NSHMP Update of the Hawaii Seismic Hazard Model

USGS Public Workshop
Wednesday, September 18, 2019
8:00 am - 5:00 pm
University of Hawaii at Manoa, Honolulu, HI
Pacific Ocean Science & Technology Building, Room 601

Agenda

8:00 am - 8:30 am **Welcome and Overview (M. Petersen)**

- Brief history of NSHMP seismic hazard modeling
- Overview of 1998/2001 Hawaii model

8:30 am - 12:30 pm **Input Models**

8:30 am - 10:15 am *Smoothed Seismicity Model*

- Update of seismicity catalog (C. Mueller, ~15 min)
- Seismicity zones, Mmax (P. Okubo, ~15 min)
- Completeness, b-values, and declustering (A. Llenos, ~20 min)
- Sensitivity of smoothing models (M. Petersen, ~10 min)
- Adaptive smoothing models (M. Moschetti, ~15 min)
- Feedback from workshop participants (~30 min)
  - Different smoothing for Big Island vs. outer islands?
  - How should we smooth earthquakes due to flexure/geodetic data?
  - Tectonic earthquakes vs. volcanic?
  - Decluster or not?
  - Logic tree and weights for full vs. declustered catalogs?
  - Caldera collapse events?
  - Discussion: What is Mmax for Kilauea, rift zones, etc.?

10:15 am - 10:30 am *Break*

10:30 am - 11:30 am *Fault Model*

- Decollements (P. Powers, ~15 min)
- Correlation with volcanic eruptions (P. Okubo, ~15 min)
- New geodetic data (M. Petersen, ~10 min)
- Feedback from workshop participants (~20 min)
  - Include any Q-Faults?
  - Geometry of decollements?
  - Rates of flank ruptures?
  - Should we include the HUA decollement?
  - What Mmax to use?

11:30 am - 12:30 pm *Ground Motion Model (GMM)*

- Wong et al. (2015) GMM and site response (I. Wong, ~10 min)
- Hawaii ground motion database (M. Moschetti, ~10 min)
- GMM comparisons, residual analysis (D. McNamara, ~20 min)
- Feedback from workshop participants (~20 min)
  - Can we use western US amplification factors in Hawaii?
  - Should we develop a new GMM for volcanic events or collapse events?
  - Should we use different GMMs for Big Island vs. outer islands?

12:30 pm - 1:30 pm **Lunch**

1:30 pm - 2:30 pm **Hazard Sensitivity Results (A. Shumway)**

- Sensitivity models and results
- Comparisons with 1998/2001 model
- Feedback from workshop participants (~45 min)
    - How do we best account for hazard in Honolulu/outer islands?

2:30 pm - 3:30 pm **Building Code (S. Rezaeian)**

- Multi-period and multi-V_{S30} design ground motions for 2020 NEHRP, based on 1998/2001 hazard model
- Discussion and questions (~20 min)

3:30 pm - 3:45 pm Break

3:45 pm – 4:15 pm **Other Hawaii Seismic Hazard Models and How They Are Being Used**

- RMS (E. Seyhan, ~15 min)
- Ivan Wong's Work (I. Wong, ~15 min)

4:15 pm - 5:00 pm **Discussion**

5:00 pm **Adjourn**