Earth **Surface**
Dynamics

Supplement of

Seismic detection of rockslides at regional scale: examples from the Eastern Alps and feasibility of kurtosis-based event location

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Earthquake reference dataset for discrimination measures

In order to test our event discrimination method (see Section 3, main manuscript) we downloaded from the European Integrated Data Archive (EIDA) waveform data for 31 earthquakes (M_l<3.5) that occurred within the period 08/2015 to 01/2016 in the same region as the rockslides. The events were taken from the EMSC catalog. Vertical component data (at the highest available sampling rate; ranging from 20 Hz to 120 Hz) was downloaded for two minutes before to 10 minutes after each origin time. Data was from permanent stations only (temporary AlpArray stations were not available for late 2015), with distances up to 300 km from the epicenter.

△ = permanent stations   ▲ = temporary AlpArray stations   ● = rockslides   ★ = earthquakes
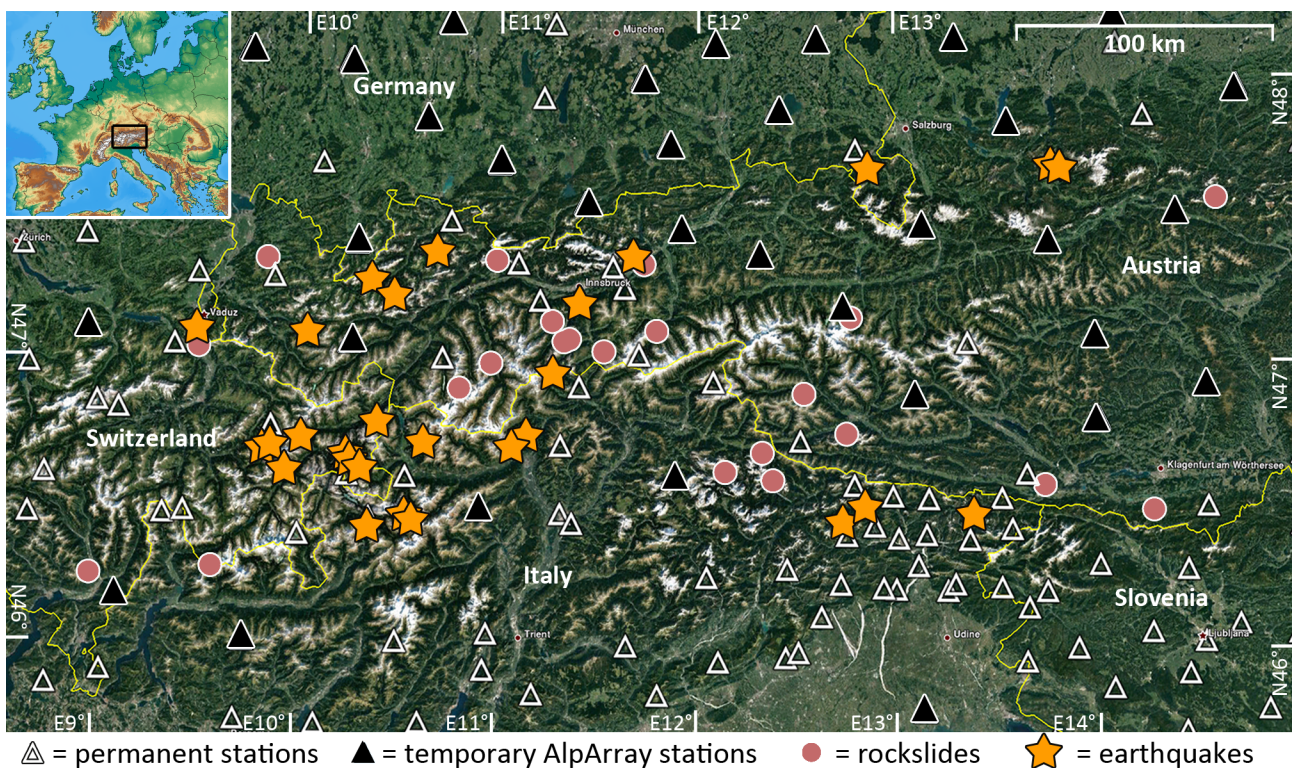
Figure S1: Map of the study area in eastern Austria and neighboring countries. Bright and dark triangles denote permanent and temporary seismic stations, respectively. Rockslides are marked by red circles. The locations of the earthquakes for the testing of event discrimination are marked by yellow stars.

	Time / UTC	Latitude	Longitude	Depth / km	Ml	Stations
1	2015-08-29 13:05:18	46.69	10.64	11.0	3.2	24
2	2015-08-30 16:07:32	47.06	10.05	1.0	1.5	12
3	2015-09-01 01:34:11	47.34	10.69	4.0	2.4	24
4	2015-09-01 22:37:25	46.72	11.15	11.0	2.6	24
5	2015-09-08 04:59:43	46.60	10.34	6.0	2.0	17
6	2015-09-08 07:42:08	46.60	10.33	6.0	1.7	13
7	2015-09-21 16:59:24	46.40	10.37	2.0	1.6	11
8	2015-09-27 04:17:37	46.45	13.37	6.0	2.0	10
9	2015-10-18 18:56:29	46.68	11.08	12.0	1.8	22
10	2015-10-23 03:48:16	46.70	10.03	6.0	1.6	12
11	2015-11-11 19:43:52	46.48	12.83	11.0	3.2	25
12	2015-11-11 21:18:18	46.48	12.83	10.0	2.6	23
13	2015-11-14 04:49:34	47.33	11.68	2.0	2.2	24
14	2015-11-21 11:49:54	46.43	12.72	6.0	3.4	25
15	2015-11-27 03:27:00	46.59	9.95	8.0	2.0	23
16	2015-11-30 11:22:30	46.67	9.87	2.0	1.8	8
17	2015-12-02 03:20:50	47.19	10.48	10.0	2.1	23
18	2015-12-04 03:10:41	47.06	9.49	6.0	2.6	24
19	2015-12-20 10:58:03	46.66	9.84	8.0	1.5	7
20	2015-12-21 16:17:36	46.44	10.56	8.0	1.8	15
21	2015-12-24 02:35:37	47.63	13.82	5.0	2.5	25
22	2015-12-25 16:15:45	46.69	10.63	7.0	1.5	11
23	2015-12-29 20:52:22	47.63	12.85	0.0	2.2	24
24	2015-12-30 16:59:51	46.76	10.41	5.0	1.5	7
25	2016-01-03 02:19:07	47.24	10.37	2.0	2.0	12
26	2016-01-03 17:36:23	46.43	10.58	7.0	2.0	23
27	2016-01-04 05:29:23	46.93	11.28	9.0	1.8	20
28	2016-01-05 01:19:59	46.63	10.28	7.0	1.5	6
29	2016-01-05 05:52:14	46.64	10.27	7.0	1.6	7
30	2016-01-09 17:02:24	47.64	13.79	2.0	3.0	24
31	2016-01-15 20:40:30	47.17	11.41	10.0	2.7	24

Table S1: List of earthquakes used for discrimination tests. Event details were retrieved from the European Integrated Data Archive (EIDA) and are based on the EMSC earthquake catalog. The selected area covers Western Austria and South Tyrol where most of the rockslides from this study occurred. The number of stations denotes from how many stations the parameters for the event discrimination were read.