

Revisiting seismic energy of shallow tremors: amplifications due to site and propagation path effects near the Nankai Trough

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Caption for Figure S1

Captions for Movies S1 to S4

Introduction

Figure S1 shows distance-dependent characteristics of seismic energy amplifications for DONET1Dq, where the Q_s of the shallowest layer is set as 20.

Simulated wavefields for shallow tremors and intraslab earthquakes in DONET1D and DONET1D' are shown in Movies S1–S4. Movies can be available using the VLC player https://www.videolan.org/vlc/index.en_GB.html. The intraslab earthquakes used to estimate the site amplification factors are listed in Table S1.

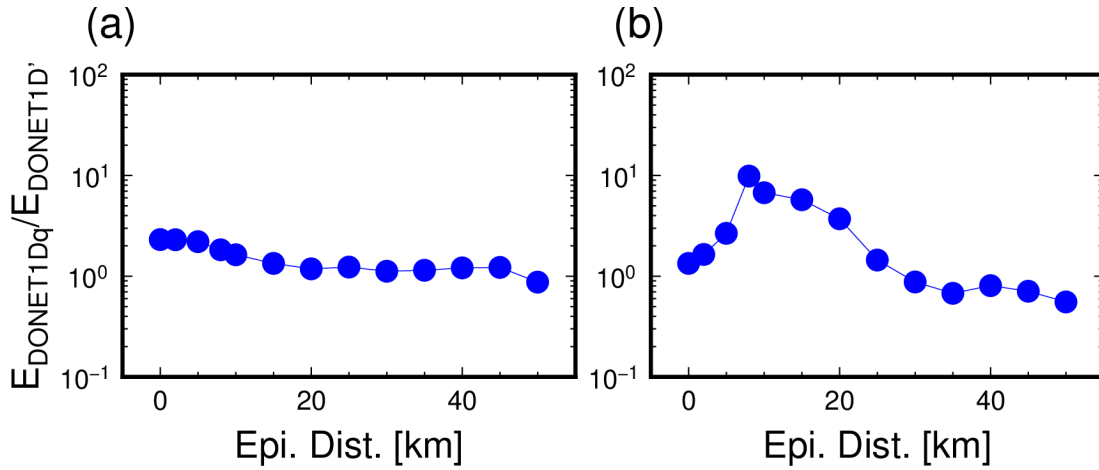


Figure S1. Ratio of seismic energies between DONET1Dq and DONET1D' for (a) intraslab earthquake and (b) shallow tremor sources. DONET1Dq is a similar 1D model of DONET1D, but Q_s value within the shallowest layer of DONET1Dq is 20.

Movie S1. Simulated wavefield for a shallow tremor in DONET1D. Red and green particles denote the divergence (P) and rotation (S) of the wavefield, respectively.

Movie S2. Simulated wavefield for a shallow tremor in DONET1D'. Red and green particles denote the divergence (P) and rotation (S) of the wavefield, respectively.

Movie S3. Simulated wavefield for an intraslab earthquake in DONET1D. Red and green particles denote the divergence (P) and rotation (S) of the wavefield, respectively.

Movie S4. Simulated wavefield for an intraslab earthquake in DONET1D'. Red and green particles denote the divergence (P) and rotation (S) of the wavefield, respectively.

Table S1. Source information for intraslab earthquakes used for site amplification estimation. The origin date and time are written in JST.

<i>Date</i>	<i>Time</i>	<i>Longitude [°]</i>	<i>Latitude [°]</i>	<i>Depth [km]</i>	<i>M_{JMA}</i>
2016-05-29	10:55:09.60	135.6115	34.2587	63.04	3.6
2016-07-30	06:31:01.69	137.0077	33.0127	35.81	3.1
2016-08-01	15:52:39.88	135.3287	33.8410	48.40	3.3
2016-08-27	15:20:03.57	136.0072	34.0132	41.47	3.2
2016-08-31	08:59:11.18	135.6160	33.8263	51.13	3.9
2016-09-03	15:03:17.48	135.1423	33.7137	42.70	4.0
2016-11-03	17:50:21.24	135.9723	32.0987	31.00	3.7
2016-11-19	11:48:01.47	135.4635	33.8427	51.35	5.4
2016-11-19	17:51:18.80	135.4757	33.8013	46.36	3.3
2016-12-09	01:13:10.67	136.3970	34.2450	33.94	3.5
2016-12-16	05:22:53.99	135.5888	34.1840	67.78	3.6
2017-01-03	04:52:33.65	135.3233	33.8132	47.90	3.1
2017-01-04	17:16:36.13	136.0728	34.6232	57.57	3.3
2017-01-16	00:52:26.20	135.7475	34.1997	59.00	3.5
2017-01-24	23:52:53.73	135.1577	33.6623	37.44	3.0
2017-02-11	08:02:11.59	135.8538	32.1613	30.00	3.0
2017-02-23	13:01:33.47	135.1200	33.8100	47.59	3.7
2017-04-24	22:58:22.23	137.9095	34.8970	34.47	3.9
2017-06-16	00:25:28.03	135.5653	34.1815	65.24	3.0
2017-07-05	13:48:36.15	135.5068	34.1065	66.08	3.1
2017-07-07	06:43:26.42	136.9525	32.9148	33.88	3.2
2017-07-16	23:13:12.46	137.3163	34.9807	41.48	3.0
2017-07-23	23:58:22.81	137.1037	34.8127	34.93	3.0
2017-08-06	05:07:34.46	136.8163	32.3892	44.10	3.4
2017-09-17	08:28:8.32	135.6072	34.1327	62.77	3.9
2017-09-21	01:02:45.98	135.4465	33.9680	55.57	4.1
2017-09-22	23:14:34.83	135.8982	33.9543	52.23	3.1
2017-10-05	18:09:24.61	135.3287	33.6730	45.95	3.2
2017-10-10	06:59:23.21	137.3517	34.9952	38.27	3.1
2017-10-25	06:48:51.95	135.4492	33.7955	43.02	3.3
2017-10-30	20:56:3.31	135.4495	33.8103	42.66	3.5
2017-11-05	03:05:11.17	135.6110	34.0542	58.87	3.0
2017-12-20	21:44:09.01	136.9515	32.8773	32.12	3.9
2018-01-20	11:05:06.25	135.7225	32.5497	38.40	3.7
2018-01-20	11:47:17.94	137.9612	32.0643	46.00	3.7
2018-02-27	09:10:07.84	135.0333	32.7602	42.31	3.2
2018-03-18	13:24:17.87	135.6997	33.6500	32.17	3.0
2018-03-27	21:08:01.40	135.5690	33.6662	35.70	3.2
2018-04-10	11:25:30.68	135.6928	32.1557	33.00	3.3
2018-04-14	13:51:12.49	137.2903	34.9500	39.62	3.2
2018-04-16	17:55:00.90	135.8097	33.4867	30.01	3.4

2018-05-12	12:40:53.50	136.7045	34.7423	40.20	3.8
2018-05-14	03:12:35.87	135.6238	34.0133	55.10	3.3
2018-05-28	15:03:22.18	136.0337	34.2258	52.73	3.3
2018-08-06	05:48:24.54	135.1603	33.8680	50.38	3.1
2018-08-14	20:51:00.92	137.4970	34.7520	37.22	3.9
2018-08-20	01:42:29.11	135.5930	34.1168	64.27	3.1
2018-10-27	20:51:50.57	135.8245	34.4250	62.24	4.2
2018-11-02	01:07:46.30	135.6375	34.1012	62.88	3.3
2018-11-05	08:19:16.85	135.2842	33.7275	45.11	4.6
2018-11-05	18:12:30.88	135.1957	33.7077	42.30	3.6
2018-11-06	03:39:01.58	135.1560	33.6433	42.77	3.2
2018-11-09	00:13:49.93	135.4572	33.8830	48.12	3.0
2018-12-03	17:08:23.13	135.4080	33.8662	48.00	4.0
2018-12-04	07:07:19.83	135.1980	33.6827	41.42	3.0
2019-01-25	18:08:03.52	136.9972	32.9090	33.89	3.5
2019-01-27	20:19:37.66	136.6713	32.0337	34.28	3.2
2019-02-12	22:49:57.04	135.7885	34.0170	48.01	3.3
2019-04-10	12:44:33.15	135.2033	33.8200	46.29	3.1
2019-04-14	01:29:14.25	135.7805	34.3572	58.24	3.2
2019-05-02	06:22:13.34	135.4898	33.9300	52.29	3.1
2019-05-14	10:50:01.19	137.1330	32.7535	42.05	3.4
2019-05-24	13:25:11.38	135.5797	34.0925	61.68	3.8
2019-05-26	16:59:37.08	137.9337	34.8473	30.40	3.2
2019-06-14	15:09:20.89	136.7683	32.6967	37.23	3.0
2019-06-24	01:13:42.49	136.1318	33.9458	44.33	3.1
2019-07-28	14:24:29.03	135.3892	33.8838	51.32	3.0
2019-09-07	19:38:20.53	137.2270	34.7012	30.40	3.2
2019-10-06	16:10:25.45	137.1738	33.0622	40.82	3.3
2019-10-24	03:11:55.73	135.3308	33.5642	31.37	3.8
2019-10-30	22:22:30.41	137.0157	34.8155	37.27	3.2
2019-10-31	19:20:38.60	135.1520	33.6778	37.00	3.6
2020-01-04	18:12:16.24	137.1328	34.4232	30.38	3.0
2020-01-09	06:29:23.65	137.4505	34.9502	40.48	3.0
2020-01-10	17:09:50.34	135.6445	34.0580	53.49	3.2
2020-01-14	12:44:09.98	137.8772	32.8767	50.63	3.3
2020-01-20	08:46:09.17	135.5055	33.9233	52.11	3.5
2020-01-23	16:13:07.98	137.8487	34.6848	33.90	3.7
2020-02-04	14:23:45.55	135.3710	33.7955	45.49	3.0
2020-02-24	19:32:36.22	136.2392	32.6712	40.26	3.1
2020-04-19	12:09:13.02	137.2342	34.7563	39.82	3.5
2020-05-22	03:19:12.47	137.0295	32.7815	39.61	3.7
2020-05-23	10:36:34.70	135.4628	33.5375	31.55	3.5
2020-05-29	06:24:36.14	135.9475	33.9307	42.34	3.5
2020-05-31	11:20:13.91	135.7135	33.9690	46.66	3.6
2020-06-09	14:12:14.98	135.9413	32.2078	37.00	3.5

2020-06-14	10:25:54.53	135.4607	34.2367	64.58	3.2
2020-07-11	03:19:29.84	137.5643	34.6728	30.32	3.7
2020-07-11	03:43:44.02	137.5720	34.6697	30.18	3.0
2020-08-01	12:15:07.59	135.4473	33.7885	46.28	4.2
2020-08-09	20:32:49.80	136.8802	32.5308	41.99	3.0
2020-09-01	05:12:22.26	135.0435	33.3560	37.42	3.3
2020-09-11	18:27:55.32	135.8587	32.6990	32.63	3.3
2020-10-03	03:49:17.54	135.3870	33.8920	53.43	3.0
2020-10-26	06:34:59.34	135.5947	34.1735	66.66	4.0
2020-11-12	13:12:47.23	137.9518	32.6648	64.62	3.2
2020-12-25	07:16:19.93	135.8638	32.0208	64.04	3.3
2021-02-01	19:45:10.52	135.4368	33.8518	47.73	3.1
2021-02-08	02:26:23.34	135.2100	33.7835	46.10	3.8
2021-02-23	09:35:53.13	135.0290	33.7835	44.90	3.4
2021-04-02	06:22:11.72	135.4140	33.8773	46.75	3.4
2021-04-05	06:22:00.37	137.6985	34.6755	35.77	4.3
2021-04-05	14:16:39.49	136.3770	32.7467	41.21	3.0
2021-04-06	21:58:05.63	135.2333	33.7983	45.80	3.2
2021-04-10	19:17:26.72	135.4383	33.9092	52.61	3.5
2021-05-26	08:57:40.61	135.4085	33.9293	51.00	3.9
2021-06-10	22:15:54.09	135.0388	33.7208	38.79	3.5
2021-06-14	02:17:21.12	135.5453	34.1493	68.00	3.3
2021-06-30	07:04:09.70	135.3375	33.8623	52.00	3.2
2021-09-01	02:55:12.83	135.3603	33.8063	45.72	3.8
2021-09-09	11:18:05.54	135.8680	33.5433	30.78	3.2
2021-10-15	06:38:37.47	136.5473	32.9495	31.57	3.0
2021-10-15	16:53:28.62	136.0990	34.7732	56.38	3.6
2021-10-18	15:21:34.75	135.0762	33.7322	40.33	3.5
2021-11-15	13:11:48.94	135.2893	33.7845	43.20	3.0
2021-12-04	05:07:40.79	135.1378	33.8000	46.19	3.0
2021-12-09	15:25:13.07	135.4017	34.1677	66.95	3.5
2022-01-07	01:59:13.07	135.4020	33.9028	52.28	3.8
2022-01-09	18:00:56.39	137.2000	33.1753	39.40	3.3
2022-01-18	08:16:42.29	137.6012	34.5488	34.71	3.6
2022-01-28	00:25:08.05	135.5803	34.1048	58.69	3.9
2022-01-30	08:26:50.43	135.7095	33.9617	45.02	3.6
2022-01-30	15:45:04.10	135.9325	32.9343	31.26	3.3
2022-03-09	03:12:27.59	135.2288	33.3425	32.35	3.2
2022-03-21	06:44:36.16	136.9233	32.9030	37.38	3.4
2022-04-08	05:30:29.68	135.8563	33.5895	38.87	3.1
2022-04-09	11:13:21.24	135.4008	33.9040	52.26	3.7
2022-04-16	15:18:56.00	137.1197	32.7652	49.40	3.7
2022-05-02	12:50:23.75	135.2712	32.2723	52.10	3.0
2022-06-15	09:58:53.71	135.1987	33.7297	41.92	3.1
2022-06-26	06:31:25.37	135.9982	34.2227	55.02	3.4

2022-06-28	19:16:04.18	135.0877	33.6450	41.91	3.4
2022-07-03	00:32:48.01	136.3540	33.4698	36.78	3.1
2022-07-15	17:50:33.08	136.9657	33.0387	38.00	3.1
2022-07-28	02:04:23.37	135.3247	33.8228	46.76	3.1
2022-09-30	16:14:37.42	135.4380	33.6640	40.94	3.1
2022-10-03	11:41:57.60	136.2500	32.1622	62.32	3.1
2022-10-28	14:58:23.16	135.1922	33.6812	40.63	3.1
2022-11-10	09:50:45.33	135.4818	33.8702	46.07	3.3
2022-12-16	03:07:17.55	135.8105	33.7022	34.28	3.2