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Non-Linear Soil Response to Strong Ground Motions (Case Study: New Madrid Seismic Zone (NMSZ) (USA))

Siasi Kociu^{1,2}

¹Seismological Institute of Academy of Sciences (On leave), Albania

²Missouri University Science and Technology (On leave), USA

New Madrid Seismic Zone (NMSZ) in the United States, is one the most active dangerous seismic zones, where NS and EW highways are crossing. According to the satellite data in this zone, during the strongest earthquakes of 1811-1812, a lot of liquefaction phenomena were observed in the Missisipi embankment. Based on historical and intensity data, the moment magnitude of the strongest shock of 12/16/1811 at 02h 15m a.m. earthquake, was proposed to be as $M_w = 7.0-7.5$. As there is a lack of strong motion data, for the study of nonlinear site response analysis of two sites under bridge construction, synthetic accelerograms were used. For determination of soil profiles, SASW technique was used and compared with other in-situ techniques. This paper focuses on the engineering significance of the geophysical methods used for the purpose ground response analysis. Author of this paper participated in FHWA project for bridges in NMSZ with a research team of Missouri UST, in Rolla.

Biography:

Dr. Siasi Kociu had been director during 1993 at Seismological Center, Tirana, Albania and he had been Professor and Head of the department of Engineering Seismology at Seismological Institute, Ac. Sc., and Tirana, Albania.