A Regional 3D Crustal Velocity Model for Northwestern Himalayas with Reoccurrence Scenarios for the 1905 Kangra Earthquake

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Table 1: Performance comparison of reported and predicted velocity profiles for the model of Jayalaksmi et al. (2020) at selected depth level

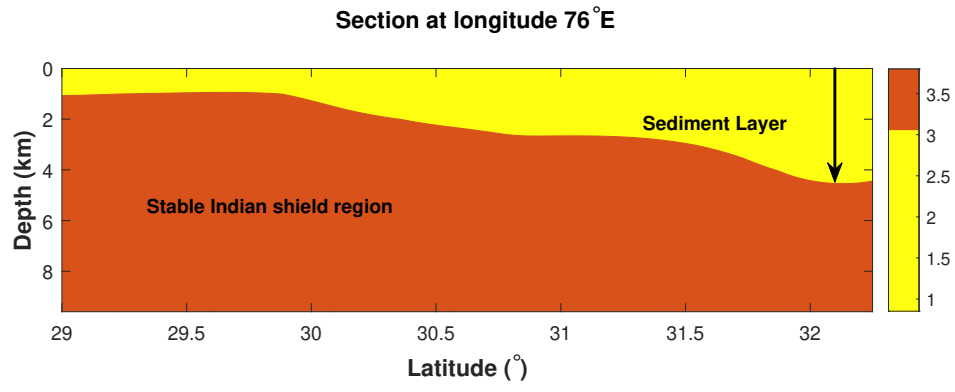| Depth	MAE	RMSE	R^2
0.0	0.6934	0.7362	-0.6319
5.0505	0.3324	0.3588	-4.4472
10.1010	0.2340	0.2682	-2.4111
15.1515	0.2908	0.3303	-2.8264
20.2020	0.3022	0.3504	-1.9803
25.2525	0.3059	0.3671	-1.9295
30.3030	0.3507	0.4123	-2.0627
35.3535	0.4068	0.4747	-2.3456
40.4040	0.5068	0.5666	-3.8813
45.4545	0.6443	0.6894	-6.8226
50.0	0.7496	0.7918	-8.6510

Section at longitude 76°E

Figure S1: Cross section of the developed velocity model at 76 °E (not to scale). The plot shows a maximum depth of the sedimentary basin around 3-4 km, assuming the bedrock V_s as 3 km/s.
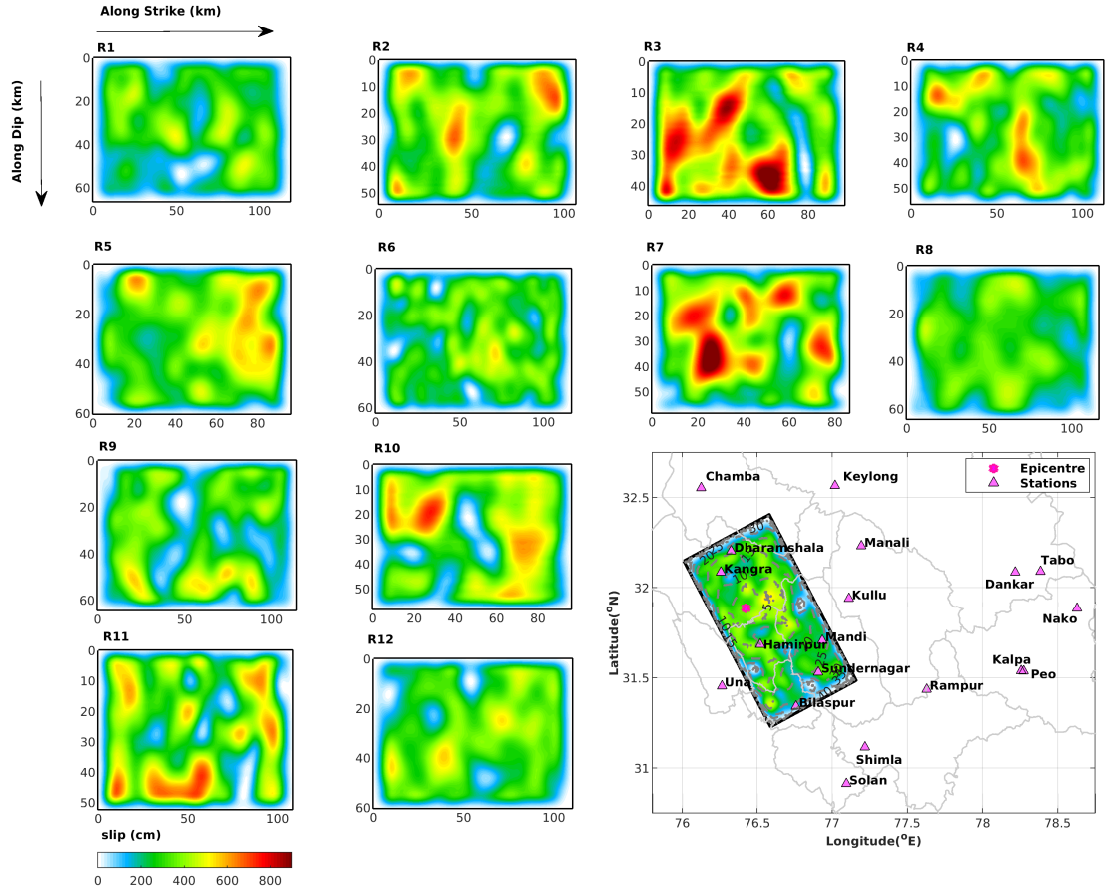
Figure S2: Slip distribution of the 25 rupture models (13-25) considered for the 1905 Kangra reoccurrence scenario simulations.
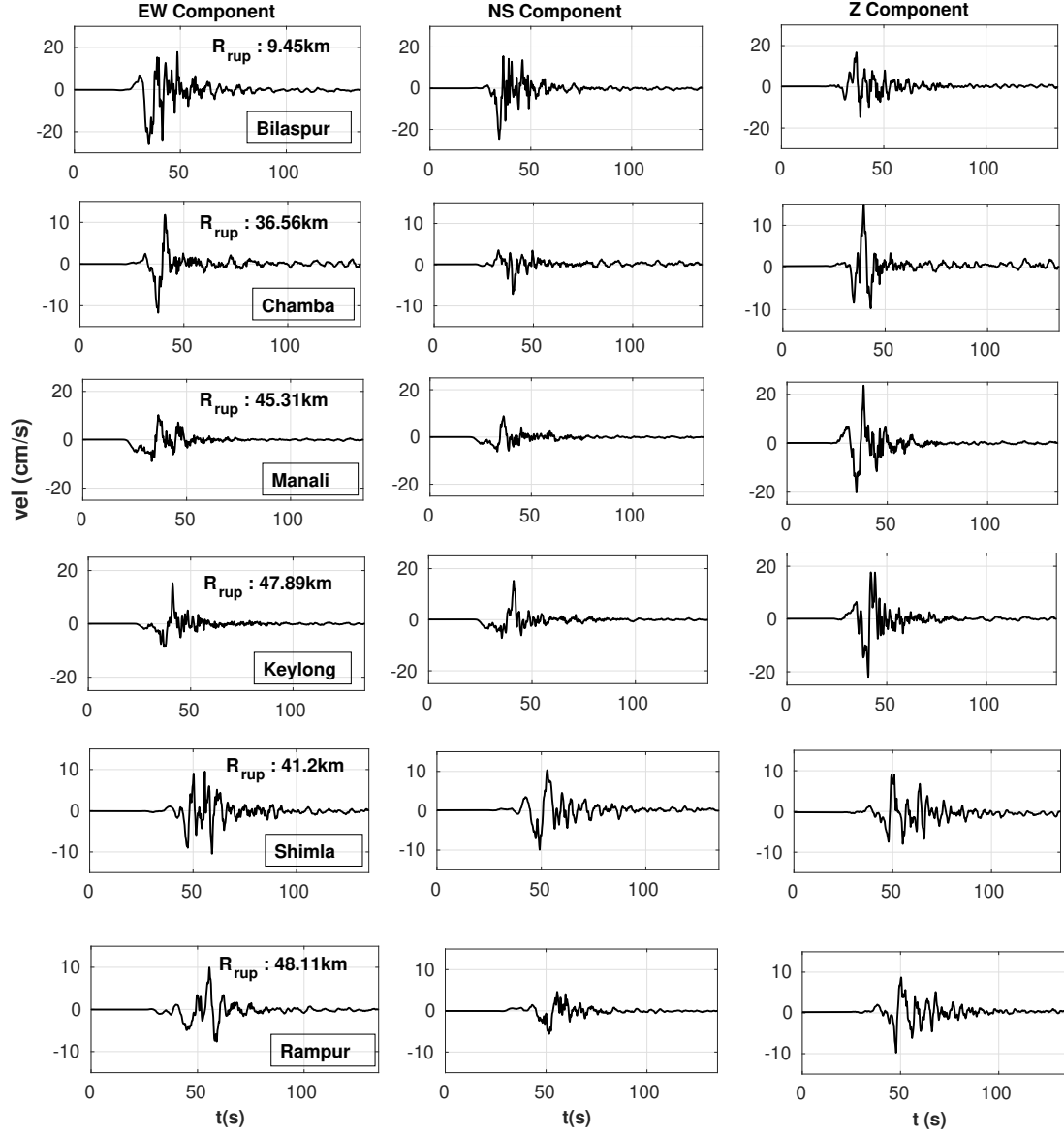
Figure S3: Simulated time histories for 6 stations corresponding to rupture model R6 for 1905 Kangra earthquake scenario.
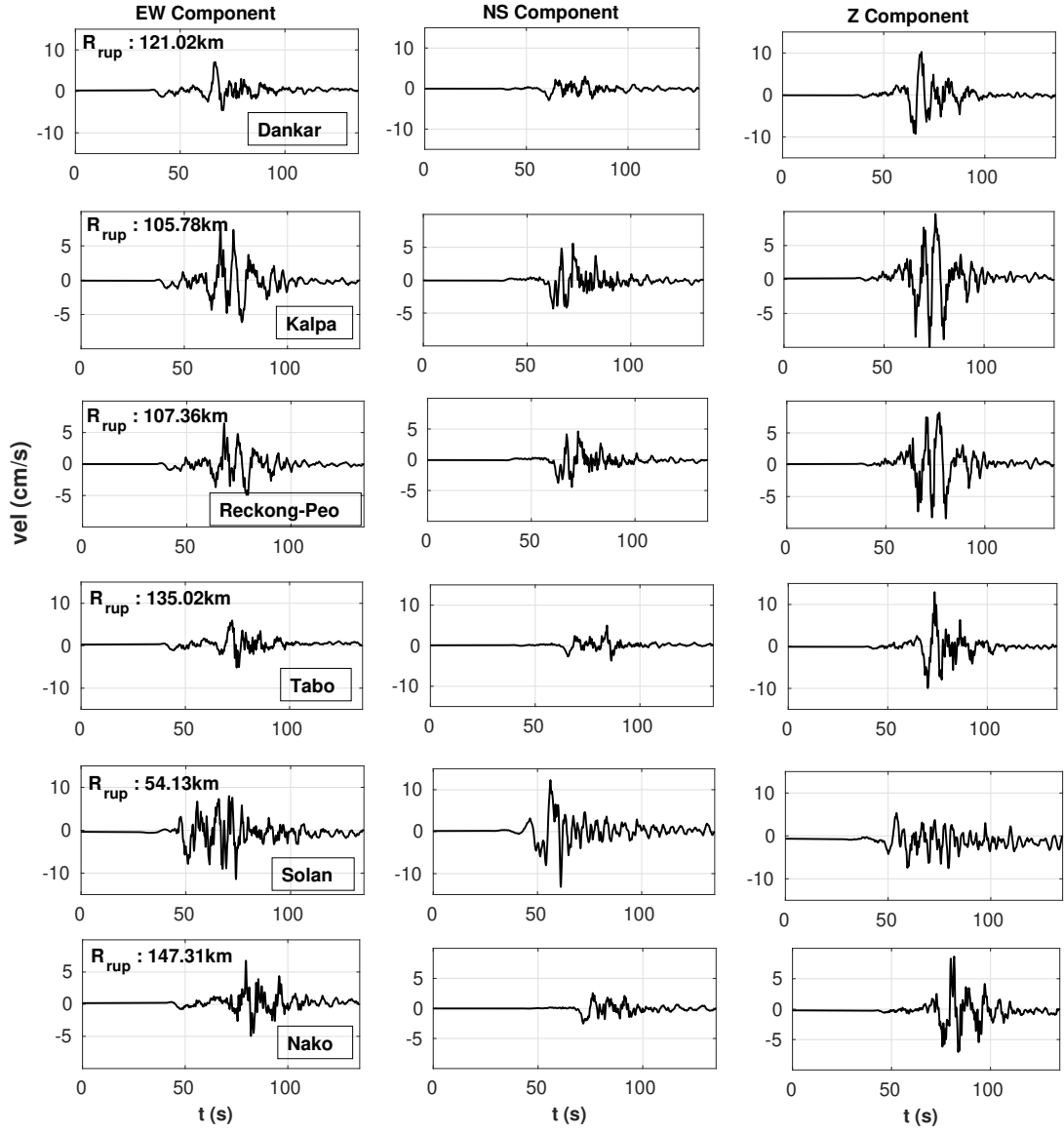
Figure S4: Simulated time histories for 6 stations corresponding to rupture model R6 for 1905 Kangra earthquake scenario.
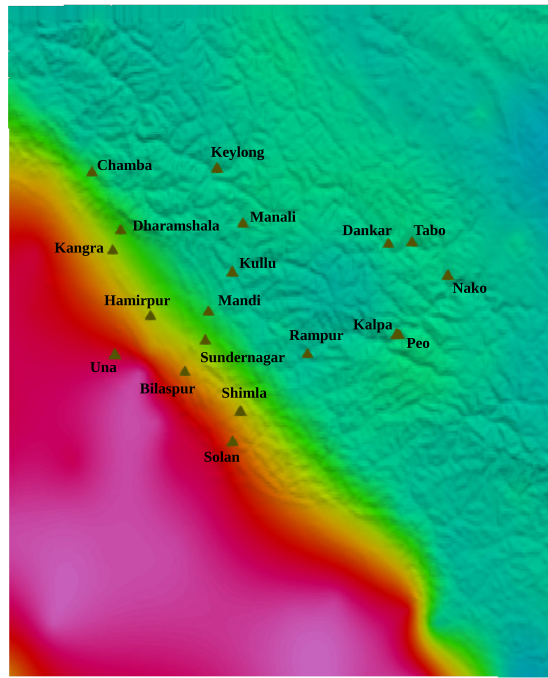
Figure S5: Developed 3d crustal velocity model along with the location of the stations used for the analysis.
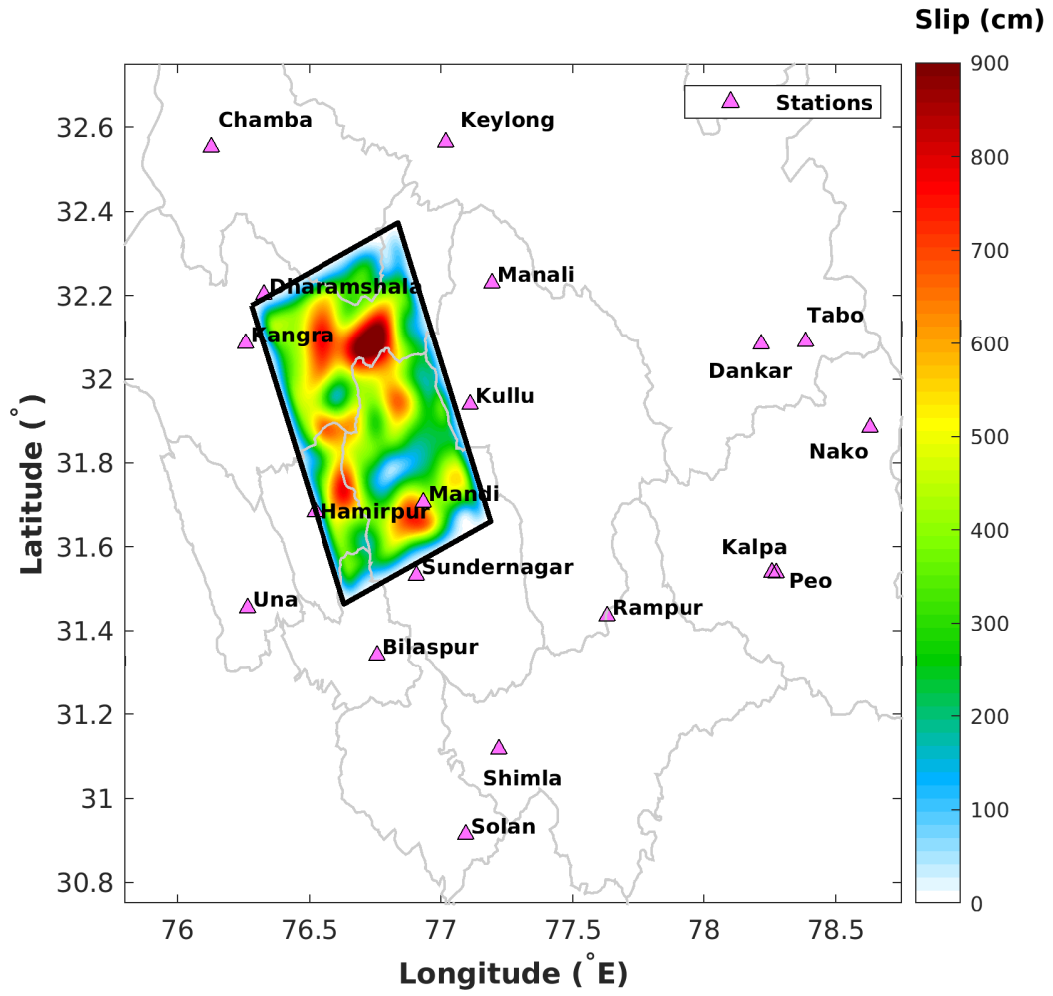
Figure S6: Spatial location of the fault geometry and slip distribution for rupture model R7.
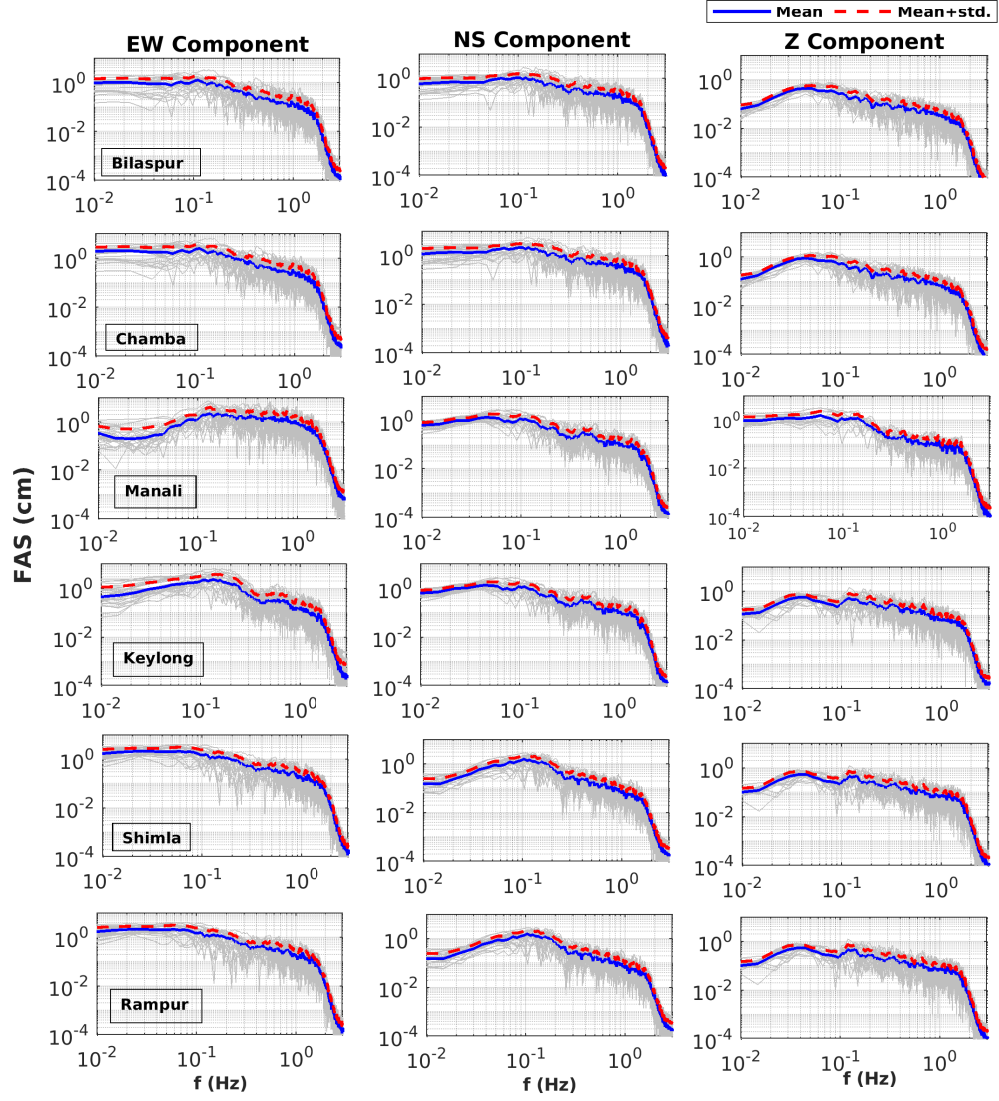
Figure S7: Fourier amplitude spectra of velocity time history for 25 simulations at 6 different stations. The continuous blue line represents the mean spectra, and the dashed red line represents the 68th percentile (mean+1σ) spectra.
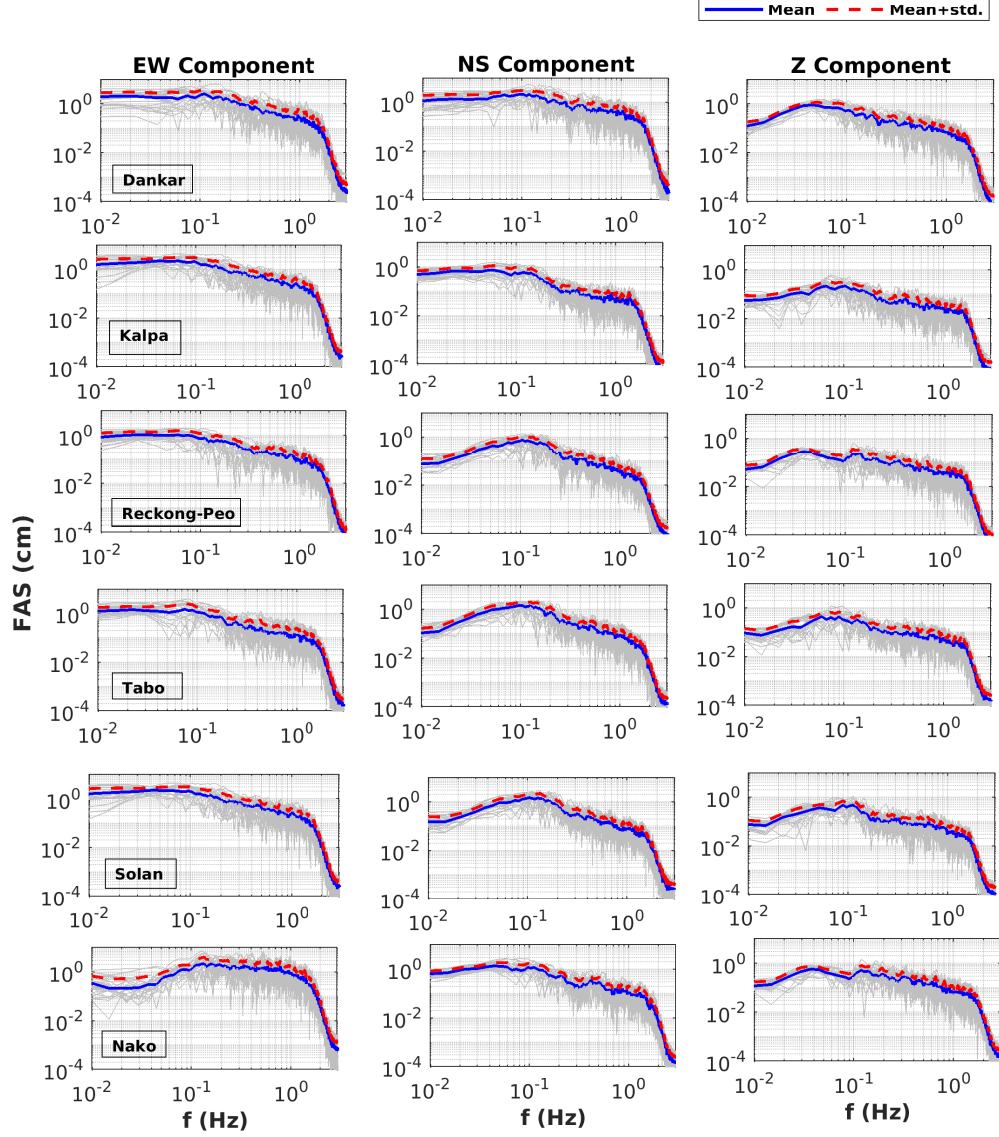
Figure S8: Fourier amplitude spectra of velocity time history for 25 simulations at 6 stations. The continuous blue line represents the mean spectra, and the dashed red line represents the 68th percentile (mean+1σ) spectra.
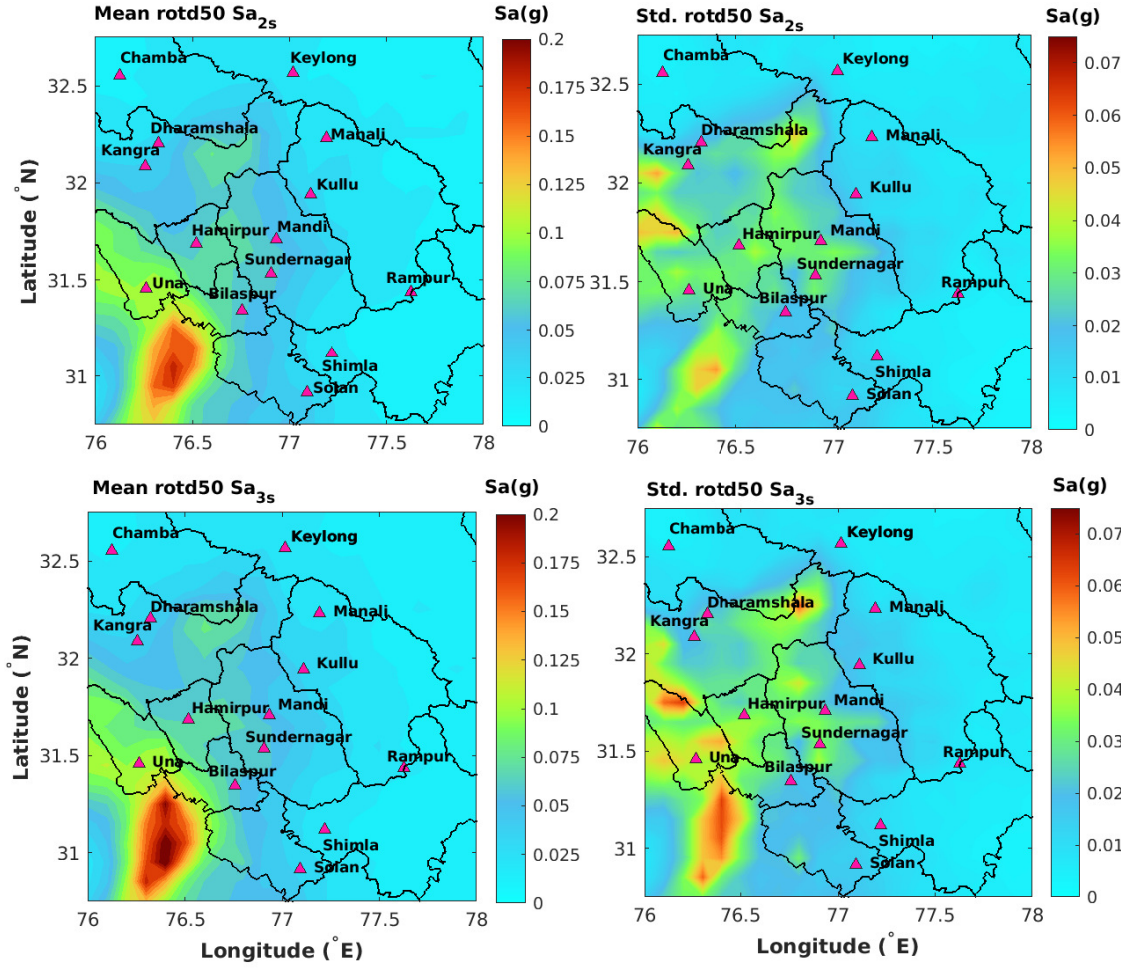
Figure S9: Contour plots for mean and standard deviation values for RotD50 spectral acceleration values at period 2s and 1s from 25 re-occurrence scenario simulations for the 1905 Kangra earthquake.
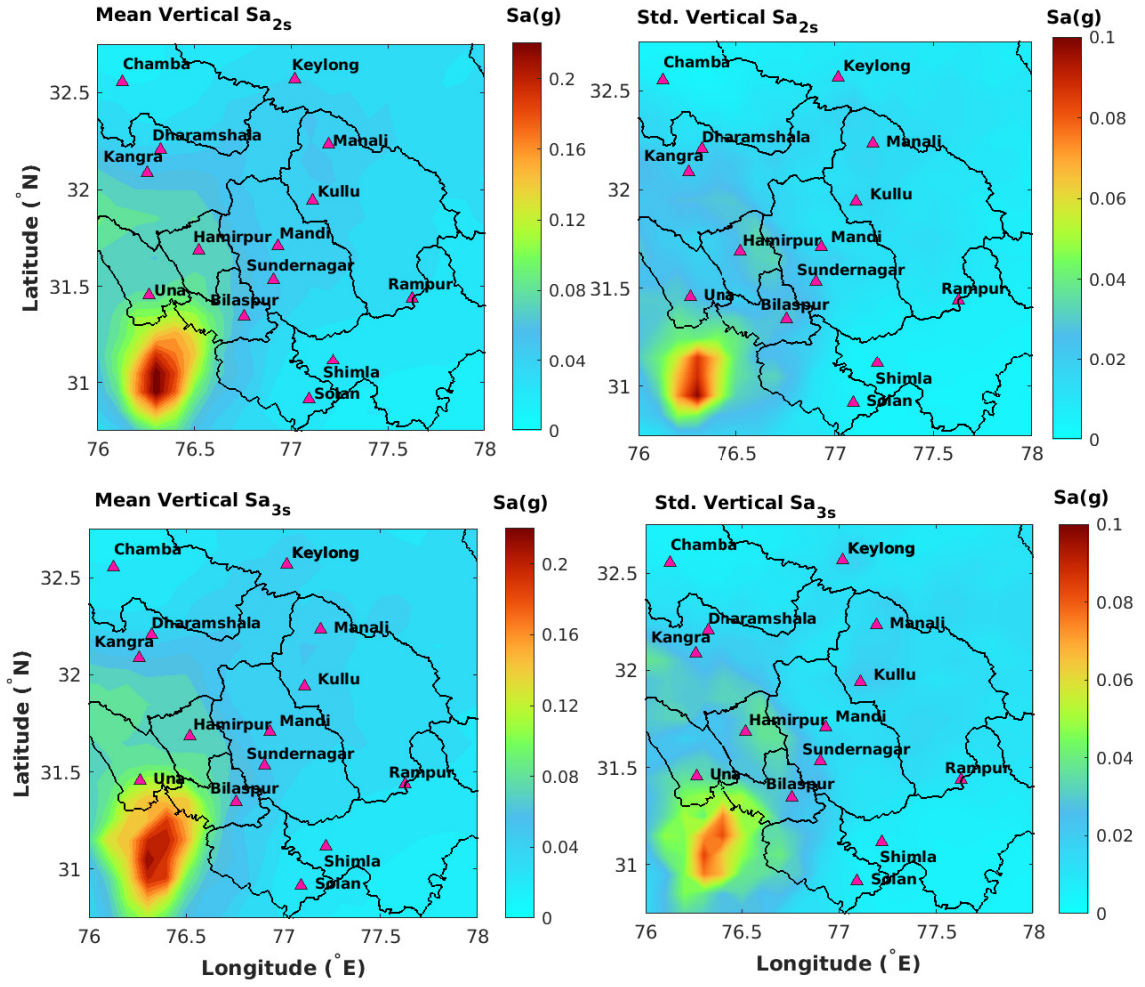
Figure S10: Contour plots for mean and standard deviation values for vertical spectral acceleration values at period 2s and 1s from 25 reoccurrence scenario simulations for the 1905 Kangra earthquake.