The Office of Infrastructure Protection

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National Protection and Programs Directorate
Department of Homeland Security

National Infrastructure Simulation and Analysis Center

Feedback on
Homeland Security Infrastructure Protection Data

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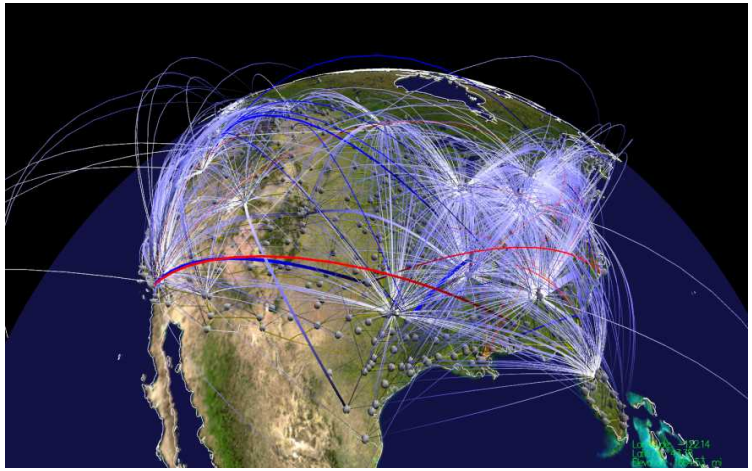
National Infrastructure Simulation and Analysis Center

- Identified in the Patriot Act as the center for Critical Infrastructure Interdependency Modeling, Simulation, and Analysis.
- Provides a common, comprehensive view of U.S. infrastructure and its response to disruptions.
- Operationally-tested DHS rapid-response capability.
  - 24/7 crisis action analysis
  - Jointly executed by Sandia and Los Alamos National Laboratories

Los Alamos

Sandia National Laboratories



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Use of HSIP Data

- Types of analyses:
  - Hurricanes
  - Earthquakes
  - Other area analyses
- What NISAC uses frequently:
  - Broadcast: radio, television antennas
  - Transportation: road network, waterways
  - Facilities with vulnerable population: schools, nursing homes
  - Oil and natural gas platforms
  - Emergency services: police, emergency operations
- Generally prep each year's data after hurricane season
- Used in NISAC's FASTMap situational awareness application

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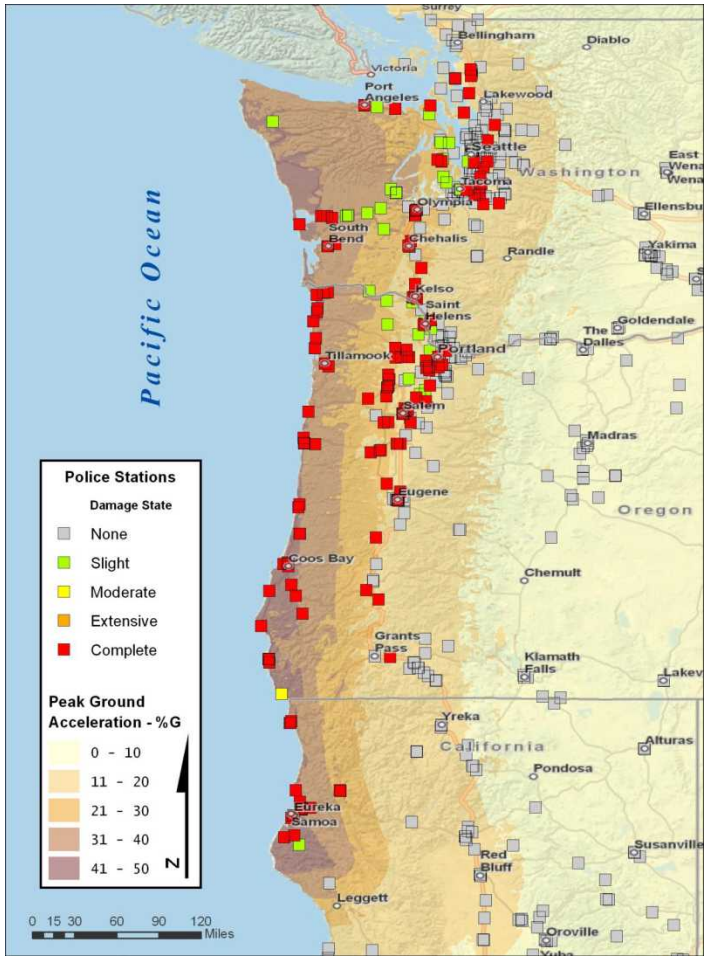
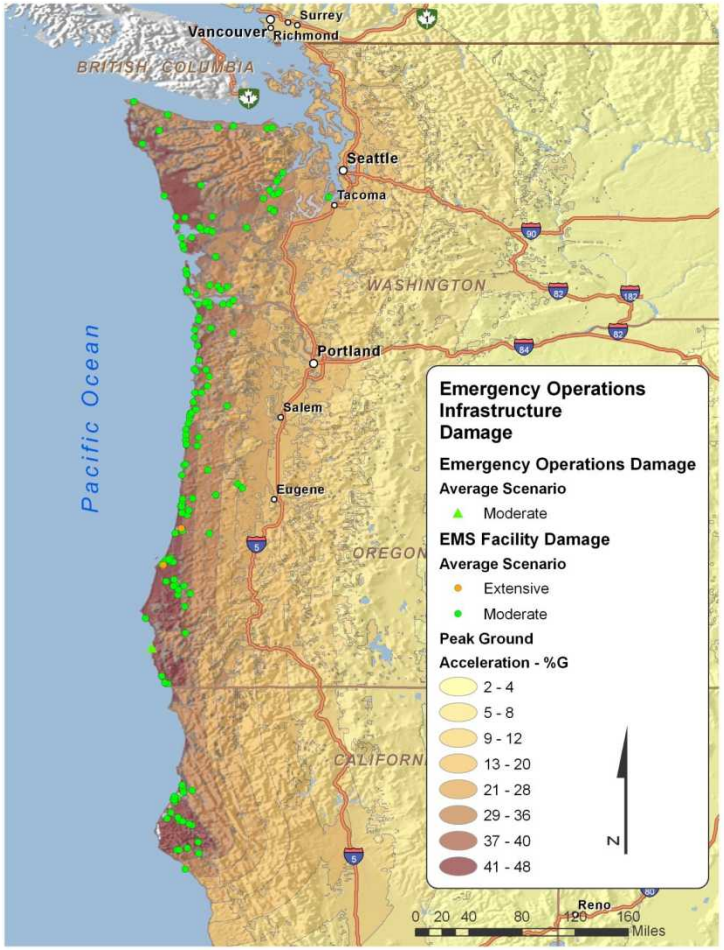
Situational Awareness Example: Cascadia Earthquake





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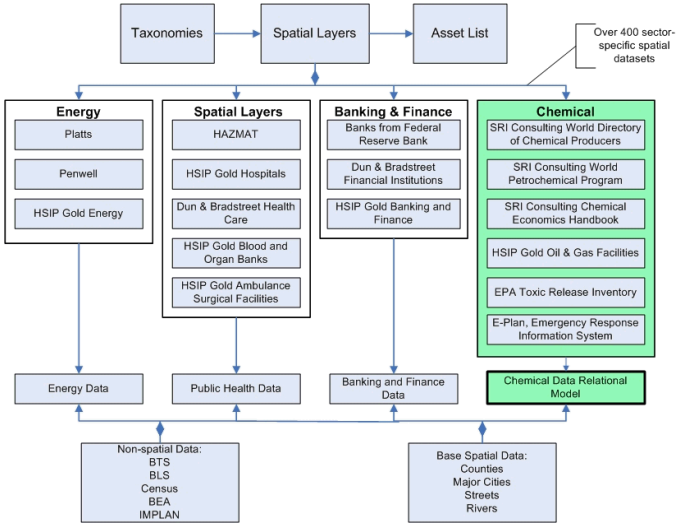
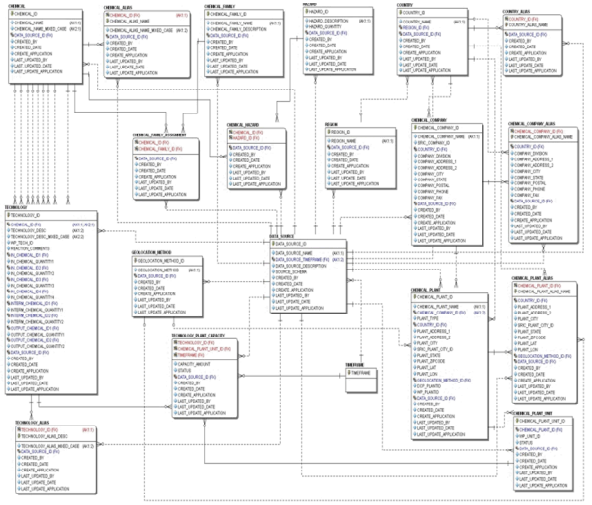
Areas of Additional Need

- Additional metadata would be useful
  - Comprehensive data dictionary
  - Consistent pedigree of data
- Geospatial locations not consistent
  - Sometimes shows headquarters rather than facility
- TV and radio shows towers, but not studios
- No Internet and submarine cable data
- Raw labor data (at high resolution)





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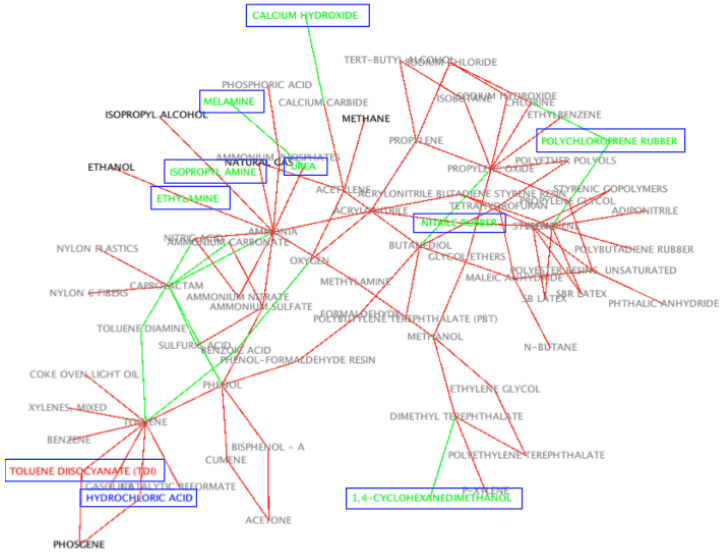
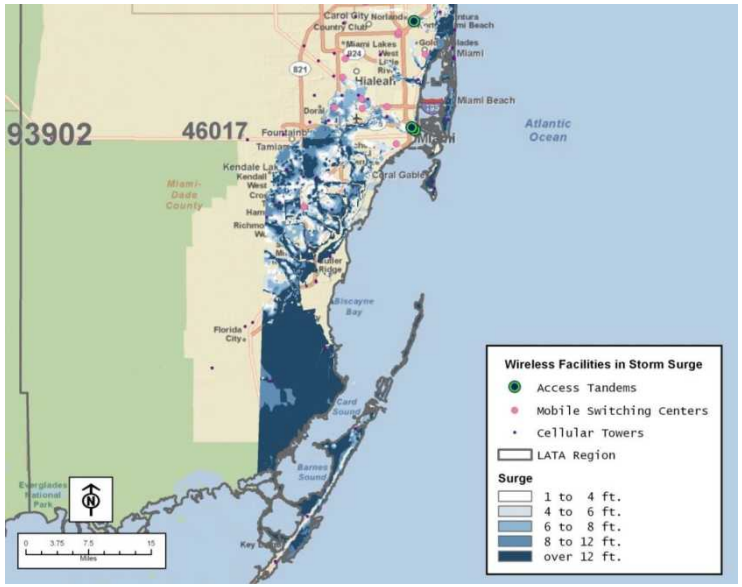
Purchased Infrastructure Data

- IHS data for chemical production
- American Hospital Association data for healthcare
- MapInfo (Pitney Bowes) data for telecom
- In general, recency of data is critical for analysis





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Basic GIS Data vs. Modeling Data

- Data for models are crucially different than data for simple geospatial (GIS) applications
  - Very basic GIS data generally only give information needed to locate items of interest on a map, e.g.:
    - Locations of historical events
    - Locations of key facilities
  - Modeling applications require information describing the system
    - Connection between parts (e.g., power stations, transmission lines)
    - Technologies used (e.g., chemical production processes)
    - Economic activity data (relationships between sectors)
    - Other system information
- In general, the meaning of the data is more complex for models
- Hence, significantly more effort is required to render data model-ready

Questions?

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