

**Supplementary materials**

**Appendix A**

The seismicity parameters as well as the Gutenberg-Richter parameters normalized to 1 million km<sup>2</sup> used for the seismic source models SM1, SM2 and SM3F are summarized here.

**Table S1.** Seismicity parameters for seismic source zones of SM1.

Zones	a	b	Mmax	H (kms)	Source type
Z1+Z2+Z3	5.5116 ± 0.1077	1.0224 ± 0.0196	7.0 – 7.5	2.0 – 10.0	Crustal
Z4+Z5	5.2059 ± 0.1287	1.0295 ± 0.0129	7.0 – 7.5	2.0 – 10.0	Crustal
Z6	4.7341 ± 0.3354	0.9733 ± 0.0999	7.0 – 7.5	2.0 – 10.0	Crustal
Z7	5.4183 ± 0.1493	0.9796 ± 0.009	7.0 – 7.5	2.0 – 10.0	Crustal
Z8	5.2671 ± 0.2869	1.0021 ± 0.0979	7.0 – 7.5	2.0 – 10.0	Crustal
Z9	5.9555 ± 0.1179	0.9969 ± 0.0760	8.5 – 9.0	2.0 – 20.0	Subduction like
Z10	6.2388 ± 0.1152	1.0090 ± 0.0734	8.5 – 9.0	2.0 – 20.0	Subduction like
Z11	5.4916 ± 0.1032	0.8740 ± 0.0639	8.5 – 9.0	2.0 – 20.0	Subduction like
Z12	5.4179 ± 0.1364	0.8698 ± 0.0704	8.5 – 9.0	2.0 – 20.0	Subduction like
Z13	6.0514 ± 0.1481	1.0171 ± 0.0897	8.5 – 9.0	2.0 – 20.0	Subduction like
Z14	5.8445 ± 0.1308	0.9825 ± 0.0784	8.5 – 9.0	2.0 – 20.0	Subduction like
Z15	5.7769 ± 0.1349	0.9870 ± 0.0831	8.5 – 9.0	2.0 – 20.0	Subduction like
Z16	6.0788 ± 0.0918	0.9552 ± 0.0574	8.5 – 9.0	2.0 – 20.0	Subduction like
Z17	5.6305 ± 0.1174	0.8703 ± 0.0586	8.5 – 9.0	2.0 – 20.0	Subduction like
Z18	5.8247 ± 0.1354	0.9611 ± 0.0728	8.5 – 9.0	2.0 – 20.0	Subduction like
Z19	5.5197 ± 0.1963	1.0066 ± 0.0955	6.5 – 7.0	2.0 – 30.0	Crustal
Z20	5.6088 ± 0.1571	1.0121 ± 0.0907	6.5 – 7.0	2.0 – 30.0	Crustal
Z21	5.6735 ± 0.2089	1.0341 ± 0.0962	6.5 – 7.0	2.0 – 30.0	Crustal
Z22	5.9706 ± 0.1168	1.0122 ± 0.0700	6.5 – 7.0	2.0 – 30.0	Crustal
Z23	5.9224 ± 0.1117	1.0288 ± 0.0763	6.5 – 7.0	2.0 – 30.0	Crustal
Z24	4.4420 ± 0.0939	0.9716 ± 0.0157	7.0 – 7.5	2.0 – 20.0	Crustal

\*Gutenberg-Richter parameter (a-parameter) normalized to 1 million km<sup>2</sup>

**Table S2.** Seismicity parameters for seismic source zones of SM2.

Zones	a	b	Mmax	H (kms)	Source type
S1	4.6205 ± 0.1064	1.0118 ± 0.0229	7.0 – 7.5	2.0 – 10.0	Crustal
S2	4.9875 ± 0.121	0.9431 ± 0.0284	7.0 – 7.5	2.0 – 10.0	Crustal
S3	5.5022 ± 0.1715	1.0161 ± 0.0944	6.5 – 7.0	2.0 – 10.0	Crustal
S4	5.8141 ± 0.1560	1.0140 ± 0.0908	6.5 – 7.0	2.0 – 10.0	Crustal
S5	5.3073 ± 0.1835	1.0340 ± 0.0951	6.5 – 7.0	2.0 – 10.0	Crustal
S6	5.6711 ± 0.0868	0.8950 ± 0.0191	8.2 – 8.5	2.0 – 20.0	Subduction like
S7	6.0245 ± 0.1097	0.9893 ± 0.0732	7.5 – 8.0	2.0 – 20.0	Subduction like
S8	6.0960 ± 0.0952	0.9062 ± 0.0573	7.5 – 8.0	2.0 – 20.0	Subduction like
S9	5.8626 ± 0.1168	0.9196 ± 0.0677	7.5 – 8.0	2.0 – 20.0	Subduction like
S10	5.7008 ± 0.1190	0.9215 ± 0.0799	7.5 – 8.0	2.0 – 20.0	Subduction like
S11	5.9643 ± 0.0858	0.9945 ± 0.0189	7.0 – 7.5	2.0 – 30.0	Crustal
S12	5.5969 ± 0.1786	1.0251 ± 0.0931	7.0 – 7.5	2.0 – 30.0	Crustal
S13	5.7108 ± 0.1609	0.9947 ± 0.0918	7.0 – 7.5	2.0 – 30.0	Crustal
S14	5.7029 ± 0.1591	1.0410 ± 0.0874	8.5 – 9.0	2.0 – 30.0	Subduction like
S15	5.3592 ± 0.1000	0.8685 ± 0.0604	8.5 – 9.0	2.0 – 30.0	Subduction like
S16	5.4728 ± 0.1478	0.9537 ± 0.0815	8.5 – 9.0	2.0 – 30.0	Subduction like
S17	5.6933 ± 0.1182	0.9792 ± 0.0764	7.0 – 7.5	2.0 – 30.0	Crustal
S18	5.4921 ± 0.1241	0.9818 ± 0.0843	7.0 – 7.5	2.0 – 30.0	Crustal
S19	5.8892 ± 0.1505	1.0594 ± 0.0903	7.0 – 7.5	2.0 – 30.0	Crustal

\*Gutenberg-Richter parameter (a-parameter) normalized to 1 million km<sup>2</sup>

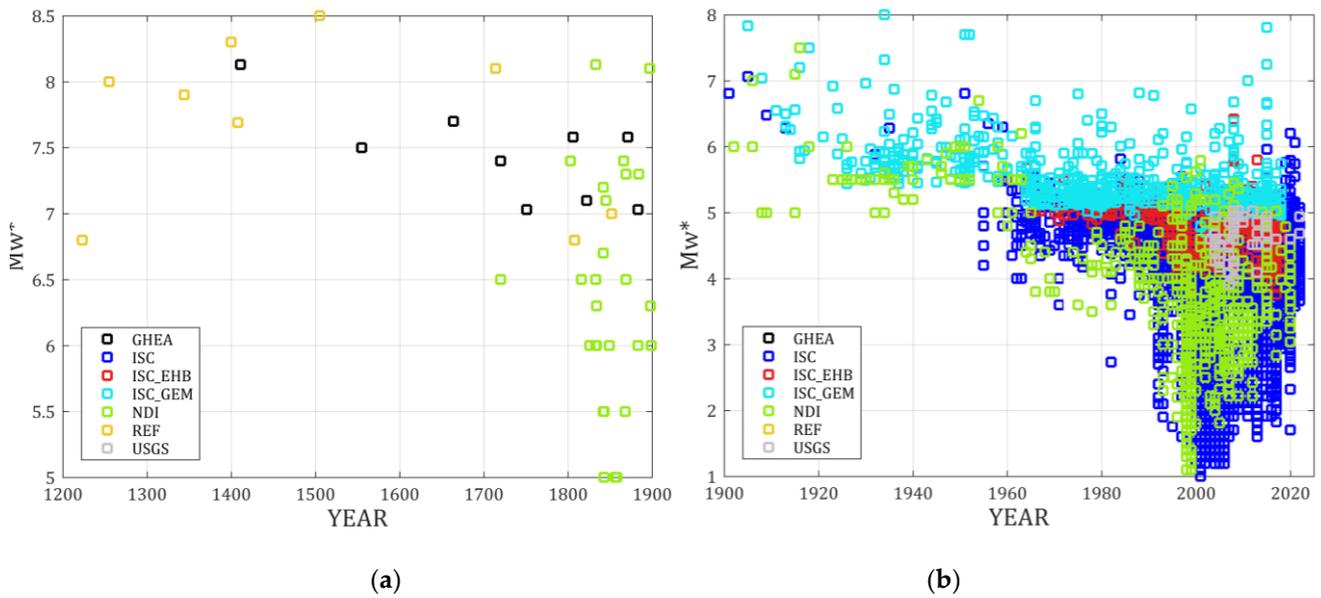
**Table S3.** Seismicity parameters for seismic source zones of SM3F.

Zones	a	b	Mmax	H (kms)	Source type
NPL_NORTH	$5.4714 \pm 0.0502$	$0.9016 \pm 0.0109$	8.0	2.0 – 30.0	Subduction like
NPL_SOUTH	$4.8287 \pm 0.0930$	$0.9867 \pm 0.0203$	7.0 - 7.5	2.0 – 10.0	Crustal

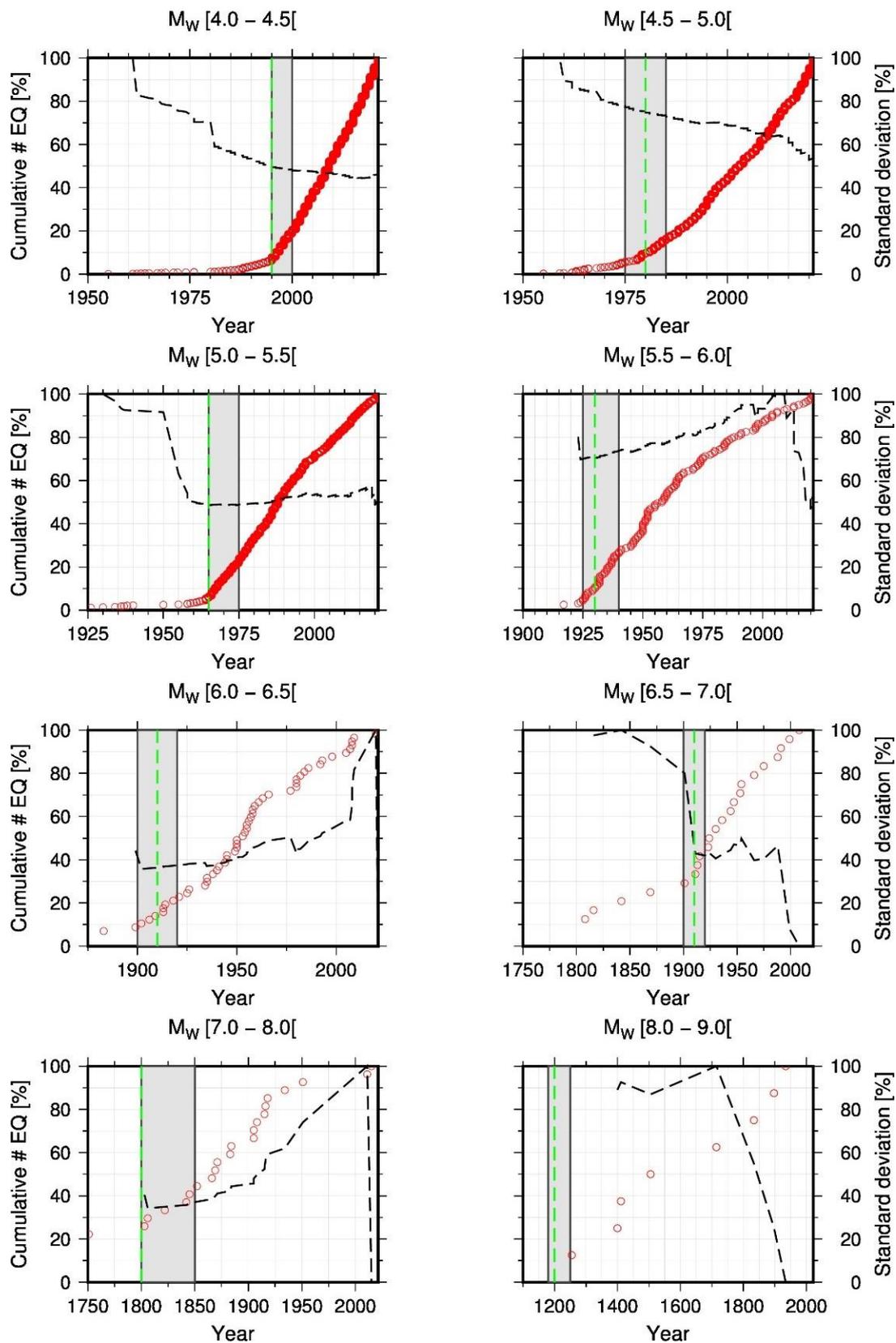
\*Gutenberg-Richter parameter (a-parameter) normalized to 1 million km<sup>2</sup>

**Appendix B**

Here are presented supplementary data regarding the distribution of the epicentral location sources (**Figure S1**) and the completeness analysis for the range of magnitude considered in the study (**Figure S2**).



**Figure S1.** Distribution of epicentral location sources through different time periods of history. (a) up to year 1900; (b) after year 1900.



**Figure S2.** Completeness analysis, cumulative number of earthquakes as a function of time (red circles), inter-event variance (black dashed line), best-estimate is shown as green dashed line, gray shade represents the lower to upper estimates