The Role of Polarimetric, Doppler Velocity, and Spectrum Width Signatures in the Reanalysis of a QLCS Tornado Cluster

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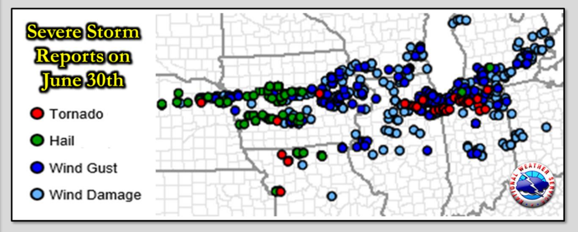
Brett Borchardt—North Carolina State University - Raleigh

Event Overview



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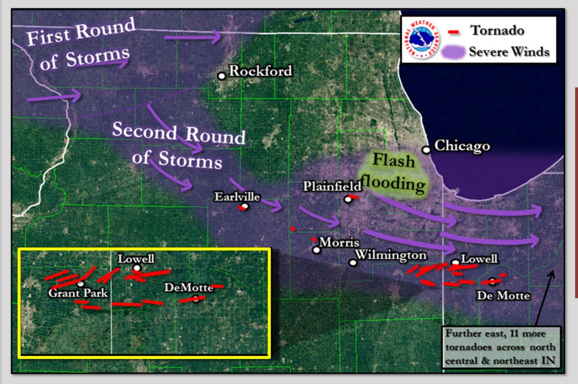

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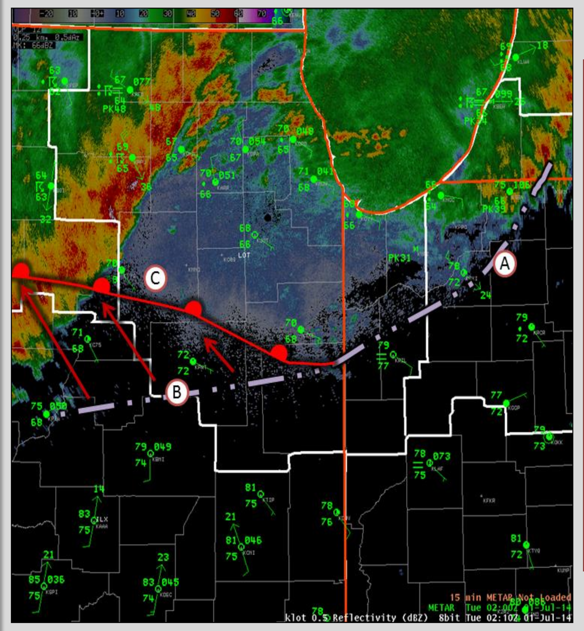

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At 0200 UTC on 1 July 2014 this image shows:
A—Current leading edge of cold pool from the first line.
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Reanalysis: Motivation and Methodology

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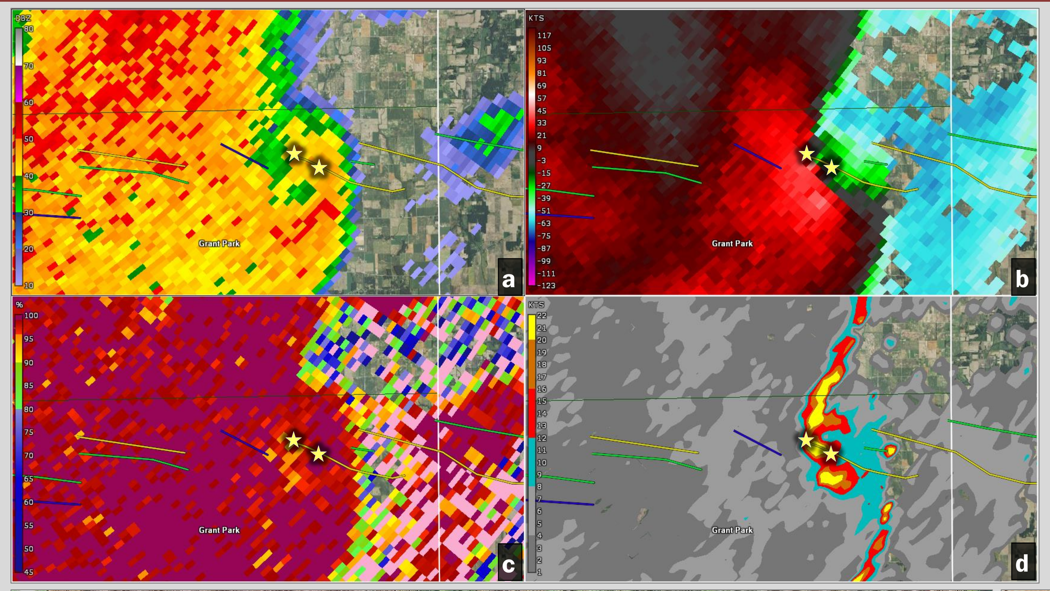

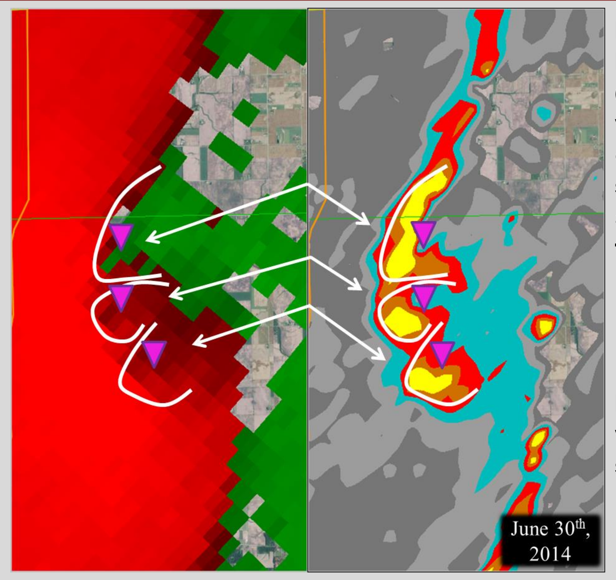

Left: 0330 UTC 1 July 2014 KLOT 0.5° base reflectivity (dbZ, a), storm relative velocity (kt, b), correlation coefficient (% ρ_{hv}, c), and spectrum width (kt, d). Left and right stars correspond to left and right photos below. A TDS also is visible in this image.

Right: Detailed view of velocity and spectrum width showing ring signatures and possible tornado locations.

The stars annotated on the radar imagery correspond to these two locations of damage found via Google Earth northeast of Grant Park, IL.
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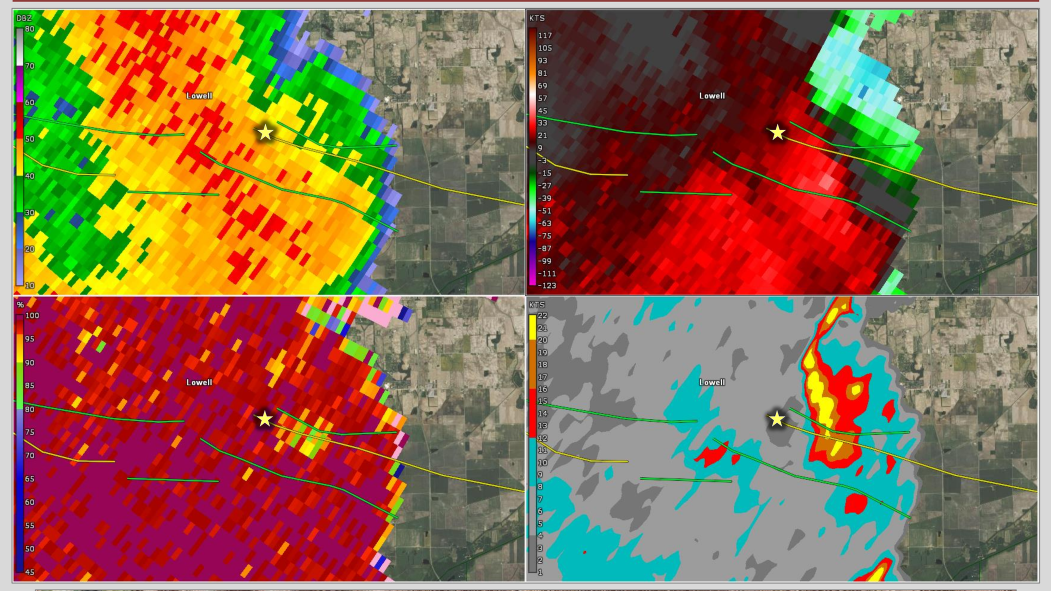
Reanalysis Methodology



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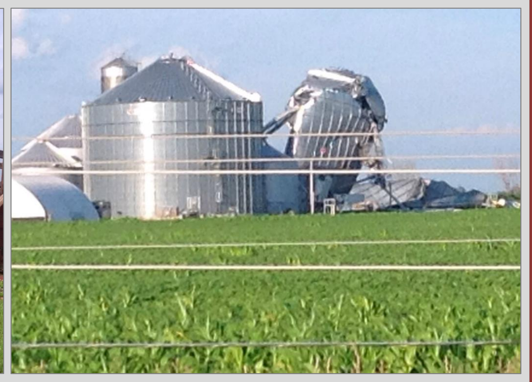
Damage on a farm northwest of Grant Park, IL, near location of TDS in radar imagery.

A destroyed barn northeast of Grant Park, IL.



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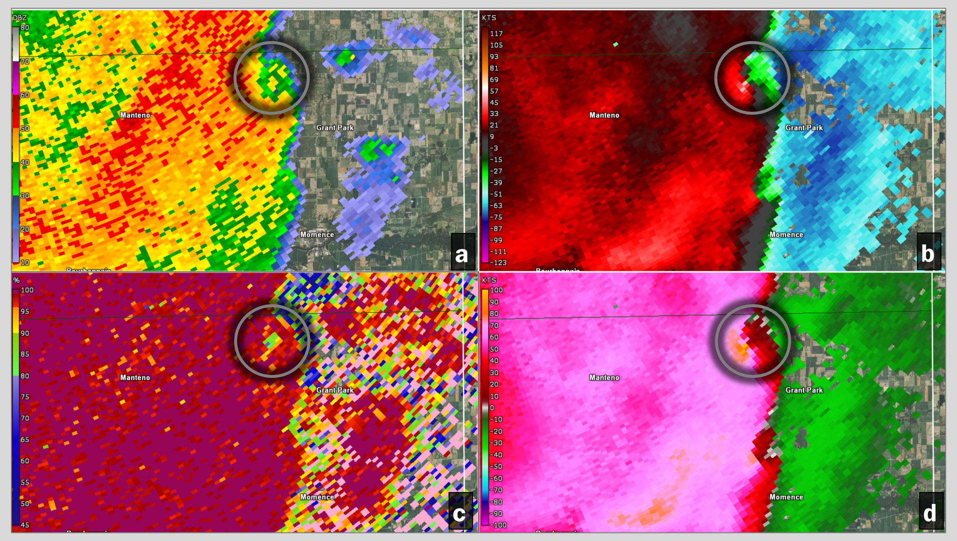

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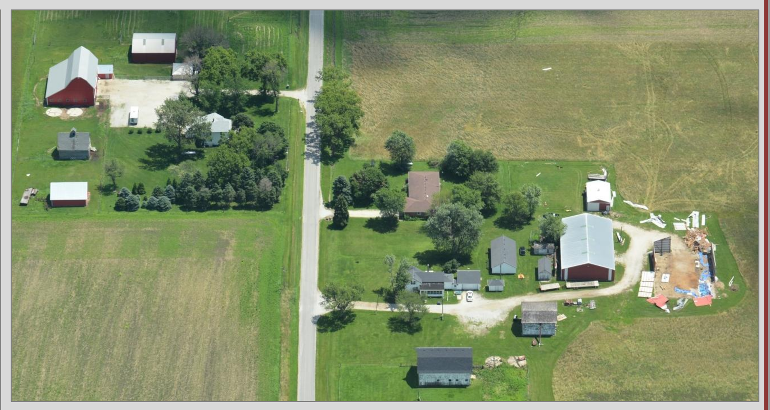

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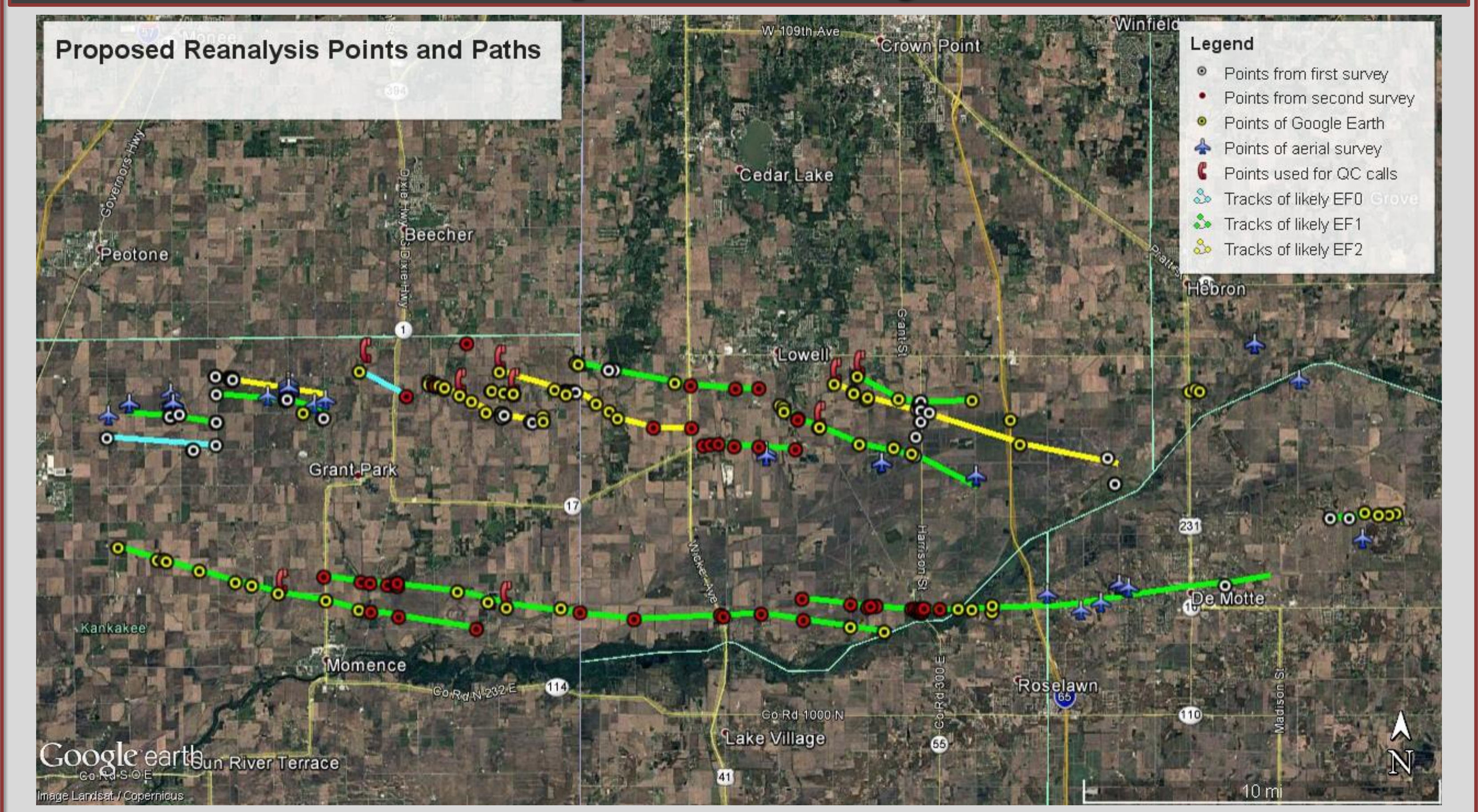
Proposed Reanalysis



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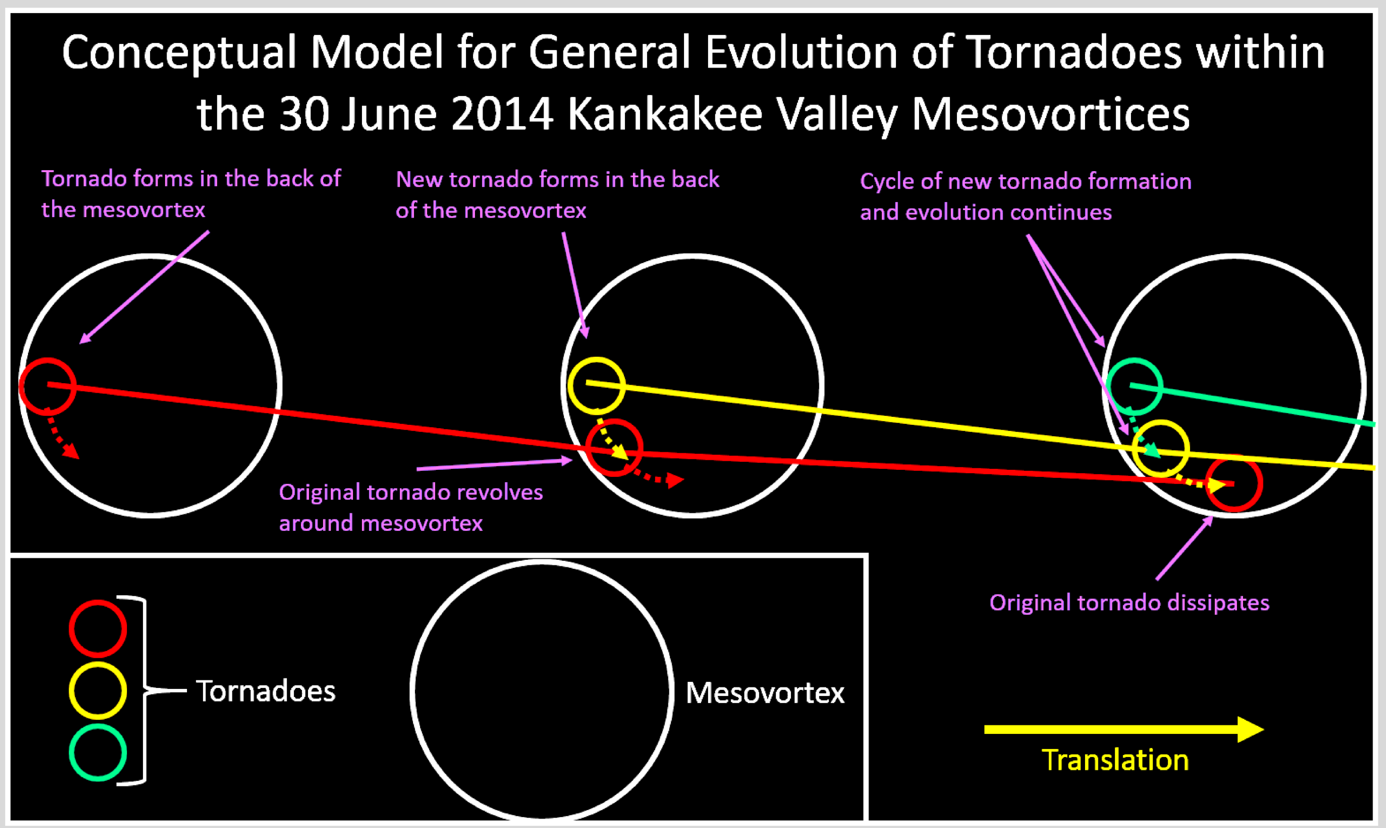

Conclusions, Future Plans, and Messaging Challenges

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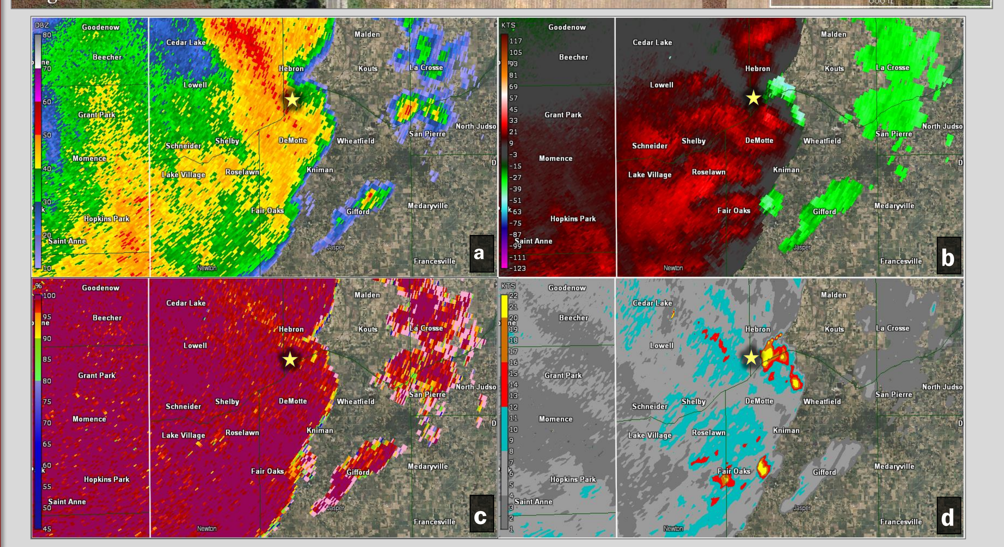

Top: Extensive area of tree damage and removal south of Hebron, IN. This location corresponds to the star on the radar image below.

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Future plans:

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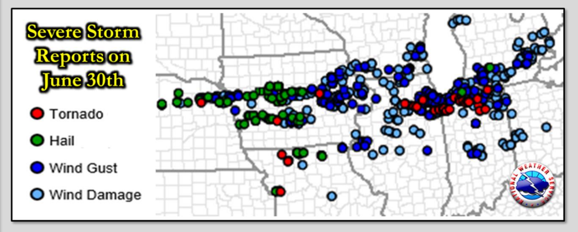

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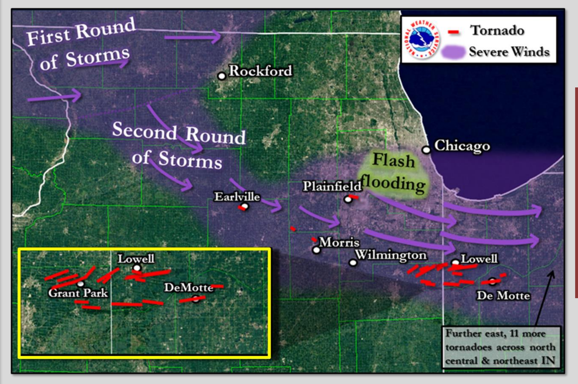

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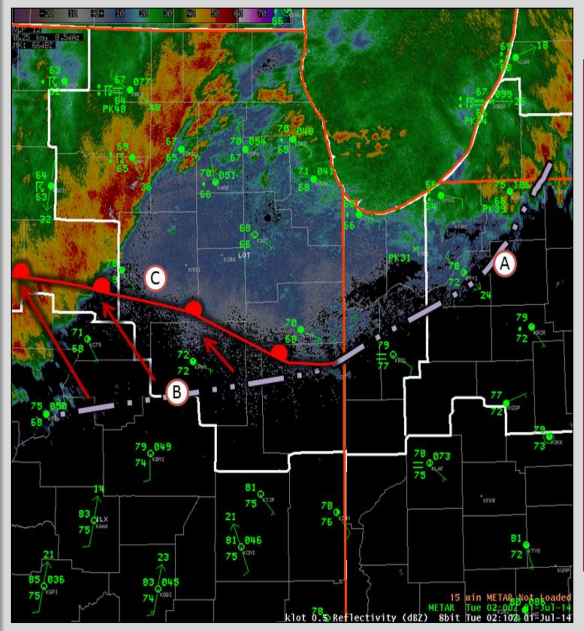

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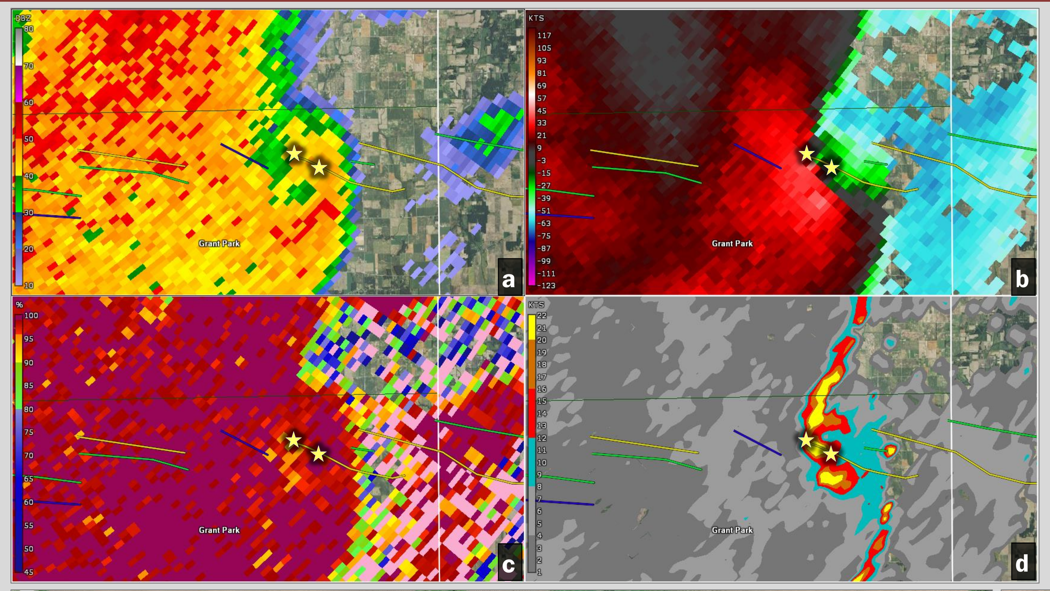

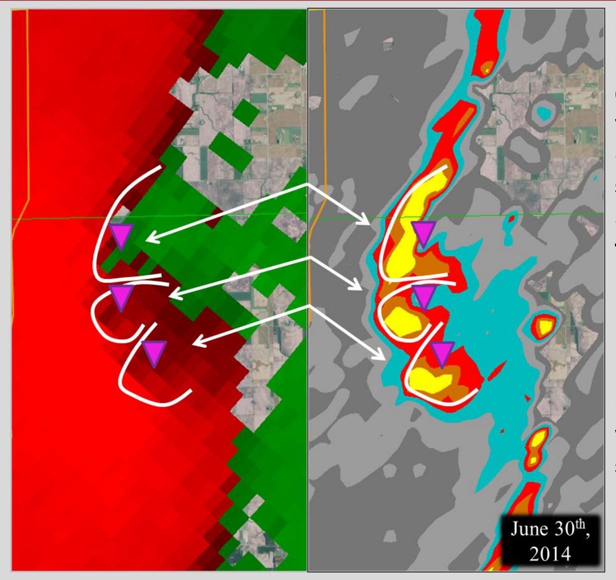

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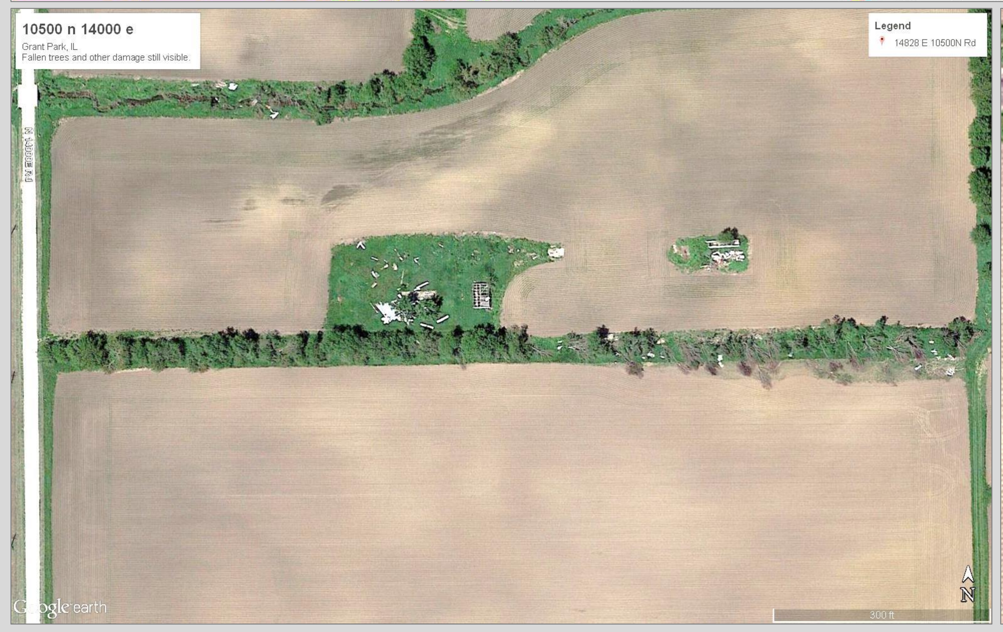

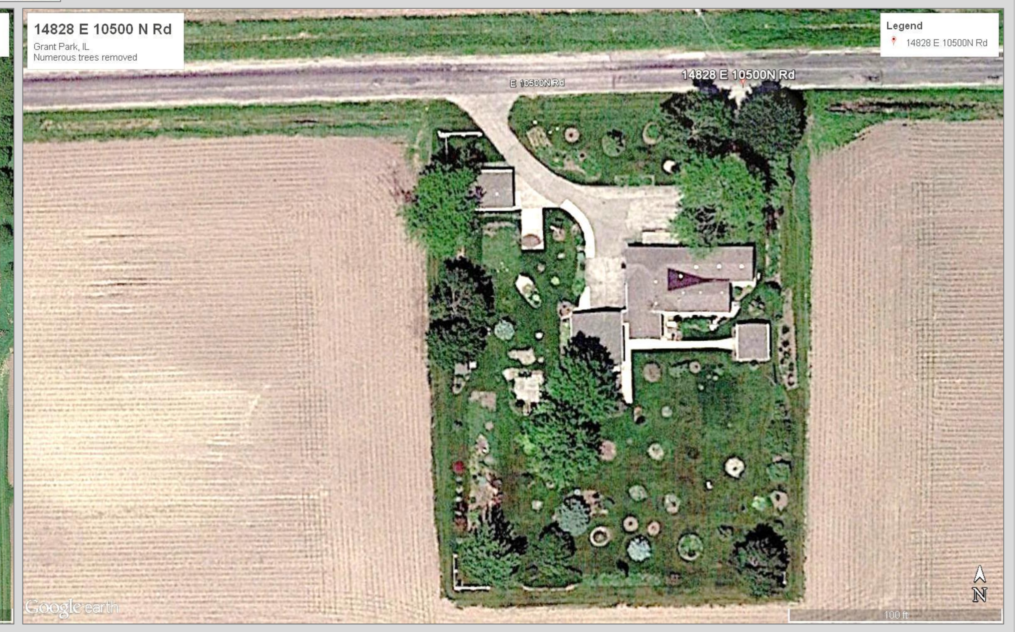

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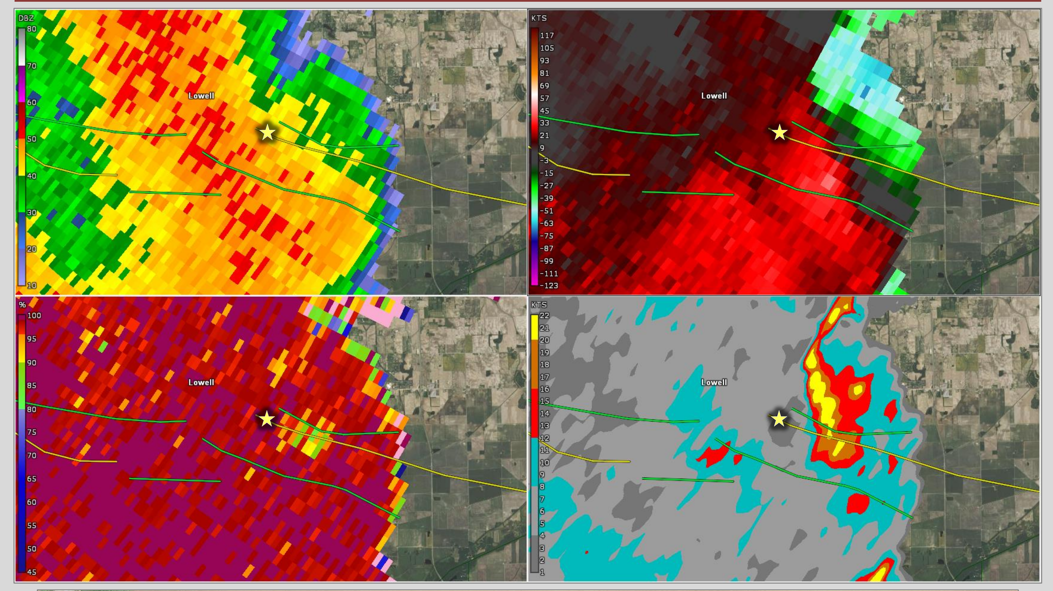

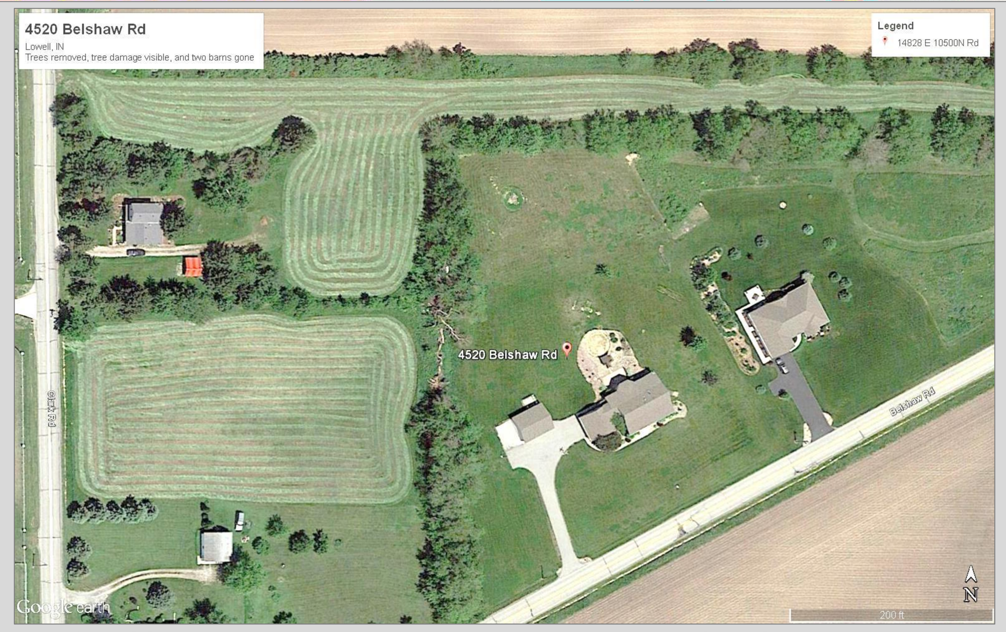

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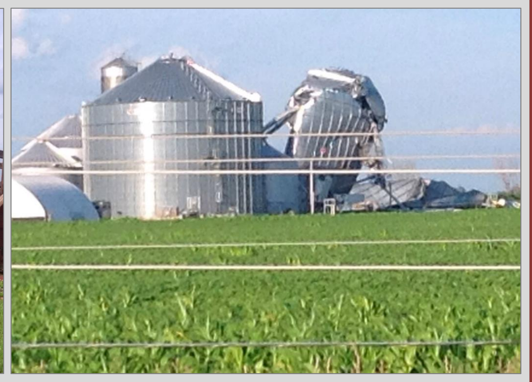

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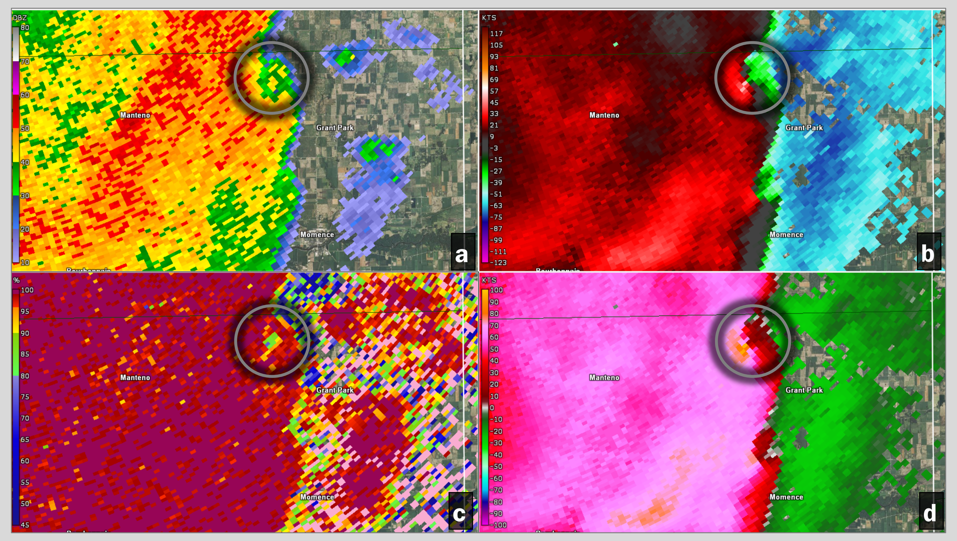

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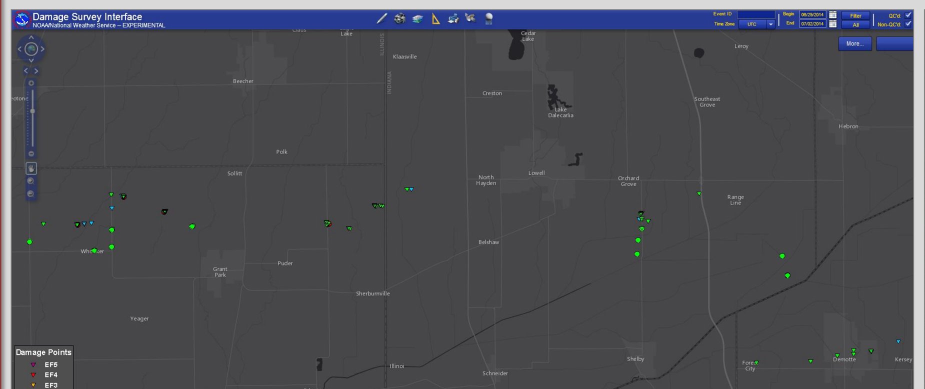

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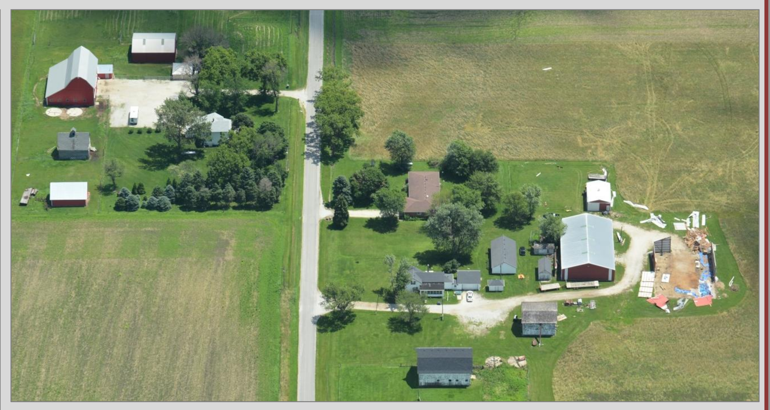

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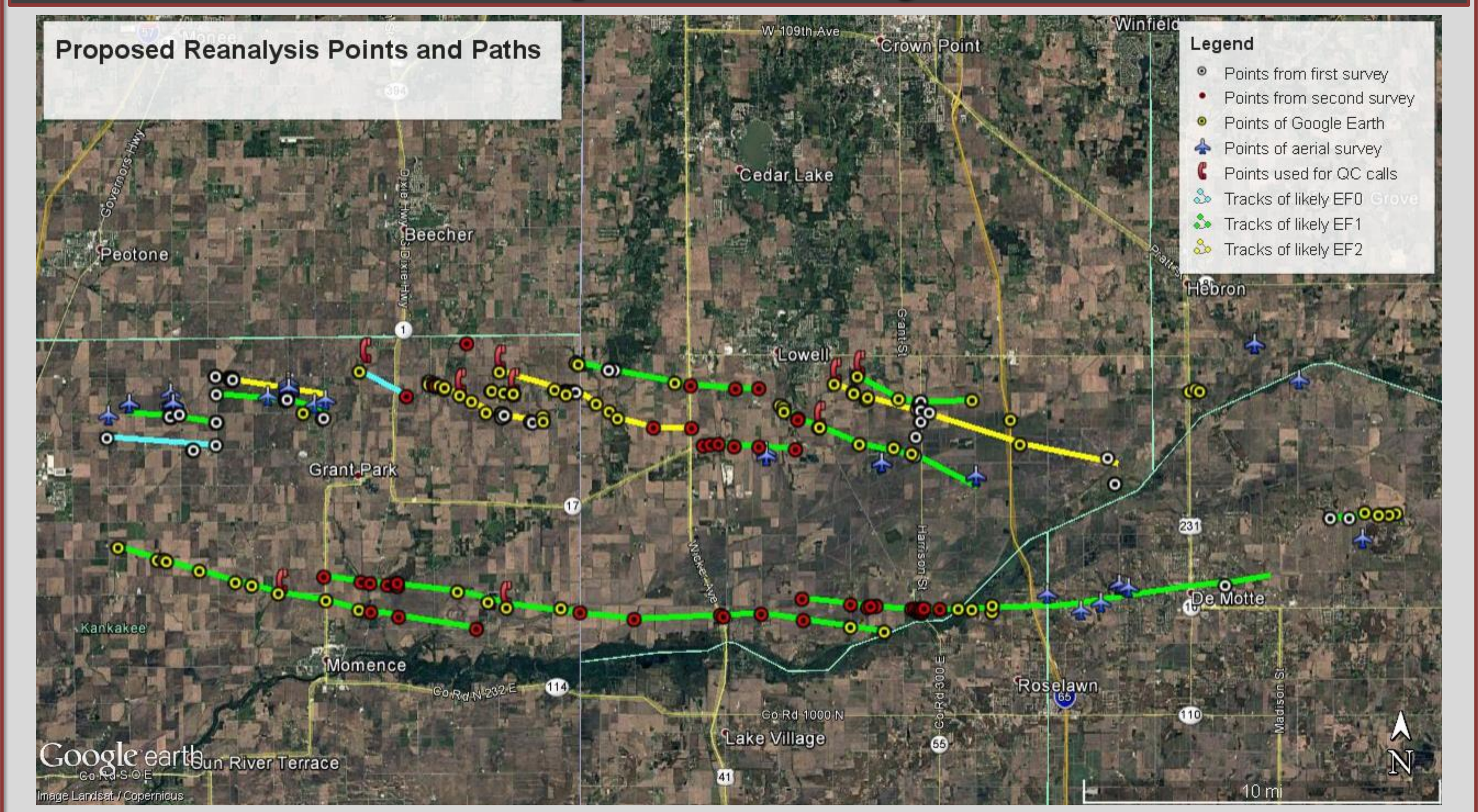

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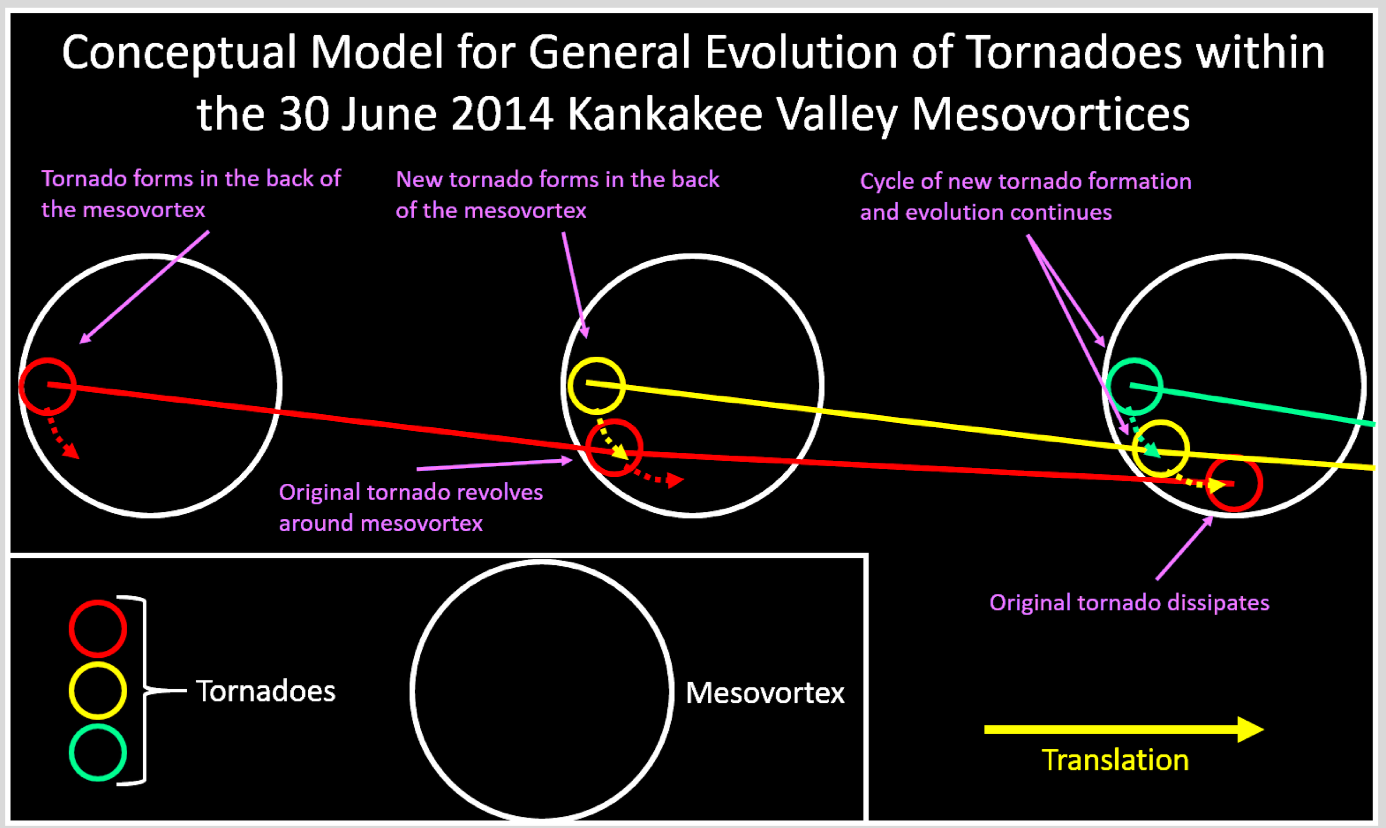

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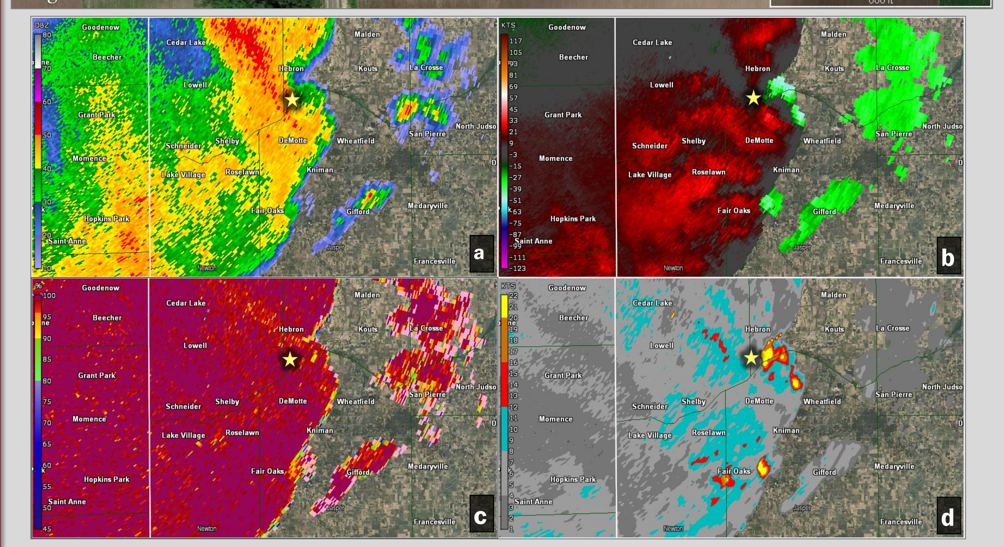

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