

Intersection of Climate Change, Geoscience and Emergency Management

Jeff Rubin, Emergency Manager
Tualatin Valley Fire & Rescue
Tigard, OR, USA



Objectives

- **Summarize potential societal effects of climate change (CC)**
- **Discuss CC preparedness considerations**
- **Define CC preparedness constraints**
 - **Indicate potential geoscience/emergency management collaboration**



Who is looking at this in the US?

- **Federal departments/agencies**
 - Defense
 - Energy
 - EPA
 - Health & Human Services (HHS)
 - ASPR, CDC
 - Homeland Security
 - FEMA
- **Pick your geoscience organization**
- **Emergency Management**
- **Lots of others**



Potential CC effects

- **Extreme weather**
 - Heat as well as storms
- **Drought**
- **Wildfires**
- **Energy vulnerabilities**
 - Hydropower
 - Thermal limitations on conventional generation
 - Policy changes (e.g., carbon constraints)



Potential CC effects

- **Sea-level rise**
- **Habitat modification**
 - **Humans and others**
 - **Disease vectors**
- **Emerging infectious diseases**
 - **New diseases**
 - **New range/season for existing diseases**



Potential CC effects

- **Short-term: minimal “newness”**
 - We already plan for extreme events
- **Long-term: new hazards, extremes**
 - New geographic distribution
 - Extended impacts



Policy: FEMA (2015)

- “States...must include considerations of changing future conditions, including the effects of long-term changes in weather patterns and climate on the identified hazards.”

<http://www.fema.gov/media-library/assets/documents/101659>



Policy: IAEM-USA (2015)

- “...Strongly recommends comprehensive mitigation and adaptation strategies, integrated with existing processes such as hazard and land-use planning, as the only realistic path for resilience...”
- “...Emergency managers have a critical role in this process and should be considered essential participants at all levels of government.”

<http://www.iaem.com/page.cfm?p=groups/us-caucuses/climate-water-and-weather&lvl=2>



Preparedness constraints*

- Knowledge
- Capacity
- Capability

*Other than politics



Preparedness constraints

- **Knowledge**
 - Information transmission and uptake
 - Analysis
 - **Context**
- **Capacity**
 - Volume: finite resources
 - Immediacy vs. urgency
 - Defer longer-term concerns
- **Capability: may be limiting factor**
 - Expertise and application



Geoscience-EM collaboration

- Each discipline has its own perspective and specialized knowledge
 - **Context**
- Geoscientists can meaningfully contribute to knowledge, capability
- Plenty of overlap
 - Collaboration on other natural hazards



Additional resources

- International Assn. of Emergency Managers
- National Academy of Sciences
 - US health impacts
- Climate Central: state CC report card
- Defense Science Board (US DoD)
- White House
- Nature-CC: W US power supply
- CNA Military Advisory Board
- Center for American Progress
- Columbia Center for Research on Environmental Decisions (CRED)



Jeff Rubin, PhD, CEM
Emergency Manager
Tualatin Valley Fire & Rescue
503-259-1199
jeff.rubin@tvfr.com
www.tvfr.com