Supplementary Material
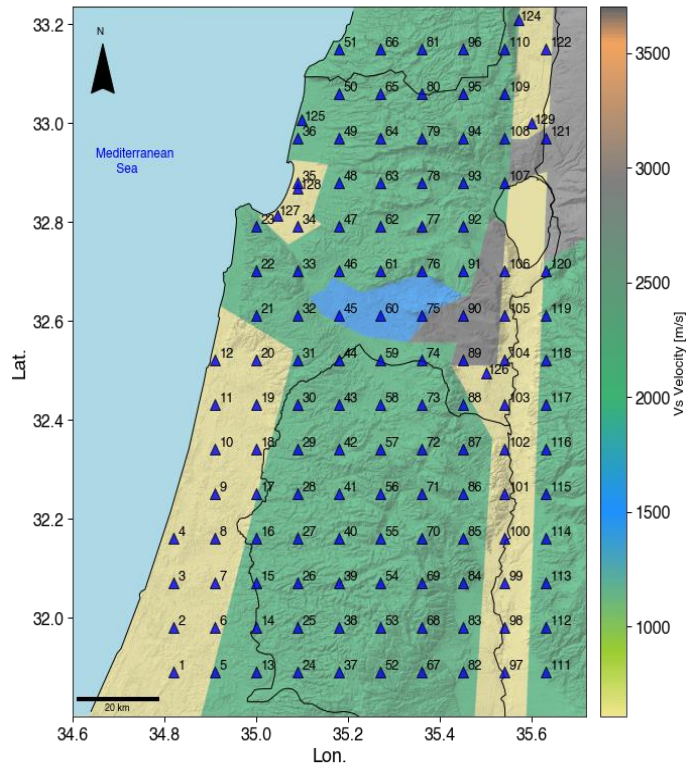
Figure S1. Numerated Synthetic stations grid (blue triangles), deployed in our model.

(a)

(b)
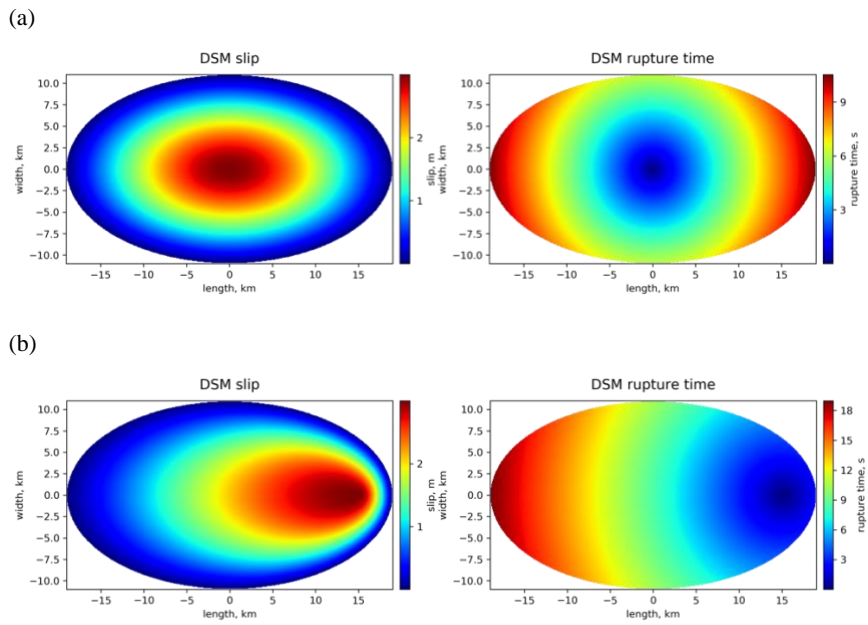
Figure S2. Examples of Rupture patches of the DSM, as used in simulating (a) symmetric and (b) southward unilateral M 7 rupture models.
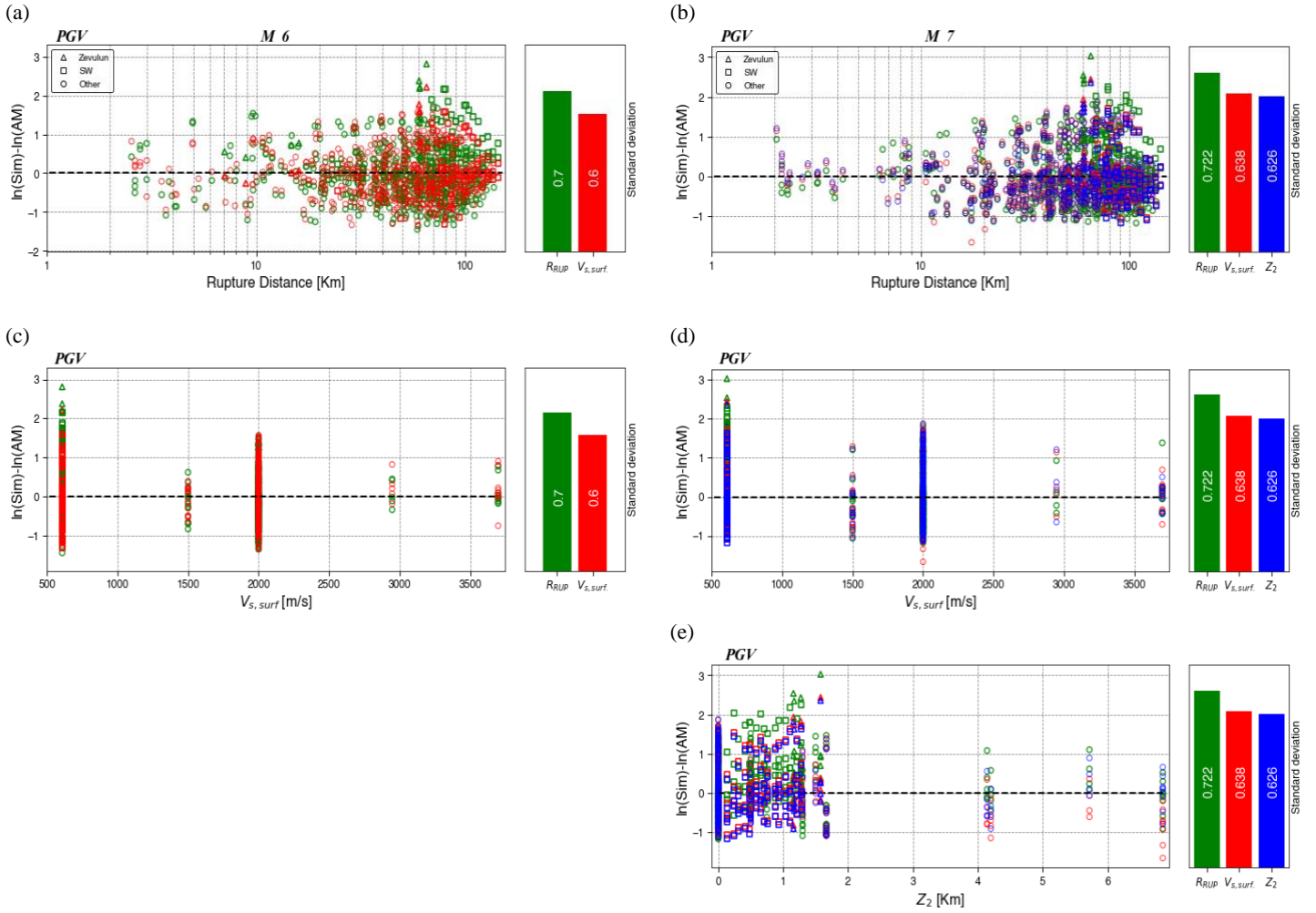
Figure S3. Residuals between simulated and attenuation model (AM) PGV for M 6 (left) and M 7 (right), as a function of each of the explanatory variables; (a) and (b) rupture distance (R_{RUP}), (c) and (d) surface shear wave velocity ($V_{S, surf}$), (e) depth to $Vs = 2$ km/s beneath the site (Z_2). The green, red and blue colors correspond to the residual's standard deviation, evolving with each added explanatory variable (green- R_{RUP}, red- R_{RUP} and $V_{S, surf}$, blue- R_{RUP}, $V_{S, surf}$ and Z_2). The records from Zevulun valley and the Sedimentary wedge marked with triangles and rectangles respectively. The other records marked with circles.
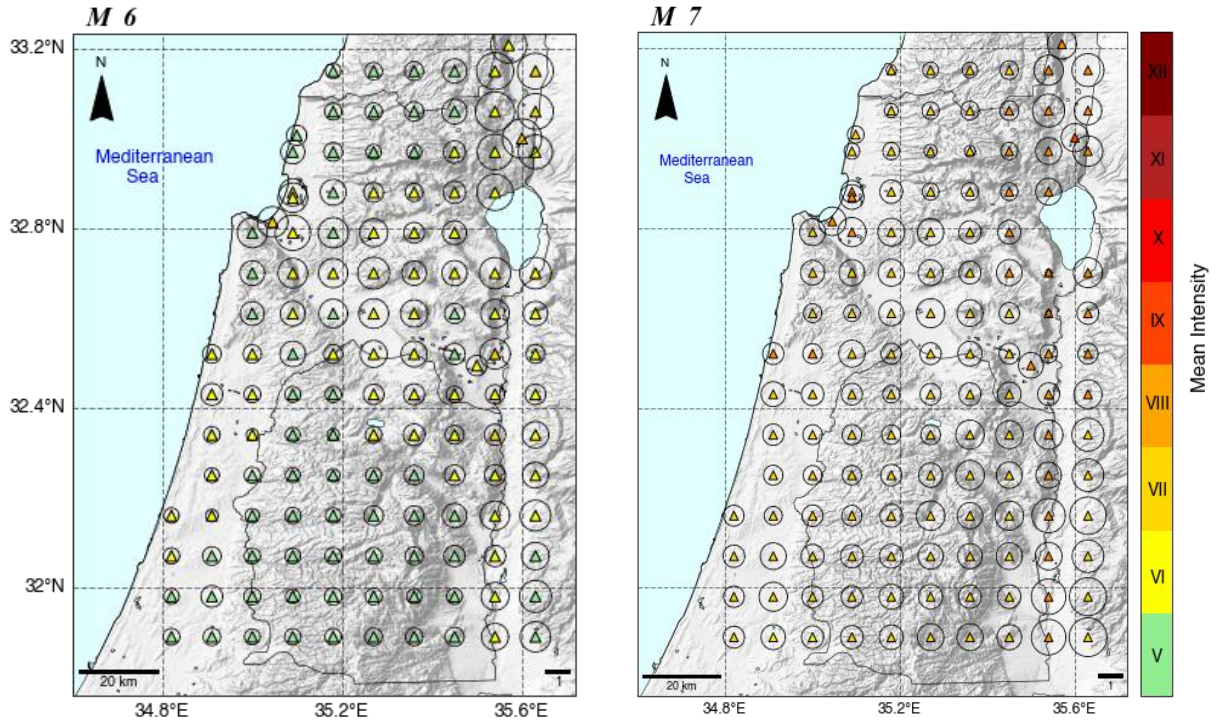
Figure S4. Map view of simulated mean EMS intensity calculated according to Kaestli & Fäh, (2006) and rounded off to the nearest integer (triangles) for M 6 (left) and M 7 (right) and their standard deviation (diameter of the circles) at each station.