

CRUISE SUMMARY: Cascadia Initiative Year 3, LEG 3

R/V Atlantis (AT26-02), June 25 - July 9, 2013, Astoria - Astoria OR

Co-Chief Scientists:

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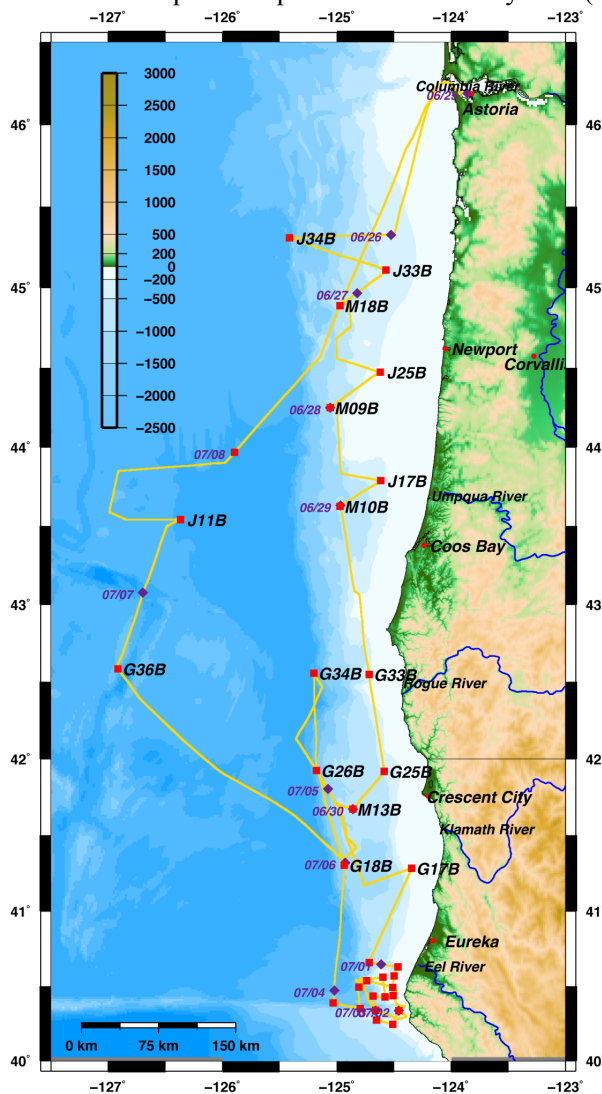
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Mission:

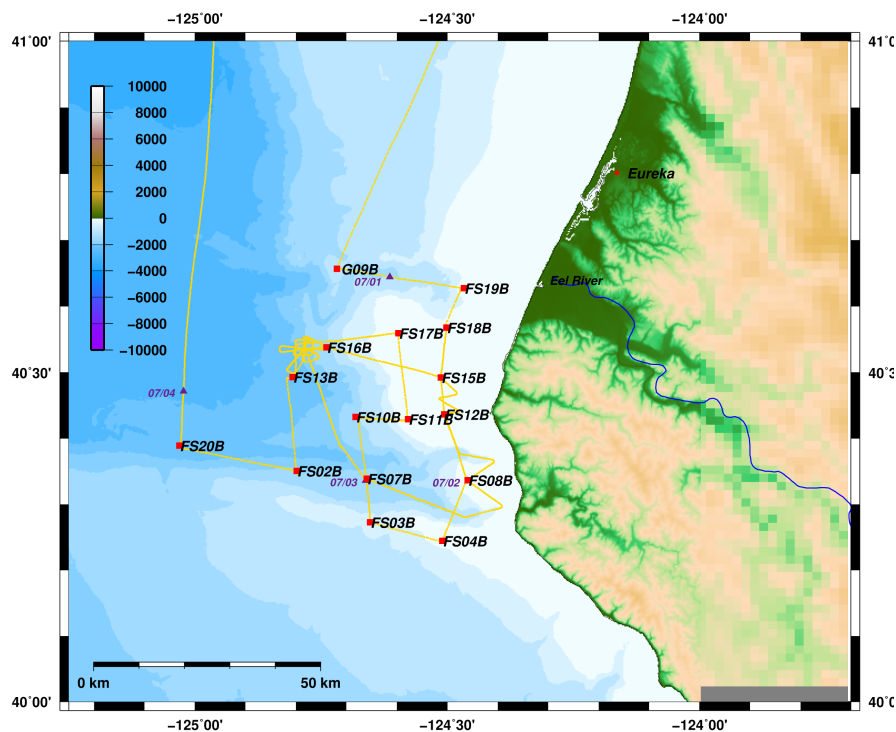
Recover 30 Lamont-Doherty Earth Observatory Ocean-bottom Seismometers (OBSs) of 3 different types:

- 10 TRM shallow-water OBSs with Trillium compact 3-component absolute pressure gauge installed at depths from 200-1000m (nominal). Recovered using remotely operated vehicle Jason.
- 10 Trawl-Resistant Mount (TRM) shallow-water OBS with Trillium compact 3-component seismometer, absolute pressure gauge (APG), acoustic release/pop-up buoy with Jason backup.
- 10 LDEO deep water OBSs with APG. Recover by sending an acoustic release command to drop the anchor. OBS then floats to the surface a nominal rate of 50m/min. Referred to as LDEO-DW below.
- If time allows, discover and recover 2 Woods Hole Oceanographic Institution deep water OBSs.

Additional Activities: Acquire swath bathymetry, including water column data, in transit between all stations and port. Acquire other underway data (e.g. meteorology, acoustic doppler current profiler).



Station Name	Lat	Lon	Depth, m
FS02B	40.3511	-124.7980	1403
FS03B	40.2731	-124.6526	345
FS04B	40.2447	-124.5097	159
FS07B	40.3392	-124.6596	1297
FS08B	40.3367	-124.4598	120
FS10B	40.4330	-124.6819	1076
FS11B	40.4292	-124.5778	132
FS12B	40.4371	-124.5059	60
FS13B	40.4931	-124.8065	2332
FS15B	40.4926	-124.5126	52
FS16B	40.5381	-124.7395	1073
FS17B	40.5598	-124.5965	146
FS18B	40.5682	-124.5016	107
FS19B	40.6279	-124.4667	87
FS20B	40.3896	-125.0311	2378
G09B	40.6568	-124.7187	842
G17B	41.2839	-124.3446	123
G18B	41.3016	-124.9363	1464
G25B	41.9199	-124.5861	430
G26B	41.9249	-125.1775	2357
G33B	42.5483	-124.7162	213
G34B	42.5554	-125.2010	2954
J17B	43.7900	-124.6148	286
J25B	44.4713	-124.6217	147
J33B	45.1066	-124.5706	350
J34B	45.3059	-125.4136	2583
M09B	44.2497	-125.0589	914
M10B	43.6248	-124.9728	675
M13B	41.6714	-124.8596	909
M18B	44.8871	-124.9712	720



This map and the map on the previous page show the trackline in yellow. The ship's position at the beginning of each day is shown by a purple triangle. Color shows water depth or elevation in meters.

Results:

- All 30 LDEO OBSs were successfully recovered.
- Twelve recoveries required ROV Jason and the MBARI line elevator, for a total of 13 dives.
- Eight out of 10 pop-up buoys on the LDEO trawl-resistant mounts (TRMs) were successful.
- Unfortunately weather conditions precluded Jason dives on the 2 lost WHOI OBSs.
- Time series of methane venting lasting 2-4 hours each were recovered at 3 different sites using the water column option of the EM-122 swath bathymetry system.
- New bathymetric data were acquired to fill some holes in existing coverage.
- At least 20 out of 30 Trillium compact seismometers recorded good quality data for 2/3 of the deployment period.
- At least 17 out of 28 Absolute Pressure Guages (APG) recorded good quality data for the entire deployment period.
- One TRM showed clear evidence of having been hit by trawling gear.
- Many local and teleseismic earthquakes were recorded.

Nine students, recruited through several different programs, participated in the cruise: 1 Incorporated Institutions for Seismology (IRIS) intern; 1 OSU Research Experiences for Undergraduates (REU) intern; 2 community college students participating in the UO CC@sea program; 4 students or staff who applied through the Cascadia Initiative "Apply to Sail" program. All students participated in live broadcasts to several museums and for Ocean Exploration Trust web site (www.xxxxxx.org).

For more information, please see the Cascadia Initiative web site (<http://cascadia.uoregon.edu/CIET>) or contact one of the chief scientists (trehu@coas.oregonstate.edu or dlivelyb@uoregon.edu). A complete cruise report will be available soon on the web site.