



MAY 22, 2011



A DAY THAT FOREVER CHANGED JOPLIN, MO

"All the parameters said something horrible is going to come into Joplin ... I knew something horrible was about to unfold right in front of me ... I couldn't do anything about it."
 -Jeff Piotrowski, storm chaser. From Joplin Globe



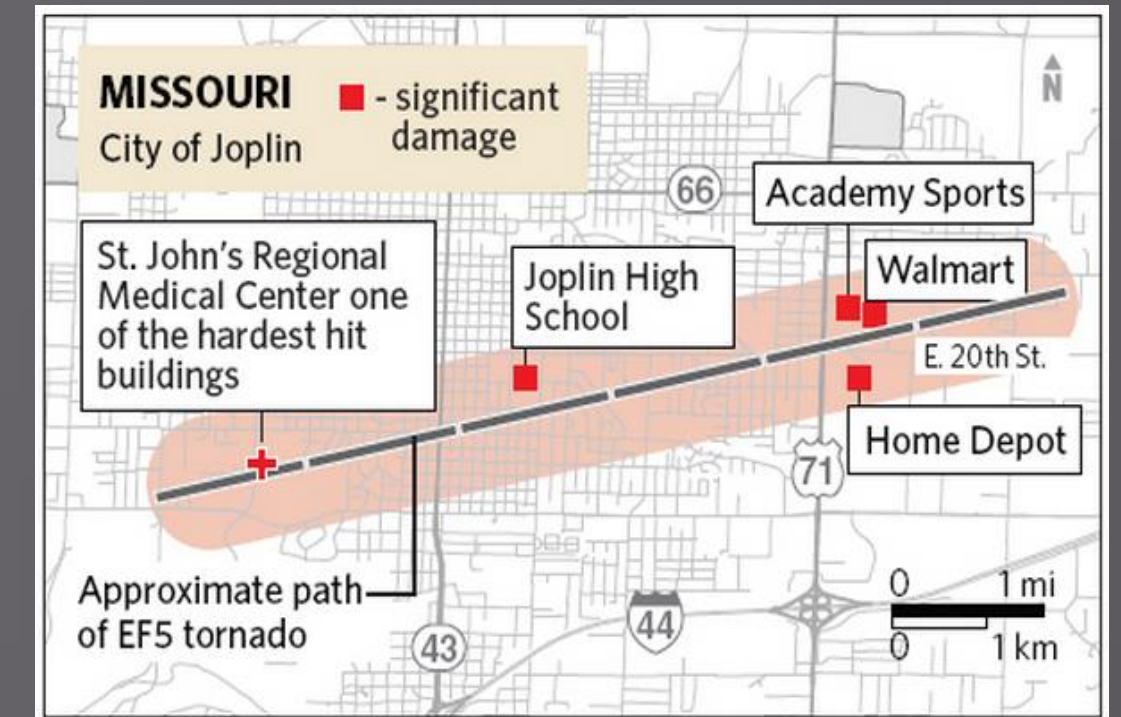
Courtesy NWS Springfield

Enhanced Fujita Scale

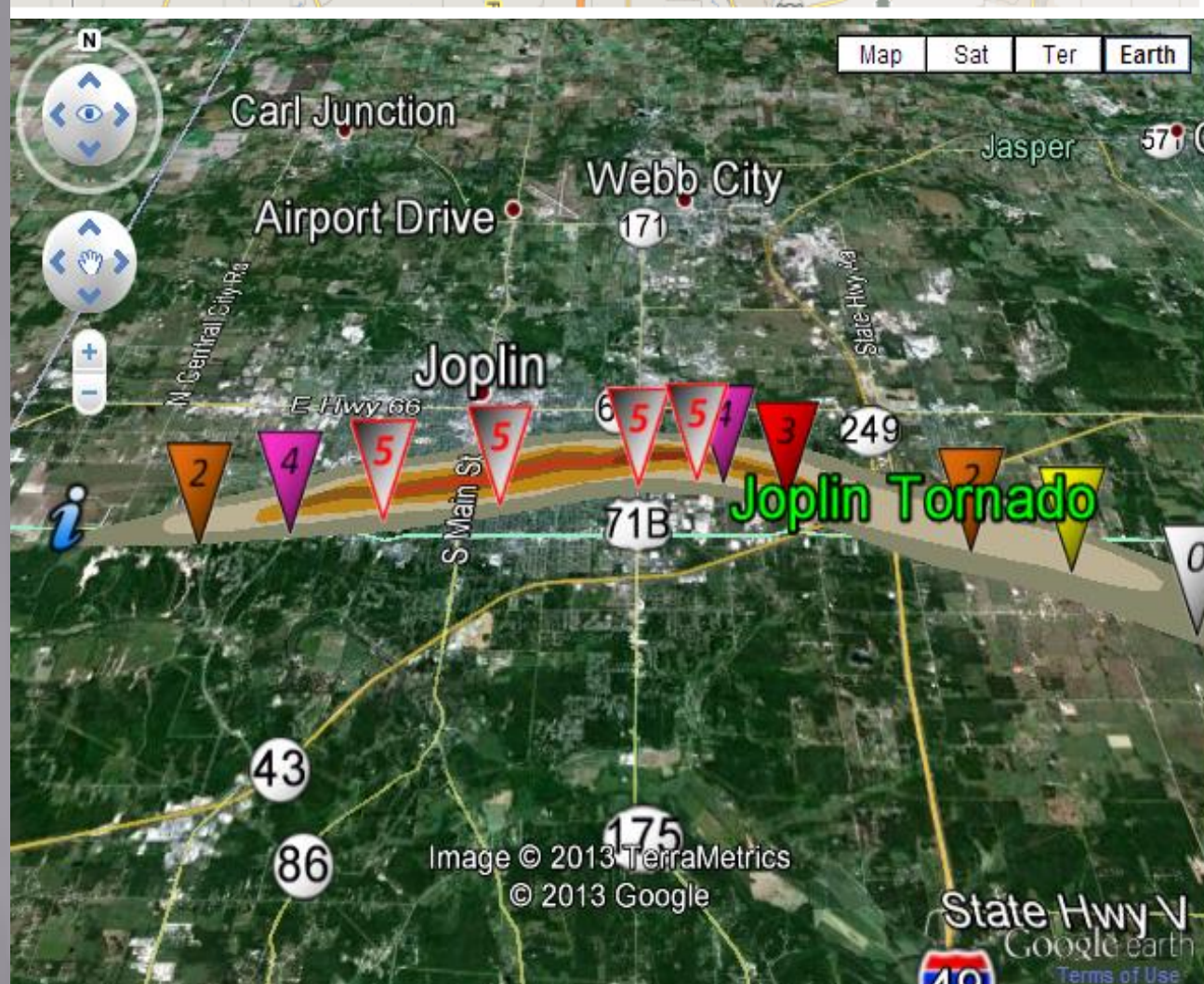
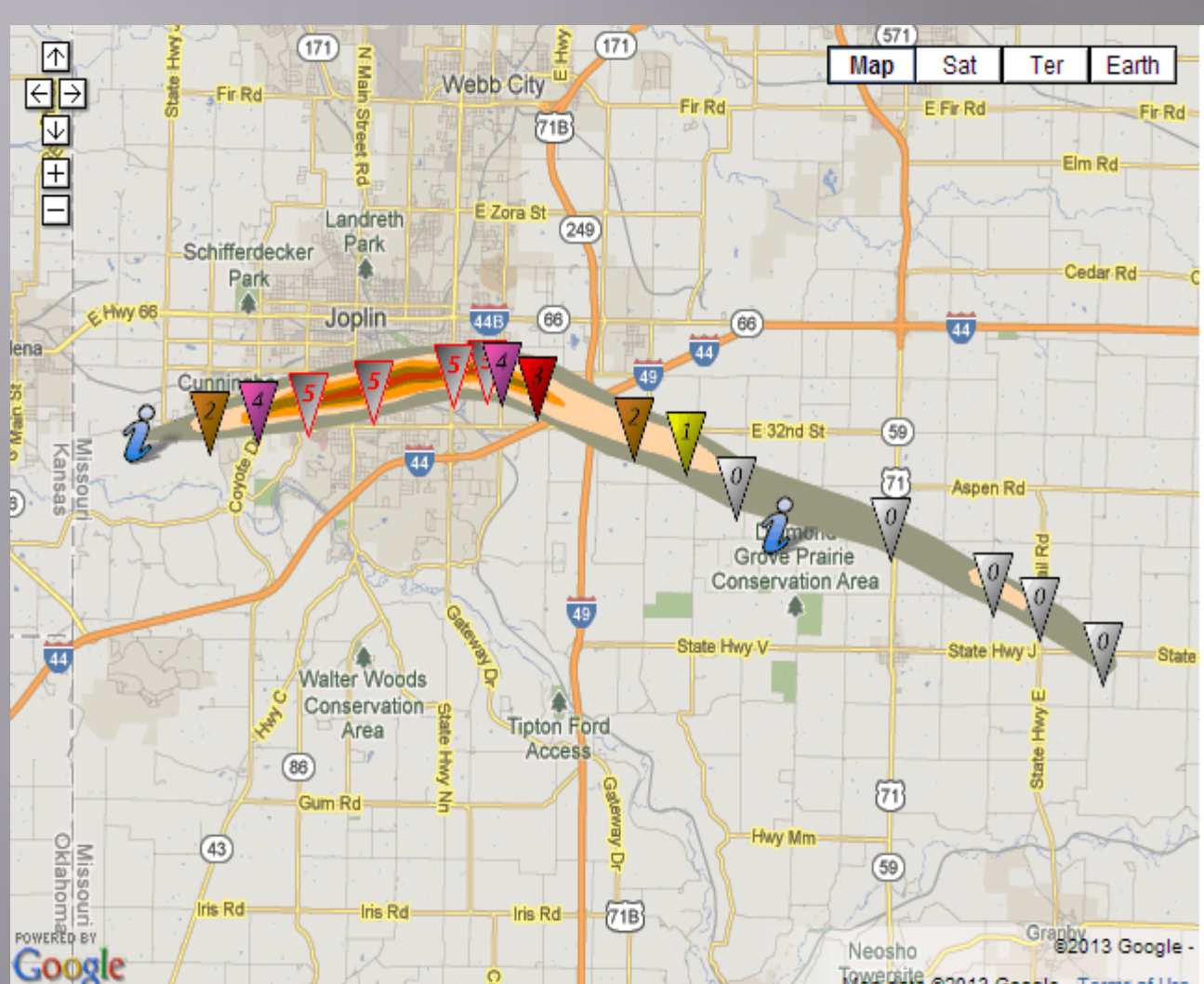
- EF0...WINDS 65 TO 85 MPH.
- EF1...WINDS 86 TO 110 MPH.
- EF2...WINDS 111 TO 135 MPH.
- EF3...WINDS 136 TO 165 MPH.
- EF4...WINDS 166 TO 200 MPH.
- EF5...WINDS OVER 200 MPH.

Overview

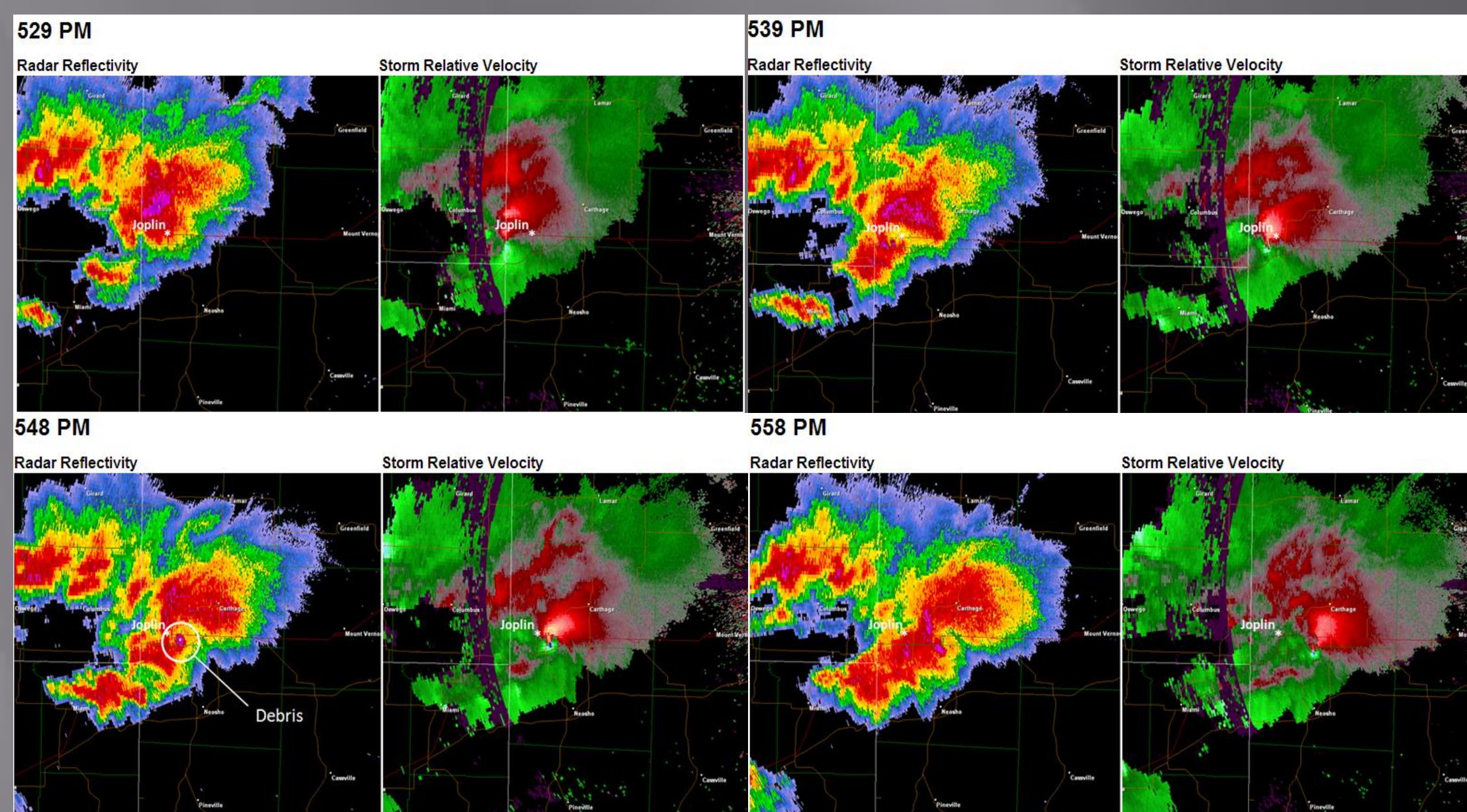
On a hot, humid afternoon on May 22, 2011, an EF-5 tornado tore through the town of Joplin, Missouri. With winds exceeding 200 mph and a damage path width of $\frac{3}{4}$ to 1 mile, the town found itself in what turned out to be one of the deadliest tornadoes in history. An estimated 158 fatalities occurred which ranks it number 7 on the list of most deadly tornadoes in America. One of the most disappointing aspects of the tornado was the number of people who did not seek shelter after the first warning. "It's really hard to tell how many people who perished in the tornado did not take shelter. It was a very large tornado, so there were certainly a number of people who did all the right things, took shelter in the best available place, but still found themselves in situations that weren't survivable. So it's really hard to make that assessment," said NWS storm investigator Richard Wagenmaker about the reports of those who did not take the first warning seriously. Although there is no way to tell whether or not more people may have lived had they responded better to the warnings, there is undisputed proof that a tornado this large is going to be devastating to whatever it comes in contact with. The monster tornado destroyed 4 schools and 8 other district buildings.



"I've never seen such devastation - just block upon block upon block of homes just completely gone."
 - Gary Burton, Former State Legislator
www.dailymail.co.uk



The tornado path can be seen on the 2 maps above. The progression of the tornado from an EF-2 to EF-5 is seen ripping straight through the southern side of Joplin. The different shading underneath the wedges shows the more severely damaged areas.



Radar Assessment

Radar reflectivity (velocity) images above are on the left (right) side of each frame at the given time. The tornadic supercell is on the north side of the cluster of storms. At 5:39 PM (upper right), a hook echo and a well-defined tornadic low-level mesocyclone (red-green couplet in velocity data) were evident. At 5:48 PM (lower left), a debris ball was noted (circled on reflectivity) in the hook, suggesting a large tornado was on the ground. This correlated to strong rotation in velocity data. By 5:58 PM, the tornado was still in progress, although beginning to weaken as the storm moved east of Joplin. The supercell continued to move across Missouri producing smaller tornadoes, wind damage, and some flash flooding.



Impact

- EF-5 Tornado
- Approx. wind speed > 200 mph
- Path width $\frac{3}{4}$ mile to 1 mile
- Path length 22.1 miles (6 of which were highly destructive)
- Start/end time 5:34 to 6:12 PM
- Estimated 158 fatalities
- Over 1000 people injured
- 4 schools and 8 other district buildings demolished
- Walmart and Home Depot brought to ruins
- Around \$3 billion in damage



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