

1 **Supplementary Material**

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3 **to the paper “Scenario-based earthquake hazard and risk assessment for Baku (Azerbaijan)”**
4 **by G. Babayev, A. Ismail-Zadeh and J.-L. Le Mouél**

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6 The Supplementary Material helps a reader to see the data used in the analysis and risk maps developed by using various model parameters.
7 The Material contains Table S1 and four Figures S1-S4.

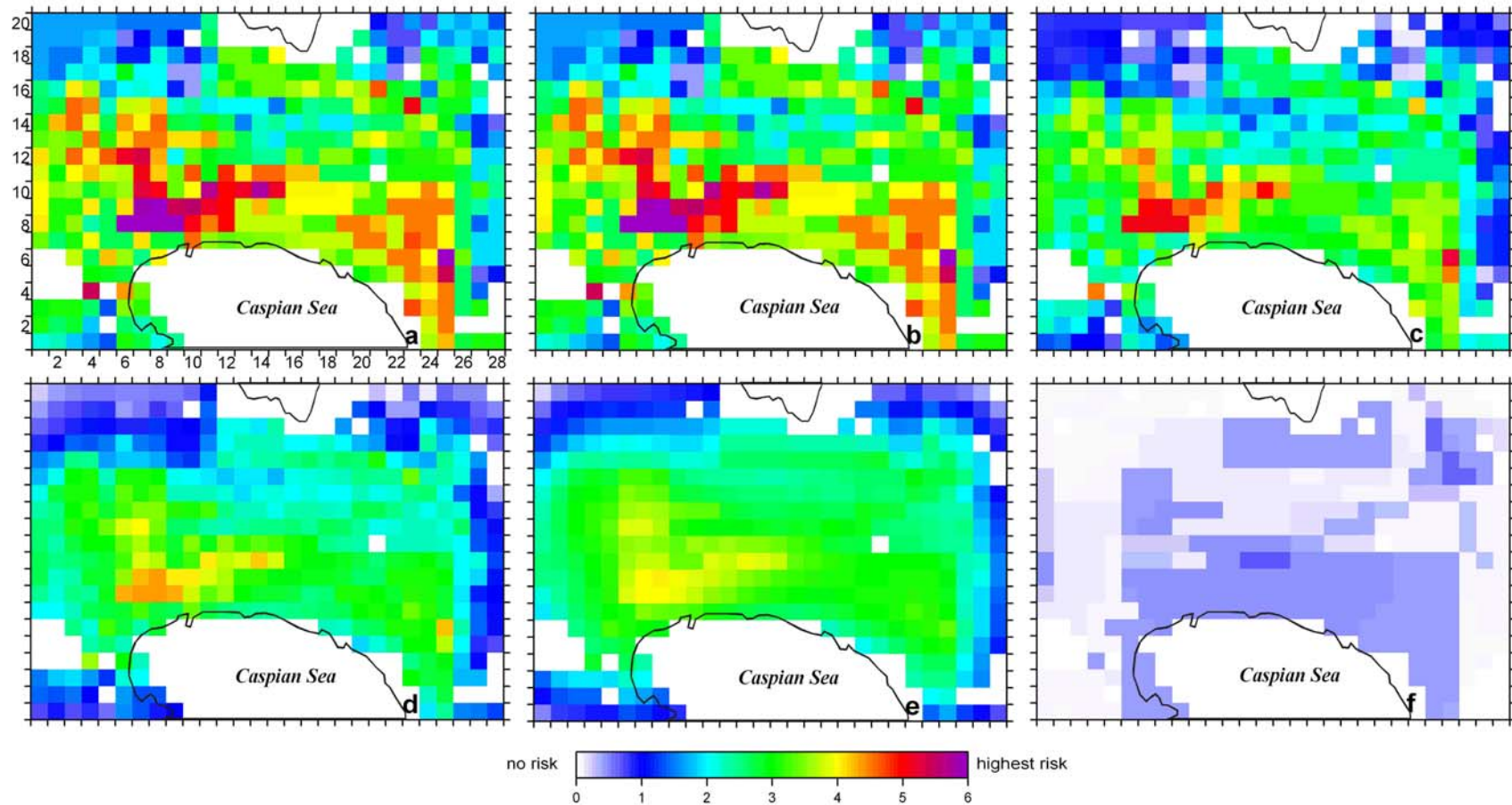
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9 **Table S1** consists of the input data (the subsurface model type, building classification, soil conditions, landslide’s occurrence, population
10 distribution, coefficient of exposed values, and GDP) and the output data (the surface PGA and the probability of moderate damage
11 exceeding).

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13 **Figures S1-S4** present earthquake risk models for the *near, local, far, and extreme event* scenarios, respectively.

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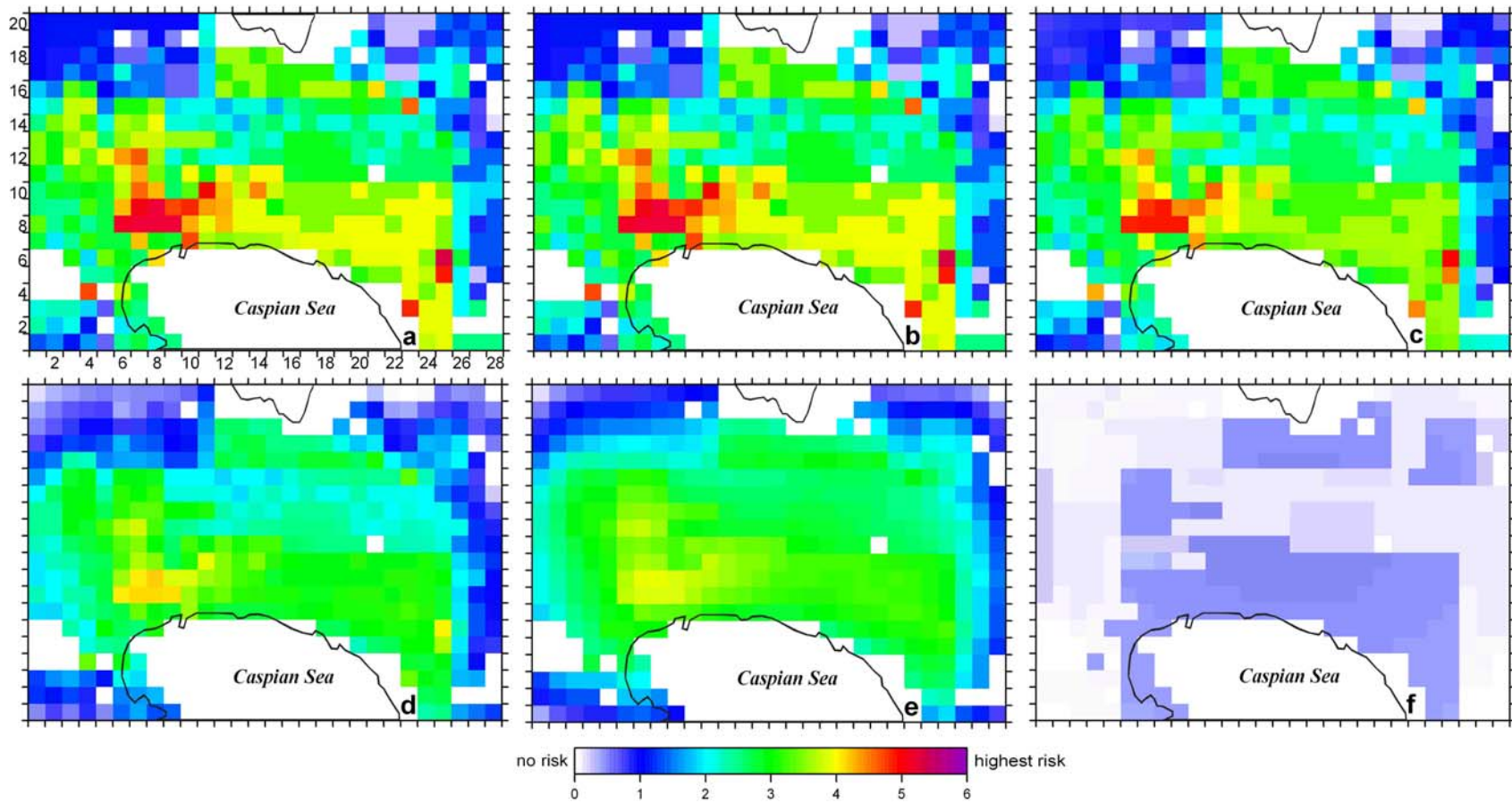
151	6	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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153	6	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	6	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	6	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
156	6	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	6	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
158	6	18	C2	140.69	236.64	138.68	224.93	1	0	0	0	0.0018	0.00857	0.00173	0.00736	0.9	0.1	29525	0.9	174454
159	6	19	C2	140.69	237.09	138.68	224.80	1	0	0	0	0.0018	0.00862	0.00173	0.00735	0.9	0.1	40154	0.3	174454
160	6	20	D4	140.69	237.48	138.68	224.67	1	0	0	0	0.0018	0.00866	0.00173	0.00733	0.9	0.1	44288	0.9	174454
161	6	21	D4	140.68	237.79	138.68	224.54	1	0	0	0	0.0018	0.0087	0.00173	0.00732	0.9	0.1	44288	0.9	174454
162	6	22	D4	140.68	238.04	138.68	224.42	0	1	0	0	0.00936	0.00872	0.00897	0.03801	0.1	0.1	44288	0.9	174454
163	6	23	D4	140.67	238.21	138.68	224.29	0	1	0	0	0.00936	0.00874	0.00897	0.03795	0.1	0.1	44288	0.9	174454
164	6	24	D4	140.67	238.32	138.68	224.16	0	1	0	0	0.00936	0.00875	0.00897	0.03788	0.1	0.1	44288	0.3	174454
165	6	25	D4	140.66	238.36	138.67	224.03	0	0.5	0	0.5	0.04788	0.02715	0.04587	0.19344	0.5	0.9	44288	0.9	174454
166	6	26	D4	62.01	105.07	61.14	98.71	0	0	1	0	0.00493	0.0039	0.00473	0.01991	0.1	0.1	44288	0.3	174454
167	6	27	C3	66.54	112.70	65.61	105.87	0	1	0	0	0.00099	0.00093	0.00095	0.00399	0.1	0.1	10039	0.9	39543
168	6	28	C3	66.53	112.62	65.61	105.81	0	1	0	0	0.00099	0.00092	0.00095	0.00398	0.1	0.1	10039	0.9	39543
169	7	1	A4	67.80	107.09	67.14	109.90	0	1	0	0	0.00105	0.00079	0.00102	0.00446	0.1	0.1	44288	0.9	262844
170	7	2	C3	66.30	105.32	65.65	107.40	0	1	0	0	0.00098	0.00076	0.00095	0.00417	0.1	0.1	66727	0.1	262844
171	7	3	C3	66.31	105.92	65.65	107.34	0	1	0	0	0.00098	0.00077	0.00095	0.00416	0.1	0.1	66727	0.3	262844
172	7	4	D4	61.80	99.25	61.17	99.96	0.34	0.33	0	0.33	0.00273	0.00151	0.00265	0.01156	0.1	0.1	66727	0.9	262844
173	7	5	D4	61.80	99.77	61.17	99.90	1	0	0	0	0.00015	0.00064	0.00015	0.00064	0.1	0.1	66727	0.9	262844
174	7	6	D4	61.81	100.29	61.17	99.84	1	0	0	0	0.00015	0.00065	0.00015	0.00064	0.1	0.1	66727	0.9	262844
175	7	7	C2	140.22	228.60	138.76	226.35	1	0	0	0	0.00178	0.00773	0.00173	0.0075	0.9	0.1	66727	0.9	262844
176	7	8	C2	140.23	229.67	138.76	226.22	1	0	0	0	0.00178	0.00784	0.00173	0.00749	0.9	0.1	15353	0.9	60477
177	7	9	C2	140.24	230.71	138.76	226.09	1	0	0	0	0.00178	0.00794	0.00173	0.00747	0.9	0.1	11810	0.9	60477
178	7	10	C2	140.25	231.69	138.76	225.96	1	0	0	0	0.00178	0.00804	0.00173	0.00746	0.9	0.1	106290	0.9	465211
179	7	11	C2	140.26	232.63	138.76	225.83	1	0	0	0	0.00178	0.00814	0.00173	0.00745	0.9	0.1	26573	0.9	174454
180	7	12	C2	140.27	233.51	138.76	225.70	1	0	0	0	0.00178	0.00823	0.00173	0.00744	0.9	0.1	16534	0.9	174454
181	7	13	C2	140.27	234.34	138.76	225.57	1	0	0	0	0.00178	0.00832	0.00173	0.00742	0.9	0.1	20668	0.9	174454
182	7	14	C2	140.28	235.11	138.76	225.44	1	0	0	0	0.00179	0.00841	0.00173	0.00741	0.9	0.1	23030	0.9	174454
183	7	15	C2	140.28	235.82	138.76	225.31	1	0	0	0	0.00179	0.00848	0.00173	0.0074	0.9	0.1	25392	0.9	174454
184	7	16	C2	140.29	236.47	138.76	225.18	1	0	0	0	0.00179	0.00855	0.00173	0.00738	0.9	0.1	35430	0.9	174454
185	7	17	C2	140.29	237.06	138.76	225.06	1	0	0	0	0.00179	0.00862	0.00173	0.00737	0.9	0.1	44288	0.9	174454
186	7	18	C2	140.29	237.58	138.76	224.93	1	0	0	0	0.00179	0.00867	0.00173	0.00736	0.9	0.1	44288	0.9	174454
187	7	19	C2	140.29	238.04	138.76	224.80	1	0	0	0	0.00179	0.00872	0.00173	0.00735	0.9	0.1	44288	0.9	174454
188	7	20	C2	140.29	238.43	138.76	224.67	0	1	0	0	0.00929	0.00877	0.00899	0.03814	0.9	0.1	44288	0.9	174454
189	7	21	C2	140.28	238.75	138.76	224.54	0	1	0	0	0.00928	0.0088	0.00899	0.03808	0.1	0.1	44288	0.9	174454
190	7	22	C2	140.28	238.99	138.76	224.42	1	0	0	0	0.00179	0.00883	0.00173	0.00731	0.1	0.1	44288	0.9	174454
191	7	23	C2	140.27	239.17	138.76	224.29	0	0.5	0	0.5	0.04748	0.02743	0.04596	0.19411	0.1	0.1	44288	0.3	174454
192	7	24	C2	140.27	239.28	138.76	224.16	0	1	0	0	0.00928	0.00886	0.00899	0.03788	0.1	0.1	44288	0.9	174454
193	7	25	D4	140.26	239.32	138.76	224.03	0	1	0	0	0.00928	0.00886	0.00899	0.03782	0.5	0.1	44288	0.3	174454
194	7	26	D4	61.83	105.49	61.17	98.71	0	1	0	0	0.00079	0.00076	0.00077	0.00323	0.1	0.1	44288	0.3	174454
195	7	27	C3	66.35	113.16	65.65	105.87	0	1	0	0	0.00098	0.00094	0.00095	0.00399	0.1	0.1	10039	0.9	39543
196	7	28	C3	66.35	113.07	65.65	105.81	0	1	0	0	0.00098	0.00093	0.00095	0.00398	0.1	0.1	10039	0.9	39543
197	8	1	A2	92.40	146.81	91.81	150.20	0	1	0	0	0.00265	0.00205	0.0026	0.0114	0.1	0.1	56098	0.9	262844
198	8	2	C3	66.12	105.66	65.69	107.40	0	1	0	0	0.00097	0.00076	0.00095	0.00417	0.1	0.1	66727	0.3	262844
199	8	3	C3	66.12	106.26	65.69	107.34	0	1	0	0	0.00097	0.00078	0.00095	0.00416	0.1	0.1	66727	0.9	262844
200	8	4	C3	66.13	106.85	65.69	107.27	1	0	0	0	0.00019	0.00079	0.00018	0.0008	0.1	0.1	66727	0.3	262844
201	8	5	D4	61.63	100.10	61.21	99.90	1	0	0	0	0.00015	0.00065	0.00015	0.00064	0.1	0.1	66727	0.9	262844
202	8	6	C4	139.81	228.23	138.84	226.48	0.5	0	0	0.5	0.0433	0.02384	0.04241	0.18407	0.1	0.1	118100	0.9	465211
203	8	7	C4	139.82	229.37	138.84	226.35	0.5	0	0	0.5	0.04331	0.02419	0.04241	0.18375	0.1	0.1	118100	0.9	465211

522	19	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
523	19	19	C4	135.57	244.22	139.79	224.80	0	0	0	0	0	0	0	0	0.1	0.1	1181	0.1	4652
524	19	20	C4	135.57	244.65	139.79	224.67	0	1	0	0	0.00838	0.00947	0.00919	0.03814	0.1	0.1	4724	0.9	18608
525	19	21	C4	135.57	245.00	139.79	224.54	0	1	0	0	0.00838	0.00951	0.00919	0.03807	0.1	0.1	4724	0.1	18608
526	19	22	C3	64.14	116.04	66.14	106.17	0	1	0	0	0.00089	0.00101	0.00097	0.00403	0.1	0.1	4724	0.3	18608
527	19	23	C3	64.13	116.13	66.14	106.11	0	1	0	0	0.00089	0.00101	0.00097	0.00402	0.1	0.1	4724	0.3	18608
528	19	24	C3	105.93	116.19	66.14	106.05	0	1	0	0	0.004	0.00101	0.00097	0.00401	0.1	0.1	4724	0.9	18608
529	19	25	C3	64.13	116.21	66.14	105.99	0	1	0	0	0.00089	0.00102	0.00097	0.004	0.1	0.1	7677	0.9	30239
530	19	26	C3	64.12	116.19	66.14	105.93	0	1	0	0	0.00089	0.00101	0.00097	0.004	0.1	0.1	10039	0.9	39543
531	19	27	C3	64.12	116.13	66.14	105.87	0	1	0	0	0.00089	0.00101	0.00097	0.00399	0.1	0.1	10039	0.6	39543
532	19	28	C3	64.12	116.04	66.13	105.81	0	1	0	0	0.00089	0.00101	0.00097	0.00398	0.1	0.1	10039	0.9	39543
533	20	1	A4	65.34	109.41	67.68	109.90	0	1	0	0	0.00094	0.00085	0.00104	0.00446	0.1	0.1	7677	0.9	30239
534	20	2	A4	65.35	110.08	67.68	109.84	0	1	0	0	0.00094	0.00086	0.00104	0.00446	0.1	0.1	7677	0.9	30239
535	20	3	A4	65.35	110.74	67.68	109.77	0	1	0	0	0.00094	0.00088	0.00104	0.00445	0.1	0.1	7677	0.9	30239
536	20	4	A4	65.36	111.39	67.68	109.71	0	1	0	0	0.00094	0.00089	0.00104	0.00444	0.1	0.1	7677	0.9	30239
537	20	5	A4	65.37	112.02	67.68	109.65	0	1	0	0	0.00094	0.00091	0.00104	0.00443	0.1	0.1	7677	0.9	30239
538	20	6	D4	59.56	102.61	61.66	99.84	0	1	0	0	0.00071	0.0007	0.00079	0.00335	0.1	0.1	7677	0.9	30239
539	20	7	D4	59.57	103.15	61.66	99.79	0	1	0	0	0.00071	0.00071	0.00079	0.00334	0.1	0.1	7677	0.9	30239
540	20	8	C1	59.57	103.67	61.66	99.73	0	1	0	0	0.00071	0.00072	0.00079	0.00334	0.1	0.1	7677	0.9	30239
541	20	9	C1	59.58	104.16	61.66	99.67	0	1	0	0	0.00071	0.00073	0.00079	0.00333	0.1	0.1	7677	0.9	30239
542	20	10	C1	59.58	104.63	61.66	99.61	0	1	0	0	0.00071	0.00074	0.00079	0.00332	0.5	0.1	7677	0.9	30239
543	20	11	C1	59.59	105.08	61.66	99.56	0	1	0	0	0.00071	0.00075	0.00079	0.00332	0.5	0.1	30116	0.6	118629
544	20	12	D2	135.17	239.32	139.87	225.70	0	0	0	0	0	0	0	0	0.5	0.1	1181	0.9	4652
545	20	13	D2	135.17	240.22	139.87	225.57	0	0	0	0	0	0	0	0	0.1	0.1	1181	0.9	4652
546	20	14	D2	135.18	241.06	139.87	225.44	0	0	0	0	0	0	0	0	0.1	0.1	1181	0.9	4652
547	20	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
548	20	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
549	20	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
550	20	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
551	20	19	D4	59.60	107.68	61.67	99.10	0	0	0	0	0	0	0	0	0.1	0.1	1181	0.6	4652
552	20	20	D4	59.60	107.87	61.67	99.05	0	0	0	0	0	0	0	0	0.1	0.1	1181	0.6	4652
553	20	21	D4	59.60	108.03	61.67	98.99	0	1	0	0	0.00071	0.00082	0.00079	0.00326	0.1	0.1	4724	0.9	18608
554	20	22	C3	63.95	116.06	66.18	106.17	0	1	0	0	0.00088	0.00101	0.00097	0.00403	0.1	0.1	4724	0.3	18608
555	20	23	C3	105.83	116.15	66.18	106.11	0	1	0	0	0.00399	0.00101	0.00097	0.00402	0.1	0.1	4724	0.3	18608
556	20	24	C3	63.95	116.21	66.18	106.05	0	1	0	0	0.00088	0.00102	0.00097	0.00401	0.1	0.1	4724	0.3	18608
557	20	25	C3	63.95	116.23	66.18	105.99	0	1	0	0	0.00088	0.00102	0.00097	0.004	0.1	0.1	10039	0.9	39543
558	20	26	C3	63.94	116.21	66.18	105.93	0	1	0	0	0.00088	0.00102	0.00097	0.004	0.1	0.1	10039	0.6	39543
559	20	27	C3	63.94	116.15	66.18	105.87	0	1	0	0	0.00088	0.00101	0.00097	0.00399	0.1	0.1	10039	0.9	39543
560	20	28	C3	63.93	116.06	66.18	105.81	0	1	0	0	0.00088	0.00101	0.00097	0.00398	0.1	0.1	10039	0.3	39543



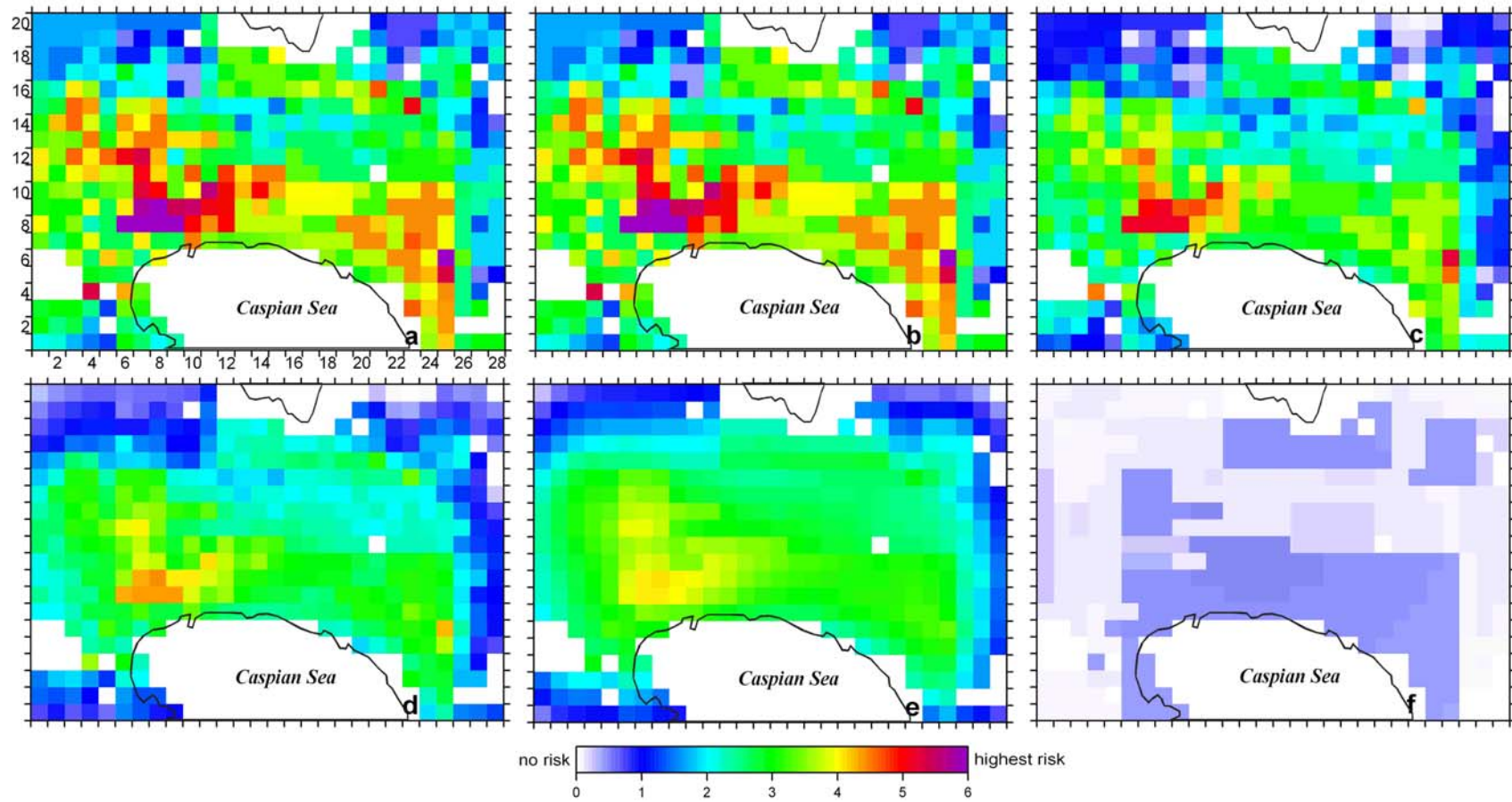
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Figure S1. Earthquake risk models for the *near event* scenario. The models here and in Figs. S2-S4 represent the product of functions f_k , $k = 1, 2, 3, 4, 5$, and 6 (panel **a**) and the convolution of the functions for various parameter β : (panel **b**) 10^{10} , (**c**) 10^5 , (**d**) 10^4 , (**e**) 10^3 , and (**f**) 0.1 .



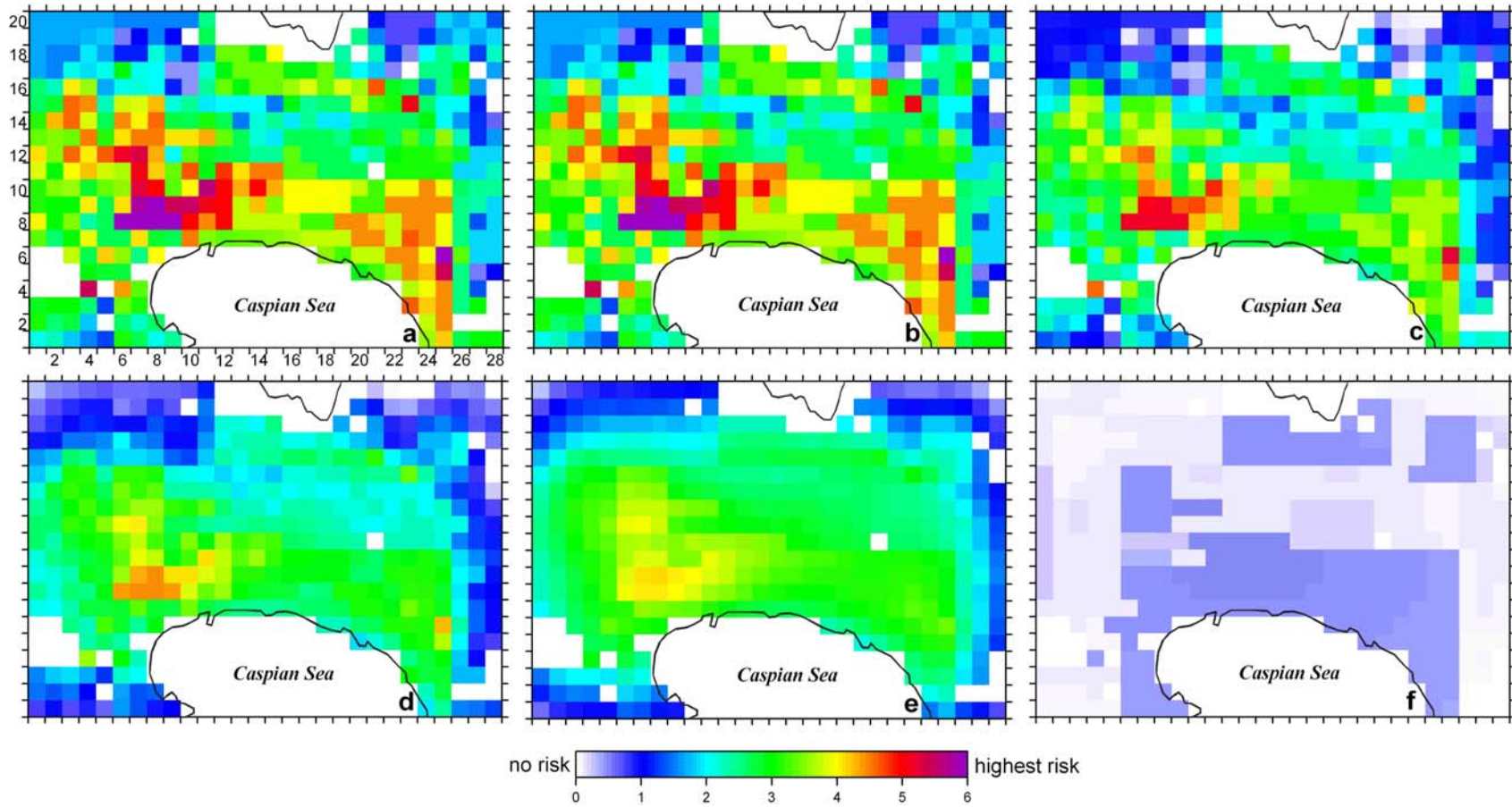
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Figure S2. Earthquake risk models for the *local event* scenario. See Fig. S1 for detail.



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Figure S3. Earthquake risk models for the *far event* scenario. See Fig. S1 for detail.



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Figure S4. Earthquake risk models for the *extreme event* scenario. See Fig. S1 for detail.