Overview of the 24 May 2011 Tornado Outbreak

Kiel Ortega
OU/CIMMS NOAA/NSSL
Thanks to my co-authors and fellow damage surveyors

Howie Bluestein
Don Burgess
Gabriel Garfield
Jim LaDue
Kevin Manross
Brandon Smith
Rick Smith
Travis Smith
Jeff Snyder
Greg Stumpf

Rudolf Kaltenbock
Darrel Kingfield
Brian Koch
Dan Leins
Tim Marquis
Tim Marshall
Steve Martinatis
Sarah Mustered
Clark Payne
Scott Rudlosky
Pablo Santos
Chris Schwarz
Craig Schwer
Kevin Smith
Brandon Wesbury
Andy Wood

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Weather Briefing

12Z 500 mb

00Z 500 mb

21Z Surface Analysis (Upper 80s / Low 70s)

00Z FWD Hodograph

21Z Surface Analysis (Upper 80s / Low 70s)
Resulting Event

• 5 main supercells
• 12 Tornadoes
  – 1 EF5, 2 EF4, 2 EF3, 2 EF2, 2 EF1, 3 EF0
• 11 deaths, 311 injuries
• Amazing reaction to forecasts and warnings
Canton Lake

- **Canadian Campground**
  - 80/133 campsites and 69/69 trailer sites occupied
  - No fatalities at campground

OHP Photo of camp

Bathhouse used as a shelter

Tornado as it impacted camp

Reflectivity

Velocity

ZDR

RhoHV

Courtesy Tim Marshall
Radar Observations

- TDWR, KTLX/KVNX, KOUN, MPAR, OU-PRIME, CASA, NOXP, RaXPol, DOW

– 3 of the tornadoes were observed by mobile radars
EF-Scale Considerations

1.9 million pound drilling derrick

Courtesy Derrick Brown

Courtesy John Cintineo

Courtesy Jason Jordan
School and church closings announced

A few schools and churches have decided to play it safe and cancel activities in preparation for severe weather.

The following businesses and schools have decided to close for Tuesday, May 24, 2011:

- DeVry University- Night Classes Canceled Tonight
- Family Expectations- PM Services/ Activities Canceled Today
- Heritage College- PM Classes Canceled Tonight
- JO McCarty Center- Events/ Activities Canceled Tonight
- Messiah Luthern Church- PM Services/ Activities Canceled Today
- Messiah Luthern School- PM Services/ Activities Canceled Today
- Metro Tech- Closing at 3 p.m. Today
- Mid-Del Tech- Night Classes Canceled Tonight
- OU Children’s Physicians- Closing at 3 p.m. Today
- OU Physicians- Closing at 3 p.m. Today
- Oklahoma City Public Schools- PM Services/ Activities Canceled Today
- Oklahoma City University- Closing at 3 p.m. Today
- Parent’s Assistance Center- Closing at 3 p.m. Today

NWC lecture hall serving as community shelter

NWC lecture hall serving as community shelter

• OKC shut down in early afternoon
• Tinker AFB 2nd shift instructed not to come in
• Unforeseen problems
• Shelters filled up HOURS before event
• Non-designated sites used as shelters (including break-ins!)
• “Rush hour” occurred just as event began
Other Considerations

• Broadcast coverage
  – Many impacted citizens stated that receiving information on their specific storm difficult because the station they tuned to at the time focused on one storm

• Stopping traffic in front of storms
  – Hard right turn by El Reno tornado...traffic was stopped on I40 due south of where this occurred

• House designs
  – Interior rooms?

• Why did people act...
  – So early?
  – What was different?
24 May 2011 Outbreak

- Low number of fatalities for 3 significant tornadoes near populated metro area
- Diverse radar dataset collected
- Highlights potential issues with EF-scale and determination of EF-ratings
- Amazing community response to not only warnings, but forecasts and watches
- Severe weather risk mitigation a spectrum-wide responsibility
  - Builders, business leaders, emergency management, local government, meteorologists, society at-large and individuals!

Chickasha and Washington Supercells

- Curvature of the Washington-Goldsby tornado path

Images provided courtesy of Tim Marshall