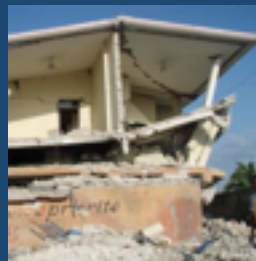




NATURAL HAZARDS MISSION AREA
SAFRR Project: Science Application for Risk Reduction

The HAYWIRED Scenario

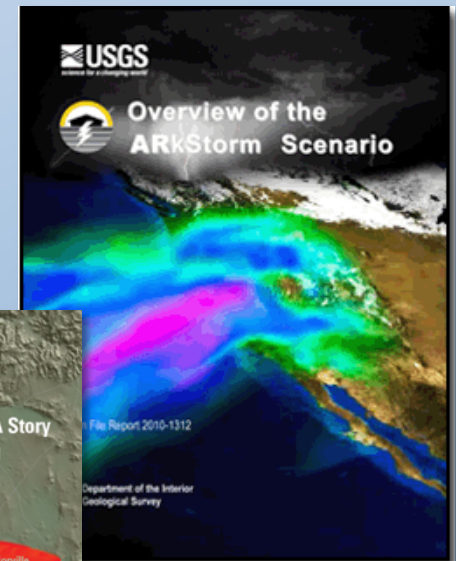


Natural Hazards: Earthquake • Volcanic Eruption • Landslide • Flood • Geomagnetic Storm • Wildfire • Tsunami • Coastal Erosion
Environmental Health Hazards: Sources • Transport • Fate • Exposures • Health effects • Environmental baselines

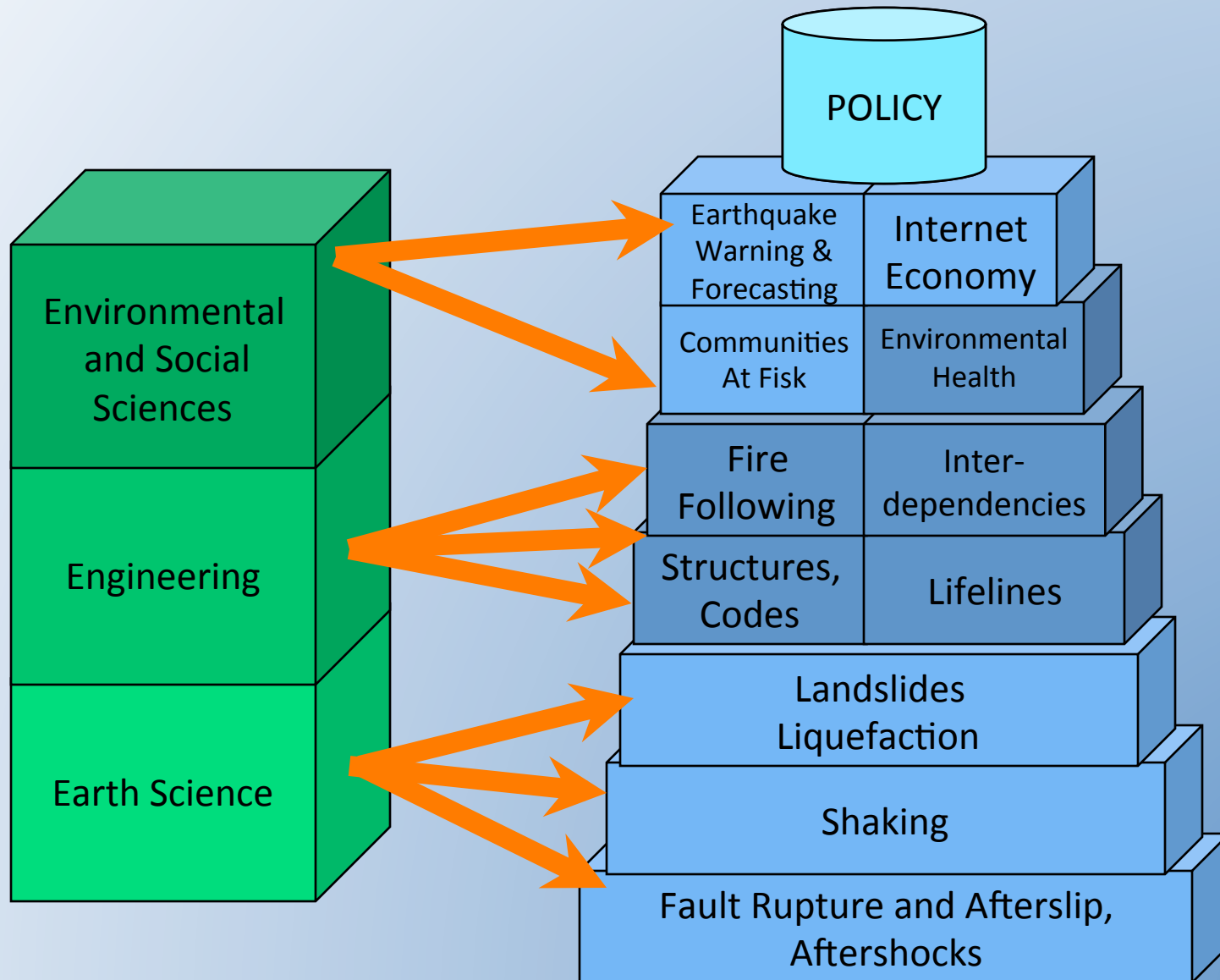
Principles of a Scenario



1. A single, large but plausible event (realistic but not worst case)
2. An event we need to be ready for
3. Integrate across many disciplines
4. Best hazards science
5. Consensus among leading experts
6. Crafted with community partners
7. Results presented in products that fit the user



Scenario Construction

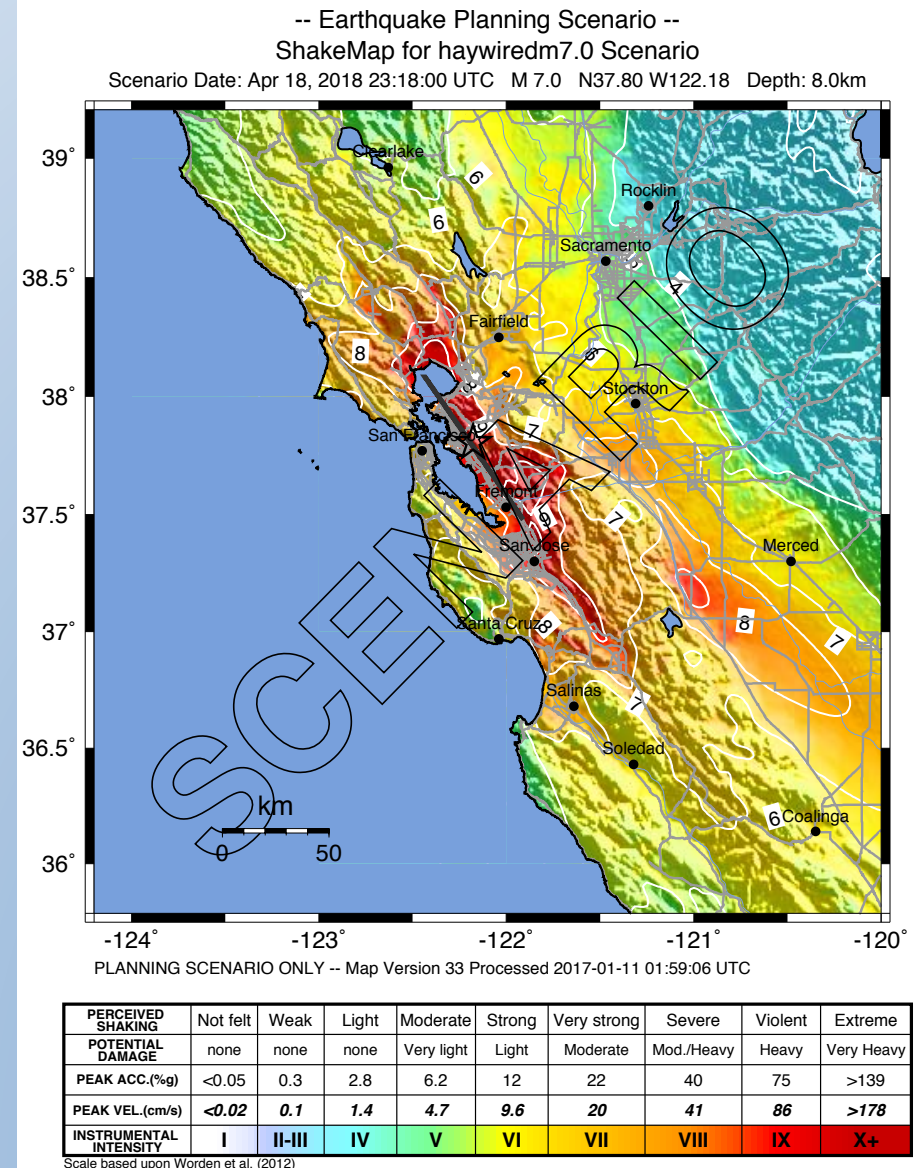


The HayWired Scenario

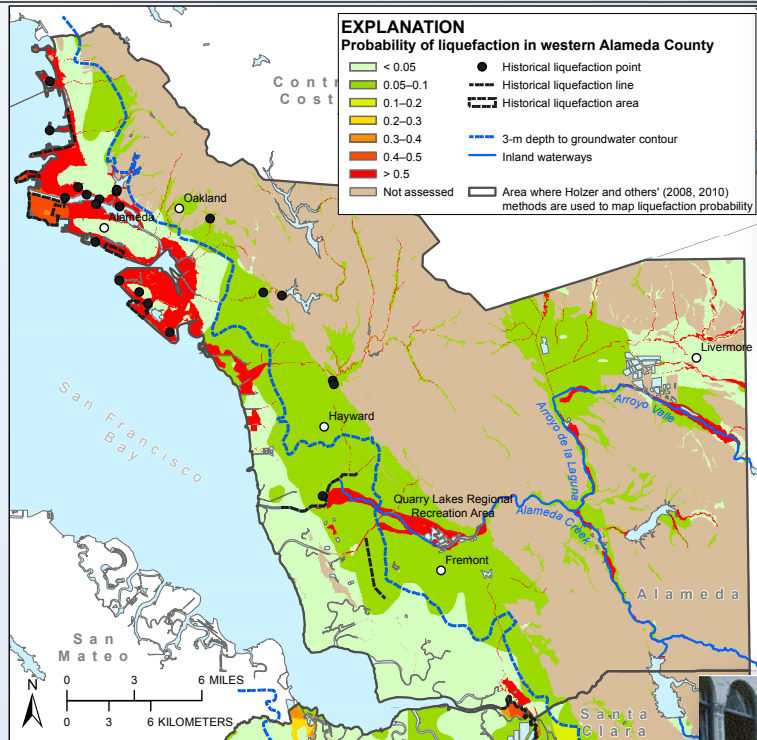


Hypothetical Earthquake for Planning

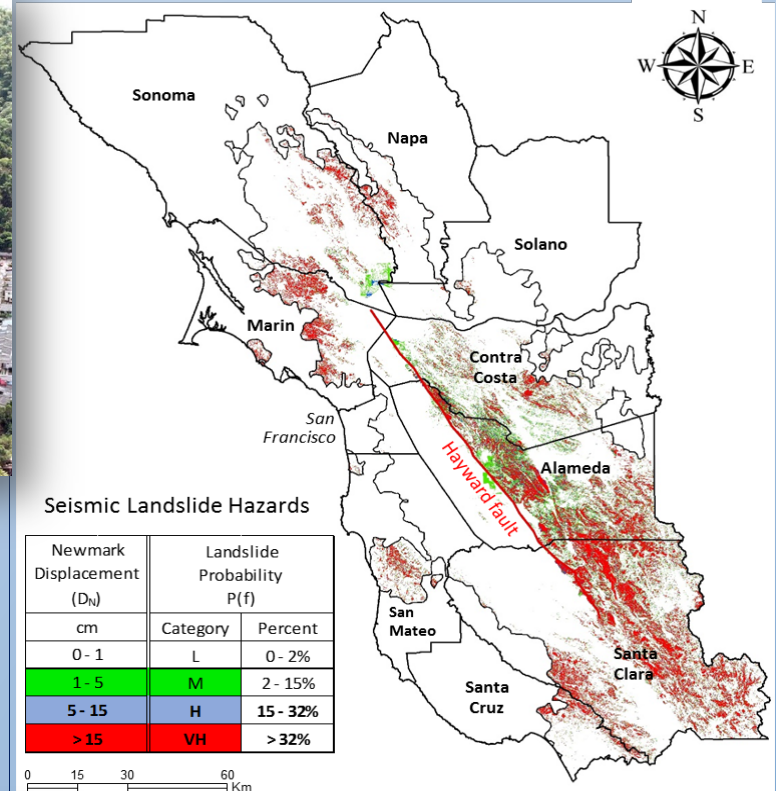
- M 7.0, Oakland hypocenter, 4:18 pm, April 18, 2018
- Hayward fault rupture
- Most urbanized fault in the nation
- Followed over the next weeks by a series of plausible aftershocks
- Bay Area life will go *haywire*
- Hits a center of our modern, wired & wireless world
- Tests our connectedness (earth, lifelines, community, technology)



HayWired: Landslide & Liquefaction



2001 El Salvador earthquake-induced landslide

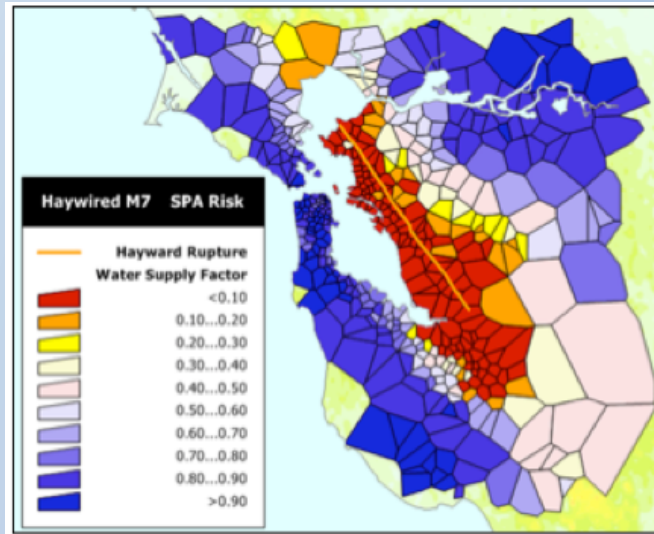


Liquefaction in San Francisco Marina, Loma Prieta Earthquake 1989

Fire Following Earthquake



- Earthquake damage causes multiple simultaneous ignitions
- For each fire station's "first due" area:
 - Estimated number of ignitions
 - Likelihood of water service after **mainshock**
 - Final burned area (\$billions)
- Fire stations risk of damage in **mainshock**
- Communication breakdowns
- Resources (medical, SAR, hazmat...)
- Water supply vs. fire fighting



Three Grand Objectives

1. Improve communication and use of earthquake **science**
2. Help understand and reduce earthquake **risk**
3. Help build **community capacity** to respond and recovery

Some Specific HayWired Objectives

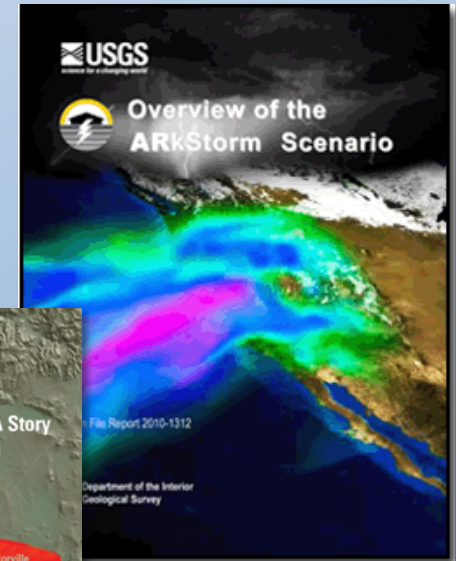


- Improve understanding of the benefits of earthquake early warning
- Facilitate conversations about lifeline restoration interdependencies (exercises on-going)
- Educate about building code performance and public preferences for the building code
- Help anticipate environmental health issues
- Help prepare for communities-at-risk, e.g., population displacement
- Engage stakeholders in the discussions about the vulnerabilities and resilience in cyber infrastructure & the internet economy
- Provide materials for emergency response, business continuity and recovery exercises

The 2018 HayWired Scenario Launch



1. April 18, 2018 at 4:18PM event launch
2. Year of activities planned in roll-up to 2018
3. Engaging private sector, academic, government stakeholders
4. Supporting regional readiness actions



...A tool to help visualize, plan, & prepare.