

Tufts CEE Seminar Series and Joyner Lecture at The New England Chapter of EERI Present

Friday February 5, 2021

12:00pm Eastern Time (US & Canada)

Virtual Event

Are Small Earthquakes a Big Deal?



Julian J Bommer
Imperial College London

Professor Julian Bommer, Senior Research Investigator, Faculty of Engineering, Dept. of Civil and Environmental Engineering, Imperial College, London.

Earthquake engineering has traditionally focused on protecting society against the effects of large magnitude earthquakes but in recent years there has been increasing interest regarding the impact of smaller earthquakes. This has been driven partly by the occurrence of some low-magnitude earthquakes that have been cause unexpected levels of damage and particularly by the heightened concern regarding earthquakes of anthropogenic origin. The lecture begins by re-visiting the often-misunderstood rationale behind the exclusion of smaller magnitude earthquakes from probabilistic seismic hazard analysis as being related to the risk posed by such events. A number of case histories of small magnitude events reported to have caused damage are then reviewed, highlighting in each case the specific factors contributing to the impact and in some cases arguing that the impact may have been exaggerated. This is followed by a global analysis of small-to-moderate magnitude earthquakes to ascertain the likelihood of these resulting in damage and/or injury. As well as looking at the smallest magnitude earthquakes that have caused structural damage, the question of the smallest magnitudes required to trigger liquefaction is also addressed. The lecture concludes with some insights regarding if and when smaller earthquakes should be a concern as well as discussing the challenges associated with modelling the resulting hazard and risk that such events can pose.

Please Register for Seminar

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