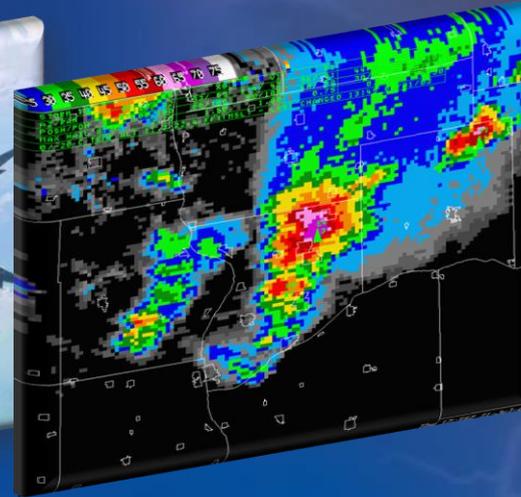


Amateur Radio Coordination Meeting



National Weather Service
La Crosse, WI
April 18, 2009

Introductions

- Name
- Call sign / ID
- Group Representing
- Comments?



Outline

- **NWS Background**
- **Information / spotter reports**
- **Open Discussion**
- **Storm-Based Warnings**
- **1" Hail Initiative**
- **Severe Weather Climatology**
- **Radar Basics**
- **Operations tour – if interested**

National Weather Service



National Weather Service

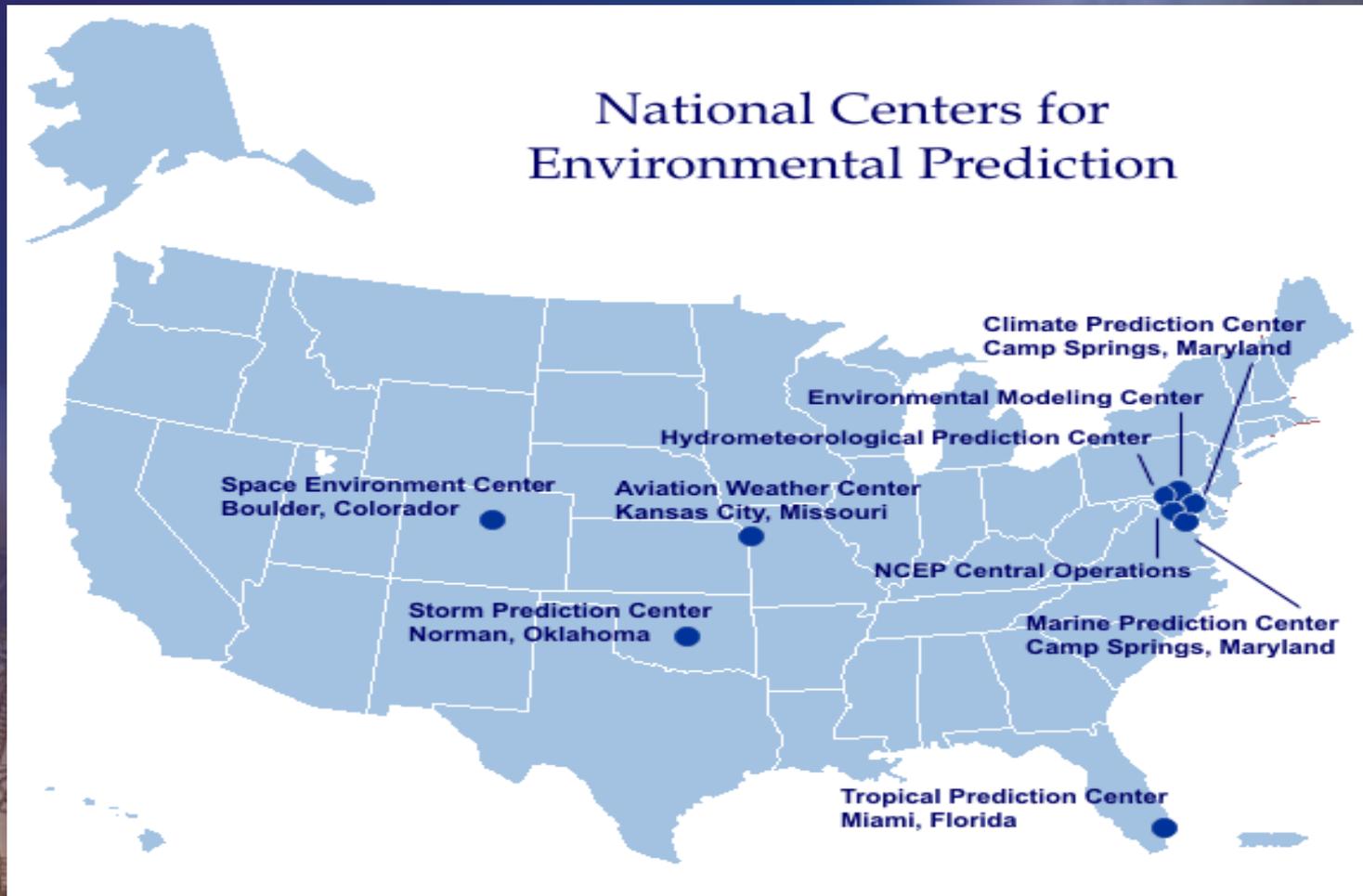
WORKING TOGETHER TO SAVE LIVES

National Weather Service

- **Mission:**
 - *Provide warnings and forecasts to...*
 - Protect life and property
 - Enhance national economy
- Large variety of hazards
- Take job very seriously

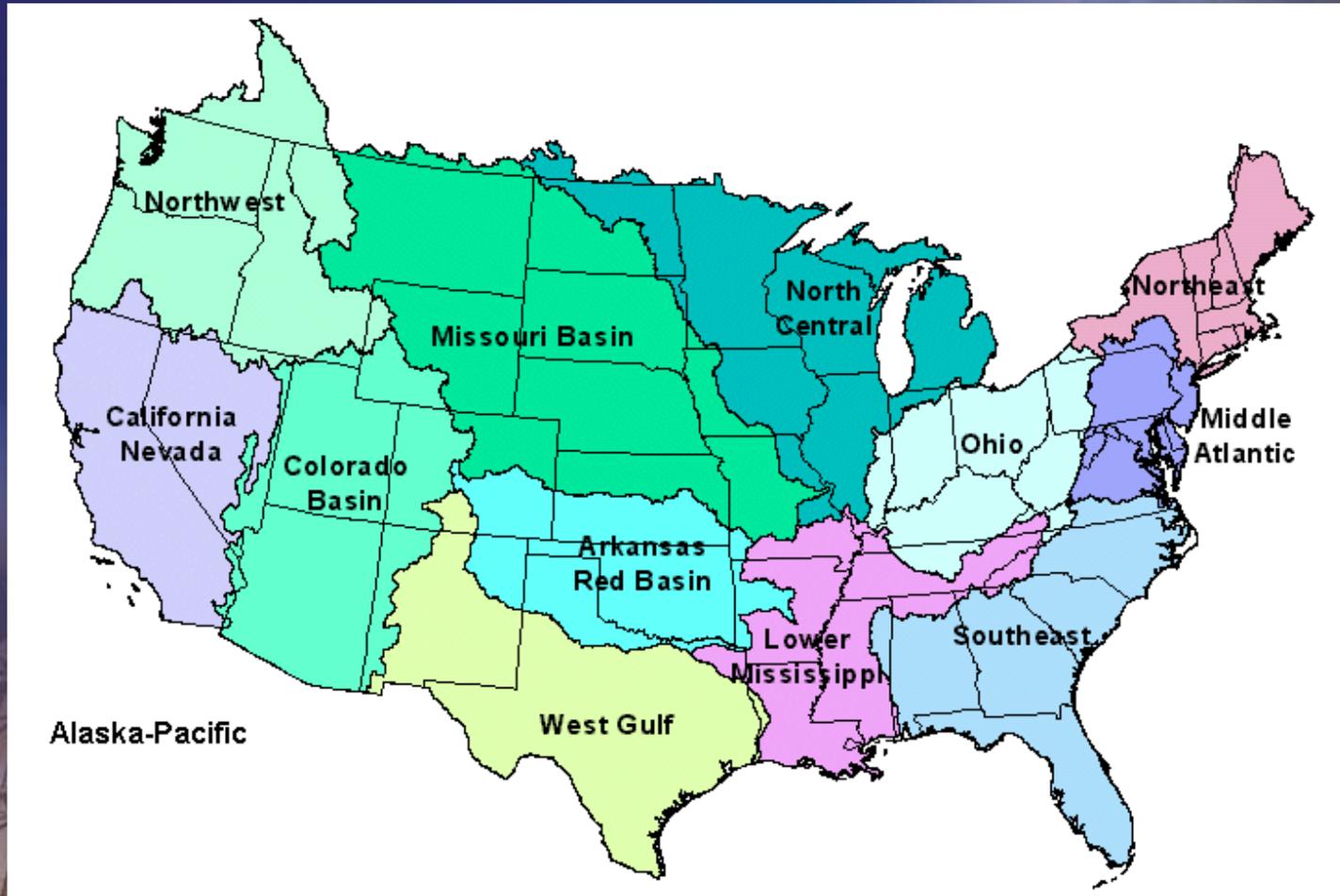


NWS National Centers

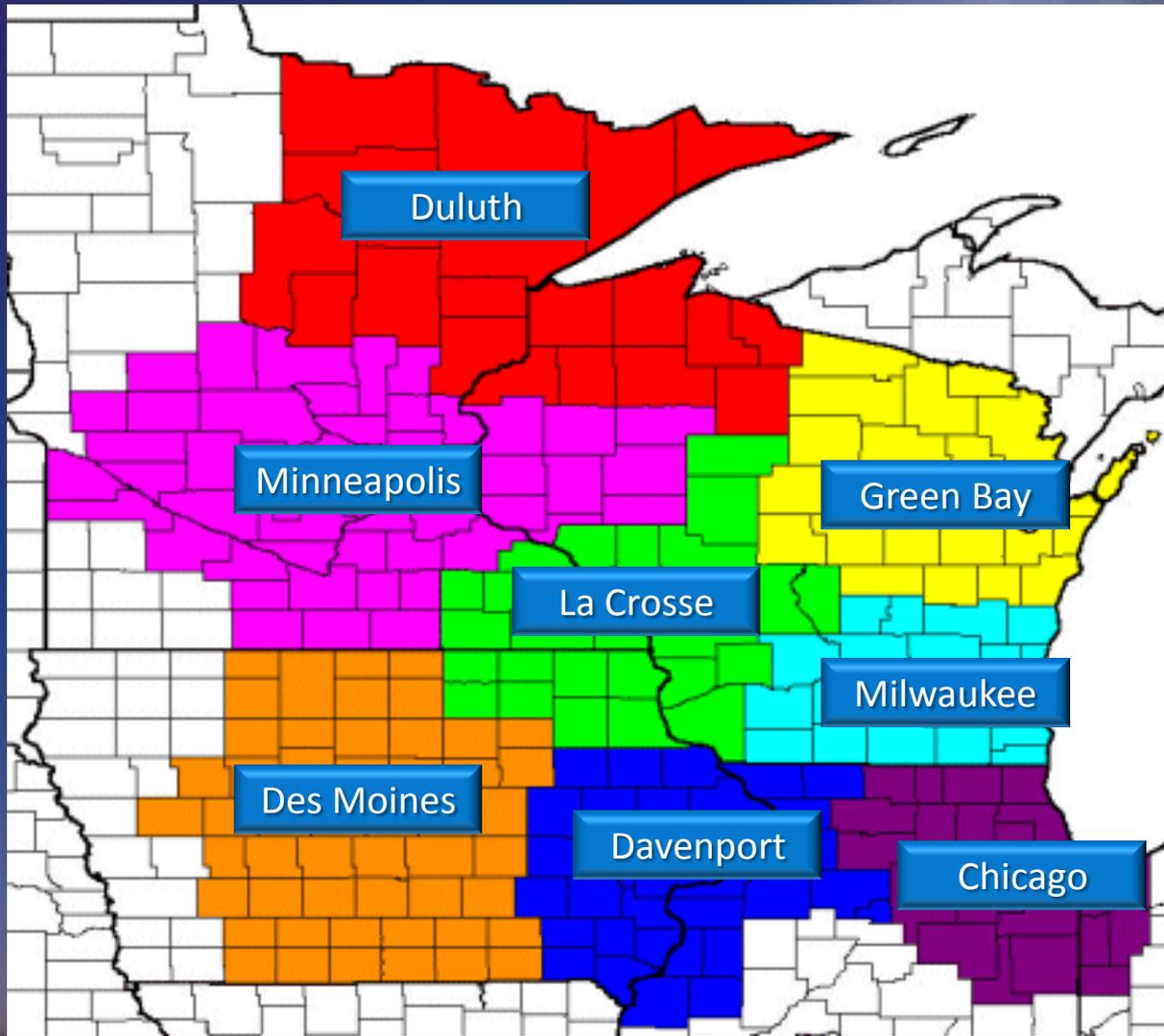


Miami, Florida
Tropical Prediction Center

River Forecast Centers



County Warning Areas



NWS La Crosse



- 24 hour operations
- **23** staff members
- 2-3 per shift
- **Continuous Weather Watch**

Staffing

- **Meteorologist-in-Charge / Admin**
- **Program Managers**
 - *Warning Coordination Meteorologist*
 - *Science and Operations Officer*
 - *Service Hydrologist*
- **Forecasters (9)**
- **Hydromet Technicians**
- **Electronics / IT**



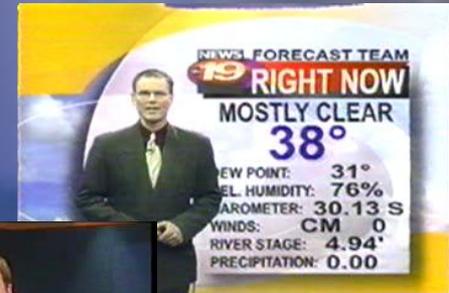
Duties

- Severe weather warnings
- Follow-up statements & information
- Public Forecasts
- Aviation Forecasts
- Hydrology (river monitoring/forecasts)
- Fire Weather
- Climate / Data collection
- NOAA Weather Radio
- Public Service
- Research / Surveys



Partners

- Emergency Management
- Law Enforcement
- Media
- Fire Departments
- Amateur Radio
- Storm spotters
- USGS / Corps. Of Engineers
- Volunteers
- Others...



Equipment

- Doppler Radar
- Weather Stations
- Satellites
- Computers / Workstations
- NOAA Weather Radio
- Wind Profiler
- River Gauges



Internet

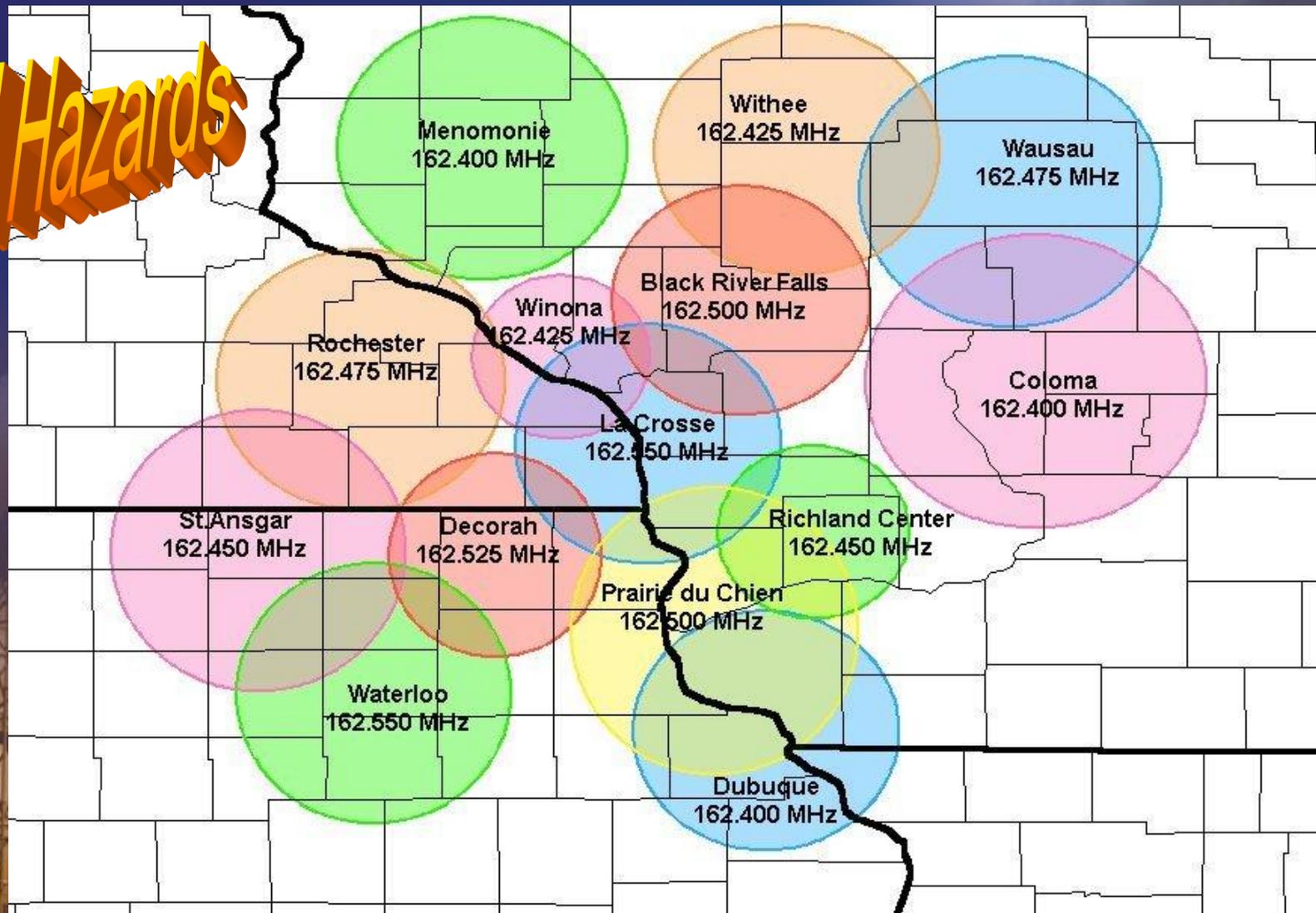
weather.gov/lacrosse

- **Watches / Warnings**
- **Hazardous Weather Outlooks**
- **Spotter Activation info**
- **Radar Imagery**
- **Submit reports**
- **Spotter page / newsletter**
- **Current weather**
- **And much more...**

The screenshot shows the NOAA National Weather Service website for La Crosse, WI. The browser is Microsoft Internet Explorer. The page features a navigation menu with links for Home, Site Map, News, and Organization. A search bar is located at the top right. The main content area includes a "Local forecast by City, St or Zip Code" section with a search box. Below this is a "Current Hazards" section with links for Watches / Warnings, Outlooks, U.S. Hazards, Hurricane Info, Area Storm Reports, and eSpotter. The "Current Conditions" section includes links for Observations, Satellite Images, Rivers & Lakes AHPs, Precip. Estimate, Snow Cover, River Stages, and Local Plots. The "Radar Imagery" section offers Local Radar, Nationwide, and Local Area options. The "Forecasts" section includes Local Area, Aviation, Fire Weather, Graphical, Interactive, Weather Planner, and Discussions. The "Rivers / Hydrology" section provides links for AHPs / River Info, Flash Floods, and Hydro Main Page. The "Climate" section includes Local, National, and More... links. The "Weather Safety" section includes StormReady, Preparedness, Weather Radio, and EMWIN. The "Local Information" section includes Our Office, Coop Observer, Photos, and Local Aviation. A "Top News of the Day" section lists recent news items. A map of the La Crosse area is displayed, showing various cities and weather data. A "Frequently used text products" dropdown menu is set to "Local Forecast". A "Useful Links" section includes an "INSTANT MESSAGE US" button and links for Local Hazardous Weather Outlook, National Outlooks, Latest Watches, Warnings, and Advisories, Precipitation totals, Latest Local Storm Report, Safety information, and Wind Chill information. The page also features "Current Radar Image" and "Current Satellite Image" buttons.

NOAA Weather Radio

All Hazards



Amateur Radio



Set up for Severe

- Staffing
- Severe weather positions
- Resources
- Communication
- Information updated; products
- System checks

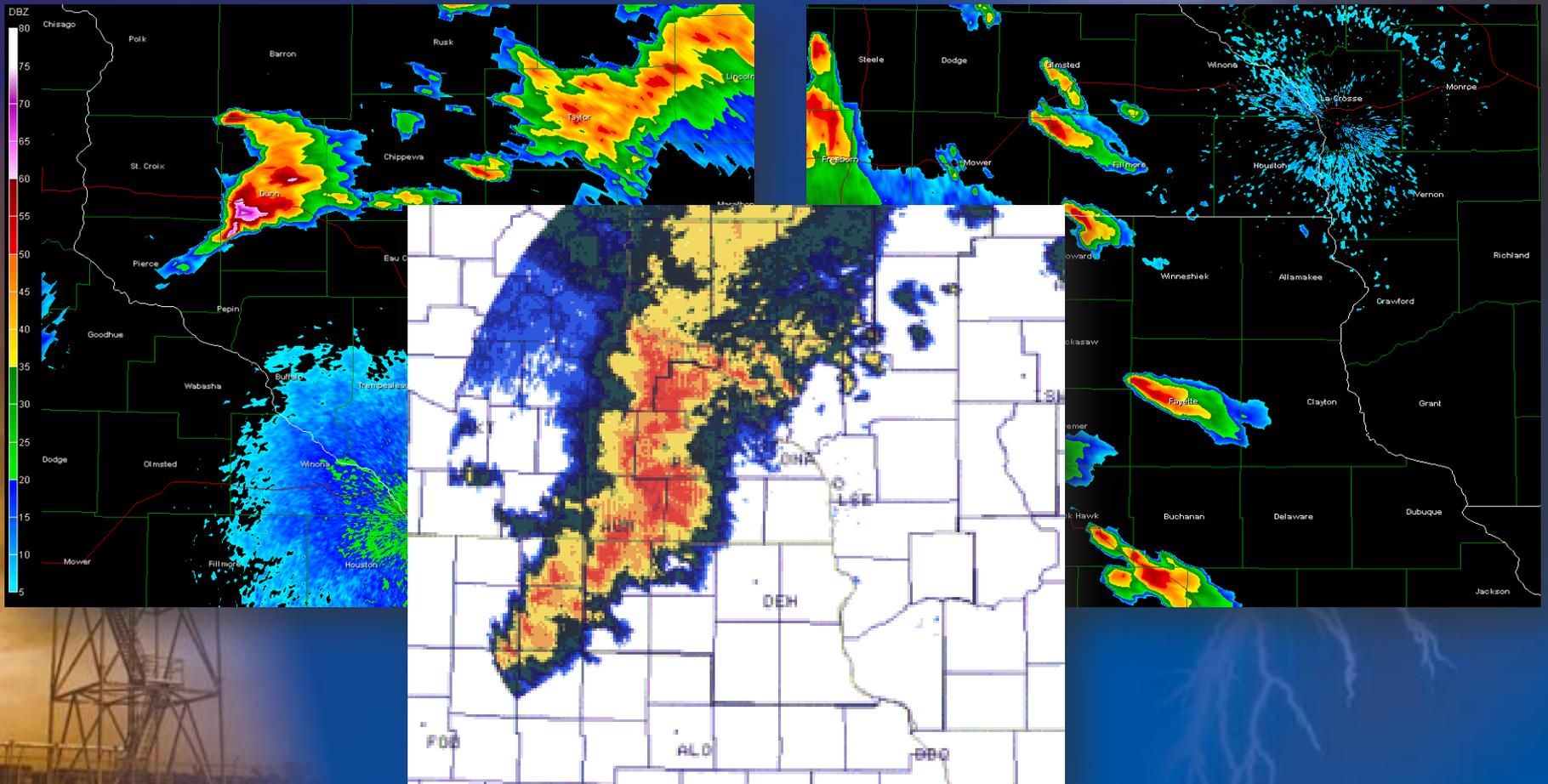


Local Operators

- **NWS Staff**
 - *6 licensed*
 - *Usually WCM, MIC, or ITO*
- **Volunteers**
 - *Tom O'Brien (WB9BJQ)*
 - *Roger Reader (KA9BKK) – new...*
 - *Eric Papenfuss (WX9EP)*

Local Response

- Depends on storm mode, staffing, ...



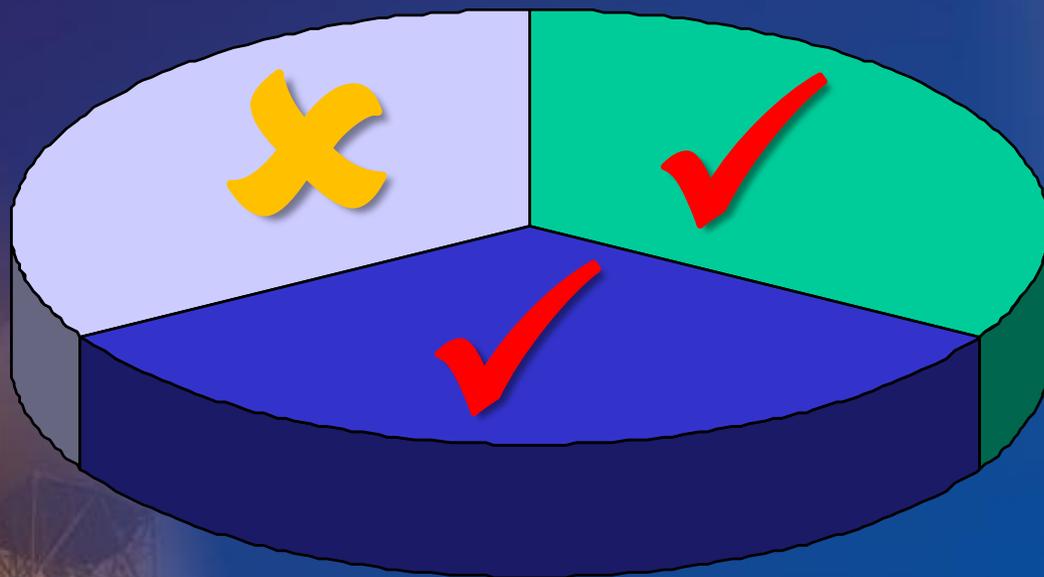
Questions



Outside Information

- **Used to make important warning decisions**
- **Used to ensure forecasts are on track**
- **Used to help people make informed and educated decisions for themselves**

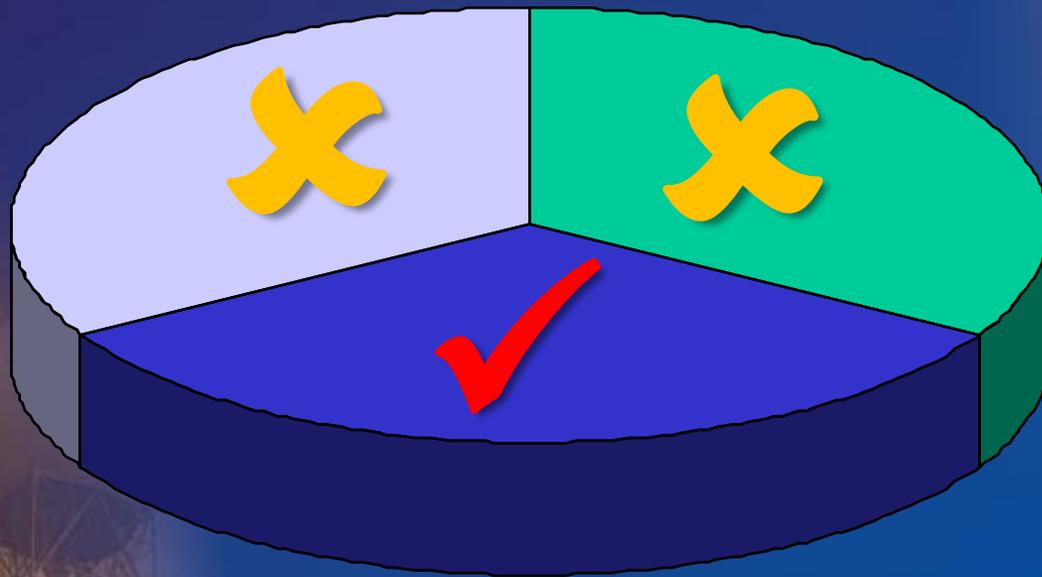
Warning Process



- Environment
- Spotters
- Radar

Warning Likely

Warning Process



- Environment
- Spotters
- Radar

Warning not as likely

Information

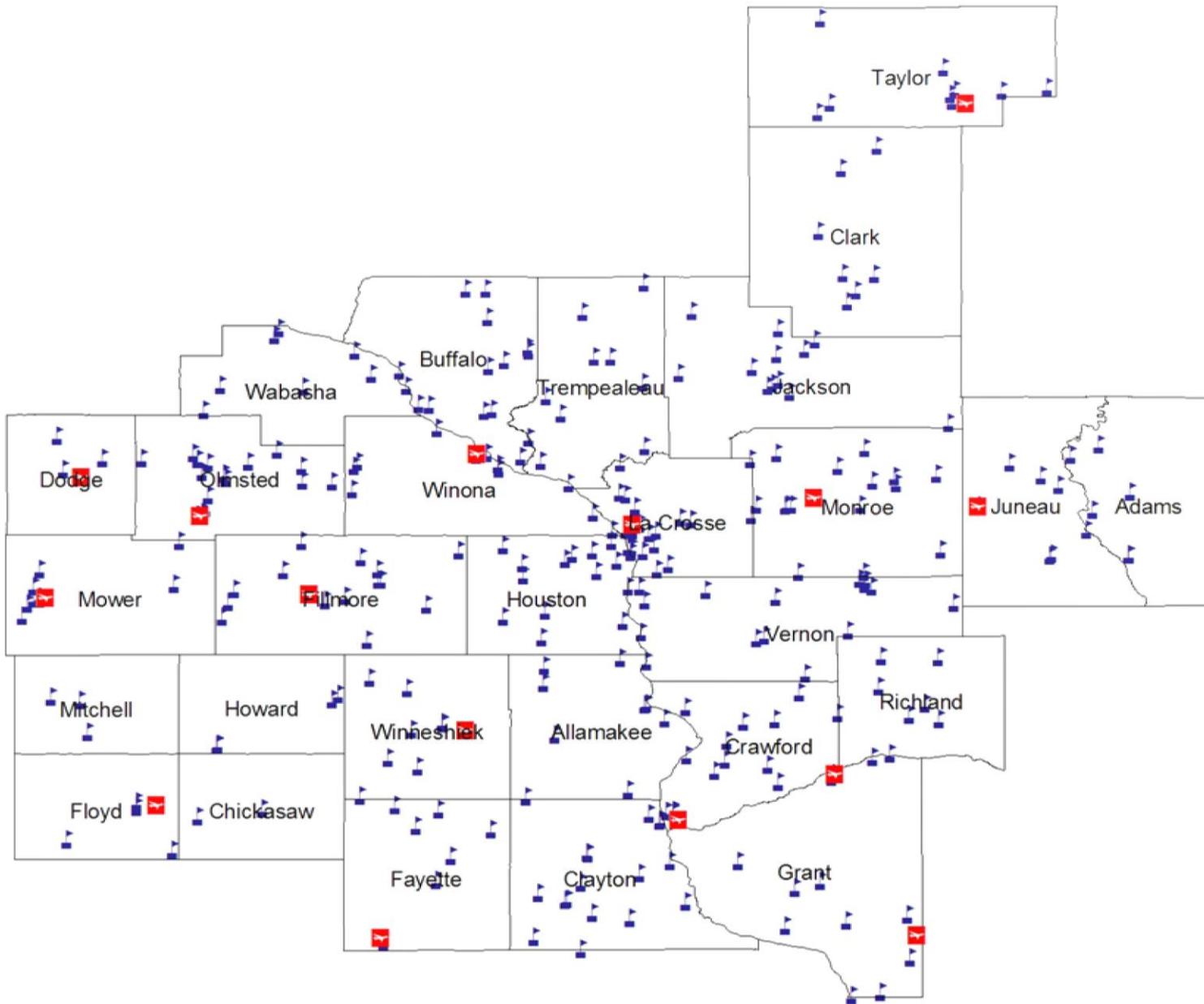
- Technology does not have all the answers
- Ground-truth reports are real
 - *Instant verification for people*
 - *Makes them react (hopefully)*
- Daytime vs Night
 - *More weight on radar info?*



Public Response

- Heed warning or ignore
- Check for more information
- Influenced by:
 - *Previous experience with severe weather*
 - *Education / Community Preparedness*
 - *Media / Law Enforcement*
- Too early? Too much lead time?
- Current Weather
- Local NWS / Media must have credibility



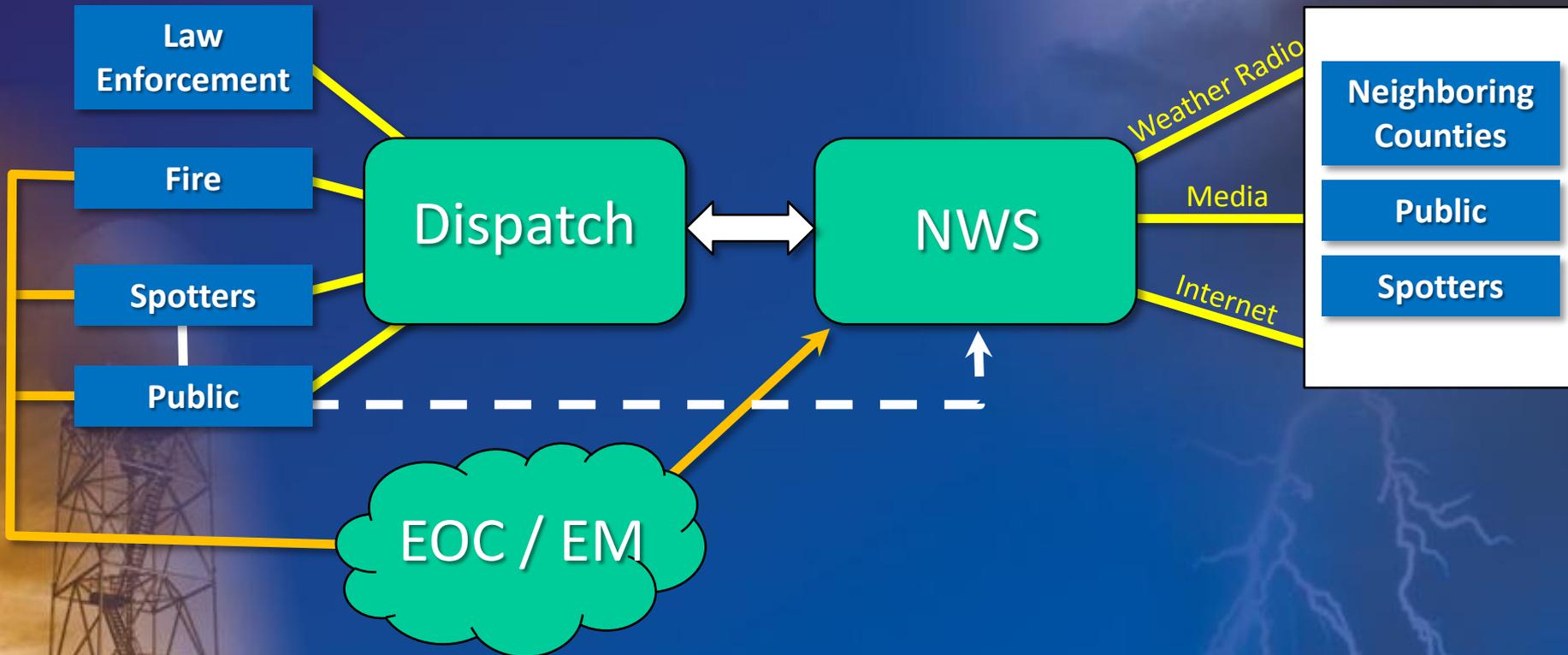


Using the Information

- Reports integrated with other information
- Ultimately a decision to warn or not to warn is made
- More information = allows people to make the right decisions



Using the Information



What we need

- **Varies, depending on the weather**
- **Storm reports**
- **Road conditions**
- **Impact of weather**
- **Damage, injuries, fatalities**

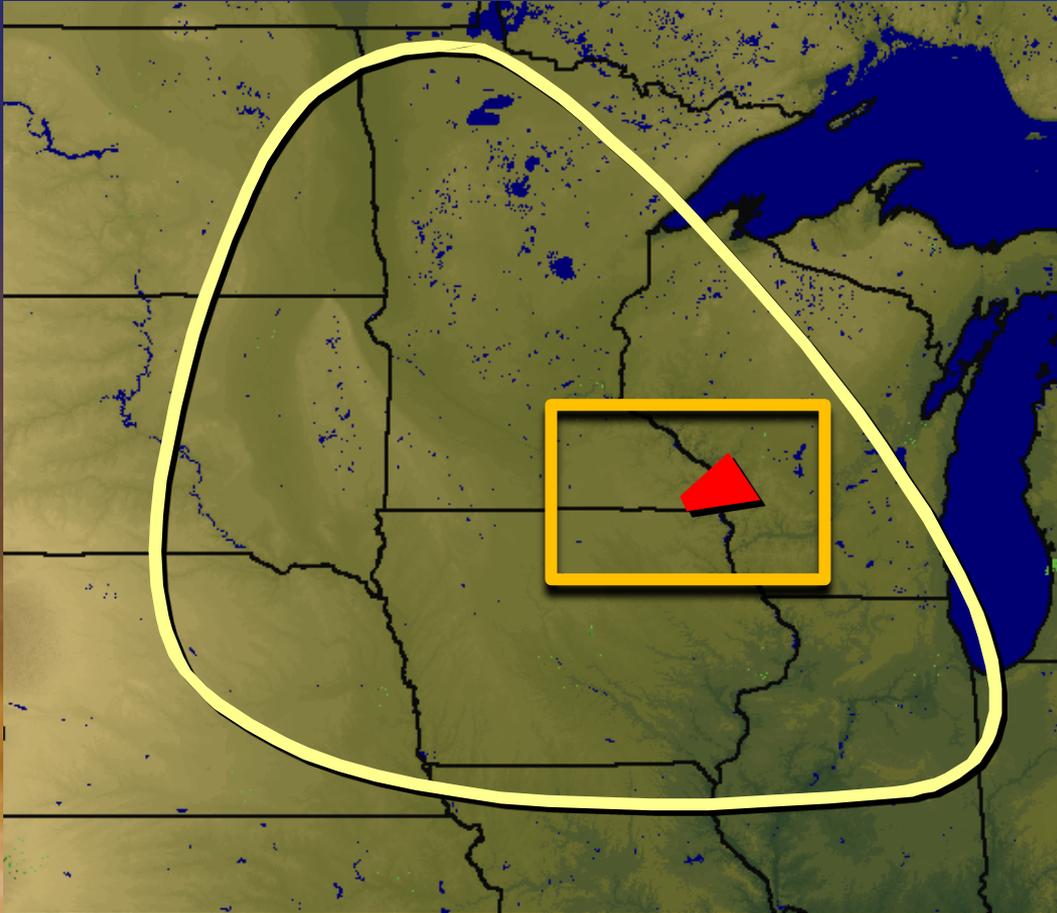


Note: Never assume the NWS already knows what you are experiencing

What we need

- Time (event time vs. logged time)
- Location
 - *Distance / direction from town*
 - *Lat/Long*
- Report (detail if needed)
- Source

Staying Informed



Outlook

- *Several days in advance*
- *Graphical & Text*

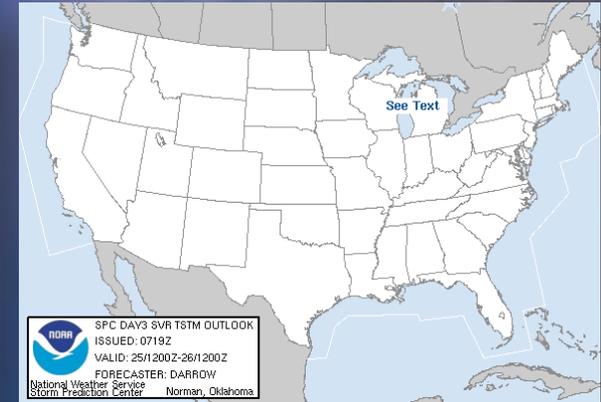
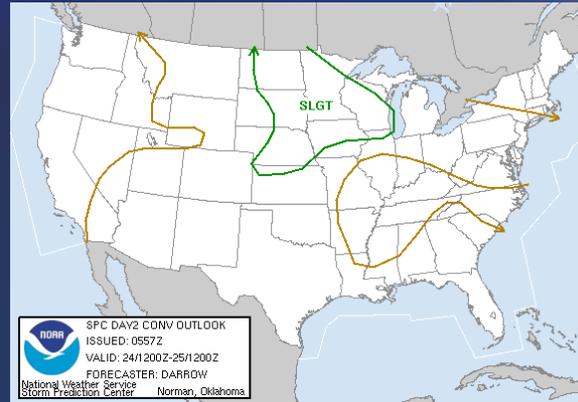
Watch

- *2-6 hours in advance*
- *More specific area*

Warning

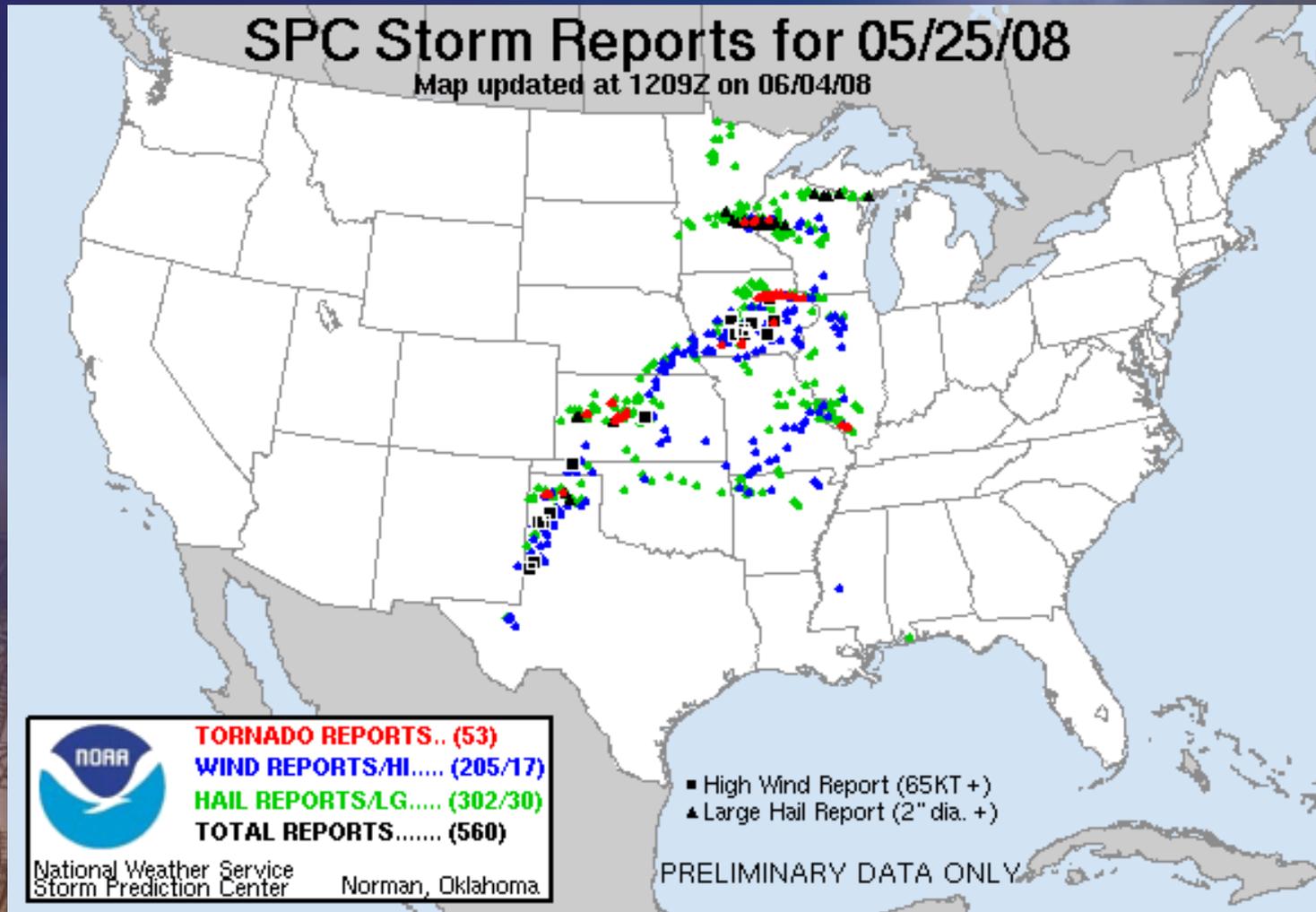
- *10-60 min in advance*
- *Storm / county size*

Outlooks



- Heads up on potential active weather days
- Expected intensity / coverage

May 25, 2008



Hazardous Weather Outlooks

- Local text product
- Issued daily, with updates
- Expectations from local forecasters
- Internet, Weather Radio, E-mail





NOAA's National Weather Service Weather Forecast Office La Crosse, WI

Home Site Map News Organization

Local forecast by "City, St" or Zip Code

City, St

Severe Weather

• Latest Local Hazardous Weather Outlook

Day 1



Day 2



Day 3



Mesoscale Discussion

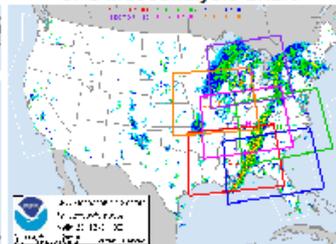


SPC Activity Chart



Showing a 1 hour radar loop, the current Day 1 convective outlook, and all active watches.

SPC Mesoanalysis Chart



Click on the image for a detailed look at severe weather parameters for various sectors across the county.

Rainfall

- Latest Local Hydrologic Outlook
- Days 1-3
- Excessive rainfall

Computer Models
Discussions
Interactive

- Excessive rainfall
- Days 1-3
- Latest Local Hydrologic Outlook



Spotter Activation Notification

- NWS La Crosse “recommendation” for spotter activation
- Sends Email, Text message, weather radio message



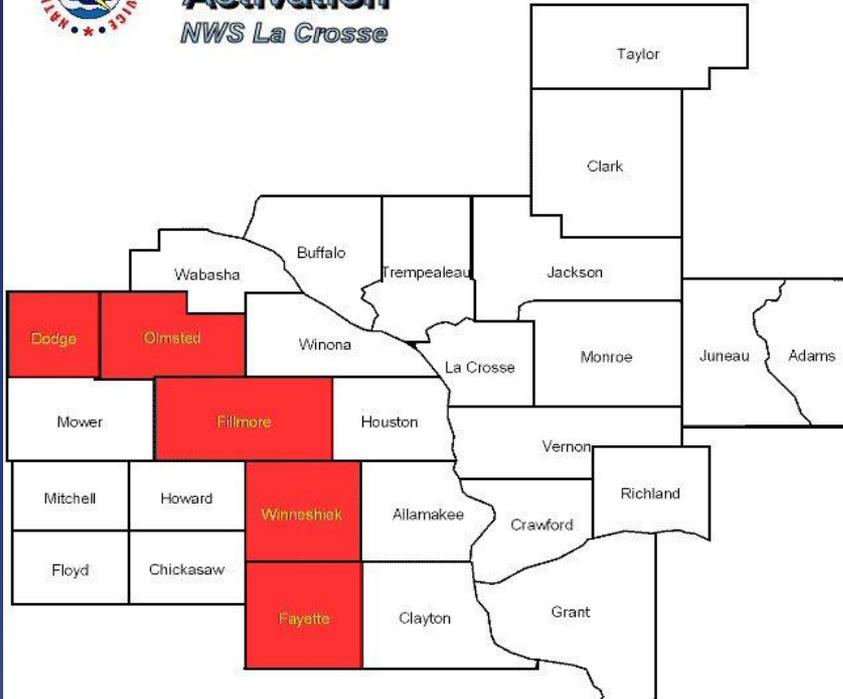
weather.gov/lacrosse/activation



weather.gov/lacrosse/activation



Spotter Activation NWS La Crosse



County	Status	Last Activation Time
Adams	Inactive	02/27/2008 13:34
Allamakee	Inactive	02/26/2008 14:33
Buffalo	Inactive	02/26/2008 14:28
Chickasaw	Deactive	02/27/2008 13:51
Clark	Inactive	02/26/2008 14:58
Clayton	Inactive	02/26/2008 14:33
Crawford	Inactive	02/27/2008 10:29
Dodge	Active	02/27/2008 13:51
Fayette	Active	02/27/2008 13:51
Filmore	Active	02/27/2008 13:51
Floyd	Deactive	02/27/2008 13:51
Grant	Inactive	02/27/2008 13:34
Houston	Inactive	02/26/2008 14:33
Howard	Deactive	02/27/2008 13:51
Jackson	Inactive	02/26/2008 14:58
Juneau	Inactive	02/27/2008 10:01
La Crosse	Inactive	02/19/2008 08:38
Mitchell	Deactive	02/27/2008 13:51
Monroe	Inactive	02/26/2008 14:58
Mower	Deactive	02/27/2008 13:51
Olmsted	Active	02/27/2008 13:51
Richland	Inactive	02/27/2008 10:29
Taylor	Inactive	02/27/2008 13:34
Trempealeau	Inactive	02/26/2008 14:10
Vernon	Inactive	02/27/2008 10:29
Wabasha	Inactive	02/26/2008 14:49
Winneshiek	Active	02/27/2008 13:51
Winona	Inactive	02/26/2008 14:28

(this page will automatically update every 5 minutes)

Quick Links:

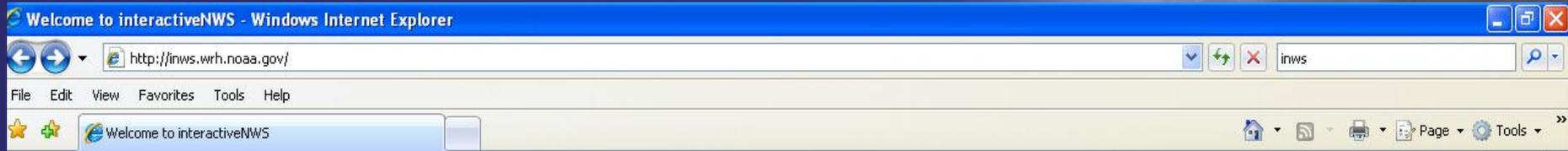
- [La Crosse Radar](#)
- [Local Hazardous Weather Outlook](#)
- [SPC Day 1 Outlook](#)
- [Storm Spotter Activation Guidelines](#)

Disclaimer: Information displayed on this page is solely a recommendation for spotter activation by the NWS. Official spotter activation guidelines should be followed, including any notification from local officials. This service is a test for the 2008 severe weather season.

Send Feedback about this page to:
[Todd Shea, WCM NWS La Crosse](mailto:Todd.Shea@noaa.gov)

Please keep questions or comments to the functionality of this page **only**, not whether or not spotters should be active.

<http://inws.wrh.noaa.gov>



 **interactiveNWS** experimental

[home](#) • [products](#) • [news](#) • [my iNWS](#) • [register](#) • [contact / feedback](#)



The banner features the NOAA and National Weather Service logos on the left. In the center is a mobile phone displaying a weather map. On the right is a login form with the following fields and buttons:

- Email / Phone:**
- Password:**
- Log In** button
- [Forgot your password?](#)
- [New? Register Here!](#)

Products

-  **iNWS Alerts**
sms/e-mail alerts
-  **iCWSU**
mobile aviation page
-  **NWS MobileWeb**
mobile weather page
-  **iNWS Mobile**
prototype cell phone app

What is iNWS?

Interactive NWS (iNWS) is the home of new mobile and desktop innovations of the National Weather Service. iNWS strives to fulfill our mission of protecting life and property by using new technology to reach out to our customers.

At this time, iNWS is considered an experimental service. Feel free to use iNWS, but there is no guarantee of service availability or customer support.

Recent News

[Improvements to iNWS Alerts](#)

Published 9 days ago

[Redundant Alerts Sent Feb. 11, 12](#)

Published 2 months ago

[iNWS SMS Re-Branded as iNWS Alerts](#)

Published 2 months ago

[Email Alerts Now Available](#)

Published 2 months ago

Information Sources

- **Hazardous Weather Outlooks**
 - *Email only*
- **Spotter Activations**
 - *Email or Text Messages (SMS)*
- **Watches / Warnings**
 - *iNWS – Email or Text Messages*

What we ask...

- **Keep up on the weather threat(s)**
 - *Be pro-active*
 - *Is your net up and ready?*
- **Communicate with us**
 - *Be patient though*
- **Filter reports**
 - *unless more information is solicited*
 - *Check on source; credible?*
 - *Ask follow-up questions*

What we ask...

- Collect reports if we are not avbl
 - *Unless high importance item – then call*
- Try to minimize chatter
- Is it a tornado?



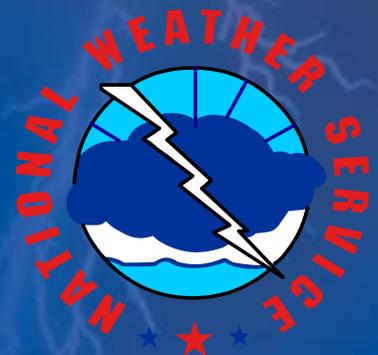
What we can provide...

- Radar updates and trends
- Expected storm modes
- Updates to watches / warnings
- Other?



What can we do for you?

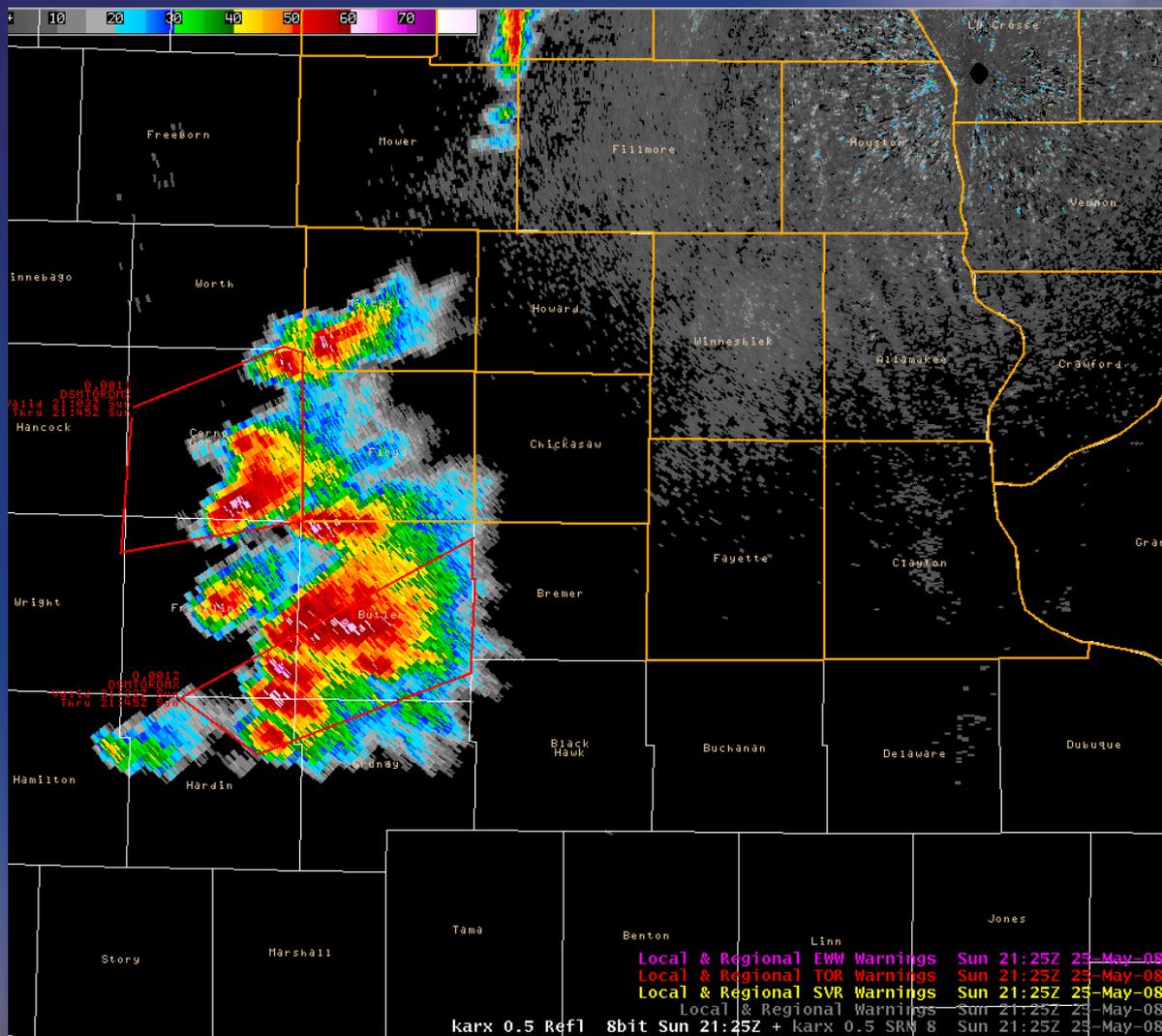
- What needs improving?
- What should we do different?
- What works? What doesn't?



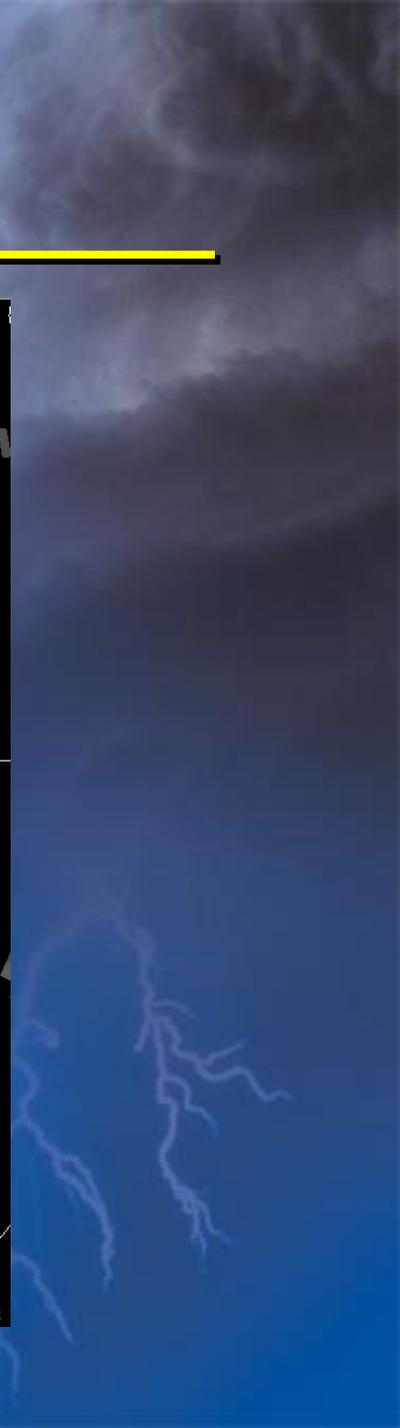
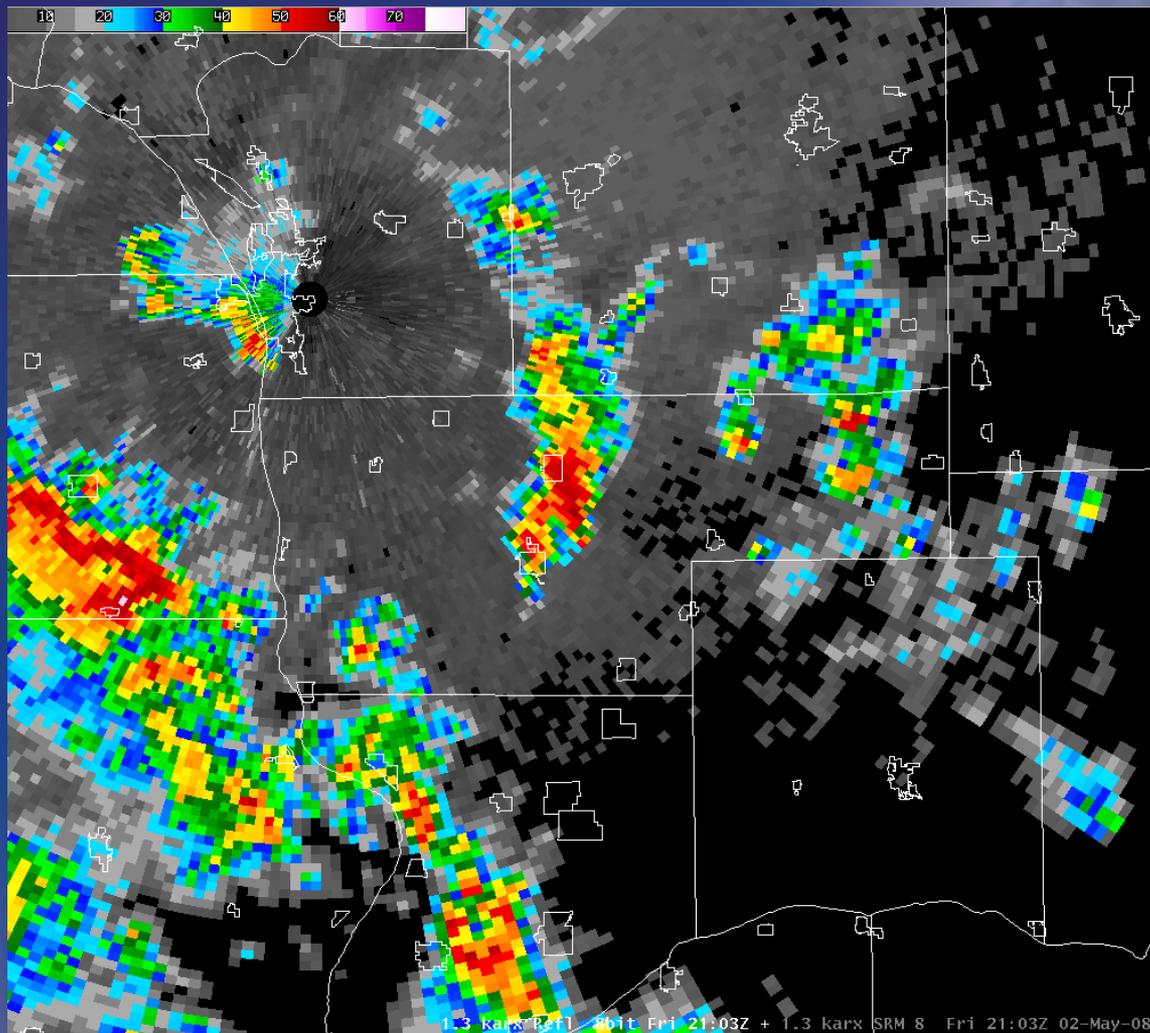
Questions



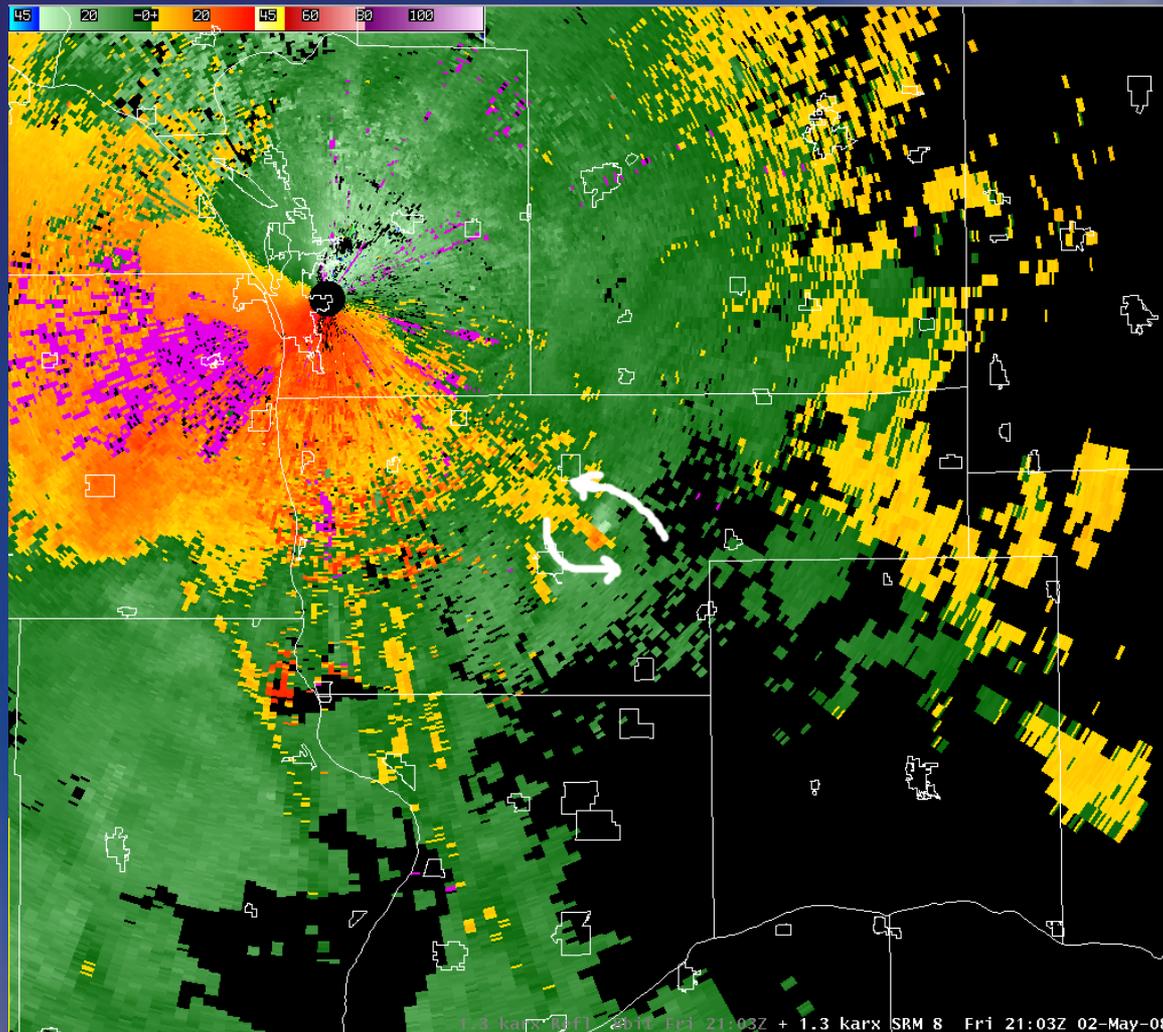
May 25, 2008



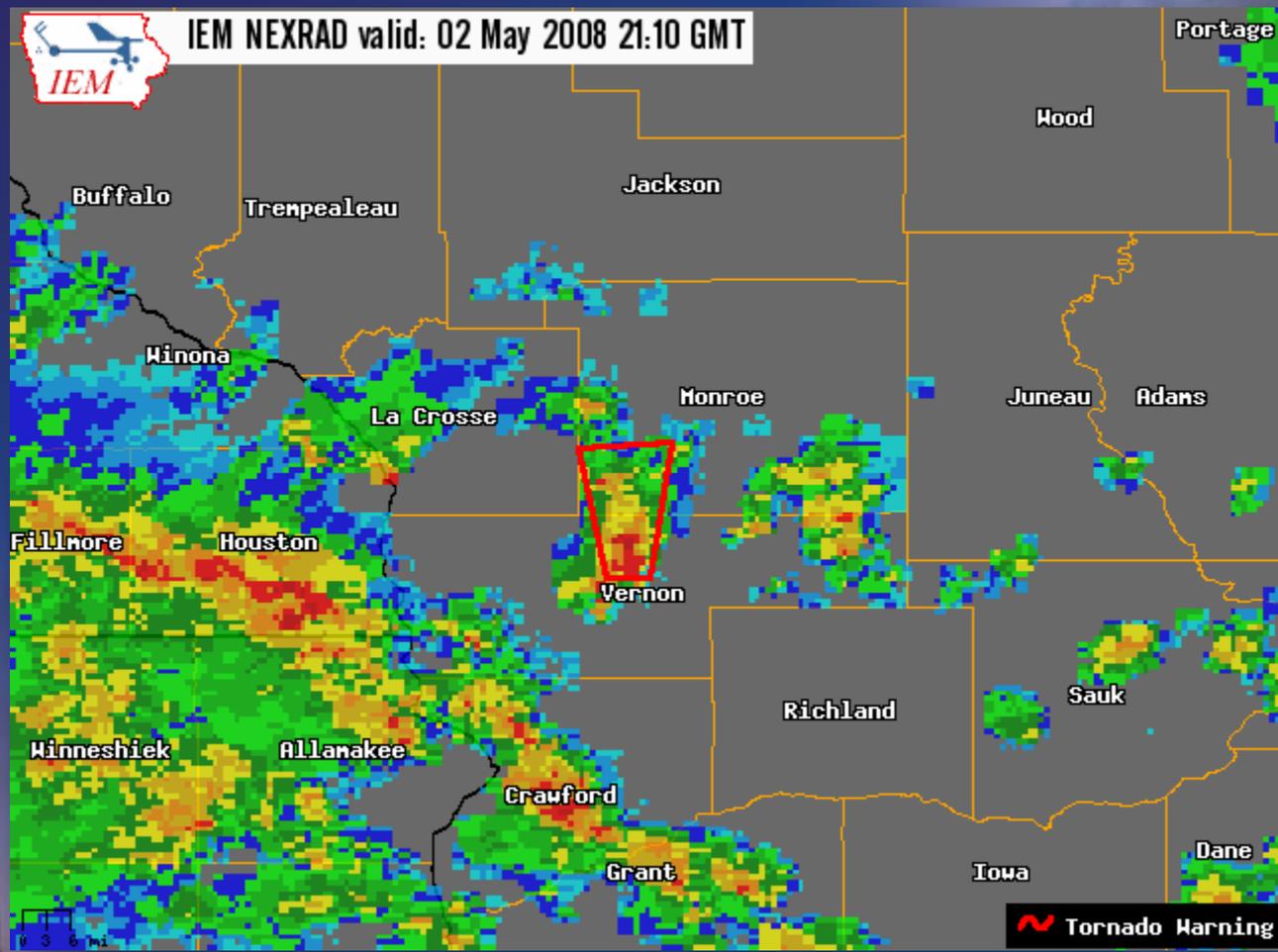
May 2, 2008



May 2, 2008



May 2, 2008



Warning Generation

The image shows a screenshot of the WarnGen software interface. The main window displays a radar map of a region, likely in the Midwest, with various counties labeled. The radar shows a storm system with intensity levels indicated by a color scale from blue (light) to red (heavy). The interface includes a menu bar at the top with options like 'Hydro', 'Upper Air', 'Satellite', 'karp', 'kmpx', 'kdvn', 'Radar', 'SCAN', 'Maps', 'Local Maps', 'Hydro Maps', and 'Help'. A toolbar below the menu bar contains navigation and display controls, including 'Frames: 12', 'Mag: 1', and 'Density: 1'. On the left side, there is a configuration panel with several sections: 'Backup' (Partial: ARX, Full: ARX), 'Track type' (One Storm, Line of Storms, Edit: Box, Track, Box and Track), 'Redraw Box on Screen from:' (Track, Warned/Hatched Area, Warned Area Visible: checked), 'Product type' (Tornado Warning, Severe Thunderstorm Warning, Severe Weather Statement, Flash Flood Warning, Flash Flood Statement, Areal Flood Warning, Areal Flood Statement, Urban/Small Stream Flood Statement, Other: Short Term Forecast), 'Time range' (Duration: 30 min, 15:05 Mon 17-Sep to 15:35 Mon 17-Sep), and 'Optional bullets:' (This warning extends a previous SVR, Radar, Spotters, Public, Law Enforcement, Emergency Management, STORM THREATS, WIND, 60 mph wind, 70 mph wind, 80 mph wind, HAIL, Penny size hail, Nickel size hail, Quarter size hail). At the bottom of the configuration panel are buttons for 'Create Text', 'Restart', and 'Close'. The status bar at the bottom of the main window shows 'Interactive WarnGen (Editable) Mon 15:05Z 17-Sep-07', 'karp 0.5 Refl 8bit Mon 15:05Z 17-Sep-07 + karp 0.5 Refl 8bit Mon 15:05Z 17-Sep-07', and 'Frames: 12 Time: 15:05 Z 17-Sep-07'.

Questions



1" Hail Initiative

- NWS Central Region only
- Started April 1st
- Severe Thunderstorm Warnings:
 - *1" hail*
 - *Thunderstorm wind gusts \geq 50 kts (58 mph)*

Background

- **CR has conducted a demonstration of the 1” hail criterion in the state of Kansas and adjoining offices since 2004. It was based primarily on two factors:**
 - *Scientific research indicating 1” is a more meaningful threshold for defining hail associated with property damage*
 - *Feedback from local partners desiring fewer warnings and EAS activations for marginal events*

Why 1" hail as a discriminator?

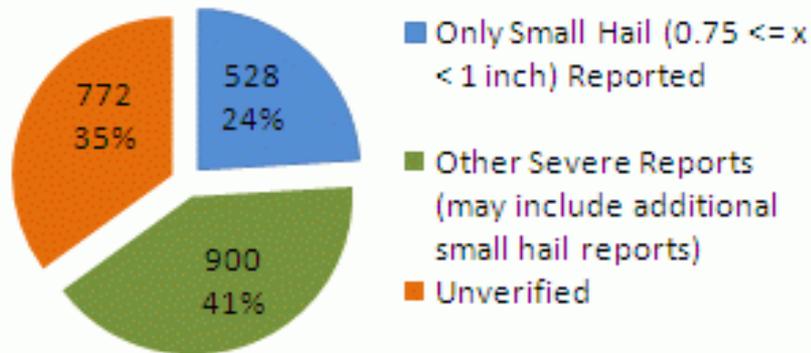
- Scientific studies increasingly indicate hail smaller than one-inch in diameter is not associated with significant damage.*
- This is supported by damage reports from thousands of events annually and by the perception of the general public

* - For example, *"Hail damage threshold sizes for common roofing materials"*
(Marshall, Herzog and Smith, Texas Tech, 2002)

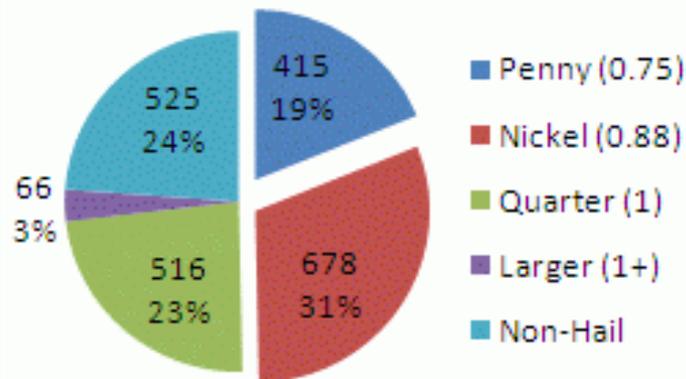
Warnings / Verification

2007- 2008 Svr T'Storm Verification For Iowa NWS Offices

Warning Verification



Initial Warning Justification



Unofficially compiled by IEM

Estimation of Saved Warnings

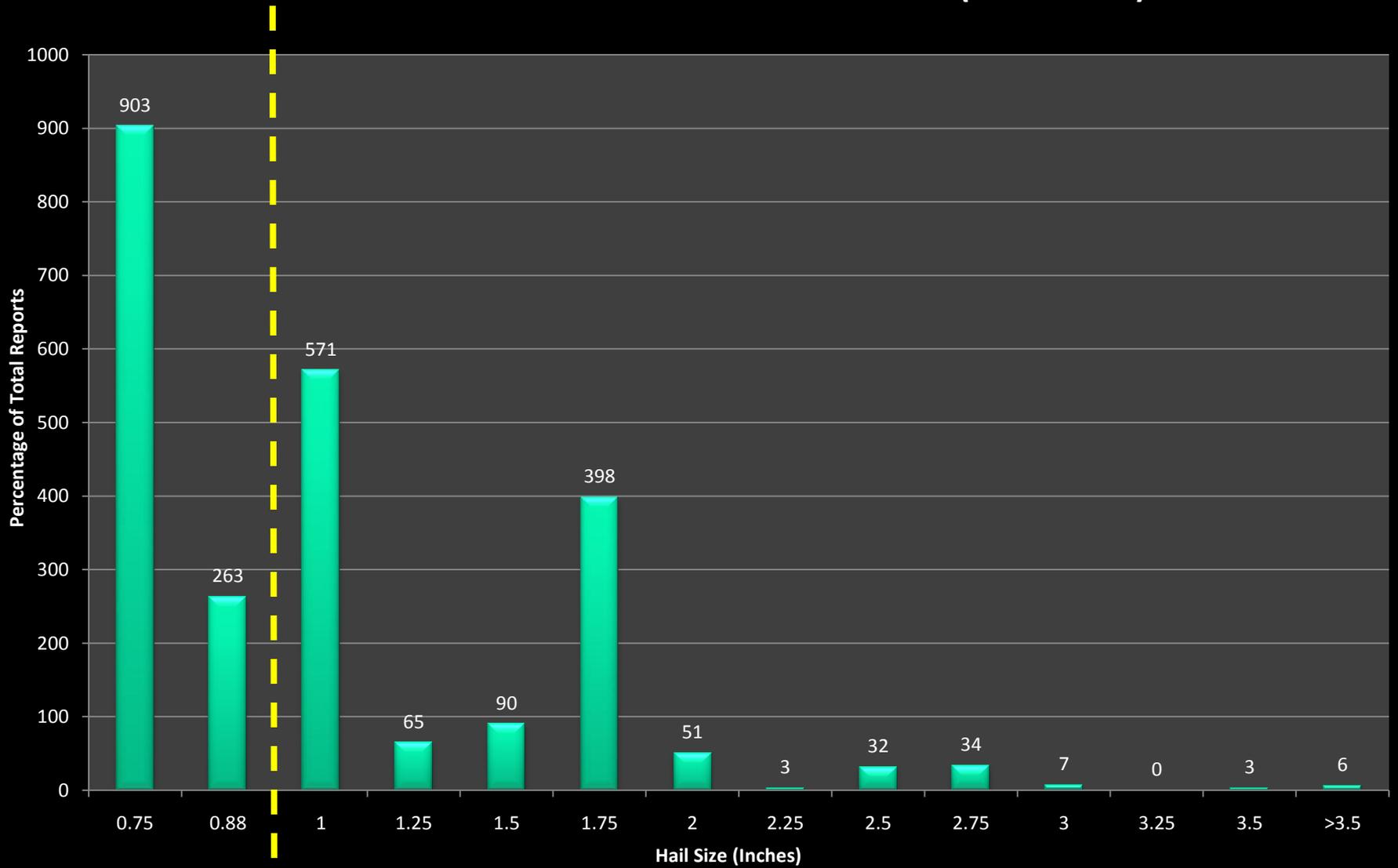
- Results indicated a 35% reduction in the number of severe thunderstorm warnings issued, allowing a stronger focus on diagnosing and forecasting those events for which the threat of serious damage was high.



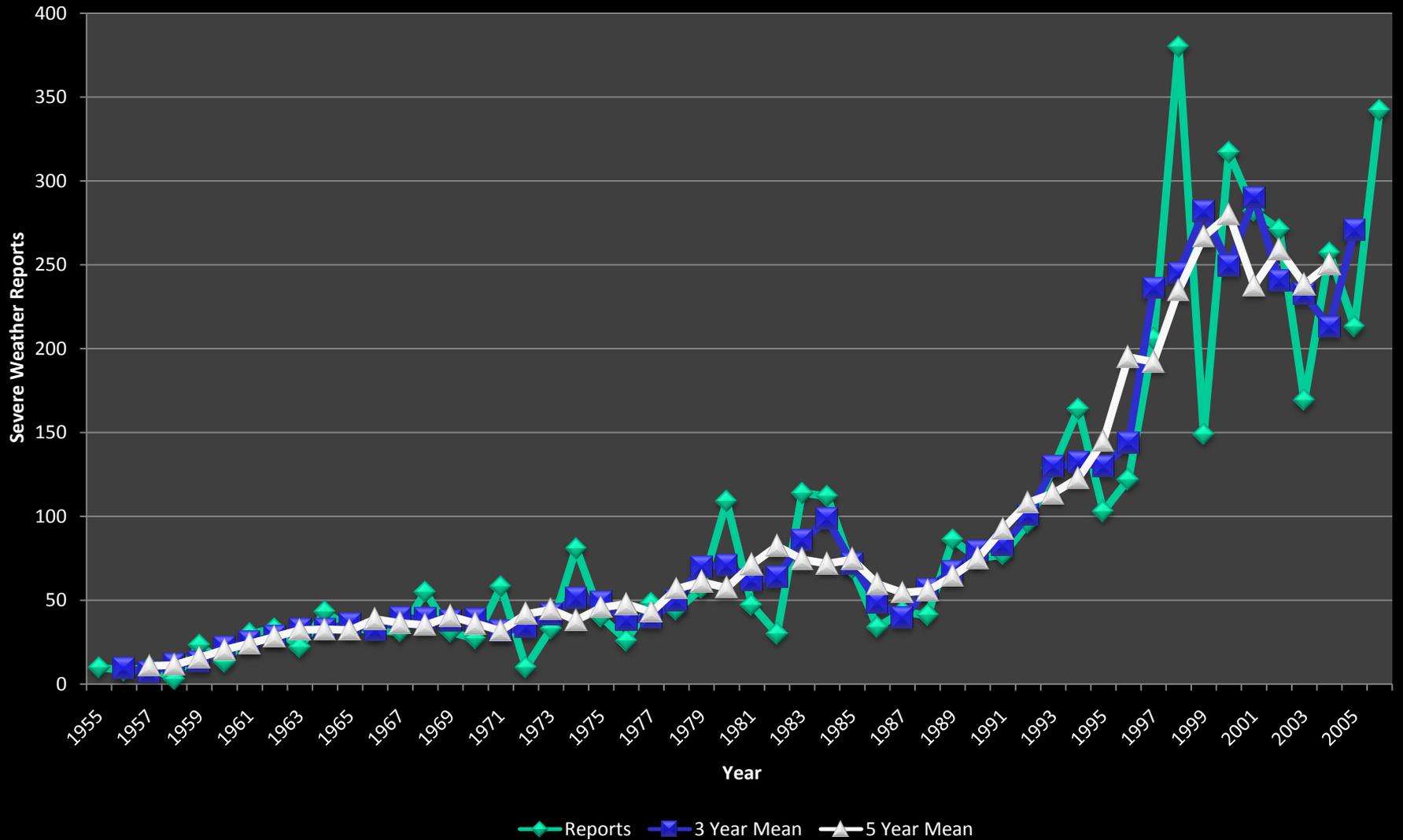
Strong / “Sub-severe”

- **Special Weather Statements issued**
 - *½” to < 1” hail*
 - *40-57 mph winds*
 - *Frequent cloud-to-ground lightning*
- **Would still like to know about all hail sizes...**

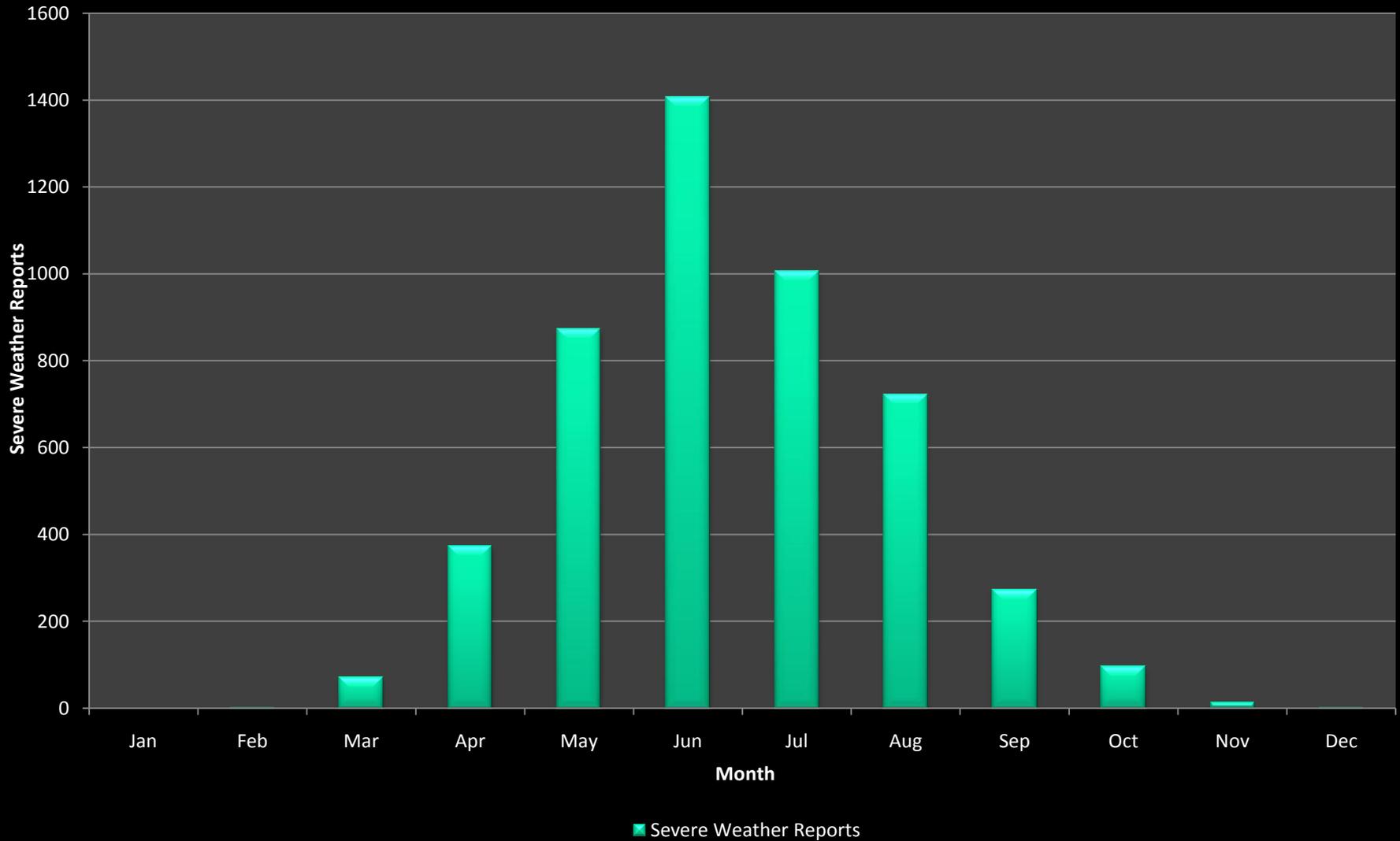
LaCrosse CWA Hail Size Distribution (1955-2008)



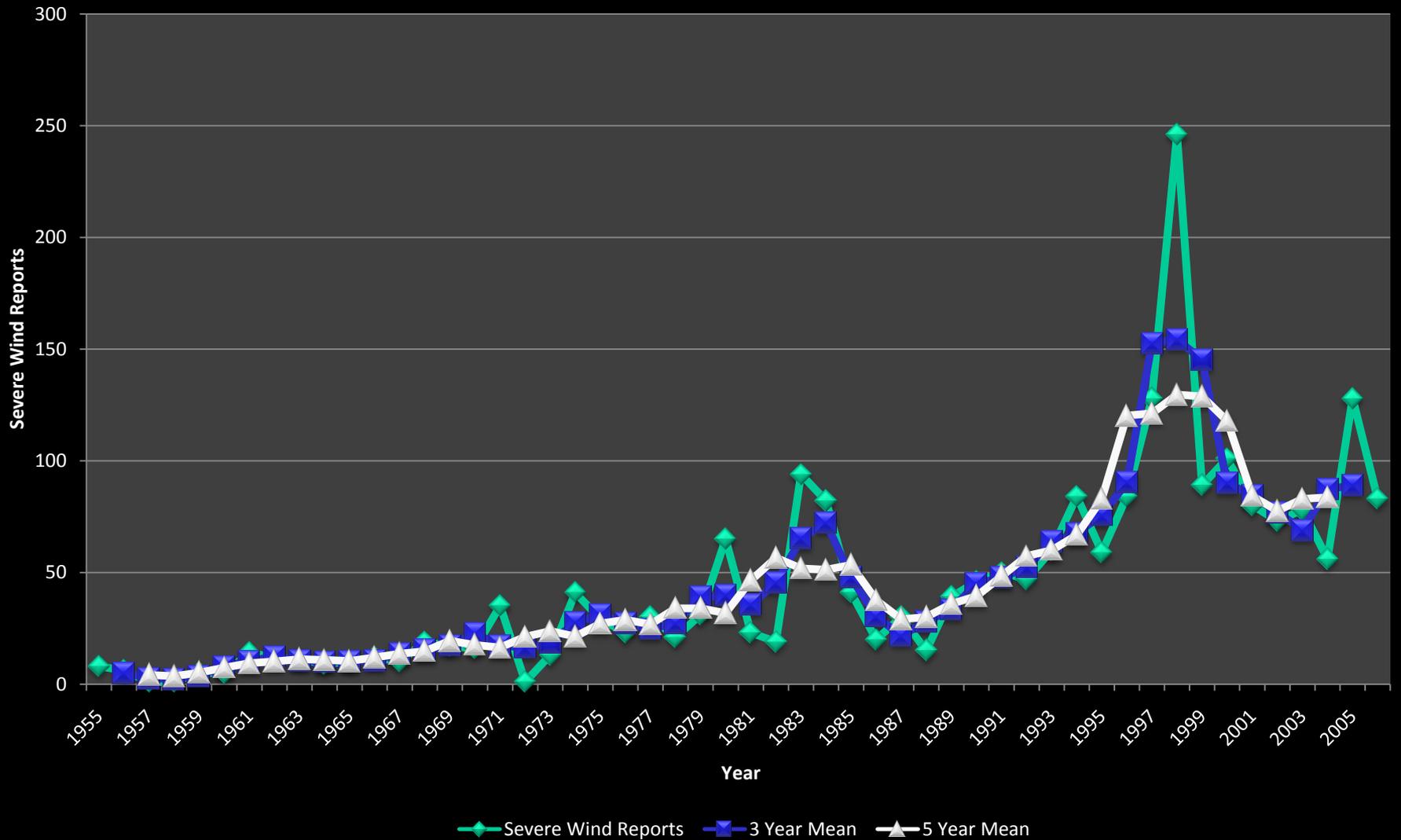
LaCrosse CWA Severe Weather Reports (1955-2006)



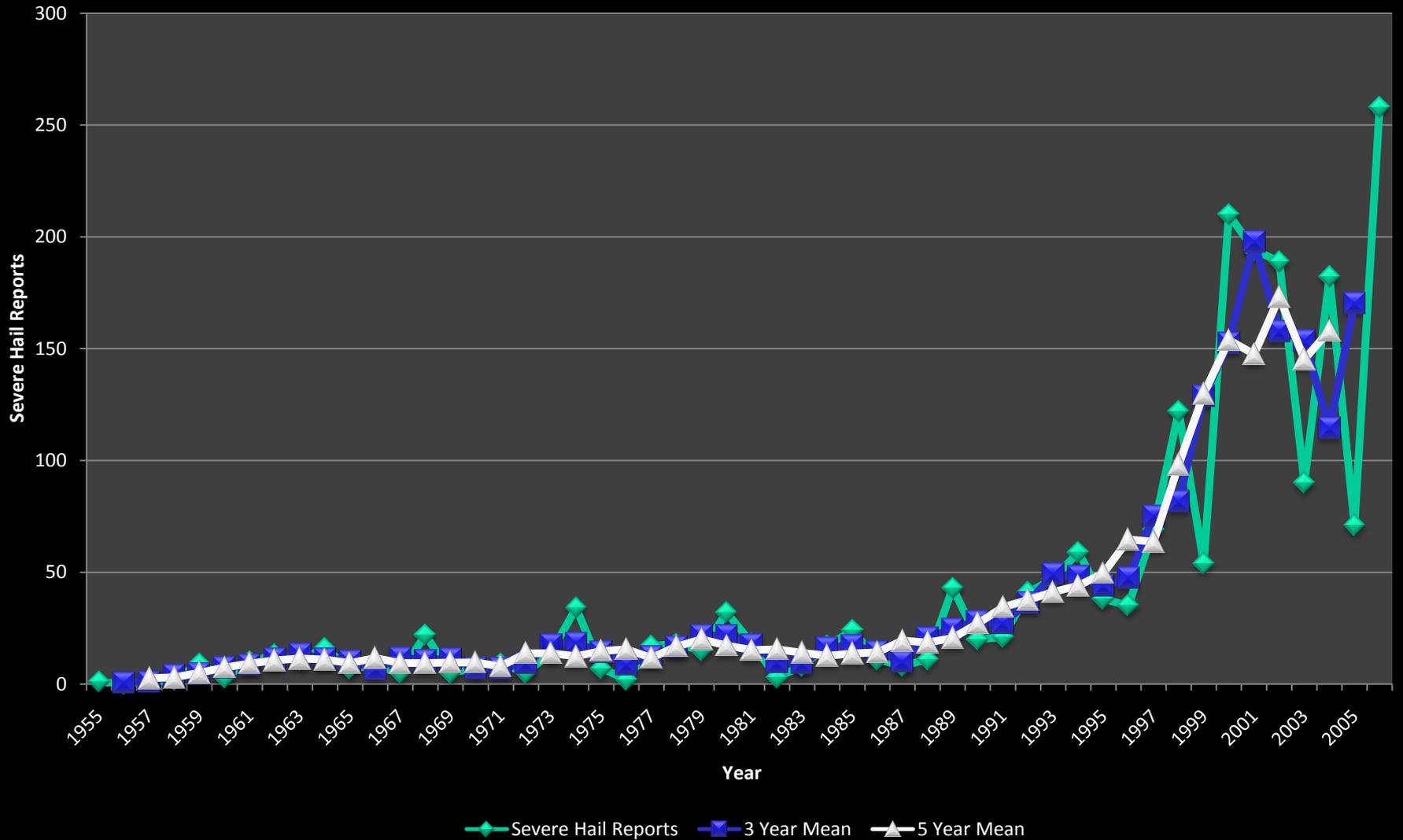
LaCrosse CWA CWFA Severe Weather Reports (1955-2006)



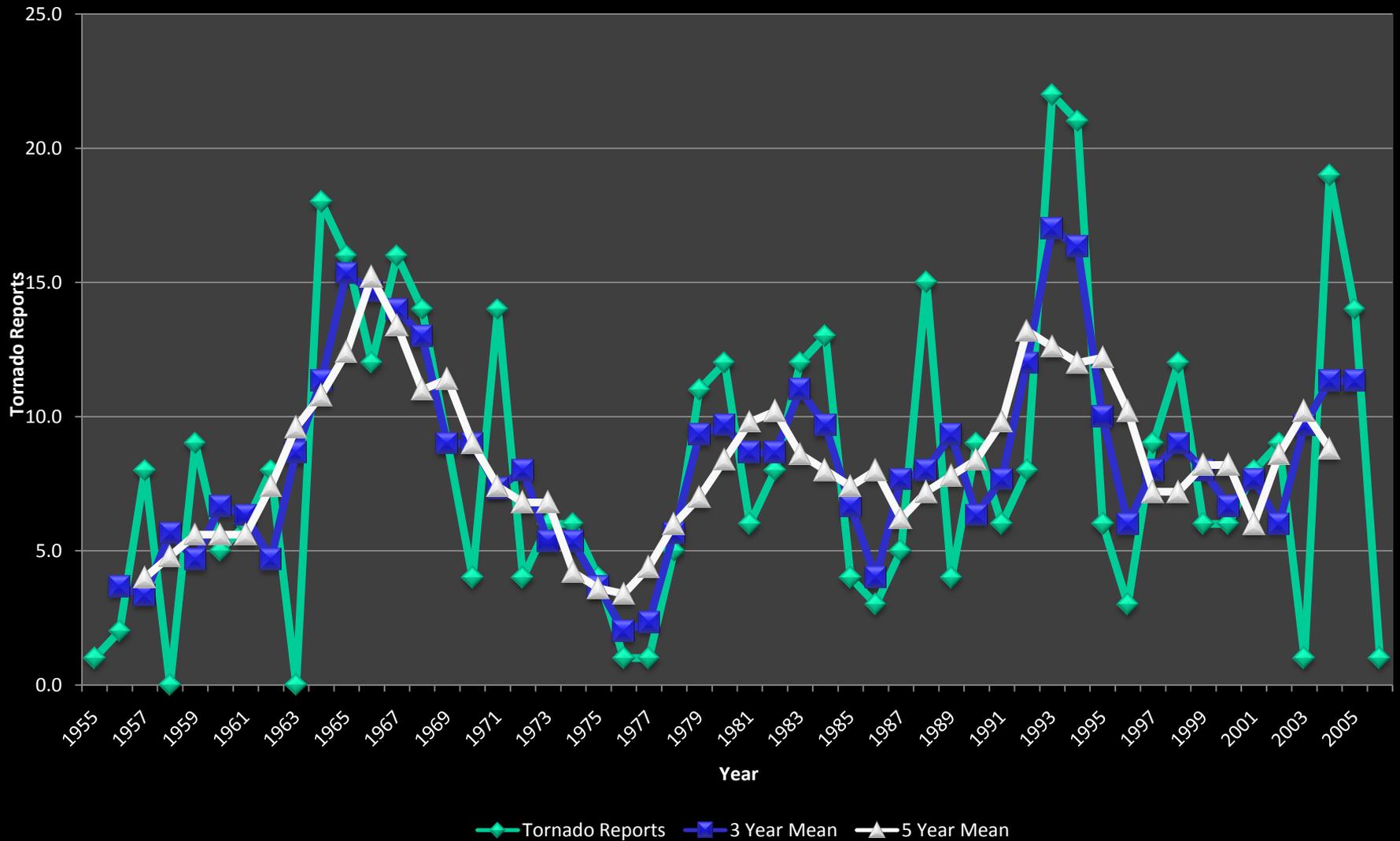
LaCrosse CWA Severe Wind Reports (1955-2006)



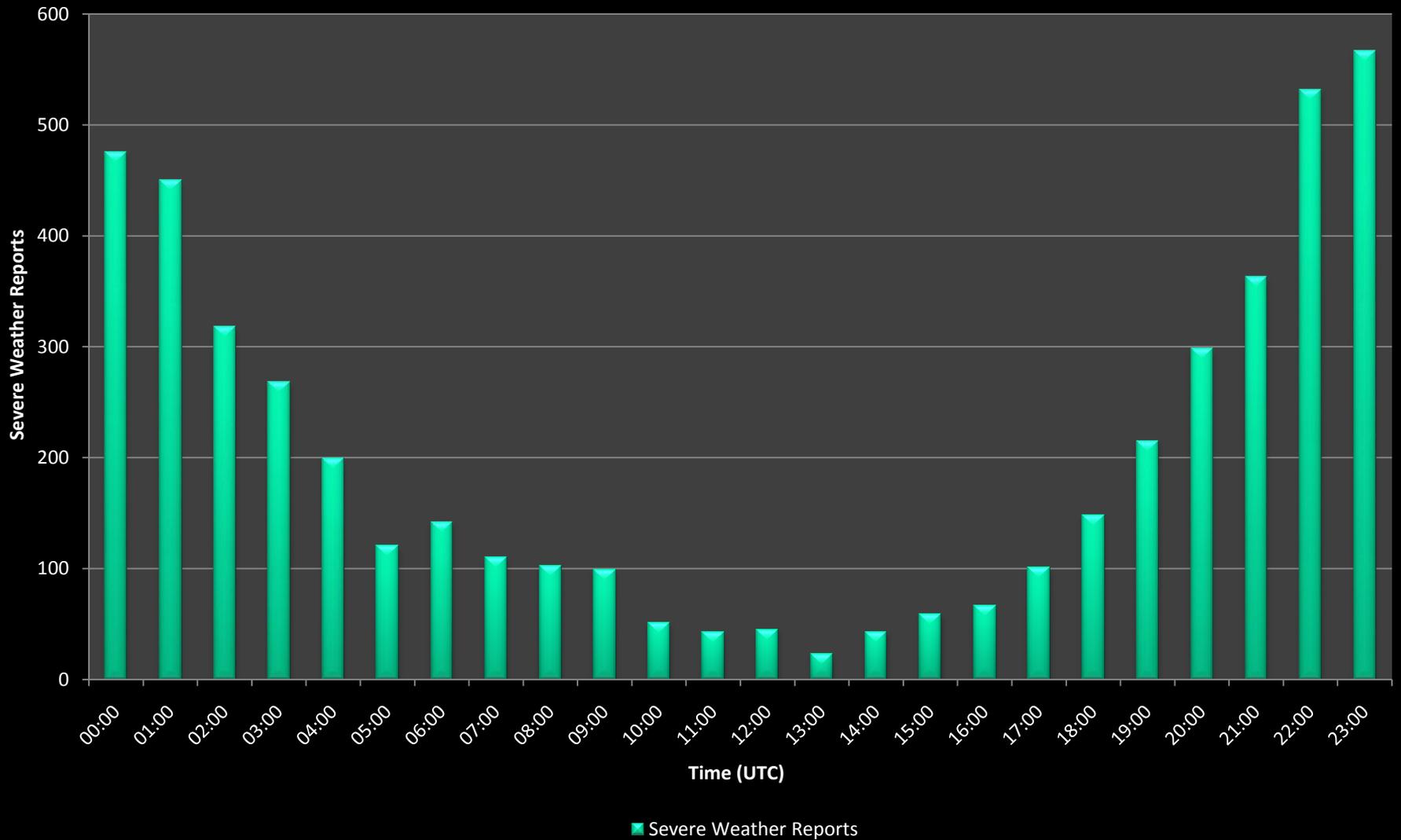
LaCrosse CWA Severe Hail Reports (1955-2006)



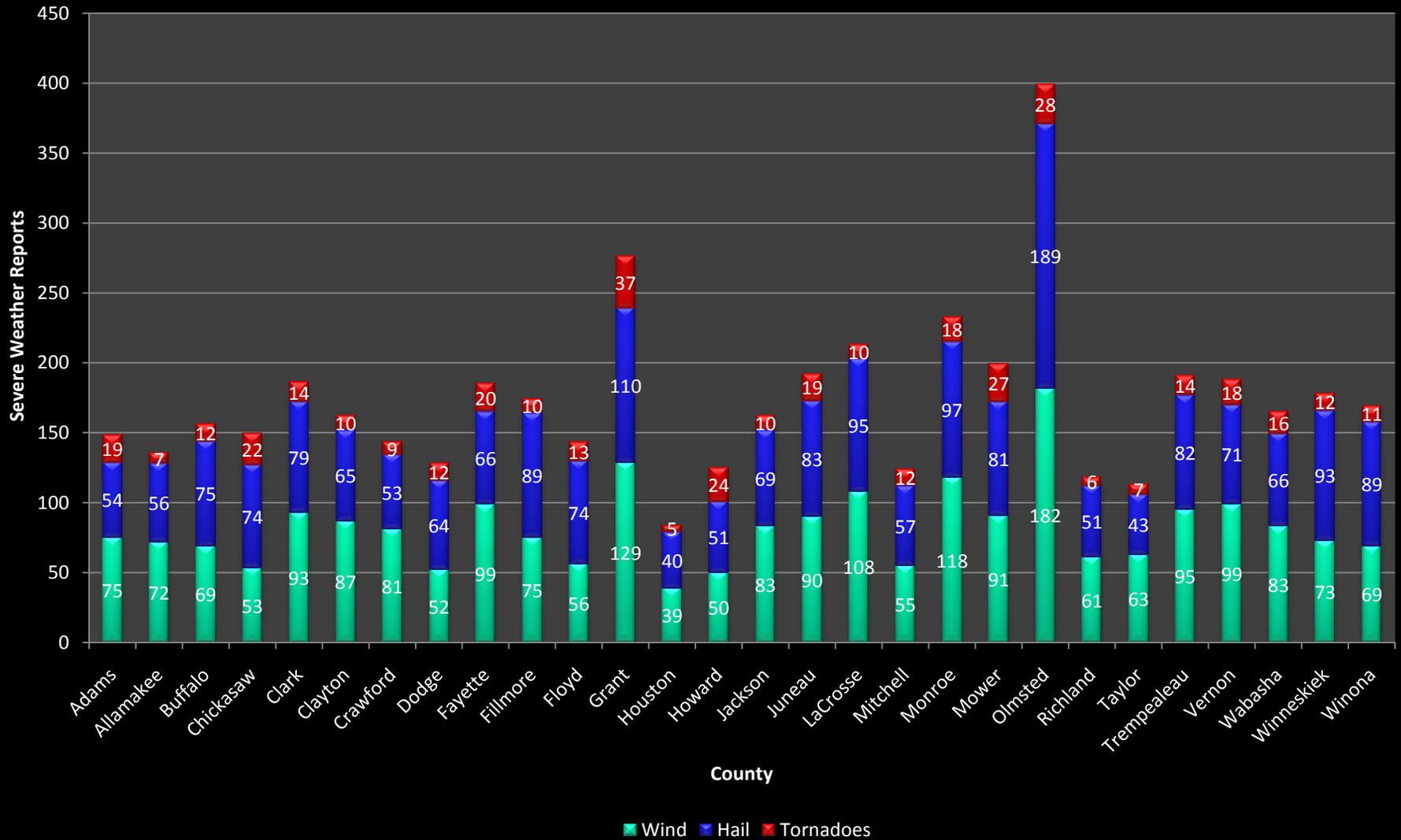
LaCrosse CWA Tornado Reports (1955-2006)



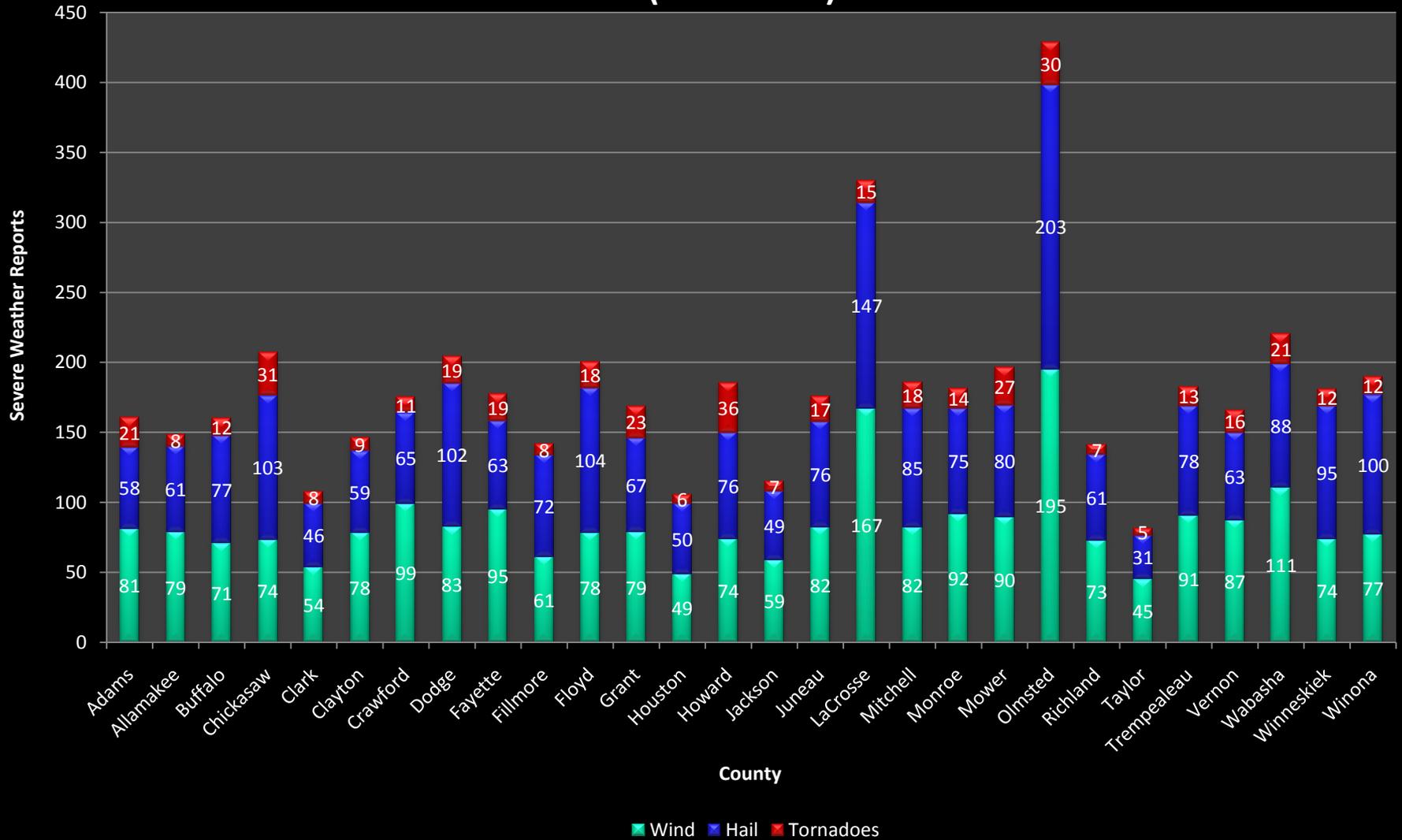
LaCrosse CWA Severe Weather Reports (1955-2006)



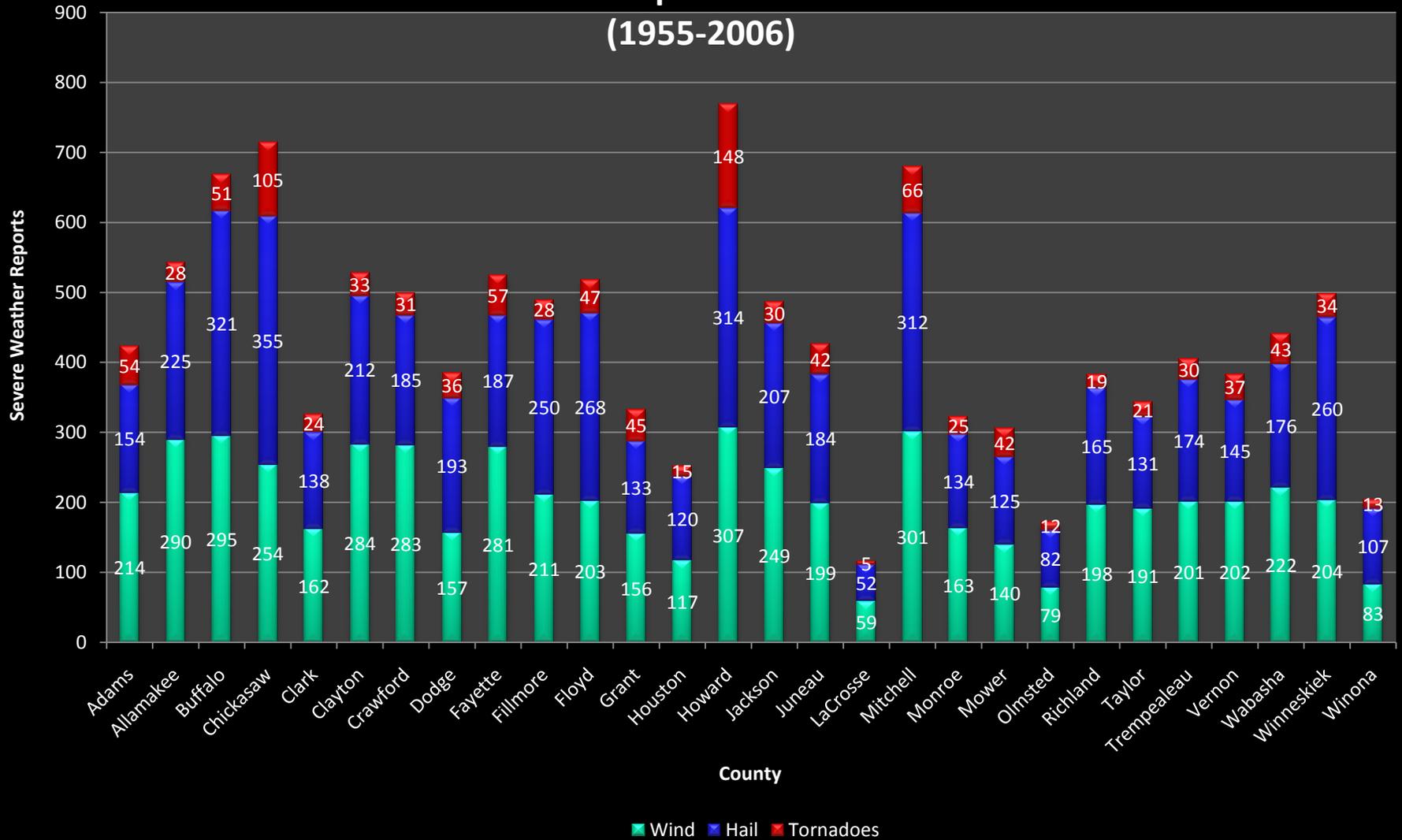
LaCrosse CWA Severe Weather Reports by County (1955-2006)



LaCrosse CWA Severe Weather Reports by County - Normalized by Area (1955-2006)



LaCrosse CWA Severe Weather Reports by County - Normalized by Population (1955-2006)



Questions



Open House



Sept. 10, 2009

