

Weathering Trust: Credibility Formation in YouTube's Weather Information Ecosystem

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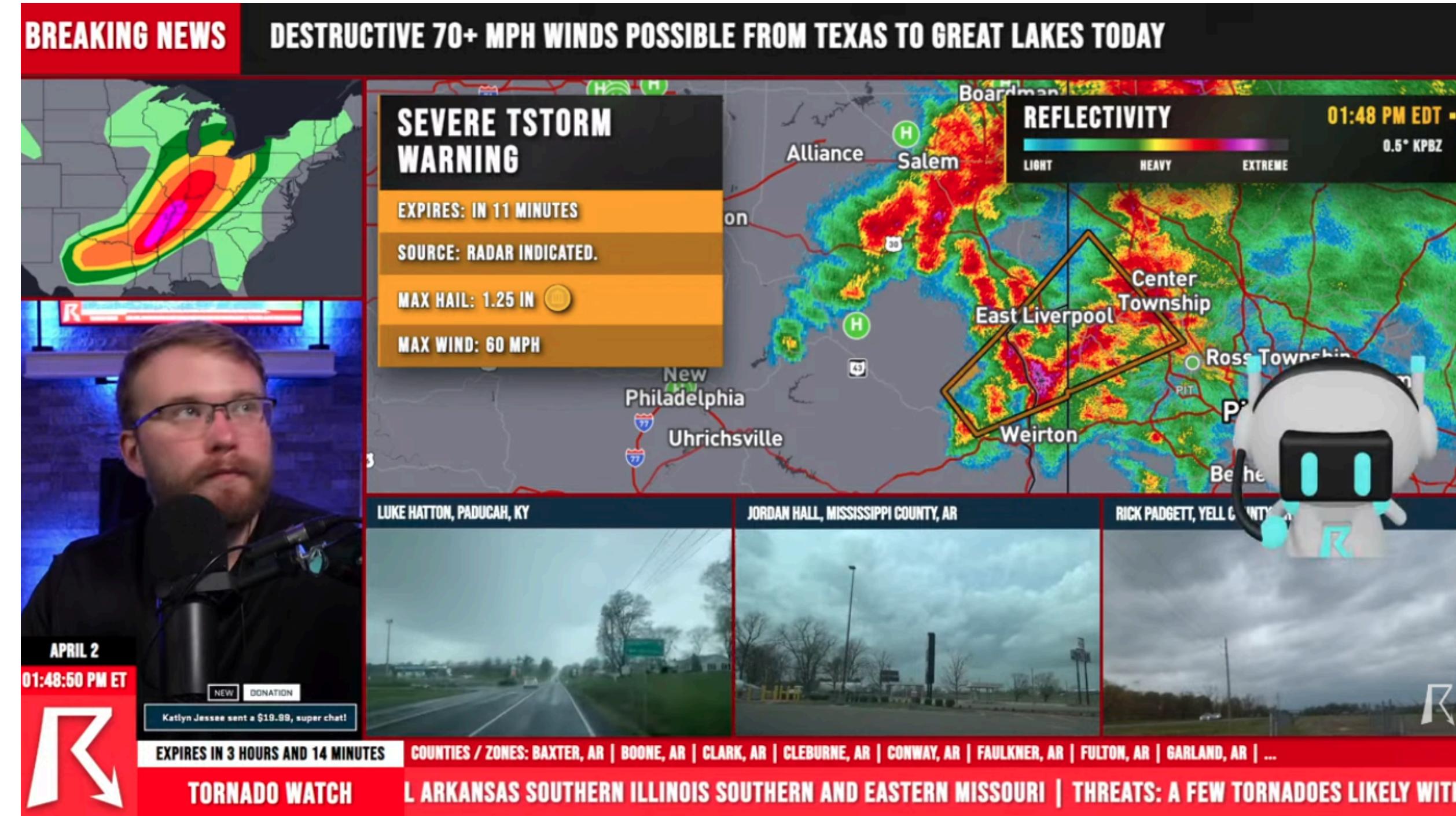
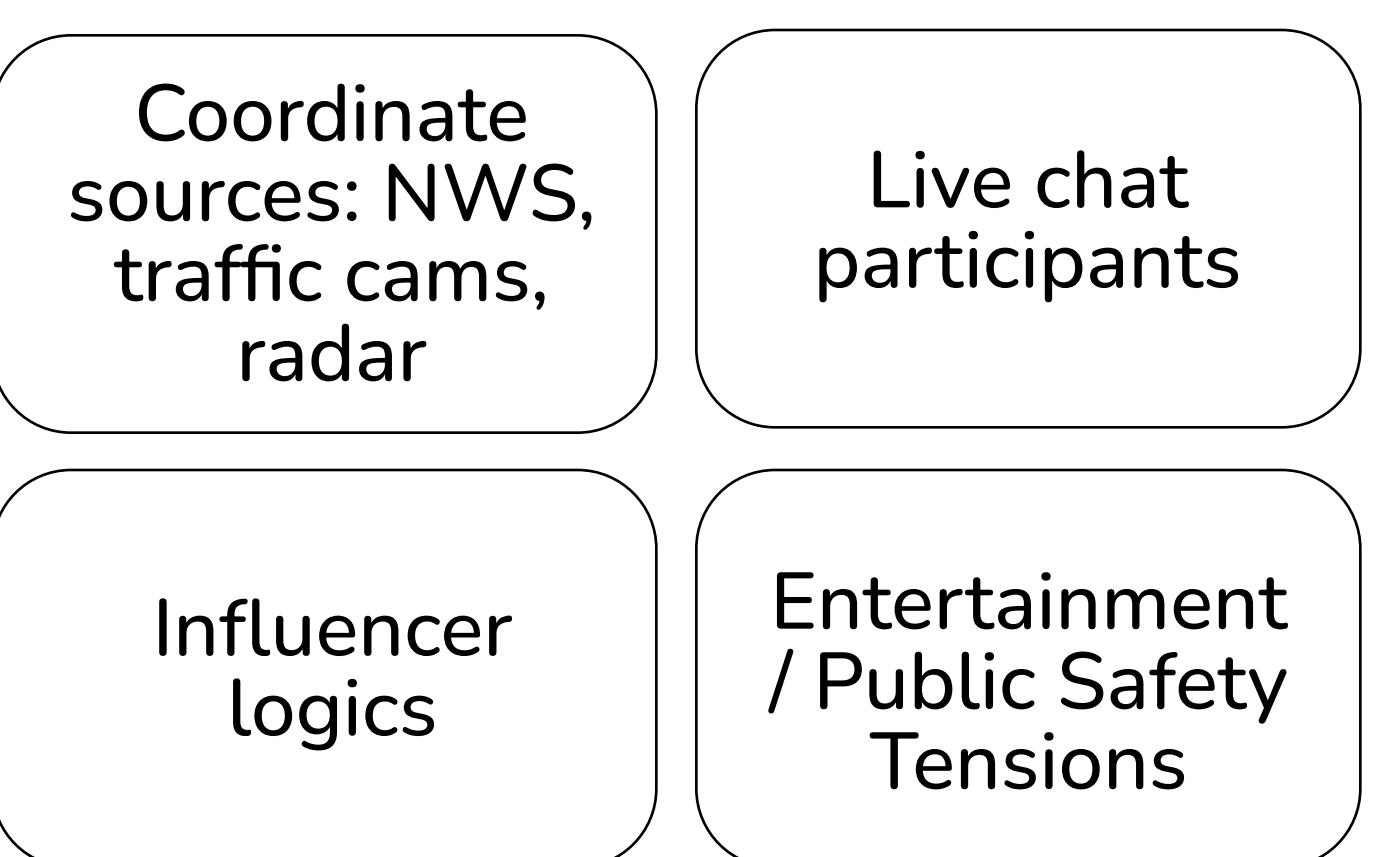
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Abstract

Through critical incident analysis of tornado warnings across three major YouTube "weatherfluencers," we examine how millions now rely on unregulated social media creators for life-saving emergency information as trust in government institutions declines. Our findings reveal creators build authority through transparency and responsiveness while operating without verification standards or accountability structures, creating dangerous governance gaps when entertainment platforms become safety-critical infrastructure. This study documents the urgent need for platform liability frameworks and creator oversight as emergency communication becomes privatized without corresponding public safety protections.

What is a "Weatherfluencer"?

"Weatherfluencers" are content creators who livestream meteorological interpretation on platforms like YouTube (and TikTok)



Screencap from Ryan Hall, Y'all's YouTube channel on April 2, 2025

Background

Institutional Trust Crisis

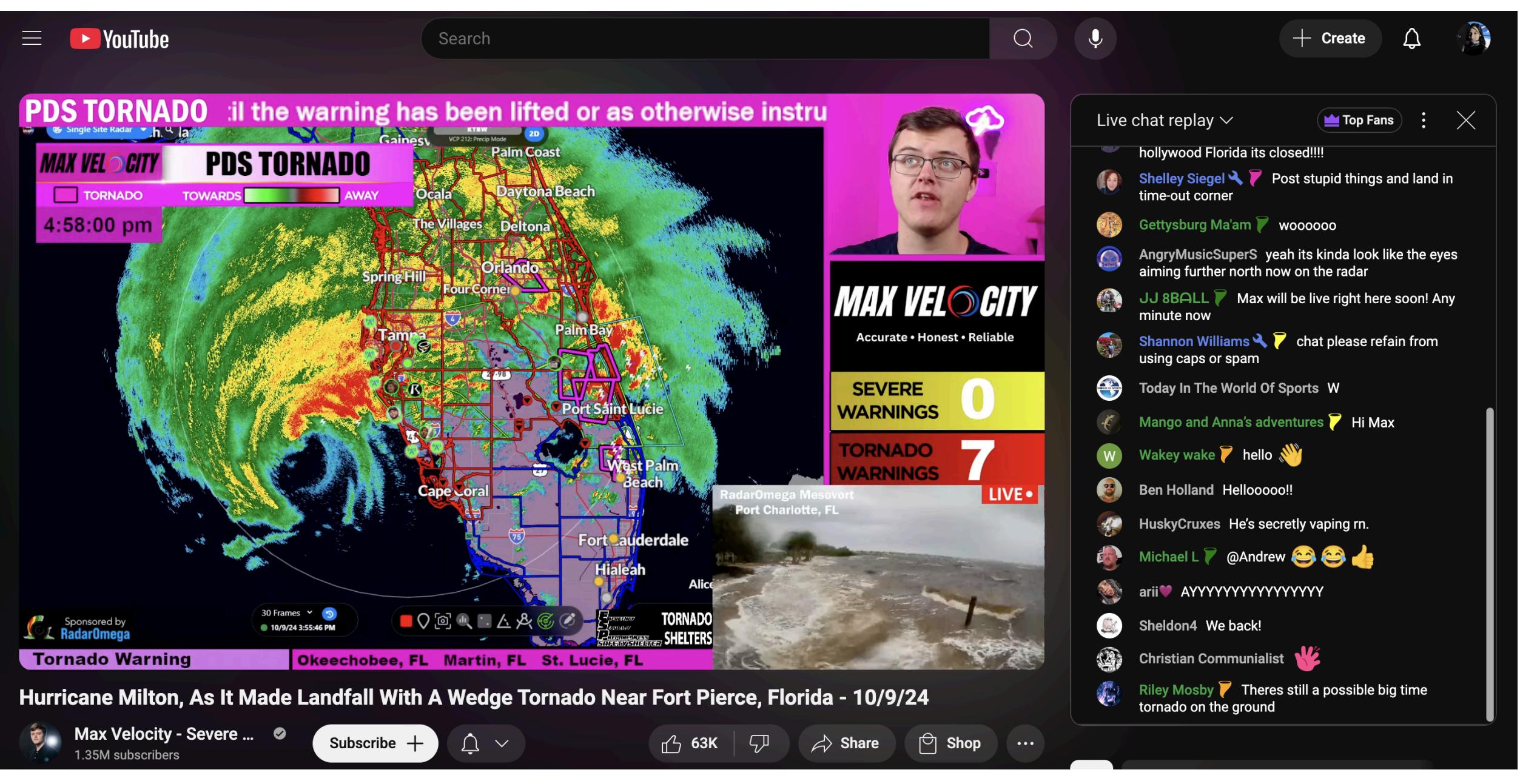
Declining faith in gov't institutions
Media Fragmentation
Reduced trust in experts

Platform Misalignment

Reduced weather infrastructure / funding
Shift toward creators for safety info
Social media (YT, Twitch, TikTok) repurposed for safety info
No specific regulatory frameworks
Algorithms optimize for engagement, not accuracy / safety / timeliness
Shift toward creators for safety info
Technical infrastructure designed for entertainment

Research Questions

- How do weatherfluencers build and maintain public trust without traditional institutional accountability structures?
- What safety risks emerge when entertainment platforms become critical infrastructure for emergency communication?
- What governance challenges can arise when creators assume mediator or authority positions traditionally held by government institutions or large media networks?



Screencap from Max Velocity's YouTube channel on October 9, 2024

Methods

Data Collection

- April 2025 tornado outbreaks
- 453 minutes of YouTube livestream content
- 3 creators

Techniques

- Critical Incident Analysis + Trace Ethnography
- Focused on Particularly Dangerous Situation (PDS) watches & warnings

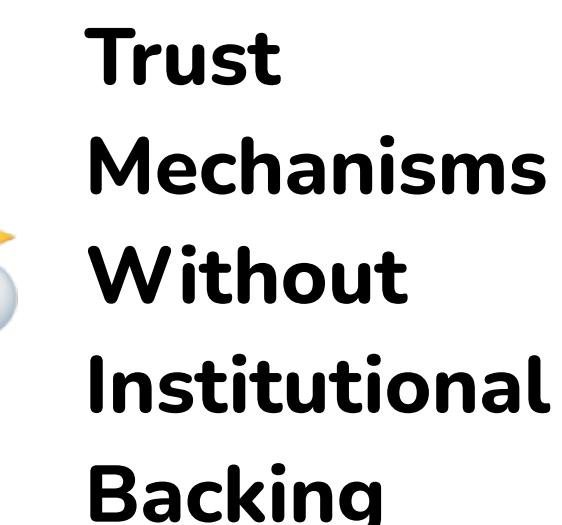
Analytic Focus

- Trust + sensemaking via livechat
- Platform governance / policy
- Technical vulnerabilities
- Regulatory gaps in emergency communication oversight



PDS Watch Infographic from TheWeatherNetwork.com

Findings



- Authority built through visible analytical transparency and real-time responsiveness
- Some creators have meteorological training or work with certified meteorologists
- Trust built through consistent accuracy and community engagement
- Gap: Even qualified creators lack institutional verification, technical redundancy, or official support systems



- Technical failures during active warnings
- Livestreams can terminate for a number of reasons
- Chat system overload obscures critical safety information, though moderators can remedy
- Fragile integration between creator streams and official warning systems



- Creators assume crisis communication roles traditionally held by gov't and TV meteorologists
- No specific regulatory or policy frameworks
- Accountability gaps > can creators take sick days?

Implications

Immediate Risks

- Technical disruptions > info gaps
- Potential policy interference with legitimate emergency communication
- Attention gaps with busy storms
- No liability framework when platform-mediated emergency communication fails

Systemic Governance Crisis

- Privatization of public safety comms w/o institutional oversight
- Entertainment platform logics governing safety
- Regulatory / adoption void allowing safety-critical functions to operate w/o standards
- Accountability gaps as crisis authority shifts to underregulated platforms

Collaborative Solutions Needed

- Technical redundancy and backup systems for verified communicators
- Better adoption of certification programs recognizing meteorological expertise
- Multi-stakeholder governance frameworks
- Platform infrastructure support rather than restrictive oversight

Critical Remaining Questions

- How can platforms better support qualified emergency communicators while maintaining safety standards for unverified sources?
- What institutional partnerships can leverage creator expertise and reach while providing official backing and resources?
- How do we build collaborative governance frameworks that empower legitimate weatherfluencers rather than restricting emergency communication?