

Geoscientists Roles in Natural-Hazard Decisions: Before, During, and After

Jeff Rubin, Emergency Manager

Tualatin Valley Fire & Rescue

Oregon, US



Objectives

- **Determine needs/opportunities for natural-hazard decision support**
- **Identify context(s) for policy decisions**
- **Specify preparedness input from geoscientists**

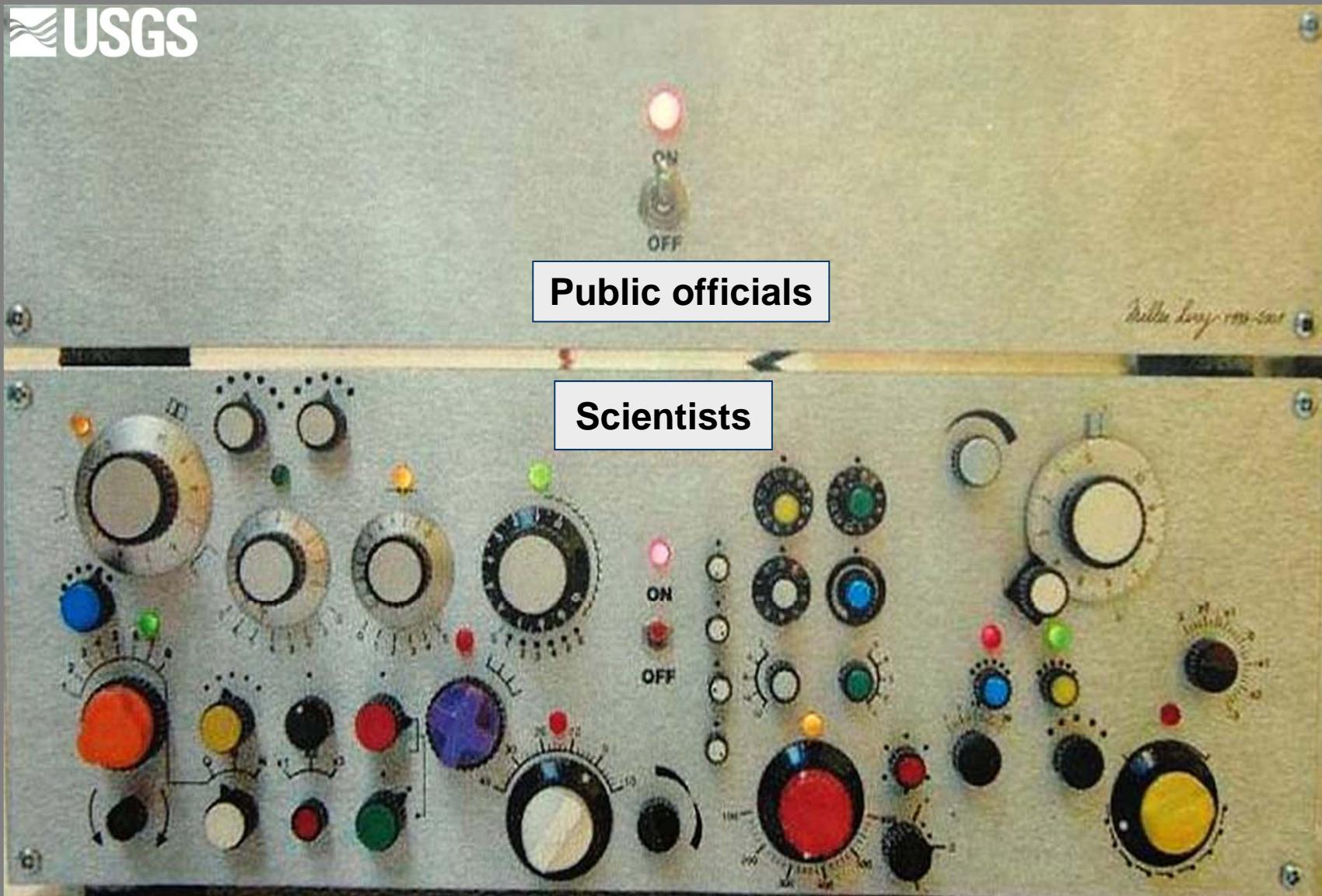


Challenges

- **Generally low level of scientific/technical literacy**
 - Poor appreciation of uncertainty and scientific method
 - Nuance may be lost
- **Complex issues**
 - Socioeconomic
 - Political
 - Ethical



Reality





Geoscience in natural hazards

- **Mitigation**
- **Preparedness**
- **Response**
- **Recovery**



Mitigation

- Hazard vulnerability analyses (HVA)
- Land-use planning
- Building codes
- Structure/site improvements



Preparedness

- **HVA applications**
 - Prioritize planning, training, equipment acquisition
 - Realistic training/exercise scenarios
- **Emergency Operations Plans (EOPs), other response plans**
 - Realistic planning assumptions
 - Hazard-specific components
- **Warning systems**



Assumptions

Mount Rainier National Park
November 2006 Flood Damage



The Emergency Operations Center at Longmire, after the flood



Assumptions



© Reuters



Response

- **Warning**
 - Potential duration
 - Possible event paths
 - Uncertainty
 - Delineating hazard area(s)
- **Guidance for initial and long-term response considerations**
- **Potential obstacles to response and recovery**
 - Aftershocks



Recovery

- **Carpe diem!**
 - Fleeting public awareness, political support
- **Policy input:**
 - Limit rebuilding in hazard-zones
 - Build to better standards
 - Develop more resilient infrastructure
 - Incorporate more realistic planning assumptions



Being a credible source

- Respect your audience
 - Understand their perspective ([NRC, 2010, *Informing an Effective Response to Climate Change*](#))
- Know your topic
 - “We can handle any BT event.”
 - Riparian anthrax?
 - Pacific NW building stock ready for M_w 9.0?
- Framing the message ([CRED, 2011](#))
- Admit uncertainty
- Engage, engage, engage...



Jeff Rubin, PhD, CEM

Emergency Manager

Tualatin Valley Fire & Rescue

503-259-1199

jeff.rubin@tvfr.com

www.tvfr.com