**AVVISO DI SEMINARIO**

Giovedì 5 ottobre 2017 ore 10:00

Teatro di palazzo Donn’Anna

Largo Donn'Anna, Napoli

**Prof. Misko Cubrinovski**

**University Canterbury, Christchurch, Nuova Zelanda**



**System response of liquefiable deposits**

**ABSTRACT**

Detailed geotechnical characterization and in-depth assessment using seismic effective stress analyses are presented for 55 liquefaction case histories (level ground sites) from Christchurch. 15 of the sites manifested liquefaction in the two major earthquakes during the 2010-2011 Canterbury earthquake sequence (YY-sites), while 17 sites did not manifest liquefaction in either event (NN-sites). The YY- and NN-sites are shown to have practically identical critical layer characteristics, with low CPT resistance (*qc1Ncs* = 80 - 85), and shallow location of the critical layer at approximately 2 m depth. Hence, simplified procedures for liquefaction assessment cannot discriminate the sites that did manifest liquefaction from those that did not manifest liquefaction during the Canterbury earthquakes.

However, there are significant differences between the YY- and NN-sites with regard to the thickness and vertical continuity of their critical zones and liquefiable materials. Effective stress analyses are used to demonstrate key mechanisms of system-response of liquefying deposits that either intensify (YY-sites) or mitigate (NN-sites) liquefaction manifestation. The study illustrates the need to consider system-response of liquefying soils in the simplified liquefaction evaluation procedure, as a principal factor in the assessment of liquefaction manifestation and severity of liquefaction-induced damage.

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Misko Cubrinovski is a Professor of Geotechnical and Earthquake Engineering at the University of Canterbury, Christchurch, New Zealand. He holds a BSc degree in Civil Engineering, an MSc degree in Earthquake Engineering, and received his Ph.D. (Geotechnical Earthquake Engineering) from the University of Tokyo in 1993. His career involves over 30 years of work in the academia and the profession including seven years in Macedonia, 15 years in Japan, and twelve years in New Zealand. Misko joined the University of Canterbury in 2005.

His research interests and expertise are in geotechnical earthquake engineering and in particular problems associated with liquefaction, seismic response of earth structures and soil-structure interaction. Misko has authored or co-authored over 350 publications, and has worked as a geotechnical specialist and advisor on over 40 significant engineering projects. In recognition of his scholarly work and research he has received prestigious fellowships and awards including the Norman Medal (2016, ASCE), 2014 Outstanding Paper Award (EERI), 2014 Outstanding Paper Award (JPCF, ASCE), Ivan Skinner Award (2007, NZSEE-EQC), NZGS Geomechanics Award (2008), Director’s Award of the Technology Division, Taisei Corporation, Japan (1997), and best paper awards at national and international conferences. He is a Faculty Member of the ROSE School, IUSS, Pavia, Italy, and Fellow of the University of Tokyo, Japan. Misko is on the leadership team of QuakeCoRE, NZ Centre for Earthquake Resilience, and leads its flagship research programme on Liquefaction Impacts on Infrastructure.