UNIVERSITÀ DEGLI STUDI DELL'AQUILA

University of L'Aquila

DICEAA
Dipartimento di Ingegneria Civile, Edile-Architettura e Ambientale

Ph.D.ICEAA
Ph.D. Program in Civil, Building Construction and Environmental Engineering

Coordinator: Prof. Marcello Di Risio

Türkiye Mw 7.7 Pazarcık and Mw 7.6 Elbistan earthquakes of February 6th, 2023: Contribution of valley effects on damage pattern

Prof. Mourad Karray
University of Sherbrooke (Quebec, Canada)

Abstract

On February 6, 2023, two catastrophic earthquakes struck southeastern Türkiye, near the northwestern Syrian border. Turkish authorities reported a death toll of over 59,000 in Türkiye and about 8,500 in Syria. The catastrophic destruction of the built environment was accompanied by a range of other earthquake-related effects, including fault ruptures, landslides, and liquefaction of foundation soils.

This seminar examines the distribution of ground motion for two events. The observed concentration of damage was found to correlate with the significant amplification of motion induced by local soil conditions (such as soft soils and valley effects).

15 November 2023 – from 10:00 to 11:00 am

Room B+1.4, Monteluco di Roio
Online on Teams
https://teams.microsoft.com/l/meetup-join/19%3ameeting_N2Q5NTU0ZDgtZDE0Ny00ZjA0LTk1MWUtYjFhYzI4MzgxNDUz%40thread.v2/0?context=%7b%22Tid%22%3a%229df08a7c-31d7-4024-9ba6-5ed5efac1a01%22%2c%22Oid%22%3a%22896804bc-c756-4aa3-af19-0ae02ca4bdb9%22%7d

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About the Speaker

Prof. Mourad Karray (Full Professor at Université de Sherbrooke, Canada) is an expert in the characterization of soils by surface waves, dynamic behaviour of soil, liquefaction, and soil-structure interaction. He was involved in several large-scale projects such as the control of the construction of the Romaine-II dam, Quebec, Canada (Hydro-Quebec) and dynamic analysis of soil foundation of Champlain Bridge (Montréal). Professor Karray is particularly interested in soil characterization methods based on Rayleigh waves which have allowed the development of the MMASW (Multi-Modal Analysis of Surface Waves) technique. This method was used successfully for many important projects in Quebec and elsewhere in the world (Péribonka Dam, La Romaine Dam, Mont-Blanc in France, etc.). He has also contributed to the development of (1) the P-RAT (Piezo-electric-Ring-Actuator-Technique) method for shear wave velocity measurements in the laboratory and (2) the TxSS (Triaxial Simple Shear Test) to evaluate the seismic behavior of soils. He was the recipient of the Prix R.M. Quigley Award in October 2023 for the journal paper entitled "Investigation of small-to large-strain moduli correlations of normally consolidated granular soils" published on the Canadian Geotechnical Journal.