



## **A Seismic Site Response Survey of the Maltese Islands**

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The Maltese Islands in the Central Mediterranean are composed of a simple 5-layer sedimentary sequence of Oligocene - Miocene age. The sequence is highly disturbed by syn-sedimentary to recent faulting, and the islands are characterised by a variety of outcropping rock types and underlying lithology. The seismic history of the Maltese islands includes a number of earthquakes in which serious building damage was experienced, the maximum intensity being of EMS98 VII - VIII in 1693. A correspondence is observed between building damage and areas underlain by soft clay layers, for example, but a seismic risk assessment of the islands that takes into account such site effects has never been attempted. Since the last damaging earthquake, the building density has increased dramatically, and the building footprint extended to regions of diverse lithologies, while general building practices have not undergone any upgrade in standards. In this study, an extensive ambient noise survey of the two major islands (Malta and Gozo), utilising the Nakamura method, has been undertaken, covering all outcrop types and major morphological features. Clear correlations between geology and response frequency / amplitude will be presented and their implications in the light of building vulnerability and seismic risk discussed.