Cascadia Initiative deployment update – October 25, 2011

The second cruise to deploy ocean bottom seismometers (OBS) built for the Cascadia Initiative was conducted on the R/V Wecoma cruise W1110B from October 15-21, 2011. Ten instruments from the Lamont Doherty Earth Observatory (LDEO) were deployed; their design includes absolute pressure gauges to detect vertical seafloor ground motion. Fifteen trawl resistant Abalone instruments built by the Scripps Institute of Oceanography (SIO) also were deployed; they primarily occupy sites on the accretionary prism, at depths as shallow as 56 m.

This was the second of three deployment legs scheduled for 2011 and was focused on deploying an array of instruments that extends across the accretionary prism onto the Juan de Fuca (JdF) plate, spanning the region offshore of Vancouver Island, Washington and Oregon State. The remaining 25 OBS instruments dedicated to this community experiment (Leg 3) will cover the western portion of the JdF plate and extend the array across the JdF ridge axis. These instruments will be deployed in mid-November 2011.

The cruise plan was to deploy stations along the shallow accretionary prism while transiting northward from Newport OR, and then deploy deeper water stations during the transit back to the south. All 25 SIO and LDEO instruments were deployed with sites prioritized prior to the cruise in consultation with the community to focus on different scientific questions. This prioritized sequence was further modified prior to the cruise to accommodate recommendations from the Oregon Fishermen's Cable Committee (OFCC), The Oregon Trawlers Association, the Quilete and Quinault tribes, and the Canadian Trawlers Association, all of which represents the various fishing communities on the Oregon, Washington and Canadian continental margins. A permit also was obtained to deploy one seismometer within the Olympic Coast National Marine Sanctuary. The attached Table and Figure show the originally planned and actual sites. A total of ten sites (labeled with asterisks) had to be slightly adjusted to accommodate the concerns of these fishing communities.

Of the 25 instruments deployed, one SIO Abalone instrument lost its anchor as it was being deployed. Another Abalone was deployed in its place as a spare anchor was sent to Newport during the cruise. We returned to port briefly after deploying the first 24 instruments, and returned to the site to deploy the lone remaining Abalone. All instruments will remain on the seafloor until the summer of 2012. In addition to the OBS deployments, one CTD cast was performed at site J42 and two LDEO instruments deployed on Leg 1 were pinged on to test their releases. The complete cruise report will soon be prepared by the cruise co-chief scientists Bob Dziak (Oregon State University) and Del Bohnenstiehl (North Carolina State University).

Additional information about the community experiment and details of the ongoing planning for the 2011 and 2012 cruises is available of the Cascadia Initiative Expedition Team website: http://cascadia.uoregon.edu .

Prepared by the Cascadia Initiative Expedition Team.

Table 1: Target and Surveyed Deployment Locations

Target Location											Survey Location							
Station Number	Activity	Instrument	Latitude Deg.	Min.		Longitude Deg.	Min.		Depth (m)		Latitude Deg.	Min.		Longitude Deg.	Min.		Depth (m)
1	Y1M7*	SIO-015	44	53.93	N	125	07.01	W	1350		44	53.9252	N	125	7.009	W	1356
2	J33	SIO-016	45	06.40	N	124	34.24	W	363		45	6.3972	N	124	34.2473	W	349
3	J34	LDEO-C01	45	18.35	N	125	24.94	W	2562		45	18.3392	N	125	24.8696	W	2574
4	Y1M6	LDEO-C08	45	31.80	N	124	55.59	W	1447		45	31.7679	N	124	55.6101	W	1438
5	J-42*	LDEO-C05	45	56.00	N	125	18.00	W	1568		45	55.9831	N	125	17.9839	W	1540
	CTD		45	56.01	N	125	18.01	W	1568								
6	Y1M5*	SIO-014	46	10.50	N	124	56.00	W	951		46	10.4076	N	124	56.0743	W	828
7	J50	LDEO-C02	46	38.40	N	125	18.00	W	1908		46	38.4093	N	125	17.9432	W	1908
8	CFN16*	LDEO-C06	46	48.00	N	125	31.00	W	1869		46	47.9761	N	125	30.9682	W	1907
9	J57	SIO-007	47	4.8	N	124	27	W	59		47	4.8053	N	124	27.0276	W	56
10	J58	LDEO-C03	47	19.08	N	125	31.93	W	1543		47	19.1266	N	125	32.0651	W	1510
11	Y1M4*	SIO-010	47	33.53	N	125	11.55	W	750		47	33.4855	N	125	11.5305	W	563
12	J65	SIO-013	47	53.51	N	125	08.38	W	169		47	53.4806	N	125	8.3776	W	165
13	Y1M2*	SIO-004	48	18.25	N	125	36.00	W	138		48	18.4194	N	125	36.0236	W	139
14	J73*	SIO-003	48	46.01	N	126	11.55	W	145		48	46.0607	N	126	11.55	W	143
15	Y1M1*	SIO-008	49	09.03	N	126	43.20	W	124		49	9.0254	N	126	43.3277	W	133
16	Y1M3	LDEO-C10	47	53.44	N	126	06.31	W	1758		47	53.2956	N	126	6.2372	W	1817
17	J59	LDEO-C04	47	30.58	N	126	24.88	W	2366		47	30.5731	N	126	24.9177	W	2370
18	J51	LDEO-C09	46	47.78	N	126	09.83	W	2623		46	47.8178	N	126	9.8465	W	2610
19	J44	SIO-005	46	19.51	N	127	02.34	W	2717		46	19.382	N	127	2.3401	W	2724
20	J36	SIO-002	45	41.10	N	127	07.40	W	2838		45	41.1315	N	127	7.35	W	2821
21	J43	SIO-001	46	08.29	N	126	10.36	W	2650		46	8.2696	N	126	10.325	W	2654
22	J35	SIO-009	45	29.91	N	126	15.99	W	2661		45	29.9339	N	126	16.0069	W	2662
23	J26	LDEO-C07	44	39.30	N	125	27.98	W	2854		44	39.2822	N	125	27.9826	W	2864
24	Y1M8*	SIO-006	44	07.10	N	124	53.76	W	131		44	7.1237	N	124	53.7209	W	126
25	J25*	SIO-011	44	28.35	N	124	37.31	W	145		44	28.371	N	124	37.2968	W	143

*** - Denotes station locations that were adjusted to accommodate fishing concerns.**