

Reevaluating the probabilistic seismic hazard in Chile

Felipe Leyton (1), S. Ruiz (2) and S. A. Sepúlveda (2)

(1) Departamento de Ingeniería en Construcción, Universidad de Talca, Chile (2)

Departamento de Geología, Universidad de Chile, Chile (fleyton@utalca.cl / Fax: +56 75 201762)

Chile is one of the most seismically active countries in the World, having witnessed several large earthquakes. Nowadays, probabilistic seismic hazard estimation is one of the most used techniques to prevent damages and human losses produced by earthquakes. In the present work we propose to review all the available data to improve the estimation of the probabilistic seismic hazard caused by 2 main sources: shallow interplate, thrust earthquakes and intermediate depth, intraplate earthquakes. We divide Chile into several seismic regions based on surface geology and define its Gutenberg-Richter and attenuation laws. We obtain a series of maps showing the Modified Mercalli Intensity (IMM) reaching values little over IX in the coast and between VIII and IX for a return period of 475 years. The present study improves our knowledge of geological hazards in Chile, enabling the mitigation of the effect of large earthquakes in the future.