Supporting Information for "A Regional 3D Crustal Velocity Model for Northwestern Himalayas with a Revisit to the 1905 Kangra Earthquake"

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Table S1. 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

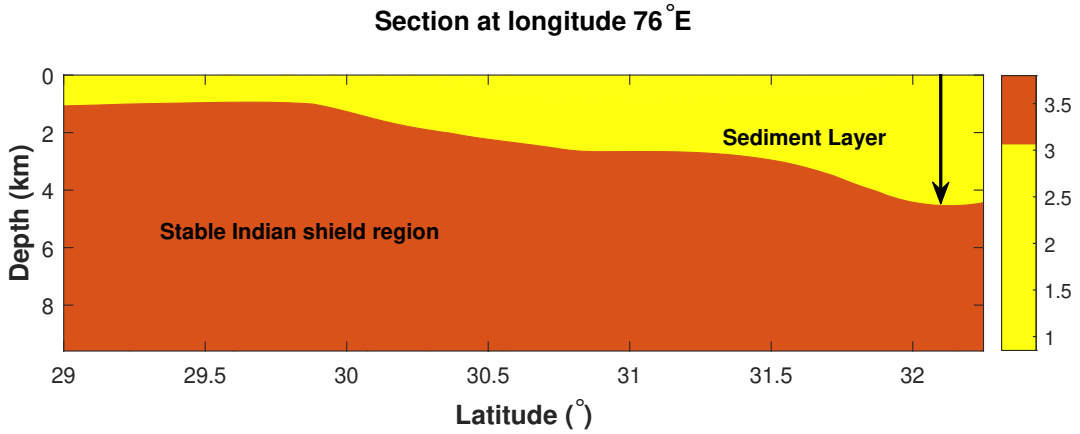

Figure S1. Cross section of the developed velocity model at 76 °E (not to scale). The plot shows a maximum depth of the sedimentary basin around 3-4 km, assuming the bedrock V_s as 3 km/s.

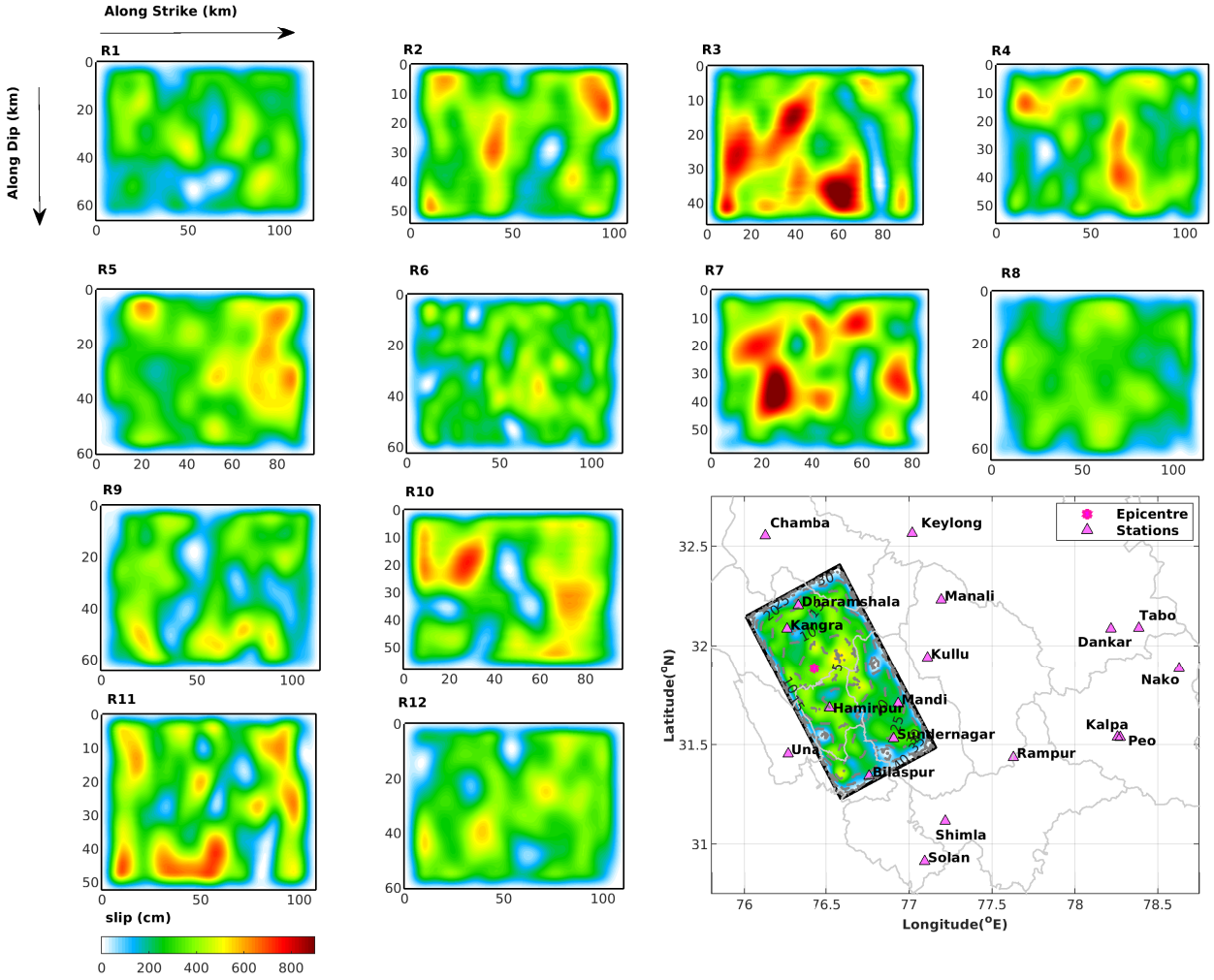

Figure S2. Slip distribution of the 25 rupture models (13-25) considered for the 1905 Kangra reoccurrence scenario simulations.

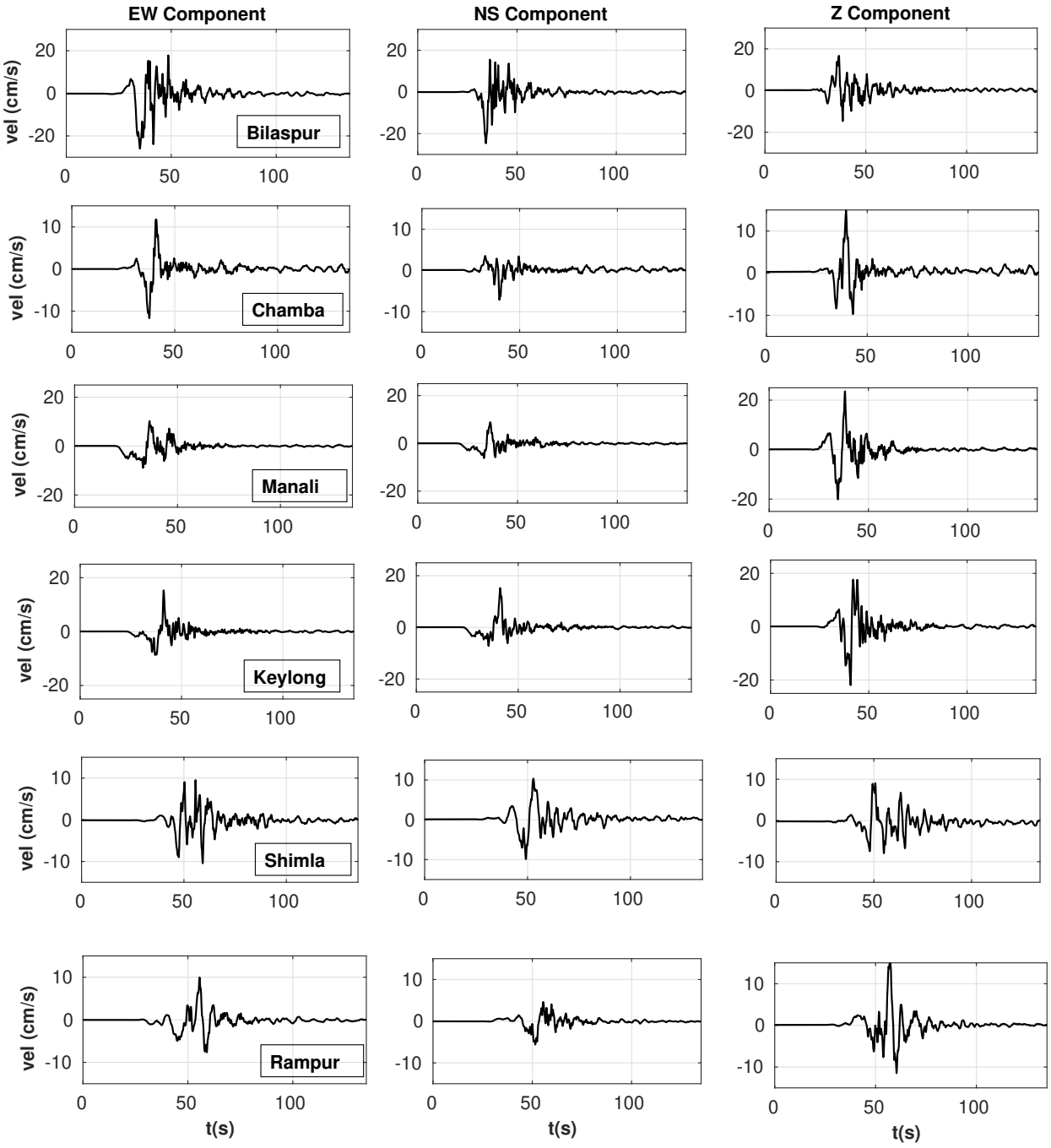

Figure S3. Simulated time histories for 19 stations (8-13) corresponding to rupture model R6 for 1905 Kangra earthquake scenario.

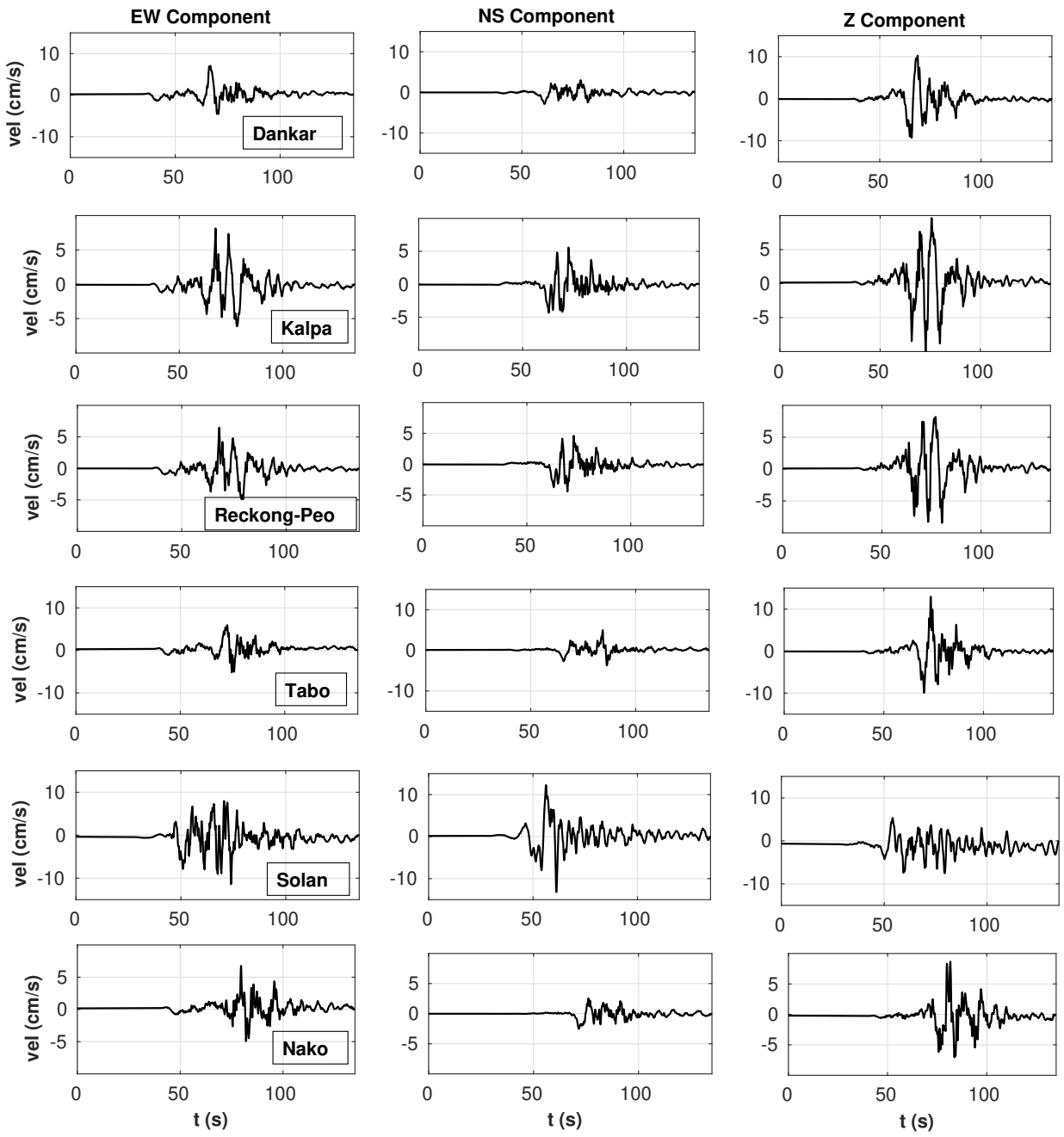

Figure S4. Simulated time histories for 19 stations (14-19) corresponding to rupture model R6 for 1905 Kangra earthquake scenario.

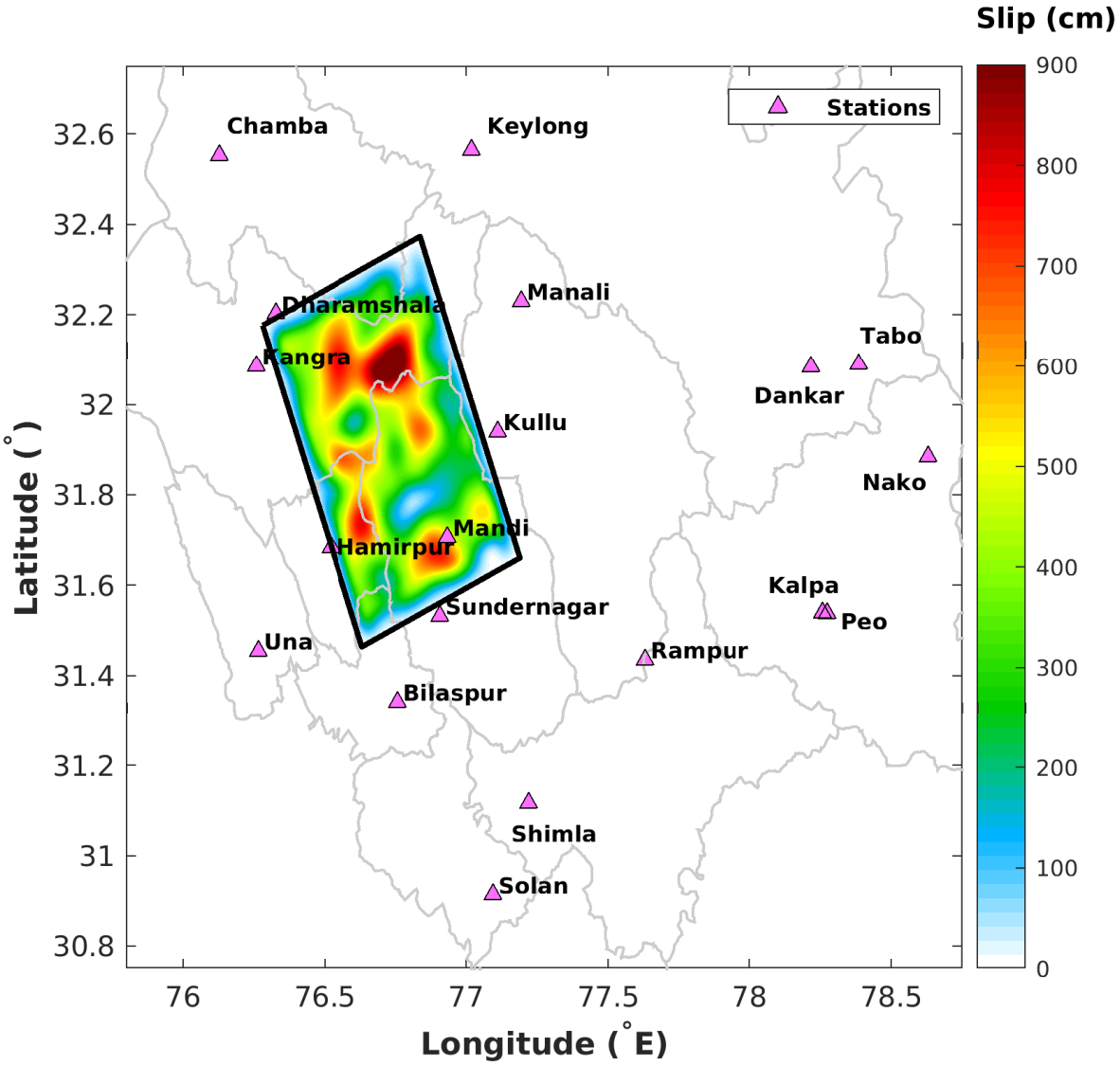

Figure S5. Developed 3d crustal velocity model along with the location of the stations used for the analysis.

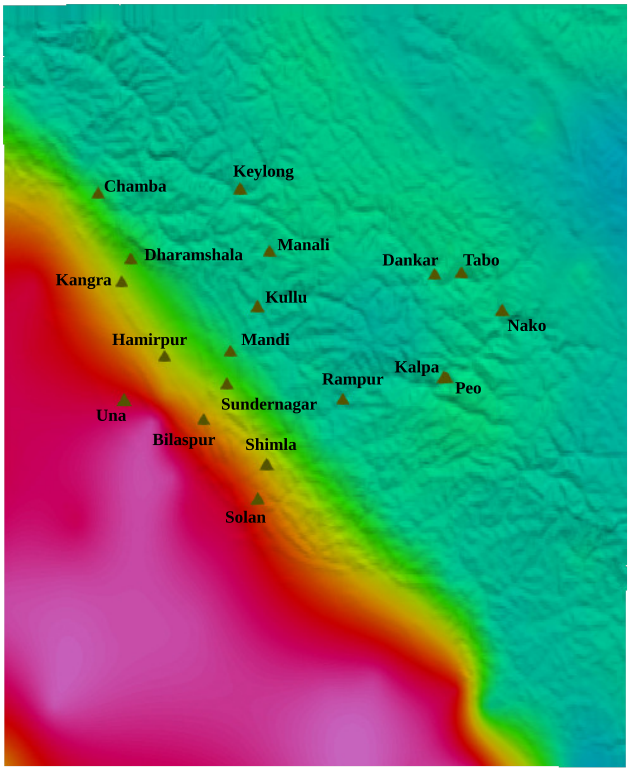

Figure S6. Spatial location of the fault geometry and slip distribution for rupture model R7.

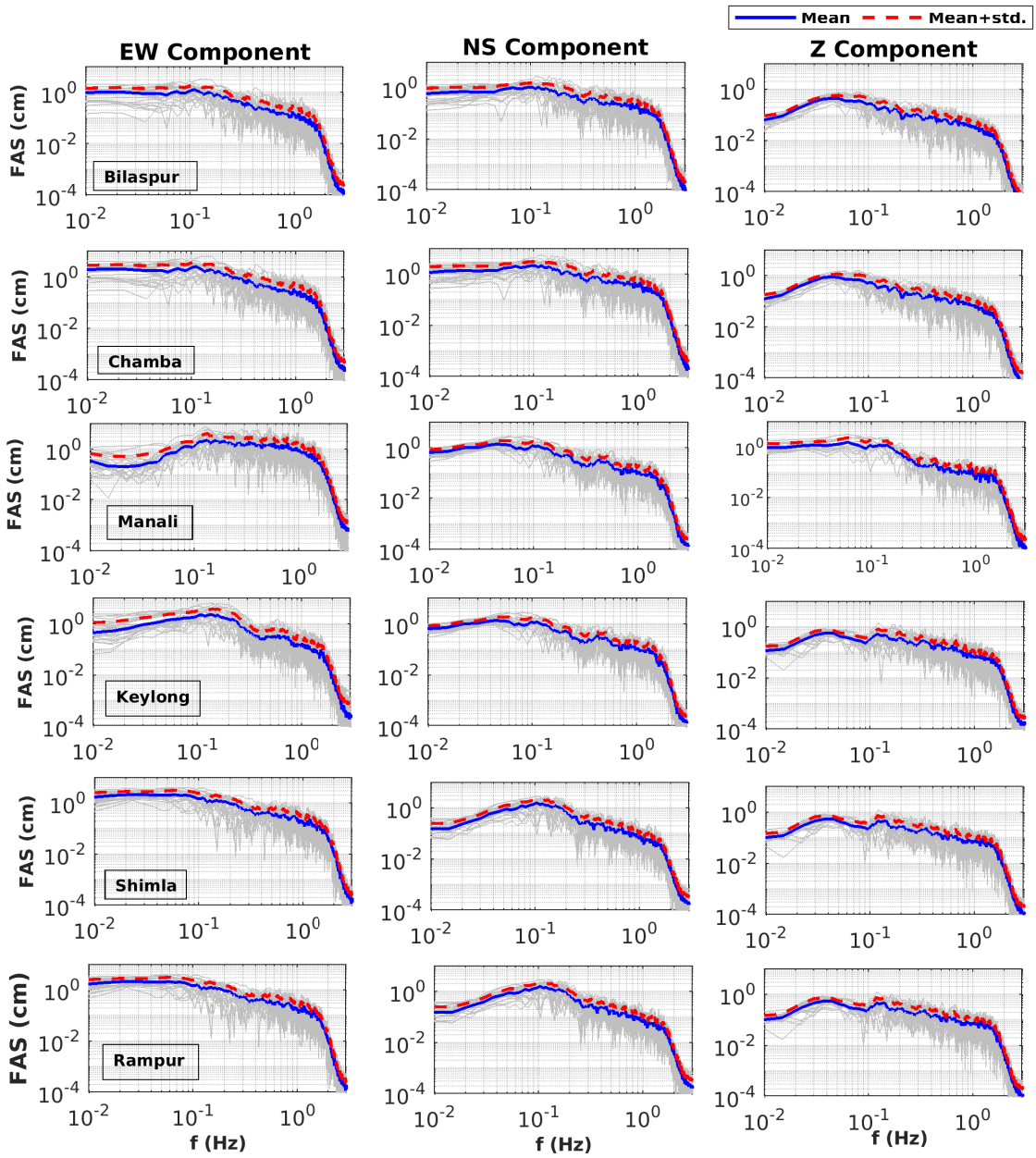

Figure S7. Fourier amplitude spectra of velocity time history for 25 simulations at 19 different stations (8-13). The continuous blue line represents the mean spectra, and the dashed red line represents the 68th percentile (mean+1σ) spectra.

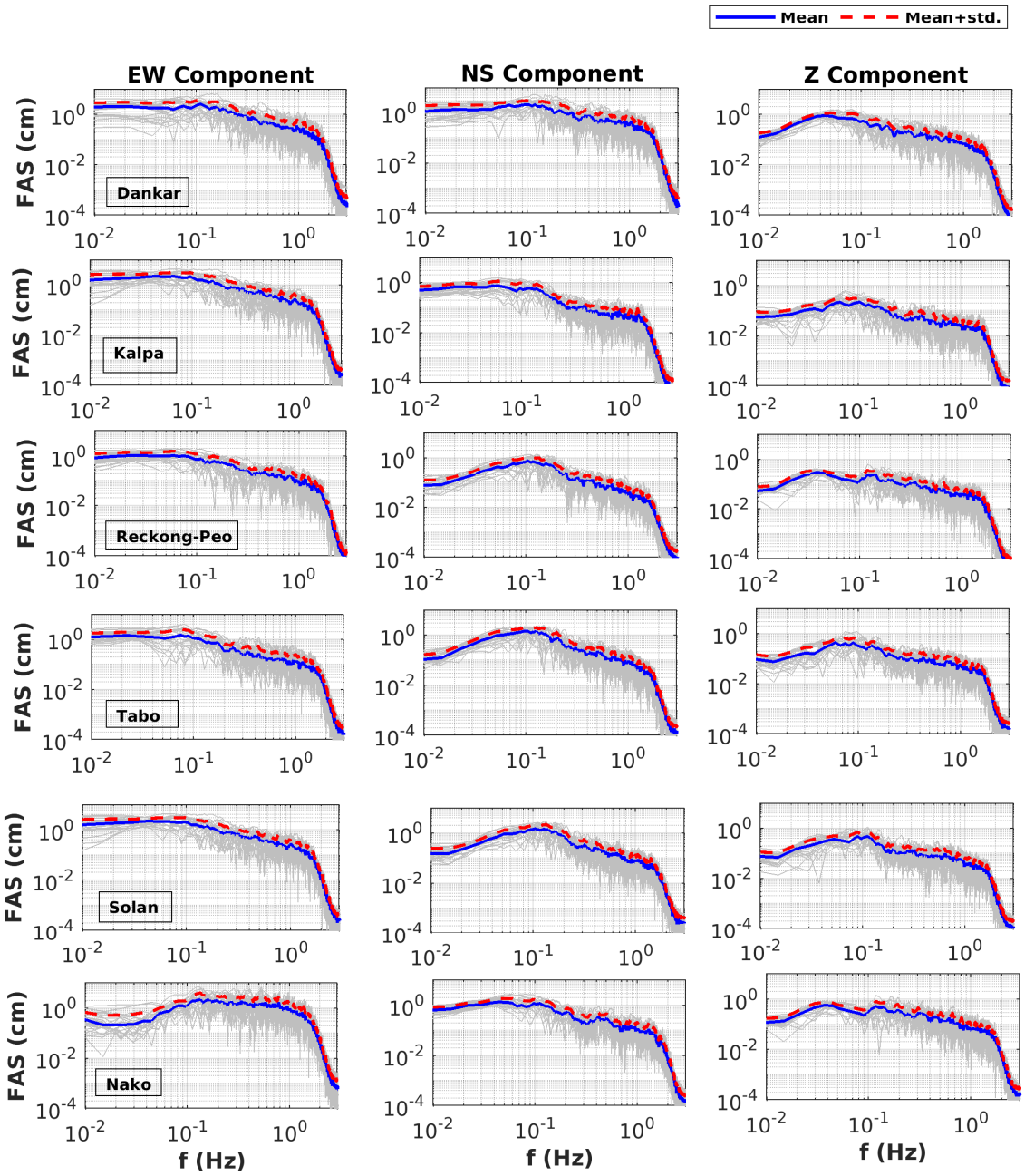

Figure S8. Fourier amplitude spectra of velocity time history for 25 simulations at 19 stations (14-19). The continuous blue line represents the mean spectra, and the dashed red line represents the 68th percentile (mean+1σ) spectra.

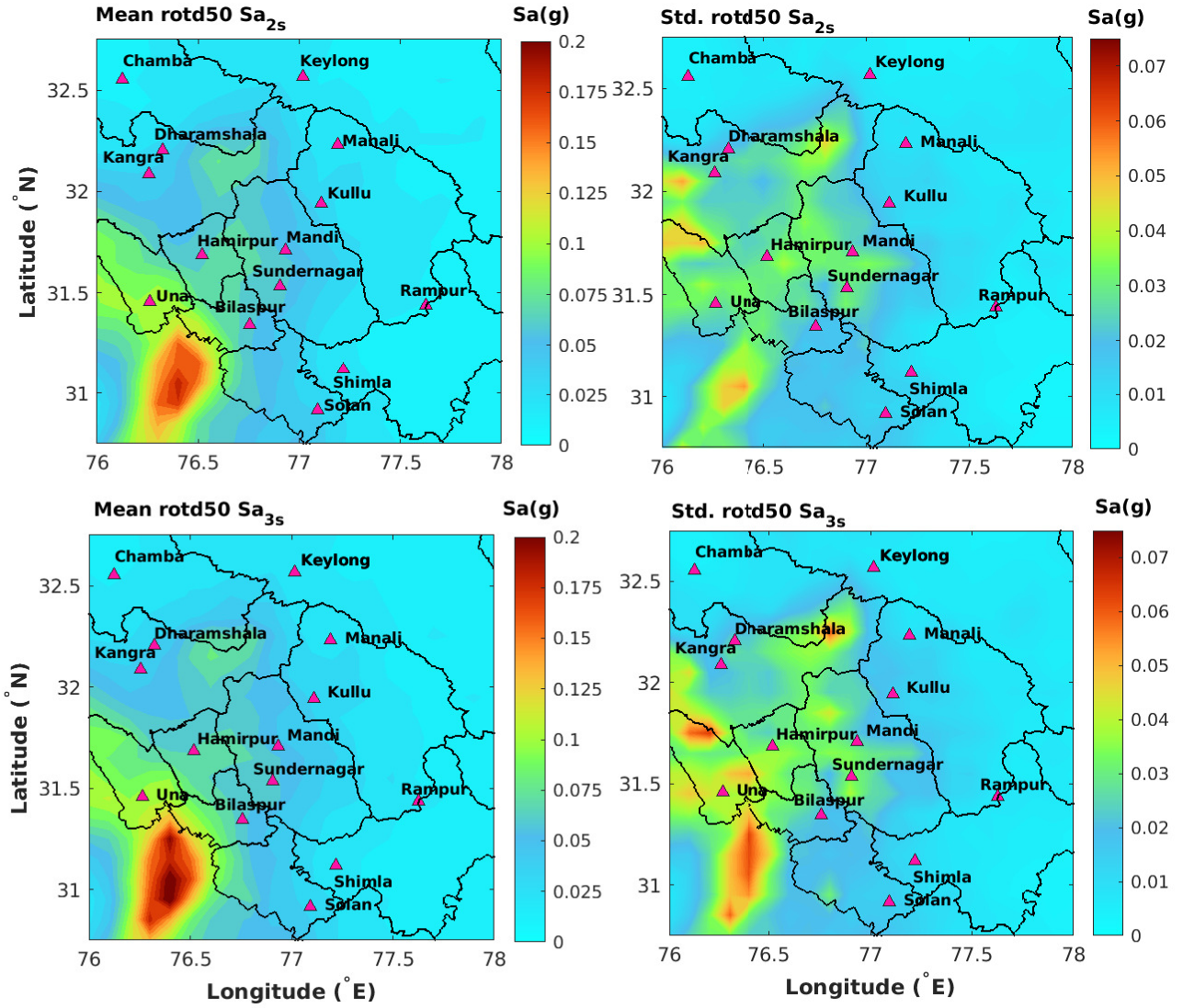

Figure S9. Contour plots for mean and standard deviation values for spectral acceleration values at period 2s and 1s from 25 re-occurrence scenario simulations for the 1905 Kangra earthquake.

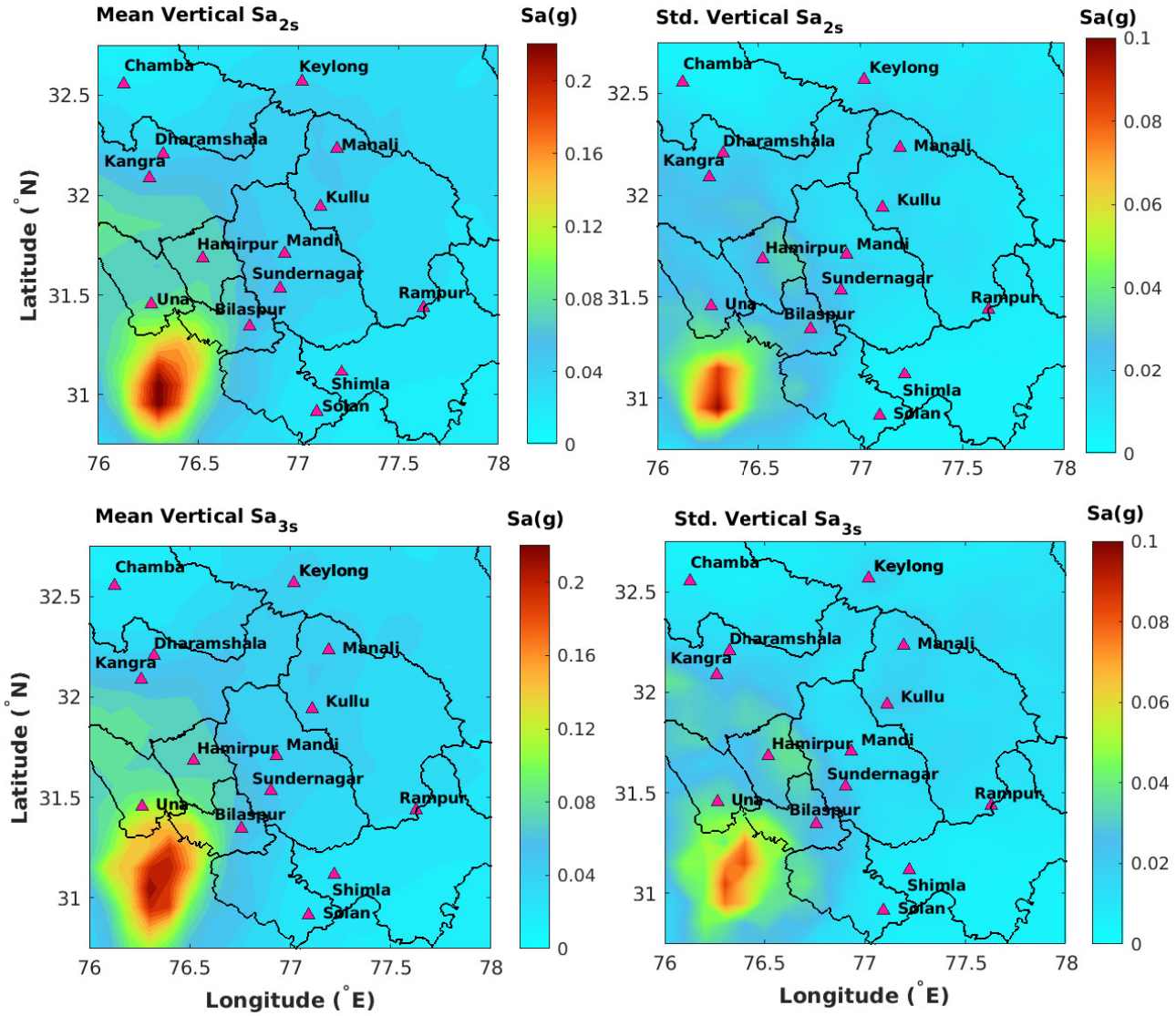

Figure S10. Contour plots for mean and standard deviation values for vertical spectral acceleration values at period 2s and 1s from 25 reoccurrence scenario simulations for the 1905 Kangra earthquake.