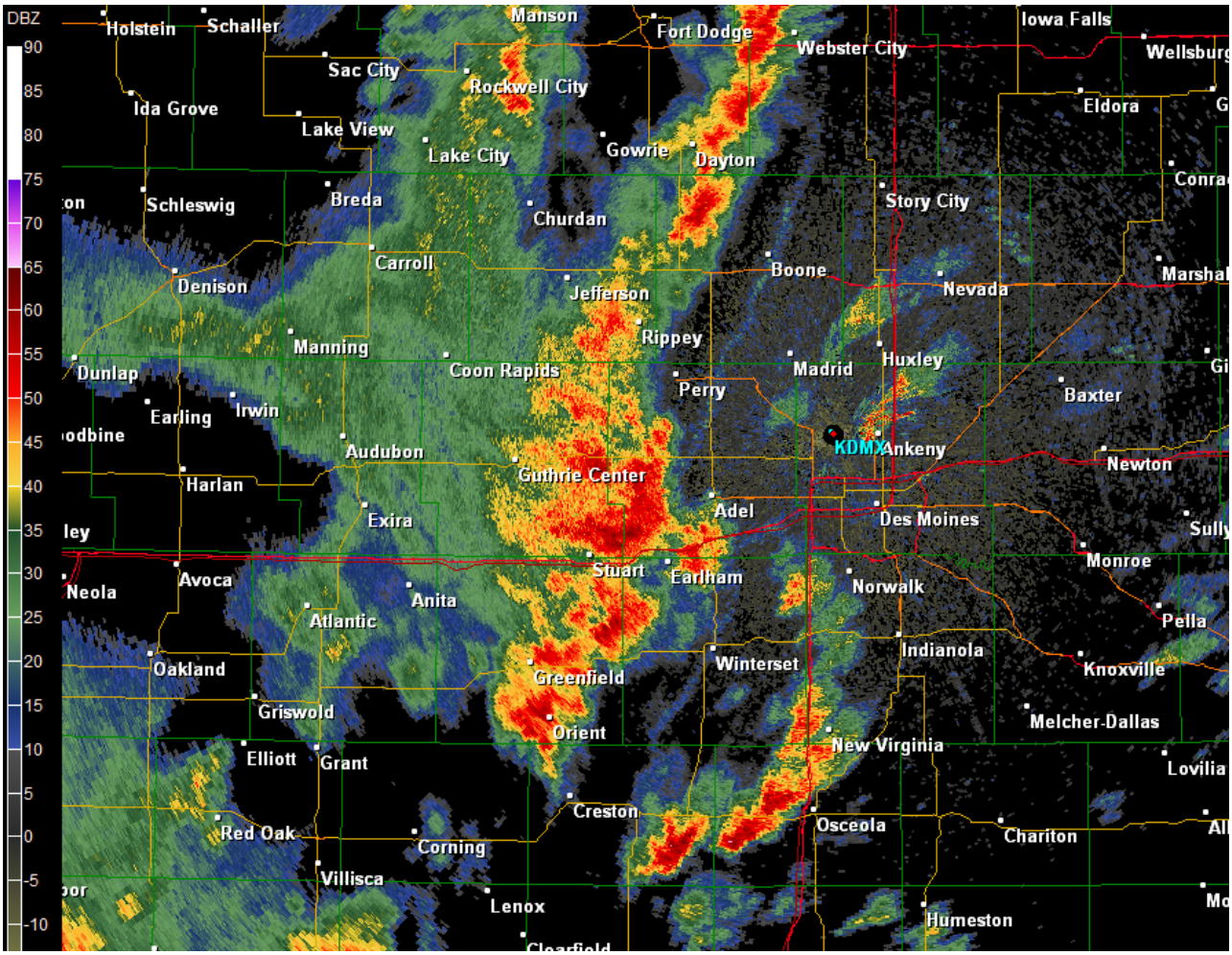
National Weather Service Des Moines

Storm Survey Results from Dallas, Polk, and Story Counties

Overview:

A widespread severe weather event occurred during the late afternoon and evening hours of Sunday May 19, 2013. Thunderstorms developed over western Iowa initially moving northeast to northern Iowa. Additional thunderstorms moved into Iowa from Nebraska and Missouri and affected a large portion of southern and central Iowa from early evening through midnight.

Three short lived tornadoes embedded within a larger area of straight line winds occurred from Dallas County through portions of Polk County and into far southern Story County. Wind damage and hail reports were received over much of central Iowa.



Survey Results:

The damage survey was conducted by NWS meteorologists. The intent of the survey was to document the damage, estimate the wind speeds, and determine if the damage was caused by straight-line thunderstorm winds or a tornado. The detailed findings of the survey are listed below.

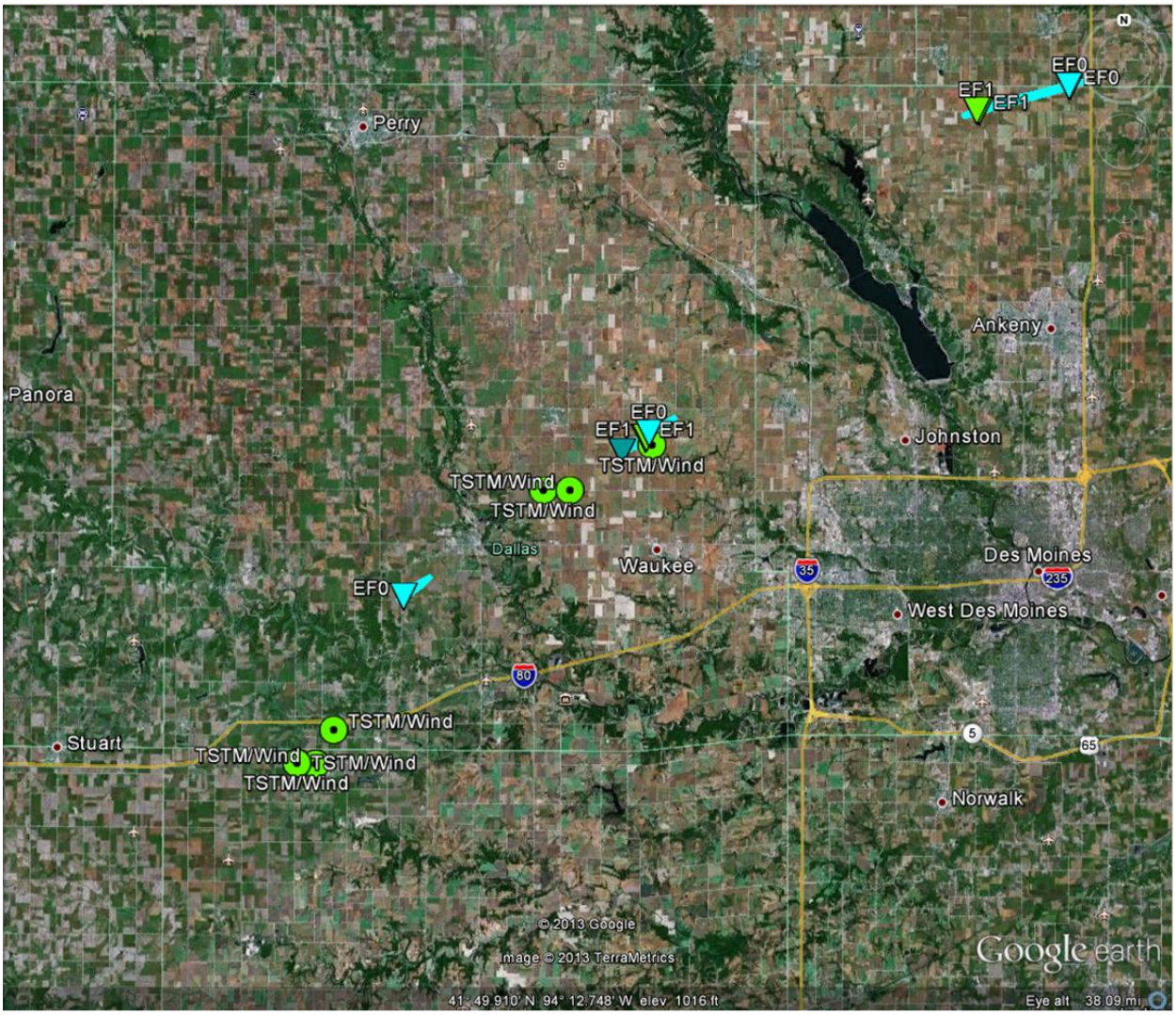
Event Type:	**Tornado Number 1**
Tornado Strength:	**EF0**
Estimated Start Time:	**6:32 pm**
Event Location:	**3 miles southwest of Adel to 1.5 miles southwest of Adel**
Peak Wind Speed:	**75 mph**
Path Length:	**1.5 miles**
Average Path Width:	**Broad circulation in open fields**
Injuries:	**None**
Fatalities:	**None**
Discussion/Damage:	**Although credible spotter reports…Doppler radar data… photographic evidence and survey results were all inconclusive by themselves…The overall evidence and number of reports indicated that a short lived broad, weak tornado occurred in open fields southwest of Adel. The tornado was embedded within a larger area of 60 to 75 mph straight line winds.**

Event Type:	**Tornado Number 2**
Tornado Strength:	**EF1**
Estimated Start Time:	**6:45 pm**
Event Location:	**3 miles east-southeast of Dallas Center to 4 miles east of Dallas Center**
Peak Wind Speed:	**100 mph**
Path Length:	**1.4 miles**
Average Path Width:	**200 yards**
Injuries:	**None**
Fatalities:	**None**
Discussion/Damage:	**The broad circulation embedded within the straight line winds mentioned above appeared to redevelop…strengthen and contract as it moved southeast of Dallas Center. A narrow band of stronger winds produced a tight gradient of more intense and significant tree and some structural damage at one residence along 250th Street. The straight line wind also appeared to diminish as the storm approached Grimes though still severe.**

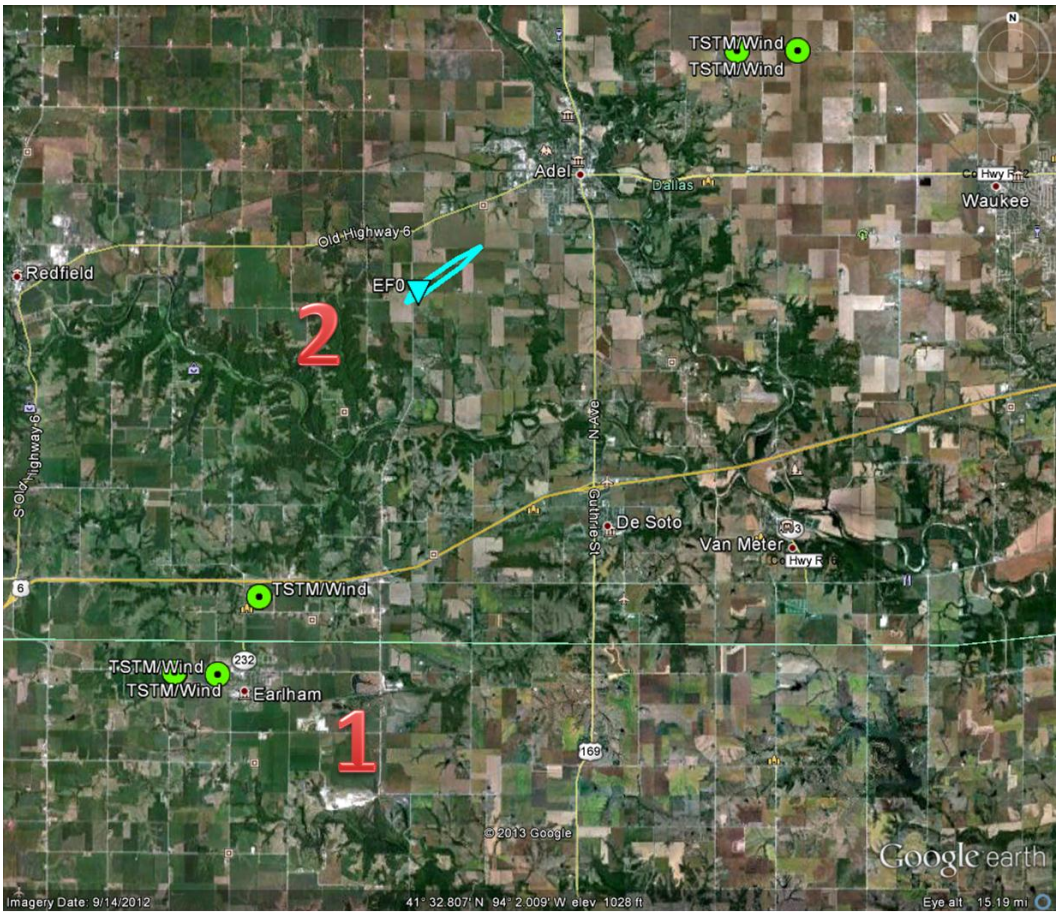
Event Type:	**Tornado Number 3**
Tornado Strength:	**EF0**
Estimated Start Time:	**7:05 pm**
Event Location:	**2.5 miles south-southeast of Slater to 2 miles south-southeast of Huxley.**
Peak Wind Speed:	**90 mph**
Path Length:	**5 miles**
Average Path Width:	**250 yards**
Injuries:	**None**
Fatalities:	**None**
Discussion/Damage:	**Doppler radar data showed a very compact circulation that developed over far northern Polk County and dissipated rapidly shortly after it crossed the Polk-Story County line. Damage along its track was corroborated by several eyewitnesses and dash cam video from local law enforcement. Peak damage included a garage and a living room roof removed from a manufactured home.**

A detailed discussion of the damage points and photos at some of the locations appears on the following pages.

Overview of Damage Path



Damage Path of Storm Through Dallas, Polk, and Story Counties



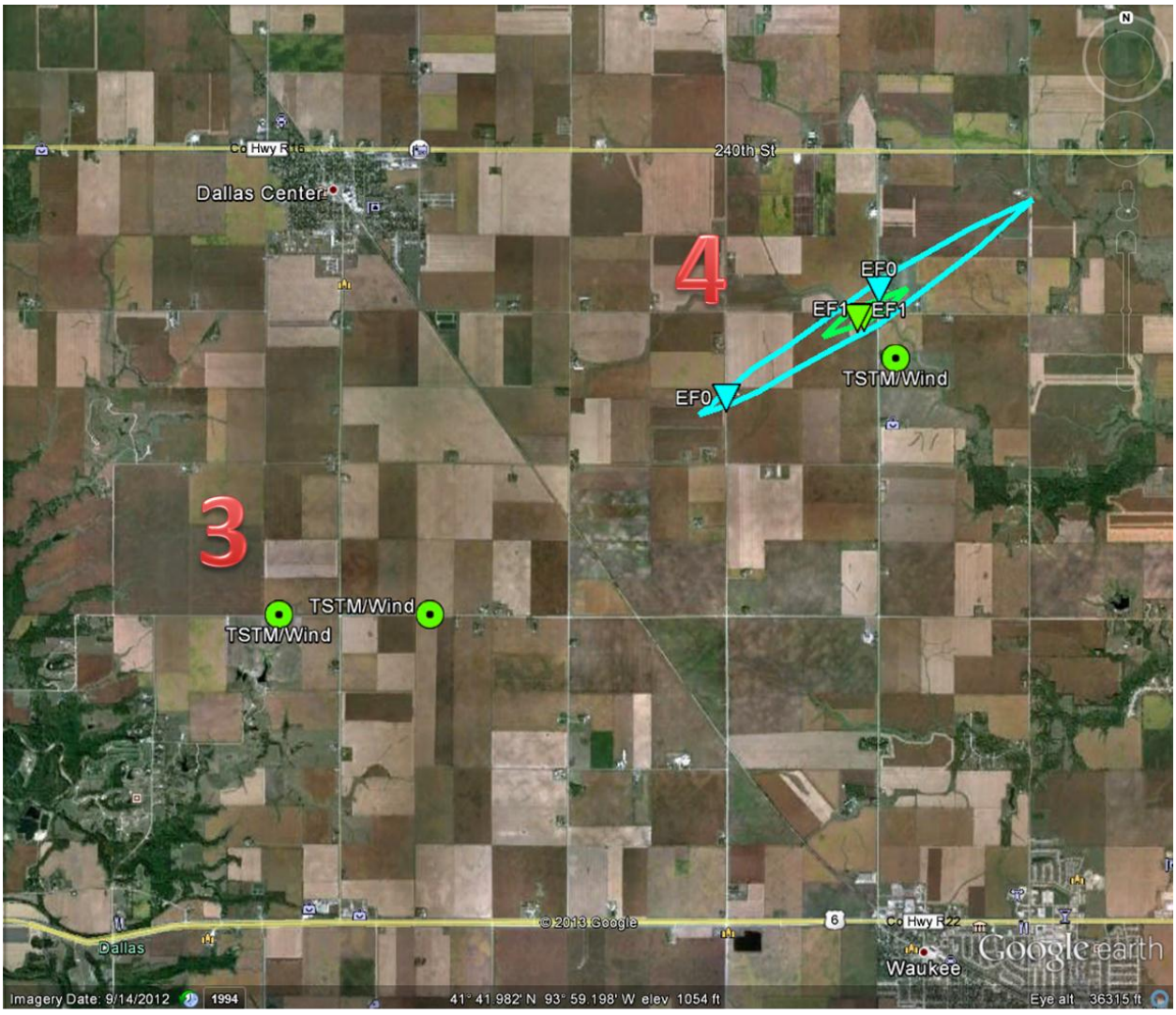
Damage Path of Storm Through Dallas, Polk, and Story Counties

Point 1:

Some straight line wind damage occurred just south of the Dallas and Madison County line around 6:30 pm then moving northeast. An outbuilding lost paneling and roof sections. Wind speed estimated at 74 to 88 mph with EF0 damage at these thunderstorm wind damage locations.

Point 2:

Tornado Number 1: An EF0 tornado touched down at 6:32 pm causing sporadic damage. Winds estimated at 70 mph with a path length of 1.5 miles. This tornado caused tree damage southwest of Adel with most of the tornado tracking through an open farm field before lifting just southwest of the City of Adel.



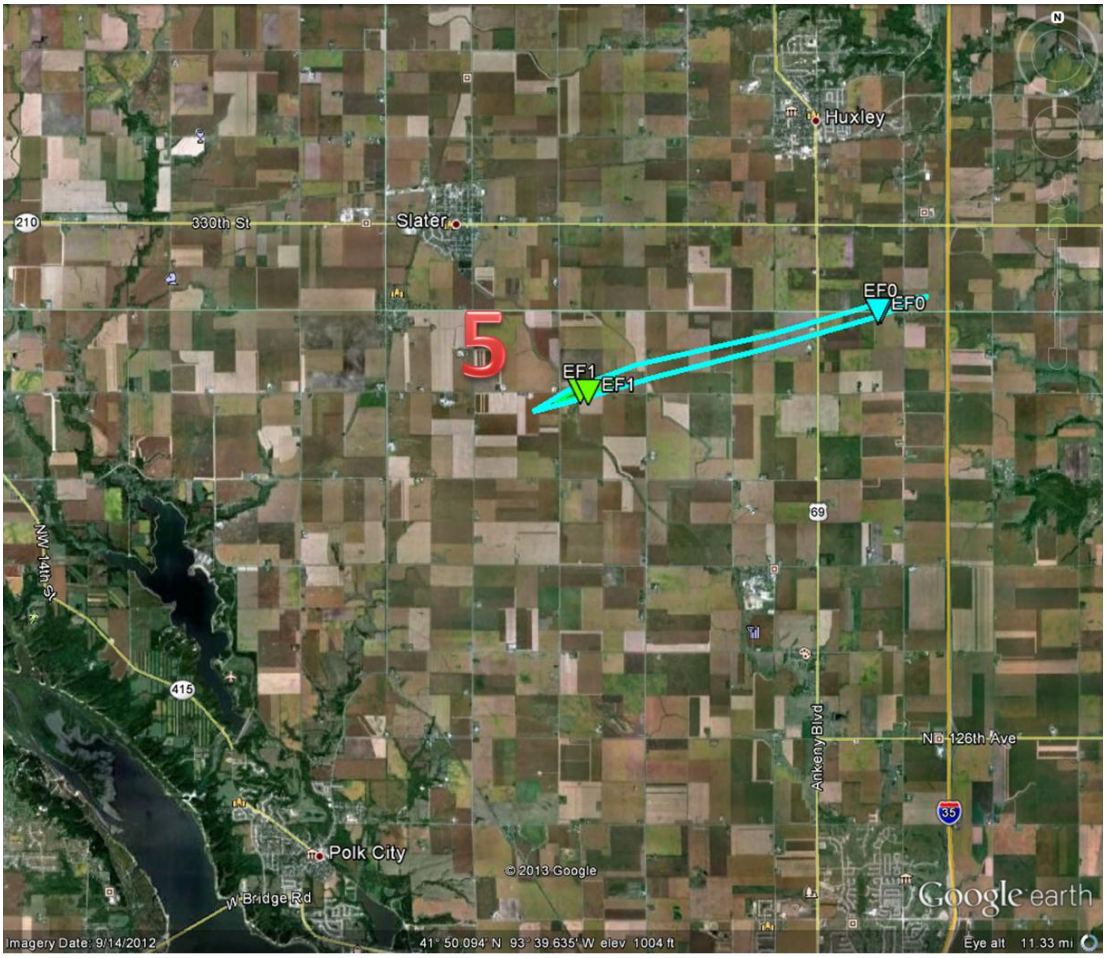
Damage Path of Storm Through Dallas, Polk, and Story Counties

Point 3:

Thunderstorm straight lined wind damage occurred just northeast of Adel as the storm began to cycle again across Dallas County. Winds of 70 to 75 mph occurred at these two locations based on damage to trees here. Photos on next page.

Point 4:

Tornado Number 2: An EF1 tornado occurred just east southeast of Dallas Center touching down at 6:45 pm. This tornado remained on the ground for 1.4 miles with a path width of 200 yards. Several damage locations along the path indicated wind speeds of 62 to 94 mph.



Damage Path of Storm Through Dallas, Polk, and Story Counties

Point 5:

Tornado Number 3: An EF0 tornado occurred at 7:05 pm 2.5 miles south-southeast of Slater to 2 miles southeast of Huxley. Maximum wind speed of 90 mph occurred with this 5 mile long path tornado with a 200 yard width.