

ANNUAL CATALOG OF EASTERN WASHINGTON SEISMICITY

July 1, 2006 through June 30, 2007

Dept. of Earth and Space Sciences
University of Washington
Seattle, Washington

This report is prepared as a final description of the seismic activity in the eastern part of the state of Washington and northern Oregon. This work was sponsored by the United States Government. Neither the United States, the Department of Energy, Pacific Northwest National Labs, nor any of their contractors, subcontractors, nor their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness or usefulness of any information contained herein.

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Prepared Aug 16, 2007, Revised Sept. 8, 2007

INTRODUCTION

The University of Washington Dept. of Earth and Space Sciences (formerly the Geophysics Program) has operated the Pacific Northwest Seismic Network (PNSN; formerly known as the Washington Regional Seismograph Network or WRSN) since 1970. The eastern Washington portion of this network was supported by the U.S. Department of Energy (DOE) between 1975 and 1988 as both a research and operational contract. In 1988 the support to the University of Washington changed from a direct DOE contract to an operational contract only; currently administered through Battelle Pacific Northwest National Labs. No research is directly supported under this contract.

This report consists of a catalog and map for the period July 1, 2006 through June 30, 2007. These same events have been available on-line. However, there may be slight changes from preliminary reports due to errors being found or additional data becoming available. A complete catalog of all earthquakes recorded and located by the University of Washington is available on-line along with other information about earthquake hazards and tectonics in the region at URL: <http://www.pnsn.org>

NOTABLE SEISMICITY

This report includes events in an area from 44 to 49 degrees north latitude, and from 117 to 121.5 degrees west longitude. During this reporting period, 493 earthquakes and 65 blasts were located within this area. Three earthquakes were reported felt. The largest was a magnitude 3.6 earthquake on March 1, 2007 (UTC) located about 13 km east-southeast of Maupin, OR at a depth of about 24 km. A swarm of earthquakes began in the Maupin area in December 2006, and 120 earthquakes, including 6 events magnitude 3.0 or larger, were located there during this reporting period.

Two felt earthquakes, magnitude 3.1 and 2.5, were located in the Entiat area, a locale with an ongoing above-average rate of seismicity since at least 1970. The first occurred on July 25, 2006 (UTC) at a depth of about 7 km about 3 km south-southeast of Entiat. The second was on November 30, 2006 (UTC) and located about 3 km north-northeast of Entiat.

East-northeast of Moses Lake, a swarm of 39 earthquakes, ranging in magnitude from 0.9 to 3.0, most with depths of less than 1 km, began on July 9 and continued until Sept. 4, 2006. Although the standard PNSN locations seem to indicate a linear distribution, the PNSN station coverage is not ideal in this area, and a preliminary study suggests that all these swarm events probably occurred in a fairly tight spatial cluster.

A swarm of 22 earthquakes, none larger than magnitude 2.0 occurred in March, April, and May of 2007 in the vicinity of Skykomish, and a swarm of 17 earthquakes (magnitudes ranging from .1 to 1.3) occurred June 8-12 about 15 km east of Glacier Peak

PNSN Quarterly Reports provide more detailed information on eastern Washington earthquakes between 45.5 - 49.5 degrees north latitude and 117 - 121 degrees west longitude for two of the quarters (2006-C and 2006-D) covered in this report. PNSN Quarterly Reports were discontinued at the end of 2006.

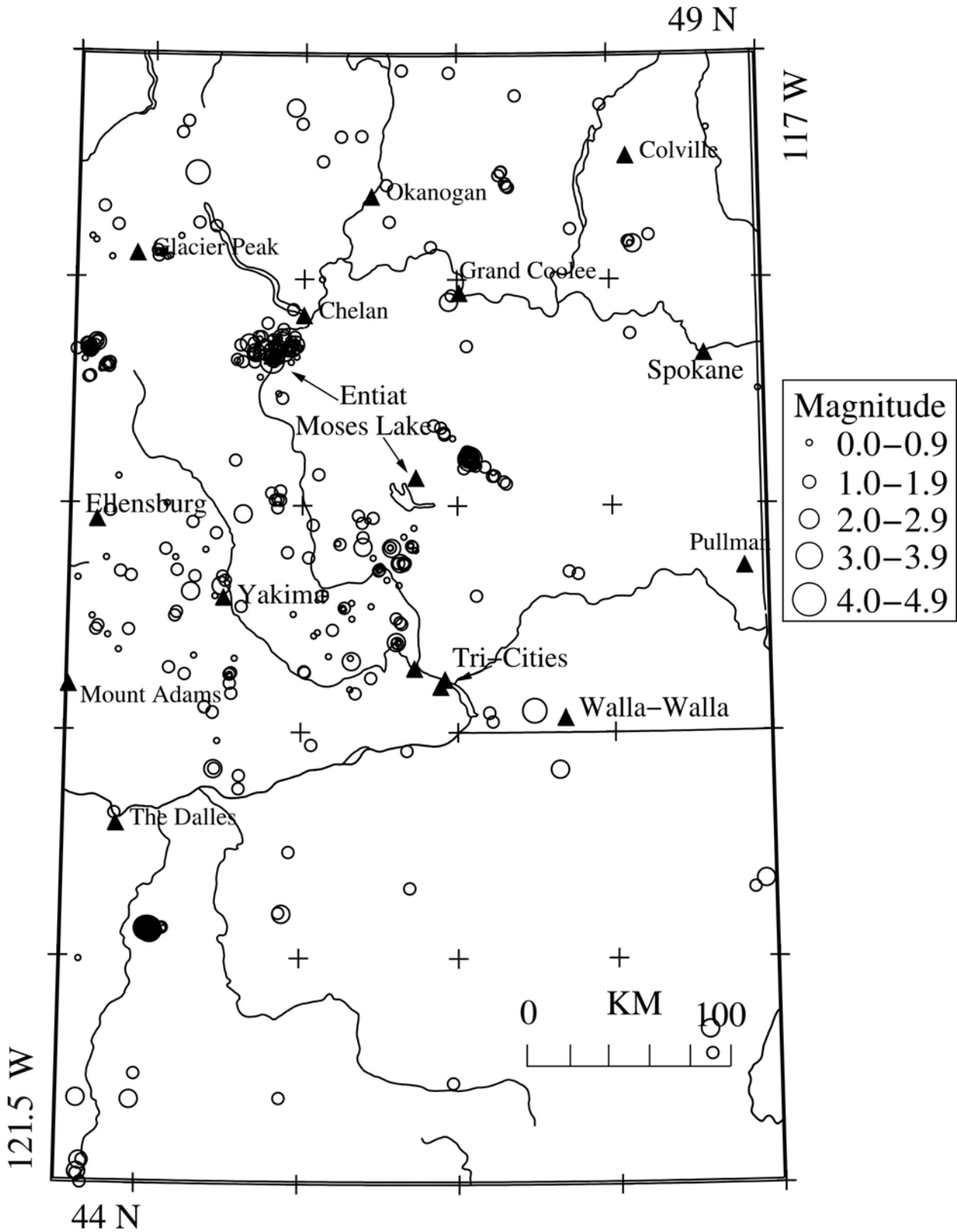


Figure 1. Earthquakes located in eastern Washington with magnitudes greater than or equal to 0.0; July 1 2006 - June 30, 2005.. Triangles indicate cities or geographic landmarks.

KEY TO EARTHQUAKE CATALOG

Origin time is calculated for each earthquake on the basis of multi-station arrival times. Time is given in Coordinated Universal Time (UTC), in hours:minutes:seconds. To convert to Pacific Standard Time (PST) subtract eight hours, or to Pacific Daylight Time (PDT) subtract seven hours.

North latitude of the epicenter, in degrees and minutes.

West longitude of the epicenter, in degrees and minutes.

The depth, given in kilometers, is usually freely calculated from the arrival-time data. In some instances, the depth must be fixed arbitrarily to obtain a convergent solution. Such depths are noted by an asterisk (*) in the column immediately following the depth. A \$ or a # following the depth mean that the maximum number of iterations has been exceeded without meeting convergence tests and both the location and depth have been fixed.

Coda-length magnitude M_c An estimate of local Richter magnitude (Richter, C.F., 1958, Elementary Seismology: W.H. Freeman and Co., 768p), calculated using the coda-length/magnitude relationship determined for Washington (Crosson, R.S., 1972, Bull. Seism. Soc. Am., v. 62, p. 1133-1171). Where blank, data were insufficient for a reliable magnitude determination. Normally, the only earthquakes with undetermined magnitudes are very small ones. Magnitudes may be revised as we improve our analysis procedure.

NS The number of station observations, and

NP The number of P and S phases used to calculate the earthquake location. A minimum of three stations and four phases are required. Generally, more observations improve the quality of the solution.

Azimuthal gap. (GAP) The largest angle (relative to the epicenter) containing no stations.

The root-mean-square residual (RMS) (observed arrival time minus predicted arrival time) at all stations used to locate the earthquake. It is only useful as a measure of the quality of the solution when 5 or more well distributed stations are used in the solution. Good solutions are normally characterized by RMS values less than about 0.3 sec.

Two **Quality factors** indicate the general reliability of the solution (A is best quality, D is worst). Similar quality factors are used by the USGS for events located with the computer program HYPO71.

The first quality factor letter is a measure of the hypocenter quality based on travel time residuals. For example: Quality **A** requires an **RMS** less than 0.15 sec while an **RMS** of 0.5 sec or more is **D** quality (estimates of the uncertainty in hypocenter location also affect this quality parameter).

The second letter of the quality code depends on the spatial distribution of stations around the epicenter i.e. number of stations, their azimuthal distribution, and the minimum distance (**DMIN**) from the epicenter to a station. Quality **A** requires a solution with 8 or more phases, **GAP** less than or equal to 90 degrees, and **DMIN** less than or equal to 5 km or depth, whichever is greater. If the number of phases, **NP**, is 5 or less or **GAP** greater than 180 degrees or **DMIN** greater than 50 km the solution is assigned quality **D**.

The crustal velocity model used in location calculations.

C3	- Cascade model
N3	- northeastern model
E3	- southeastern model
O0	- Oregon model
R0	- Regional model

Events flagged in Catalog use the following code:

F	- earthquakes reported to have been felt
P	- probable explosion
L	- low frequency earthquakes
H	- handpicked from helicorder records
X	- known explosion

Event Catalog July 1, 2006 - June 30, 2007**44.0 -49.0 degrees N Latitude, 117.0-121.5 degrees W Longitude**

July 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
2	05:41:01.39	47 43.88	120 11.97	0.51	1.1	5/006	128	0.74	DD	N3	
3	00:18:01.48	47 40.70	120 07.16	6.01	-0.5	4/006	163	0.05	AD	N3	
4	11:30:46.48	47 44.68	120 17.61	0.71	1.5	16/019	68	0.17	BC	N3	
4	11:32:48.36	46 48.08	120 37.16	12.91	0.9	5/006	117	0.25	BD	E3	
7	03:10:53.69	47 43.08	120 04.43	4.35	0.8	5/008	133	0.05	AD	N3	
7	18:20:14.98	46 09.42	119 08.07	0.02#	1.9	7/007	159	0.77	DC	E3	P
8	06:26:37.59	46 49.02	119 36.49	18.53	2.2	38/040	32	0.2	BA	E3	
9	01:58:28.08	47 09.87	118 57.44	0.92	1.0	6/007	170	0.23	BC	N3	
10	04:24:29.48	46 30.01	121 20.34	2.44\$	0.5	4/005	171	0.17	DD	C3	
14	12:19:04.10	47 39.32	120 11.15	5.85	0.2	3/005	168	0.01	AD	N3	
15	19:50:55.01	47 17.85	119 01.81	0.45	0.9	7/007	116	0.73	DC	N3	
16	06:35:13.72	47 45.15	120 07.08	4.22*	-0.1	3/005	218	0.04	AD	N3	
16	17:22:20.83	47 41.61	120 07.59	7.18	-0.1	3/005	149	0.02	AD	N3	
19	18:38:21.23	46 57.84	120 23.06	3.17	2.4	16/016	59	0.31	CC	E3	P
22	21:20:30.56	47 43.74	120 13.37	5.99	-0.5	3/004	207	0	AD	N3	
23	04:56:37.24	46 38.93	119 22.63	19.79	0.8	9/010	146	0.17	BC	E3	
25	06:13:37.88	47 38.21	120 12.42	6.71	3.1	41/042	45	0.28	BB	N3	F
26	05:41:35.05	47 38.42	120 12.11	1.5	0.3	4/005	177	0.02	AD	N3	
26	18:45:07.38	45 55.10	119 19.49	0.02*	1.7	9/009	256	0.24	BD	E3	
27	09:41:54.90	47 40.17	120 19.21	1.72\$	1.5	14/017	68	0.42	CB	N3	
27	13:01:43.47	46 31.11	120 03.18	16.38	0.6	9/013	160	0.09	AC	E3	
27	19:41:39.01	47 54.03	119 03.33	0.78\$	2.7	20/021	107	0.28	CC	N3	
27	21:14:49.81	46 42.55	118 16.95	13.69	1.6	7/008	271	0.12	BD	E3	
Aug 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	17:27:35.75	47 03.83	120 08.58	0.44	1.3	7/007	112	0.85	DC	N3	
1	19:06:47.75	47 10.32	118 49.34	6.64\$	1.3	9/010	181	0.85	DD	N3	
2	10:42:58.20	47 42.95	120 21.47	6.06	2.1	22/024	70	0.21	BC	N3	
3	02:13:41.07	47 13.13	118 55.70	0.38	1.5	11/011	156	0.35	CC	N3	
3	02:21:25.17	47 12.85	118 55.38	0.03*	1.6	14/014	161	0.25	BC	N3	
3	02:37:17.01	47 14.11	118 55.22	0.72	1.1	8/008	154	0.32	CC	N3	
3	03:55:44.35	47 12.65	118 55.57	0.79	1.8	16/016	141	0.32	CC	N3	
3	23:42:33.27	47 12.36	118 54.86	1.29\$	1.8	26/026	144	0.37	CC	N3	
4	00:58:55.39	47 13.14	118 55.63	4.74	2.1	27/027	139	0.31	CC	N3	
4	01:06:10.51	47 13.52	118 57.75	0.05*	0.4	7/009	154	0.51	DC	N3	
4	08:27:42.32	47 21.26	119 09.19	1.08	1.2	3/004	248	0.53	DD	N3	
4	19:53:16.85	44 22.41	121 02.16	0.04*	2.5	10/010	120	0.22	BB	O0	P
5	04:50:10.74	47 13.43	118 55.18	0.62	1.6	5/005	161	0.48	CD	N3	
5	08:19:27.54	46 46.17	119 32.55	13.55	0.6	12/015	114	0.1	AB	E3	
5	22:54:55.12	47 44.24	120 09.73	8.3	0.9	3/004	170	0	AD	N3	
6	02:46:55.58	46 42.13	121 09.86	16.13	1.1	6/007	306	0.13	CD	C3	
6	12:37:58.28	47 12.91	118 55.54	0.68	1.7	12/012	166	0.33	CC	N3	
6	13:50:42.56	47 12.85	118 55.06	1.4	2.1	20/020	142	0.29	BC	N3	
6	14:11:43.30	47 12.81	118 55.70	0.94	1.4	11/011	163	0.37	CC	N3	
6	14:12:23.00	47 07.90	118 45.48	0.85	1.9	6/006	200	0.51	DD	N3	
6	14:27:06.37	47 18.88	119 05.06	1.24	1.2	6/006	220	0.06	BD	N3	

Aug 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
6	14:46:04.12	47 12.65	118 55.85	0.97\$	2.1	19/019	157	0.36	CC	N3	
6	15:02:52.87	47 12.72	118 55.12	2.75	2.1	23/023	142	0.27	BC	N3	
6	15:03:36.27	47 11.26	118 54.31	0.95	1.8	7/007	169	0.23	BC	N3	
7	04:19:33.03	47 12.88	118 53.71	0.67	1.8	9/009	171	0.6	DC	N3	
7	20:27:53.00	47 12.62	118 55.57	0.79#	1.9	6/007	141	0.64	DC	N3	
8	11:14:25.82	47 20.69	119 06.44	0.8	1.1	4/005	240	0.26	DD	N3	
9	06:46:45.31	47 06.32	118 41.86	0.73	1.2	4/005	241	0.23	CD	N3	
10	00:50:21.34	47 01.39	120 10.55	2.84	1.1	6/006	160	0.33	CC	E3	
10	07:17:21.09	46 41.03	120 41.20	11.6	1.7	14/015	75	0.19	BB	E3	
10	17:44:22.32	45 52.21	120 17.17	0.02*	1.7	7/007	195	0.32	CD	E3	P
10	21:07:41.39	46 19.30	120 25.59	15.74	0.5	3/004	230	0	AD	E3	
11	20:32:22.87	47 14.36	118 56.21	0.65	1.1	4/004	159	0.4	CD	N3	
11	23:16:48.55	47 11.84	118 54.47	0.04*	1.5	9/009	172	0.37	CC	N3	
11	23:40:19.44	47 11.62	118 54.31	0.79	1.3	6/006	181	0.65	DD	N3	
11	23:41:19.34	47 07.87	118 46.32	0.53	1.1	4/004	210	0.64	DD	N3	
11	23:47:35.70	47 12.84	118 55.36	0.86\$	2.1	17/017	141	0.37	CC	N3	
11	23:48:55.33	47 19.35	119 05.08	0.61	1.2	5/006	233	0.39	DD	N3	
11	23:51:16.24	47 08.84	118 46.06	0.04*	0.9	6/006	186	0.73	DD	N3	
11	23:51:54.89	47 12.26	118 53.87	0.03*	1.3	8/008	173	0.41	CC	N3	
12	00:12:29.85	47 43.30	120 11.40	4.1	0.9	3/004	190	0	AD	N3	
12	02:43:39.75	47 40.58	120 07.48	0.61	2.0	16/018	52	0.36	CC	N3	
12	19:46:22.76	46 42.81	119 30.42	0.45	1.1	11/012	75	0.07	AB	E3	
13	21:14:29.95	48 11.17	120 48.83	6.08	0.9	5/006	217	0.09	AD	C3	
15	23:10:49.35	46 03.05	118 54.15	1.04	2.2	14/015	154	0.13	AC	E3	P
16	18:33:46.11	47 01.36	120 08.57	0.53	1.0	5/005	134	0.42	CD	N3	
16	21:09:00.47	47 42.42	120 12.95	7.08	0.5	3/004	168	0	AD	N3	
17	17:05:56.10	47 45.57	117 52.10	0.04#	1.9	4/004	300	0.22	BD	N3	
21	02:43:43.81	48 05.51	120 54.12	5.72	0.8	5/007	222	0.2	BD	C3	
21	23:21:14.30	47 01.57	120 09.47	0.4	1.1	7/007	126	0.46	CC	N3	
21	23:31:26.70	45 48.21	120 21.19	0.04*	2.6	31/031	69	0.24	BC	E3	P
22	00:41:47.64	46 59.37	120 09.60	0.03*	1.2	7/007	90	0.37	CC	E3	
22	01:06:09.59	47 12.40	118 55.05	5.7	3.0	34/034	123	0.23	BC	N3	
22	01:09:37.34	47 11.84	118 53.81	0.56	1.6	7/007	148	0.52	DC	N3	
22	02:28:16.57	47 12.45	118 55.28	0.42	1.3	9/009	168	0.31	CC	N3	
22	03:28:13.98	47 13.98	118 56.36	0.62	1.5	6/006	156	0.27	BC	N3	
22	05:34:54.99	47 12.53	118 56.29	0.53	1.9	17/017	139	0.36	CC	N3	
22	13:05:14.88	47 12.49	118 55.67	0.55	2.0	12/012	141	0.34	CC	N3	
24	07:14:37.65	47 38.97	120 10.05	0.71	1.9	14/015	62	0.22	BC	N3	
24	18:19:42.70	46 42.91	119 30.29	0.49	0.8	6/006	94	0.05	AC	E3	
25	13:04:42.26	46 36.67	119 51.04	8.56*	0.5	5/006	215	0.18	BD	E3	
25	15:48:17.53	45 38.13	121 10.23	17.06*	1.6	4/004	233	0	AD	C3	
26	09:47:19.00	47 43.43	121 21.62	7.84*	1.2	11/014	69	0.28	BC	C3	
27	22:23:16.25	46 30.08	119 23.65	2.89	1.2	5/006	150	0.09	BD	E3	
28	09:04:58.93	46 39.96	120 29.47	10.56*	1.2	4/006	162	0.07	AD	E3	
28	21:41:28.72	46 02.67	118 54.48	1.3	2.3	14/014	164	0.21	BC	E3	P
29	00:50:51.43	47 40.00	120 08.02	3.4	0.1	3/004	169	0	AD	N3	
29	16:27:34.69	47 03.25	120 12.01	0.62	1.8	10/010	129	0.29	BC	N3	
29	21:08:22.07	46 15.44	119 27.76	0.34	1.3	4/004	230	0.03	AD	E3	P

Sept 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
2	11:41:43.74	47 39.22	120 23.88	9.9	-0.3	3/004	181	0	AD	N3	
2	12:51:54.14	46 14.24	119 33.34	15.11	1.3	17/021	201	0.07	AD	E3	
3	03:55:31.13	46 19.99	120 41.15	16.55	0.7	4/005	206	0.18	BD	E3	
3	16:39:12.80	47 33.93	120 16.98	7.73	0.9	6/007	191	0.07	AD	N3	
3	23:02:43.18	47 43.04	120 02.67	4.39	0.7	3/005	223	0.02	AD	N3	
4	00:28:29.98	47 13.17	118 54.70	0.79	0.9	8/008	142	0.65	DC	N3	
4	10:24:06.42	48 06.77	120 56.16	1.15	0.1	3/004	184	0.1	AD	C3	
4	19:24:35.65	46 40.19	121 26.21	7.47	0.9	9/010	223	0.05	AD	C3	
6	06:52:32.42	47 44.23	120 10.52	4.95	0.6	3/005	170	0	AD	N3	
6	08:45:29.12	47 42.65	120 04.77	0.95\$	0.9	3/006	235	0.08	DD	N3	
6	23:17:00.03	46 55.45	119 36.83	18.15	1.4	24/027	62	0.12	AA	E3	
8	18:06:44.02	47 38.49	120 12.37	5.77	1.3	5/006	174	0.06	AD	N3	
10	10:34:40.22	46 52.54	120 33.15	0.31#	1.4	5/005	238	0.43	CD	E3	
12	17:23:44.41	46 38.54	120 31.00	0.02*	2.7	27/027	48	0.33	CC	E3	
14	16:16:03.77	46 12.68	120 27.33	0.02*	1.2	3/004	306	0.22	BD	E3	
14	18:37:51.05	47 09.49	120 15.76	1.73\$	2.3	4/006	307	0.31	DD	N3	P
15	19:51:26.68	44 22.22	121 02.33	0.96	2.7	18/018	85	0.19	BC	O0	
16	10:48:32.52	48 06.55	120 55.88	1.27	0.8	3/005	182	0.11	AD	C3	
16	12:57:54.80	48 14.81	120 41.69	5.47	1.5	5/008	240	0.12	AD	C3	
16	14:59:57.91	48 06.32	120 56.20	1.11	0.5	3/005	179	0.08	AD	C3	
17	00:07:02.54	47 33.46	121 24.12	9.93*	1.1	7/009	178	0.1	AC	C3	
17	10:02:51.93	47 41.67	120 08.44	5.93	-0.1	3/005	155	0.01	AD	N3	
20	01:07:49.17	47 39.22	120 14.77	5.95	0.1	3/005	172	0.02	AD	N3	
20	18:12:56.85	48 07.06	120 56.28	1.25	0.8	3/005	186	0.12	BD	C3	
20	19:42:48.81	46 37.02	120 42.76	0.86	2.1	8/008	136	0.31	CC	C3	
20	23:43:45.44	46 37.10	120 16.43	2.17*	1.2	6/006	115	0.06	AC	E3	P
21	00:15:06.25	46 10.17	119 39.27	8.33	1.2	13/014	144	0.05	AC	E3	
21	00:45:00.11	46 11.22	119 41.32	8.76	0.8	8/008	305	0.06	AD	E3	
21	02:23:59.23	48 07.08	120 56.13	1.06	0.3	3/004	186	0.1	AD	C3	
21	08:10:59.18	48 07.29	120 57.94	10.15	1.0	5/008	145	0.14	AD	C3	
21	08:51:26.18	48 07.03	120 58.02	10.47\$	0.7	4/007	144	0.15	CD	C3	
22	04:28:03.70	47 44.10	120 17.41	4.05	0.2	5/007	93	0.05	AD	N3	
22	08:54:00.06	48 06.76	120 57.71	11	0.9	5/007	143	0.18	BD	C3	
22	09:20:19.65	48 06.54	120 57.44	8.28\$	0.5	4/006	181	0.16	DD	C3	
22	17:24:22.83	48 45.36	120 03.97	3.44	2.7	17/019	118	0.57	DD	N3	
22	22:06:11.04	46 08.93	119 11.59	0.43\$	2.4	13/013	186	0.19	CD	E3	P
23	20:06:28.80	46 44.78	119 22.72	2.49	1.6	17/017	83	0.07	AB	E3	
24	01:01:05.58	48 05.89	120 57.63	10.53\$	1.3	10/015	140	0.45	CC	C3	
25	21:20:40.11	47 39.48	120 11.14	6.71	0.6	3/004	166	0	AD	N3	
29	17:47:17.89	45 37.64	121 13.03	1.47	2.0	7/007	150	0.36	CC	C3	P

Oct 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	21:21:28.82	47 33.66	121 23.45	10.12	1.9	16/017	85	0.12	AC	C3	
4	22:03:58.45	46 14.53	120 27.27	0.03*	0.9	5/006	204	0.21	BD	E3	
6	18:51:40.89	46 54.13	119 16.85	0.03*	0.5	10/011	125	0.11	AC	E3	
7	11:18:44.45	47 46.49	120 10.54	0.66	-0.8	3/004	222	0.03	AD	N3	
8	03:20:07.85	46 49.73	119 45.41	0.49	1.7	15/015	105	0.08	AB	E3	
8	07:37:28.47	46 09.97	120 26.71	12.37	1.4	15/018	62	0.18	BB	C3	
10	01:12:48.19	45 04.44	121 20.45	6.42	1.9	6/006	188	0.1	AD	O0	P
10	09:40:53.84	46 44.78	119 22.09	4.18	2.1	23/025	75	0.16	BB	E3	
10	16:33:30.53	47 43.39	120 04.55	6.64	0.4	3/005	268	0.03	AD	N3	
11	01:50:32.02	47 38.09	121 25.74	10.5	0.9	7/008	197	0.02	AD	C3	
12	02:20:36.39	47 37.06	121 17.10	7.24	1.3	11/012	79	0.11	AC	C3	
12	20:31:04.45	48 09.35	117 50.48	3.60\$	2.0	9/009	118	0.39	CC	N3	
13	05:25:12.01	48 41.14	120 01.19	0.8	1.8	6/006	302	0.37	DD	N3	
13	18:59:53.59	44 05.80	121 20.33	0.05*	2.2	13/013	85	0.24	BA	O0	
13	21:21:57.83	47 38.31	120 26.07	9.67	0.9	4/005	215	0.02	AD	N3	
19	21:51:53.44	46 22.71	117 49.30	0.02*	2.3	8/008	243	0.18	BD	E3	P
19	22:12:06.00	46 15.05	120 27.38	0.03*	0.9	7/008	87	0.14	AB	E3	
20	04:40:52.42	47 40.23	120 18.66	0.54	0.2	3/004	220	0.02	AD	N3	
20	23:15:08.05	47 25.30	117 17.48	0.02*	2.9	10/010	170	0.46	CD	N3	P
20	23:25:53.34	44 22.44	121 22.00	5.70#	2.3	9/009	138	0.14	AC	O0	
21	18:16:14.15	47 42.39	120 10.85	1.29	0.2	4/006	132	0.06	BD	N3	
22	08:55:23.45	46 15.04	120 44.59	0.04*	1.3	7/007	179	0.32	CC	C3	
22	20:36:57.26	47 10.61	118 52.87	0.53	1.2	7/007	163	0.29	BC	N3	
26	10:08:57.06	47 07.28	121 11.41	10.4	0.7	6/007	134	0.48	CC	C3	
28	15:04:18.97	48 37.77	119 45.82	1	1.4	6/006	172	0.31	CD	N3	
30	20:44:22.68	47 36.28	121 16.19	4.45	1.6	17/017	68	0.24	BC	C3	
31	09:43:02.47	47 05.80	118 40.97	1.32*	1.1	4/004	251	0	AD	N3	
Nov 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
2	15:55:17.01	47 39.55	120 10.41	3.64	0.9	3/005	167	0.02	AD	N3	
7	20:36:20.83	47 40.07	120 19.44	0.62	1.5	8/009	102	0.06	AB	N3	
8	02:06:50.40	47 42.52	120 03.37	4.93	2.2	14/014	56	0.24	BB	N3	
9	01:41:32.32	48 05.86	120 53.15	1.12	0.7	3/004	177	0.06	AD	C3	
9	14:38:05.80	48 10.68	121 24.00	1.29	0.1	4/006	124	0.21	BD	C3	
11	21:12:04.73	45 07.35	120 56.41	12.48	1.1	5/005	138	0.13	CD	O0	
12	01:54:17.46	47 39.96	120 14.96	0.65	1.9	10/011	109	0.05	AB	N3	
12	17:27:24.32	46 24.10	119 24.20	4.32	0.5	4/004	166	0	AD	E3	
14	12:16:51.95	46 47.50	120 05.63	11.12	1.6	25/025	72	0.17	BB	E3	
15	00:55:26.01	47 26.75	120 35.59	7.32	1.4	6/006	156	0.2	BC	C3	P
15	09:22:49.25	47 42.27	118 56.32	18.13	1.8	7/008	134	0.18	BB	N3	
17	17:34:54.86	45 11.68	120 06.73	6.74	2.3	7/007	190	0.31	CD	O0	
18	01:09:37.14	46 43.07	119 30.10	2.97	1.3	9/009	86	0.06	AB	E3	
18	13:01:57.58	45 11.91	120 07.84	0.03*	1.9	15/015	113	0.16	BC	O0	
20	08:30:08.90	47 37.96	120 04.98	14.37	0.7	5/006	207	0.01	AD	N3	
21	21:56:59.29	47 59.95	119 52.92	0.54	0.8	3/004	177	0.05	AD	N3	
22	07:34:36.28	46 27.46	121 18.07	0.03*	1.3	12/013	75	0.17	BC	C3	
24	01:38:28.01	47 40.64	120 08.50	8.29	0.9	4/004	160	0	AD	N3	
24	10:21:29.51	47 37.96	120 19.23	0.52	1.0	6/008	121	0.08	AC	N3	

Nov 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
24	23:22:37.64	48 13.98	121 13.78	9.56*	1.2	6/009	144	0.68	DC	C3	
25	20:31:51.61	46 48.22	119 16.20	12.73	0.2	6/007	142	0.24	BC	E3	
26	01:25:23.01	47 42.69	120 08.61	9.37	0.6	5/006	134	0.16	BD	N3	
27	23:01:12.04	46 26.54	121 18.88	2.03	1.0	7/008	135	0.12	AC	C3	
28	16:54:06.95	46 26.69	121 06.28	0.02*	1.4	13/013	88	0.29	BC	C3	
29	09:58:57.65	47 37.28	121 15.87	10.09	1.6	16/017	74	0.25	BC	C3	
29	20:53:43.14	47 38.57	120 26.06	0.63	1.3	6/009	185	0.05	AD	N3	
30	17:50:59.68	47 40.94	120 12.18	0.63	2.5	21/023	69	0.34	CC	N3	F
Dec 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
2	05:14:06.97	46 16.73	120 50.64	4.23	1.5	5/005	133	0.25	BD	C3	
2	05:39:39.17	46 05.12	118 47.94	16.19*	1.0	9/009	131	0.1	AB	E3	
5	12:07:13.02	45 07.47	120 55.82	14.41	1.6	7/007	133	0.1	BB	O0	
6	12:18:59.08	47 41.91	120 18.49	2.21	0.0	4/005	126	0.03	AD	N3	
8	04:13:45.81	45 07.12	120 55.71	12.39	1.1	13/013	90	0.13	AC	O0	
8	15:02:14.45	47 44.26	120 13.14	0.53	0.1	3/004	173	0.13	BD	N3	
8	19:59:00.75	46 15.46	120 26.92	1.18*	1.0	6/006	133	0.08	AC	E3	
8	21:51:48.07	46 51.76	119 20.71	0.46	0.7	11/011	177	0.14	AC	E3	
9	02:02:39.80	48 41.72	120 46.64	0.51\$	1.6	6/007	267	0.87	DD	C3	
9	06:55:44.26	46 44.01	119 29.83	8.46*	0.6	4/004	176	0.01	AD	E3	
9	09:49:01.53	46 43.26	119 29.77	2.78	0.9	7/007	150	0.11	BC	E3	
9	19:25:16.53	47 42.97	120 19.56	0.73	1.1	5/006	117	0.09	AD	N3	
10	08:19:42.03	46 55.41	120 42.27	2.02	1.9	32/033	36	0.23	BC	C3	
10	12:01:34.50	46 23.51	119 22.92	0.33	0.8	7/007	142	0.23	BC	E3	
10	18:28:37.06	44 59.23	121 22.32	15.23	0.8	5/005	154	0.02	AD	O0	
11	09:04:42.72	45 07.16	120 57.12	13.39	1.8	17/018	67	0.24	BC	O0	
12	18:31:19.78	46 30.53	120 48.66	0.68	1.5	6/006	147	0.54	DC	C3	
13	04:47:46.54	46 42.65	120 48.06	11.94	1.8	29/030	53	0.23	BA	C3	
15	01:42:00.09	47 40.46	120 18.77	0.54	2.5	24/027	98	0.2	BB	N3	
16	18:18:46.46	46 15.08	120 27.48	0.02*	1.1	8/008	83	0.21	BB	E3	
17	09:00:36.66	44 22.79	120 07.01	1.79\$	1.7	16/018	64	0.4	CC	O0	
18	07:18:35.08	45 06.82	120 56.28	16.44	2.1	23/025	57	0.24	BB	O0	
18	22:59:28.54	45 56.39	119 16.13	3.68	1.5	6/006	195	0.08	BD	E3	P
20	09:43:26.58	46 05.69	118 30.78	13.57\$	3.4	47/050	56	0.39	CC	E3	
20	12:47:27.94	47 41.80	120 01.46	7.75	0.7	4/007	240	0.06	AD	N3	
20	19:52:52.46	46 31.50	120 48.06	0.95	1.4	6/006	135	0.74	DC	C3	
20	20:09:47.68	45 07.06	120 56.36	11.81	1.1	11/012	88	0.23	CC	O0	
21	00:02:33.08	45 48.07	120 20.51	0.75*	2.3	29/029	64	0.19	BC	E3	P
21	00:45:59.19	46 49.12	119 17.42	1.41	1.9	35/037	88	0.16	BB	E3	
22	20:09:49.53	46 15.95	119 58.94	10.01\$	1.7	25/026	90	0.1	AC	E3	
22	20:16:53.83	46 15.69	119 58.75	13.07\$	1.3	16/018	131	0.22	CB	E3	
22	21:07:31.69	45 54.57	119 17.96	0.04*	1.9	10/010	172	0.21	BC	E3	P
22	23:44:03.91	47 40.07	120 19.73	0.51	-0.1	4/006	121	0.04	AD	N3	
24	22:03:52.02	45 07.18	120 55.82	16.11	2.0	18/018	61	0.19	BB	O0	
28	11:26:12.67	46 35.82	120 33.35	14.32	0.7	7/009	97	0.09	AB	E3	
29	06:13:47.20	45 07.06	120 55.94	14.36	2.2	26/026	37	0.17	BB	O0	
29	21:42:23.88	48 13.94	120 35.03	7.31	1.1	7/008	125	0.07	AC	C3	
30	11:28:38.09	45 07.28	120 56.22	15.96	2.6	30/030	37	0.21	BB	O0	

Dec 2006											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
30	11:49:55.32	48 48.66	118 36.77	0.23\$	1.8	16/016	112	0.42	CC	N3	
31	00:02:13.77	48 13.39	118 15.22	0.04*	1.4	10/010	87	0.15	AC	N3	
Jan 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	02:04:22.90	47 29.58	120 09.72	0.79	0.9	4/005	245	0.39	DD	N3	
1	14:46:12.99	45 07.22	120 56.00	19.46	2.5	22/025	49	0.21	BB	O0	
4	08:30:11.36	45 07.12	120 55.94	16.92	3.0	30/031	51	0.21	BA	O0	
8	20:30:06.81	45 41.13	120 09.72	0.03*	2.7	11/011	76	0.28	BC	E3	P
10	04:20:34.85	45 56.58	119 56.06	17.81	1.4	14/014	73	0.14	AA	E3	
10	15:43:33.81	45 06.86	120 56.00	12.47	1.1	7/007	135	0.18	BC	O0	
11	14:18:02.54	45 07.22	120 56.13	13.28	1.6	14/014	55	0.12	AC	O0	
11	15:57:04.11	46 02.82	118 46.70	8.43	1.4	16/017	60	0.35	CB	E3	
12	04:09:09.02	45 06.86	120 55.88	18.29	1.0	9/009	90	0.09	AB	O0	
15	23:17:34.44	45 07.03	120 55.94	14.21	1.2	8/008	134	0.14	BB	O0	
16	08:11:39.54	46 48.18	120 52.59	3.34	1.2	10/011	106	0.16	BB	C3	
17	12:15:40.65	47 36.48	121 17.68	8.83#	1.3	9/010	117	0.19	BC	C3	
17	12:31:26.25	45 06.73	120 55.71	14.39	1.5	13/014	84	0.28	BB	O0	
17	21:10:00.83	45 06.89	120 56.67	6.52	1.2	7/007	139	0.04	AC	O0	
17	21:49:36.02	47 19.05	119 14.20	0.57	1.4	5/005	159	0.17	BD	N3	P
18	06:21:38.91	47 28.39	120 08.19	5.76	1.2	12/015	144	0.08	AC	N3	
19	05:26:56.11	47 35.51	121 19.17	9.89*	0.9	4/005	161	0.07	AD	C3	
20	08:12:40.87	45 07.68	120 56.92	20.93	3.0	48/048	50	0.27	BA	O0	
21	16:53:04.44	47 40.74	120 10.31	3.23	0.7	5/007	159	0.03	AD	N3	
22	01:42:17.27	45 06.90	120 56.00	13.98	1.1	8/009	135	0.16	BB	O0	
22	05:03:55.97	47 42.46	120 15.09	0.53	1.2	7/007	110	0.05	AC	N3	
22	06:37:54.32	46 29.07	119 22.20	2.09	1.7	19/019	59	0.19	BB	E3	
23	16:50:08.94	48 24.97	119 27.89	12.28	1.1	9/009	110	0.19	BB	N3	
25	02:06:06.21	46 40.30	119 27.23	16.06	0.4	6/007	181	0.1	AD	E3	
25	11:17:17.90	45 06.87	120 56.08	11.38	0.9	7/010	91	0.16	BC	O0	
25	23:59:02.11	46 21.68	117 49.48	0.04*	2.6	9/009	210	0.25	BD	E3	P
27	10:51:03.59	47 39.48	120 11.09	2.18	1.0	6/007	166	0.06	AC	N3	
29	15:58:45.33	45 07.06	120 56.65	14.11	2.1	23/023	50	0.22	BB	O0	
30	19:58:10.50	44 23.07	120 59.89	0.04*	2.2	7/007	175	0.93	DC	O0	P
30	20:19:56.32	46 16.23	119 23.05	0.5	2.4	24/024	81	0.21	BC	E3	P
31	15:44:41.31	46 28.63	119 21.55	7.95	1.2	7/009	87	0.21	BB	E3	
31	20:50:58.66	46 16.01	119 23.11	0.03*	2.5	22/022	180	0.19	BC	E3	P
31	21:54:54.94	46 57.65	120 22.93	3.89*	2.7	18/018	58	0.36	CC	E3	
Feb 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
2	01:02:14.81	44 29.11	121 00.92	0.02*	1.5	4/005	196	0.42	CD	O0	
2	04:58:52.58	45 07.29	120 57.00	15.13	2.5	30/037	50	0.34	CB	O0	
2	06:28:18.49	45 07.64	120 55.82	17.83	1.0	7/007	132	0.15	BB	O0	
4	15:20:18.25	47 41.72	120 05.22	6.58	1.6	13/017	94	0.09	AB	N3	
5	08:54:47.64	46 49.63	119 18.13	0.47	0.1	4/005	129	0.17	BD	E3	
7	06:27:14.70	45 06.76	120 55.84	10.99	1.0	7/008	135	0.16	CC	O0	
8	13:21:14.24	46 49.96	119 46.19	5.2	0.8	8/008	168	0.07	AC	E3	
8	14:29:36.42	45 07.50	120 56.51	16.32	1.7	10/010	81	0.16	BA	O0	
8	14:30:36.25	45 07.57	120 56.79	16.16	0.9	5/005	105	0.06	AD	O0	

Feb 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
9	20:25:31.87	46 05.05	120 33.75	22.77	1.0	4/004	128	0	AD	E3	
10	14:15:25.92	46 49.31	119 17.76	0.03*	1.3	24/025	64	0.18	BB	E3	
10	18:45:54.79	46 25.45	119 55.24	5.1	0.6	6/006	281	0.07	BD	E3	
10	20:11:34.47	46 26.33	119 53.89	1.49	0.9	12/012	194	0.11	BD	E3	
11	15:43:12.40	45 07.22	120 55.91	17.91	1.2	10/010	80	0.15	AA	O0	
13	18:39:32.63	45 07.41	120 56.49	20.01	2.9	42/042	51	0.29	BA	O0	
13	18:42:38.72	45 07.13	120 55.83	19.58	2.7	21/021	51	0.14	AA	O0	
14	00:00:12.45	44 02.27	121 21.28	0.24	1.6	9/009	125	0.16	BB	O0	
14	09:13:57.55	46 44.79	119 20.22	0.02*	1.0	7/009	107	0.19	BB	E3	
14	09:52:32.12	46 56.09	119 34.68	2.98	0.7	8/008	91	0.25	BB	E3	
14	12:44:02.89	48 08.55	119 10.37	0.84	1.4	10/010	72	0.13	AC	N3	
15	12:42:43.44	46 46.15	119 57.43	8.87	1.3	22/023	120	0.15	BB	E3	
16	17:34:00.38	45 07.42	120 54.02	16.59	0.7	6/008	121	0.27	BC	O0	
18	19:33:32.49	46 44.53	119 20.66	4.34	1.4	18/019	77	0.08	AB	E3	
19	09:59:38.48	46 44.89	119 20.90	4.78	1.1	8/010	103	0.1	AB	E3	
19	11:42:08.73	46 44.29	119 20.60	3.31\$	1.1	11/013	102	0.12	AB	E3	
21	03:27:39.92	45 07.00	120 55.56	19.2	1.6	16/017	67	0.18	BA	O0	
21	23:29:03.72	45 57.46	119 34.23	2.27	1.9	9/009	107	0.25	BC	E3	P
23	12:56:50.34	46 44.56	119 20.46	2.05	1.7	17/018	142	0.09	AC	E3	
23	14:43:46.82	45 07.54	120 55.95	17	2.0	18/018	54	0.16	BA	O0	
23	23:33:06.29	47 38.03	120 23.83	2.27	1.2	6/007	200	0.07	AD	N3	
26	16:58:02.95	46 14.59	119 27.32	1.5	1.6	17/017	175	0.14	AC	E3	P
26	22:03:11.96	44 02.80	121 21.05	0.02*	2.0	7/007	125	0.22	BB	O0	
27	20:42:32.81	45 07.67	120 56.21	15.27	1.3	8/008	81	0.11	AB	O0	
28	14:13:11.64	46 19.60	119 41.19	0.53	0.4	6/006	274	0.12	BD	E3	
Mar 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	10:07:31.86	45 07.42	120 56.04	23.68	3.6	60/060	51	0.33	CB	O0	F
1	10:23:44.47	48 28.07	120 42.83	1.66\$	3.1	34/034	59	0.43	CC	C3	
2	11:29:55.03	45 07.29	120 55.49	16.89	1.0	9/009	95	0.14	AB	O0	
4	05:01:27.70	45 07.74	120 55.28	16.86	0.7	7/007	126	0.13	AB	O0	
5	01:50:39.95	46 36.11	118 52.79	0.04*	1.2	11/011	231	0.37	CD	C3	
6	01:33:40.79	45 07.29	120 55.57	15.61	1.6	17/017	67	0.18	BB	O0	
6	09:49:51.72	47 41.23	120 07.66	0.02*	0.9	4/006	253	0.03	AD	N3	
6	11:59:50.73	47 41.10	120 07.87	2.03	0.8	5/007	256	0.04	AD	N3	
6	16:33:44.94	45 06.96	120 55.44	17.38	1.8	17/018	67	0.15	AA	O0	
6	23:00:11.35	44 00.04	121 19.69	0.03*	1.7	7/007	225	0.07	AD	O0	
7	20:34:37.45	45 58.26	119 43.72	0.02*	1.5	11/011	166	0.23	BC	E3	P
7	21:39:00.54	48 54.80	119 03.15	0.31	1.7	8/008	153	0.93	DC	N3	
8	04:17:02.15	46 36.06	119 52.10	6.87	1.8	28/029	54	0.17	BB	E3	
9	19:55:59.63	47 18.96	119 48.11	7.84\$	2.2	12/012	89	0.57	DC	N3	P
9	23:01:22.40	45 50.16	118 21.26	0.03*	2.5	11/011	220	0.2	BD	E3	
10	07:24:21.40	45 57.55	120 31.84	9.88	0.9	5/008	101	0.39	CD	E3	
10	16:00:09.45	45 07.38	120 55.58	16.24	1.5	13/013	79	0.15	BB	O0	
10	20:15:13.19	48 24.73	118 40.41	1.11	1.4	10/010	124	0.1	AC	N3	
12	07:22:25.05	45 07.18	120 55.62	17.49	1.2	10/011	89	0.15	AA	O0	
12	11:22:52.58	46 48.88	119 25.95	2.67	0.5	7/010	104	0.06	AB	E3	
12	18:10:33.22	46 36.57	118 55.43	2.35	1.0	6/006	220	0.1	BD	E3	P

Mar 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
13	10:36:01.96	46 48.95	119 25.95	3.6	0.4	6/008	197	0.04	AD	E3	
14	07:43:50.07	46 33.31	119 33.30	14.42	0.5	11/013	93	0.05	AB	E3	
14	19:18:38.64	45 36.54	121 13.28	5.83	2.0	6/006	103	0.11	BC	C3	P
14	22:18:41.81	44 05.86	121 19.18	0.04*	1.8	14/014	97	0.17	BB	O0	
14	23:07:23.51	45 07.97	120 55.85	16.13	0.9	5/005	131	0.13	BD	O0	
15	00:08:49.95	44 21.32	121 00.95	0.02*	2.4	12/012	181	0.31	CD	O0	P
15	03:42:43.74	47 41.56	120 06.04	2.79	0.4	4/006	144	0.04	AD	N3	
15	16:55:43.05	45 07.26	120 56.21	18.87	1.8	9/009	82	0.13	AA	O0	
15	17:03:34.84	48 37.94	119 37.76	1.28	1.3	9/009	287	0.26	DD	N3	
15	19:19:15.60	47 46.68	120 07.98	3.83	1.5	9/012	91	0.11	AB	N3	
15	20:08:55.15	44 24.26	121 01.60	2.33	3.0	10/010	168	0.33	CC	O0	P
16	06:15:57.00	46 20.01	119 49.54	14.99	0.7	8/009	176	0.14	BC	E3	
17	02:02:51.42	46 45.63	121 15.42	1.57	0.1	4/004	230	0.26	DD	C3	
17	03:53:43.56	47 44.71	120 16.58	3.34	1.8	17/018	65	0.17	BC	N3	
17	16:43:11.22	46 23.80	119 22.91	0.37	0.9	9/009	138	0.22	BC	E3	
17	22:51:01.02	45 06.96	120 55.76	18.35	1.0	7/008	122	0.18	BB	O0	
18	12:55:40.77	48 31.20	119 52.96	1.01\$	1.6	11/012	130	0.26	BC	N3	
19	18:12:52.45	47 40.93	121 23.28	9.57	1.2	9/010	137	0.25	BC	C3	
20	01:45:31.30	46 48.76	119 25.46	4.1	2.3	33/034	53	0.17	BA	E3	
20	03:04:56.77	45 06.51	120 56.16	8.03	0.8	5/006	136	0.18	BD	O0	
20	06:17:57.10	46 48.95	119 25.96	3.33	1.0	11/013	91	0.06	AB	E3	
20	13:22:03.37	45 07.09	120 55.46	17.17	1.4	13/014	71	0.17	BA	O0	
20	19:51:57.40	44 26.82	119 02.14	0.03*	1.8	8/008	116	0.31	CC	O0	
21	00:20:52.58	47 36.41	120 16.59	12.01	-0.3	5/005	198	0.01	AD	N3	
21	10:04:07.88	48 38.71	120 48.93	11.42\$	1.3	9/010	155	0.41	DD	C3	
21	10:45:04.22	46 49.37	119 18.09	1.36*	0.6	11/014	124	0.17	BB	E3	
22	11:37:55.96	45 09.09	120 55.41	24.9	1.1	6/006	134	0.09	BC	O0	
22	19:22:42.74	44 38.77	121 11.01	0.04*	3.0	5/005	130	0.13	AD	O0	P
22	20:13:54.03	44 15.72	121 16.50	0.15	1.7	7/007	114	0.22	CC	O0	P
24	02:37:14.86	45 06.73	120 55.57	13.7	1.4	7/008	135	0.18	BB	O0	
24	03:13:21.41	45 07.51	120 57.04	15.67	2.4	34/034	50	0.28	BB	O0	
24	18:02:36.82	47 41.25	120 05.11	5.39	-0.3	5/007	160	0.04	AD	N3	
24	21:21:59.86	46 48.86	119 25.94	2.25	0.2	3/005	194	0.02	AD	E3	
26	06:36:28.75	45 07.06	120 55.69	15.81	2.0	17/017	67	0.13	AA	O0	
26	12:16:56.29	47 41.04	120 18.30	7.47	0.4	6/008	118	0.05	AC	N3	
26	12:20:14.07	47 40.16	121 23.48	9.82	1.2	6/006	147	0.05	AC	C3	
26	16:20:25.91	46 56.72	119 32.61	1.49	1.4	12/012	117	0.22	BB	E3	
26	19:49:09.89	47 11.20	119 00.42	0.5	2.1	6/006	110	0.17	BC	N3	P
27	06:29:58.82	47 41.71	120 02.15	5.33	0.8	4/005	166	0.02	AD	N3	
27	07:08:41.94	45 07.74	120 56.69	13.13	1.5	13/014	53	0.31	CB	O0	
28	07:53:38.46	45 07.35	120 55.44	14.97	1.0	9/009	124	0.15	BB	O0	
28	09:35:57.94	47 41.03	120 18.32	0.6	-0.3	4/005	206	0.02	AD	N3	
28	13:00:36.13	47 40.67	121 22.72	7.86\$	1.0	10/012	110	0.27	BC	C3	
28	13:04:28.81	45 07.21	120 55.55	17.55	1.2	8/008	89	0.13	AA	O0	
28	18:52:59.54	45 07.68	120 55.63	15.81	1.4	11/011	95	0.14	AB	O0	
30	19:24:46.18	47 36.84	121 16.45	8.25	1.5	18/019	74	0.21	BC	C3	
31	11:05:40.31	45 07.29	120 55.87	16.58	2.0	20/022	67	0.18	BB	O0	
31	16:32:26.48	47 40.72	121 28.99	17.25	1.0	5/006	219	0.15	CD	C3	

Mar 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
31	18:01:23.86	45 07.12	120 56.17	12.79	1.4	11/011	90	0.15	BC	O0	
31	23:37:26.09	48 24.42	118 39.79	4.21	1.5	8/008	123	0.12	AC	N3	
Apr 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	03:21:00.20	46 58.13	121 14.37	20.55	1.1	8/008	158	0.18	BC	C3	
1	15:44:30.96	45 07.61	120 56.92	19.83	2.6	25/025	50	0.24	BA	O0	
2	08:14:17.08	45 06.93	120 56.98	10.99\$	1.8	14/014	67	0.22	CC	O0	
3	07:37:13.11	45 06.77	120 55.49	14.41	1.5	7/007	134	0.18	BB	O0	
3	16:40:32.34	45 46.88	120 49.54	0.03*	1.8	12/012	107	0.55	DB	C3	P
4	00:42:53.55	45 07.22	120 55.80	16.54	2.1	19/027	51	0.2	BA	O0	
4	07:22:32.57	45 07.45	120 55.55	16.54	1.2	9/010	99	0.15	AB	O0	
4	09:05:08.94	47 42.68	120 17.83	0.57	0.2	5/008	97	0.07	AD	N3	
4	09:36:46.75	45 07.28	120 55.77	14.95	1.5	14/014	93	0.16	BB	O0	
4	19:56:36.75	45 44.84	120 23.44	3.71	1.2	4/005	239	0.11	BD	E3	
4	20:25:27.75	45 07.71	120 55.83	15.15	1.9	13/013	68	0.14	AB	O0	
4	22:26:35.56	45 48.35	120 23.42	1.88	1.5	6/006	79	0.11	AC	E3	
5	00:39:29.18	47 40.97	120 05.69	6.59	1.1	7/010	163	0.07	AC	N3	
5	23:22:36.76	45 06.90	120 55.93	19.91	1.6	13/014	79	0.18	BA	O0	
6	09:13:10.02	45 06.92	120 56.04	13.6	1.6	13/014	84	0.22	BB	O0	
6	16:31:25.16	45 36.18	121 12.69	9.59	1.6	6/006	107	0.05	AC	C3	P
7	03:14:40.09	45 06.92	120 55.87	13.78	1.7	11/011	90	0.11	AB	O0	
8	01:21:07.03	45 07.16	120 55.72	14.36	1.7	12/012	71	0.13	BB	O0	
8	09:40:41.38	45 07.63	120 57.33	21.88	3.2	50/052	37	0.25	BA	O0	
9	18:23:08.02	48 46.27	118 02.86	0.58	1.8	8/008	117	0.11	AC	N3	
9	20:15:26.94	47 42.68	121 21.02	10.21	1.4	9/009	173	0.23	BC	C3	
10	10:52:35.39	45 06.93	120 56.02	13.61	1.1	12/013	91	0.15	BB	O0	
10	12:16:17.34	48 18.79	121 19.42	8.37	1.3	13/013	56	0.27	BC	C3	
11	11:30:15.54	47 40.39	121 24.53	10.56\$	1.8	11/011	107	0.22	BC	C3	
11	11:55:12.81	45 07.80	120 55.61	14.77	1.1	9/009	131	0.16	BB	O0	
11	21:39:25.48	47 40.97	121 25.58	12.8	0.9	5/005	249	0.04	AD	C3	
11	22:35:04.04	45 36.51	120 48.89	0.05*	2.3	11/011	72	0.44	CC	C3	P
12	10:11:51.19	47 42.04	120 12.63	4.34	0.2	4/006	186	0.02	AD	N3	
12	14:02:07.76	47 40.19	121 24.88	12.58	0.9	6/006	148	0.08	BC	C3	
12	20:51:58.46	46 21.24	121 10.00	5.04\$	0.5	9/009	201	0.29	DD	C3	
13	11:37:12.44	45 18.60	119 18.33	2.36	1.6	13/013	79	0.21	BC	O0	
13	13:01:40.65	47 38.13	120 11.78	3.35	1.0	8/008	151	0.05	AC	N3	
13	22:45:00.54	46 45.98	120 48.73	4.53	0.5	5/006	177	0.61	DD	C3	
14	01:53:30.66	46 57.36	119 38.34	4.5	1.6	7/007	114	0.02	AC	E3	
14	03:34:07.52	47 40.67	121 23.50	8.76*	1.9	21/025	56	0.25	BC	C3	
15	08:13:12.18	47 48.24	120 14.20	1.06*	1.0	6/009	147	0.03	AC	N3	
15	14:27:34.96	47 42.13	121 25.28	9.80*	1.1	4/006	242	0.1	AD	C3	
15	16:30:38.42	47 38.34	120 12.33	6.13	1.4	7/010	177	0.05	AC	N3	
15	16:55:19.52	47 40.74	120 07.63	5.32	0.5	4/005	303	0.02	AD	N3	
15	20:56:43.02	45 07.51	120 56.08	7.42\$	1.7	8/008	125	0.17	BC	O0	
16	20:08:12.56	46 23.81	119 23.56	2.19	2.7	31/035	71	0.23	BA	E3	
17	07:29:04.07	45 06.93	120 56.07	13.09	1.8	10/010	77	0.12	BC	O0	
17	21:03:12.55	46 57.53	119 05.70	2.07	1.8	10/010	147	0.2	BC	E3	P
19	07:32:30.55	45 06.90	120 56.06	13.53	1.9	20/021	44	0.12	AC	O0	

Apr 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
19	19:03:30.97	45 40.45	120 47.24	0.44#	1.8	5/005	177	0.63	DD	C3	P
20	19:56:24.21	46 41.03	121 05.72	0.64\$	1.5	23/029	96	0.23	CC	C3	
20	21:49:46.63	46 57.52	120 11.28	4.16	1.9	23/023	59	0.11	AC	E3	P
20	21:54:21.77	46 06.38	120 36.86	13.96	1.5	6/009	209	0.15	CD	C3	
22	12:06:21.26	46 22.93	119 23.77	1.38	0.9	9/009	134	0.25	BB	E3	
22	12:08:54.18	47 41.09	120 03.96	7.43	1.0	6/006	158	0.05	AC	N3	
22	12:26:34.69	45 50.06	120 33.09	12.79	2.0	35/035	56	0.21	BB	E3	
22	12:28:35.73	45 50.21	120 32.78	12.69	1.8	31/033	48	0.21	BB	E3	
23	07:05:52.77	47 40.94	121 25.13	12.37*	1.7	9/012	80	0.22	BB	C3	
23	12:27:23.26	45 06.47	120 56.21	16.12	1.3	12/012	85	0.18	BB	O0	
23	21:23:42.93	48 36.22	118 40.15	0.93	1.8	14/014	109	0.36	CC	N3	P
24	07:59:48.13	45 06.97	120 55.84	15.64	1.4	12/013	84	0.18	BB	O0	
24	13:28:31.64	45 06.92	120 56.06	12.83	1.2	13/013	59	0.17	BC	O0	
24	18:13:52.17	46 36.84	118 54.15	0.37	1.3	7/007	238	0.06	AD	E3	P
25	09:28:43.07	47 41.74	121 21.97	7.81\$	1.0	10/013	112	0.25	BC	C3	
25	14:07:26.68	46 41.04	120 30.54	14.07*	1.2	15/017	90	0.16	BB	E3	
26	17:39:34.12	47 08.19	119 53.82	14.48	1.7	28/029	81	0.2	BA	N3	
26	19:05:20.85	45 06.60	120 56.82	8.16	1.3	10/010	66	0.32	CC	O0	
26	19:28:14.38	48 09.39	117 51.54	0.76	0.9	7/008	254	0.07	AD	N3	
27	10:51:21.38	45 07.12	120 56.30	12.16	1.2	10/013	77	0.23	CC	O0	
27	23:09:57.85	44 17.47	120 46.58	0.03*	2.8	9/009	94	0.29	BC	O0	P
28	15:37:42.55	48 15.24	119 26.72	13.28	1.2	7/007	141	0.21	BC	N3	
29	07:22:00.78	45 07.09	120 55.85	18.94	2.4	29/030	37	0.21	BA	O0	
29	08:59:20.91	45 06.90	120 55.57	7.02\$	1.7	14/015	66	0.21	CC	O0	
30	05:30:58.44	46 23.55	119 23.29	0.41	1.1	13/015	203	0.27	BD	E3	
30	14:59:04.80	45 08.60	120 54.34	13.67	1.0	7/007	153	0.22	BC	O0	
30	19:33:54.25	47 02.44	120 41.67	1.01	2.5	9/009	119	0.4	CC	C3	P
30	20:59:09.37	44 38.93	121 09.00	0.03*	2.2	7/007	100	0.18	BB	O0	P
May 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	23:48:41.40	45 07.19	120 55.69	16.96	1.7	15/015	67	0.19	BB	O0	
2	05:03:50.83	47 40.32	121 23.84	11.18*	0.9	9/010	79	0.11	AB	C3	
2	05:08:30.31	45 07.22	120 55.56	14.79	1.9	14/017	67	0.16	BB	O0	
2	11:16:16.13	45 07.63	120 56.52	18.63	3.3	59/059	48	0.37	CA	O0	
2	11:24:55.54	45 06.26	120 55.76	8.08	0.8	11/011	91	0.13	AC	O0	
2	19:02:44.96	47 50.09	118 13.23	0.52	2.1	14/014	92	0.24	BB	N3	P
2	21:36:39.35	45 47.99	120 20.01	0.46*	2.6	29/029	61	0.16	BC	E3	P
3	20:11:38.99	46 38.80	120 30.57	0.04*	2.3	19/019	68	0.24	BC	E3	P
4	07:58:24.66	47 41.65	121 23.47	9.61*	1.5	9/010	109	0.19	BC	C3	
4	10:49:50.17	47 40.74	121 23.68	9.76	0.8	7/009	143	0.18	BC	C3	
4	18:20:14.69	45 42.00	121 11.48	24.26	1.2	5/005	237	0.1	BD	C3	P
4	18:32:29.15	47 40.81	121 24.08	10.00#	0.9	6/008	143	0.04	AC	C3	
5	19:54:40.96	47 42.14	121 24.61	9.47	1.0	5/006	262	0.04	AD	C3	
7	00:08:26.39	47 39.32	120 02.78	7.23	0.6	3/004	342	0.01	AD	N3	
7	07:53:58.85	45 06.96	120 56.60	8.04*	1.4	10/010	125	0.21	BC	O0	
7	19:17:50.65	46 18.73	119 40.82	2.18\$	2.1	15/015	131	0.08	AC	E3	
8	19:19:36.62	46 54.81	119 55.83	1.83	1.9	19/019	54	0.17	BB	E3	
8	20:00:29.72	45 07.28	120 56.19	14.76	2.3	20/024	82	0.27	BB	O0	

May 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
9	00:12:47.50	44 22.00	121 01.30	0.02*	2.3	7/007	111	0.34	CB	O0	P
9	21:47:02.65	47 09.33	118 52.28	0.02*	1.3	6/006	140	0.64	DC	N3	P
9	22:03:28.16	47 06.42	118 49.21	0.17	1.1	8/008	123	0.22	BB	N3	P
10	00:06:20.95	44 34.37	117 25.94	0.03*	1.5	13/013	89	0.78	DC	O0	
10	14:50:20.40	47 43.36	120 04.94	4.41	1.7	12/015	64	0.06	AA	N3	
10	22:15:23.99	47 30.40	117 02.53	10.00*	0.0	10/011	130	0.29	BD	R0	R
11	16:12:27.96	48 09.74	121 22.46	11.02	0.7	4/007	121	0.12	BD	C3	
11	21:36:18.96	48 55.39	119 21.97	6.98	1.2	6/006	113	0.72	DC	N3	
13	17:06:38.06	45 07.12	120 55.82	14.58	1.8	13/013	67	0.14	AB	O0	
14	03:34:14.20	45 06.77	120 55.70	13.22	1.6	8/008	90	0.11	BC	O0	
14	03:34:50.11	45 06.97	120 55.54	13.51	0.8	8/008	89	0.23	BB	O0	
14	20:45:55.09	47 41.26	120 06.83	5.41	1.8	7/010	97	0.16	BC	N3	
15	02:38:57.25	47 42.30	121 24.79	9.73*	1.4	4/006	301	0.05	AD	C3	
15	20:20:27.01	45 28.11	120 04.24	0.79	1.3	6/006	114	0.16	BC	O0	
16	02:21:49.66	45 07.93	120 56.96	15.64	2.4	29/029	52	0.24	BB	O0	
16	16:08:28.05	45 06.58	120 56.29	14.71	1.6	12/012	84	0.22	BB	O0	
16	18:37:51.45	45 06.54	120 56.07	8.12	1.8	8/010	89	0.17	BC	O0	
17	19:59:56.15	48 05.35	121 15.97	4.78	0.0	8/010	234	0.11	AD	P3	
18	09:53:01.62	45 07.09	120 55.94	8.03	1.3	7/007	122	0.25	BC	O0	
18	18:17:58.01	47 20.83	117 49.16	5.48	2.5	21/025	101	0.32	CC	N3	P
18	18:29:14.67	45 54.65	118 41.32	1.26	1.6	5/005	110	0.04	AD	E3	P
18	23:30:44.17	46 27.00	119 48.08	5.39	1.3	6/006	285	0.06	AD	E3	
19	04:46:33.53	46 41.88	118 13.53	7.81\$	1.7	18/022	102	0.28	CC	E3	
19	20:30:43.21	45 06.68	120 55.95	12.79	1.4	8/009	135	0.17	CC	O0	
20	04:15:43.58	46 27.00	119 48.33	0.34	2.0	11/011	124	0.09	AC	E3	P
20	17:45:43.26	46 27.42	119 46.96	5.99	1.7	8/008	169	0.04	AC	E3	P
20	21:22:39.48	45 07.16	120 55.50	14.44	1.3	9/010	136	0.2	BC	O0	
20	22:25:30.10	48 25.39	118 40.89	1.07	1.6	14/014	83	0.22	BC	N3	
21	13:43:21.03	45 06.82	120 55.16	13.7	1.6	12/013	120	0.18	BB	O0	
21	20:38:38.70	48 10.01	117 52.14	0.84	1.6	6/007	136	0.09	AC	N3	
21	21:41:35.94	47 42.07	121 24.85	7.52\$	0.6	4/006	302	0.15	DD	C3	
22	06:35:45.78	45 06.89	120 55.58	17.29	1.9	16/017	84	0.28	BB	O0	
22	15:53:35.02	45 06.99	120 55.78	14	2.0	14/016	67	0.1	AB	O0	
22	18:42:10.63	45 07.60	120 55.05	17.11	0.6	9/009	158	0.12	BC	O0	
22	22:07:49.83	47 11.82	120 26.15	0.02*	1.4	7/007	266	0.08	AD	N3	
23	03:56:35.37	46 33.07	120 23.26	7.67	1.4	8/011	78	0.12	AA	E3	
23	13:45:55.09	47 55.72	119 02.25	0.04*	1.9	20/020	58	0.19	BC	N3	
24	04:54:49.03	47 42.39	120 24.78	9.88	1.1	8/012	166	0.16	BC	N3	
24	16:11:04.76	45 36.84	121 14.36	0.03*	2.2	10/011	112	0.39	CC	C3	P
25	03:55:56.20	45 07.25	120 56.92	12.02	2.1	33/034	50	0.29	BC	O0	
25	04:00:19.52	45 06.18	120 55.05	29.48	1.4	6/009	133	0.11	AC	O0	
25	08:21:31.28	47 40.23	120 09.18	0.04*	0.7	6/009	255	0.18	BD	N3	
25	14:14:06.88	45 06.74	120 56.15	13.8	1.6	12/015	66	0.14	BB	O0	
25	16:39:54.27	45 47.82	120 49.56	0.02*	1.9	11/011	68	0.64	DA	C3	P
26	22:35:58.34	48 27.59	118 43.48	0.34\$	1.5	20/021	85	0.2	CC	N3	
27	06:53:00.71	45 07.03	120 56.79	6.12	1.7	12/018	67	0.21	BC	O0	
27	15:20:45.13	46 32.86	119 43.62	19.08	1.9	35/041	40	0.18	BA	E3	
27	17:13:22.16	47 43.27	120 03.33	6.17	0.5	4/006	178	0.03	AD	N3	

May 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
28	19:03:55.08	46 29.98	119 40.64	7.25	0.4	9/009	133	0.11	AB	E3	
29	01:44:55.29	47 42.72	121 21.12	6.19	2.0	30/044	49	0.29	BC	C3	
29	01:48:25.29	47 42.97	121 20.93	6.04	1.7	18/020	72	0.32	CC	C3	
29	20:59:03.38	47 47.01	119 02.22	0.02*	1.9	12/012	100	0.18	BB	N3	P
30	06:17:16.92	45 07.67	120 52.08	15.2	1.1	15/015	75	0.29	BB	O0	
30	06:20:58.90	45 06.76	120 52.14	8.02	0.9	7/007	128	0.22	BC	O0	
30	16:58:21.96	45 06.61	120 55.68	8.08	1.4	12/015	90	0.16	BC	O0	
31	06:45:03.90	47 40.41	120 19.16	0.53	1.7	9/009	141	0.07	AC	N3	
31	08:17:22.08	45 07.03	120 56.48	8.14	1.8	11/011	135	0.19	BC	O0	
31	10:46:44.36	45 07.87	120 51.42	17.63	1.4	5/006	151	0.15	BD	O0	
June 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
1	13:27:56.75	45 07.48	120 56.48	14.31	2.1	21/022	50	0.24	BB	O0	
1	16:25:57.12	48 11.65	117 44.17	0.52\$	1.0	12/014	71	0.57	DC	N3	
1	22:57:27.57	45 07.02	120 55.91	8.15	1.3	12/015	90	0.18	BC	O0	
2	13:28:56.25	46 34.18	119 40.77	18.53	0.8	11/013	94	0.04	AB	E3	
3	12:25:19.10	47 39.93	120 09.75	0.55	0.0	4/005	165	0.05	AD	N3	
3	16:02:42.60	45 07.64	120 57.44	19.15	2.7	23/023	79	0.32	CB	O0	
5	03:58:22.31	45 07.64	120 50.71	19.2	0.5	5/005	124	0.02	AD	O0	
6	04:18:53.19	45 06.25	120 56.73	17.86	1.0	8/009	103	0.13	AB	O0	
6	10:03:25.79	45 07.16	120 55.85	14.09	1.0	8/009	123	0.11	AB	O0	
8	10:01:44.67	47 44.37	120 08.05	3.42	1.2	6/010	112	0.22	BC	N3	
9	03:53:33.87	47 00.27	120 52.40	23.33	0.6	10/012	97	0.16	BB	C3	
9	04:37:23.62	45 07.25	120 56.20	10.24*	0.9	11/011	90	0.17	BC	O0	
9	07:36:20.81	47 39.42	120 18.33	0.02*	0.6	6/007	198	0.09	AD	N3	
10	01:36:12.86	45 07.42	120 56.08	19.18	2.6	37/039	51	0.24	BA	O0	
10	04:26:18.18	45 06.37	120 56.15	8.04	1.1	6/006	165	0.16	BC	O0	
11	00:15:16.52	48 28.50	118 42.48	1.07	1.6	9/009	114	0.18	BC	N3	
12	06:52:50.42	45 20.69	117 04.23	8.11	2.5	16/016	94	0.41	CD	O0	
13	10:33:08.54	46 25.15	121 14.24	7.79	0.4	6/008	236	0.16	BD	C3	
13	22:22:11.83	48 39.84	117 20.53	10.00*	0.0	9/009	183	0.85	DD	R0	R
14	13:09:34.80	46 51.57	119 36.55	16.34	1.3	26/027	46	0.14	AA	E3	
14	17:08:15.49	47 51.95	120 04.29	0.53#	1.1	4/004	337	0.36	CD	N3	
14	21:57:57.09	45 07.54	120 56.64	18.43	3.8	66/068	50	0.31	CA	O0	
15	15:12:40.23	46 32.49	119 43.86	17.28	0.6	14/017	89	0.07	AA	E3	
15	17:21:57.82	46 32.88	119 44.20	18.27	0.8	16/017	91	0.09	AB	E3	
15	17:27:45.79	45 07.16	120 55.81	12.71	1.4	10/010	90	0.16	BC	O0	
16	00:33:31.19	47 44.59	120 03.58	2.62	1.0	7/010	96	0.04	AB	N3	
16	10:51:45.23	47 41.56	120 07.59	1.68	0.8	4/005	149	0.05	BD	N3	
17	13:44:10.60	44 40.93	117 26.59	7.61	2.7	13/013	67	0.41	CC	O0	
18	10:32:51.60	45 07.08	120 56.88	11.83	1.4	14/014	67	0.2	BC	O0	
18	17:44:10.59	46 16.41	119 27.56	0.22	1.9	7/007	211	0.09	AD	E3	P
18	21:47:36.57	47 39.87	120 13.50	8.34	-0.5	4/005	153	0.03	AD	N3	
18	22:30:56.61	45 07.02	120 55.97	17.96	1.4	12/012	94	0.21	BB	O0	
19	18:11:19.99	48 09.96	117 52.45	0.89	1.9	8/008	114	0.36	CC	N3	
20	07:41:53.21	45 06.96	120 56.58	11.61	1.6	7/008	95	0.22	CC	O0	
20	19:21:45.87	45 48.14	120 17.48	0.04*	1.3	4/004	222	0.08	AD	E3	P
21	19:43:16.84	47 45.01	120 04.80	5.69	-1.6	3/005	216	0	AD	N3	

June 2007											
DAY	TIME	LAT	LON	DEPTH	M	NS/NP	GAP	RMS	Q	MOD	TYP
21	21:23:11.94	45 18.44	117 08.29	8.53	1.9	5/005	248	0.19	BD	O0	
21	21:53:41.58	45 48.99	120 21.11	0.58*	2.1	10/010	112	0.23	BC	E3	P
21	22:17:48.22	47 21.15	117 52.32	1.54	2.1	6/006	108	0.17	BD	N3	P
22	03:22:27.11	48 28.43	118 42.58	0.26\$	1.4	17/017	88	0.24	CC	N3	
22	07:32:41.21	45 07.52	120 55.69	16.95	0.8	7/007	125	0.29	BB	O0	
22	14:52:24.01	46 25.01	119 24.64	0.32	-0.1	4/004	179	0.15	BD	E3	
26	08:49:45.87	45 07.12	120 56.25	17.82	1.7	14/014	62	0.13	AA	O0	
27	13:48:02.97	47 39.48	120 10.16	1.44	1.1	7/008	145	0.05	AC	N3	
28	05:04:02.48	47 44.39	120 08.64	0.53	2.0	16/016	69	0.17	BB	N3	
29	11:27:42.51	47 39.35	120 12.89	3.8	1.3	7/007	111	0.03	AC	N3	