

Supplement of Solid Earth, 11, 2557–2568, 2020
<https://doi.org/10.5194/se-11-2557-2020-supplement>
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Supplement of

Seismic gaps and intraplate seismicity around Rodrigues Ridge (Indian Ocean) from time domain array analysis

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- Figure S1 shows the influence of the model parameters on the determination of the epicentral distance for an event that occurs at a distance of ~120 km from the array.

5 • Figure S2 shows the influence of the model parameters on the determination of the epicentral distance for an event that occurs at a distance of ~265 km from the array.

- Figure S3 shows location of USGS detected events using Rodrigues array.

10 • Table S1 provides detailed information of the events located using the array deployed on the island of Rodrigues.

- Table S2 gives details of the events in each of the seismic clusters observed.

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Cluster 1

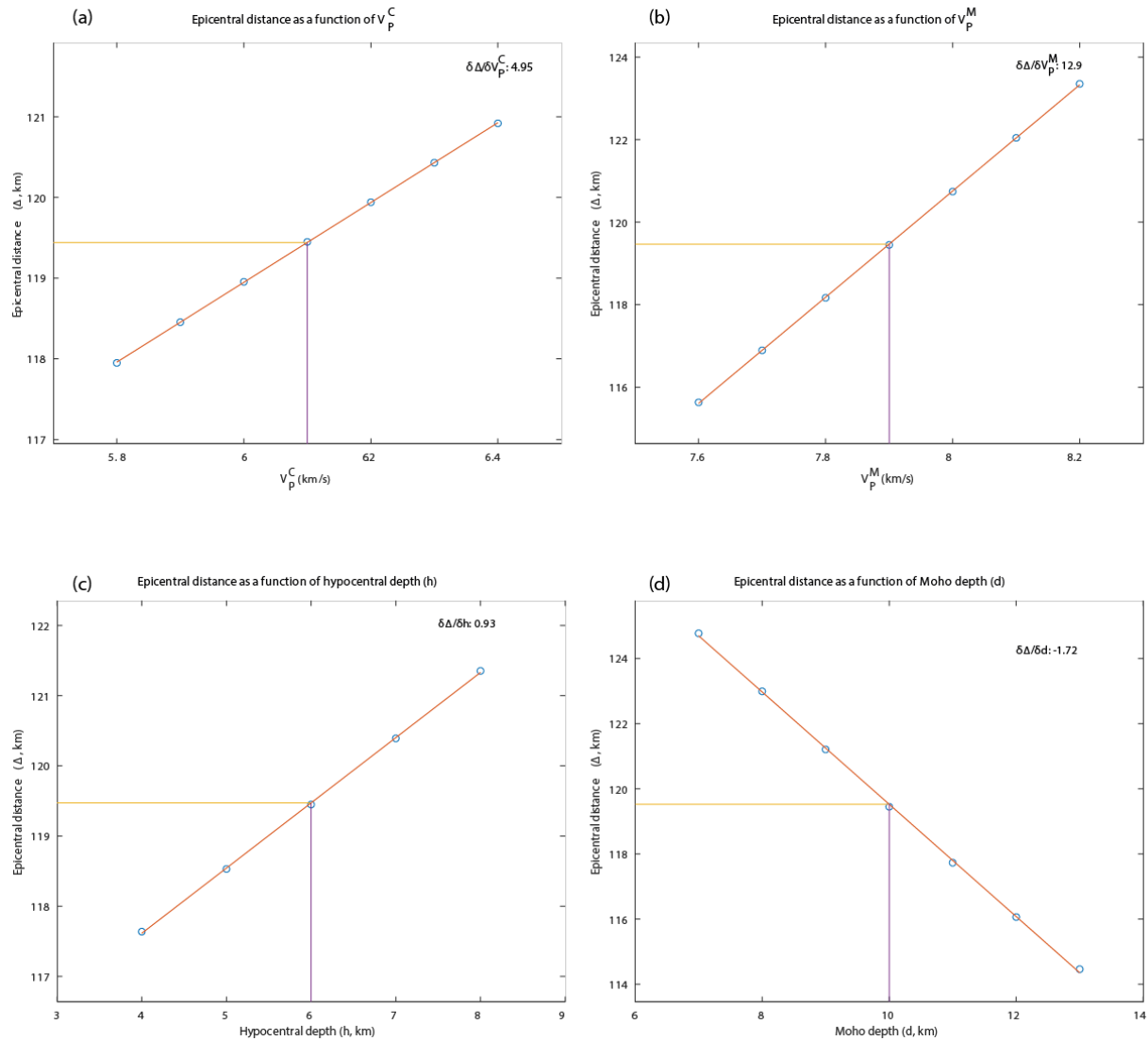


Figure S1. Influence of model parameters on the epicentral distance for events at a distance of ~ 140 km. Changes are shown for (a) the crustal P-wave velocity (V_P^C), (b) the P-wave velocity in the mantle V_P^M , (c) the hypocentral depth (h) and (d) the Moho depth (d).

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Cluster 3

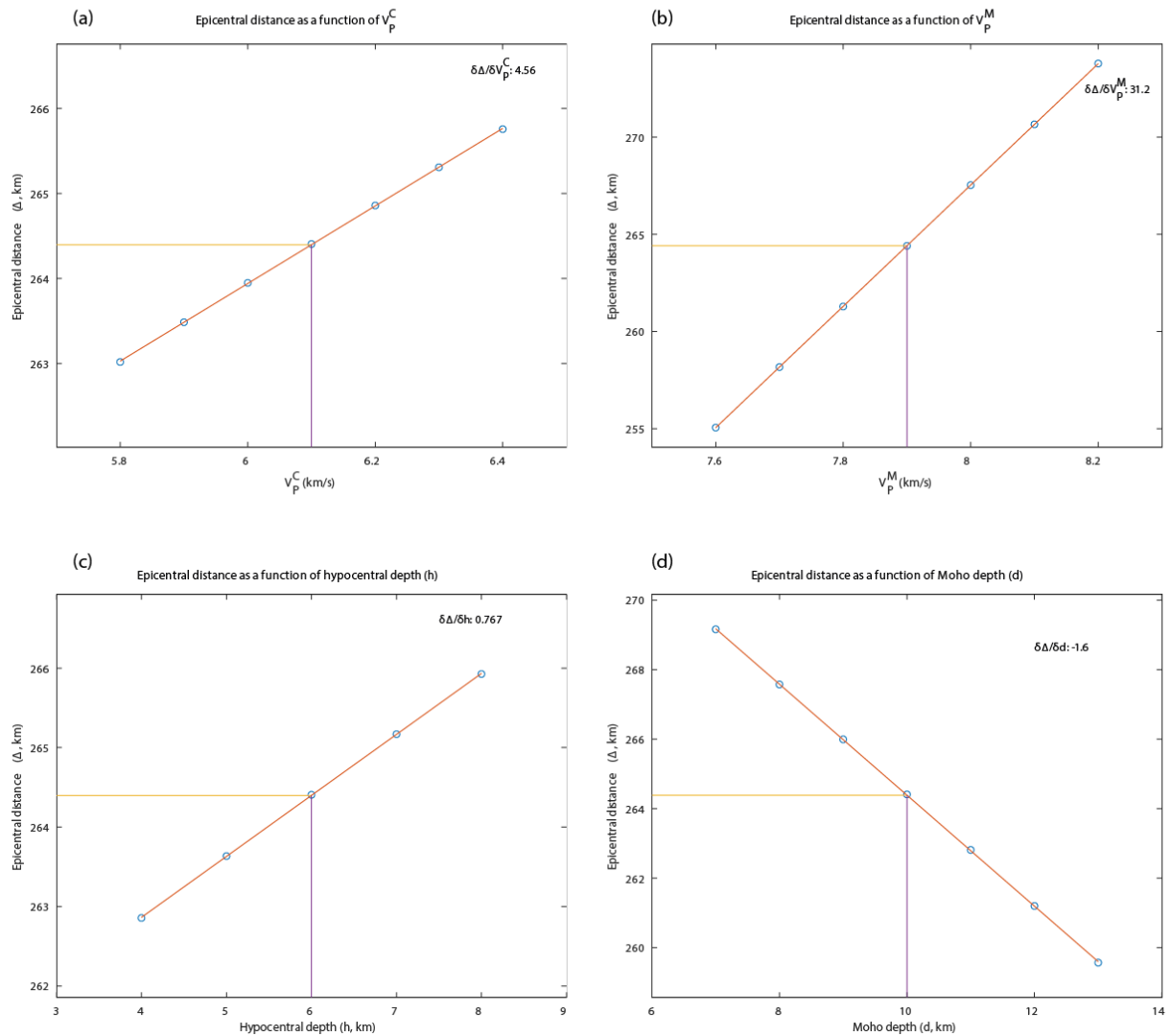


Figure S2. Influence of model parameters on the epicentral distance for events at a distance of ~ 265 km. Changes are shown for (a) the crustal P-wave velocity (V_P^C), (b) the P-wave velocity in the mantle V_P^M , (c) the hypocentral depth (h) and (d) the Moho depth (d).

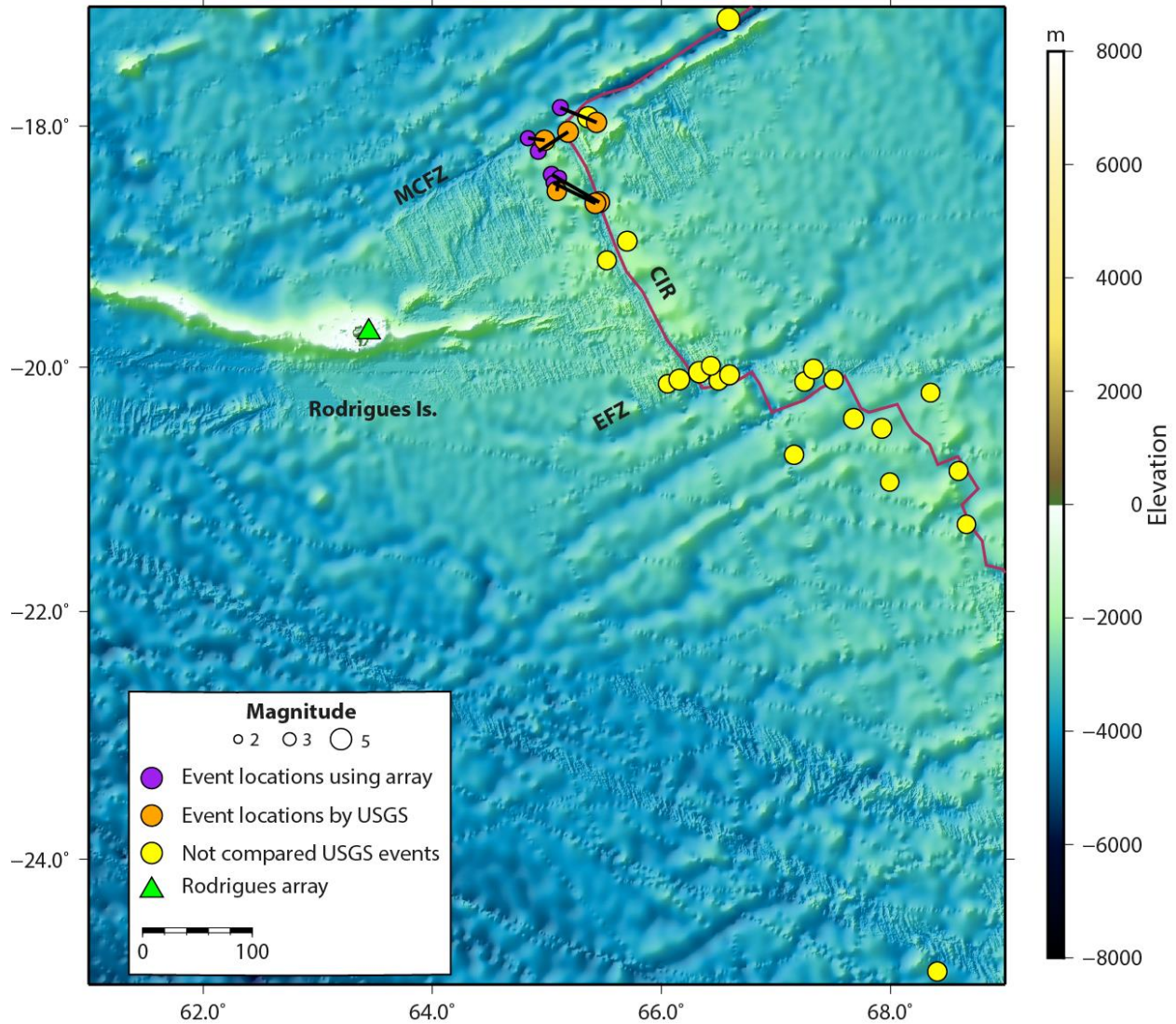


Figure S3: Event locations from the array analysis in comparison to those from the USGS database between September 2014 and June 2016. The black thin bars pair the respective events. Average and maximum separations between the locations for the same event are ~17 and ~32 km, respectively. For most of the events reported in the catalogue, no reliable location could be obtained using Rodrigues array (see section 3). MCFZ: Marie-Celeste fracture zone; EFZ: Egeria fracture zone.

Date,time (yymmdd,hh:mm:ss)	Lat. (°)	Lon. (°)	M_L	Dist.±SD (km)	BAZ (°)	BAZ error		v_a (km/s)
						Min. (°)	Max. (°)	
141104,12:18:31	-20.512	65.101	3.7±0.3	194.46±3.14	117.55	113.45	122.68	8.186
141125,00:53:54	-22.083	64.061	3.3±0.2	271.46±2.61	166.50	164.17	167.94	8.600
141127,01:57:58	-22.093	64.063	3.5±0.2	272.58±2.88	166.50	164.69	167.69	8.600
150107,21:03:19	-21.946	63.448	3.1±0.2	248.59±1.35	179.96	178.71	181.21	8.656
150117,19:24:18	-20.217	65.022	2.7±0.1	174.05±2.77	109.13	108.38	111.75	8.344
150202,21:07:05	-20.791	65.060	2.6±0.1	206.88±12.20	125.78	123.28	129.23	9.154
150212,22:08:04	-19.076	62.273	2.5±0.1	141.80±2.99	299.66	297.65	301.21	8.036
150214,08:46:45	-18.078	64.898	2.9±0.1	237.25±4.41	40.32	35.85	44.06	9.384
150217,21:43:41	-19.117	62.277	2.5±0.2	139.22±1.86	298.12	296.10	299.66	7.974
150217,22:36:07	-19.112	62.290	2.0±0.1	138.24±2.54	298.57	297.10	300.07	7.767
150308,19:02:23	-20.579	64.350	2.3±0.3	135.01±3.65	135.82	133.21	139.34	8.845
150310,20:57:35	-18.896	64.157	2.3±0.2	117.39±2.08	39.62	38.43	41.76	10.787
150311,14:46:41	-18.924	64.187	2.2±0.1	117.00±2.06	41.76	38.43	42.88	10.818
150321,10:30:34	-18.913	64.194	2.2±0.1	118.49±2.55	41.64	39.41	42.80	11.240
150321,11:41:39	-18.918	64.193	2.9±0.3	117.98±1.66	41.76	39.62	42.88	10.818
150322,19:13:48	-18.844	64.084	2.1±0.3	117.38±1.60	34.89	30.27	36.04	10.096
150323,02:08:22	-18.918	64.159	2.3±0.3	115.59±3.47	40.43	39.18	42.71	11.448
150324,23:49:14	-18.917	64.193	2.6±0.5	118.05±2.40	41.76	38.43	42.88	10.818
150325,04:36:39	-18.913	64.194	2.1±0.3	118.36±1.65	41.64	39.41	42.71	11.24
150325,09:52:03	-18.909	64.201	2.3±0.3	119.20±1.59	41.76	39.62	43.92	10.818
150325,12:53:06	-18.768	63.971	2.2±0.2	118.42±3.02	27.84	25.96	43.88	9.977
150327,17:32:44	-18.903	64.203	2.0±0.2	119.91±1.66	41.64	39.41	42.71	11.24
150327,18:28:19	-18.913	64.194	2.0±0.3	118.37±1.32	41.64	38.43	42.80	11.24
150328,18:36:13	-18.900	64.179	2.4±0.2	118.54±1.42	40.61	38.43	57.08	11.011
150330,02:12:43	-18.923	64.218	2.8±0.2	119.31±2.31	42.88	39.62	45.00	10.627
150331,01:04:36	-18.929	64.211	2.2±0.5	118.32±2.27	42.88	38.67	46.08	10.627
150331,16:30:29	-18.903	64.181	2.2±0.4	118.37±2.52	40.77	38.67	42.88	10.605
150406,20:25:42	-18.870	64.156	3.0±0.3	119.55±2.11	38.67	36.88	41.88	10.57
150407,13:28:36	-17.740	64.661	3.1±0.1	253.75±5.94	30.48	29.07	32.49	10.295
150408,14:54:35	-18.548	65.115	3.0±0.5	217.82±4.25	53.87	50.19	57.33	8.867
150408,15:50:50	-19.099	64.371	2.4±0.2	118.49±1.54	55.11	52.24	55.11	10.096
150412,16:15:36	-18.917	64.190	2.3±0.4	117.84±1.78	41.64	40.61	42.80	11.240
150413,23:40:29	-18.664	63.648	1.9±0.3	118.28±1.91	10.35	10.35	10.67	12.107
150416,00:51:55	-18.917	64.190	2.1±0.3	117.83±1.67	41.64	40.61	43.88	11.24
150419,17:46:08	-22.086	64.006	3.0±0.2	270.49±2.78	167.69	165.33	169.11	8.641
150422,02:36:21	-18.891	64.156	2.2±0.2	117.73±2.73	39.41	38.43	41.64	11.206
150425,22:12:51	-18.886	64.161	2.1±0.1	118.47±2.18	39.41	38.43	40.61	11.206
150506,17:19:15	-20.288	64.410	2.2±0.1	120.42±1.51	122.37	80.85	176.67	15.585
150508,07:19:32	-22.006	64.042	3.6±0.2	262.87±3.42	166.21	164.69	167.69	8.781
150511,21:01:30	-18.541	65.125	2.8±0.1	220.12±2.09	54.05	53.12	56.62	8.221
150518,14:40:30	-18.364	64.764	3.2±0.2	204.80±2.75	43.21	38.10	46.85	8.970
150518,17:50:30	-21.873	65.970	3.3±0.1	356.70±2.02	132.81	129.54	136.01	10.640

150521,07:09:33	-18.568	65.205	2.9±0.1	225.23±2.91	55.94	52.12	60.56	9.095
150526,00:24:46	-23.453	64.345	3.1±0.1	426.62±4.98	167.42	165.02	169.87	8.824
150604,12:38:18	-18.874	64.166	2.3±0.2	120.64±1.73	39.62	38.67	42.80	10.787
150707,21:57:28	-18.851	65.329	2.7±0.1	219.57±3.83	64.52	59.46	67.26	8.731
150730,02:43:14	-18.925	64.211	2.2±0.2	118.58±2.04	42.71	40.43	43.83	11.475
151001,19:22:45	-18.882	64.164	2.4±0.1	119.09±1.46	39.41	38.43	41.64	11.206
151012,20:47:05	-21.948	64.092	2.9±0.1	257.66±2.97	165.02	163.49	167.42	8.734
151020,16:51:28	-19.179	65.825	2.8±0.1	256.32±3.34	77.06	74.19	80.51	8.249
151114,20:36:38	-18.627	64.081	1.9±0.1	137.74±0.87	29.07	25.96	30.27	9.861
151115,18:42:15	-18.491	65.077	2.6±0.1	218.54±1.61	51.90	48.46	54.60	8.640
151130,16:19:41	-18.221	58.380	3.6±0.3	557.87±5.53	286.43	284.08	288.48	7.651
151130,22:27:54	-21.952	64.108	2.9±0.2	258.56±4.60	164.69	163.13	167.42	8.919
151211,17:20:39	-18.756	65.642	2.9±0.1	253.78±13.46	65.54	62.28	67.26	8.811
151217,23:27:55	-18.403	65.045	3.0±0.1	222.24±2.09	49.39	46.73	51.90	8.811
160212,19:21:45	-19.390	63.382	1.6±0.1	36.27±1.09	349.27	346.66	352.28	9.503
160215,17:29:25	-18.778	63.993	1.9±0.1	118.52±1.81	29.07	25.96	39.62	9.861
160330,21:54:15	-18.408	65.093	2.6±0.1	225.67±4.41	50.35	46.79	53.87	8.935
160402,18:13:37	-18.449	65.041	3.0±0.2	218.59±2.11	50.35	47.64	53.87	8.935
160412,19:28:01	-19.247	65.814	2.9±0.1	253.54±5.78	78.66	76.23	80.93	8.852
160421,18:15:49	-17.650	62.573	2.4±0.1	246.86±5.48	337.99	336.68	339.34	10.178
160503,21:31:33	-17.751	64.701	3.0±0.3	254.84±4.73	31.44	29.59	34.09	9.626

Table S1. Details of the events detected and located using Rodrigues array.

Date,time (yymmdd,hh:mm:ss)	Lat. (°)	Lon. (°)	M_L	Dist.±SD (km)	BAZ (°)
Cluster 1					
150310,20:57:35	-18.896	64.157	2.3±0.2	117.39±2.08	39.62
150311,14:46:41	-18.924	64.187	2.2±0.1	117.00±2.06	41.76
150321,10:30:34	-18.913	64.194	2.2±0.1	118.49±2.55	41.64
150321,11:41:39	-18.918	64.193	2.9±0.3	117.98±1.66	41.76
150322,19:13:48	-18.844	64.084	2.1±0.3	117.38±1.60	34.89
150323,02:08:22	-18.918	64.159	2.3±0.3	115.59±3.47	40.43
150324,23:49:14	-18.917	64.193	2.6±0.5	118.05±2.40	41.76
150325,04:36:39	-18.913	64.194	2.1±0.3	118.36±1.65	41.64
150325,09:52:03	-18.909	64.201	2.3±0.3	119.20±1.59	41.76
150327,17:32:44	-18.903	64.203	2.0±0.2	119.91±1.66	41.64
150327,18:28:19	-18.913	64.194	2.0±0.3	118.37±1.32	41.64
150328,18:36:13	-18.900	64.179	2.4±0.2	118.54±1.42	40.61
150330,02:12:43	-18.923	64.218	2.8±0.2	119.31±2.31	42.88
150331,01:04:36	-18.929	64.211	2.2±0.5	118.32±2.27	42.88
150331,16:30:29	-18.903	64.181	2.2±0.4	118.37±2.52	40.77
150406,20:25:42	-18.870	64.156	3.0±0.3	119.55±2.11	38.67
150412,16:15:36	-18.917	64.190	2.3±0.4	117.84±1.78	41.64
150416,00:51:55	-18.917	64.190	2.1±0.3	117.83±1.67	41.64
150422,02:36:21	-18.891	64.156	2.2±0.2	117.73±2.73	39.41

150425,22:12:51	-18.886	64.161	2.1±0.1	118.47±2.18	39.41
150604,12:38:18	-18.874	64.166	2.3±0.2	120.64±1.73	39.62
150730,02:43:14	-18.925	64.211	2.2±0.2	118.58±2.04	42.71
151001,19:22:45	-18.882	64.164	2.4±0.1	119.09±1.46	39.41
Cluster 2					
150212,22:08:04	-19.076	62.273	2.5±0.1	141.80±2.99	299.66
150217,21:43:41	-19.117	62.277	2.5±0.2	139.22±1.86	298.12
150217,22:36:07	-19.112	62.290	2.0±0.1	138.24±2.54	298.57
Cluster 3					
141125,00:53:54	-22.083	64.061	3.3±0.2	271.46±2.61	166.50
141127,01:57:58	-22.093	64.063	3.5±0.2	272.58±2.88	166.50
150419,17:46:08	-22.086	64.006	3.0±0.2	270.49±2.78	167.69
150508,07:19:32	-22.006	64.042	3.6±0.2	262.87±3.42	166.21
151012,20:47:05	-21.948	64.092	2.9±0.1	257.66±2.97	165.02
151130,22:27:54	-21.952	64.108	2.9±0.2	258.56±4.60	164.69
Cluster 4					
150408,14:54:35	-18.548	65.115	3.0±0.5	217.82±4.25	53.87
150511,21:01:30	-18.541	65.125	2.8±0.1	220.12±2.09	54.05
150521,07:09:33	-18.568	65.205	2.9±0.1	225.23±2.91	55.94
151115,18:42:15	-18.491	65.077	2.6±0.1	218.54±1.61	51.90
151217,23:27:55	-18.403	65.045	3.0±0.1	222.24±2.09	49.39
160330,21:54:15	-18.408	65.093	2.6±0.1	225.67±4.41	50.35
160402,18:13:37	-18.449	65.041	3.0±0.2	218.59±2.11	50.35

85 **Table S2.** Details of the events in Clusters 1, 2, 3 and 4.