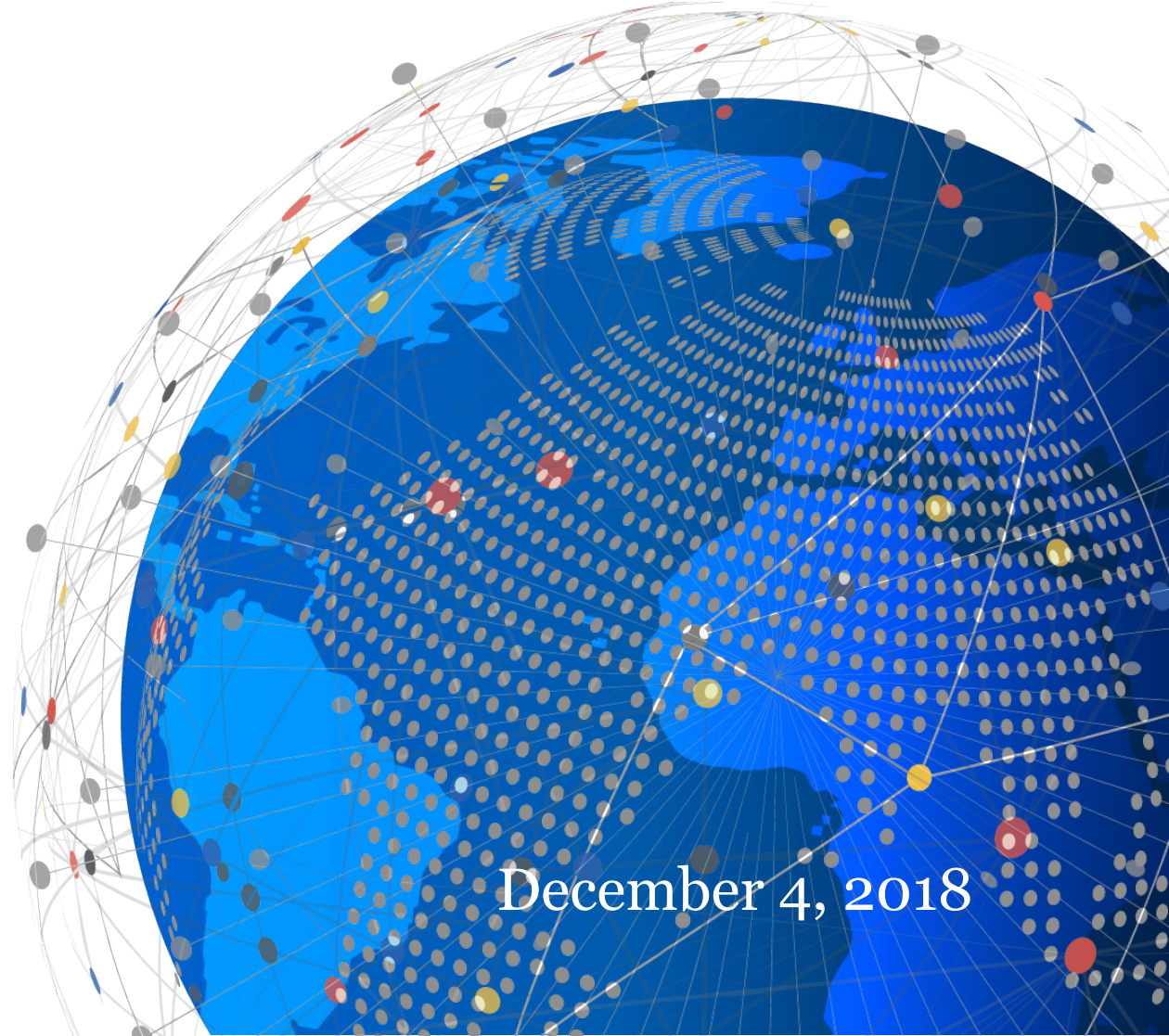


# CURRENT AND FUTURE STATE OF THE UNION ON PREPAREDNESS DATA

## *-FEMA LIGHTNING TALK*

Chris Vaughan  
Geospatial Information Officer  
Response Geospatial Office

December 4, 2018



## HAZARD



Flood



Tornado



Hurricane



Earthquake



Man-made

## DATA



## ANALYSIS

### MODELING



Impact Assessment



Scripts

### REMOTE SENSING



UAS



Satellites



Planes

### CROWD SOURCING



Real-Time Situational Awareness

## DISSEMINATION



Dashboards



Reports/  
Infographics



Mobile

## GOAL

Provide Better Support for the Disaster Survivor

▶ Reduce Complexity

▶ Save Time

▶ Enhance Situational Awareness

STEADY STATE



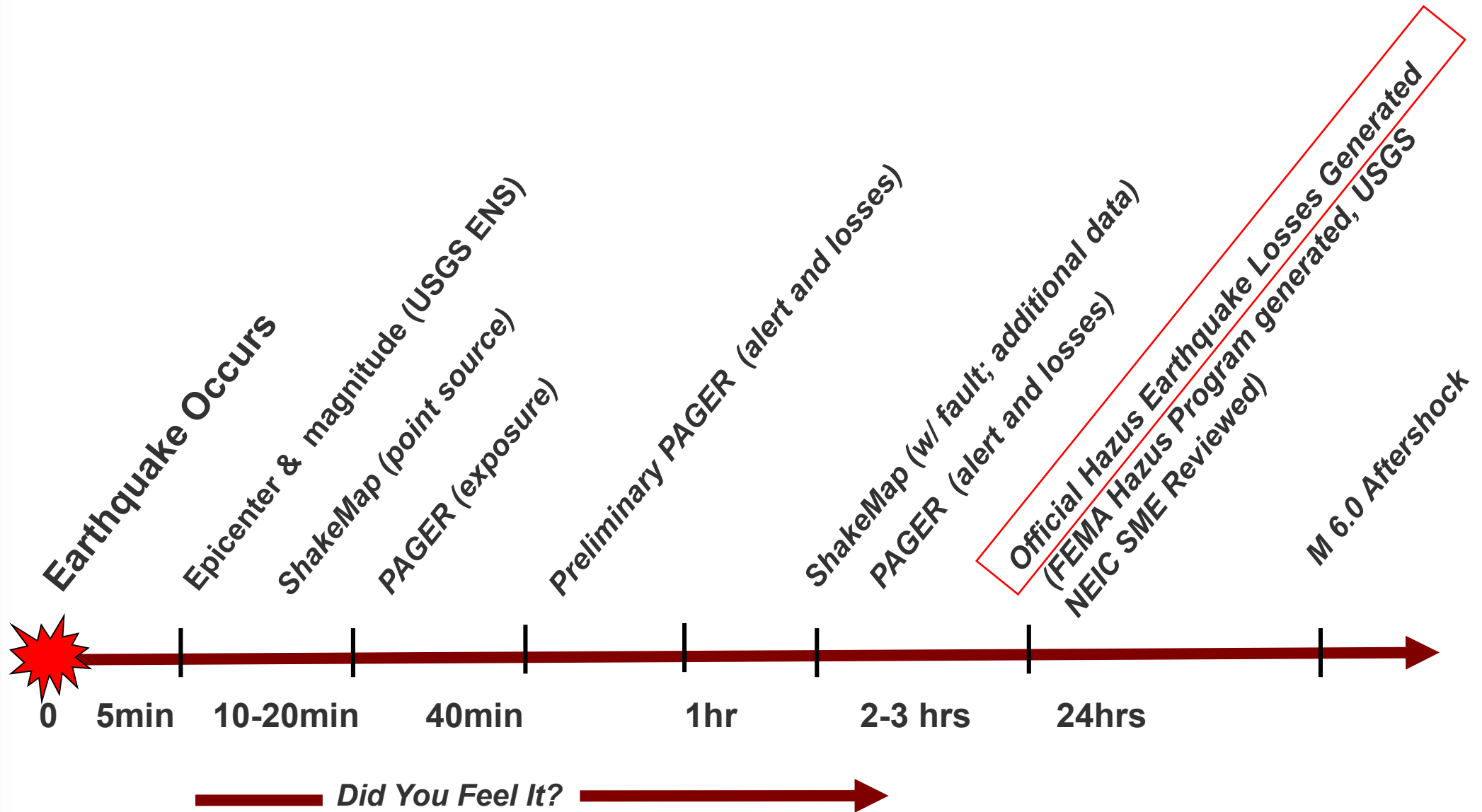
ACTIVATION

- Geo Coord Calls
- Interagency Participation
- Data Sharing

**NEED:**

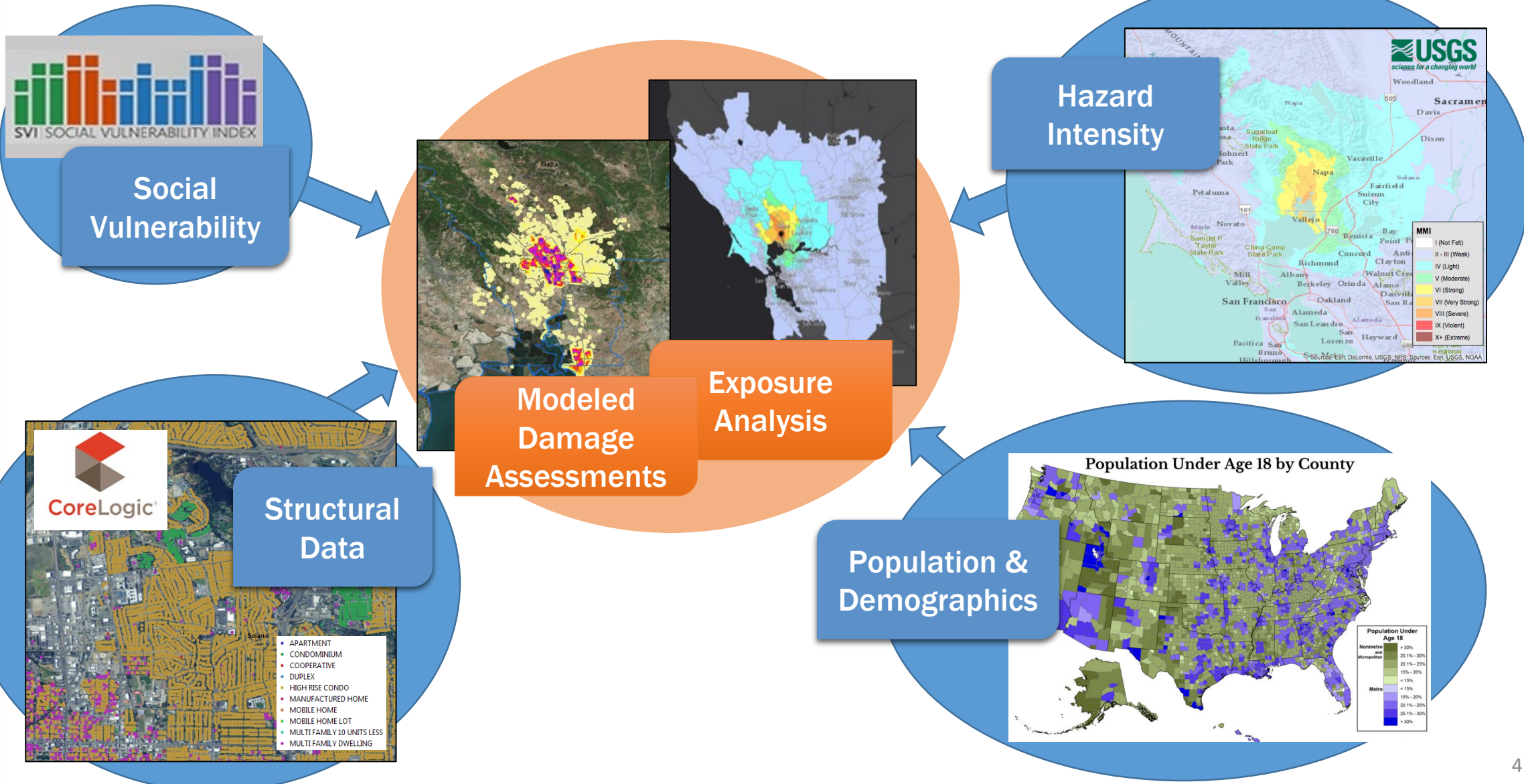
- **PROGRAM REQUIREMENTS**  
(US&R, IA, PA)
- **SCHEMA STANDARDIZATION**
- **RISK TOLERANCE**

# Earthquake Timeline





# EARTHQUAKE ANALYSIS



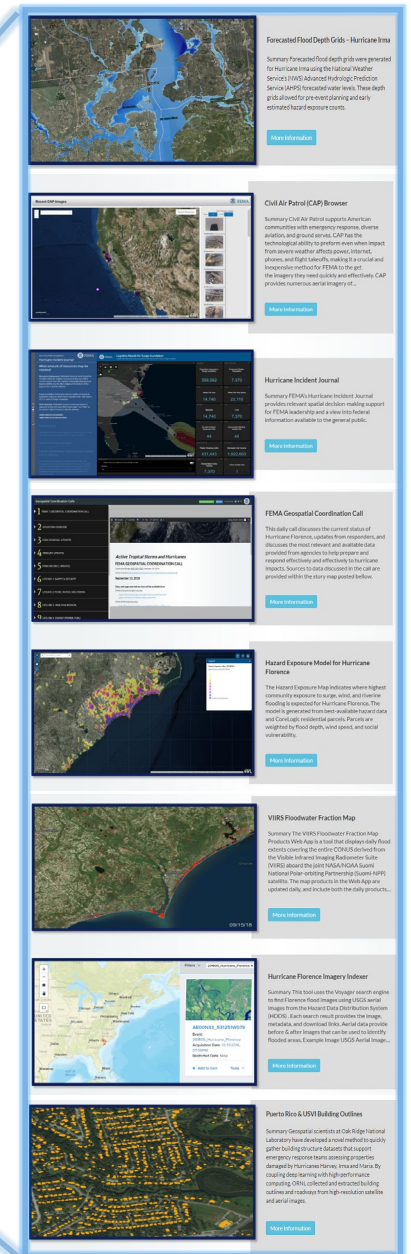
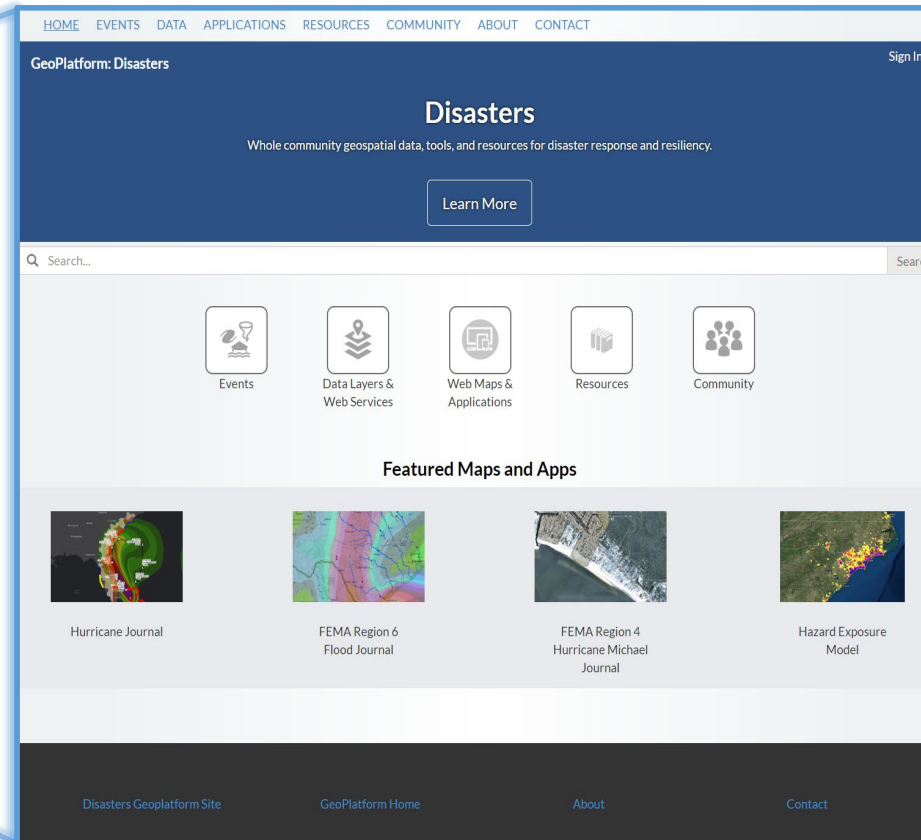
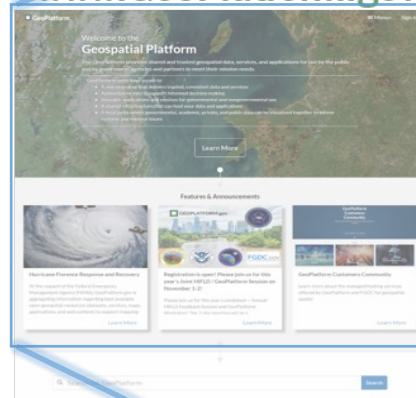




# DISSEMINATION AND COMMUNICATION

## Disasters.GeoPlatform.Gov

www.GeoPlatform.gov



- **Vision:** Unified environment for community partners to publish, share, and access authoritative geospatial data, applications, and resources related to the preparedness, response, recovery, and mitigation of disasters.

# Historical Damage Assessment Database

[Learn More](#)

## Summary

The Historical Damage Assessment Database is a repository of geospatial damage assessments from past National Disaster events where damage assessments were conducted either using high resolution imagery or by means of geospatial modeling. The purpose of generating geospatial damage assessments is to provide rapid situational awareness of the number of structures impacted.

## Methodology

For **visual** damage assessments using post-event imagery:

Destroyed structures are classified based on a visual post-event imagery review that the structure was collapsed. Affected structures were classified based on a visual post-event imagery review indicating there were missing roof segments, failure of structural elements, and visible damage. Visual imagery assessments are primarily completed using nadir “looking straight down” imagery so damages to the sides of buildings were not included in the visual assessments. Often, imagery was not acquired during peak flood crests on rivers or surge inundation along the coast and as a result, the visual assessments may focus on resulting wind damages, not flood impacts. There may be damages visible on-the-ground that were not assessed using the imagery.

For **modeled** damage assessments using depth grids:

Damage categories (Affected, Minor, Major, Destroyed) are derived from flood depths at the structure as characterized by the best-available flood depth grid at the time of the damage assessment.

[https://gis.fema.gov/arcgis/rest/services/FEMA/FEMA\\_Damage\\_Assessments/MapServer](https://gis.fema.gov/arcgis/rest/services/FEMA/FEMA_Damage_Assessments/MapServer)  
<https://communities.geoplatform.gov/disasters/historical-damage-assessment-database/>

**More information about HDDS:** <http://hdds.usgs.gov/hazards-data-distribution-system-hdds>

Pacific Ocean

Honolulu

UNITED STATES

Hawaii

Mile

**NEW**

- 2018-08-24
- 2018-08-23
- 2018-08-22
- 2018-08-21
- 2018-08-19
- 2018-08-18
- 2018-08-17
- 2018-08-16
- 2018-07-25
- 2018-07-22

Sources: Eos, NERC, Gerd, NOAA, Infrared, INCEM, CNOA (Hong Kong), Eos, Korea, Eos (Hankook), INCEM, JGD, GCS, Meteorological.

## 8



# INCIDENT JOURNALS

**Flood Incident Journal**

Should federal action be considered?

2. Federal Support Declaration

2A. Will federal support be needed?

Overview of the variables used to determine if federal support is needed. This section is aggregated at the census block level estimates of the surge/wind intersect.

Flood Exposure: Counties in the region exposed flood extent layer.

Landslide Exposure: Counties in the region at risk of landslides. Data from USGS located here.

3. Population

Who is affected?

Step through some informative views of the affected population. Review compiled demographic information and variables in this section are aggregated at the census block level.

4. Building Impacts

Building impact assessment map to show the extent of damage to buildings.

**Earthquake Journal Prototype**

On [DATE] at [TIME], a magnitude [M] earthquake occurred in the [GEOLOGIC SETTING/FAULT SYSTEM] immediately impacting [CITY/LOCATION], and surrounding areas.

Link to USGS StateMap.

1. Hazard Map

Tab 1. Hazard Overview

- MMI ShakeMap w/ Intensity Legend
- Epicenter
- Include a table to show estimated housing units, within each intensity level.

Tab 2. County Level Overview

- Max Intensity per County
- Include table w/ population, housing units, and damage by county. This should also be included.

Tab 3. Tract Level Overview

- Max Intensity per County
- Include table w/ population, housing units, and damage by tract. This should also be included.

Tab 4. Community Level Detail

**Tornado Incident Journal**

FEMA's Tornado Incident Journal provides relevant spatial decision-making support for FEMA and a view into federal information available to the general public. This journal displays data from the National Weather Service's Storm Prediction Center (NOAA SPC).

This website is a part of the FEMA GeoPlatform.

1. Hazard Map

What geographic areas are potentially affected by a tornado?

2. Federal Support Declaration

2A. Will federal support be needed?

2B. What amount of resources may be needed?

**Hurricane Incident Journal**

Part of the FEMA GeoPlatform

FEMA's Hurricane Incident Journal provides relevant spatial decision-making support for FEMA and a view into federal information available to the general public. This journal displays data from the National Weather Service's Storm Prediction Center (NOAA SPC).

This website is a part of the FEMA GeoPlatform.

1. Hazard Map

What geographic areas are potentially affected by a hurricane?

2. Federal Support Declaration

2A. Will federal support be needed?

2B. What amount of resources may be needed?

**Wildfire Incident Journal**

Part of the FEMA GeoPlatform

FEMA's Wildfire Incident Journal provides relevant spatial decision-making support for FEMA and a view into federal information available to the general public. This journal displays data from the National Interagency Fire Center (NIFC).

This website is a part of the FEMA GeoPlatform.

1. Hazard Map

What geographic areas are potentially affected by a wildfire?

2. Federal Support Declaration

2A. Will federal support be needed?

2B. What amount of resources may be needed?

**FEMA-4366-DR-HI - Map Journal**

1. FEMA Situational Awareness Map (Real-time)

2. FEMA-4366-DR-HI Declaration Map

3. Recent Earthquakes

4. Affected Structures

5. Lava Flows Over Time

6. Demographics

7. USGS Hawaiian Volcano Observatory Information

8. SO2 Information

**Wildfire Hazard Dashboard**

Analysis updates every four hours based on the latest fire extents from the National Interagency Fire Center.

Active Fissures: 1 (Last update: a few seconds ago)

Total Fissures: 24 (Last update: a few seconds ago)

No Data (Last update: a few seconds ago)

Inundated Buildings: 737 (Last update: a few seconds ago)

Inundated Building Value: \$128,220,900 (Last update: a few seconds ago)

Parcels Affected: 1,727 (Last update: a few seconds ago)

Inundated Land Value: \$122,401,700 (Last update: a few seconds ago)

Own / Rent Status of Affected Parcels: Own 453, Rent 280

**Active Fissures**

- Inactive
- Active

**Buildings - Inundated By Lava Flow**

**Buildings - Hawaii County**

**Evacuation Areas**

- Voluntary Evacuation
- Mandatory Evacuation

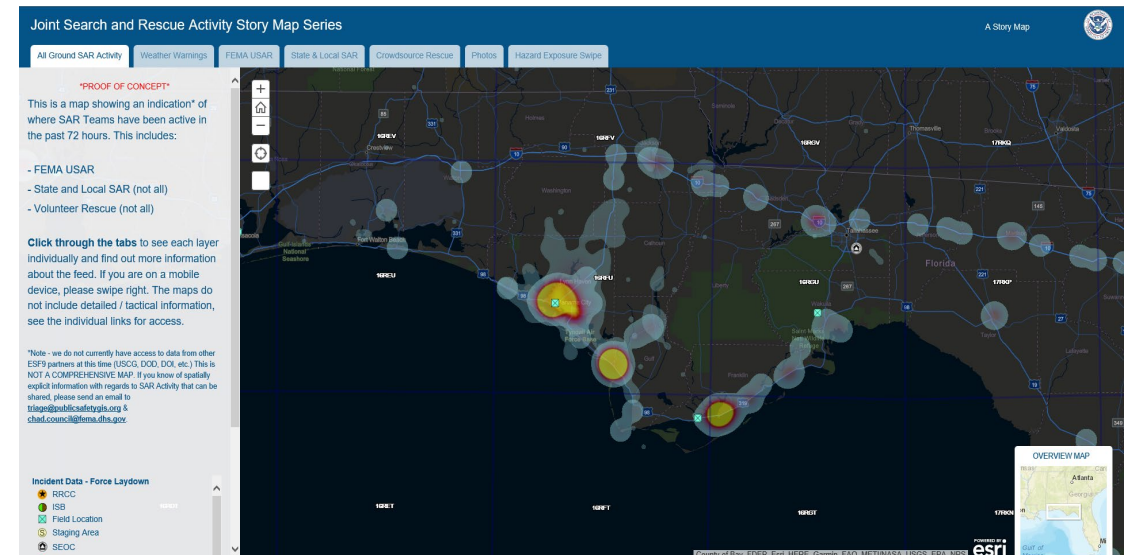
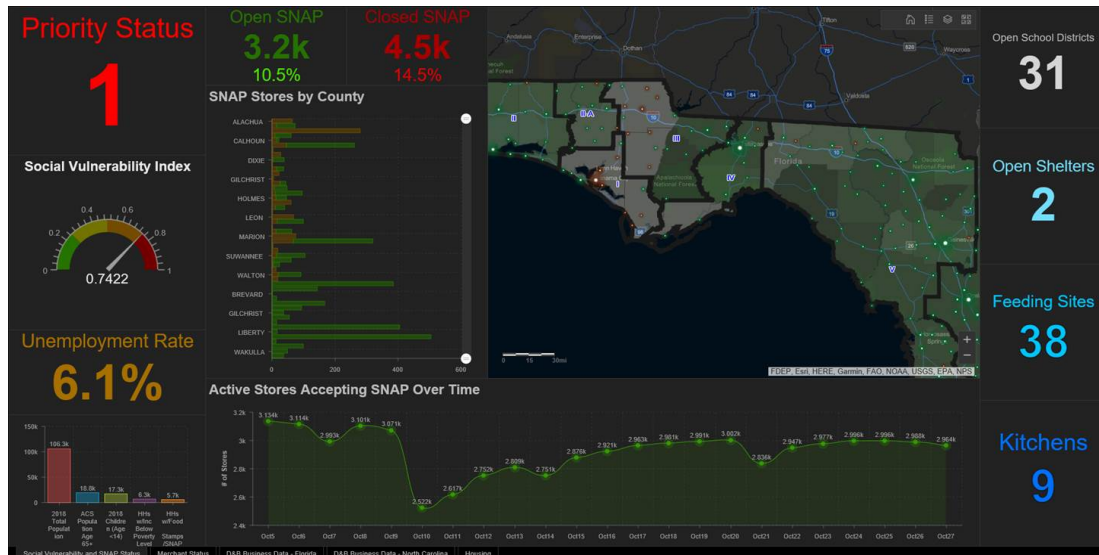
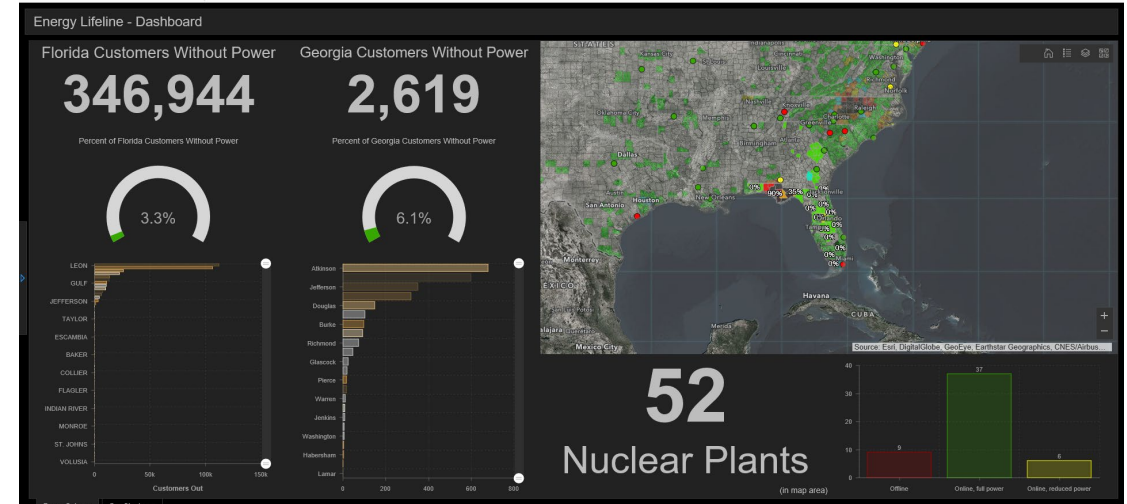
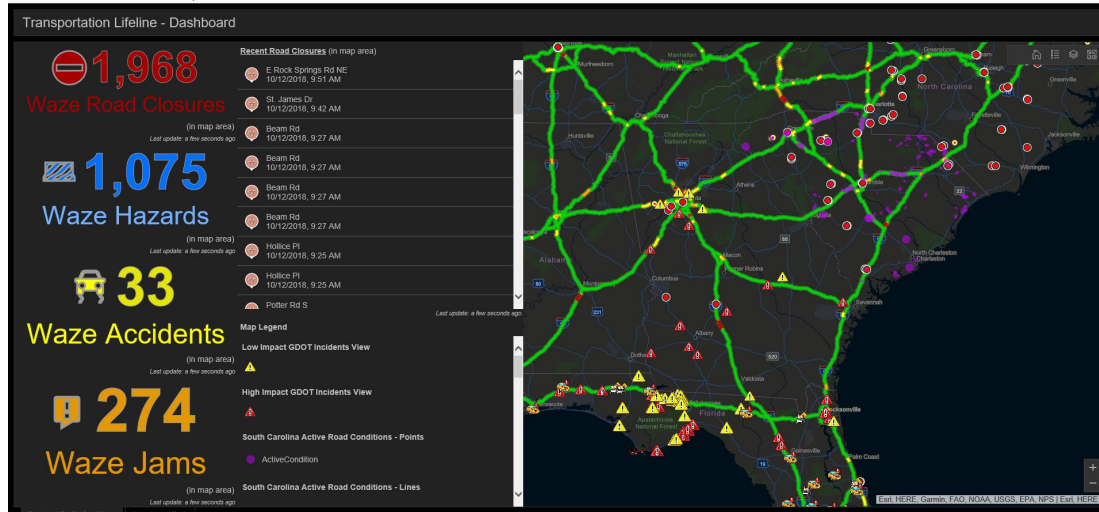
**Lava Flow Outline**

**Parcels Intersecting Lava Flow**

**Hawaii County Parcels**

- Floods
- Hurricanes
- Earthquakes
- Tornadoes
- Fires

# Dashboards





# MODELING AND DATA WORKING GROUP (MDWG)

## Overview:

- **An interagency working group** appointed by the Emergency Support Function Leaders Group (ESFLG) in 2012

## Mission: Information Gathering & Sharing

- Assess the current state of **modeling systems**
- **Identify consistent, reliable, authoritative models and datasets** to enable response planning and operational decision making

## Goals:

- Identify state-of-the-art capabilities to incorporate into response operations
- Maintain the **Model and Data Inventory (MoDI)**
- Identify gaps and recommend solutions
- Improve **information sharing, outreach, and communication** with the broader emergency management community

## 2018 Efforts:

- Monthly meetings focused on incident- and capability-specific requirements
- Follow-on Issue Papers providing a meeting summary and path forward
- MoDI content updates & website enhancements

FOR MORE INFORMATION, CONTACT:  
[FEMA-MDWG@fema.dhs.gov](mailto:FEMA-MDWG@fema.dhs.gov)

## 2018 Yearly Plan

3<sup>rd</sup> Wednesday of the Month  
January - November



National Security  
Special Events (NSSEs)



Remote Sensing



Disaster Analytics



Wildland Fires



MoDI Update



Hurricanes



Critical Infrastructure



Chemical Hazards



Communications



Tsunamis



Floods



## Contact Us

### Modeling Data Working Group

FEMA-MDWG@fema.dhs.gov

### Remote Sensing

FEMA-Remote-Sensing@fema.dhs.gov

### Join the

*Remote Sensing and GIS Data for Disaster Community (RSGDC) mailing list*

**To receive notification on available imagery and products during disasters**

[https://public.govdelivery.com/accounts/USDHSFEMA/subscriber/new?topic\\_id=USDHSFEMA\\_1367](https://public.govdelivery.com/accounts/USDHSFEMA/subscriber/new?topic_id=USDHSFEMA_1367)