Enhancing Disaster Preparedness and Resiliency in Rural Communities through Knowledge Integration and Mobilization.

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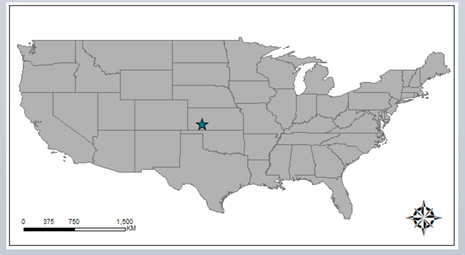
Introduction

- Mobilizing knowledge and resources is critical to address the immediate needs in the event of a disaster and facilitate a quick recovery.
- By sharing knowledge and information across agencies prior to and after an event, communities could improve their resiliency to disasters and, therefore, become better adapted to future events.
- Cloud-computing services that share hazard information across agencies are typically only provided in the aftermath of large-scale events for highly populated areas, managed by private industry, and at the federal level.
- This proposed research seeks to enhance rural community preparedness and recovery by developing a central hub for sharing and mobilizing disaster information for rural communities at the county level.

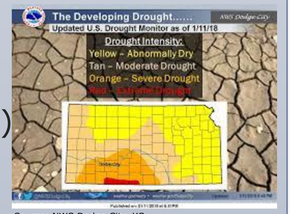
Study Area

Why Dodge City, Kansas and surrounding communities?



High exposure to:

Source: NWS Dodge City, KS



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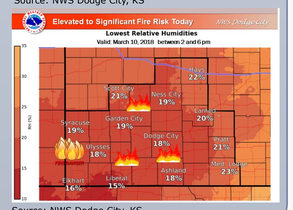


Source: NWS Dodge City, KS

Large-scale agricultural (beef processing, wheat, sorghum)

Source: KSN.com

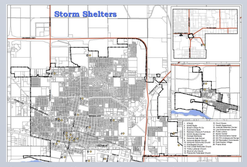
Methods

- Conduct surveys and semi-structured interviews with local agencies (e.g., National Weather Service) and Ford County Emergency managers to identify data needs and uses.
- Develop a data repository centered around disaster preparedness, response, and recovery using a collaborative web-based Geographic Information System (GIS) platform, ArcGIS Pro.

Data Repository Example:

Parcel Data

Source: movoto.com



Source: http://www.garden-city.org/our-community/storm-shelter-locations

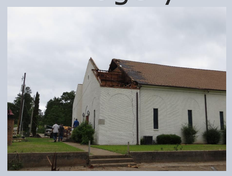
Other Data:

- County Orthos
- Infrastructure Data (e.g, dams, utilities, roads)
- Critical Facilities (Hospitals)
- Hazard Climatology

Radar

Source: Texas Storm Chasers

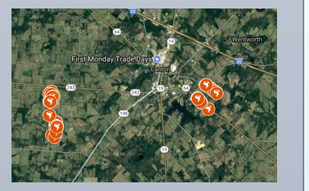
Damage Imagery



Data Repository Extension:

- Design an app called 'Disaster Snaps' that links damage information entered by user to the data repository (ArcGIS Pro)

Source: NWS Dodge City, KS



Methods (Continued)

- Hold a series of workshops to show users how to upload, update, and share information across agencies and within the community.
- Post-event, conduct additional surveys and interviews to assess performance of data repository.

Anticipated Results

- Identify data needs and gaps within the local community regarding hazards and disasters.
- Connect multiple agencies through shared repository.
- Ingest and share Big Data (e.g., high resolution imagery from Unmanned Aerial Systems (UAS)).
- Disseminate near real time disaster data.

Potential Contributions

- Better allocation and coordination of resources.
- Improve severe storm climatology and risk with more complete damage data in rural communities.
- By integrating and mobilizing information between agencies, rural communities can be better prepared in the event of a disaster and more resilient in the recovery process.

Acknowledgements

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