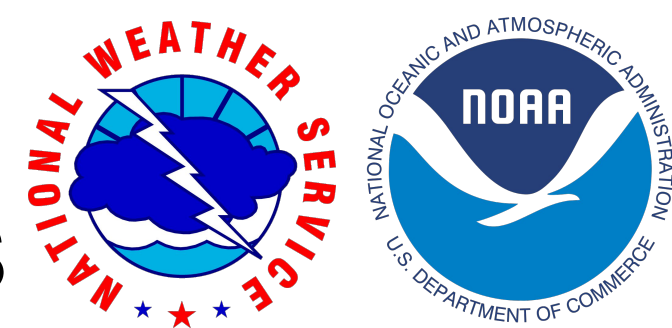


The April 29, 2022 EF-3 Tornado: Lessons from a Near Miss

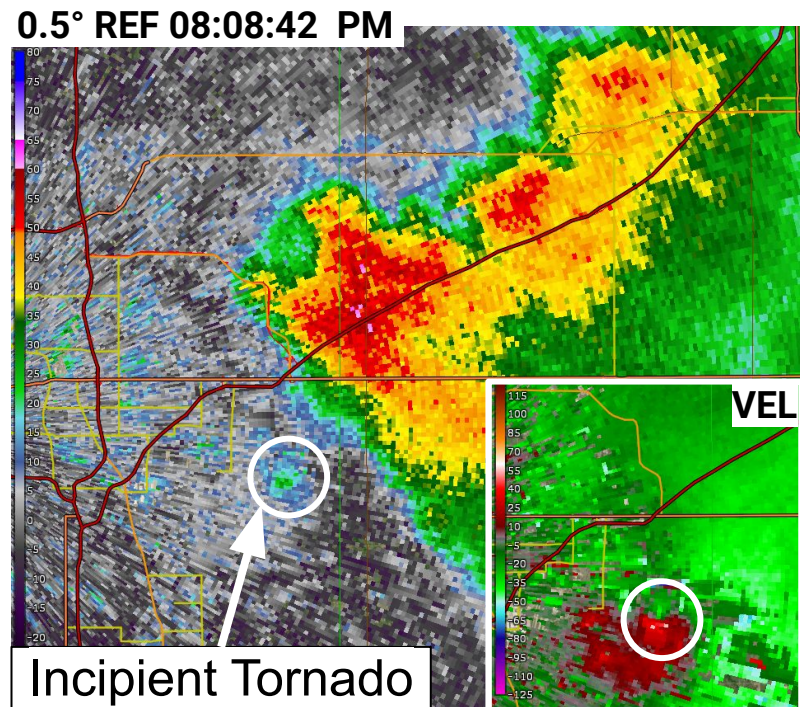
Kelly Butler and Vanessa Pearce NOAA / National Weather Service Forecast Office Wichita KS



800PM



Photo by Elizabeth Spicer, @spice_small



809PM



Photo by Andrew Shearer, @Drewshearer444

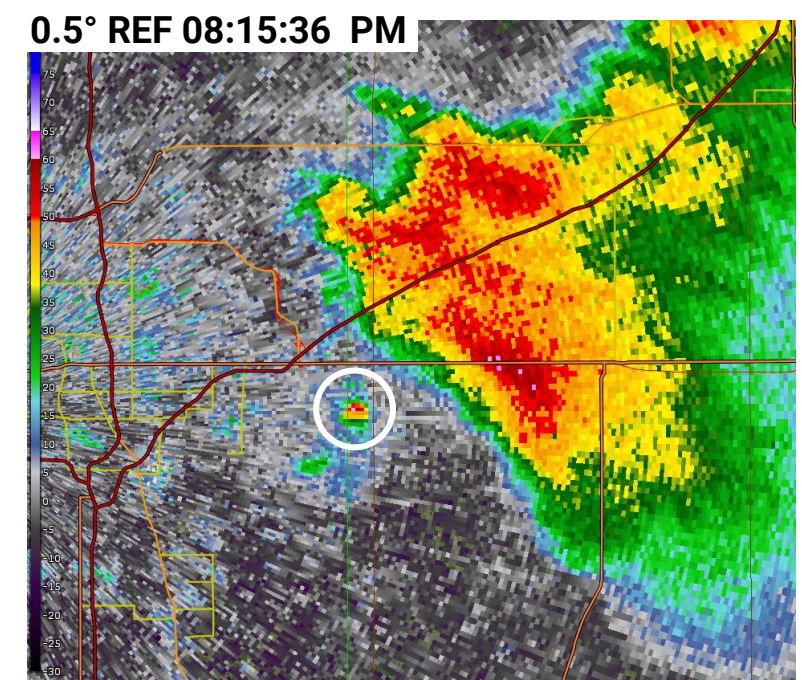


Photo by Elizabeth Spicer, @spice_small



Photo by Elizabeth Spicer, @spice_small

810PM



815PM

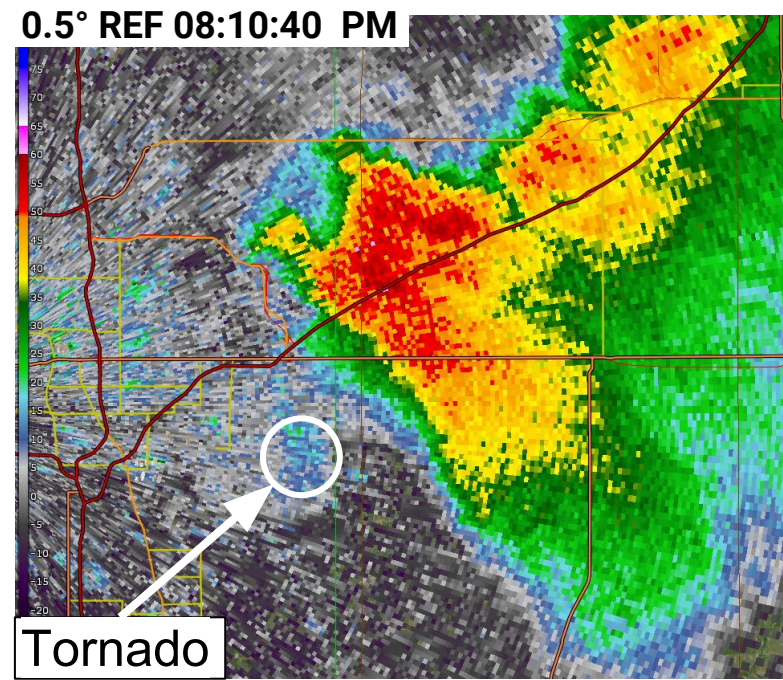


Photo by Elizabeth Spicer, @spice_small



@ReedTimmerAccu Video frame by Reed Timmer

817PM



Video frame courtesy Reed Timmer @ReedTimmerAccu



Video frame by Reed Timmer @ReedTimmerAccu

818PM

The tornado continued for another 13 minutes.

Andover YMCA



At **peak intensity**, the tornado made a **direct hit** on the YMCA.

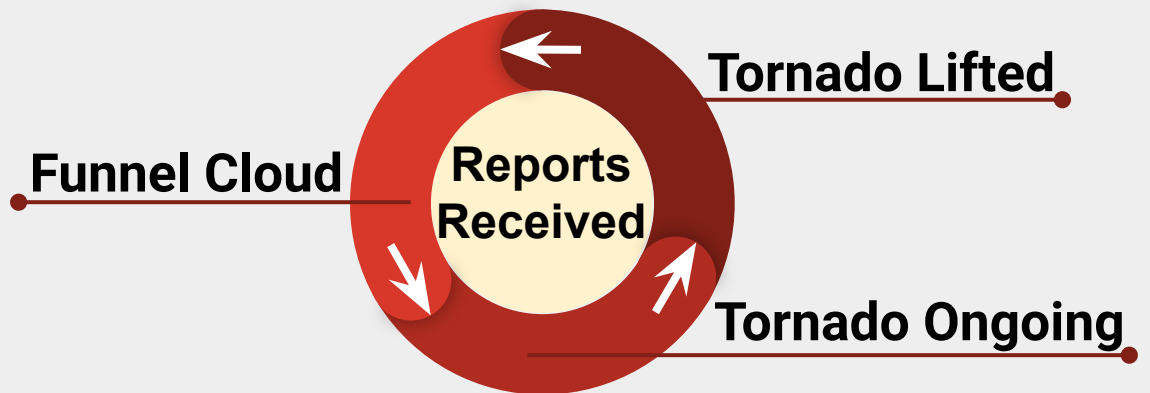
8 Minutes of Lead Time

Staff initiated their **safety plan**, 33 people stayed and sheltered in the locker rooms.

Spotters Were Vital



What is actually happening here?



The **high cloud base** and **inconsistent saturation** through the condensation funnel made **depth perception** and **situational awareness** challenging at times.

Staffing

Higher end events require more staff, especially if the metro area is affected.

Duties normally multi-tasked needed **undivided attention**.

Communication

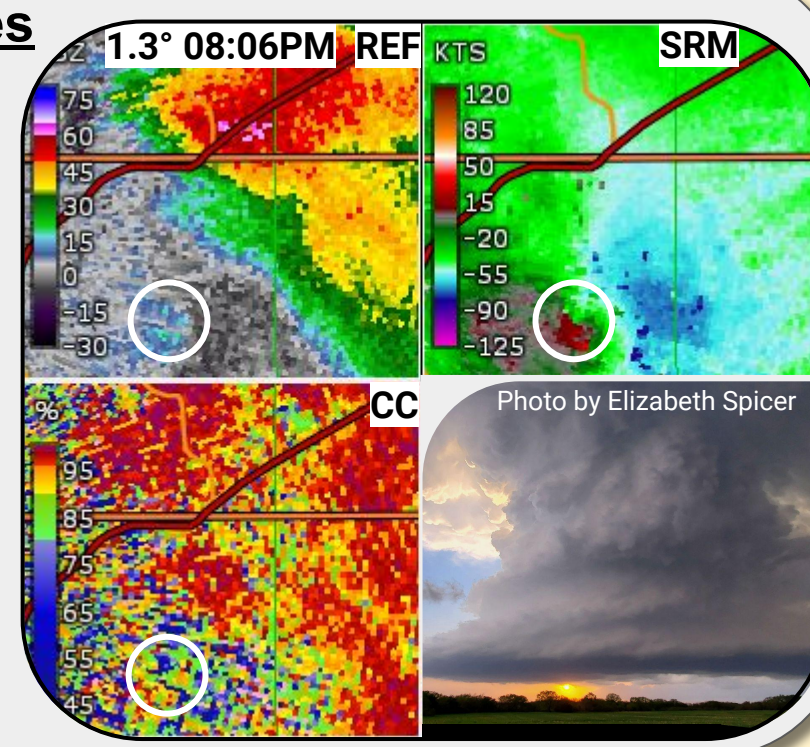
Communication shortfalls by NWS were directly due to being **short staffed**.



Low Reflectivity Hook Echoes

Low-reflectivity hook echos present a **challenge for tornado warning lead time**.

Radar imagery **was less** representative of what spotters were seeing thus **spotter reports were vital**.



National Weather Service Perspective

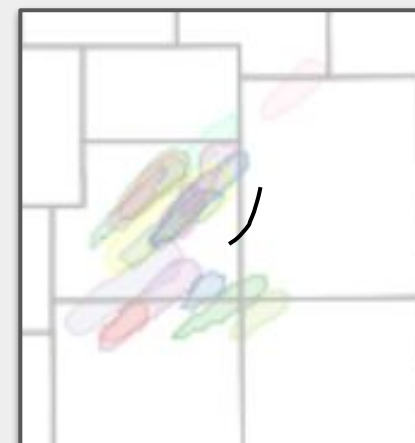
Warn-on-Forecast (WoFs)

Building trust with experimental WoFs

While off in time, the **Wichita Metro** area was highlighted in the early WoFs runs of the day.

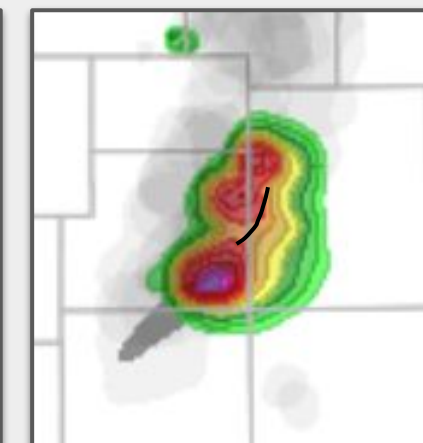
WoFs Output: Valid Time 430PM

Init 1200PM



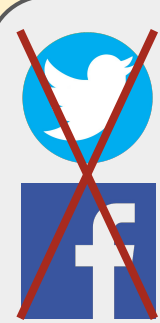
30 min Updraft Helicity Paintballs

Init 130PM



Simulated Composite Ref / Updraft Helicity Member 12

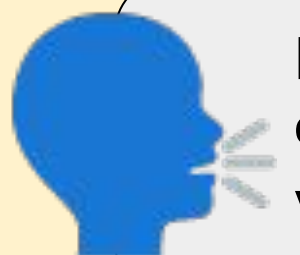
Emergency Management Perspective



Post Event Resources were pushed heavily via social media, yet **not reaching the people** that needed it most.



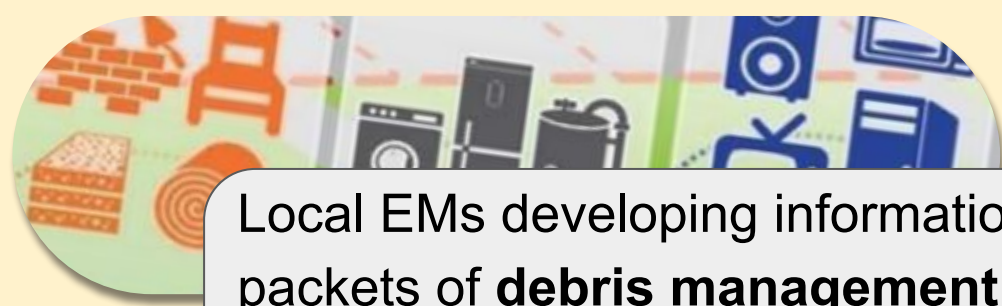
Include **financial** and admin information in severe weather preparedness campaigns.



Public Information Campaign on both renters and comprehensive vehicle insurance aimed at young people.



Sedgwick County will now **automatically deploy tornado sirens** upon warning issuance and select users can deploy siren via mobile phone app.



Local EMs developing information packets of **debris management**, local contacts, insurance, and more, in multiple languages.

Impacts of Covid Era Training

"It is too easy right now to do [disaster management training] virtually, in order to check a box. This does not help us when we are executing these types of responses. We need this done live and in person." -Sedgwick County EM

1 National Weather Service (NWS)

NWS sends out significant weather briefing to partners days in advance.

2 Emergency Managers (EM)

Butler County EM forwards pertinent weather briefings to their localized partners/users.

3 Local Entities, YMCA

The relayed briefings prompt the **Andover YMCA staff** to take action and practice their safety plan in advance.

Lives Saved

Would we still have a success story if...

Early Arrival

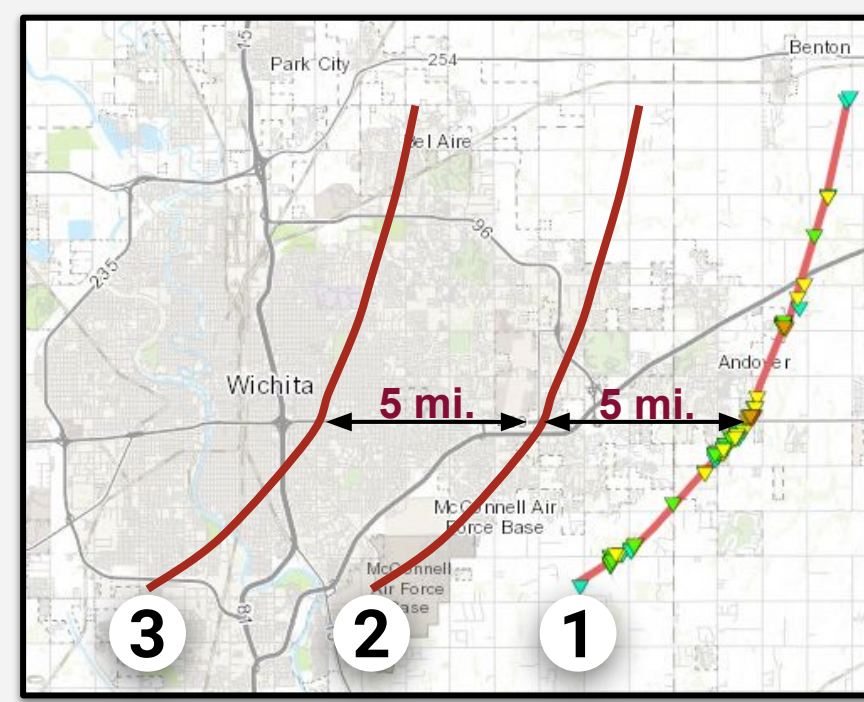
A full parking lot is common at the YMCA from 5-6PM with after work/school programs.

YMCA Parking Lot



Narrow Shift in Track

Less than a block west of tornado track sits a **208 Unit Apartment Complex**; there are no shelters.



Wichita Metro population 625,000

Shift in Track By Miles

- 1 Est. population along tornado track 6,000*
- 2 Est. population along pseudo-track, 30,000*
- 3 Est. population along pseudo-track, 50,000*

Andover, KS Pop: 15,000

*Population estimates from US Census.

Lower Visibility

Far too many people took action because of their **visual confirmation of the tornado**, not from the wireless alert or other means, resulting in only **30 seconds to a minute of lead time** to reach shelter.

"Its visibility is about all that saved a lot of lives."

-Butler County EM