The Great St. Louis Metropolitan Hail Storms

April 28th, 2012

Overview

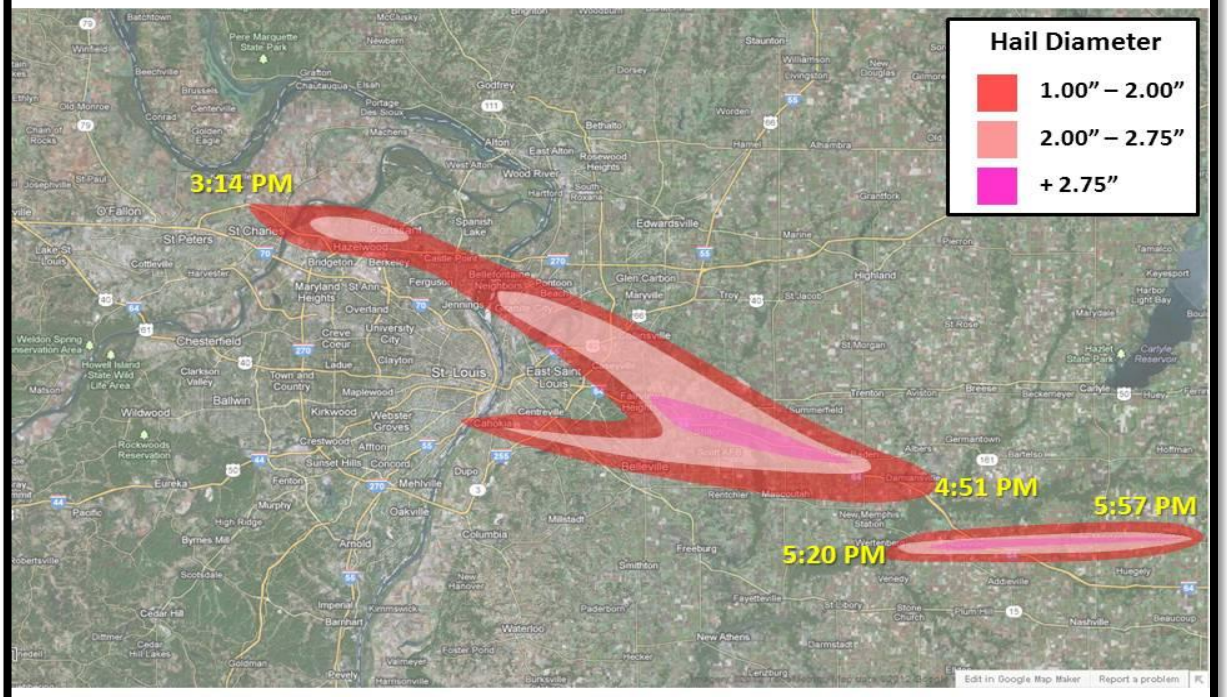
Two waves of supercell thunderstorms brought widespread large hail and localized damaging winds to the St. Louis Metropolitan Area during the afternoon and evening hours of April 28th 2012. Widespread hail damage to vehicles, houses and businesses was reported across St. Charles County, St. Louis County, and St. Louis City in Missouri and Madison, St. Clair, Clinton, and Washington Counties in Illinois. Large swaths of golf ball to baseball size hail were reconstructed from storm reports gathered during and after the event. The largest hailstone observed and reported to the National Weather Service was 4.50 inches in diameter, or softball size, in Okawville, Illinois.

There was at least one injury directly related to the very large hail. This occurred in Washington Park (Madison County, Illinois) when a mans hand was broken from a direct hit of a very large hailstone.

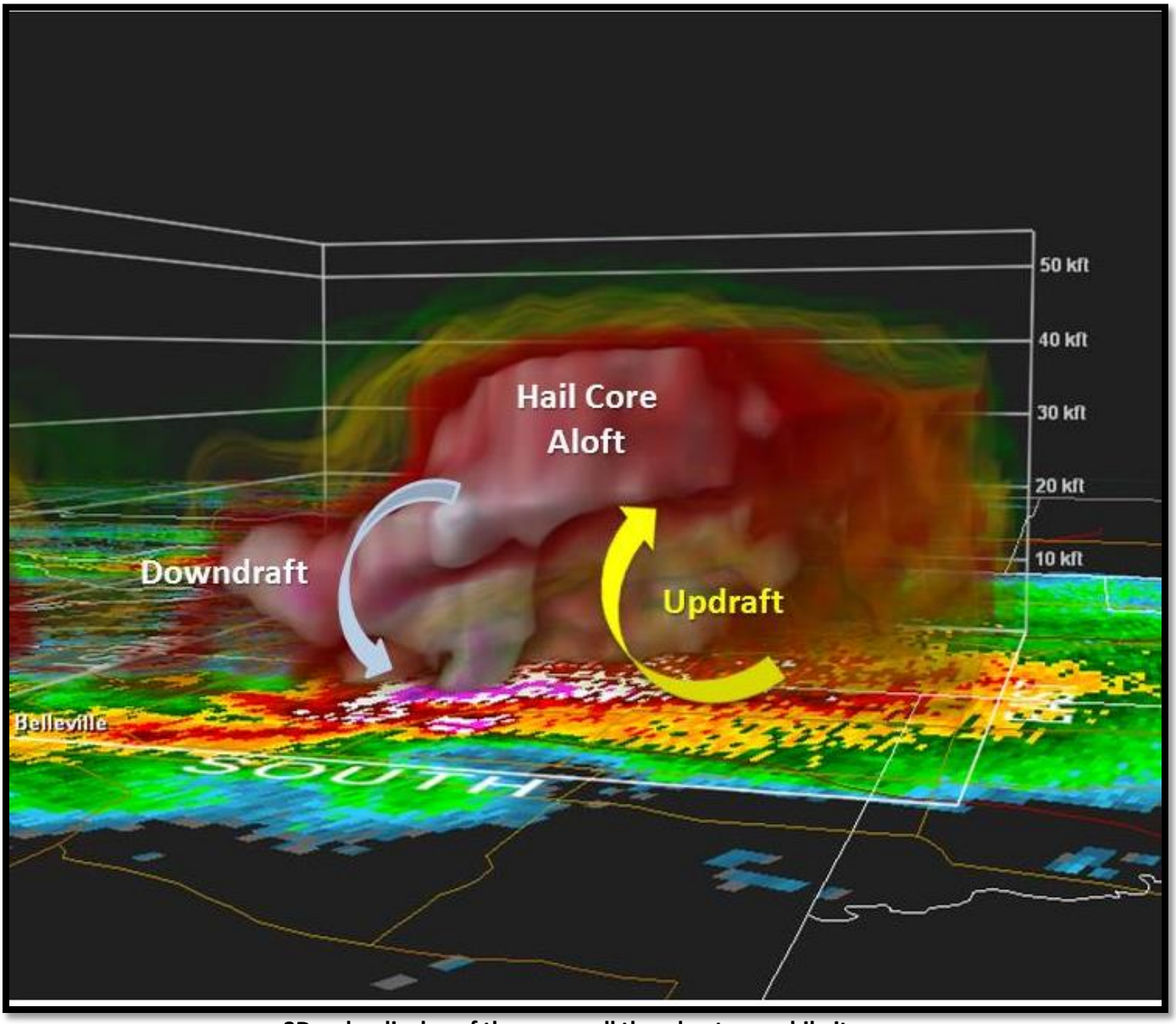
First Wave of Supercell Thunderstorms

A supercell thunderstorm developed across central Missouri during the early afternoon and traversed east, southeast along a warm frontal boundary into the St. Louis Metropolitan Area and southwest Illinois. The storm intensified across east central Missouri with large hail reported across the northern sections of St. Louis County. The increased hail production and heavy rainfall led to a rapid intensification/acceleration of the rear flank downdraft across the City of St. Louis and St. Louis County. Sporadic wind damage, including a tent collapse near Busch Stadium (see below), was reported with wind speeds estimated between 50 and 60 mph. The supercell continued east-southeast with the hail size increasing to baseball size (2.75" diameter) across metro east and southwest Illinois. Additional supercell thunderstorms produced severe hail across other portions of southwest Illinois into the evening.

Hail from first wave of supercells. This map was constructed form reports received at the National Weather Service



Environment

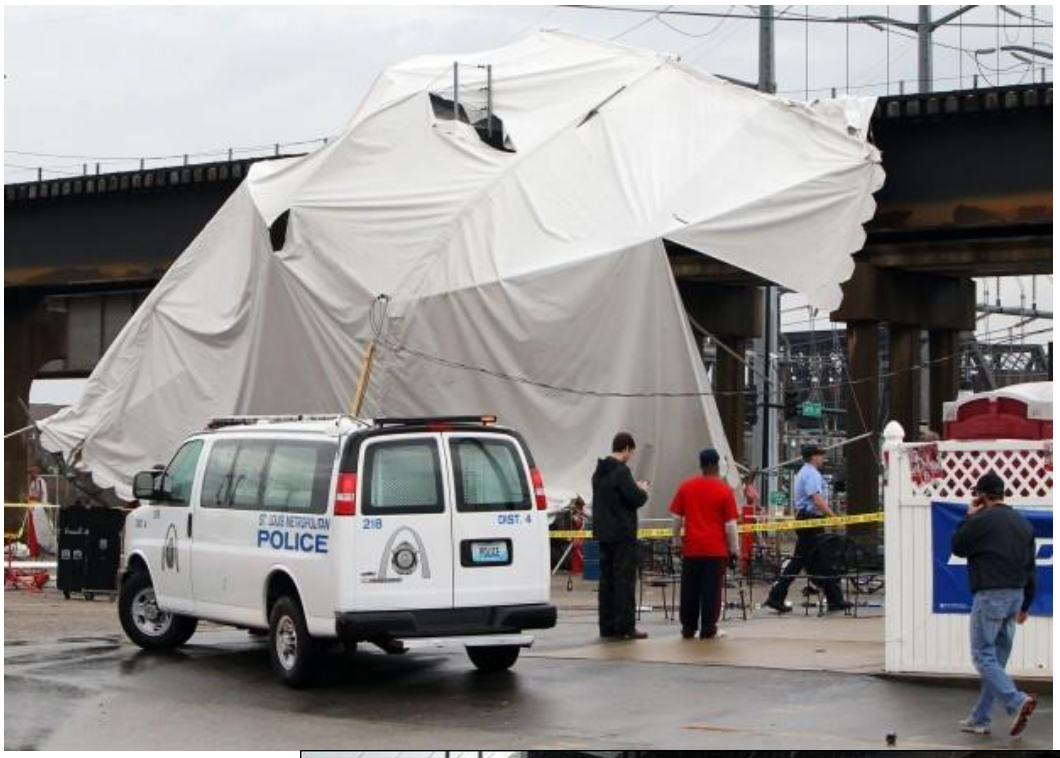


3D radar display of the supercell thunderstorm while it was producing baseball size hail over Scott Air Force Base in St. Clair County, Illinois.

Damage Surveys

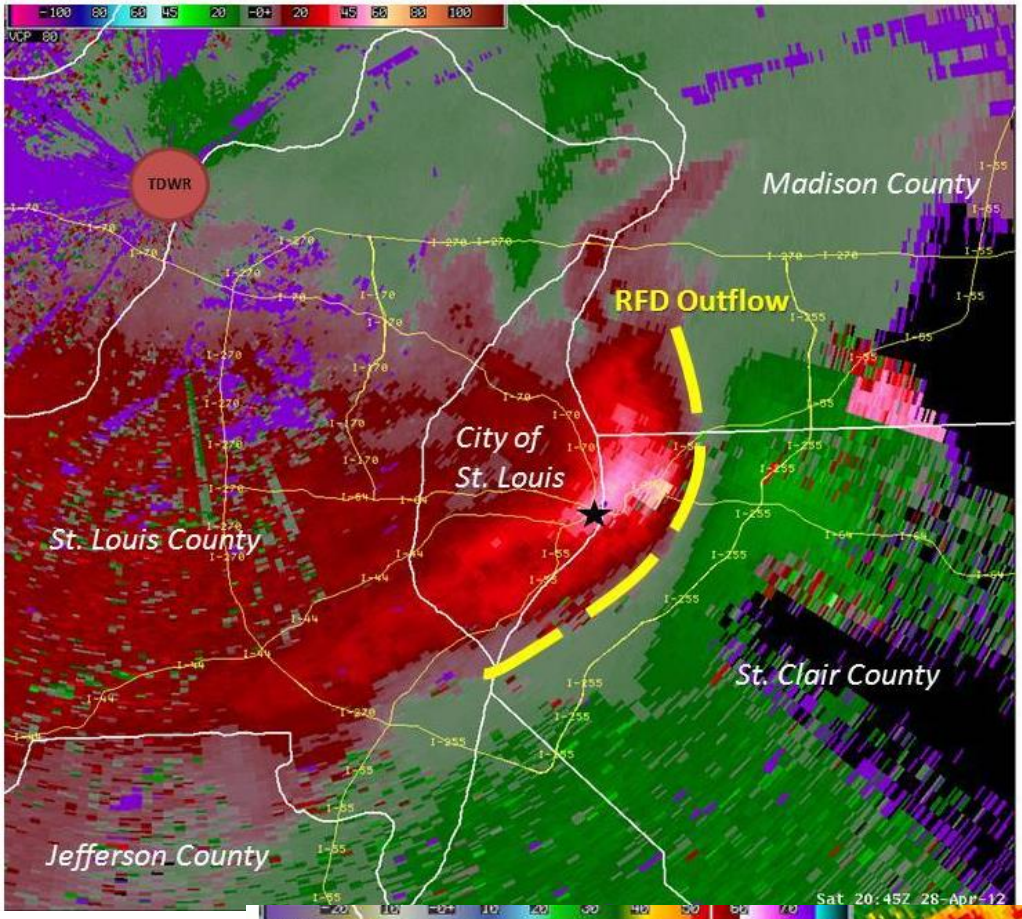
Tent Collapse Near Busch Stadium

About 100 people were injured and one person was killed when a tent collapsed on a crowd that was gathered after a Cardinals game at Kilroy's Sports Bar (720 South Seventh Street). Seventeen people were taken to area hospitals and treated for their injuries. According to radar data and eye witness reports, outflow winds of 50 to 60 mph from the rear flank downdraft of the supercell thunderstorm arrived between 3:40 p.m. and 3:50 p.m. causing the localized damage near Busch Stadium.

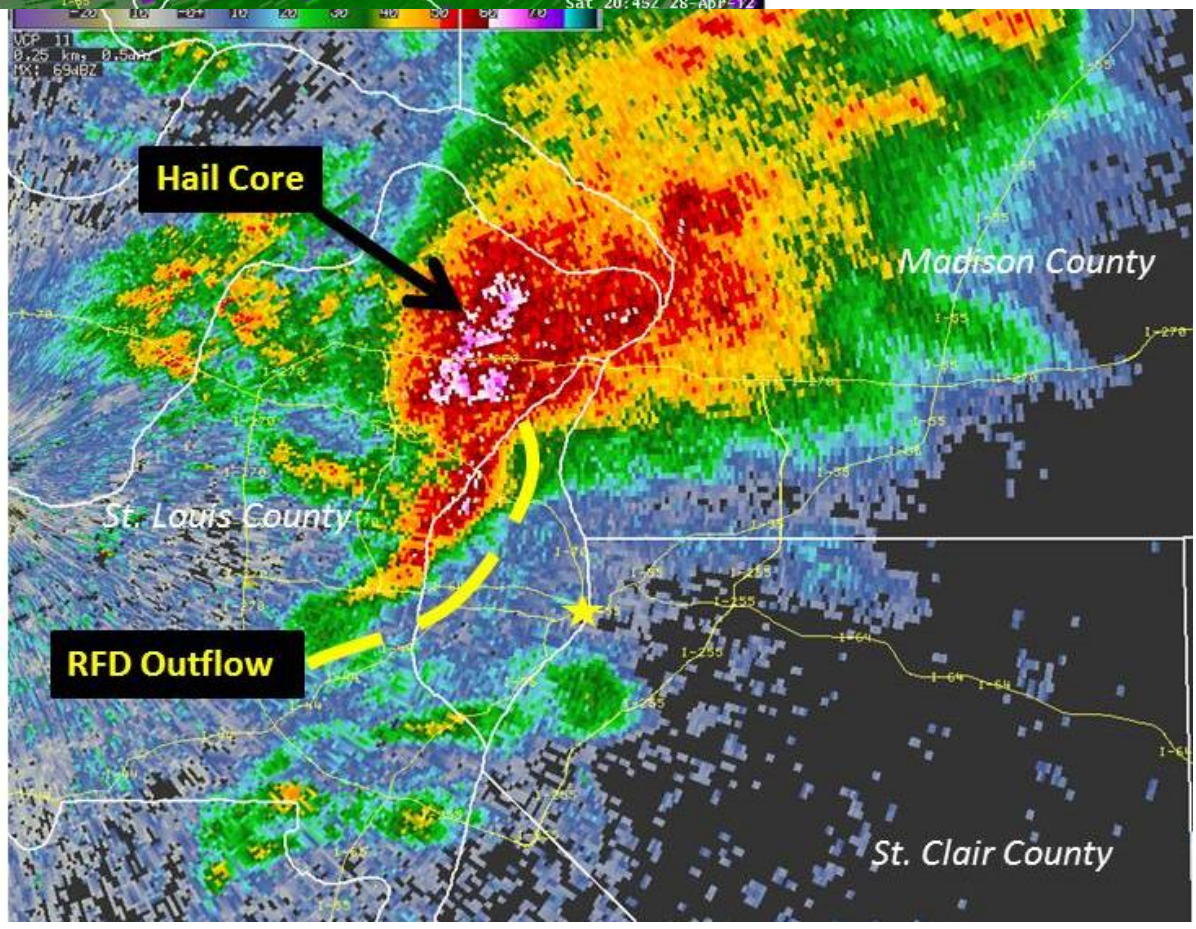


Damage Surveys

Radar Data



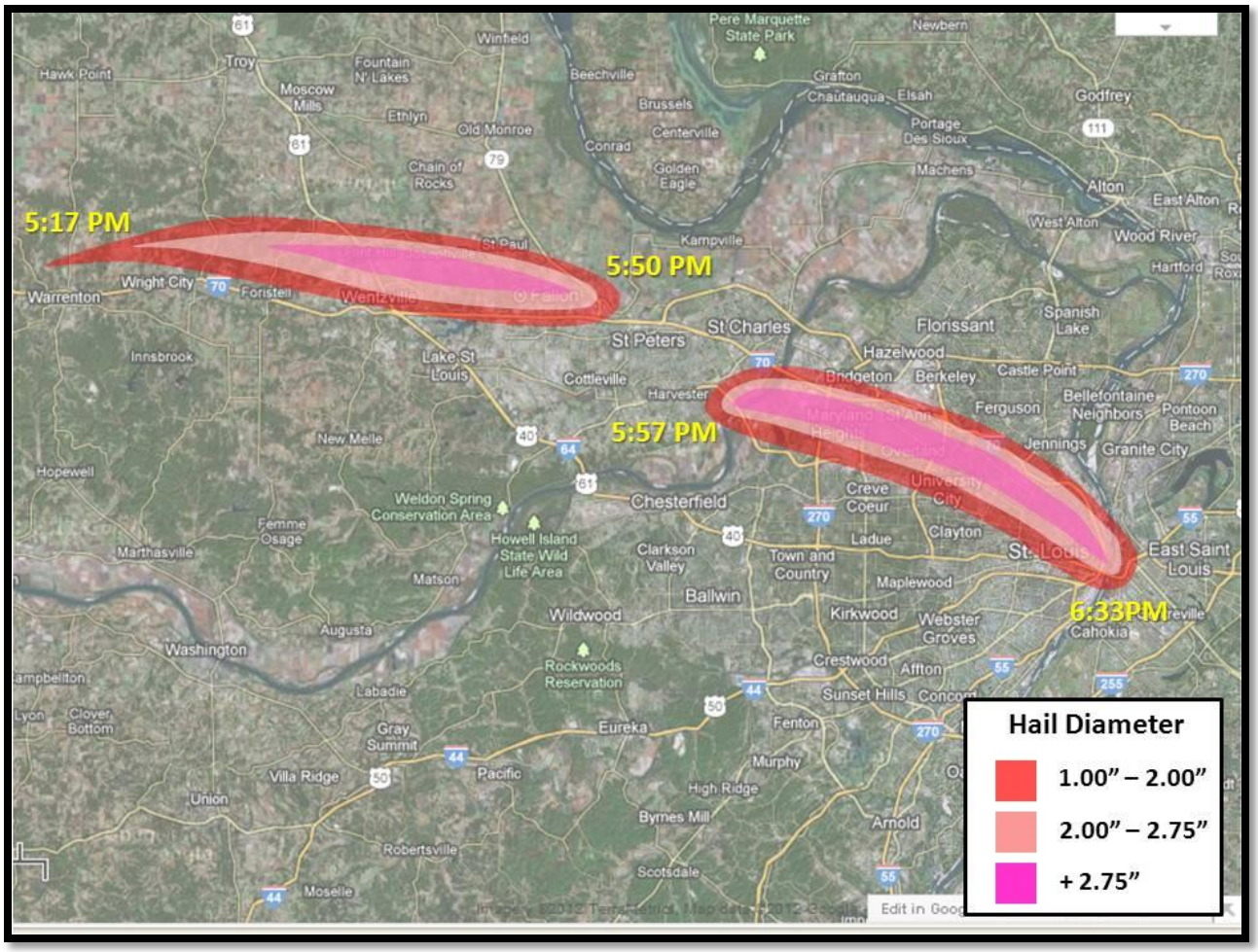
Radar Velocity from Terminal Doppler Weather Radar (TDWR)at 3:45 PM CDT. Outflow from the rear flank downdraft (RFD) depicted with 50 to 60 mph outbound velocity signature. The star represents the location of the tent collapse near Busch Stadium in downtown St. Louis.



Radar reflectivity from NWS Doppler Radar at 3:36 PM CDT. Outflow from the rear flank downdraft (RFD) and hail core of supercell thunderstorm annotated. The star represents the location of the tent collapse near Busch Stadium in downtown St. Louis.

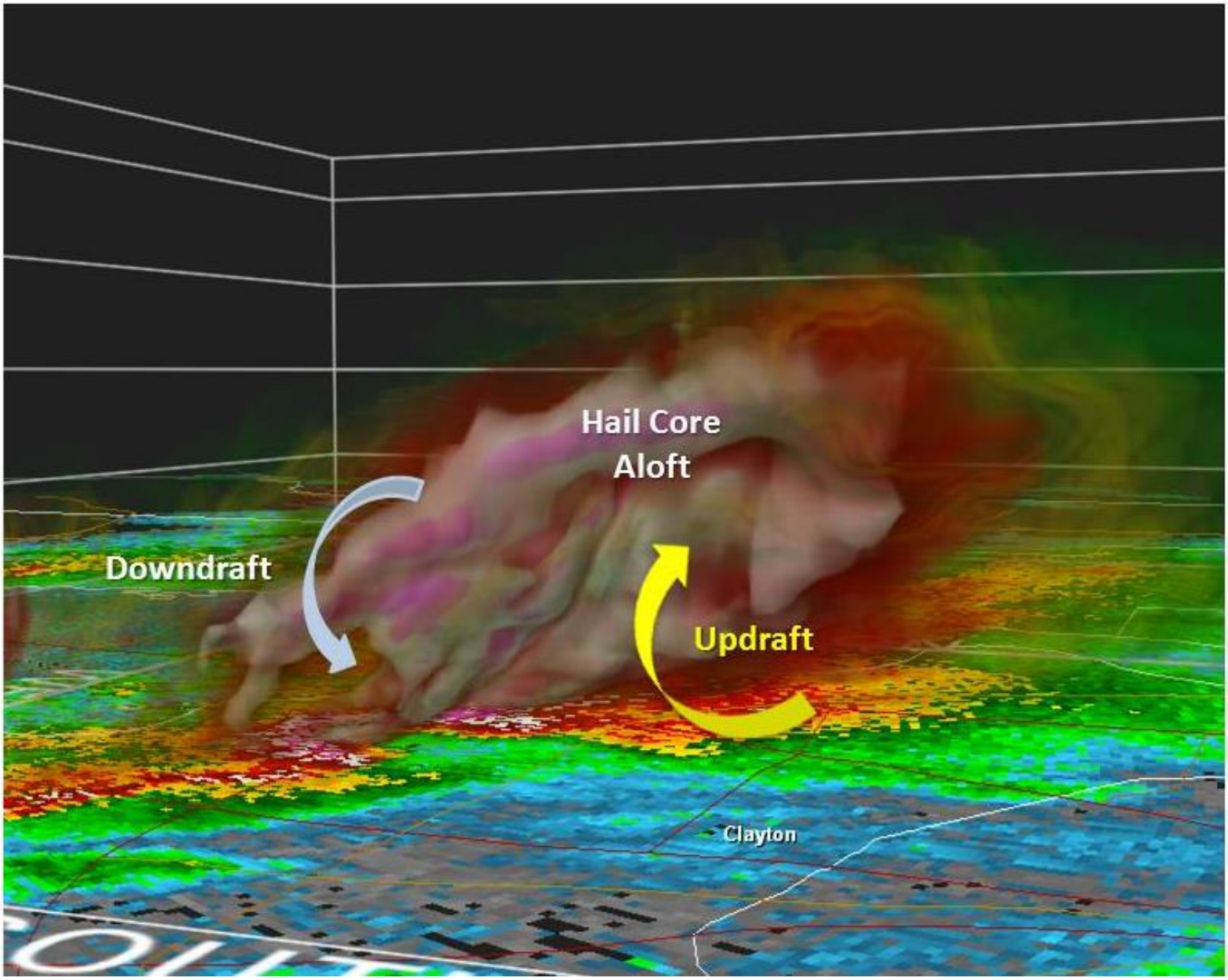
Second Wave of Supercell Thunderstorms

Later in the afternoon another supercell quickly intensified as it moved from Warren into St. Charles County. This supercell was responsible for producing very large hail, greater than 3.0 inches in diameter near Wentzville and Flint Hill. A new cell quickly developed across southwest St. Charles, Missouri and blocked the inflow into the initial storm, causing it to quickly diminish in intensity as it move east-southeast into central St. Charles County. The new storm rapidly intensified as it moved east, ands start producing severe hail, up to the size of baseballs, before it crossed the Missouri River into St. Louis County. This storm became the most prolific hail producer of the day, with a large swath of St. Louis County and St. Louis City experiencing up to 10 minutes of golf balls to baseball size hail. Most locations reported that the ground was covered by the time the storm had passed.



Hail swath with second wave of supercells. Wall Cloud near I-270/255 and I-55 Interchange. Photo courtesy of Fox-2.

Environment



3D Radar Display of the supercell when it was depositing baseball size hail over St. Louis County. Updraft, downdraft, and hail core are annotated.

Damage Surveys

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