

Use of Earthquake Simulators by the Working Group on California Earthquake Probabilities

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The Working Group on California Earthquake Probabilities (<http://www.WGCEP.org>) is currently working on the 3rd generation Uniform California Earthquake Rupture Forecast (UCERF3). The three main goals for this model are to: 1) relax segmentation and include multi-fault ruptures; 2) include spatiotemporal earthquake clustering; and 3) develop and apply self-consistent methodology for computing elastic-rebound-motivated probabilities. Physics-based earthquake simulators constitute perhaps the most elegant potential solution to all these problems. However, given the wide range of results obtained in cross-verification studies, as well as current limits in terms of error propagation, the broader consensus is that simulators are not yet ready for direct use. In fact, even if a simulator were deemed perfectly correct, it's not yet clear how to use the results in hazard assessment. That being said, simulators are being used to help guide the functional form of some of the traditional statistical models in UCERF3. Specifically, this talk will present how simulator results are being utilized for elastic-rebound probability calculations. This talk will also summarize other questions we hope simulators will be able to address.