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CORRECTION

Correction to: Bayesian updating of seismic fragility curves through experimental tests

Gidewon G. Tekeste[1,2] · António A. Correia[1] · Aníbal G. Costa[2]

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A mistake was introduced during the typesetting process of this article. The Abstract section has an undesirable phrase and symbol included in the 3rd line. The correct abstract of the article is as follows:

Abstract: Fragility curves, commonly derived using analytical methods, are important ingredients of seismic risk analysis of structures in the framework of performance-based earthquake engineering. Hence, the accurate estimation of realistic fragility functions is a decisive step in a reliable risk assessment. This paper proposes a Bayesian updating procedure applied to analytical fragility curves of reinforced concrete (RC) structures based on data from experimental tests, namely shaking table tests. The latter are commonly performed by progressively increasing the intensity of the input motion applied to the same test specimen. In this regard, the maximal benefit from the output of a shaking table test is sought here, aiming to convert n sequential stages of a shaking table test of a single virgin specimen into n equivalent shaking table tests that are performed on n virgin specimens. This is performed by modifying the intensity of the input motion applied during the stage-wise testing based on a damage index coefficient. The parametric studies performed

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✉ Gidewon G. Tekeste
gidewon.tekeste@ua.pt

António A. Correia
aacorreia@lnec.pt

Aníbal G. Costa
agc@ua.pt

[1] National Laboratory for Civil Engineering (LNEC), Av. do Brasil 101, 1700-066 Lisbon, Portugal

[2] University of Aveiro, Campus Universitário de Santiago, 3810-193 Aveiro, Portugal

to validate this objective reveal that the approach is more suitable for simple structures compared to large or complex structures. The ATC-58 and Markov Chain Monte Carlo (MCMC) approaches for Bayesian updating of fragility curves are also closely examined and compared. The proposed Bayesian updating is applied to a RC structure, where fragility curves that are derived from incremental dynamic analysis are updated using shaking table results. The updating is examined considering three damage state models, namely HAZUS, homogenized RC and strain-based damages states. This work also highlights the pitfalls of using a limited sample of experimental test data for updating less reliable priors. Besides, the MCMC-based approach is shown to be more robust in the presence of complex analytical fragilities than the ATC-58 approach.