

Communicating Risk and Community Response of an Extreme Wind Event – June 27th, 2008 Omaha/Council Bluffs, Nebraska

Presented by

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Reason to Review

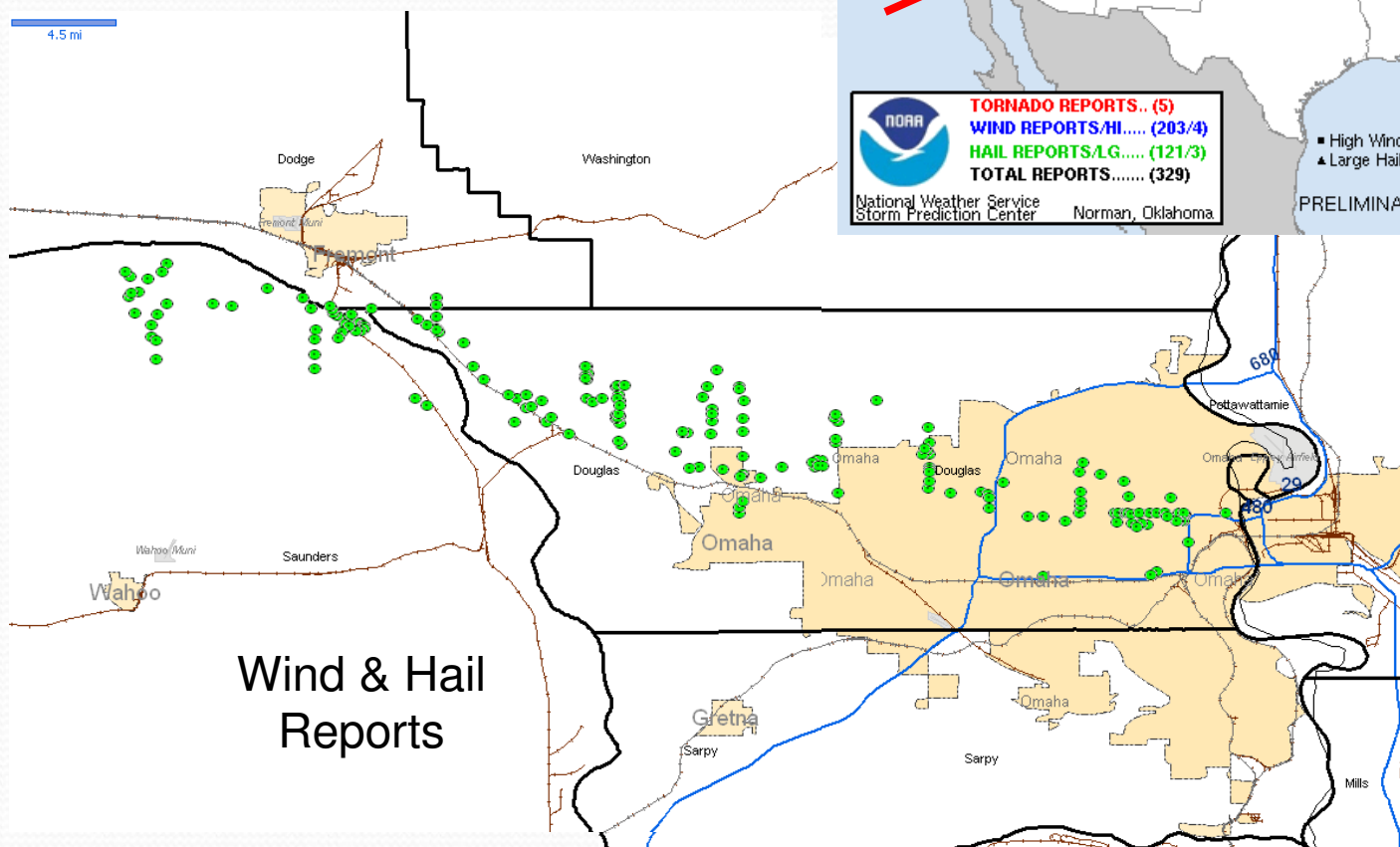
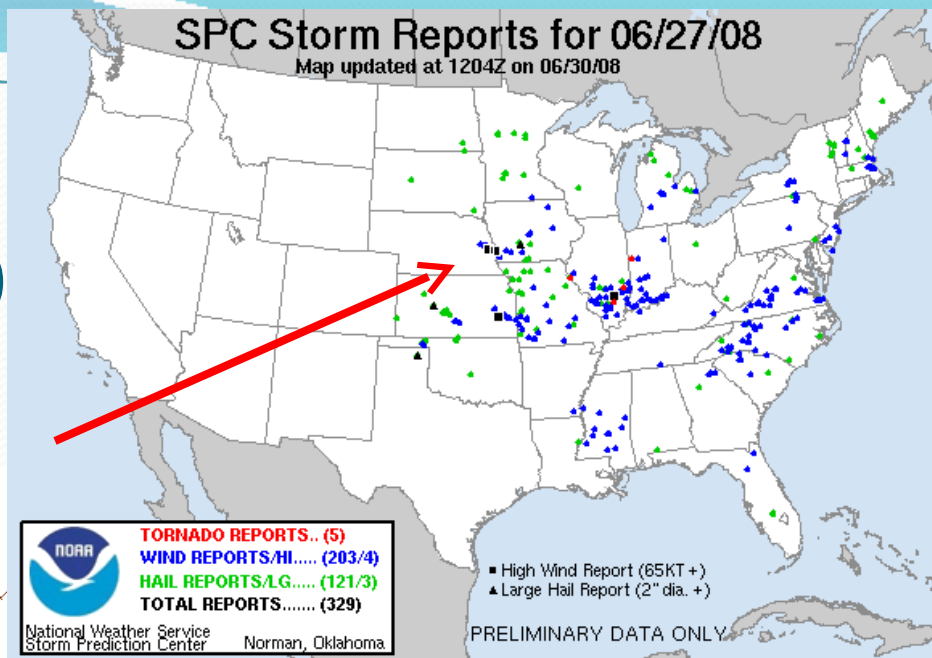
- Large impact
 - Two deaths
 - Largest metropolitan area in county warning area affected (Omaha/Council Bluffs - 500-600,000 people)
 - Large areal coverage with 60 to 115 mph wind damage, hail damage and flooding-massive cleanup
 - 126,000 households without power-OPPD Electric stated it was the worst storm in its history
 - One of the costliest storms to hit Douglas and Pottawattomie Counties (Omaha - 1997 winter storm \$56.5M (\$73M in inflation adjusted dollars) and Council Bluffs 1988

Reason to Review

- Time of day/year - Friday afternoon - many events planned/in progress
 - 2008 U.S. Olympic Swimming Trials -Swimmers Practicing
 - Memorial Park Concert - Kool and the Gang/38 Special - 50,000 people
 - Willie Nelson and Family Concert in Council Bluffs
 - Nebraska Shakespeare Festival, Summer Arts Festival in downtown Omaha,
 - Several “music in the park” concerts (Downtown, Midtown, Regency, Ralston, Bellevue, Missouri Valley).
- Siren policy changed

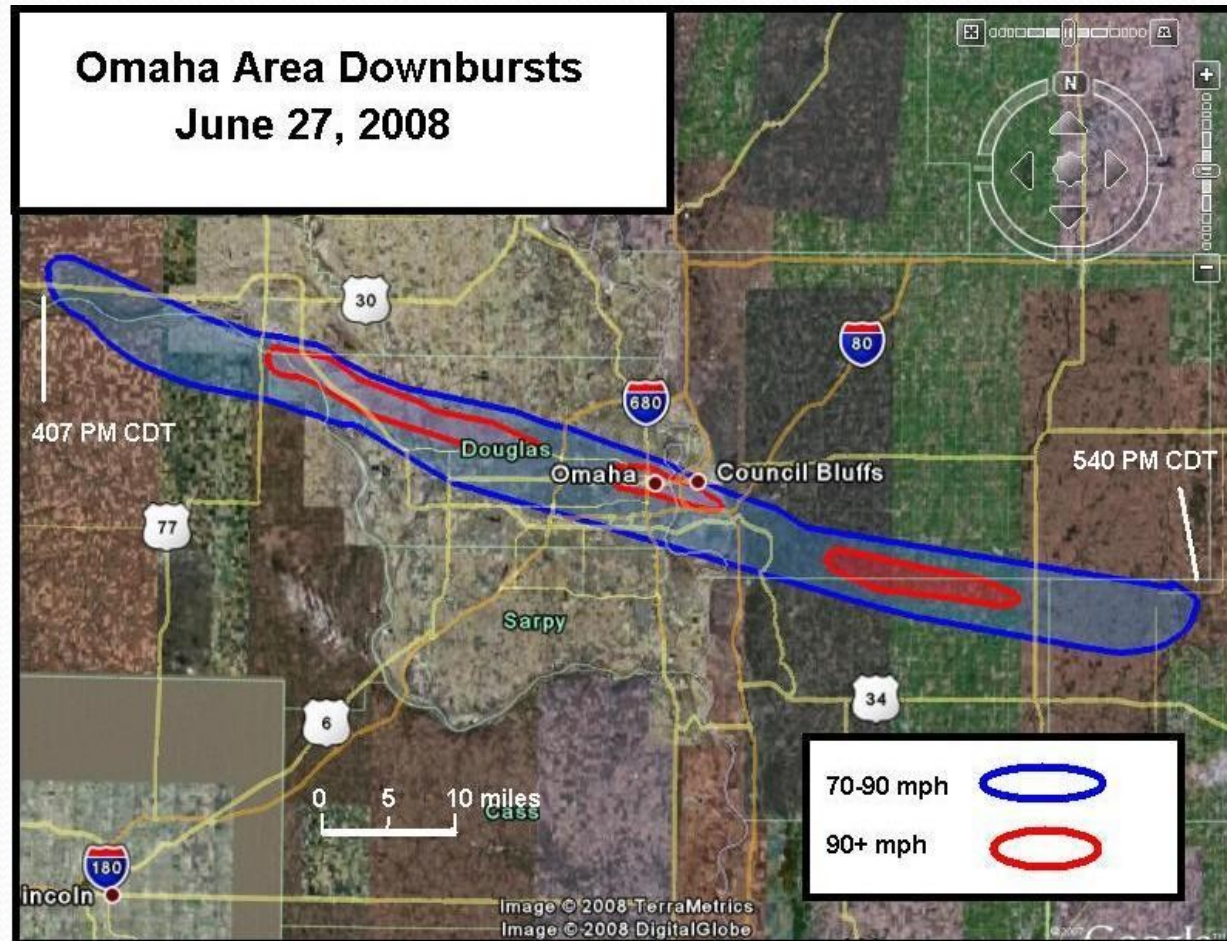
Storm Repo

Area of Interest



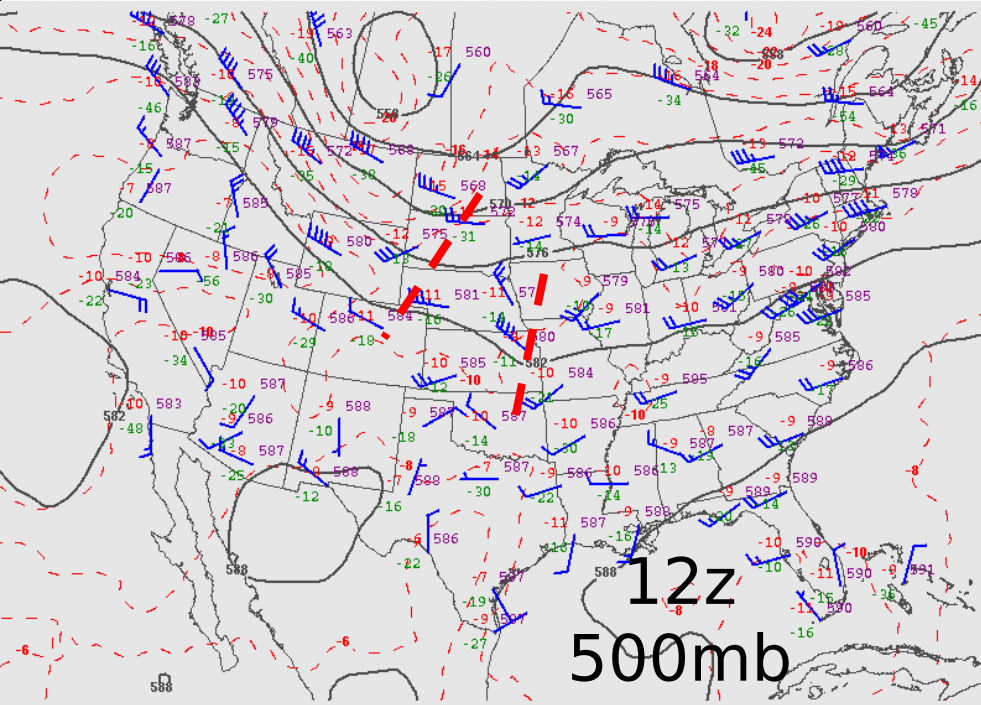
Storm Facts

- Deaths: 2
- Injuries: 2 +
- Path Length: Nearly 90 miles
- Path Width: 3-7 mi.
- Maximum Estimated Winds: 110 to 115 mph (lower-end EF2)
- Maximum Measured Winds: 77mph at NWS Valley before losing power and 98mph measured in west Omaha
- Damage: \$83M+



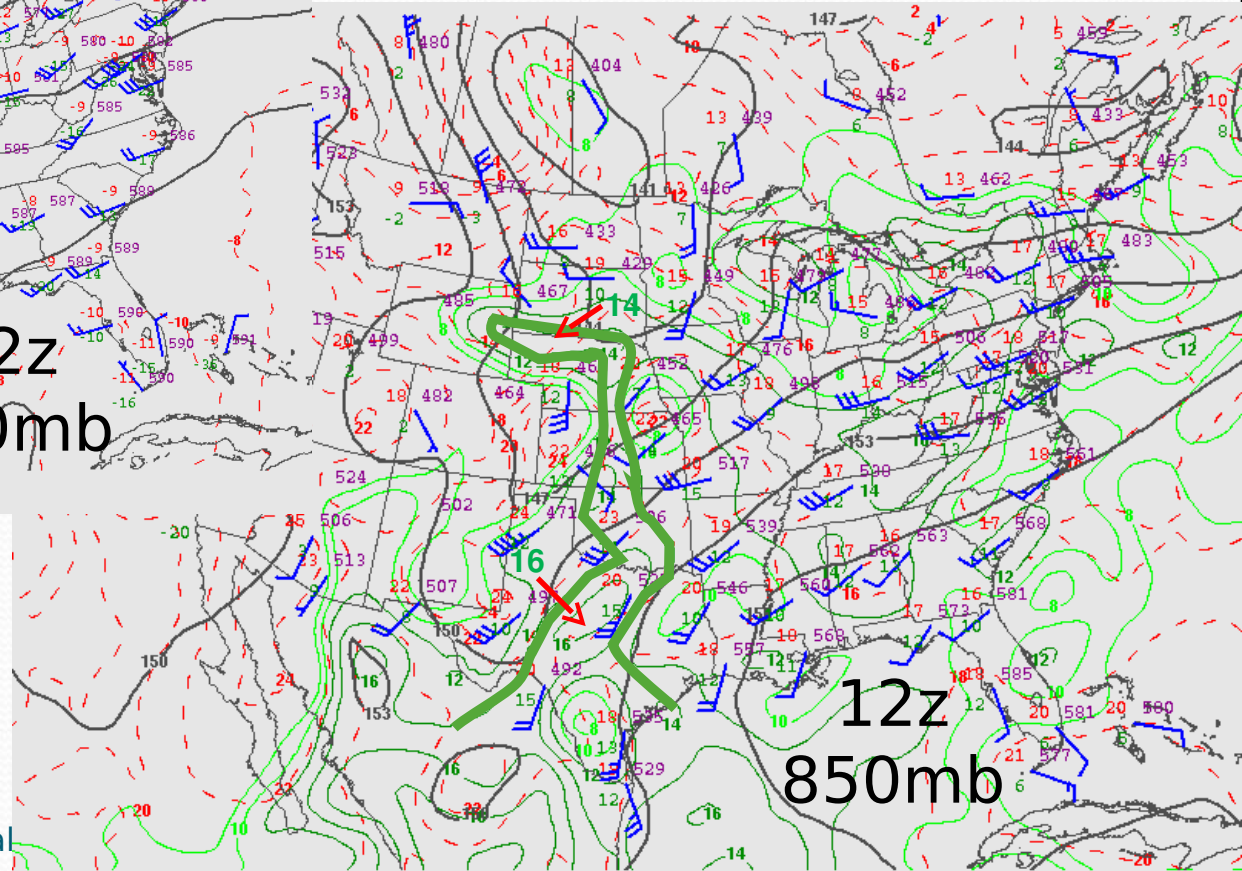
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Synoptic Overview



12z
500mb

080627/1200 500 MB UA OBS, HGHTS, and TEMPS



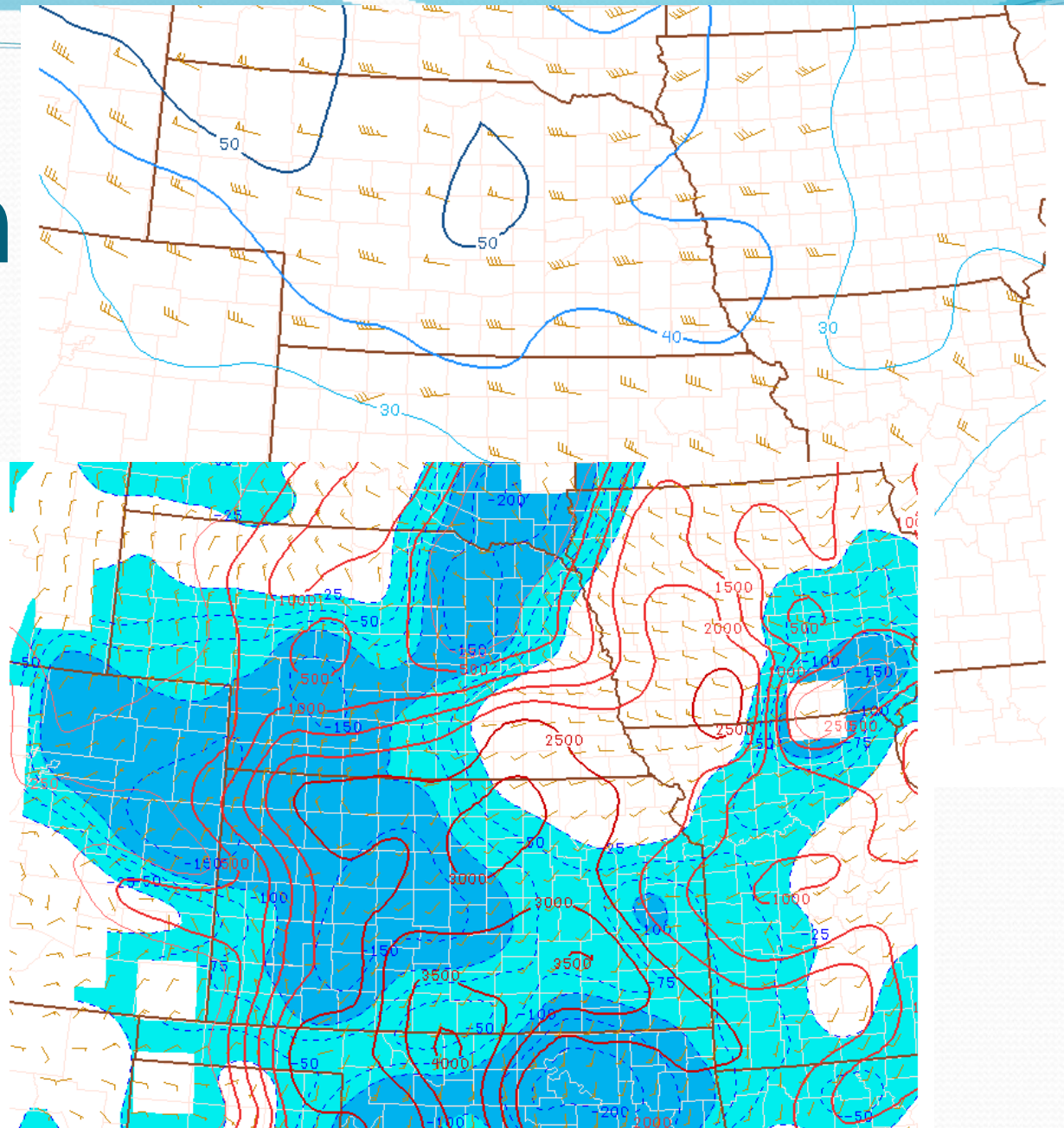
12z
850mb

080627/1200 850 MB UA OBS, HGHTS, TEMPS, Td=8

National
2009

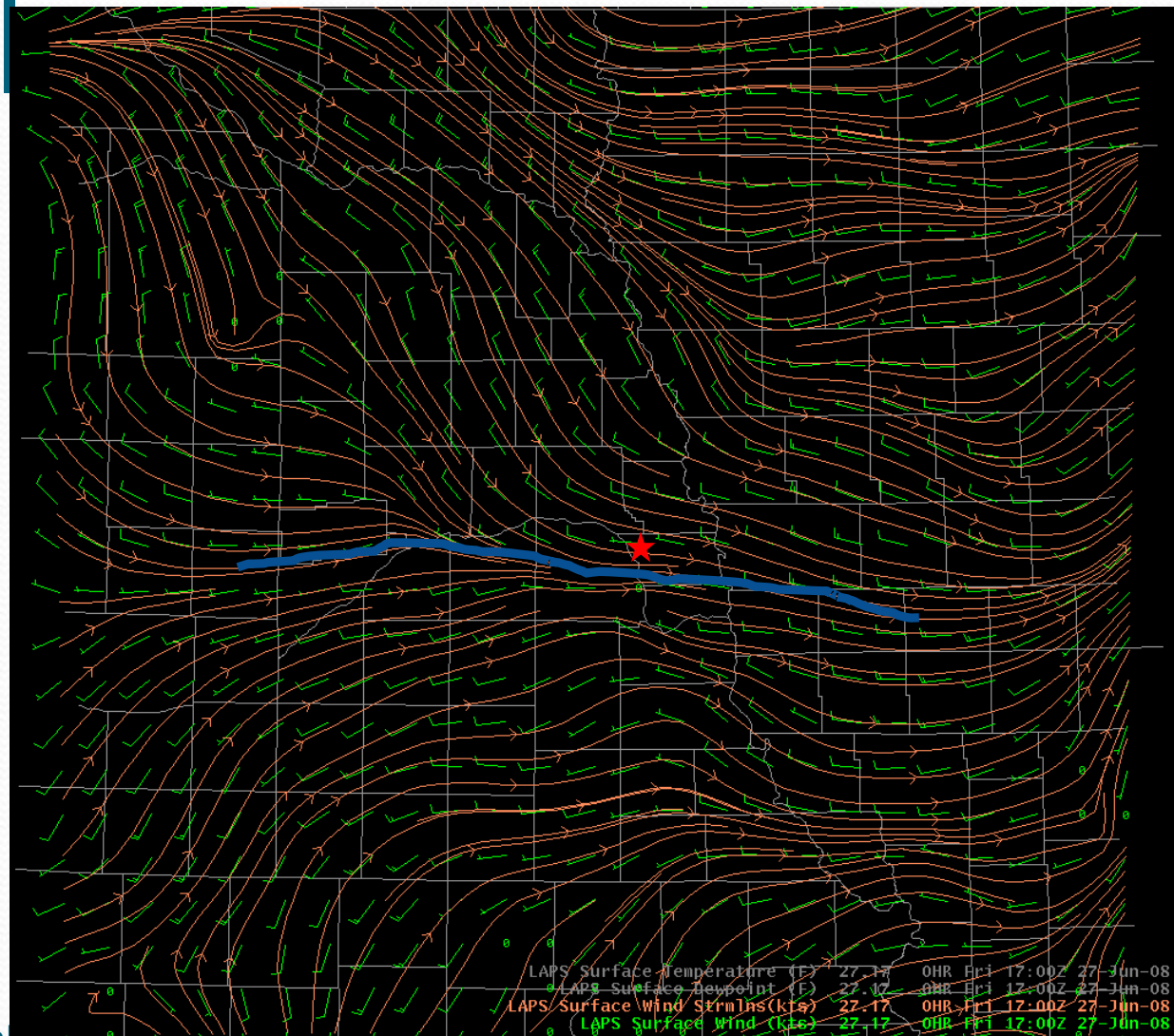
Mesosca

- Deep layer (0-6km) shear – 40-50kts
- Shortwave trough moving into a more unstable environment



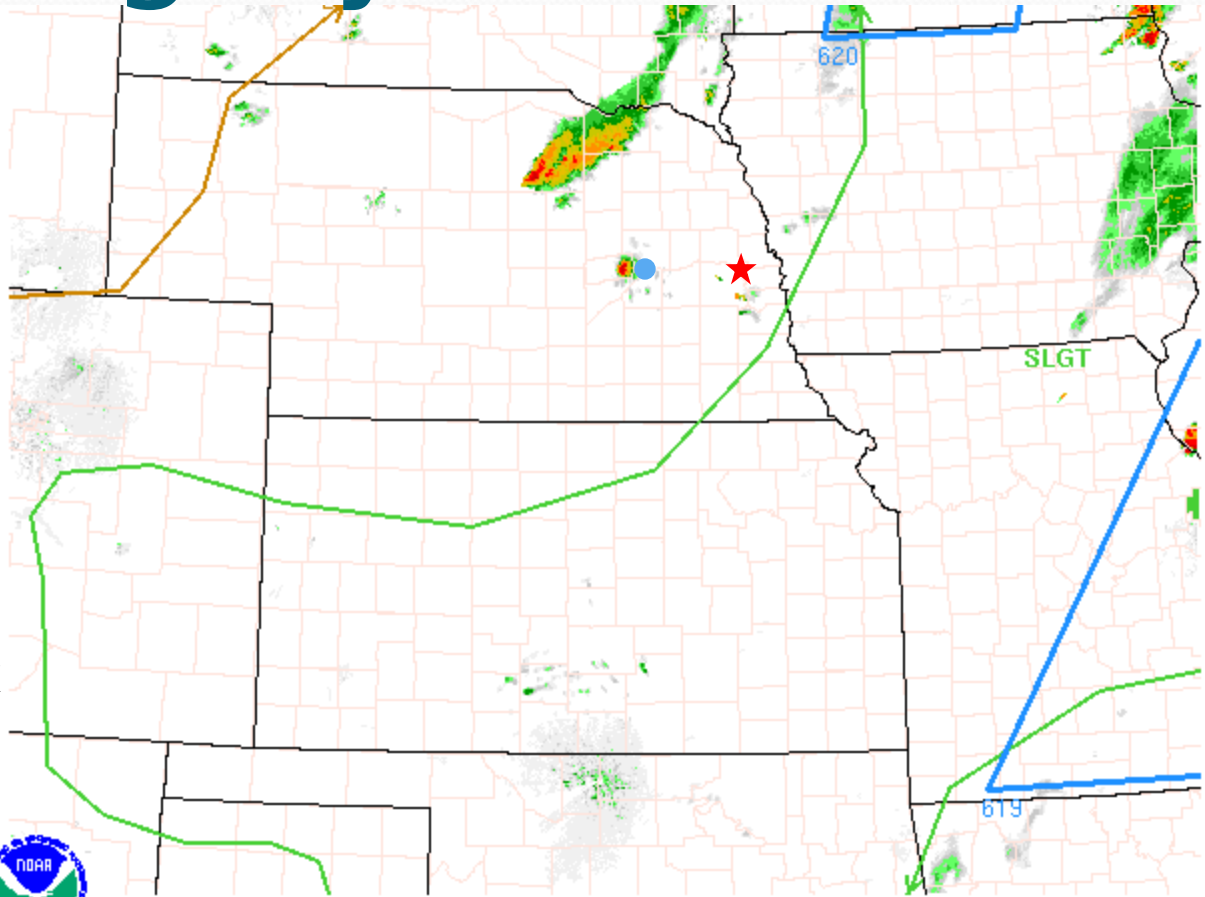
Mesoscale

- Pre-existing boundary
- Boundary in the vicinity of where a mesoscale vorticity center decayed in the early morning hours



Radar Imagery (1911Z-2027Z)

- Initially storms were elevated around Columbus (blue dot) and could not maintain themselves as they moved along the boundary where there was a weak cap
- Hazardous Weather Outlook and Area Forecast Discussions (AFDs) mentioned risk of severe thunderstorms with large hail and damaging winds since Tuesday.



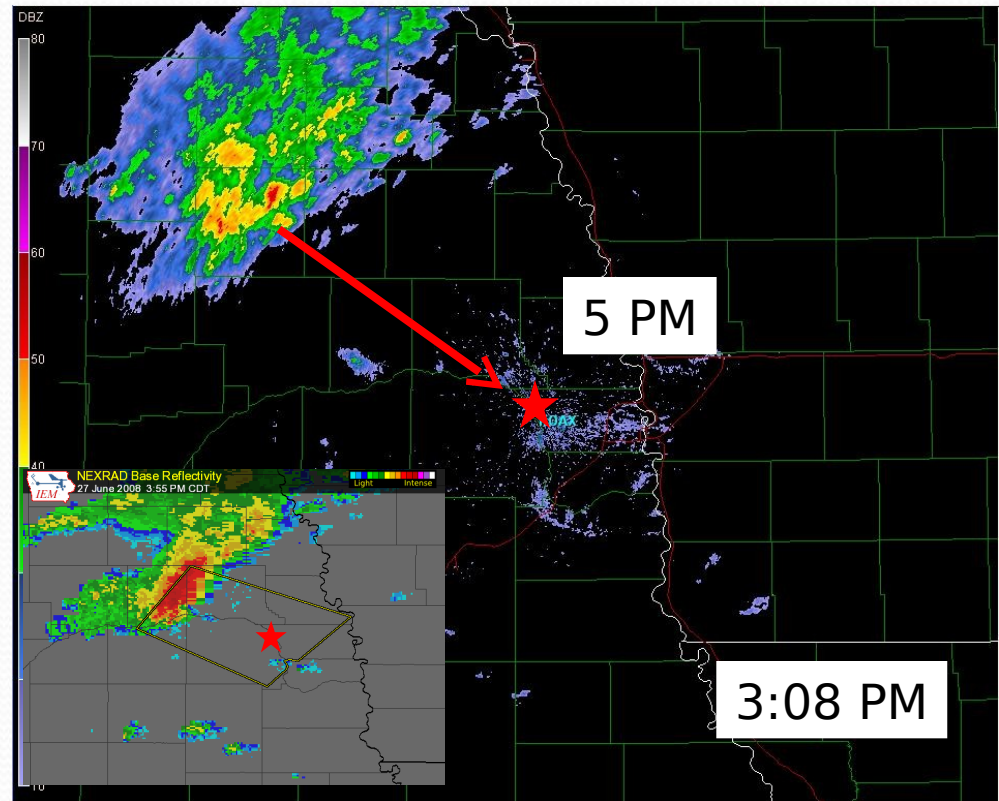
NOAA/NWS/SPC

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Latest Day1 Outlook, SPC Watch and Recent Warnings.
Updated: 20080627/1911 UTC

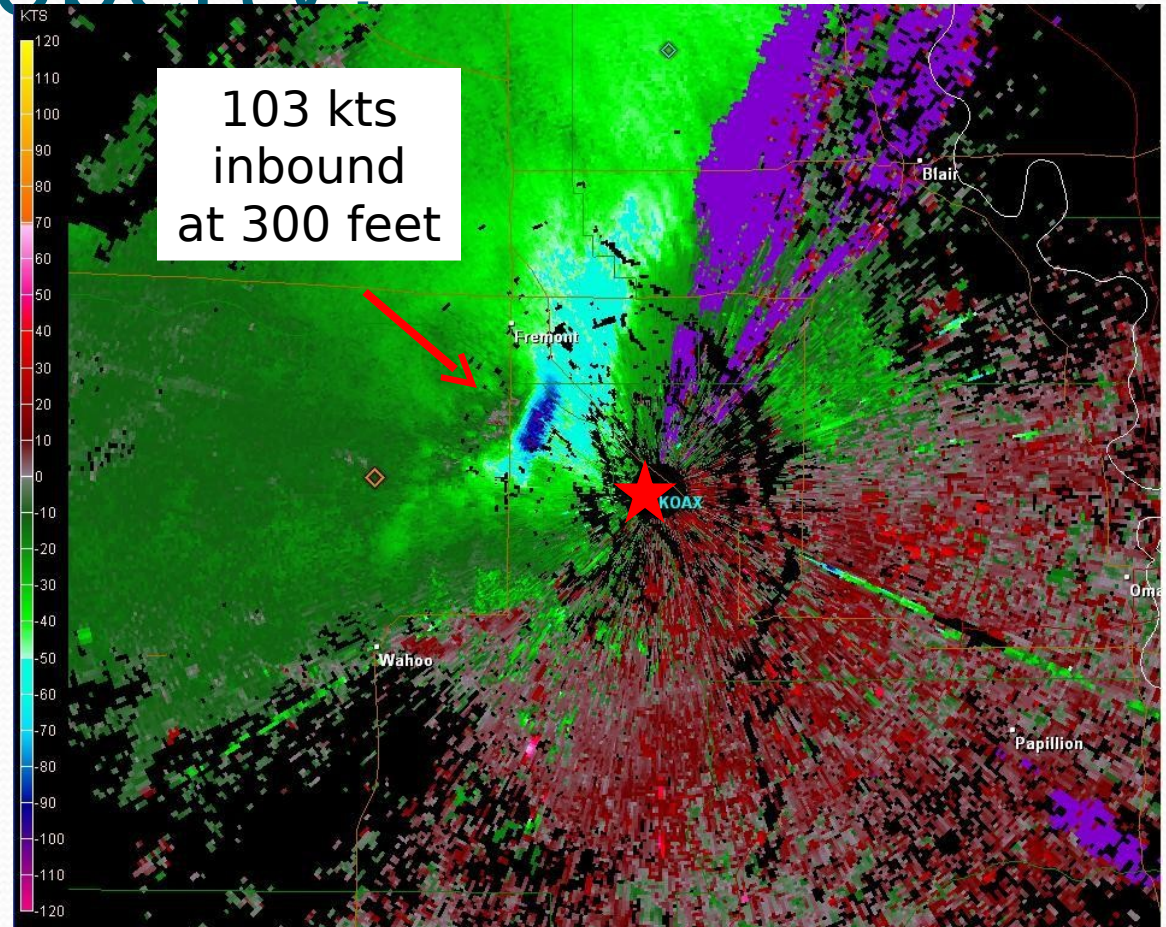
Storms Begin to Organize

- What's the forecast for the Omaha area?
- Outdoor events want to know when will it rain?
- First warning was issued at 3:55 PM
- Severe thunderstorm watch 4:05 PM
- First storm report at 4:07 PM – 60 mph winds
- Staffing – shift change-5 forecasters on duty



How to Convey the Threat to Life and Property?

- Which product to issue with an extreme damaging wind storm??
- Severe Thunderstorm Warning or Tornado Warning???



Warnings and Statements...

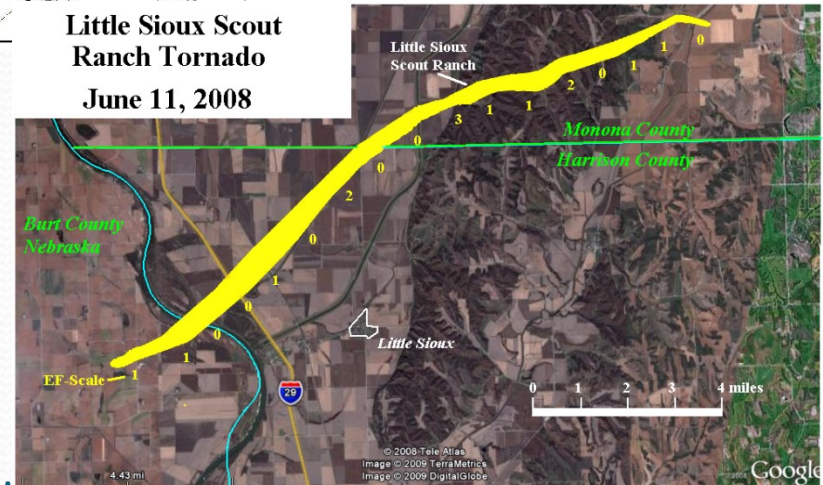
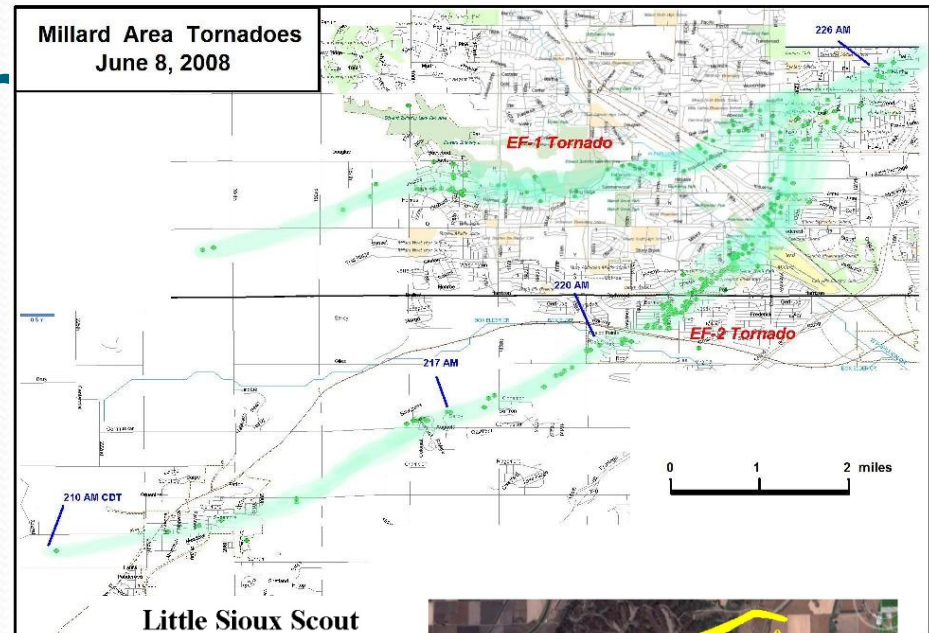
- Updated statements included stronger wording.
 - 3:55 PM-Initial warning -60 mph winds
 - 4:32 PM-Second warning-70-80 mph winds
 - 4:39 PM-Follow-up Statement 80-90 mph winds
- Via NAWAS called County and 911 centers to sound sirens

Metro Area Was Sensitive to Severe Weather

Two tornadoes struck in the middle of the night – June 8, 2008

Little Sioux Scout Ranch tornado kills four – June 11th, 2008

Tidbit– Boy scout that survived the Little Sioux Ranch tornado was caught in this windstorm with 1,000 others at Camp Cedars



The Storm Heads for the NWS Office...



Damage to
the NWS
Office...

- RSOIS (Radiosonde Surface Observing Instrumentation System) failed at 78 mph



174th & Maple Street – 2
blocks from measured 98 mph wind gust

Wind Damage



Severe Crop Damage Near Valley



Barn Downed at Hwy 36 and Hwy 275



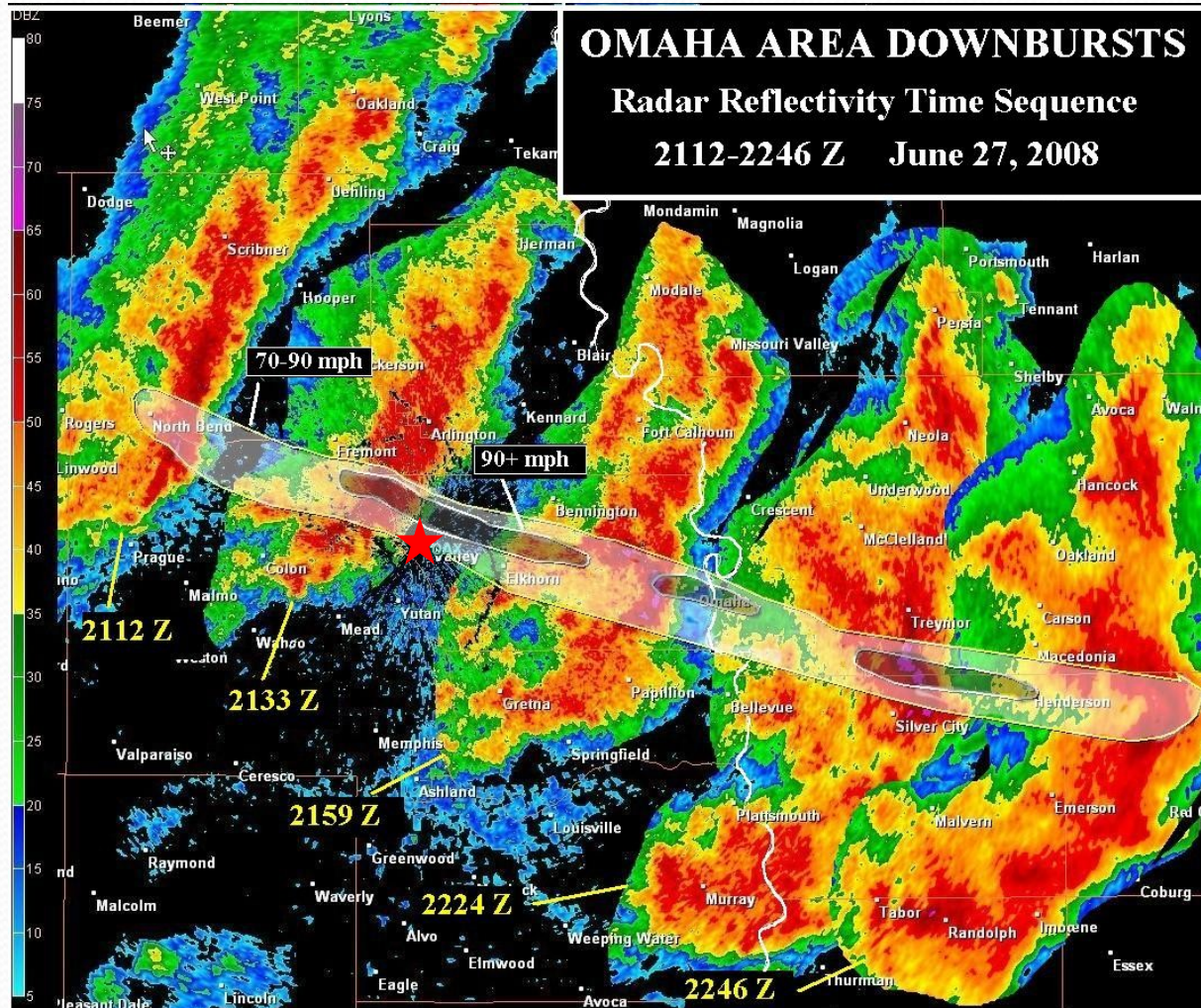
Large Cottonwood Trees Downed at Woodcliff

Wind and Rain - 30th and F Street...



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Radar Summary



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Wind Damage/Deaths

- People turned to local media for information
- Those that did not heed the warning “hunkered down” and were caught outside or in vehicles
- KPTM-Fox42 and Omaha NOAA Weather Radio were knocked off the air



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Memorial at S.11th St. and 17th Ave. in Council Bluffs, IA where two teenagers were killed in a car when a tree fell on them.

Photo by Josh White

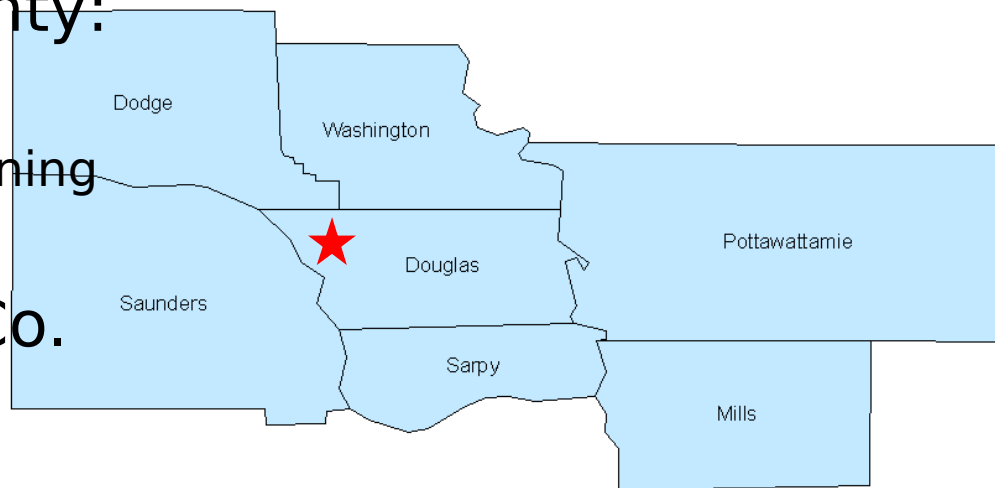
Summer arts festival in downtown Omaha-

Top photo by Nati Harnik

Bottom photo by Chris Machian

Emergency Managers – Were Prepared - Changes as a Result of the Storm

- Emergency Managers were watching the weather throughout the day via Internet, media, & spotter nets
- Changes -Douglas County:
 - Added staff
 - Accelerated scenario planning
 - Re-organized cleanup-crews
- Unexpected – Dodge Co.
 - Call workload
 - Visits from Officials
 - False reports of damage (chatter)
- Unexpected - Sarpy County
 - Demolished fireworks stands-fire hazard



Emergency Managers Evaluated their Sire Policies

- Douglas and Sarpy Counties updated policy as a result of the June storms



- In addition to a tornado warning or a spotter siting; the sirens can be sounded for:
 - Credible reports of hurricane-force sustained winds equal to or greater than 74 mph (previous threshold 90 mph)
 - At night or during the absence of an adequate warning -If 911 supervisor determines lives may be saved or injuries averted

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- No change to Saunders and Pottawattamie

OPPD-Electric Company

- Storm Significance
 - **Level 1** (1 every year) and **Level 2** storms (only 2 in company history)
 - Several criteria including damage to over 30%/50% of the service area respectively)
 - 2008 - Had 4 or 5 Level 1 storms in June and the June 27th was a level 2 storm



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- Loss of 78 Transmission Poles

OPPD Storm Updates

New web pages
& blogs



- Allowed OPPD to test practices put into place after the 1997 winter storm.
 - Added a Call Center that can handle 20,000 calls an hour to eliminate busy signals (3.5M busy signals in '97)
 - Use of Operations Management System to track where the outages are and prioritize
 - Loss of 78 Transmission Poles – 7 days to recover-still replacing street lights

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• Use to update customers on post-

Memorial Park - Outdoor

Concert

- 50,000 People Expected - Arrive throughout the day to save their spot

Postponement, cancellation or evacuation are the event coordinator's primary options to adverse weather



Memorial Park

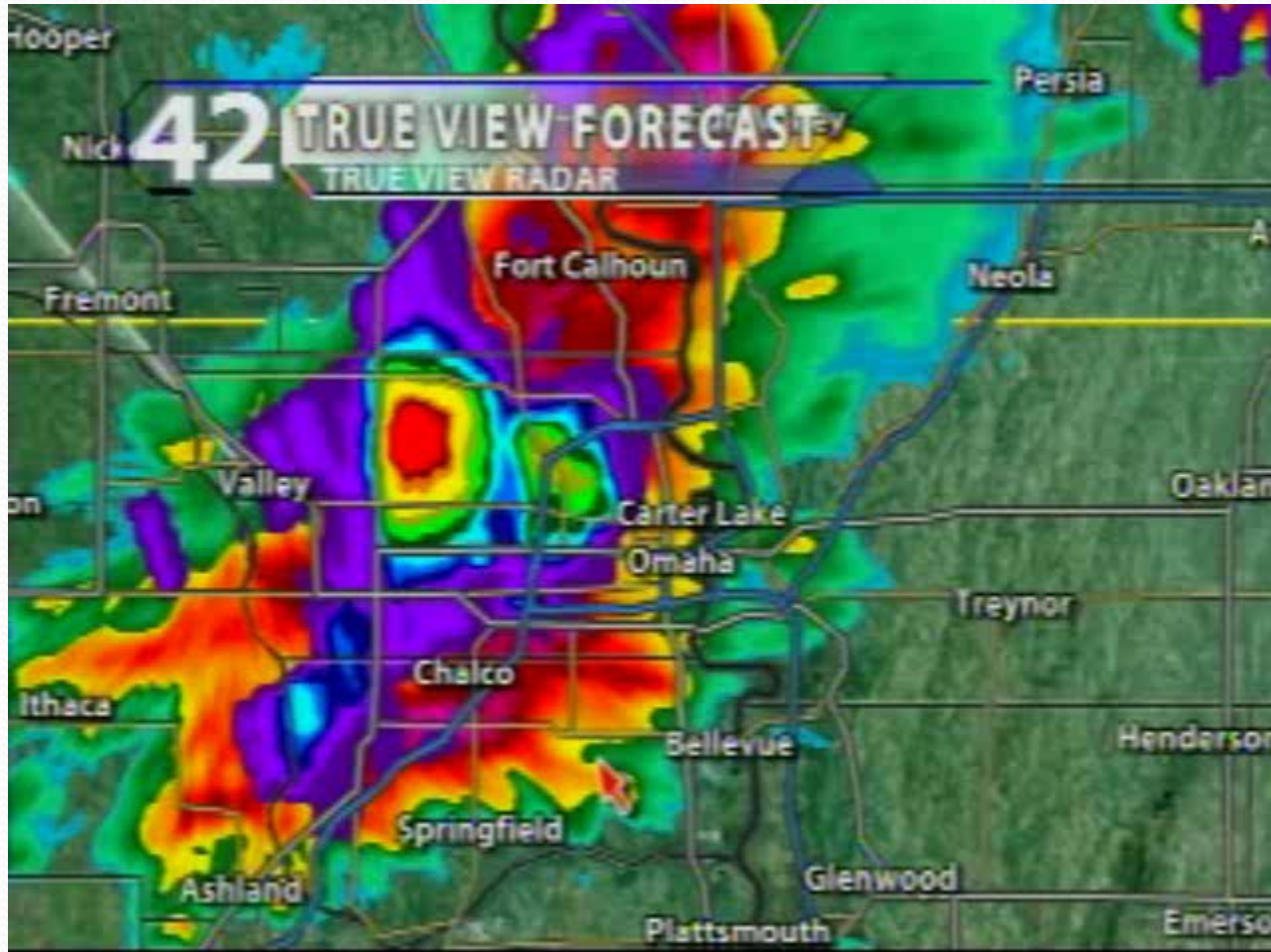
Live video from WOWT-TV

June 27, 2008

Memorial Park

- Interviewed the event coordinator
 - Maintain a weather watch prior to the event and hired an on-site weather watcher during the event
 - Use cell phone and wireless internet to remain informed of threatening weather, watches, or warnings
 - Use the public address system for announcements: rain delay, lightning, severe thunderstorm warning, tornado watch, and tornado warning
- Problems
 - On-site weather watcher was to arrive around when the storm was to arrive.

Loss of Ability to Communicate...



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Media

- Valued
 - Warnings and supporting statements
 - Radar data
 - Timely storm reports
 - IEM Chat
- Problems
 - Lost power – radio/television stations/cell service

21:29 <iembot> Cedar Bluffs [Saunders Co, NE] trained spotter reports TSTM WND GST of E70.00 MPH at 04:24 PM CDT -- tree damage wind estimated at 70 mph

Link: <http://mesonet.agron.iastate.edu/cow/maplsr.phtml?lat0=41.40&lon0=-96.61&ts=2008-06-27%2021:24>

21:30 <iembot> 4 Sw Fremont [Saunders Co, NE] nws employee reports TSTM WND GST of E70 MPH at 04:25 PM CDT --

Link: <http://mesonet.agron.iastate.edu/cow/maplsr.phtml?lat0=41.40&lon0=-96.55&ts=2008-06-27%2021:25>

21:31 <nwsoax6> Getting 90+kt on our base velocity right now heading into douglas Co.

21:32 <iembot> OAX issues Severe Thunderstorm Warning for Mills, Pottawattamie [IA] and Cass, Douglas, Sarpy, Saunders, Washington [NE] till 5:15 PM CDT

Link: http://mesonet.agron.iastate.edu/GIS/apps/rview/warnings_cat.phtml?year=2008&wfo=OAX&phenomena=SV&eventid=312&signifi

21:34 <nwsoax4> Get on the TV - sirens may sound - winds 90 mph possible across Douglas county.

21:35 <nwsoax4> 77 mph at NWS Valley

21:36 <iembot> 1 Nw Valley [Douglas Co, NE] official nws obs reports TSTM WND GST of M77 MPH at 04:34 PM CDT --

Link: <http://mesonet.agron.iastate.edu/cow/maplsr.phtml?lat0=41.32&lon0=-96.36&ts=2008-06-27%2021:34>

21:39 <iembot> OAX continues Severe Thunderstorm Warning for Mills, Pottawattamie [IA] and Cass, Douglas, Sarpy, Saunders, Washington [NE] till 5:15 PM CDT

Link: http://mesonet.agron.iastate.edu/GIS/apps/rview/warnings_cat.phtml?year=2008&wfo=OAX&phenomena=SV&eventid=312&signifi

IEM Chat (now NWSChat)

[oaxchat log for 27 Jun 2008 page 6](#)

21:39 <nwsoax4> Estimated 80 mph plus at NWS Valley.

Natio 21:44 <iembot> OAX continues Severe Thunderstorm Warning for Mills, Pottawattamie [IA] and Cass, Douglas, Sarpy, Saunders, Washington [NE] till 5:15 PM CDT

Conclusions

- June 27th damaging wind event produced significant damage to the Omaha and Council Bluffs metro areas and resulted in two deaths
- The community was warned of the impending hazard with a lengthy lead-time
 - Updated warnings and statements used stronger wording to show the increased risk to life and property
 - Sounding of sirens were utilized to convey an increased threat to life and property
- Despite warnings and sirens residents were hesitant to take action until the storm was upon them

Questions for Thought...

Area warned - threats
communicated-long lead time -
sirens...

What more can we do??

Research??

Acknowledgements

- Brian Smith for his detailed damage maps and editing of the video clips
- Barbara Mayes and Daniel Nietfeld for their helpful suggestions
- Emergency Managers; Paul Johnson, Terry Hummel, Lynn Marshall, Larry Laville, Bill Pook, and Terry Miller for their comments/ \$\$ estimates
- Andrea Rich (WOWT-NBC) and Tyson Pearsall (KPTM-Fox) for their video clips and personal comments regarding the storm
- Jeff Hansen²⁰⁰⁹ – OPPD – Corporate Communications

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