



EVENING LECTURE THE FEBRUARY 2023 M_w 7.8 EARTHQUAKE IN TURKEY: SEISMOLOGICAL, GEOTECHNICAL, STRUCTURAL ASPECTS

SUMMARY

NZGS is excited to share the news that Professor George Gazetas from the National Technical University of Athens will be giving an evening lecture in Wellington and online in November 2023.

This lecture will cover seismological, geotechnical, structural aspects of the February 2023 M_w 7.8 Earthquake in Turkey.

Every major earthquake offers important lessons in engineering and seismology. Some derive from new findings; most only reinforce already known facts and validate or refute existing methods. The February Earthquakes of the Eastern Anatolian Fault in Turkey offer an unprecedented number of quality ground motions recorded essentially on top of a major (M_w 7.8) fault rupture. The Lecture begins with the seismological aspects of the event, and illustrates the potential role of “*supershear*” rupture on the intensity and key characteristics of the ground motions. The recorded acceleration and velocity time histories are analysed to see how they reconcile with the nonuniform distribution of damage in the cities of Kahramanmaraş and Antakya (former Antioch). The role of “soil amplification” in causing such a nonuniformity is investigated. Then soil induced failures in the town of Golbasi are portrayed: they include settling, tilting and toppling of buildings due to bearing capacity failures in

the foundation, and extensive liquefaction-induced lateral spreading towards the lake. The liquefaction-triggered subsidence in the port city of Iskenderun is highlighted and explained, while the emergence of fault rupture on the ground surface along the 300m-long fault is shown briefly. Finally, structural failures are examined photographically, and key pathologies of buildings are demonstrated.

THE LECTURE WILL BE OF INTEREST TO:

- Geotechnical engineers involved in the design of foundations
- Structural engineers designing low, mid and high rise buildings
- Graduate civil engineering students (geotechnical and structural)
- University researchers
- Officials dealing with enforcing application of codes.

WHERE AND WHEN

WELLINGTON

Thursday, 23rd November 2023
Refreshments will start at 4.45pm
Presentation will start at 5.15pm

Engineering New Zealand
Te Ao Rangahau,
Level 6/40 Taranaki Street,
Wellington 6011
and online



PRESENTER

George Gazetas has served as Professor of Geotechnical Engineering at the National Technical University of Athens (Greece) for more than 30 years, following an academic career in USA.

His interests have focused on Soil Dynamics, Earthquake Geotechnical Engineering, and Soil-Foundation Interaction. Much of his research was inspired by observations after destructive earthquakes. An active writer and teacher, he has been a geotechnical consultant and has participated in seismic code drafting committees. Recipient of several international awards, he has delivered prestigious lectures, including the “Coulomb”, “Ishihara”, “Kenneth Lee”, and “Michele Mauger” Lectures, and received the “Excellence in University Teaching in Greece Award”. He was honored by BGA as the 59th Rankine Lecturer, 2019, in London, and as a GeoLegend by ASCE’s Geo Institute in 2022.

TO REGISTER

The event is free for all.

It will be held online and in person in Wellington.

Click on the link to register

<https://www.nzgs.org/events/>