



Preface for the Special Issue on the M7.0 Samos Island (Aegean Sea) earthquake of 30th October 2020: reconnaissance missions and first observations

Anastasios Sextos¹ · Kemal Onder Cetin² · George Mylonakis^{1,3,4} · Jonathan P. Stewart⁴

© The Author(s), under exclusive licence to Springer Nature B.V. 2022

The Samos Island (Aegean Sea) earthquake struck at 13:51/14:51 local time in Greece and Turkey, respectively, on 30 October 2020. It produced wide-ranging effects including tsunami run-up, ground shaking with local zones of high intensity that produced collapsed structures and 118 fatalities in both countries, and various geotechnical effects including liquefaction and landsliding.

The earthquake occurred during the global COVID-19 pandemic, which necessitated a different response than would be typical for an earthquake of this size. With global travel restricted, international agencies did not send reconnaissance teams to the region. However, reconnaissance was performed. In Greece, the Hellenic Association of Earthquake Engineering (HAEE/ETAM) mobilized a 12-member team to Samos Island and neighbouring islands in two successive missions, which included a US faculty member who was in Greece at the time (K. Ziotopoulou). Similarly, the Earthquake Engineering Association of Turkey and Earthquake Engineering Foundation of Turkey (EEAT) mobilized teams to affected regions of the Aegean coast, with the main focus being the highly impacted city of Izmir.

This special issue and a combined report published in December 2020 (Cetin et al. 2020) are the result of an unprecedented collaboration of the aforementioned Greek and Turkish

✉ Anastasios Sextos
a.sextos@bristol.ac.uk

Kemal Onder Cetin
ocetin@metu.edu.tr

George Mylonakis
g.mylonakis@bristol.ac.uk

Jonathan P. Stewart
jstewart@seas.ucla.edu

¹ University of Bristol, Bristol, UK

² Middle East Technical University, Ankara, Turkey

³ Khalifa University, Abu Dhabi, UAE

⁴ University of California, Los Angeles, California, USA

organizations, along with US-based professional societies and reconnaissance organizations, including the Earthquake Engineering Research Institute (Learning from Earthquakes program) and Geotechnical Extreme Events Reconnaissance Association (GEER) (Cetin et al. 2021a). This special issue presents a coordinated series of papers relevant to seismological aspects (Akinci et al. 2021; Kiratzi et al. 2021), ground motion data (Askan et al. 2021), geotechnical findings (Ziotopoulou et al. 2022) and site effects (Cetin et al. 2021b), seismic performance of buildings (Yakut et al. 2021; Binici et al. 2022) and lifelines (Toprak et al. 2022), tsunami triggering (Kalligeris et al. 2021), as well as wider emergency response (Mavroulis et al. 2022) and social impacts of this important event, both on the Greek islands and the Turkish mainland.

On behalf of the sponsoring organizations, the special issue editors would like to express their gratitude to the individual paper authors and reviewers that made these important research contributions possible.

References

- Akinci A, Cheloni D, Dindar AA (2021) The 30 October 2020, M7.0 Samos Island (Eastern Aegean Sea) Earthquake: effects of source rupture, path and local-site conditions on the observed and simulated ground motions. *Bulletin of Earthquake Engineering* 19: <https://doi.org/10.1007/s10518-021-01146-5>
- Askan A, Gülerce Z, Roumelioti Z et al (2021) The Samos Island (Aegean Sea) M7.0 earthquake: analysis and engineering implications of strong motion data. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-021-01251-5>
- Binici B, Yakut A, Canbay E et al (2022) Identifying buildings with high collapse risk based on samos earthquake damage inventory in İzmir. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-021-01289-5>
- Cetin KO, Mylonakis GM, Sextos AG, Stewart JP (2020) Seismological and Engineering Effects of the M 7.0 Samos Island (Aegean Sea). Report of the Hellenic Association of Earthquake Engineering, Earthquake Engineering Association of Turkey, Earthquake Foundation of Turkey, Earthquake Engineering Research Institute (USA) and the Geotechnical Extreme. Report GEER-069, Events Reconnaissance Association
- Cetin KO, Mylonakis GM, Sextos AG, Stewart JP (2021a) Reconnaissance of 2020 M 7.0 Samos Island (Aegean Sea) earthquake. *Bulletin of Earthquake Engineering.* <https://doi.org/10.1007/s10518-021-01212-y>
- Cetin KO, Papadimitriou AG, Altun S et al (2021b) The role of site effects on elevated seismic demands and corollary structural damage during the October 30, 2020, M7.0 Samos Island (Aegean Sea) Earthquake. <https://doi.org/10.1007/s10518-021-01265-z>. *Bulletin of Earthquake Engineering*
- Kalligeris N, Skanavis V, Charalampakis M et al (2021) Field survey of the 30 October 2020 Samos (Aegean Sea) tsunami in the Greek islands. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-021-01250-6>
- Kiratzi A, Papazachos C, Özacar A et al (2021) Characteristics of the 2020 Samos earthquake (Aegean Sea) using seismic data. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-021-01239-1>
- Mavroulis S, Ilgac M, Tunçaç M et al (2022) Emergency response, intervention, and societal recovery in Greece and Turkey after the 30th October 2020, MW = 7.0, Samos (Aegean Sea) earthquake. <https://doi.org/10.1007/s10518-022-01317-y>. *Bulletin of Earthquake Engineering*
- Toprak S, Uçkan ME, Yılmaz MT et al (2022) Performance of hydraulic structures, lifelines and industrial structures during October 30, 2020 Samos-Aegean sea earthquake. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-022-01353-8>
- Yakut A, Sucuoğlu H, Binici B et al (2021) Performance of structures in İzmir after the Samos island earthquake. *Bull Earthq Eng.* <https://doi.org/10.1007/s10518-021-01226-6>
- Ziotopoulou K, Cetin OK, Pelekis P et al (2022) Geotechnical Reconnaissance Findings of the October 30 2020, Mw7.0 Samos Island (Aegean Sea) Earthquake 2 3. *Bulletin of Earthquake Engineering* <https://doi.org/10.1007/s10518-022-01520-x>

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.