S1. Seismicity analysis parameters

Table S1. Completeness matrix for each source group of the homogenous area source model.

Source Group	Magnitude	Bin width	Starting year	Ending year
	4.25	0.25	1990	2020
	4.50	0.25	1965	2020
	4.75	0.25	1965	2020
	5.00	0.50	1950	2020
A	5.50	0.50	1920	2020
	6.00	0.50	1900	2020
	6.50	1.00	1850	2020
	7.50	1.00	1800	2020
	4.25	0.25	1980	2020
	4.50	0.25	1965	2020
	4.75	0.25	1965	2020
B	5.00	0.50	1950	2020
	5.50	0.50	1905	2020
	6.00	0.50	1900	2020
	6.50	1.00	1850	2020
	4.50	0.25	1960	2020
	4.75	0.25	1960	2020
	5.00	0.50	1950	2020
C	5.50	0.50	1920	2020
	6.00	0.50	1900	2020
	6.50	0.50	1900	2020
	7.00	1.00	1900	2020
	4.50	0.25	1960	2020
	4.75	0.25	1960	2020
	5.00	0.50	1950	2020
D	5.50	0.50	1920	2020
	6.00	1.00	1850	2020
	7.00	1.00	1800	2020
E	4.00	0.50	2000	2020
	4.50	0.50	1960	2020
	4.00	0.50	1990	2020
	4.50	0.50	1970	2020
F	5.00	0.50	1950	2020
	5.50	0.50	1920	2020
	6.00	0.50	1900	2020
G	4.50	0.25	1980	2020

	4.75	0.25	1960	2020
	5.00	0.50	1930	2020
	5.50	0.50	1910	2020
	6.00	1.00	1900	2020
	7.00	1.00	1850	2020
	4.25	0.25	1990	2020
	4.50	0.25	1965	2020
	4.75	0.25	1965	2020
H	5.00	0.50	1950	2020
	5.50	0.50	1920	2020
	6.00	1.00	1900	2020
	7.00	1.00	1850	2020
	4.25	0.25	1990	2020
	4.50	0.25	1965	2020
K	4.75	0.25	1965	2020
	5.00	0.50	1950	2020
	5.50	1.50	1900	2020
	4.00	0.50	2000	2020
	4.50	0.50	1980	2020
	5.00	0.50	1950	2020
L	5.50	1.00	1920	2020
	6.50	1.00	1900	2020
	7.50	1.00	1800	2020
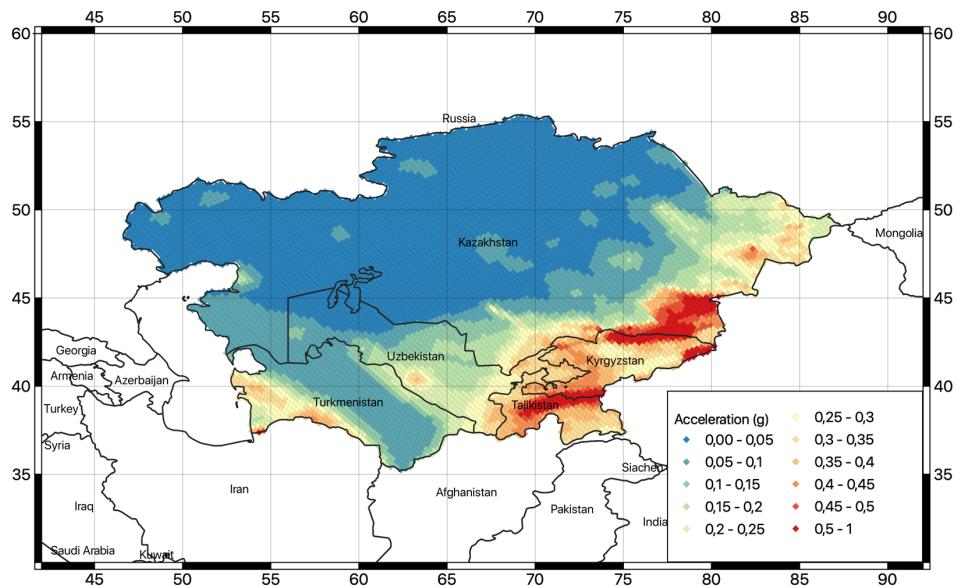
Figure S1. Map of the computed peak ground accelerations (PGA) with 5% probability of exceedance for 50 years investigation time (corresponding to about 1000 years return period) on rock conditions (Vs30 of 800m/s).
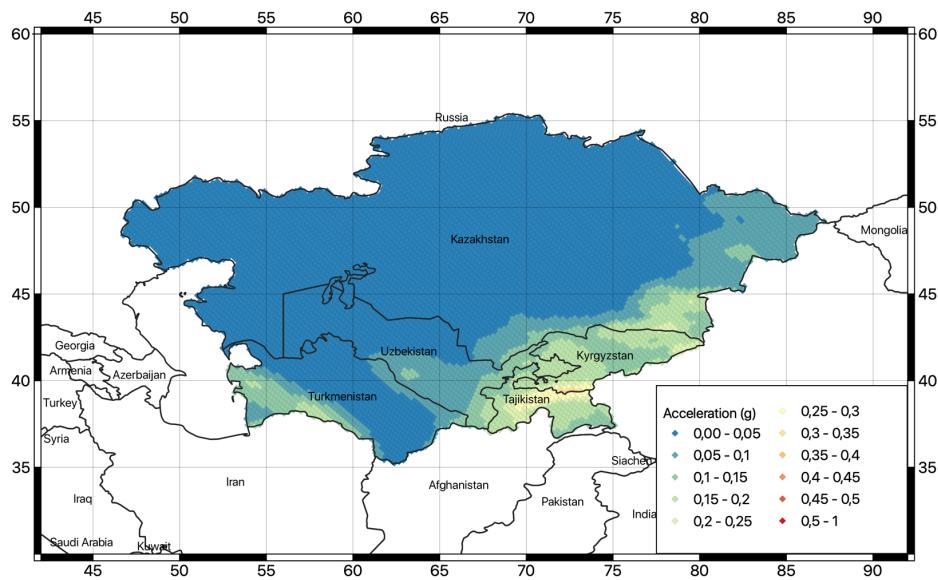
Figure S2. Map of the computed peak ground accelerations (PGA) with 39% probability of exceedance for 50 years investigation time (corresponding to about 100 years return period) on rock conditions (Vs30 of 800m/s).
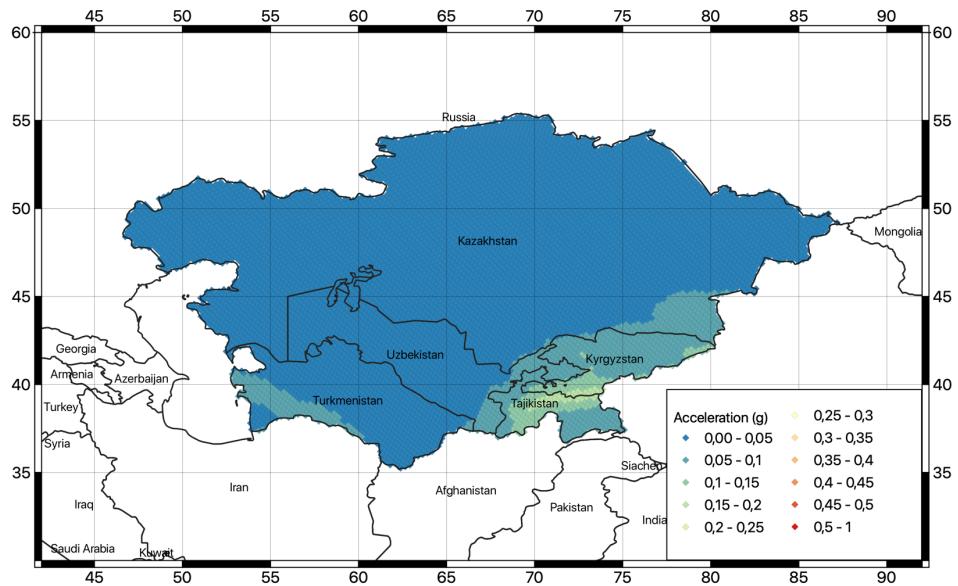
Figure S3. Map of the computed peak ground accelerations (PGA) with 89% probability of exceedance for 50 years investigation time (corresponding to about 25 years return period).

S3. Previous PSHA studies for Central Asia
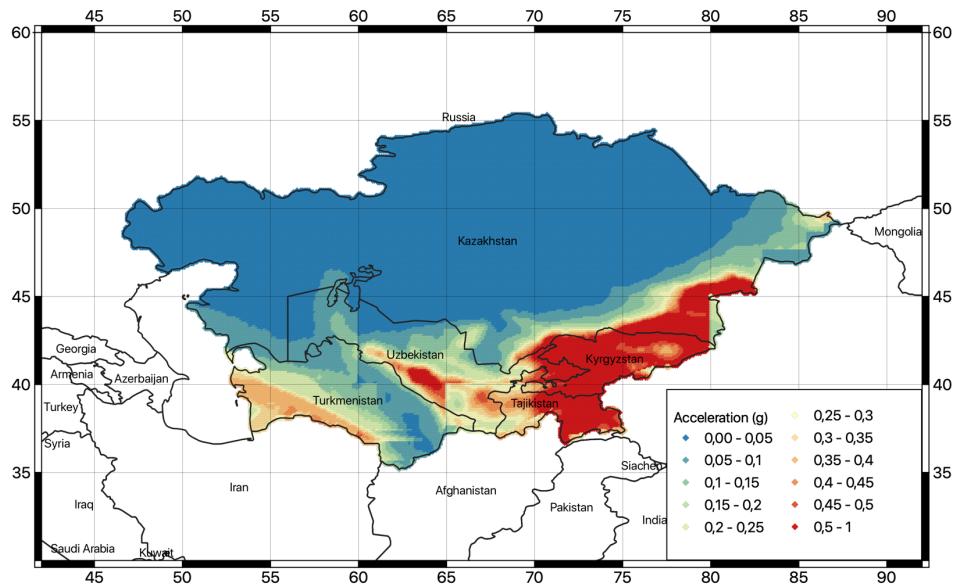
Figure S4. Map of the computed peak ground accelerations (PGA) with 10% probability of exceedance for 50 years investigation time from the Global Seismic Hazard Assessment Program (GSHAP, Giardini et al. 1999).
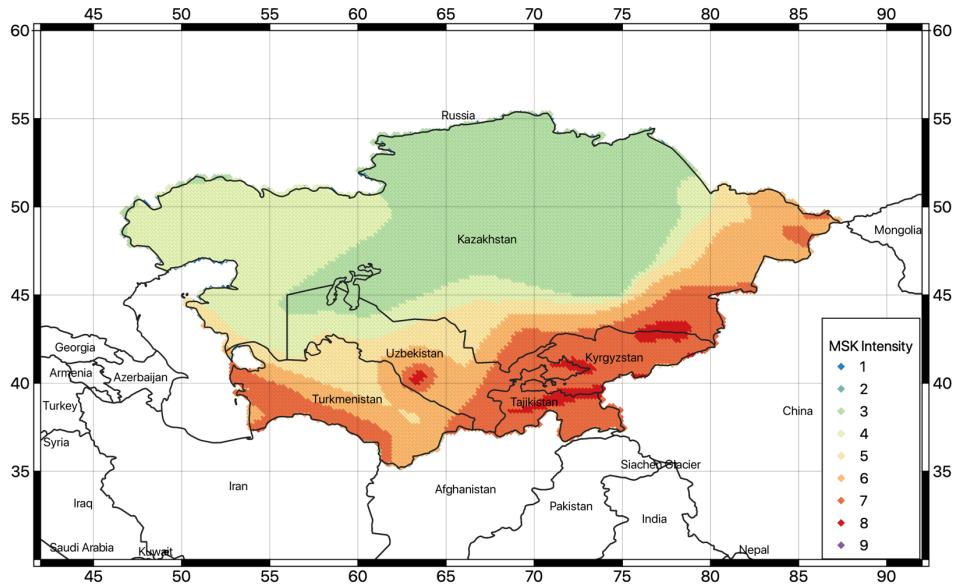
Figure S5. Map of the macroseismic intensity (MSK) with 10% probability of exceedance for 50 years investigation time computed by Ullah et al. (2015) within the EMCA project.