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An Innovated Earthquake Modelling Technique for Near Source Modelling

A hybrid method, with the combination of analytical Modal Summation (MS), numerical Finite Difference (FD) and Green Function (GF) to generate synthetic signals is developed. In this procedure we try to synthetically generate a small magnitude event using the pre-known hybrid technique of MS and FD as green function to simulate and scale target event through GF method. This modeling procedure is suggested since the simulation of small events is more reliable with numerical and analytical methods and it could be more useful while scaling to desired magnitude with GF method because of extended fault evaluation. This is tested using an aftershock recorded following the Bam earthquake. The result of synthetic signals by this method and observed records of Bam are compared both in time and frequency domains and shows good agreement. They show a more precise simulation compare with other methods tested during the study.

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