Geophysical Research Abstracts, Vol. 9, 11155, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-11155

3D Strong Ground Motion Simulation of the Gubbio Alluvial Basin by GeoELSE

M. Stupazzini (1), E. Faccioli (2)

(1) Ludwig Maximilians University, Munich, Germany, (2) Politecnico of Milan, Italy
(stupa@geophysik.uni-muenchen.de / Fax +49 89 21804205)

The spectral element method (SEM) is a powerful numerical technique naturally suited for seismic wave propagation analyses. In this

contribution, the SEM based GeoELSE code is used to simulate ground motion generated by well-recorded and carefully studied strong earthquake of the 1997 Umbria-Marche sequence (September 1997) in the alluvial basin of Gubbio (Central Italy).

The numerical simulations account for 3D variations of seismicwave speeds and density, topography and attenuation, and a detailed reconstruction of the sedimentary basin shape. The combination of a detailed sedimentary basin model and an accurate numerical technique is capable to compute numerical time histories up to 2.5-3Hz inside the basin. Peak ground displacement, velocity, and acceleration maps illustrate that significant amplification occurs in the basin.