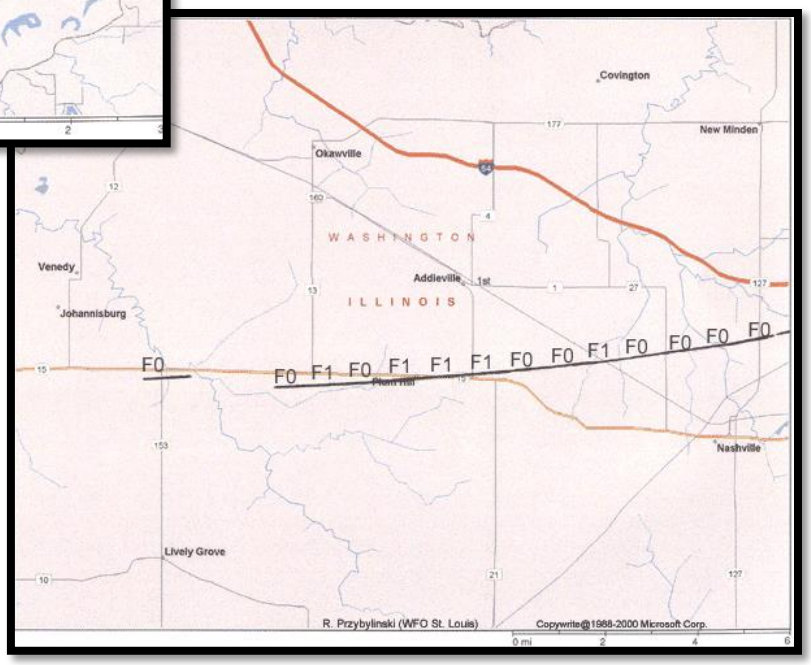
Kaskaskia River Valley and Plum Hill, Illinois Tornadoes

Another tornado caused brief damage to a farmstead over south-central Clinton County Illinois. The tornado occurred 4 miles south of Germantown , Illinois at 6:30 PM CDT. The farmstead was located in the Santa Fe flood plain along and north of the Kaskaskia River. A barn, machine shed, and silo sustained the greatest degree of damage while there was minor damage to the farm home. Debris from the farmstead was thrown 200 yards to 1/4 mile to the northeast. The tornadic damage track was 40 yards wide and 1.25 miles long. The tornadic damage was rated F0.

The bow echo system on June 10, 2003 spawned another tornado over parts of west-central Washington county Illinois. This tornadic damage track was relatively long (14 miles in length) compared to the other tornadic damage tracks on this day. Twelve machine sheds, barns, homes, other type of out-buildings sustained varying degrees of damage while numerous trees were along the tornado's path were either severed or uprooted. Debris at several locations along the damage path were driven into the ground 1 to 2 feet deep at 45 to 60 degree angles. A satellite tornadic damage track was observed approximately 100 yards north of the primary track approximately 1 mile south of Addieville, Illinois. The damage track of the satellite tornado was 1/4 mile long and 20 yards wide. In contrast to the other tornadoes on this day, this tornado occurred south of the apex of the bow echo. The tornado initially touched down at 635 PM CDT. The width of the damage track varied from 40 to 60 yards while the total length of the damage track was 7.0 miles. The damage was rated F1 intensity.



Map of Kaskaskia River Valley Tornadic Damage Track



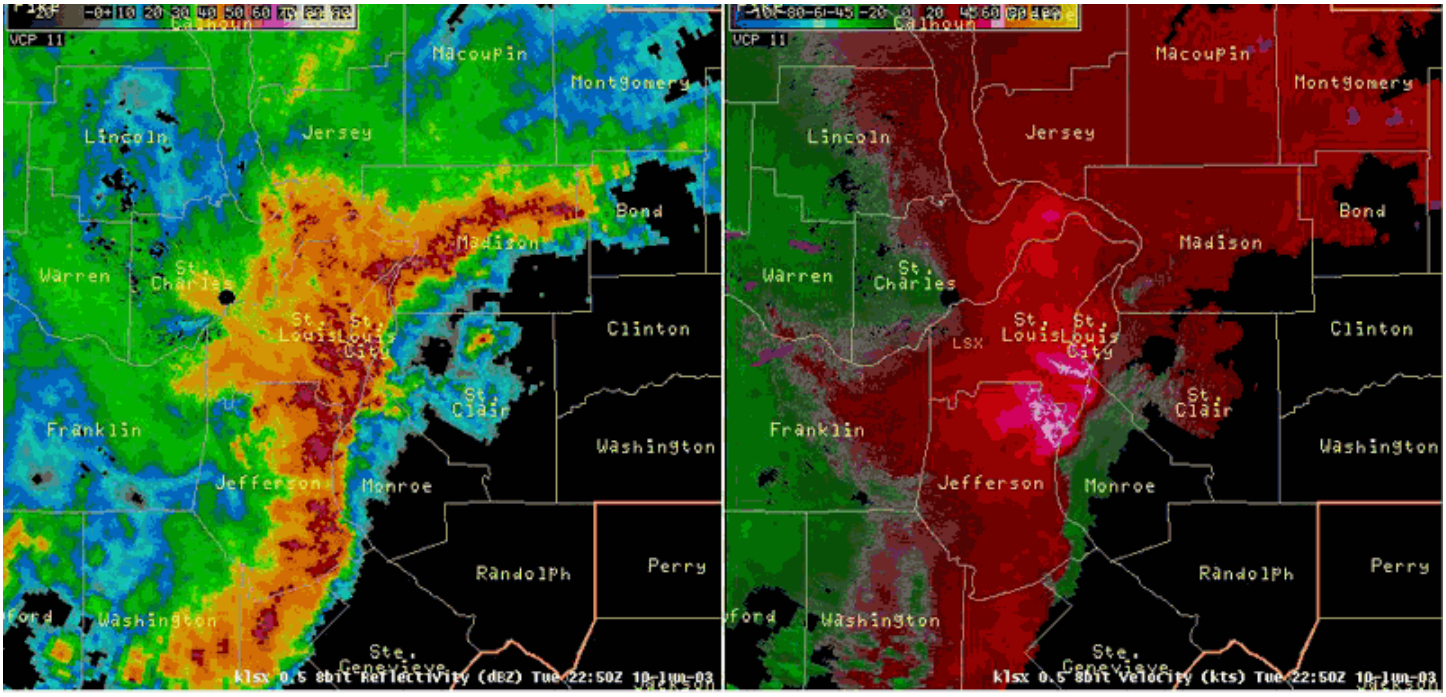
Map of Plum Hill, Illinois Tornadic Damage Track

Kaskaskia and Plum Hill Damage Photos

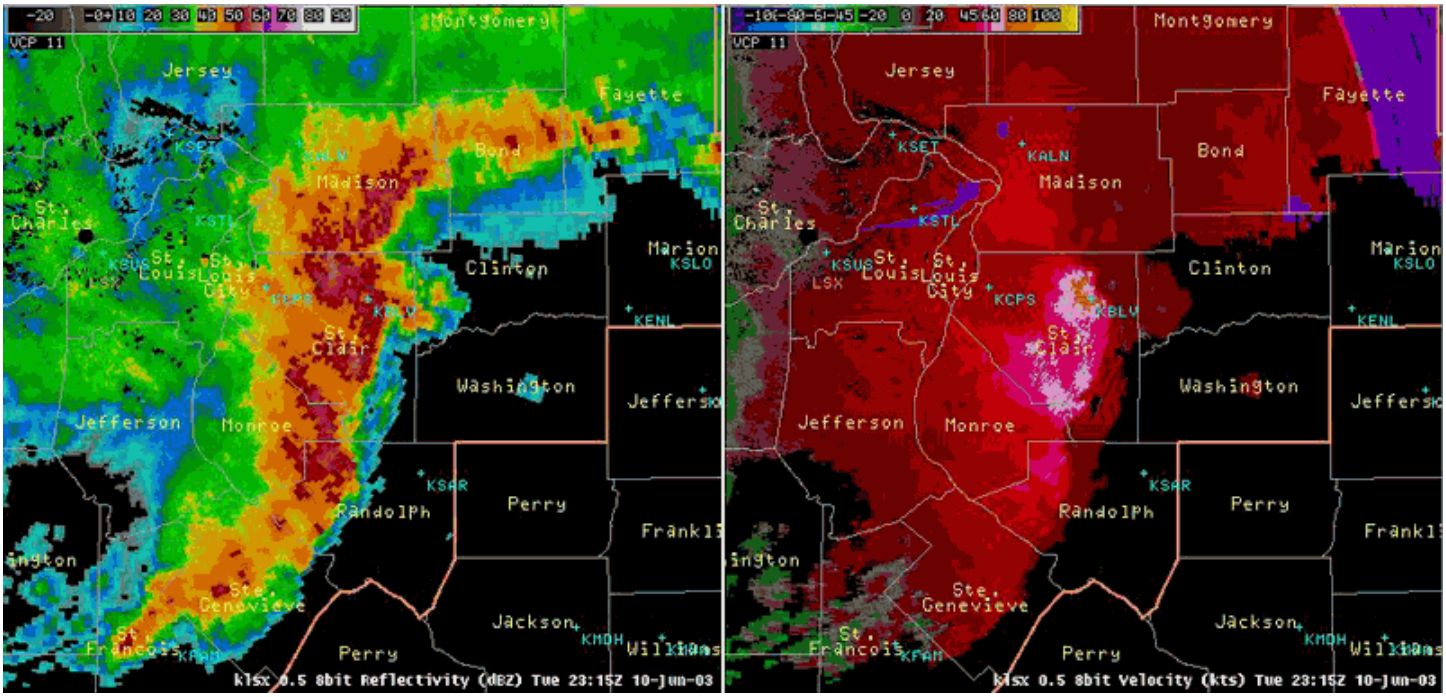
Damage to a barn and hog barn on the farmstead 4 miles south of Germantown (Clinton County, Illinois)

Damage to a machine shed on the west side of a farmstead 2.2 miles west of Plum Hill, Illinois just south of Highway 15

Radar Data



5:50 PM CDT Reflectivity and Velocity Radar Image



6:15 PM CDT Reflectivity and Velocity Radar Image

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