

NGA-east Workshop 2

Summary Day3

Oct 13, 2011

Finite-Fault Validation

- Preliminary stage
- Need for consistency in presentation of results
 - Single presentation summarizing results for all models to allow for comparisons
 - Proponents as part of discussion and explains for differences between results

Finite-Fault Validation

- Validation Data Set
 - Using small number (7) of eqk
 - Consider larger data set of CENA recordings
 - Add Mineral eqk
 - Validation against GMPEs (e.g. NGA) provides test of average for a large number of earthquakes
 - Also avoids the site effects difficulties (can select a uniform site condition)
 - Checks the overall methodology (how inputs are generated for future events)

Finite-Fault Validation

- Site Effects in Validation
 - Currently not treated in a consistent way for different modelers
 - No site term, empirical site factors, non-linear site factors, non-linear site as part of FFS
 - Options:
 - Correct the response spectral values and send to FF simulators
 - Does not help with time series metrics
 - Correct FAS
 - H/V ratios?
 - Receiver functions? – needs more than one recording
 - Correct the time series?
 - Provide a common method to FF simulators to incorporate into simulations?

Finite-Fault Validation

- Key Parameters

M(A) Relations

- SCR eqk have about $\frac{1}{2}$ area of TCR eqk
 - Stress drop ratio is 2.6 (Somerville model)
- Systematic Bias?
 - May be a systematic shift, but ratio is more robust
- Mag Range
 - 5.3 to 7.7
 - Need to extrapolate to M8.25 for CEUS SSC 2011 model
 - Assume self-similarity? Leonard showed this worked.
 - But M8 eqk will not contribute to the hazard, so not a key issue
 - Need M8.1 for new madrid.
- Aleatory Variability in the area
 - Add to the model
- Epistemic uncertainty
 - Use range from the three different approaches