

Cascadia Initiative
Cruise OC1308B R/V *Oceanus*
(Cascadia 2013 Leg 6)
August 29, 2013 – September 6, 2013
Newport, Oregon to Newport, Oregon



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Table of Contents

Background	3
Cruise Objectives and Assessment	3
OC1308B_Leg6 Science Party.....	5
OC1308B _Leg6 Crew	6
Cruise Narrative.....	7
OBS Operations	17
Acknowledgements.....	20



Figure 1. TRM stacked on aft deck

Background

As part of the 2009 American Recovery and Reinvestment Act (ARRA) spending, NSF's Earth Sciences (EAR) and Ocean Sciences (OCE) divisions each received \$5M in facility-related investment. The funds are targeted toward Facilities that support EarthScope and GeoPRISMS science objectives, with an initial emphasis on onshore/offshore studies of the Cascadia margin. The ARRA funds have been used by UNAVCO, IRIS, and OBSIP to improve seismic and geodetic datasets in the Cascadia region including improvements to real-time GPS capabilities, densification of the onshore seismic networks, and the construction and deployment of an array of 70 ocean-bottom seismographs (OBS) for offshore community experiments.

The Cascadia Initiative (CI) is an onshore/offshore seismic and geodetic experiment that addresses questions ranging from the structure of the megathrust and its potential for large earthquakes to volcanic arc structure, and to the formation, deformation and hydration of the Juan de Fuca and Gorda plates. An article in the GeoPRISMS Newsletter (Spring 2011, issue No. 26) described CI scientific objectives, the outcome of an open community workshop held in October 2010 to develop deployment plans for the offshore component of the experiment, and formation of the Cascadia Initiative Expedition Team (CIET). Over its planned 4-year data acquisition period, the offshore portion of the Cascadia Initiative will involve the deployment and recovery of ~280 OBSs at ~160 different sites and a total of about 25 cruises.

Cruise Objectives and Assessment

The 1308B cruise objectives were to redeploy 16 trawl resistant (TRM) and 8 deep water (>1000m) LDEO OBS in the same locations as Year 1 and deploy 6 additional OBS (4 TRM and 2 deep water), that were not available during Year 1, to new locations. We successfully deployed all 30 OBS in the locations indicated in Figure 1 and listed in Table 1. Five 5 CTD casts were attempted but none were successful. The OBS will record continuously until their recovery in 2014.

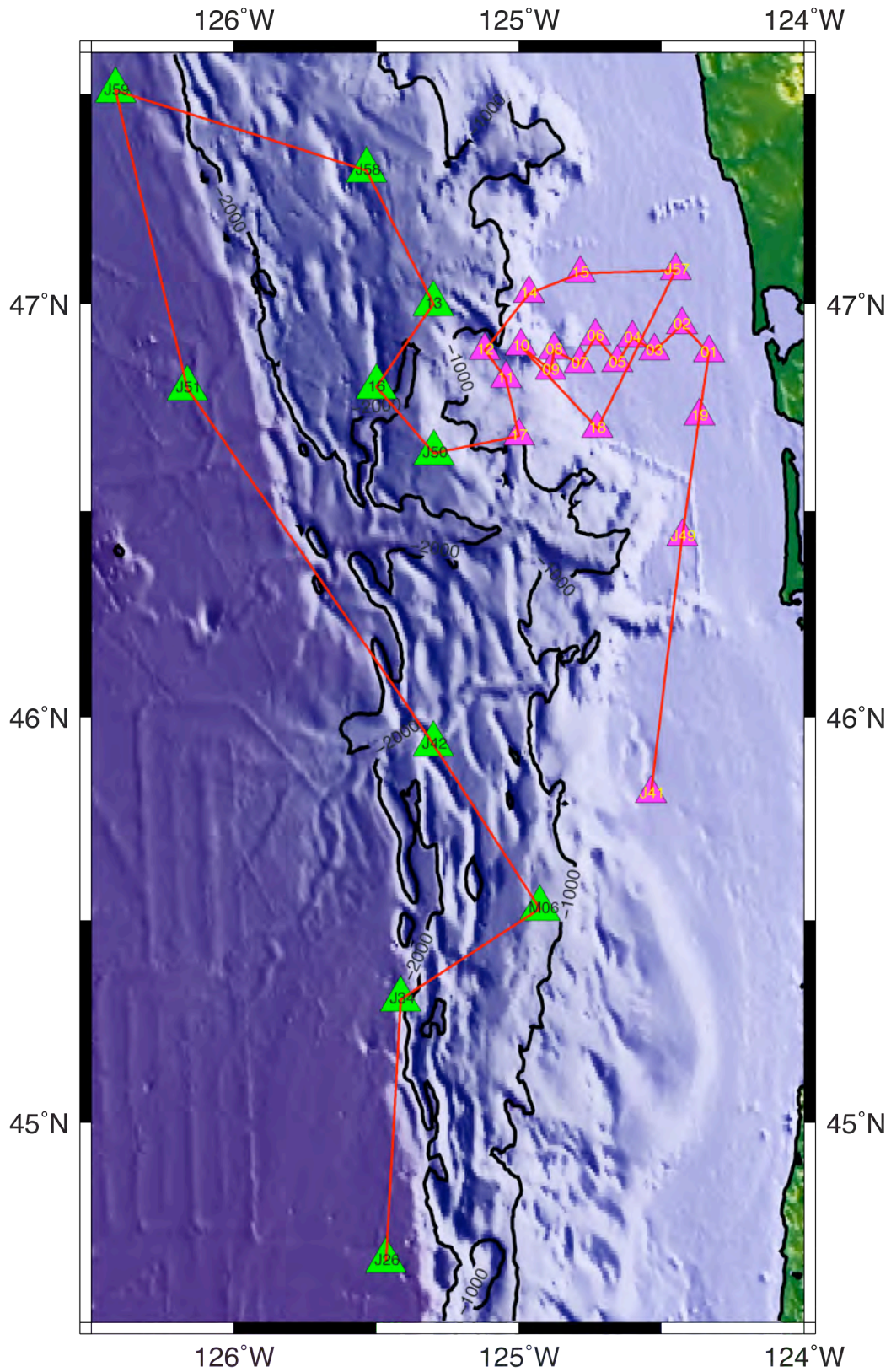


Figure 2. OC1308B cruise track. Pink and green triangles mark the location of the TRM and deep water OBS respectively.

OC1308B Science Party

Jeff McGuire	Chief Scientist in Charge	WHOI
Susan Schwartz	Co-Chief Scientist	University of California Santa Cruz
Carlos Becerril	OBS Technician	LDEO
David Gassier	OBS Technician	LDEO
Carlos Gutierrez	OBS Technician	LDEO
Ted Koczynski	OBS Technician	LDEO
Anatoly Mironov	OBS Technician	UT Austin
Xiaowei Chen	Postdoctoral Researcher	WHOI
Harmony Colella	Postdoctoral Researcher	Miami University of Ohio
Yajing Liu	Asst. Professor	McGill University
Martin Pratt	Graduate Student	Washington University in St. Louis
Erik Arnesen	Marine Technician	Oregon State University



Figure 3. Deep water OBS lined up on starboard deck

OC1308B Oceanus Crew

Jeff Crews
Mike Ribera

Captain
Chief Engineer

Todd Dussault
Tony Monacondilos

Chief Mate
Second Mate

Chip Millard
Jay Jean-Bart

Engineer
Engineer

Doug Beck
Duane Zatterstrom
Eugene Otto

Bos'n
AB
AB

Kris Alberty
John Vanderbeck

Cook
Steward

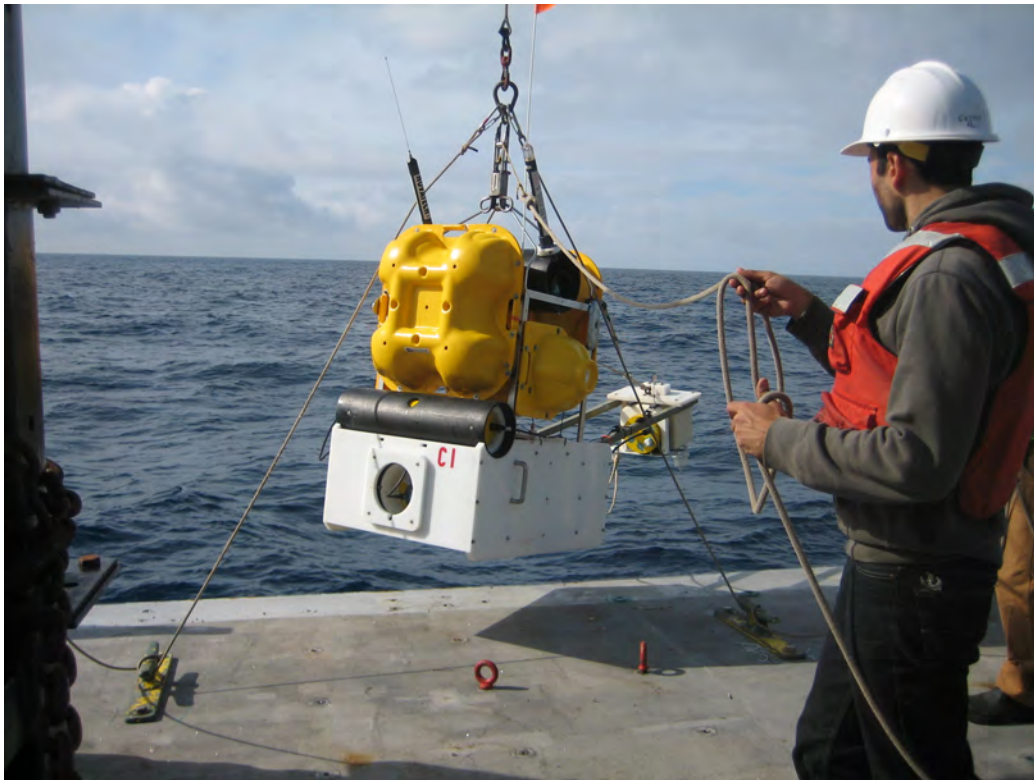


Figure 4. Deep water OBS being deployed off starboard deck.

Cruise Narrative

This cruise departed on August 29, 2013. This cruise was delayed 1 day at Newport to wait for a battery shipment. However, we were still able to successfully deploy and track to the bottom all 30 of the OBS in less than the time allocated. In addition we performed 5 CTD casts at several different stations but unfortunately none were successful.

Monday August 26. The ship spent most of the day fuelling so we were unable to load any of the LDEO equipment.

Tuesday, August 27. Chief Scientist Jeff McGuire, co-chief Susan Schwartz, the rest of the science party and the LDEO OBSIP group were all in Newport and cargo was loaded on to the ship.

Wednesday, August 28. The Science Party began to prepare the OBS and a precruise “all hands” meeting took place on Oceanus.

Thursday, August 29. LDEO OBSIP group with help from Scientists, began work preparing the OBSs. 9:30 Safety drill, battery shipment arrives at 11:00 and departure at 12:00 pm. Moderate seas, winds out of north at 15-25 knots. First OBS deployment is at site J41C whose location remains the same as the original site.

1) Station J41C

On Station:	8/30/2013 02:28 UTC (8/29/2013 19:28 local)
OBS Type:	LDEO TRM No. C13 pop-up
Deploy Time:	8/30/2013 05:21 UTC
Deployed Position:	45.8118° N, 124.53718° W
Water Depth:	171 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	8/30/2013 05:40 UTC
Depart Station:	8/30/2013 05:58 UTC
Time on Station:	3 hr 30 min

TRM pop-up frame top and side panels were incorrectly assembled, crew had to reconfigure the frame panels.

The second deployment of the day is J49C to commence ~7:00 AM local time.

Friday, August 30

2) Station J49C

On Station:	8/30/2013 14:26 UTC (8/30/2013 07:26 local)
OBS Type:	LDEO TRM No. C5 popup
Deploy Time:	8/30/2013 17:53
Deployed Position:	46.43760° N, 124.427345° W
Water Depth:	113 m
Range to which tracked	Tracked to Bottom
OBS on Seafloor:	8/30/2013 18:03 UTC
Disable Acoustic Release:	8/30/2013 18:08 UTC
Depart Station:	8/30/2013 18:28 UTC

Time on Station: 4 hr 02 min

3) Station FN19C

On Station: 8/30/2013 21:06 UTC (8/30/2013 14:06 local)
OBS Type: LDEO TRM No. C18 popup
Deploy Time: 8/30/2013 22:26
Deployed Position: 46.729710°N, 124.367163° W
Water Depth: 72 m
Range to which tracked Tracked to Bottom
OBS on Seafloor: 8/30/2013 22:26 UTC
Disable Acoustic Release: 8/30/2013 22:28 UTC
Depart Station: 8/30/2013 23:17 UTC
Time on Station: 2 hr 11 min

We spent some extra time at this site to unload the TRM frames. Seas are calm and winds between 10-15 knots.

Saturday, August 31.

4) Station FN01C

On Station: 8/31/2013 00:34 UTC (8/30/2013 17:34 local)
OBS Type: LDEO TRM No. C04 popup
Deploy Time: 8/31/2013 01:54 UTC
Deployed Position: 46.88197° N, 124.33398° W
Water Depth: 53 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 8/31/2013 01:59 UTC
Disable Acoustic Release: 8/31/2012 02:01 UTC
Depart Station: 8/31/2012 02:53 UTC
Time on Station: 2 hr 19 min

5) Station FN02C

On Station: 8/31/2013 03:30: UTC (8/30/2013 20:30 local)
OBS Type: LDEO TRM No. C51 popup
Deploy Time: 8/31/2013 05:28 UTC
Deployed Position: 46.949268 °N, 124.428122° W
Water Depth: 67 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 8/31/2013 05:32
Disable Acoustic Release: 8/31/2013 05:37 UTC
Depart Station: 8/31/2013 06:19 UTC
Time on Station: 2 hr 49 min

This site was NOT deployed in Yr 1. Position was determined to adhere to community plan and advice of fisheries. Failed CTD cast attempt. Will fix unit and try at future station. Next deployment is Station FN03C to commence at 07:30 the following day.

6) Station FN03

On Station: 8/31/2013 15:34 UTC (8/31/2012 08:34 local)
OBS Type: LDEO TRM No. C35 popup

Deploy Time:	8/31/2013 17:55 UTC
Deployed Position:	46.886630 ° N, 124.525052 ° W
Water Depth:	93 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	8/31/2013 18:03
Disable Acoustic Release:	8/31/2013 18:06 UTC
Depart Station:	8/31/2013 18:38 UTC
Time on Station:	3 hr 4 min

Repaired CTD and will use after OBS deployments are done for the day. CTD cast failed

7) Station FN04C

On Station:	8/31/2013 20:18 UTC (8/31/2013 13:18 local)
OBS Type:	LDEO TRM No. 712 popup
Deploy Time:	8/31/2013 21:20 UTC
Deployed Position:	46.91785°N, 124.60179° W
Water Depth:	104 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	21:29
Disable Acoustic Release:	8/31/2013 21:33 UTC
Depart Station:	8/31/2013 22:07 UTC
Time on Station:	1 hr 49 min

8) Station FN05C

On Station:	8/31/2013 23:00 UTC (8/31/2013 16:00 local)
OBS Type:	LDEO TRM No. C6 popup
Deploy Time:	9/1/2013 01:32 UTC
Deployed Position:	46.857913°N, 124.655188 ° W
Water Depth:	123 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	1:43
Disable Acoustic Release:	9/1/2013 1:44 UTC
Depart Station:	9/1/2013 2:16 UTC
Time on Station:	3 hr 16 min

Had some difficulty with the burn wire that needed to be repaired. Calm seas continue.

Sunday, September 1

9) Station FN06C

On Station:	9/1/2013 03:00 UTC (8/31/2013 20:00 local)
OBS Type:	LDEO TRM No. C1 popup
Deploy Time:	9/2/2012 04:38 UTC
Deployed Position:	46.922445° N, 124.731715° W
Water Depth:	137 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/1/2013 04:50 UTC
Disable Acoustic Release:	9/1/2013 04:54 UTC
Depart Station:	9/1/2013 05:06 UTC
Time on Station:	2 hr 6 min

CTD cast began shortly after deployment but was unsuccessful. Next deployment is Station FN07C to commence at 07:30 the following day.

10) Station FN07C

On Station: 9/1/2013 14:51 UTC (9/1/2013 07:51 local)
OBS Type: LDEO TRM No. C21 popup
Deploy Time: 9/1/2013 17:49 UTC
Deployed Position: 46.85553° N, 124.78653° W
Water Depth: 158 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/1/2013 18:03
Disable Acoustic Release: 9/1/2013 18:09 UTC
Depart Station: 9/1/2013 19:08 UTC
Time on Station: 4 hr 17 min

Burn wire voltage was negative so package had to be opened and rewired.

11) Station FN08C

On Station: 9/1/2013 20:17 UTC (9/1/2013 13:17 local)
OBS Type: LDEO TRM No. TC028
Deploy Time: 9/1/2013 21:22 UTC
Deployed Position: 46.88885° N, 124.87689° W
Water Depth: 176 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/1/2013 21:37 UTC
Start Acoustic Survey: 9/1/2013 21:48
Disable Acoustic Release: 9/1/2013 22:08 UTC
Surveyed Position 46.88874° N 124.87605°W
Depart Station: 9/1/2013 22:15 UTC
Time on Station: 1 hr 58 min

Monday, September 2

12) Station FN09C

On Station: 9/2/2013 00:06 UTC (9/1/2013 17:06 local)
OBS Type: LDEO TRM No. C81
Deploy Time: 9/2/2013 00:34 UTC
Deployed Position: 46.840113° N, 124.887808 ° W
Water Depth: 198 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/2/2013 00:52 UTC
Start Acoustic Survey: 9/2/2013 01:00 UTC
Disable Acoustic Release: 9/2/2013 01:19 UTC
Surveyed Position 46.84022°N 124.88717° W
Depart Station: 9/2/2013 02:45 UTC
Time on Station: 2 hr 39 min

CTD start at 0:2:00 and ended at 02:37 UTC. Failed attempt

13) Station FN10C

On Station: 9/2/2013 03:25 UTC (9/1/2013 20:25 local)
OBS Type: LDEO TRM No. C17
Deploy Time: 9/2/2013 03:47 UTC
Deployed Position: 46.89777° N, 124.99379° W
Water Depth: 811 m
Range to which tracked: Tracked to bottom
OBS on Seafloor: 9/2/2013 05:00 UTC
Start Acoustic Survey: 9/2/2013 05:27 UTC
Disable Acoustic Release: 9/2/2013 05:42 UTC
Surveyed Position: 46.89809° N 124.99346° W
Depart Station: 9/2/2013 05:45 UTC
Time on Station: 2 hr 20 min

Next deployment will be Station FN18C to commence at 07:30 the following day. This is a change from the original deployment plan to allow the remaining popup TRM to be deployed, clearing room on the deck.

14) Station FN18C

On Station: 9/2/2013 14:51 UTC (9/2/2013 07:51 local)
OBS Type: LDEO TRM No. TC024 popup
Deploy Time: 9/2/2013 17:55 UTC
Deployed Position: 46.69958° N, 124.72487° W
Water Depth: 166 m
Range to which tracked: Tracked to bottom
OBS on Seafloor: 9/2/2013 18:10 UTC
Disable Acoustic Release: 9/2/2013 18:13 UTC
Depart Station: 9/2/2013 18:15 UTC
Time on Station: 3 hr 24 min

15) Station J57C

On Station: 9/2/2013 21:04 UTC (9/2/2013 14:04 local)
OBS Type: LDEO TRM No. C25 popup
Deploy Time: 9/2/2013 21:24 UTC
Deployed Position: 47.080052° N, 124.450492° W
Water Depth: 60 m
Range to which tracked: Tracked to bottom
OBS on Seafloor: 9/2/2013 21:30 UTC
Disable Acoustic Release: 9/2/2013 21:31 UTC
Depart Station: 9/2/2013 22:19 UTC
Time on Station: 1 hr 15 min

OBS crew prepared instrumentation while on route from FN18C to J57C, resulting in a very short time on station. Whales were sighted.

Tuesday, September 3rd

16) Station FN15C

On Station: 9/2/2013 23:49 UTC (9/2/2013 16:49 local)
OBS Type: LDEO TRM No. TC741 popup

Deploy Time:	9/3/2013 01:02 UTC
Deployed Position:	47.073018° N, 124.785520 ° W
Water Depth:	124 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/3/2013 21:30 UTC
Disable Acoustic Release:	9/3/2013 21:31 UTC
Depart Station:	9/3/2013 22:19 UTC
Time on Station:	1 hr 15 min

This site was NOT deployed in Yr 1. Position was established based on community plan and to adhere to advice from fisheries. A Sun fish was sighted and 2 albacore were caught.

17) Station FN14C

On Station:	9/3/2013 03:49 UTC (9/2/2013 20:39 local)
OBS Type:	LDEO TRM No. C16 popup
Deploy Time:	9/3/2013 05:03 UTC
Deployed Position:	47.024672° N, 124.964912° W
Water Depth:	173 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/3/2013 05:18 UTC
Disable Acoustic Release:	9/3/2013 05:23 UTC
Depart Station:	9/3/2013 05:25 UTC
Time on Station:	1 hr 36 min

Next deployment will be Station FN12C to commence at 07:30 the following day.

18) Station FN12C

On Station:	9/3/2013 15:06 UTC (9/3/2013 8:06 local)
OBS Type:	LDEO TRM No. TC001
Deploy Time:	9/3/2013 16:58 UTC
Deployed Position:	46.888530 ° N, 125. 119245° W
Water Depth:	656 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/3/2013 17:57 UTC
Start Acoustic Survey:	9/3/2013 18:15 UTC
Disable Acoustic Release:	9/3/2013 18:27 UTC
Surveyed Position	46.888678° N 124.118965° W
Depart Station:	9/3/2013 18:39 UTC
Time on Station:	3 hr 33 min

Crew set up fishing lines while the LDEO group prepared instruments for deployment 3 tuna were caught.

19) Station FN11C

On Station:	9/3/2013 19:37 UTC (9/3/2013 12:37 local)
OBS Type:	LDEO TRM No. C8
Deploy Time:	9/3/2013 20:18 UTC
Deployed Position:	46.820163 ° N, 125.045748 ° W
Water Depth:	619 m
Range to which tracked	Tracked to bottom

OBS on Seafloor:	9/3/2013 21:11UTC
Start Acoustic Survey:	9/3/2013 21:34 UTC
Disable Acoustic Release:	9/3/2013 21:51 UTC
Surveyed Position	46.82047° N 125.045442 ° W
Depart Station:	9/3/2013 22:13 UTC
Time on Station:	2 hr 36min

This site was NOT deployed in Yr 1. Position was determined to adhere to community plan and advice of fisheries.

Wednesday, September 4rd

20) Station FN17C

On Station:	9/3/2013 23:40 UTC (9/3/2013 16:23 local)
OBS Type:	LDEO TRM No. TC746
Deploy Time:	9/4/2013 00:10 UTC
Deployed Position:	46. 681998° N, 125.000825 ° W
Water Depth:	1015 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/4/2013 01:41 UTC
Start Acoustic Survey:	9/4/2013 02:15 UTC
Disable Acoustic Release:	9/4/2013 02:46UTC
Surveyed Position	46.6816185° N 125.000455° W
Depart Station:	9/4/2013 02:50 UTC
Time on Station:	3 hr 10 min

This site was NOT deployed in Yr 1. Position was determined to adhere to community plan and advice of fisheries.

21) Station J50C

On Station:	9/4/2013 03:56 UTC (9/3/2013 20:56 local)
OBS Type:	LDEO No. TC759
Deploy Time:	9/4/2013 05:48 UTC
Deployed Position:	46. 635998° N, 125.299502 ° W
Water Depth:	1931 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/4/2013 06:53 UTC
Start Acoustic Survey:	9/4/2013 06:54 UTC
Disable Acoustic Release:	9/4/2013 07:32 UTC
Surveyed Position	46.6411367° N 125.2987483° W
Depart Station:	9/4/2013 07:35 UTC
Time on Station:	3hr 39min

Next deployment will be Station FN16C to commence at 07:30 the following day.

22) Station FN16C

On Station:	9/4/2013 15:06 UTC (9/4/2013 08:06 local)
OBS Type:	LDEO No. C14
Deploy Time:	9/4/2013 17:17 UTC
Deployed Position:	46.800042 ° N, 125.499910° W

Water Depth:	1728 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/4/2013 17:57 UTC
Start Acoustic Survey:	9/4/2013 17:58 UTC
Disable Acoustic Release:	9/4/2013 18:30 UTC
Surveyed Position	46.800492° N 125.50013° W
Depart Station:	9/4/2013 18:35 UTC
Time on Station:	3hr 29min

This site was NOT deployed in Yr 1. Position was determined to adhere to community plan and advice of fisheries. Bathymetry is a bit steeper than most other stations. CTD cast attempted but not successful. Fishing lines set and 8 tuna caught within 1 hour.

23) Station FN13C

On Station:	9/4/2013 20:40 UTC (9/4/2013 13:40 local)
OBS Type:	LDEO No. C20
Deploy Time:	9/4/2013 20:49 UTC
Deployed Position:	46.999823° N, 125.300028 ° W
Water Depth:	1764 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/4/2013 21:27 UTC
Start Acoustic Survey:	9/4/2013 21:29 UTC
Disable Acoustic Release:	9/4/2013 22:00 UTC
Surveyed Position	47.000447° N 125.301053° W
Depart Station:	9/4/2013 22:05 UTC
Time on Station:	1 hr 25 min

This site was NOT deployed in Yr 1. Position was determined to adhere to community plan and advice of fisheries. OBS was prepared in transit and was ready to deploy as soon as we were on site. Transit times are getting long enough for OBS preparation to be done in advance of station arrival for the next several sites.

Thursday, September 5th

24) Station J58C

On Station:	9/5/2013 00:00 UTC (9/4/2013 17:00 local)
OBS Type:	LDEO No. C31
Deploy Time:	9/5/2013 00:14 UTC
Deployed Position:	47.318297° N, 125.534592 ° W
Water Depth:	1527 m
Range to which tracked	Tracked to bottom
OBS on Seafloor:	9/5/2013 00:48 UTC
Start Acoustic Survey:	9/5/2013 00:49 UTC
Disable Acoustic Release:	9/5/2013 01:18UTC
Surveyed Position	47.31778° N 125.534562° W
Depart Station:	9/5/2013 01:23 UTC
Time on Station:	1hr 23min

LDEO crew decide to work 24 hours to deploy stations upon arrival.

25) Station J59C

On Station: 9/5/2013 04:56 UTC (9/4/2013 21:56 local)
OBS Type: LDEO No. C34
Deploy Time: 9/5/2013 05:50 UTC
Deployed Position: 47.509445° N, 126.415298 ° W
Water Depth: 2389 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/5/2013 06:37 UTC
Start Acoustic Survey: 9/5/2013 06:39 UTC
Disable Acoustic Release: 9/5/2013 07:17 UTC
Surveyed Position 47.511087° N 126.41679° W
Depart Station: 9/5/2013 07:22 UTC
Time on Station: 2 hr 26min

26) Station J51

On Station: 9/5/2013 11:22UTC (9/5/2013 04:22 local)
OBS Type: LDEO No. TC625
Deploy Time: 9/5/2013 12:17 UTC
Deployed Position: 46.797082° N, 126.16430 ° W
Water Depth: 2626 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/5/2013 13:15 UTC
Start Acoustic Survey: 9/5/2013 13:15 UTC
Disable Acoustic Release: 9/5/2013 13:50 UTC
Surveyed Position 46.° N 125.° W
Depart Station: 9/5/2013 13:52 UTC
Time on Station: 2 hr 30 min

No APG at this station. One was not functioning and we had to sacrifice at one station.

27) Station J42

On Station: 9/5/2013 19:44 UTC (9/5/2013 12:44 local)
OBS Type: LDEO No. Harmony 1
Deploy Time: 9/5/2013 20:42 UTC
Deployed Position: 45.934010° N, 125.297497 ° W
Water Depth: 1550 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/5/2013 21:16 UTC
Start Acoustic Survey: 9/5/2013 21:17 UTC
Disable Acoustic Release: 9/5/2013 21:42 UTC
Surveyed Position 45.932288° N 125.299092° W
Depart Station: 9/5/2013 21:45 UTC
Time on Station: 2 hr 1 min

28) Station M06

On Station: 9/6/2013 00:08 UTC (9/5/2013 17:08 local)
OBS Type: LDEO No. Harmony 2

Deploy Time: 9/6/2013 00:38 UTC
Deployed Position: 45.529520° N, 124.92697 ° W
Water Depth: 1460 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/6/2013 01:10 UTC
Start Acoustic Survey: 9/6/2013 01:11 UTC
Disable Acoustic Release: 9/6/2013 01:31 UTC
Surveyed Position 45.52872° N 124.92607° W
Depart Station: 9/6/2013 01:35 UTC
Time on Station: 1 hr 27 min

29) Station J34

On Station: 9/6/2013 03:58 UTC (9/5/2013 20:58 local)
OBS Type: LDEO No. TC752
Deploy Time: 9/6/2013 04:07UTC
Deployed Position: 45.305820° N, 125.414520 ° W
Water Depth: 2591 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/6/2013 05:04 UTC
Start Acoustic Survey: 9/6/2013 05:04 UTC
Disable Acoustic Release: 9/6/2013 05:56 UTC
Surveyed Position 45. 30695° N 125.41523° W
Depart Station: 9/6/2013 06:00 UTC
Time on Station: hr min

30) Station J26

On Station: 9/6/2013 09:43 UTC (9/5/2013 02:43 local)
OBS Type: LDEO No. TC69
Deploy Time: 9/6/2013 11:03 UTC
Deployed Position: 44.653798° N, 125.466485 ° W
Water Depth: 2880 m
Range to which tracked Tracked to bottom
OBS on Seafloor: 9/6/2013 12:03 UTC
Start Acoustic Survey: 9/6/2013 12:05 UTC
Disable Acoustic Release: 9/6/2013 UTC
Surveyed Position 44.6534083° N 125.46531° W
Depart Station: 9/6/2013 13:31 UTC
Time on Station: 3 hr 48 min

OBS Operations

We deployed 30 OBS at 30 sites extending along strike from northern Oregon to northern Washington (Figures 1). Of these 30 OBS 20 had the LDEO new design trawl resistant mounts (TRM), 14 equipped with pop ups (TRMp in Table 1). The popup TRMs were deployed in water depth less than 200m. The 20 TRM were stacked on the aft deck (Figure 2) and the 10 deep water OBS were stored on the starboard side of the ship (Figure 3). All but 4 of the 20 TRM (FN02C, FN11C, FN15C and FN17C) and 2 of the 10 normal OBS (FN13C and FN 16C) were deployed at the same locations as Yr1. The 6 new OBS sites were determined to adhere to the community derived plan and in consultation with Scott McMullen of the Oregon Fisherman's Cable Committee (OFCC). OBS operations took place between 7:00 AM and 11PM through September 4, allowing the OBS personnel to rest, and in particular the key engineer (David Gassier) who was needed to oversee most critical aspects of OBS preparation. 24 hour operations commenced on September 5 to complete deployments and arrive at Newport dock on September 6. The science team kept watch 24 hours a day and conducted CTD casts at several sites after OBS work ended for the day. No CTD casts were successful due to instrument problems.

All LDEO OBS carry a Trillium Compact intermediate-period seismometer and all but one (station J51) have a Parascientific Absolute Pressure Gauge (APG). One APG was not working so station J51 was deployed without an APG. The entire TRM OBS package was lowered to the seafloor on a line through the A-frame using the MASH-2000 heave compensated winch, and then released from the wire using an EdgeTech acoustic release after it was confirmed to be on the bottom. The TRM shells were initially stored on the back deck in 3 stacks of 6. There was little difficulty moving them around in seas that averaged 4 to 8 ft. The 10 regular OBS were deployed over the starboard deck using the crane on the main deck.

For 16 OBS with water depth greater than 175 m data to determine on-bottom location was obtained in the usual manner by ranging to the instrument from a number of locations at varying ranges and azimuths. The location on the seafloor of the 14 shallow water pop up OBS was determined by recording the ship's position when the instrument hit bottom and then calculating the layback from the GPS antenna to the A-frame using the ship's heading. Figure 1 and Table 1 show the final OBS locations for both surveyed and non-surveyed stations.

3.5 and 12 kHz acoustic data were collected for most of the cruise time.

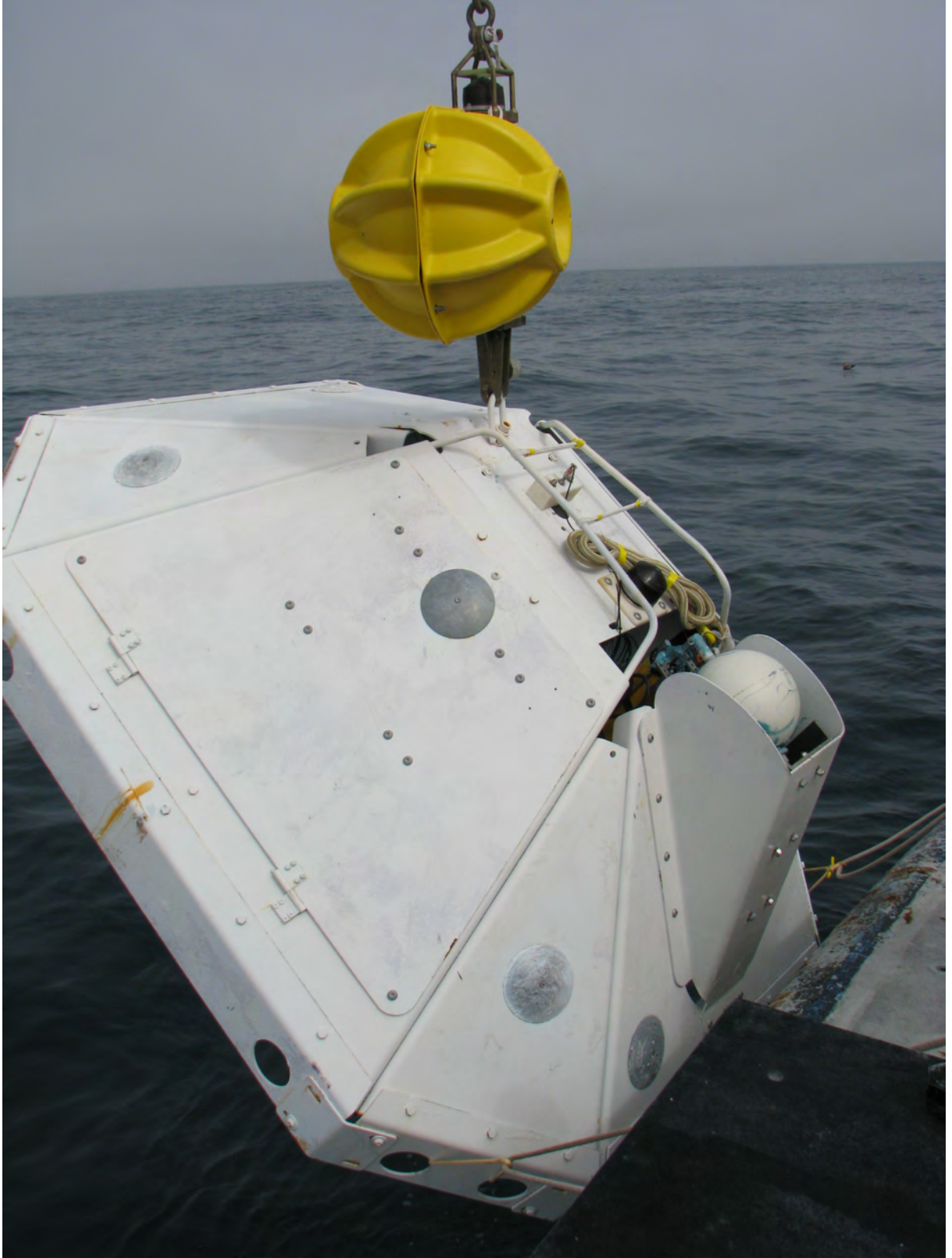


Figure 5. TRM deployment

Table 1. Deployed OBS Locations

Site Name	OBS I.D.	Final OBS Latitude (deg)	Final OBS Latitude (min)	Final OBS Latitude (hemi)	Final OBS Longitude (deg)	Final OBS Longitude (min)	Final OBS Longitude (hemi)	Final OBS Latitude (decimal degrees)	Final OBS Longitude (decimal degrees)	Final OBS Depth (m)	Type
FN01C	C04	46	52.93522	N	124	20	W	46.8822537	-124.3333394	56	TRMp
FN02C	C51	46	56.98203	N	124	25.677	W	46.9497006	-124.4279511	67	TRMp
FN03C	C35	46	53.2304	N	124	31.508	W	46.8871733	-124.5251365	93	TRMp
FN04C	712	46	55.04951	N	124	36.08	W	46.9174918	-124.6013342	104	TRMp
FN05C	C6	46	51.44928	N	124	39.334	W	46.857488	-124.6555707	123	TRMp
FN06C	C1	46	55.32291	N	124	43.876	W	46.9220486	-124.7312672	137	TRMp
FN07C	C21	46	51.32236	N	124	47.162	W	46.8553726	-124.7860401	158	TRMp
FN08C	TC028	46	53.3245	N	124	52.563	W	46.8887417	-124.8760467	176	TRM
FN09C	C81	46	50.4129	N	124	53.23	W	46.840215	-124.8871667	198	TRM
FN10C	C17	46	53.8852	N	124	59.608	W	46.8980867	-124.9934617	811	TRM
FN11C	C8	46	49.2285	N	125	2.7265	W	46.820475	-125.0454417	619	TRM
FN12C	TC001	46	53.3207	N	125	7.1379	W	46.8886783	-125.118965	656	TRM
FN13C	C20	47	0.0268	N	125	18.063	W	47.0004467	-125.3010533	1764	APG
FN14C	C16	47	1.493662	N	124	57.849	W	47.0248944	-124.9641565	173	TRMp
FN15C	TC741	47	4.402498	N	124	47.102	W	47.073375	-124.7850399	124	TRMp
FN16C	C14	46	48.0295	N	125	30.008	W	46.8004917	-125.50013	1728	APG
FN17C	TC746	46	40.8971	N	125	0.0273	W	46.6816183	-125.000455	1015	TRM
FN18C	TC024	46	42.00728	N	124	43.489	W	46.7001214	-124.7248117	166	TRMp
FN19C	C18	46	43.8067	N	124	22.011	W	46.7301116	-124.3668433	72	TRMp
J34C	TC752	45	18.4171	N	125	24.914	W	45.30695	-125.41523	2580	APG
J26C	TC69	44	39.2045	N	125	27.919	W	44.6534083	-125.46531	2868	APG
J41C	C13	44	108.6992	N	124	32.255	W	45.8116527	-124.537578	171	TRMp
J42C	Harmori	45	55.9373	N	125	17.946	W	45.9322883	-125.2990917	1550	APG
J49C	C5	46	26.27763	N	124	25.67	W	46.4379605	-124.4278302	113	TRMp
J50C	TC759	46	38.4682	N	125	17.925	W	46.6411367	-125.2987483	1931	APG
J51C	TC625	46	47.7432	N	126	9.7868	W	46.79572	-126.1631133	2626	APG
J57C	C25	47	4.825126	N	124	27.038	W	47.0804188	-124.4506263	67	TRMp
J58C	C31	47	19.0668	N	125	32.074	W	47.31778	-125.5345617	1527	APG
J59C	C34	47	30.6652	N	126	25.007	W	47.5110867	-126.41679	2389	APG
M06C	Harmori	45	31.7232	N	124	55.564	W	45.52872	-124.92607	1460	APG

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Figure 6. Sunset at end of the cruise