# FEMA Datasets Overview for Knowledge Graph Construction

## Data Source

FEMA Open Data Page: https://www.fema.gov/openfema-data-page  
  
The FEMA Open Data Page provides access to extensive datasets on disaster declarations, assistance programs, mission assignments, and related areas of federal disaster response. By connecting these datasets, a knowledge graph can be constructed to analyze relationships among disasters, declaration areas, assistance programs, and more.

## Overview of FEMA Datasets for Knowledge Graph Construction

### 1. Declaration Denials

Purpose: Contains records of denied disaster declaration requests, providing insights into incidents that did not receive federal assistance.

Key Entities:  
 - Declaration Request  
 - Incident  
 - State

Attributes:  
 - Request Status  
 - Program Requests

Potential Relationships:  
 - Declaration Request → (REQUESTED\_FOR) → Incident  
 - Declaration Request → (MADE\_IN) → State

### 2. Disaster Declarations Summaries

Purpose: Summarizes approved disaster declarations, including the type and scope of each declared disaster.

Key Entities:  
 - Disaster  
 - Program  
 - Area  
 - Region

Attributes:  
 - Incident Type  
 - Declared Programs

Potential Relationships:  
 - Disaster → (AFFECTS) → Area  
 - Disaster → (ASSIGNED\_TO) → Region  
 - Disaster → (PROVIDES) → Program

### 3. Fema Web Declaration Areas

Purpose: Details areas impacted by declared disasters and the specific types of assistance approved.

Key Entities:  
 - Program Type  
 - Location

Attributes:  
 - Designated Dates

Potential Relationships:  
 - Area → (ELIGIBLE\_FOR) → Program  
 - Area → (IMPACTED\_BY) → Disaster

### 4. Fema Web Disaster Declarations

Purpose: Contains details of declared disasters, their impact on various states, and the programs allocated for each incident.

Key Entities:  
 - Disaster  
 - State  
 - Incident Type

Attributes:  
 - Declaration Date  
 - Declaration Type

Potential Relationships:  
 - Disaster → (OCCURS\_IN) → State  
 - Disaster → (HAS\_TYPE) → Incident Type

### 5. Fema Web Disaster Summaries

Purpose: Summarizes the financial and programmatic assistance provided for each disaster.

Key Entities:  
 - Disaster  
 - Funding Programs

Attributes:  
 - Funding Amounts  
 - Obligation Dates

Potential Relationships:  
 - Disaster → (ALLOCATES) → Funding Program  
 - Funding Program → (HAS\_AMOUNT) → Funding Amount

### 6. Mission Assignments

Purpose: Captures details of specific missions assigned to federal agencies in response to disasters.

Key Entities:  
 - Mission Assignment  
 - Incident  
 - State

Attributes:  
 - Cost Share  
 - Assistance Details

Potential Relationships:  
 - Mission Assignment → (ASSIGNED\_TO) → Incident  
 - Mission Assignment → (CARRIED\_OUT\_IN) → State  
 - Mission Assignment → (USES\_FUNDING) → Funding Program

## Proposed Knowledge Graph Structure

To enable efficient querying and relationship mapping, the knowledge graph can be constructed with the following components:

### Nodes (Entities)

1. Disaster  
2. Declaration Request  
3. Program  
4. State  
5. Area  
6. Mission Assignment

### Edges (Relationships)

1. AFFECTS: Connects Disaster to Area  
2. REQUESTED\_FOR: Links Declaration Request to Incident  
3. PROVIDES: Connects Disaster to Program to denote available aid programs  
4. OCCURS\_IN: Links Disaster to State where the disaster impacted  
5. ASSIGNED\_TO: Links Mission Assignment to Incident  
6. ALLOCATES: Connects Funding Program to Funding Amount  
7. CARRIED\_OUT\_IN: Connects Mission Assignment to State

## Example Queries Enabled by the Knowledge Graph

1. Identify areas impacted by specific disaster types.  
2. Retrieve funding allocations for disasters.  
3. Track mission assignments by disaster.  
4. Analyze disaster requests and denials.