

Legacy MCS seismic data from Cascadia:

What exists and how do I get it?

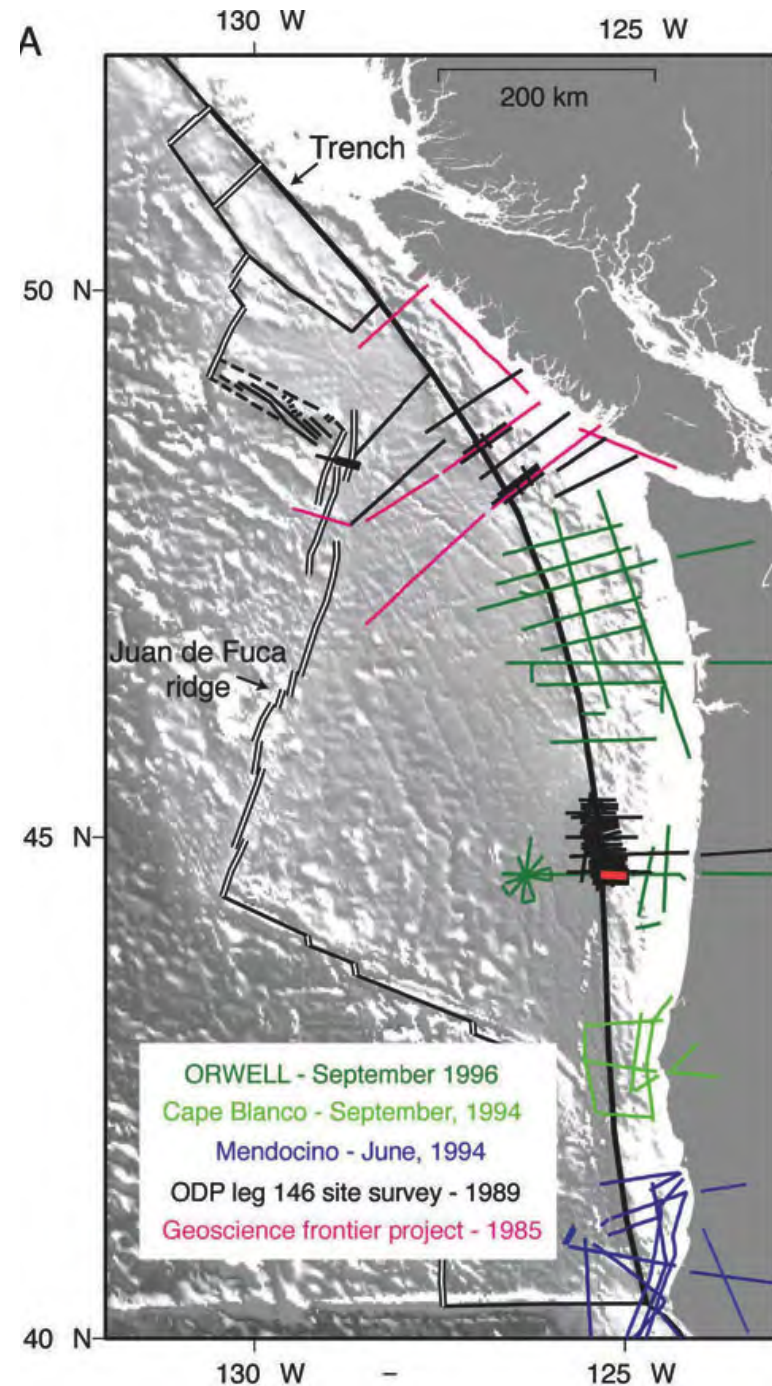
Seismic archives:

Academic Seismic Portal (ASP):
LDEO (shot gathers), UTIG (stacks)

National Archive of Marine Seismic Surveys (NAMSS): USGS (stacks of USGS and older industry data)

Natural Resources Canada Geoscience Data Repository (NRCAN GDR)

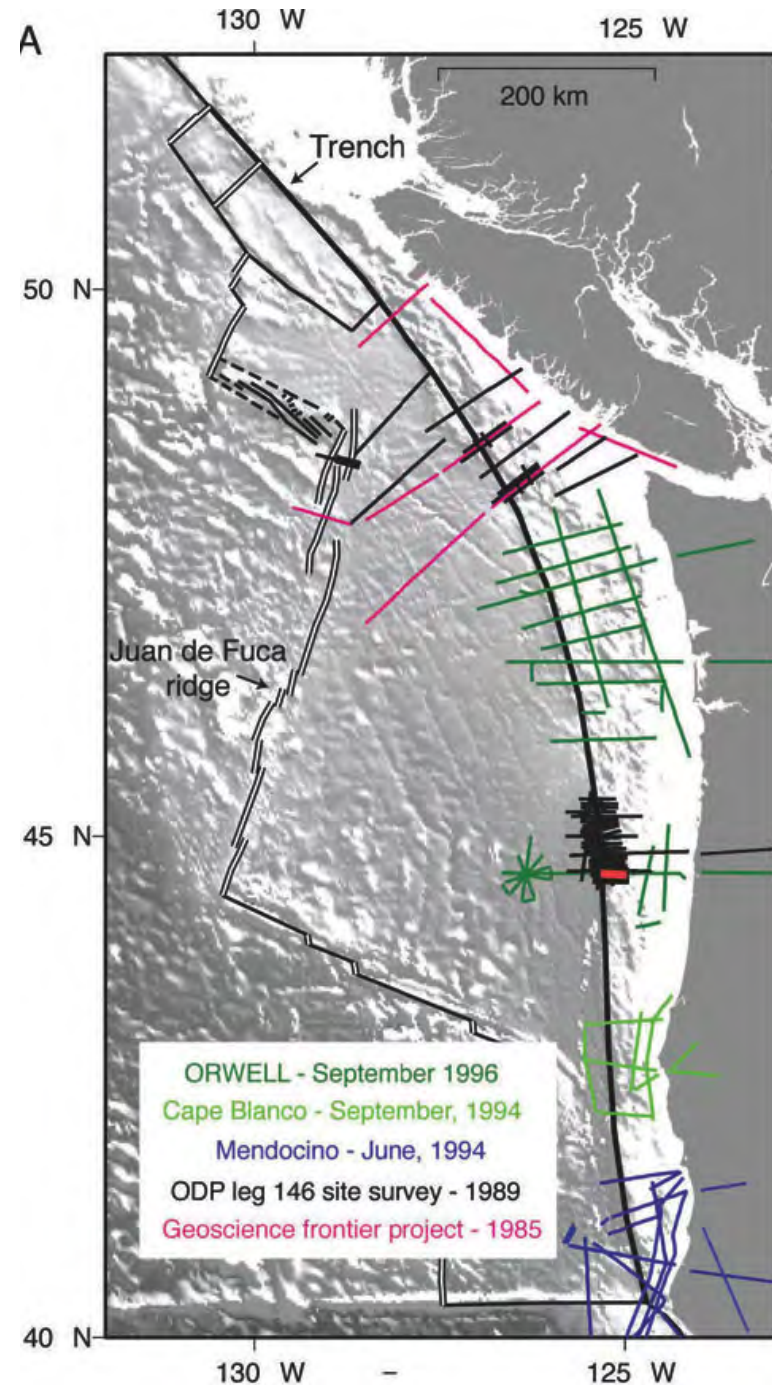
IRIS DMC: OBS and onshore recording of airgun shots.



Canadian data formerly available from the Lithoprobe data depository. This has been taken over by Natural Resources Canada but the seismic archive is not currently active. Should be available soon.

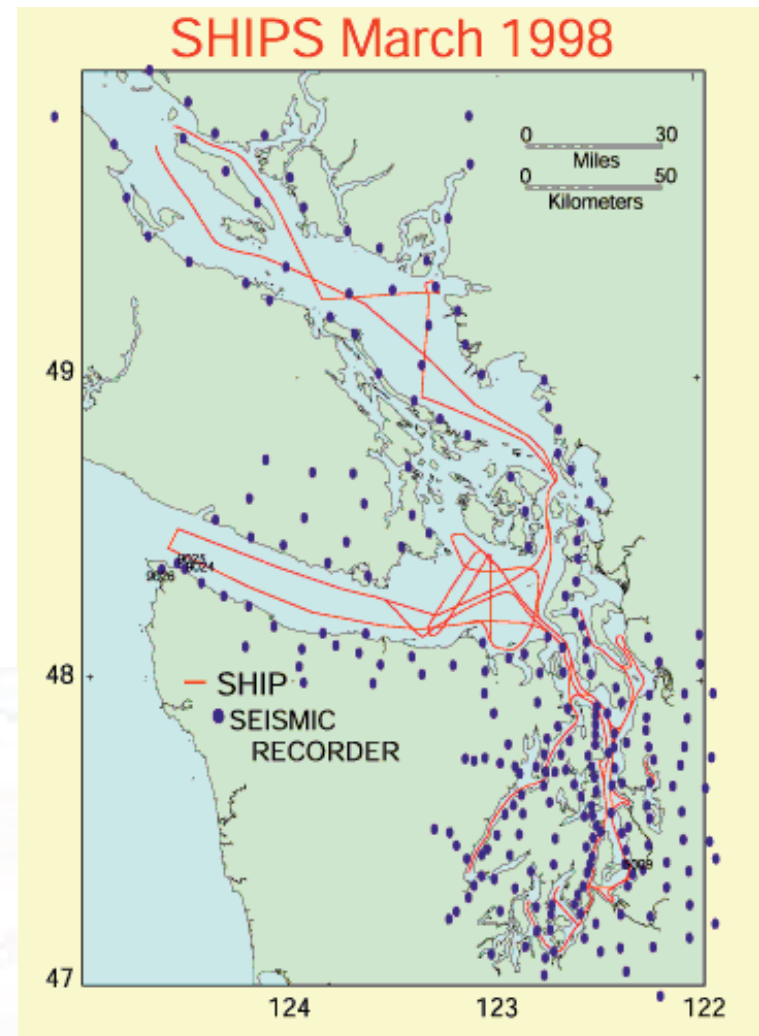
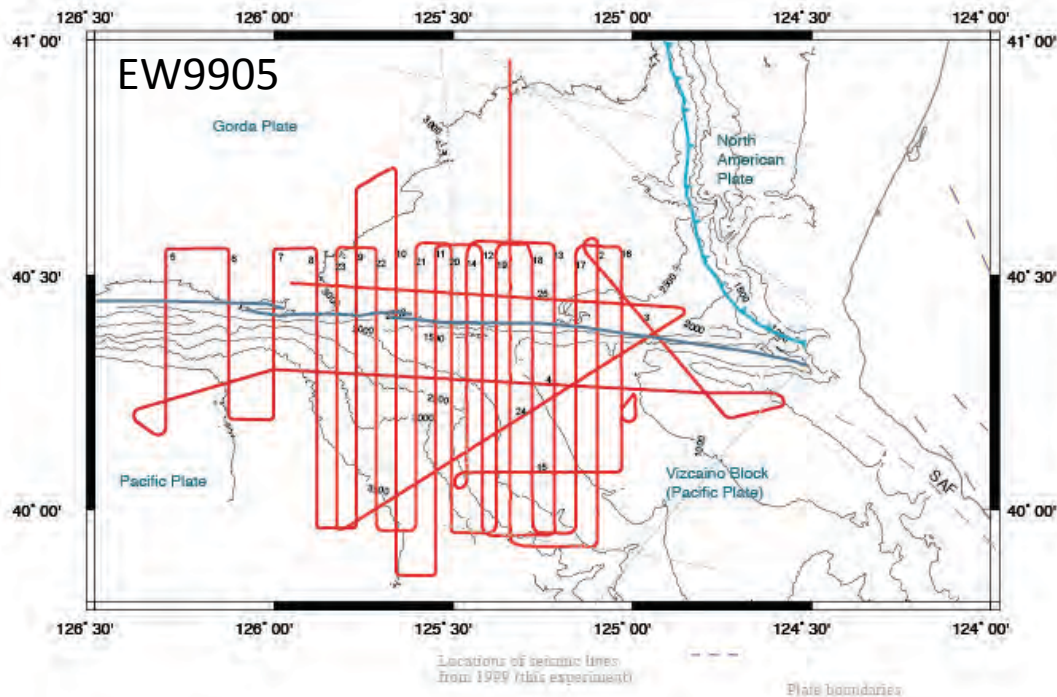
Mendocino Triple Junction Seismic Experiment (MTJSE) shot data is currently at IRIS. However, the MCS data should probably be transferred to the LDEO. Ocean Bottom Seismometer and Onshore recordings of the airgun shots will remain at IRIS.

ODP Leg 146 site survey, Cape Blanco (EW9414) and ORWELL (SO108) have all recently been sent to the LDEO-ASP. Processed sections for ODP146 at UTIG ASP; processed sections for Cape Blanco and ORWELL will be at USGS NAMSS; onshore recordings at IRIS.



EW9905 shot gathers and fkmigrated near-trace stacks available soon through the LDEO and UTIG ASPs.

SHIPS98 (wet-SHIPS) MCS stacks available on NAMSS. Wet-SHIPS onshore recordings available through IRIS. Shot gathers soon available through LDEO-ASP.

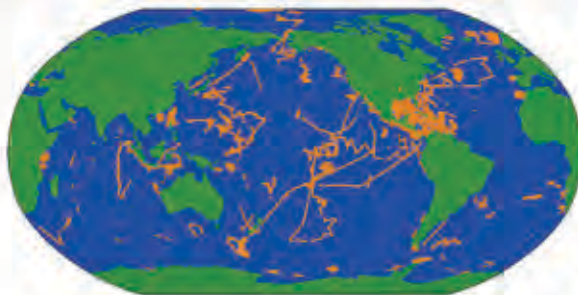


Academic Seismic Portal (ASP) at UTIG

Tools & Services

- [Global Map Search](#)
- [Project Cruise Search](#)
- [General Metadata Search](#)
- [Custom Plotting](#)
- [3D_Projects](#)
- [Dataset List & Status](#)
- [New User Info](#)
- [Other Data Sources](#)

[Google map link](#)

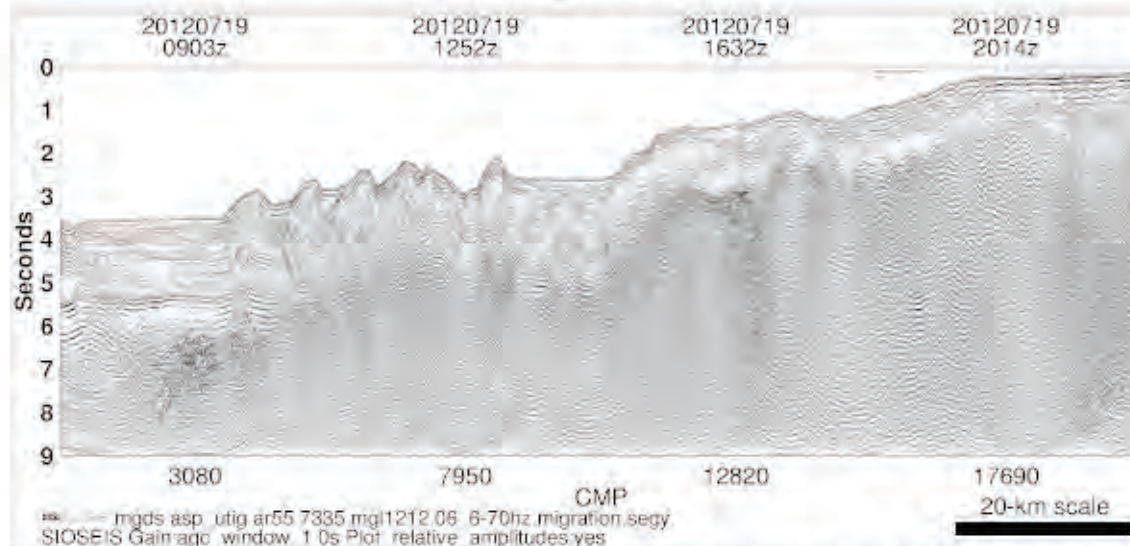


Gateway to the Marine Seismic Data Center (MSDC), an archive of academic active-source seismic data (SCS, MCS, Chirp, OBS, Sonobuoy and 3.5 kHz), supported by the National Science Foundation. We are partners with the [ASP at LDEO](#).

Recent Additions

- [MGL1212](#) - 2012 Cascadia subduction margin
- [MV1206](#) - 2012 Chirp Peru Trench
- [RC2614](#) - 1985 MCS South China Sea
- [KUMANO3D](#) - 2006 3D MCS Nankai NanTroSEIZE
- [EW9803](#) - 1998 MCS 3D Barbados accretionary prism
- [MGL0814](#) - 2008 MCS STEEP Alaska
- [ODP166JR](#) - 1996 SCS Bahamas
- [More](#)

Data image examples



Preliminary migrated section from the Cascadia Open-Access Seismic Transects (COAST) project off Grays Harbor, Washington State. Access: unrestricted. Contributed by: S. Holbrook. [View bigger gif.](#)

Conrad survey, [RC2612](#) (PIs D. Hayes, J. Ladd, S. Lewis, and J. Diebold). Data provided by J. Aisop.

* 2012-08-20 Uploaded the SCS data from the 1993 *JOIDES Res* Atlantic Ocean (Chief Scientists D. Sawyer and R. Whitmarsh). Data included band-pass filter (pass 30 170), mix (1 2 1), AGC (0.2s). Seismic s

* 2012-08-20 Uploaded the SCS and sonobuoy data from the 199 western Pacific Ocean (Chief Scientists J. Haggerty and I. Premoli included band-pass filter (pass 25 120), mix, AGC (0.5s). Seismic

* 2012-08-13 Uploaded the processed 48-channel seismic data fr *Conrad* survey, [RC2613](#) (PIs D. Hayes, J. Ladd, S. Lewis, and J.

* 2012-08-06 Uploaded the 4-channel seismic reflection data from the 2000 R/V *Melville* cruise ([NEMO04MV](#)) along the Middle America Trench (PIs L. Dorman, T. Dixon, and S. Schwartz). Data provided by P. Henkart. A single trace was filtered (30-80 Hz), mixed (1 1 1), and automatic gain controlled (1.0s) using SIOSEIS, creating new SEG-Y files (process level = 'strip'). Seismic section images were made from the new SEG-Y files.

* 2012-08-03 Uploaded the MCS (40- and 48-channel) field data and CHIRP data from the 2012 *Melville* survey ([MV1206](#)) along the Chile Trench (PIs A. Trehu and M. Tryon). Data provided by the SIO Shipboard Geophysical Group.

* 2012-07-26 Uploaded the MCS (40-channel) field data and CHIRP data from the 2012 *Melville* survey ([MV1202](#)) on the Agulhas Plateau in the Southwest Indian Ocean (PIs W. Wood, J. Book, A. Rice, I. Ansorge, M. Dengler, N. White, J. Paduan). Data provided by Warren Wood (MCS) and the SIO Shipboard Geophysical Group (CHIRP).

* 2012-07-05 Released as unrestricted the 48-channel seismic reflection shot data from the 2006-2007 R/V *Roger Revelle* survey ([KNOX02RR](#)) of the South Pacific Gyre (PIs S. D'Hondt, A. Spivack, and R. Pockalny). Data provided by P. Henkart.

* 2012-05-30 Uploaded the 28-channel seismic reflection data and CHIRP data from the 2003 R/V *Roger Revelle* survey ([CNTL03RR](#)) of the South San Clemente Basin of the southern California Borderlands (PI K. Macdonald). Data provided by P.

- Globally, >50 new dataset added in 2012 alone. Some are new; some are old.
- Some are open access; some are restricted.
- Currently, facilities rather than PIs are responsible for submitting the data.
- ASP keeps track of requests for data, and these requests can be used to demonstrate impact.

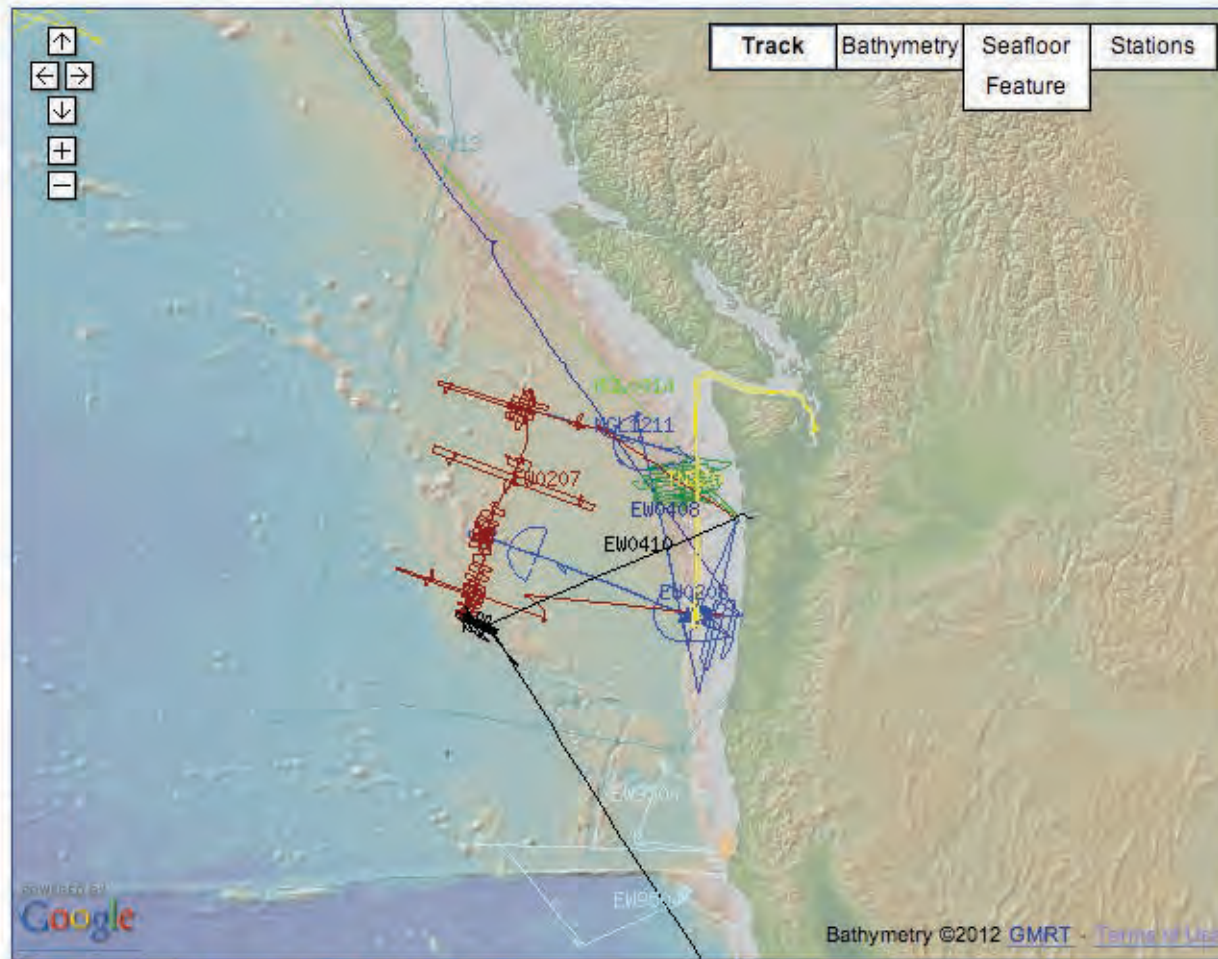
Academic Seismic Portal at LDEO

Portal Links

- [Portal Home](#) »
- [What's New](#)
- [Project Information](#)
- [Google Earth Files](#)
- [Tutorials](#)
- [GeoMapApp](#)
- [Virtual Ocean](#)

Access Seismic Data

- [Search For Seismic Data](#)
- [All multi-channel seismic shot data](#)
- [All multi-channel seismic processed data](#)



The Academic Seismic Portal (ASP) is sponsored by the [National Science Foundation](#) to organize active source seismic field data into a modern relational data management system accessible through the Internet. The system is designed principally for academic scientific use.

Pacific Coastal & Marine Science Center

National Archive of Marine Seismic Surveys

[Home](#)[Search And Download Data](#)[Trackline Maps](#)[About](#)[SEG-Y Format](#)[Contacts](#)[Partners](#)[Terms And Conditions Of Data Use](#)[USGS Related Links](#)[PCMSC Home](#)[Search PCMSC](#)

National Archive of Marine Seismic Surveys (NAMSS)

The National Archive of Marine Seismic Surveys (NAMSS) is a marine seismic reflection profile data archive consisting of data acquired by or contributed to U.S. Department of the Interior agencies. The USGS is committed to safekeeping this data on behalf of the academic community and the nation. These data are provided with free and open access. For more information, visit our [About](#) page.

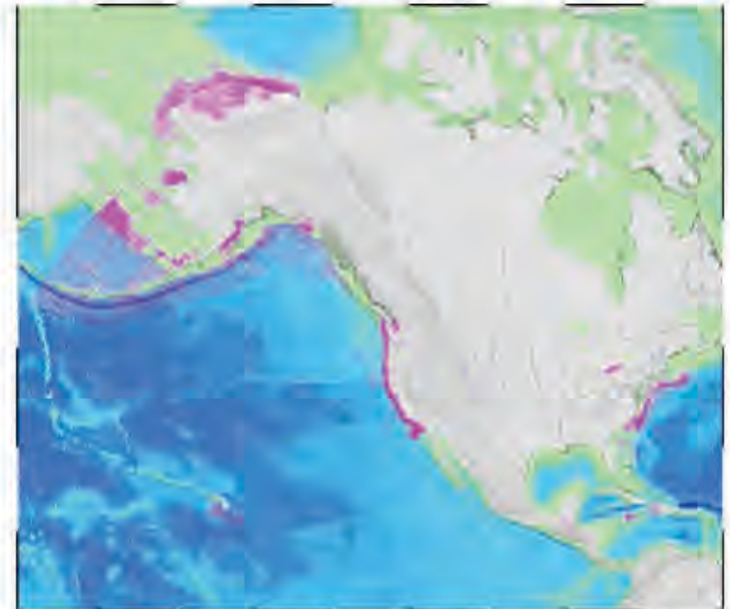
Search and download data in NAMSS using an interactive Google™ Map, a KMZ file with Google™ Earth or HTML data tables by region, contributor or year. Click the link below for more details.

Search and Download Data

PLEASE NOTE: These data are usually provided in SEG-Y format; specialized software is required to view these data. The data are accompanied by sparse metadata: at a minimum shotpoint location information in flat text files. Most surveys also have associate metadata in the form of text reports and digital images (tiff) of analog side-labels showing acquisition and in some cases processing parameters. Some profiles are represented by digital images (tiff) of the reflection profile. The site attempts to include all metadata that were provided by the contributor.

FURTHER NOTE: While shotpoint location information is largely complete for all surveys, there may be gaps or erroneous locations and mismatches with the seismic traces. Not all datasets have been quality-controlled to ensure complete correlation between shotpoint locations and seismic profiles.

We request acknowledgement of the data provider and the USGS in all instances of publication or reference. We



Overview map of surveys in NAMSS.

Trackline Maps of Surveys in NAMSS

[Trackline Maps](#) - View trackline maps of surveys in NAMSS by region.



Pacific Coastal & Marine Science Center

National Archive of Marine Seismic Surveys

[Home](#)
[Search And Download Data](#)
[Trackline Maps](#)
[About](#)
[SEG-Y Format](#)
[Contacts](#)
[Partners](#)
[Terms And Conditions Of Data Use](#)
[USGS Related Links](#)
[PCMSC Home](#)
[Search PCMSC](#)

Interactive Map

Directions

Select a survey from the list below. The survey will be plotted on the map to the right and the available data will be shown below. As you zoom and pan on the map, only the surveys in the region shown are listed.

58 surveys found in region shown

- Santa Maria Fill-In (W-10-78-SC)
- Santa Maria Fill-In (W-5-75-SC)
- Southern California (W-6-85-SC)
- Southern California (W-5-82-SC)
- Southern California (W-36-83-SC)
- Southern California (W-23-81-SC)
- Southern California Outer Banks (W-1-70-SC)
- Washington Puget Sound (W-2-70-PS)
- Washington, Oregon (W-29-80-WO)
- Washington, Oregon (W-39-85-WO)

[Zoom In To Selected Survey](#)

Washington, Oregon

Information

Contributor: WesternGeco

Year: 1980

USGS ID: W-29-80-WO

Number of tracklines: 47

Kilometers shot ~ : 2,960

Bounding coordinates (WESN): -125.40619, -124.03740, 42.28057, 48.54458

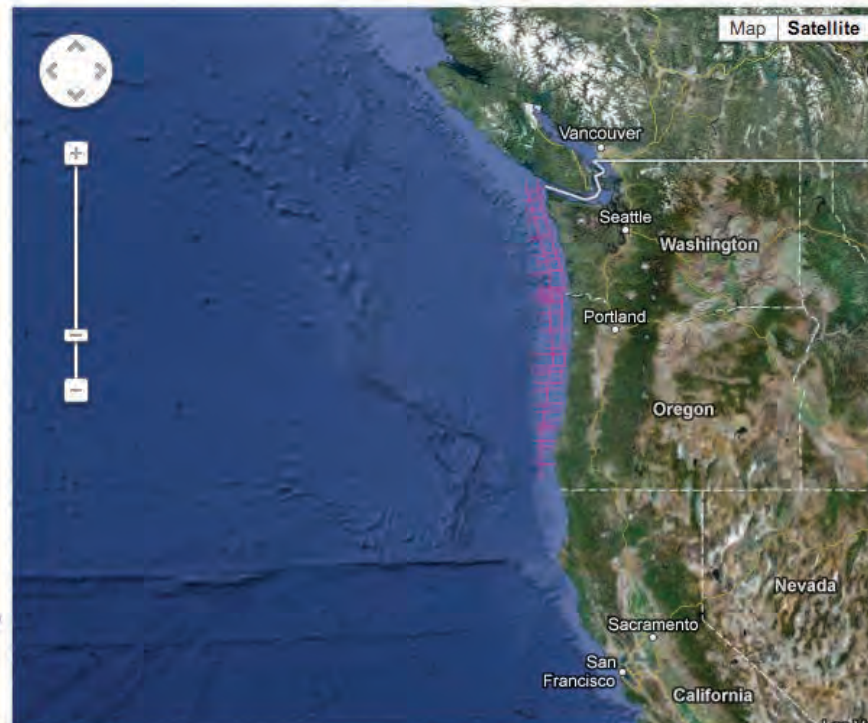
Seismic Data

Post-stack migration processing data in SEG-Y format: [w-29-80-wo.mig.sgy.zip \(799.5 Mb\)](#)

Stack processing data in SEG-Y format: [w-29-80-wo.stk.sgy.zip \(754.2 Mb\)](#)

Navigation Data

Edited seismic shot point data: [w-29-80-wo.420_051 \(2.9 Mb\)](#)



Proactive
Disclosure

A | s | M | L |

RSS Feeds

grid data for 575+ individual surveys.

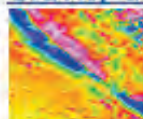
Electromagnetic Data: Point and grid data for 150+ individual surveys.

- [Borehole Geophysical Data](#)



Borehole logs of various geophysical properties including natural gamma, spectral gamma-gamma, acoustic velocity, P & S wave velocity, electrical methods, inductive conductivity, three-component magnetics, magnetic susceptibility and temperature. Also corresponding images of logs and geology.

- [Gravity data](#)



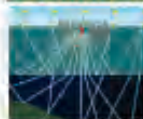
Compilation grids (2000 m) of Canada: Bouguer, Free-air, horizontal gradient, first vertical derivative, isostatic, and observed gravity data. Point data from the Canadian Gravity Database.

- [Radioactivity data](#)

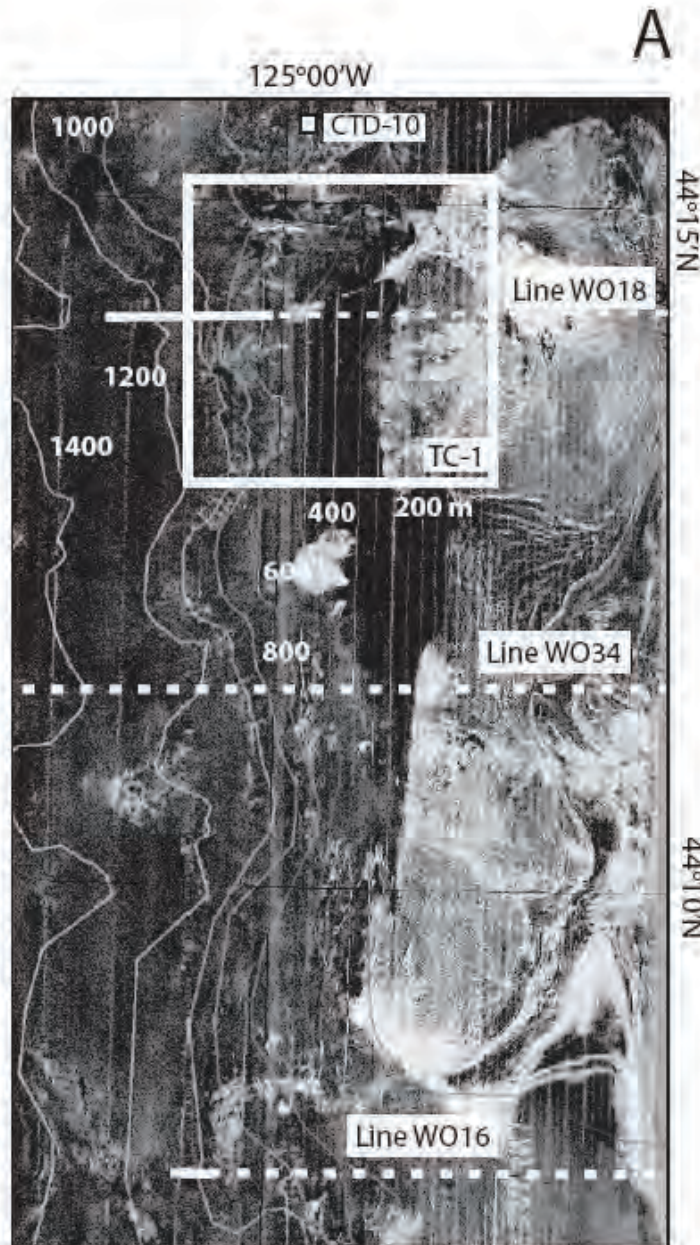
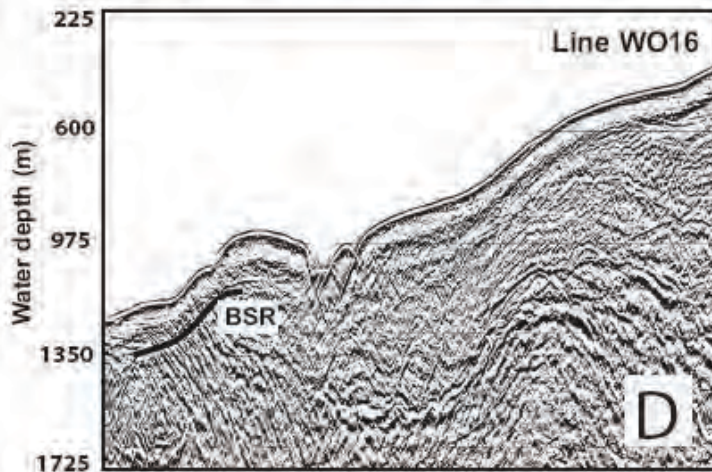
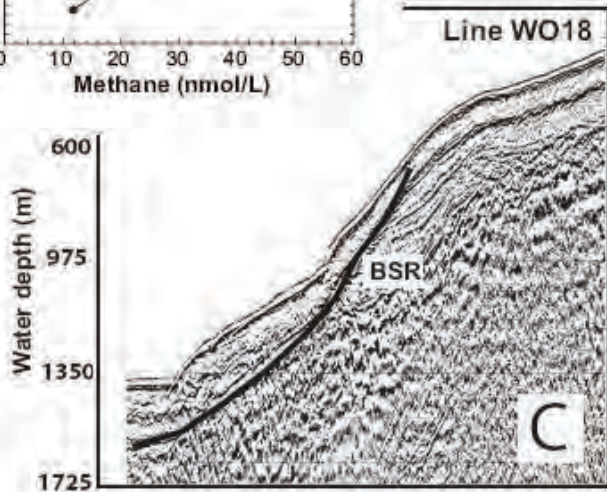
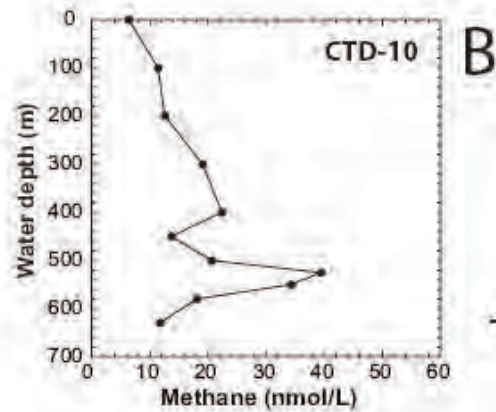


Compilation grids (250 m) of Canada: Potassium (K), Uranium (eU), Thorium (eTh), Natural air absorbed dose rate, eU/K, eTh/K, and eU/eTh data from the NATGAM database. Point and grid data for 300+ individual surveys.

- [Seismic and magnetotelluric data](#)



Seismic and magnetotelluric data from various projects including Lithoprobe, the Frontier Geoscience Program, and the Laurentian Basin Seismic Survey, as well as the East Coast and Arctic Refraction Catalogues.



An example of using legacy data:

Torres et al., Methane sources feeding cold seeps on the shelf and upper continental slope off central Oregon USA, G-cubed, 2009.

Industry lines from the 80s. Stacked and with AGC applied, but better than nothing!

Other examples:

~50 requests for TTN112 (2000 Hydrate Ridge high-resolution 3D ODP site survey) from industry and from students around the world.

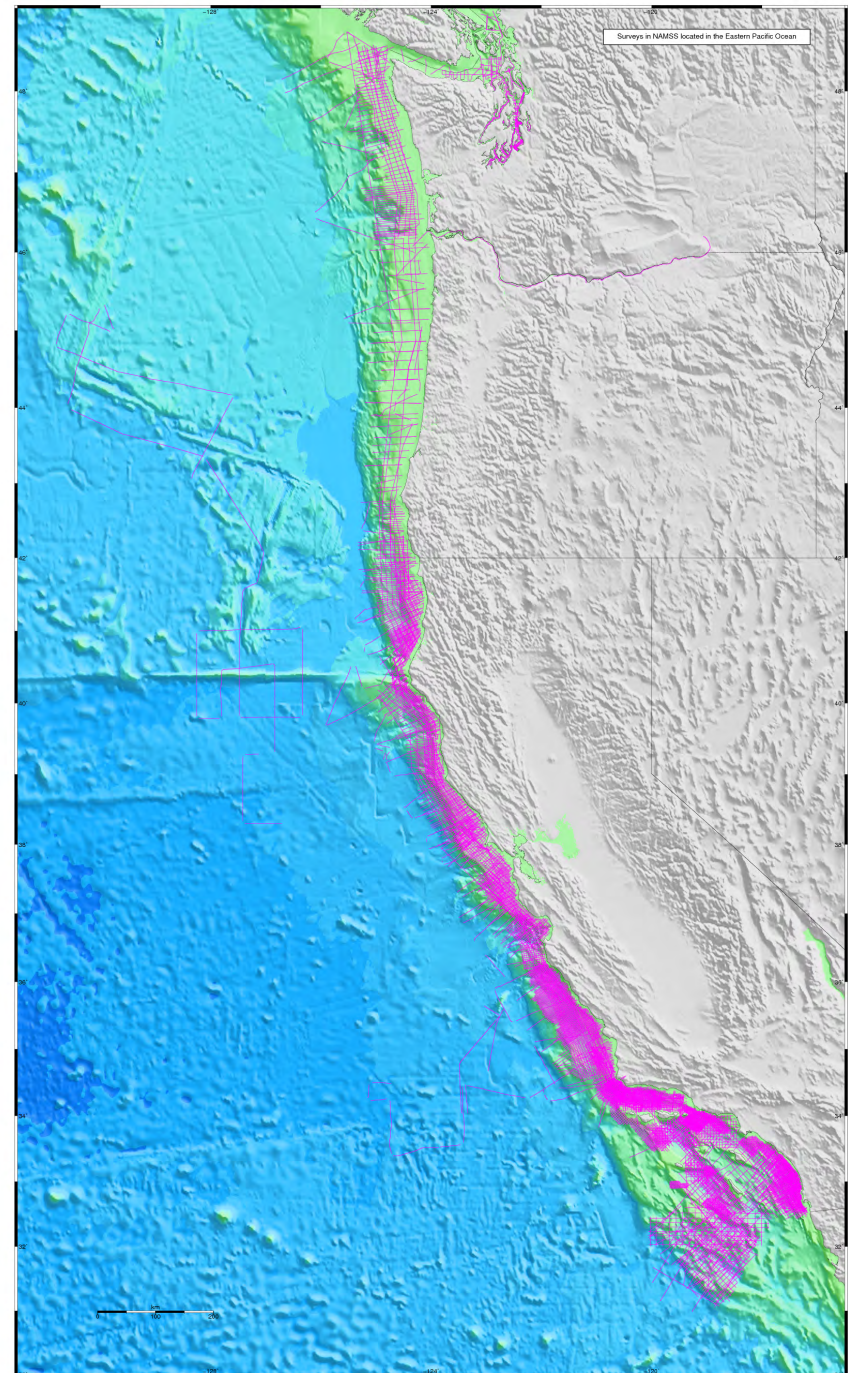
1989 ODP site survey shot by Digicon (64 gun tuned array) – used to plan for ODP Leg 204 and TTN112; used for “seismic oceanography.”

ORWELL – used to plan for COAST and Ridge2Trench.

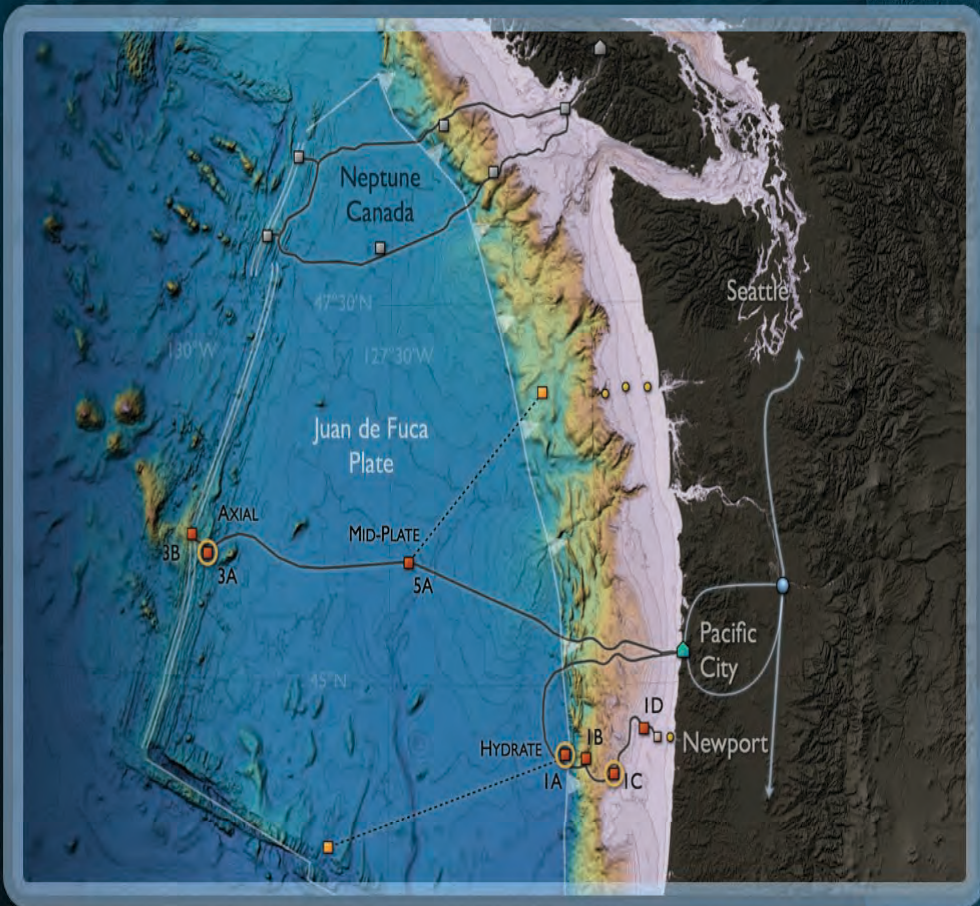
Data archives inform PIs when data submitted is reused and recycled. This is a form of “broader impact.”

NAMSS – close-up of data holdings
from CA/OR/WA margin

**HAPPY DATA
HUNTING!**



REGIONAL SCALE NODES & ENDURANCE ARRAY



OOI North Pacific Regional and Coastal sites

- RSN - Axial Seamount
- RSN - Hydrate Ridge
- Endurance - Grays Harbour Line
- Endurance - Newport Line

Slides provided by Giora Proskurowski and William Wilcock



RSN CABLE LAYOUT

NODE

Primary Node

CABLE/SHORESTATION

RSN Primary

Shore Station

AXIAL
SEAMOUNT

3B

3A

MID-PLATE

2A

Portland

Pacific
City

HYDRATE

1B

1D

1A

SLOPE
BASE


1C

ENDURANCE





RSN GEOPHYSICAL INSTRUMENTS AS OF SUMMER 2013

NODE

 Primary Node

CABLE/SHORESTATION

 RSN Primary

 Shore Station

AXIAL
SEAMOUNT

3B
3A

Broadband Seismometer, LF-Hydrophone x 2

Short-period Seismometer x 5

Bottom Pressure-Tilt Recorder x 3

MID-PLATE

2A

Broadband Seismometer, LF-Hydrophone

Tsunami Pressure

Acoustic Current Meter

Acoustic Current Meter

Broadband Hydrophone

150 kHz ADCP

Portland

Pacific
City

Acoustic Current Meter

Broadband Hydrophone

150 kHz ADCP

HYDRATE

IB

ID

IA

SLOPE

BASE

IC

ENDURANCE

Broadband Seismometer, LF-Hydrophone

Tsunami Pressure

Acoustic Current Meter

Broadband Seismometer, LF-Hydrophone

Short-period Seismometer x 3

Tsunami Pressure

Acoustic Current Meter



RSN GEOPHYSICAL INSTRUMENTS

FULLY DEPLOYED, AS OF SUMMER 2014

NODE

Primary Node

CABLE/SHORESTATION

RSN Primary

Shore Station

AXIAL SEAMOUNT

3B

3A

MID-PLATE

2A

HYDRATE

IB

IA

SLOPE

BASE

IC

ENDURANCE

ID

Pacific City

Portland

Broadband Seismometer, LF-Hydrophone x 2

Short-period Seismometer x 5

Bottom Pressure-Tilt Recorder x 3

Acoustic Current Meter

Broadband Hydrophone

150 kHz ADCP

Full water column profilers

Broadband Seismometer, LF-Hydrophone

Tsunami Pressure

Acoustic Current Meter

HPIES

Broadband Hydrophone

Full water column profilers

150 kHz ADCP

Broadband Seismometer, LF-Hydrophone

Tsunami Pressure

Acoustic Current Meter

HPIES

Broadband Hydrophone

Full water column profilers

150 kHz ADCP

Acoustic Current Meter

Broadband Hydrophone

150 kHz ADCP

Broadband Seismometer, LF-Hydrophone

Short-period Seismometer x 3

Tsunami Pressure

Acoustic Current Meter



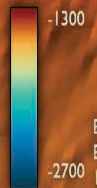
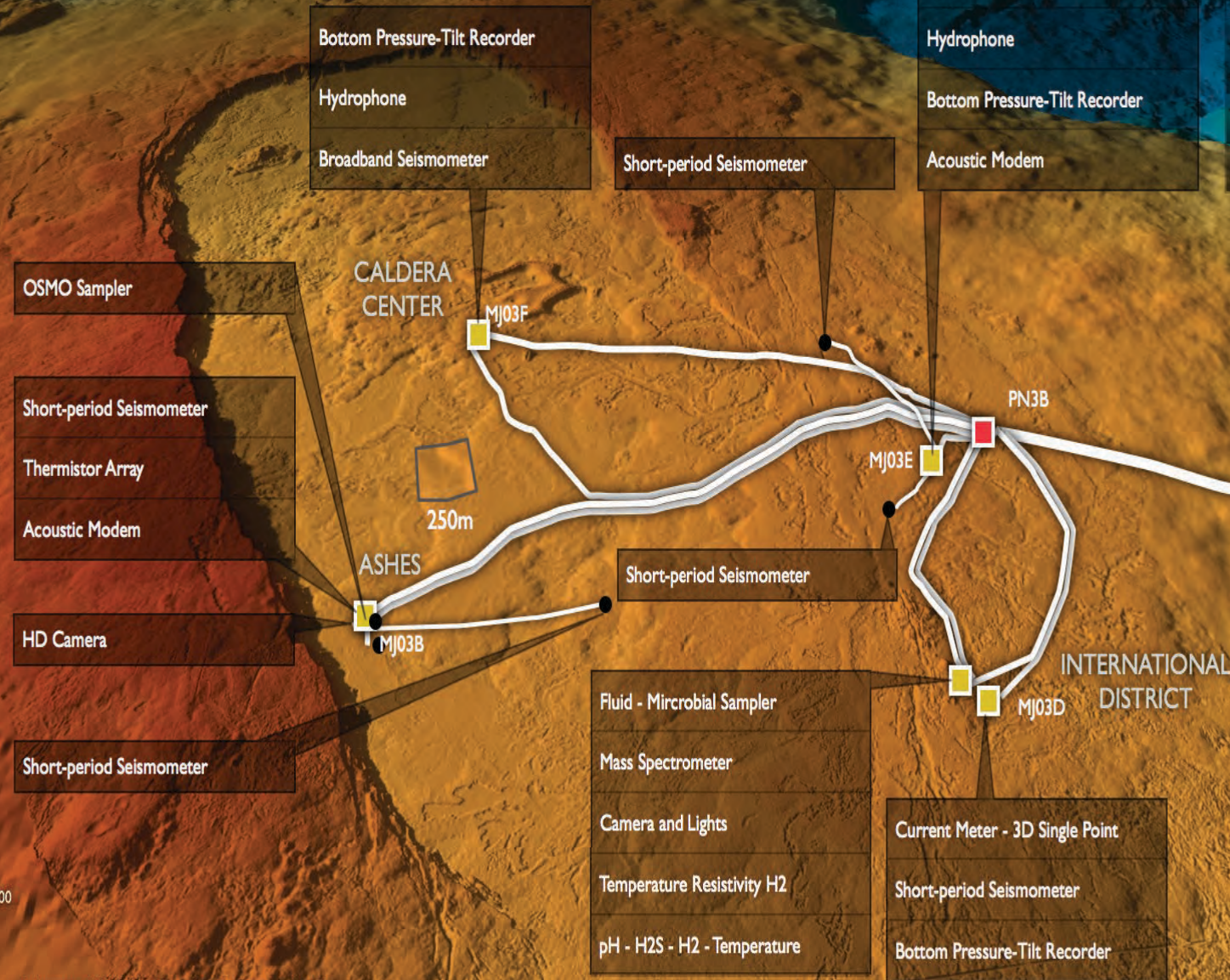
AXIAL CALDERA

NODES and J-BOXES

- Primary Node
- Medium Power J-Box

CABLE TYPES

- ▬ RSN Primary
- ▬ Medium Power Electro-Optical
- ▬ Electrical Extension



Bathymetry: MBARI AUV Data from D. Caress and D. Clague
EM302 Multi-beam from University of Washington
10m contour lines