

Cascadia Initiative Recovery Cruise New120713a; 13 July – 18 July 2012

The objective of cruise New120713a aboard the R/V New Horizon was to recover sections of an array of ocean bottom seismometers (OBSs) deployed in 2011 as part of the National Science Foundation funded Cascadia Initiative. The cruise took place during 13-19 July 2012 and recovered fifteen trawl resistant Abalone instruments built by the Scripps Institute of Oceanography (SIO). The OBS design includes three-component seismometers and dynamic pressure gauges designed to detect vertical seafloor ground motion, and primarily occupy sites on the accretionary prism at depths as shallow as 56 m.

This was the third of six recovery/deployment legs scheduled for 2012 and was focused on recovering fifteen instruments deployed across the accretionary prism onto the Juan de Fuca (JdF) plate, spanning the region offshore of Vancouver Island, Washington and Oregon State. The cruise plan was to recover the shallow stations while transiting northward from Newport OR, and then recover deeper water stations during the transit back to the south. Both the science party and OBS personnel worked a 24 hour schedule to get all of the instruments recovered as efficiently as possible. All fifteen OBS were successfully recovered; twelve instruments successfully recorded three-component seismic and Dynamic Pressure Gauge (DPG) data for the entire deployment period, one OBS recorded only DPG data, and two failed to record any data. For the majority of the six-day duration of the cruise, swells were 5-8 feet and wind waves 2-6 feet. However there was one day of 10-15 foot seas and 45-50 knot winds that made recovery of OBS impossible and delayed the cruise by ~8 hours. The attached Table and Figure show a brief summary of data quality and the recovery sites.

The northward cruise track was designed to leave two OBS near Newport to be recovered last, M08A and J25A, in order to maximize the recording overlap time with two Lamont Doherty TRM OBS deployed nearby a few days beforehand. In addition to the OBS recoveries, two marine mammal observers were onboard from Cascadia Research Organization to visually survey for any animals that may appear near the ship during operations, and vocalizations recorded on the OBS can then be correlated with visual observations. The complete cruise report is available from the cruise chief scientist Bob Dziak (Oregon State University).

Additional information about the community experiment and details of the ongoing 2012 cruises is available of the Cascadia Initiative Expedition Team website:
<http://pages.uoregon.edu/drt/CIET/>

Prepared by the Cascadia Initiative Expedition Team.

CPU Clock Sync (only active if batteries do not fail)													
Recovery Number	Site Name	Data Logger	CF Card	Frame	Trillium	DPG	CPU Sync	CPU Recovery Time	Difference between CPU Recovery Time and CPU Sync Time	CPU Time Tag (Hex Count of 32,768,000 Clock Ticks From Recovery to Sync)	Drift (seconds)	Drift (with leap second removed) (seconds)	
1	M07A	1	16	15	?	2011-DPG0004	2011:288:23:10:00	2012:196:19:53:00	272d:20h:43m:00s	0x2BE99E489F253	2.291893158	1.291893158	44
2	J33A	8	3	16	13	?	2011:289:04:07:00	2012:200:08:41:00	276d:04h:34m:00s	0x2C72B0856738A	-1.516902648	-2.516902648	45
3	M05A	10	6	14	1	2011-DPG0007	2011:290:00:00:00	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible	46
4	J57A	2	11	7	2	2011-DPG0002	2011:290:17:13:00	2012:196:22:47:00	271d:05h:34m:00s	0x2BA66977733F6	0.430405945	-0.569594055	47
5	M04A	No Mark #1	12	10	8	?	2011:290:19:46:00	Not Possible	Not Possible	Not Possible	Not Possible	Not Possible	47
6	J65A	No Mark #2	13	13	15	?	2011:290:22:31:00	2012:197:07:21:00	271d:08h:50m:00s	0x2BAC046E55564	4.341332886	3.341332886	47
7	M02A	7	15	4	14	?	2011:291:02:30:00	2012:197:12:00:00	271d:09h:30m:00s	0x2BAD2A07F5478	-0.83065991	-1.83065991	48
8	J73A	9	14	3	T003014	?	2011:291:03:52:00	2012:198:00:59:00	271d:21h:07m:00s	0x2BC11AF8905CD	-0.498045318	-1.498045318	48
9	M01A	5	10	8	3	9	2011:291:04:54:00	2012:197:21:24:00	271d:16h:30m:00s	0x2BB92E55C03F6	-1.912030946	-2.912030946	49
10	J44A	12	7	5	5	10	2011:292:19:12:00	2012:199:00:12:00	271d:05h:00m:00s	0x2BA5703E3D929	1.208303437	0.208303437	46
11	J36A	4	8	2	9	12	2011:292:20:07:00	2012:199:05:42:00	271d:09h:35m:00s	0x2BAD4E8EAE50	-0.059361815	-1.059361815	45
12	J43A	11	2	1	7	13	2011:292:21:25:00	2012:198:18:41:00	271d:21h:16m:00s	0x2B982A4746351	-2.664775908	-3.664775908	46
13	J35A	3	5	9	11	8	2011:292:23:25:00	2012:199:12:07:00	271d:12h:42m:00s	0x2BB2A7FC812C7	1.583853301	0.583853301	45
14	M08A	6	4	6	10	11	2011:293:23:50:00	2012:199:23:06:00	270d:23h:16m:00s	0x2B9898E5338E4	-0.294444457	-1.294444457	44
15	J25A	13	9	11	12	1	2011:294:04:26:00	2012:200:02:08:00	270d:21h:42m:00s	0x2B98E87B398D8	-0.807194091	-1.807194091	44

* = FILTERED DATA ONLY (Navy Approved). We are not allowed any type of unfiltered data.

Lat	Lon	Water Depth	Num Channels	SPS	Gain 1 (X)	Gain 2 (Y)	Gain 3 (Z)	Gain 4 (DPG)	File Sizes	Status
53.9252	44.8987533	-125 7.009 -125.11682	1356.5	4	50	1	1	1	64 18.6 GB	OK. Lost trillium sensor.
6.3972	45.10662	-124 34.2473 -124.57079	348.7	4	50	1	1	1	64 18.9 GB	Ok. Noisy. Block errors in early part of raw data - removed ~30minutes (2000 blocks) of data from start of logger.
10.4076	46.17346	-124 56.0743 -124.93457	828.2	4	50	1	1	1	64 107 MB	No Data. There is something present, but it is corrupted. CF card had large zeroed sections. Will try to extract info if possible.
4.8053	47.0800883	-124 27.0276 -124.45046	55.8	4	50	1	1	1	64 18.6 GB	OK
33.4855	47.5580917	-125 11.5305 -125.19218	563.4	4	50	1	1	1	64 8.8 MB	No Data. Data logger terminated early.
53.4806	47.8913433	-125 8.3776 -125.13963	165.2	4	50	1	1	1	64 19.05 GB	OK
18.4194	48.30699	-125 36.0236 -125.60039	139	4	50	1	1	1	64 19.06 GB	Not Good - Batteries came up at 25V (not spent). Looks like trillium not powered (cabling issue?). Very low amplitude signal - not acceptable. Data cut and available. DPG data looks good.
46.0607	48.7676783	-126 11.55 -126.1925	143.3	4	50	1	1	1	64 18.6 GB	OK. Single block issue - fixed. Data Cut and working.
9.0254	49.1504233	-126 43.3277 -126.72213	132.9	4	50	1	1	1	64 18.7 GB	OK. Z channel looks strange. Z and DPG are noisy - possibly due to shallow depth.
19.382	46.3230333	-127 2.3401 -127.039	2724.1	4	50	1	1	1	64 18.6 GB	OK. See periodic signal on X/Y - motors? (Not present on Z and DPG).
41.1315	45.685525	-127 7.35 -127.1225	2821	4	50	1	1	1	64 18.6 GB	OK. Noisy. Data collection started 3H after Sync.
8.2696	46.1378267	-126 10.325 -126.17208	2654.4	4	50	1	1	1	64 18.5 GB	OK
29.9339	45.4988983	-126 16.0069 -126.26678	2662	4	50	1	1	1	64 18.6 GB	OK
7.1237	44.1187283	-124 53.7209 -124.89535	126.4	4	50	1	1	1	64 18.6 GB	OK. Periodic signal on X/Y (see 2012:010) - Motors?. Z is low amplitude (noisy). DPG saturates on occasion (2012:059). Shallow location causing this?
28.371	44.47285	-124 37.2968 -124.62161	142.8	4	50	1	1	1	64 18.6 GB	OK. X/Y saturate. Z is low amplitude and noisy. Shallow location causing this?