

APPENDIX

UNCATALOGUED SEISMIC SIGNALS

The following pages showcase images of the altered time windows that were triggered during the scanning process. These events have not yet been attributed to any cataloged event.

IMPORTANT!: The columns "P arr.", "S arr.", "R arr.", and "L arr." list the time difference between the observed phase arrival of the strongest observable phase and the estimated phase arrival times. If these values are the same (indicating we have discovered an earthquake that could have caused these signals), then there would be a value of zero in one of these columns. To reiterate, we find these numbers by:

$$|(\text{Observed Arrival Time of Strongest Phase}) - (\text{Estimated Arrival Time of Phase X})| = (X \text{ arr.}) \quad (\text{A.1})$$

We have elected to list the data this way so the ready does not have to cross reference the estimated phase arrival times with the observed arrival time in the figure, and to encourage the reader to easily double check this work.

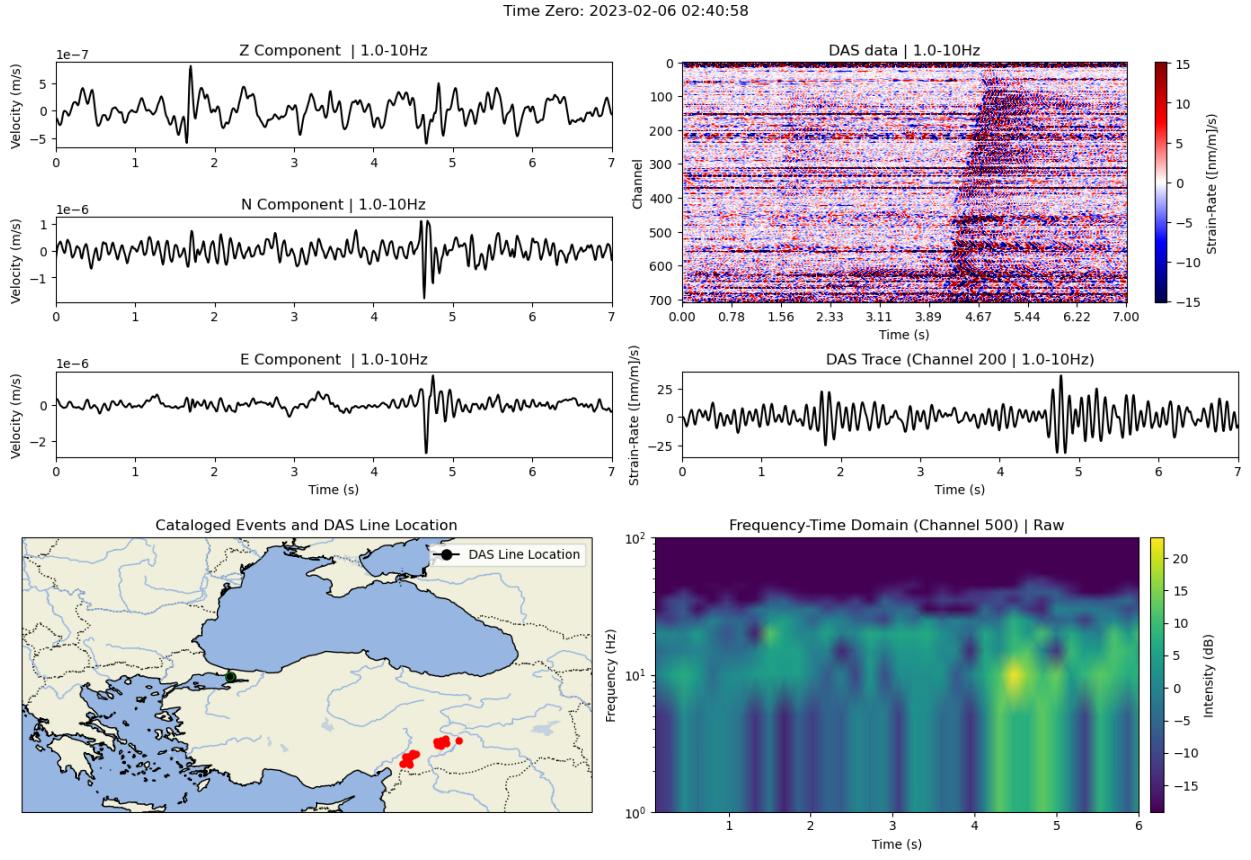


Figure A.1 Top Left: North, east, and vertical component data of time window, obtained from AFAD. Top Right: DAS data of triggered time window, with a selected trace below it. Bottom Left: Map of Turkey showing location of DAS line and Earthquake epicenter locations that occurred within 30 minutes of the arrival time at the DAS line. Bottom Right: Unfiltered DAS trace converted to a spectrogram.

Table A.1 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-06 02:40:44	920	3.5	102	195	299	299
2023-02-06 02:38:43	858	4.4	26	60	157	157
2023-02-06 02:37:01	871	4.2	126	38	59	59
2023-02-06 02:22:37	17329	4.8	36	293	4870	4870
2023-02-06 02:34:51	810	4.7	264	182	91	91
2023-02-06 02:38:44	870	4.2	24	63	162	162
2023-02-06 02:29:34	8145	1.2	1	568	2120	2120

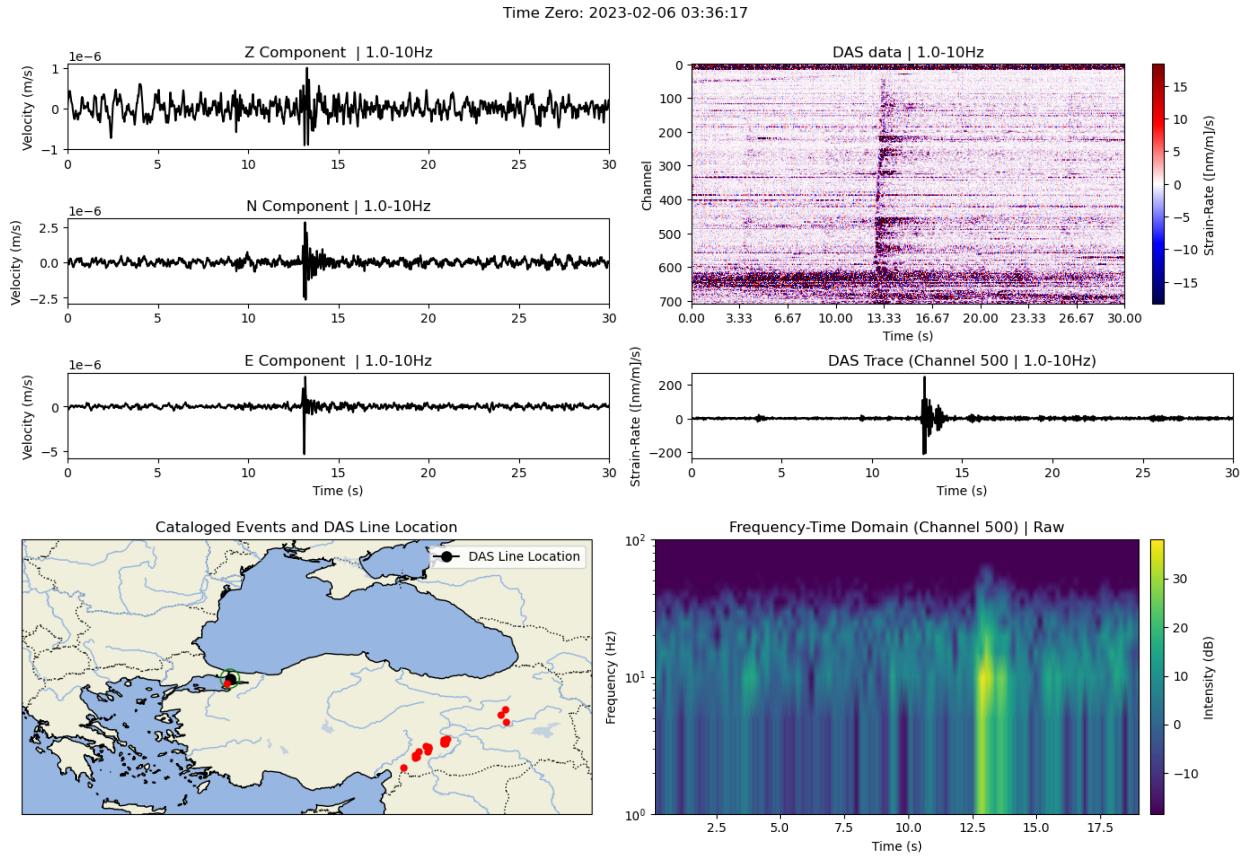


Figure A.2 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.2 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-06 03:36:18	867	3.8	101	189	287	287
2023-02-06 03:34:45	873	3.6	9	98	196	196
2023-02-06 03:33:29	1040	2.7	46	58	177	177
2023-02-06 03:30:00	793	4.2	285	204	116	116
2023-02-06 03:35:39	862	4.2	61	149	246	246
2023-02-06 03:21:21	13329	2.14	1	428	3687	3687
2023-02-06 03:24:55	9024	1.8	32	567	2417	2417
2023-02-06 03:26:08	8607	1.2	90	645	2346	2346

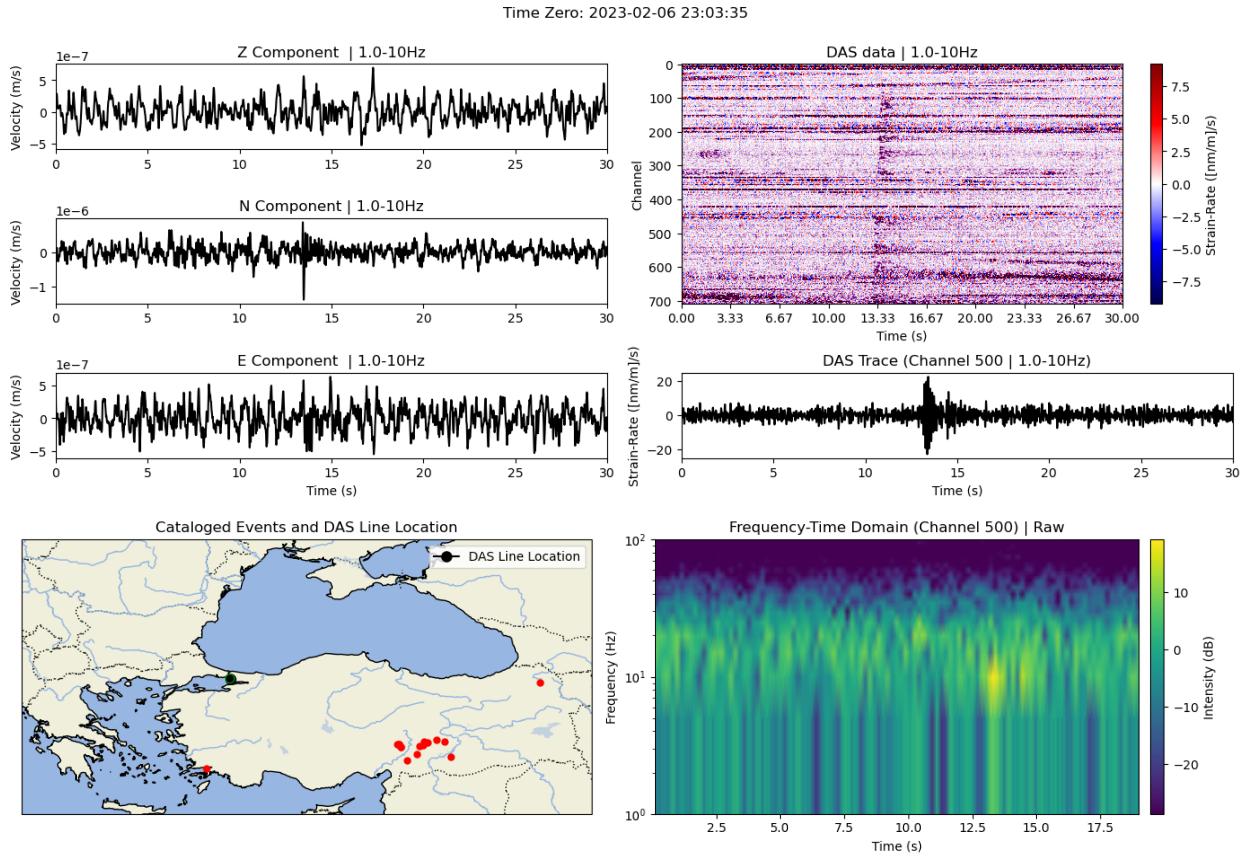


Figure A.3 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.3 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-06 23:01:55	811	3.5	6	76	166	166
2023-02-06 22:59:04	836	3.3	174	88	4	4
2023-02-06 22:57:53	784	3.4	251	171	84	84
2023-02-06 22:47:13	14584	4.7	32	361	4034	4034

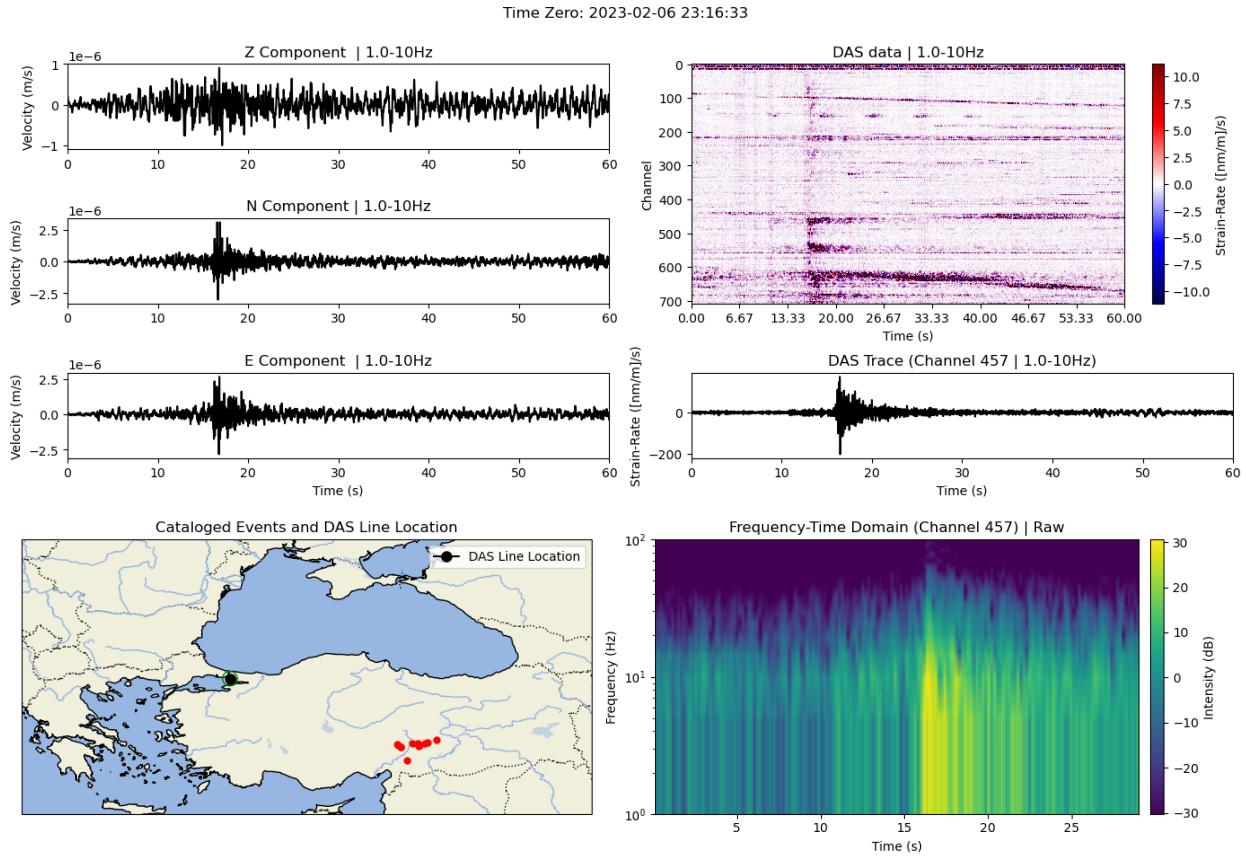


Figure A.4 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.4 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-06 23:17:11	717	3.5	117	190	269	269
2023-02-06 23:13:27	791	4.2	97	16	70	70
2023-02-06 23:11:38	760	3.5	210	132	48	48
2023-02-06 23:13:30	786	4.2	95	15	72	72
2023-02-06 22:56:25	8751	1.5	509	36	1793	1793

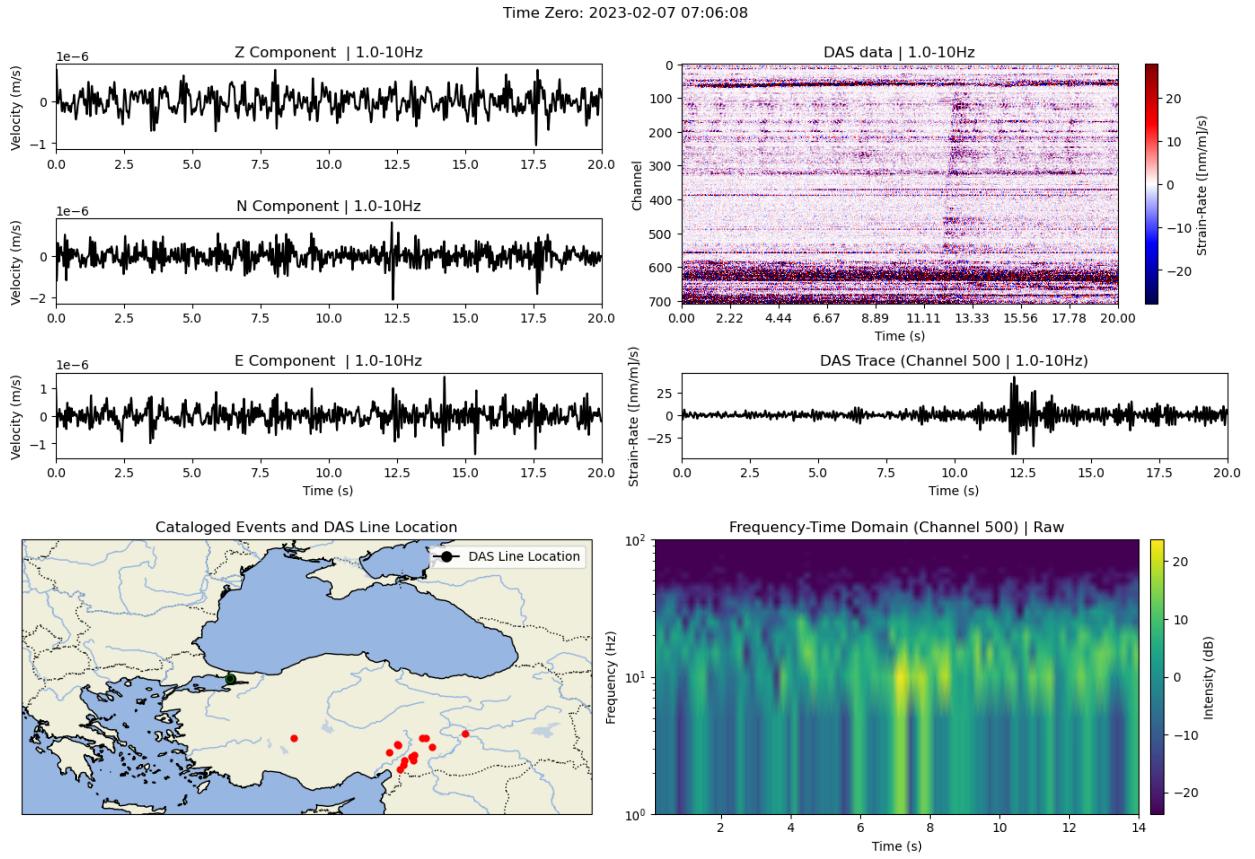


Figure A.5 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.5 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-07 07:06:25	794	3.1	109	190	279	279
2023-02-07 07:04:16	703	3.2	30	42	118	118
2023-02-07 07:03:35	786	3.1	61	19	106	106
2023-02-07 07:02:41	777	2.5	116	36	49	49
2023-02-07 06:45:42	8749	5.3	519	29	1778	1778
2023-02-07 06:52:51	8698	2.1	91	460	2190	2190

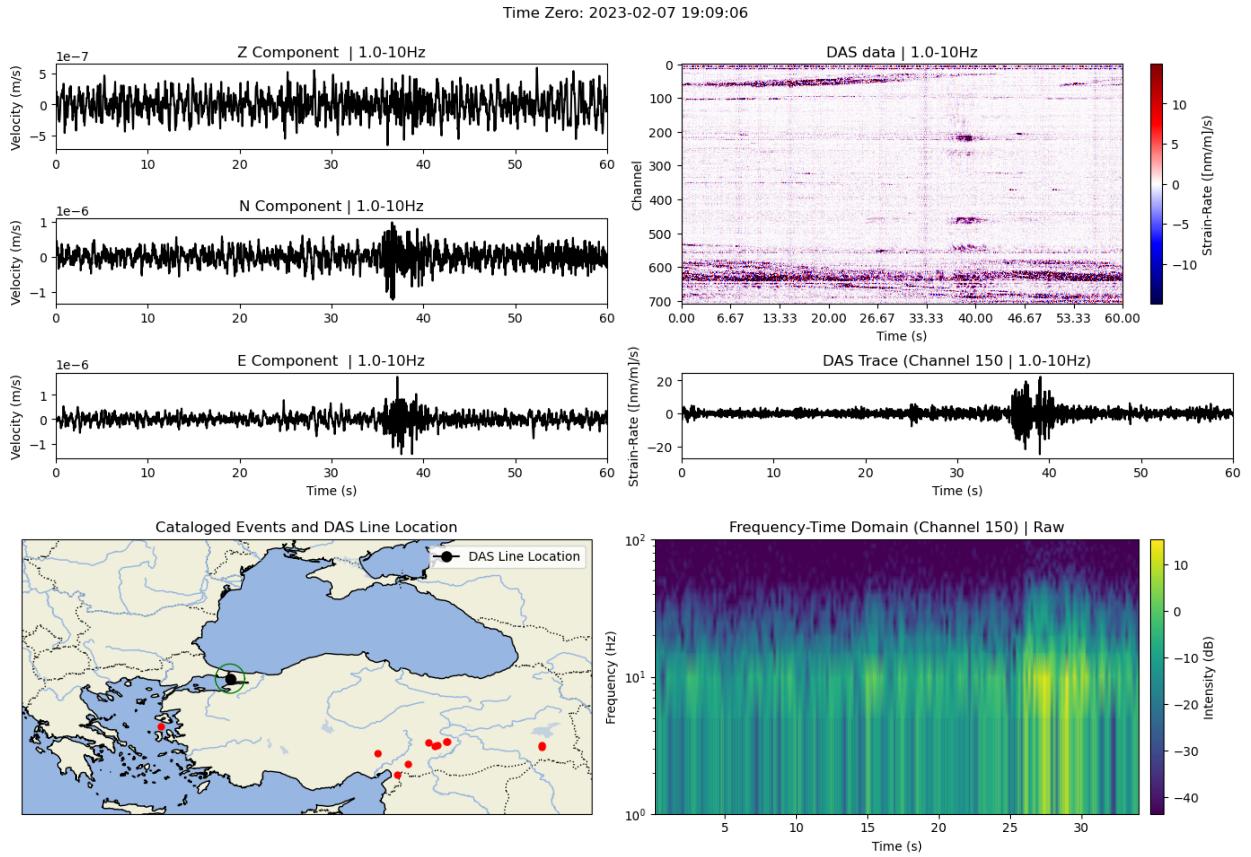


Figure A.6 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.6 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-07 19:08:24	1224	4.2	77	200	343	343
2023-02-07 19:08:24	1226	4.4	79	202	343	343

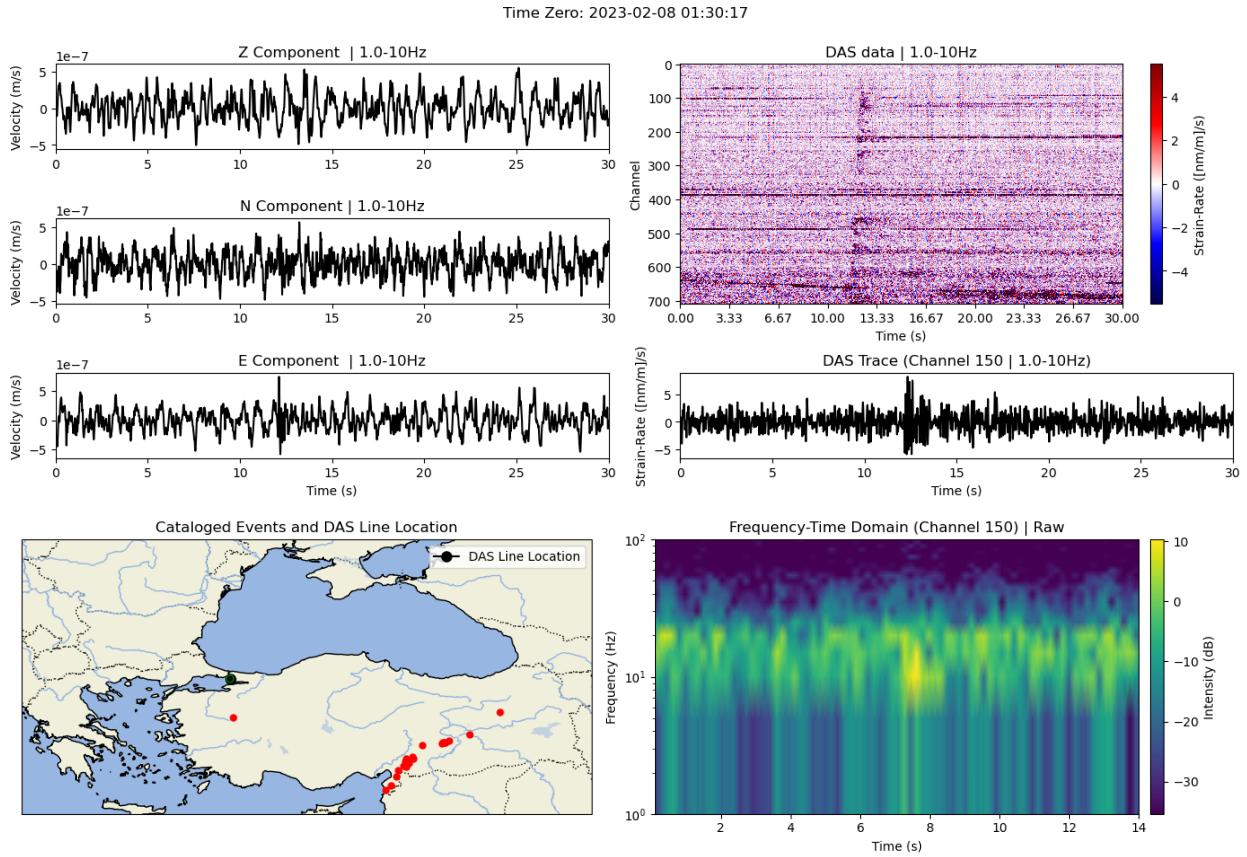


Figure A.7 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.7 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-08 01:28:12	873	3.1	22	66	164	164
2023-02-08 01:26:12	798	3.4	151	70	18	18
2023-02-08 01:25:07	884	2.4	206	116	17	17
2023-02-08 01:24:49	795	2.7	235	153	65	65
2023-02-08 01:08:25	9919	1.73	548	34	2096	2096
2023-02-08 01:09:09	9141	0.74	539	1	1872	1872

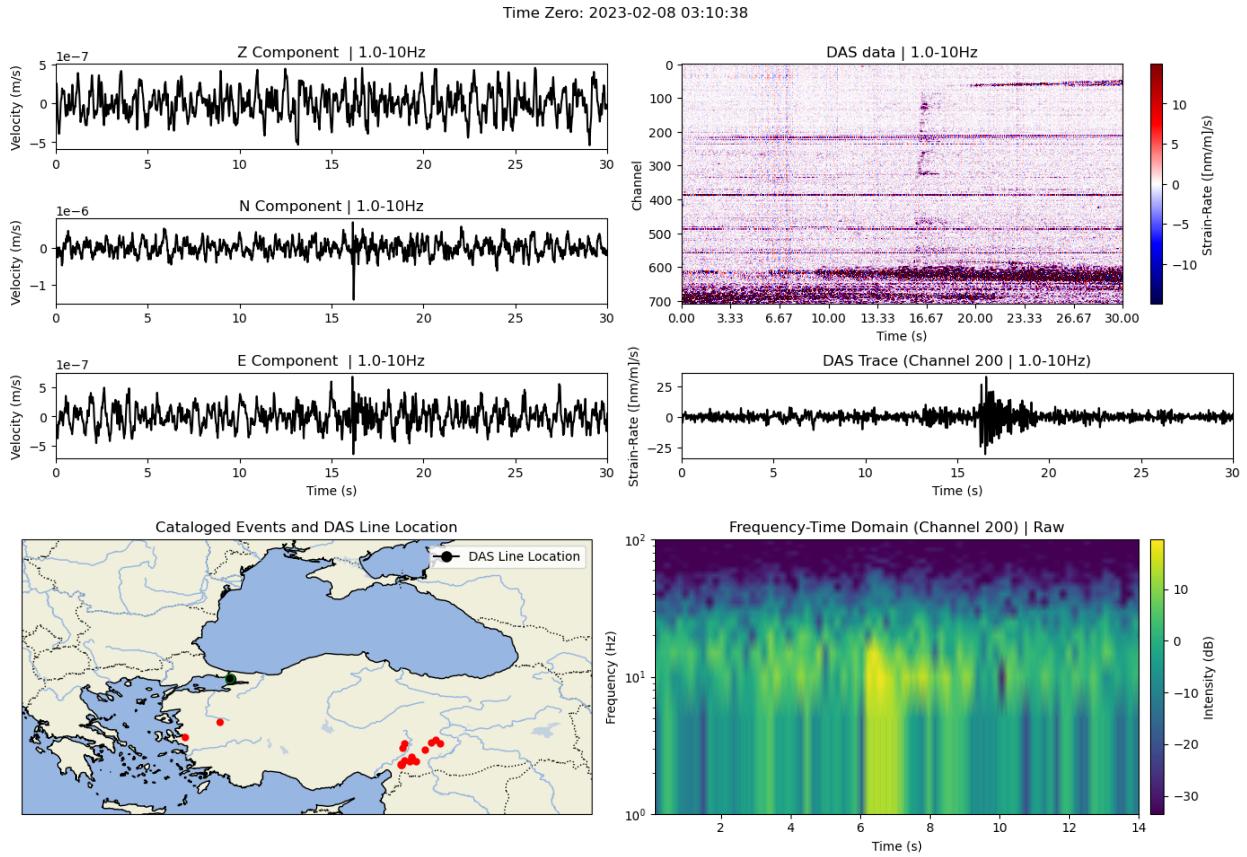


Figure A.8 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.8 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag. (M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-08 03:10:48	797	2.6	98	180	268	268
2023-02-08 03:10:01	822	2.7	55	138	230	230
2023-02-08 03:06:23	773	2.4	168	89	4	4
2023-02-08 02:50:40	9685	0.66	448	73	2125	2125

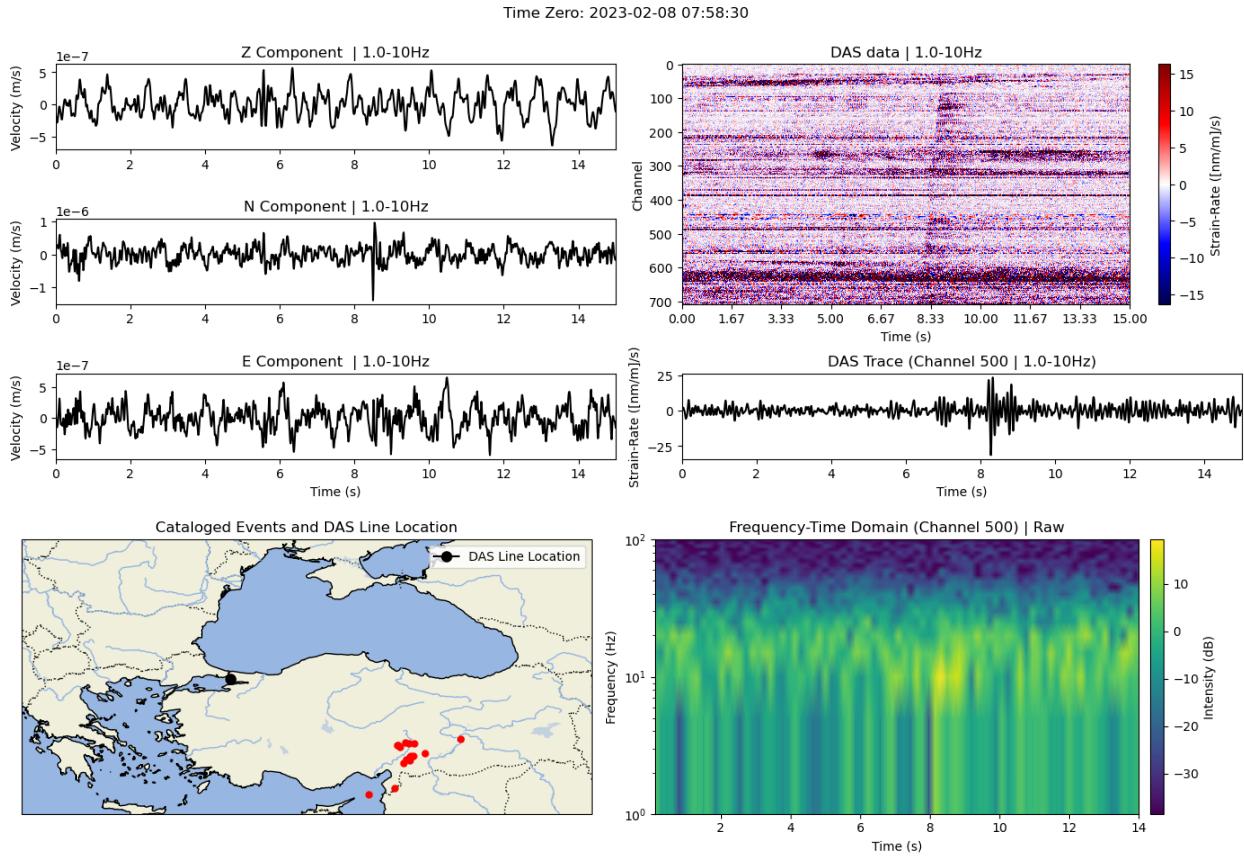


Figure A.9 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.9 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-08 07:58:22	784	3.2	87	167	254	254
2023-02-08 07:56:37	824	2.5	12	71	163	163
2023-02-08 07:54:19	779	2.1	156	76	9	9
2023-02-08 07:45:01	8822	1.9	99	442	2225	2225
2023-02-08 07:36:11	8486	1.4	651	101	1579	1579
2023-02-08 07:38:13	9761	1.19	456	61	2141	2141
2023-02-08 07:44:28	10076	0.58	68	442	2624	2624

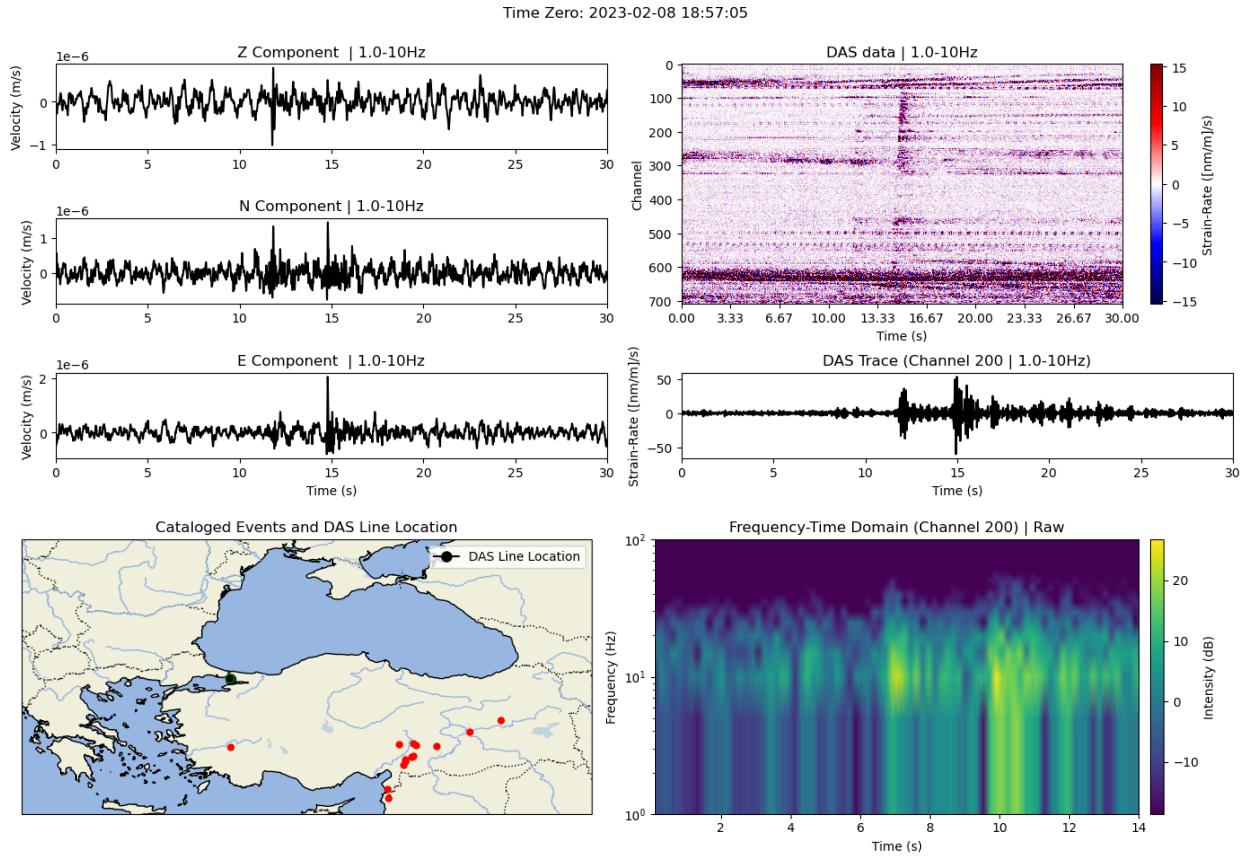


Figure A.10 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.10 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-08 18:53:22	849	3.2	120	34	60	60
2023-02-08 18:51:18	842	2.7	245	159	65	65
2023-02-08 18:51:10	765	3.5	263	185	100	100
2023-02-08 18:38:41	15659	4.5	114	257	4286	4286
2023-02-08 18:45:14	9912	2.8	53	566	2697	2697
2023-02-08 18:42:53	9708	1.9	95	424	2486	2486
2023-02-08 18:35:38	8542	1.4	594	45	1649	1649
2023-02-08 18:46:02	9002	1.4	61	604	2432	2432

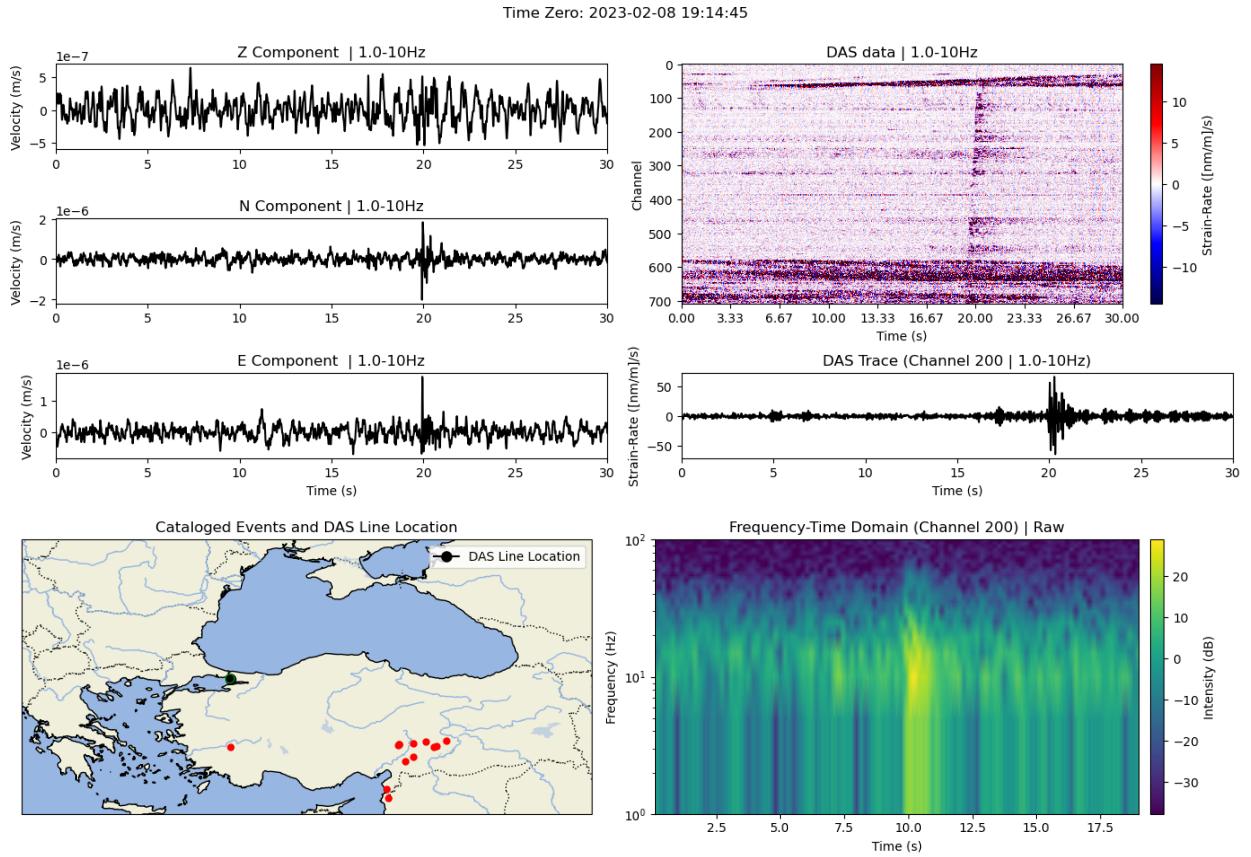


Figure A.11 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.11 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag. (M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-08 19:13:23	794	3.5	2	83	172	172
2023-02-08 19:12:27	843	3.1	47	38	132	132
2023-02-08 19:11:33	874	3.0	97	8	89	89
2023-02-08 19:01:48	8929	1.6	74	463	2282	2282
2023-02-08 18:53:36	8432	1.4	583	21	1618	1618
2023-02-08 18:53:40	9001	0.9	550	7	1819	1819

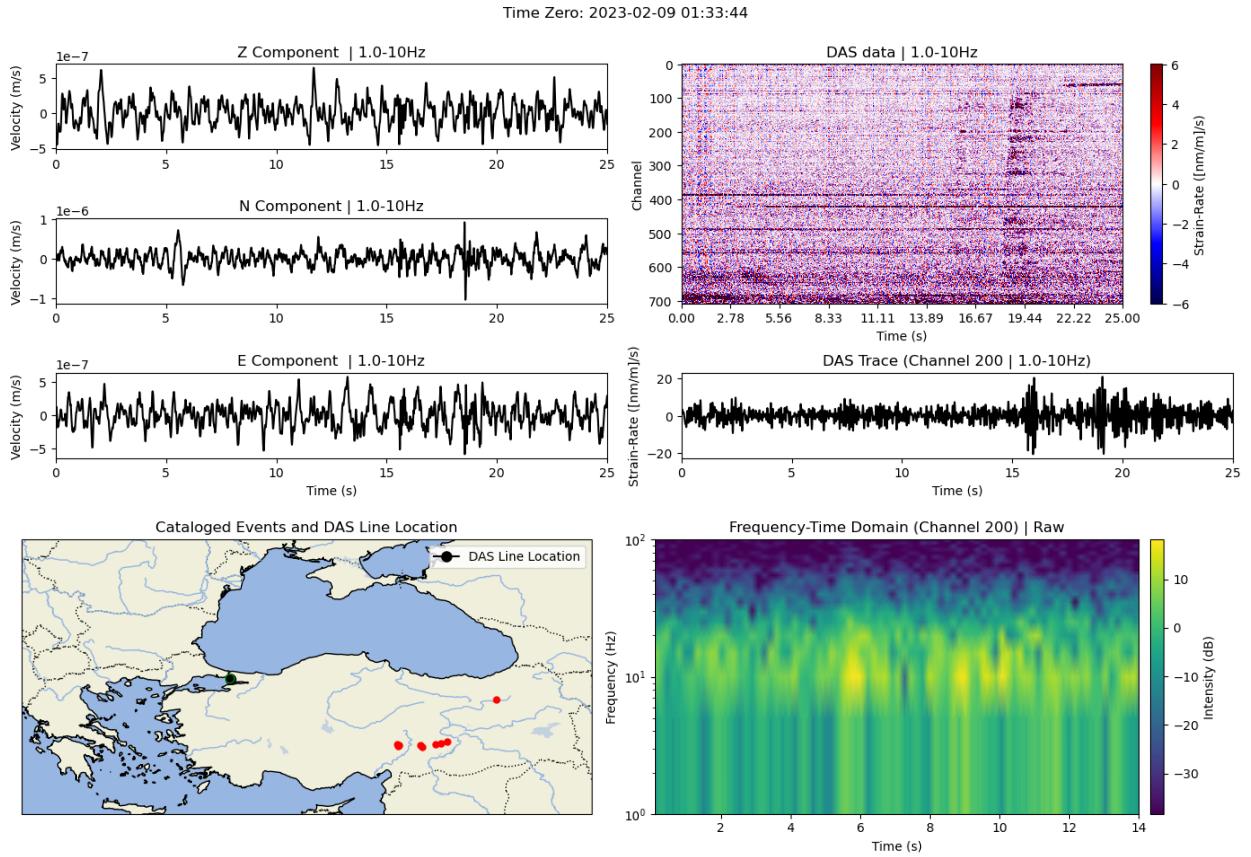


Figure A.12 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.12 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag. (M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-09 01:33:07	791	3.1	50	131	219	219
2023-02-09 01:28:05	844	2.4	244	158	63	63
2023-02-09 01:21:42	8363	2.6	36	527	2145	2145
2023-02-09 01:12:49	8957	2.5	542	1	1817	1817
2023-02-09 01:18:14	13346	2.31	36	392	3656	3656
2023-02-09 01:21:31	8866	1.5	26	516	2308	2308

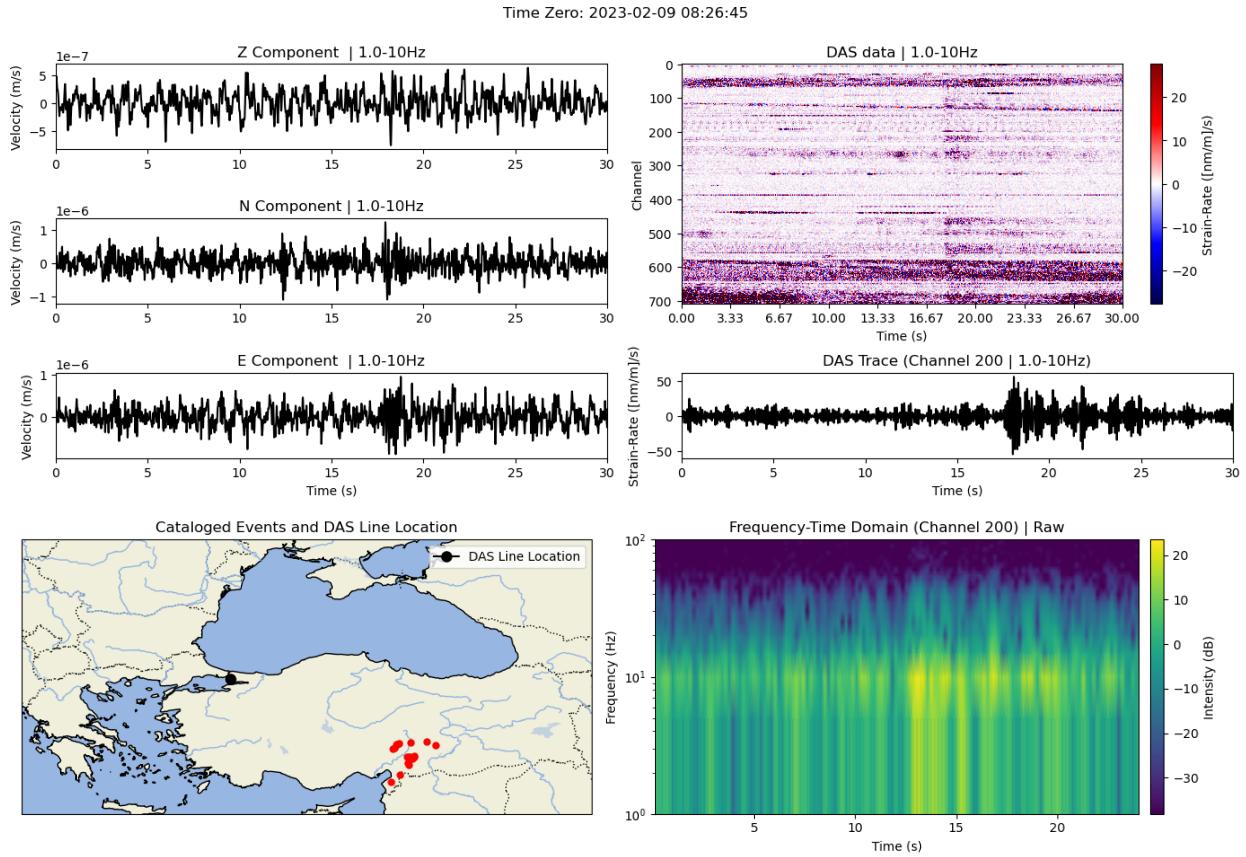


Figure A.13 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.13 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-09 08:26:38	794	2.8	79	160	249	249
2023-02-09 08:25:26	801	3.0	8	90	179	179
2023-02-09 08:22:39	775	3.1	161	82	3	3
2023-02-09 08:21:12	712	3.2	256	183	105	105
2023-02-09 08:21:11	707	2.7	258	186	108	108
2023-02-09 08:06:05	9361	3.4	518	2	1970	1970
2023-02-09 08:13:56	8696	1.5	82	458	2211	2211

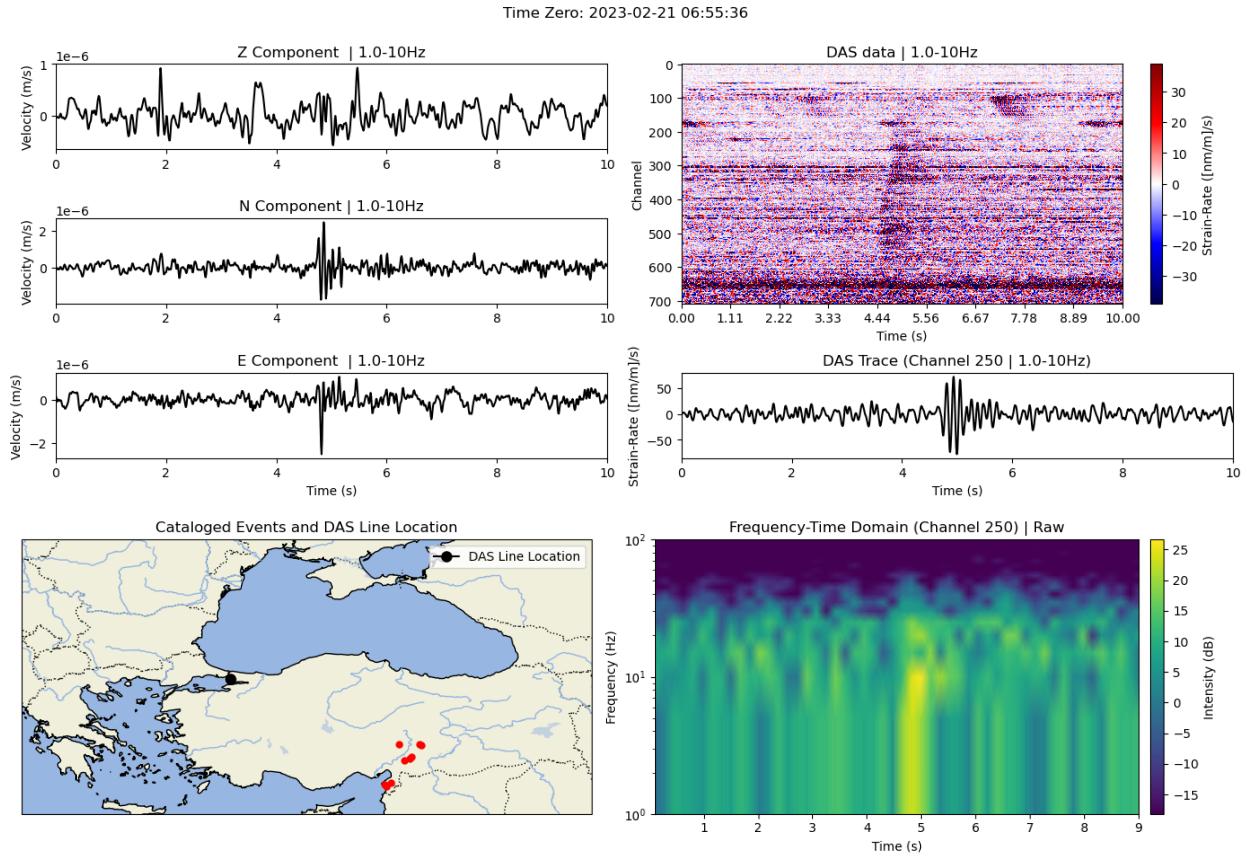


Figure A.14 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.14 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-21 06:55:27	790	1.2	90	170	258	258
2023-02-21 06:51:44	801	2.2	131	49	39	39
2023-02-21 06:43:24	8775	1.5	21	523	2288	2288
2023-02-21 06:36:01	8677	1.3	461	92	1812	1812
2023-02-21 06:32:58	9893	0.84	589	74	2048	2048

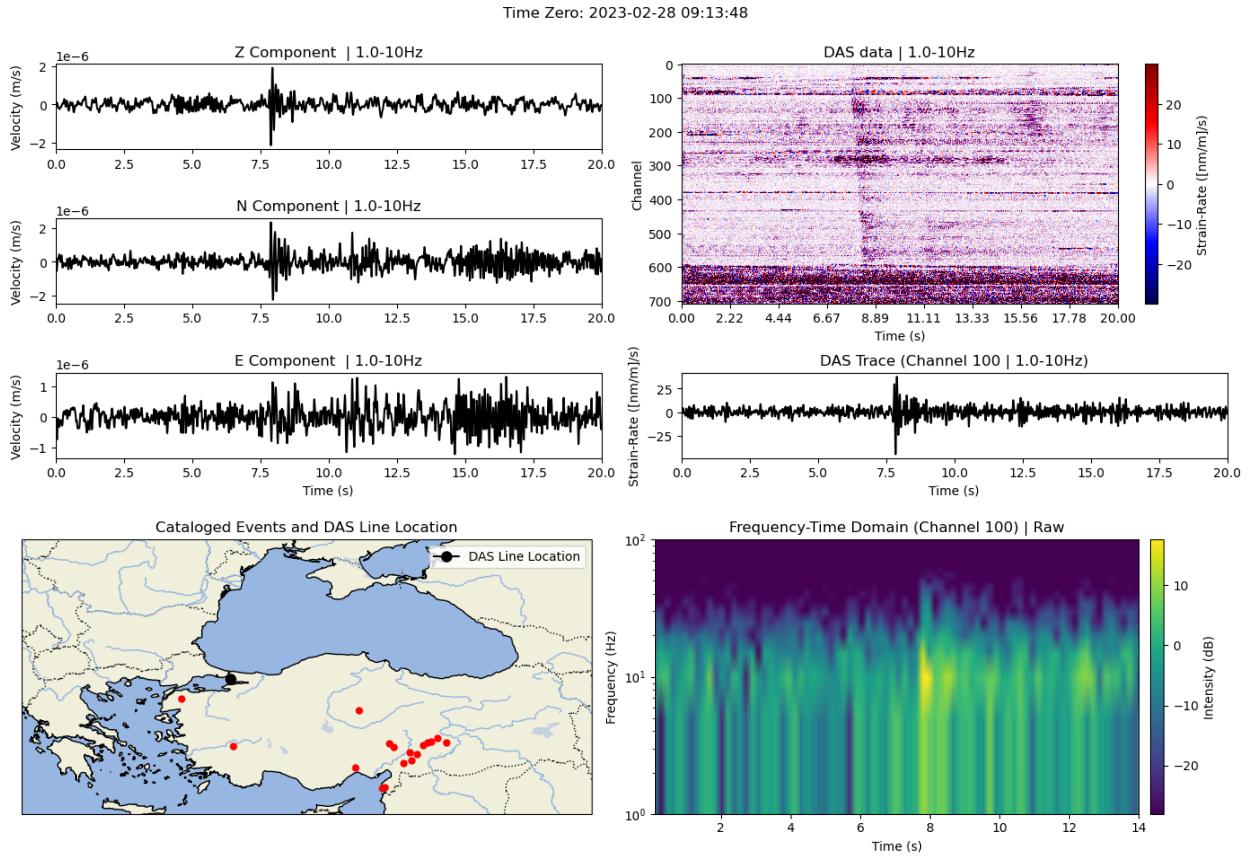


Figure A.15 Same figure layout and explanation as Figure B.1, but for a new earthquake.
NOTE: Event origin time is listed at the top of the figure.

Table A.15 Data containing earthquake parameters that occurred within 30 minutes of the earthquake above. NOTE: $\Delta t_{Obs.-X_{est.}}$ is the time difference between the observed, strongest phase arrival time and estimated phase arrivals.

Time	Dist.(km)	Local Mag.(M_l)	$\Delta t_{Obs.-P_{est.}}$	$\Delta t_{Obs.-S_{est.}}$	$\Delta t_{Obs.-R_{est.}}$	$\Delta t_{Obs.-L_{est.}}$
2023-02-28 09:12:20	706	1.7	2	70	147	147
2023-02-28 09:11:49	331	1.0	79	43	12	12
2023-02-28 09:11:14	779	1.6	59	20	106	106
2023-02-28 08:53:55	11032	0.96	381	103	2603	2603