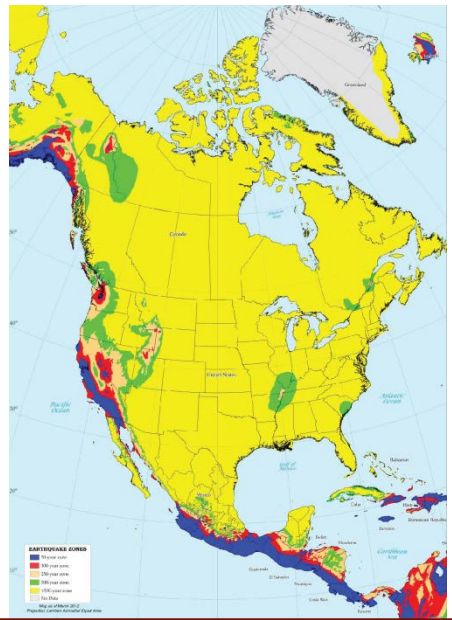




## Harold Magistrale, PhD Earthquake risk maps at FM Global

**ABSTRACT:** FM Global insures commercial and industrial properties around the world and so requires a uniform worldwide assessment of earthquake risk for underwriting and engineering servicing decisions. We construct earthquake risk maps that show the return times of earthquake ground motions that can cause slight damage to URM low-rise buildings or slight-to-moderate damage to non-ductile concrete moment frame high-rise buildings. The steps to construct the risk maps are, first, perform a PSHA for a uniform soil, second, assign NEHRP site response categories and apply the NEHRP amplification factors, and third, compare the ground motions to the damage thresholds. The PSHA is performed on the OpenQuake software of the Global Earthquake Model. Site response categories are determined from the topographic slope method. The FM Global earthquake risk maps are different from building code maps in that the former account for soil conditions and show return times of spectral accelerations that initiate damage to weak buildings, whereas the latter present a ground motion parameter for a fixed return time without correcting for soil conditions.



**Bio:** Harold Magistrale a Senior Lead Research Scientist and technical team leader for geological sciences research at the FM Global Center for Property Risk Solutions where he studies factors that influence earthquake ground motions. Prior to joining FM Global five years ago, he was an Adjunct Professor at San Diego State University where he researched southern California faults, earthquakes, and crustal structure. Harold has a B.S. in Earth Sciences from U.C. Santa Cruz, a Ph.D. in Geophysics from Caltech, and a J.D. from the University of San Diego School of Law.

**Wednesday October 8, 2014**  
**6:00– 8:00 PM**  
**Simpson Gumpertz and Heger**  
**41 Seyon Street**  
**Building 1, Suite 500**  
**Waltham, MA 02453**