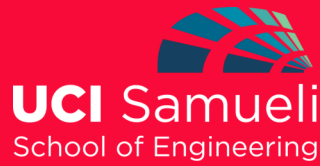




Presented By:
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**Department of
Civil and Environmental
Engineering**

Civil Engineering *Seminar Series*

Thursday, May 19th, 2016
MDEA
4:00PM - 5:00PM

Seismic Hazard Analysis for the Sacramento-San Joaquin River Delta: New Insights from Site-Specific Studies

Levee systems are essential lifelines for population centers and agricultural or industrial areas located adjacent to water bodies. As such, the performance of levees when subjected to earthquakes is essential for the resilience of surrounding communities. Despite their critical function, many levees are at high risk, not having been properly engineered at the time of their construction, and often being founded on soft and weak soils. Not surprisingly, levees are frequently found to have been damaged following major earthquakes. The Sacramento-San Joaquin River Delta consists of several reclaimed islands and tracts. The Delta constitutes the hub of California's freshwater system. More than 1800 km of levees protect the reclamation area from flooding. The Delta levee system is located in region characterized by the presence of several seismogenic faults. As a result, the seismic hazard of the whole area is considerably high. This study presents a new seismic hazard map for selected intensity measures, using the most recent fault model available for California (the third Uniform California Earthquake Rupture Forecast, UCERF3; Field et al., 2014), and recent ground motion prediction equations (GMPEs) developed in the NGA-West2 project (Bozorgnia et al., 2014). Site-specific applications are shown for Sherman Island and West Sacramento. These studies provide useful insights about: (1) seismogenic structures that drive the hazard in the Delta area, and (2) potential earthquake effects in the selected locations.



Dr. Paolo Zimmaro is currently appointed as post-doctoral scholar at UCLA. Dr. Zimmaro obtained his M.S. and B.S. from the University of Calabria (Italy), and his Ph.D. in march 2015 from the University "Mediterranea" of Reggio Calabria (Italy). During his Ph.D., he worked under the supervision of Prof. Jonathan Stewart on a site-specific probabilistic seismic hazard assessment for a dam site in southern Italy. His current research interests are in geotechnical earthquake engineering and engineering seismology, with emphases on: (1) site-specific probabilistic seismic hazard analysis, (2) seismic performance of earth dams and levees, (3) Seismic levee system fragility analysis, and (4) liquefaction and its effects on civil infrastructures.