innovation X
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Integrated Disaster Citizen Science, Education, and Engagement

The IDCS Team

The Integrated Disaster Citizen Science (IDCS) team is a cohort of enthusiastic Aggies dedicating to improve disaster resilience with **cutting-edge technologies** and **easy-to-use tools**.

- **PI**: Lei Zou (GEOG), Dongying Li (LAUP)
- **Team Members**:
  Danqing Liao, Zhengcong Yin, Andrew Pack, Chivariak Khus, Elizabeth Deya, Sagar Bohra, Denisse Ramirez, Citlati Castro, Jackie Rosenthal, Jathin Dhulipalla, Reesa Keskar

Objectives

- Develop a **Customized Resilience Inference Measurement (CRIM) framework** for assessing disaster resilience.
- Build a **WebGIS application (IDCS)** that integrates data visualization, user interaction, and resilience modeling.
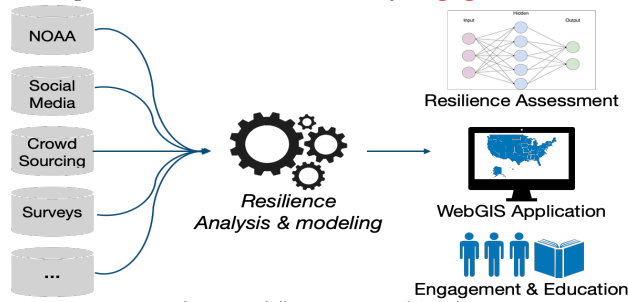- Calibrate and test the CRIM framework and IDCS application through **education and community engagement**.

Figure 1. The project objectives

Citizen Survey for Resilience Goals

This research team developed a citizen survey with 33 questions in four categories:

- Exposure to Tropical Storm Imelda (7)
- Resilience Goals (8)
- Intention to Relocate (4)
- Demographic Background (14)

We aim to survey 500 citizens who suffered from Tropical Storm Imelda in 2019. The survey results will define the recovery indicators in the resilience assessment model (Figure 2).

Figure 2. The CRIM framework
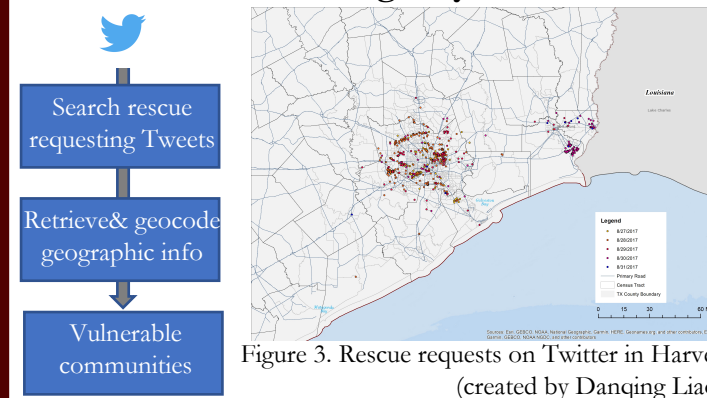
Social Media for Emergency Rescue

Figure 3. Rescue requests on Twitter in Harvey (created by Danqing Liao)

WebGIS Application

- **Data Visualization**: dynamically monitor and visualize the disaster information in each community, e.g., frequencies, economic losses, fatalities, and social responses of each type of natural hazard.
- **Resilience Assessment**: assess the local community resilience levels based on customized resilience goals and significant factors that positively or negatively affect local resilience levels.
- **Model Comparison**: other widely used resilience models, e.g., SoVI, RIM, BRIC, will be implemented in the web app. Users could make decisions based on multiple model results.
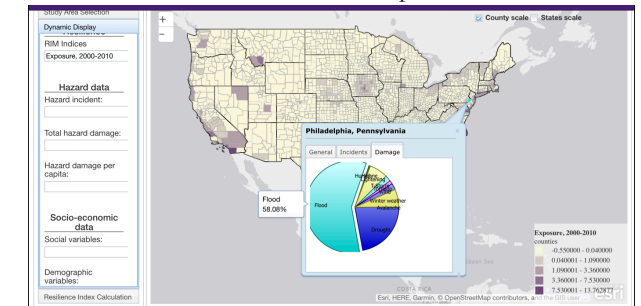

Figure 4. The screenshot of the IDCS web app (under construction)

Conclusions

- This project engages citizens, scholars, and students to improve the preparedness, response, and recovery from disasters.
- We appreciate the generous support from the Texas A&M Innovation [X] program.