

- General Update since December, 2024
- Data Submissions
- Data Metrics Hub
- Instrument Requests
- Instrument Numbers and Types
- MSRI-funded Instrumentation
- 2026 OBSIC Schedule
- FDSN OBS-Standards Initiative





OBSIC Cruises December 2024 – December 2025

- Nov./Dec. 2024: Chain Transform Deployment (20 SIO SPOBS for 11 months; R/V Langseth; *J. Warren*)
- Dec. 2024: USGS-funded Rapid Response Deployment to 2024-12-05 Mw 7.0 earthquake offshore Cape Mendocino (9 Sercel MicroBS dedicated for Rapid Response; Coast Guard Cutter Barracuda; *N Miller, USGS*)
- Jan. 2025: Recovery of Cape Mendocino Rapid Response OBS (R/V Coral Sea ; *N Miller, USGS*)
- March/April 2025: Cocos Plate Deployment (27 BBOBS +42 SIO OBEM for 12 month; R/V Langseth; *S. Naif*)
Deployment postponed!!
- April/May 2025: Galapagos Triple Junction Deployment (44 BBOBS for 15 months; R/V Langseth; *Z. Eilon*)
Deployment postponed!!
- March 2025: Chain Transform OBS Recovery (~7 months early; R/V Marcus Langseth)



OBSIC Cruises December 2024 – December 2025, ctd

- June 2025: Skilak Lake Recovery (2 BBOBS + land stations for 12 month; *N. Miller*, USGS)
- August 2025: SaLOON OBS Recovery Cruise (29 BBOBS for 18+ months.; R/V Kilo Moana; *S. Wei*)
- Sept./Oct./Nov 2025: EN(F)A(I)M Atlantic Active-Source (52 SPOBS; R/V Langseth; *B. Shuck*)
Postponed!!
- Sept/Oct 2025: Galapagos Triple Junction Deployment (44 BBOBS for 15 months; R/V Langseth; *Z. Eilon*)
- Oct/Nov 2025: Cocos Plate (EPIC) Deployment (27 BBOBS for 12 months; 42 OBEM; R/V Langseth; *S. Naif*)



Rapid Response OBS Deployment: 2024-12-05 Mw 7.0 earthquake offshore Cape Mendocino

Dec. 16 – 17: 9 MicroOBS deployed from Coast Guard Cutter Barracuda

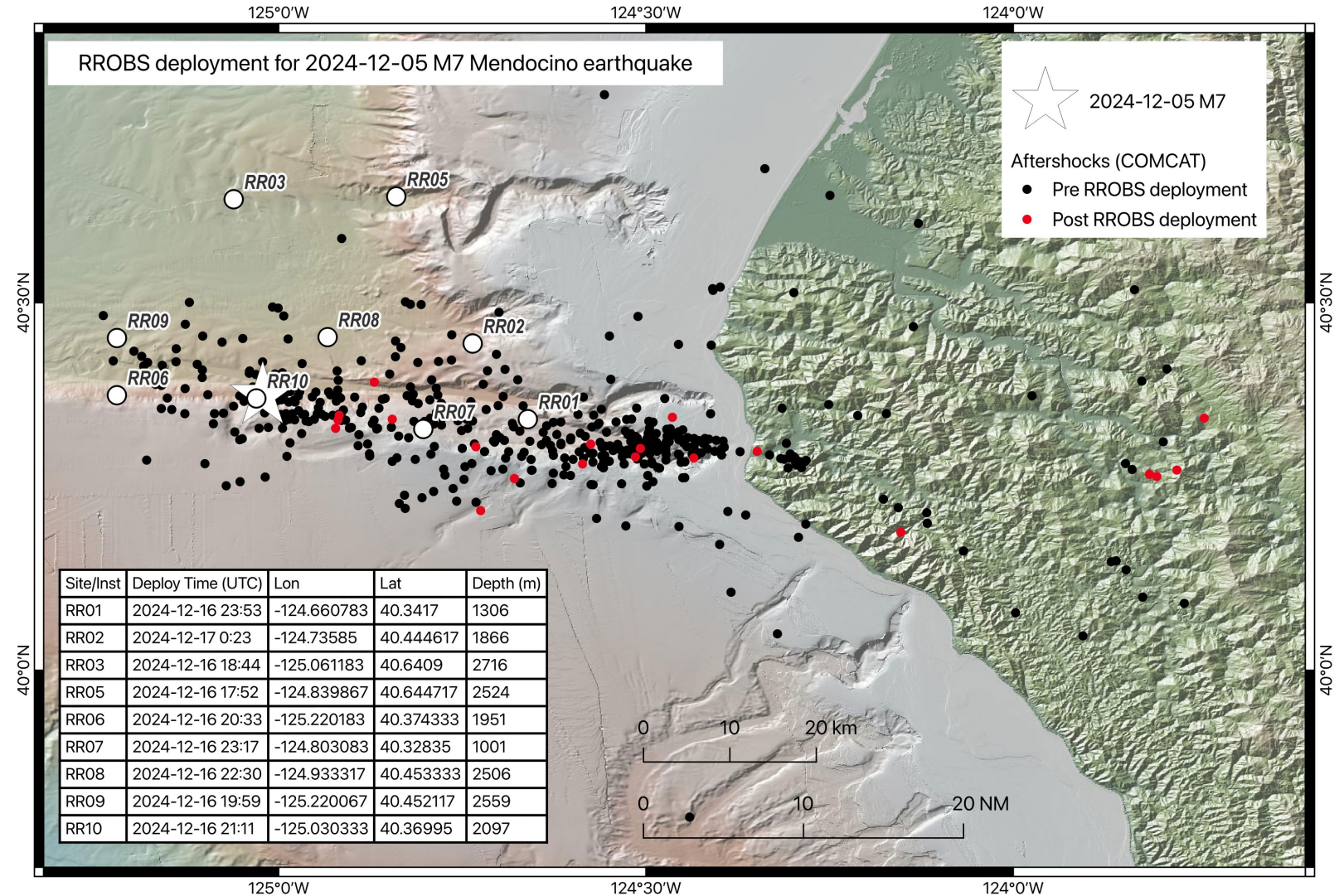


Figure courtesy Nathan Miller, USGS

10 Sercel MicrOBS purchased by WHOI using USGS funding

Physical:

- 430 x 430 x 600 mm (17x17x24")
- 39 kg (86 lbs)

Accelerometer:

- Ultra low noise 3-axis omni tilt MEMS
- DC to 800 Hz
- $\pm 5 \text{ m/s}^2$ (510 mg)

Hydrophone:

- Sensitivity: -160 dB ref 1V/ μPa (1000V/Bar)

Recording (2024 Mendocino):

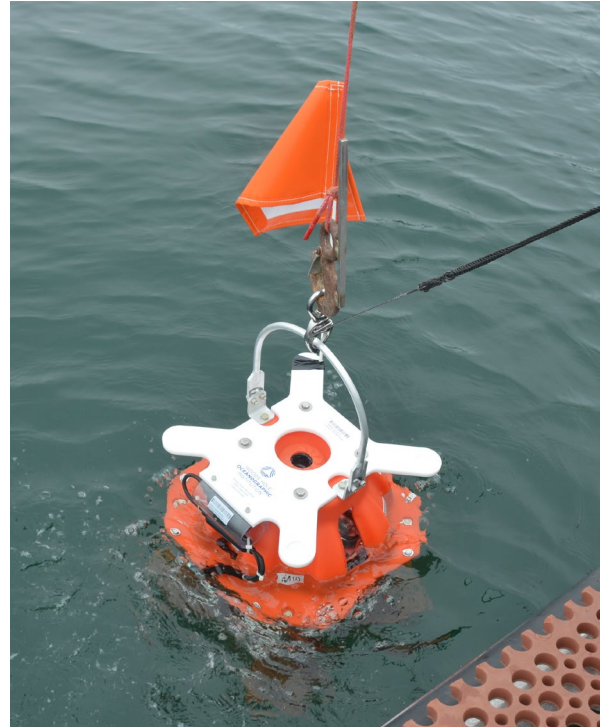
- 1 ms sample rate
- ~0.1 to 400 Hz bandpass

Power:

- Rechargeable Li-Ion
- 45 days endurance

Depth:

- 6000 m maximum





Rapid Response OBS Deployment: 2024-12-05 Mw 7.0 earthquake offshore Cape Mendocino

Station 46213 - Cape Mendocino, CA

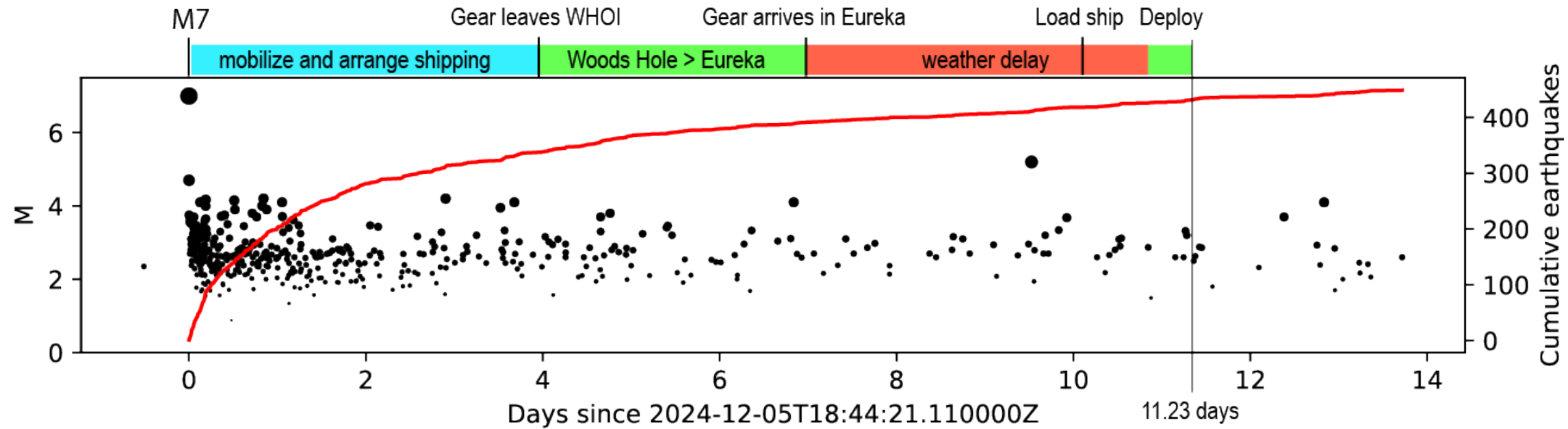
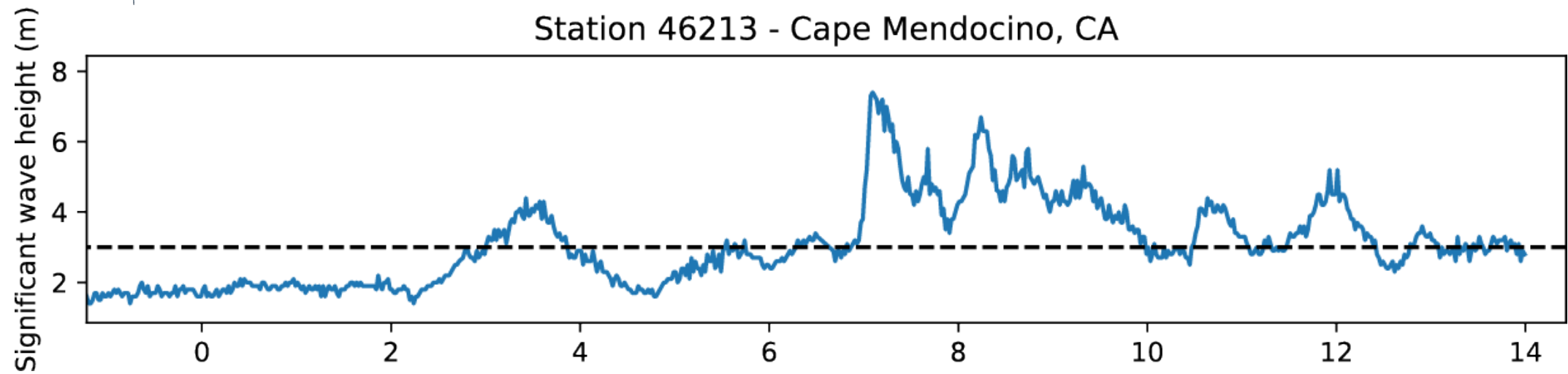


Figure courtesy Nathan Miller, USGS



Rapid Response OBS Deployment: 2024-12-05 Mw 7.0 earthquake offshore Cape Mendocino



Coast Guard Cutter Barracuda, Eureka, CA





Rapid Response OBS Deployment: 2024-12-05 Mw 7.0 earthquake offshore Cape Mendocino

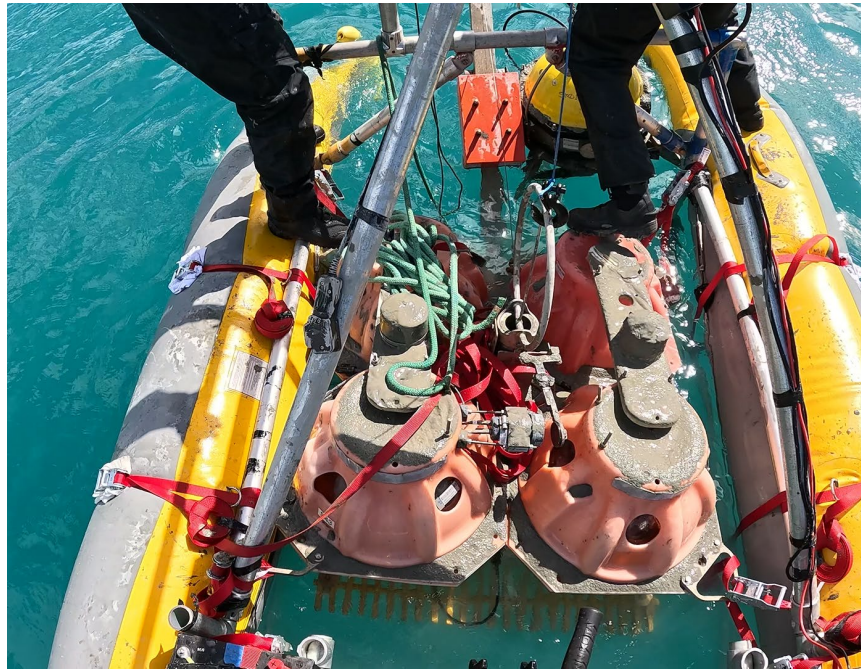
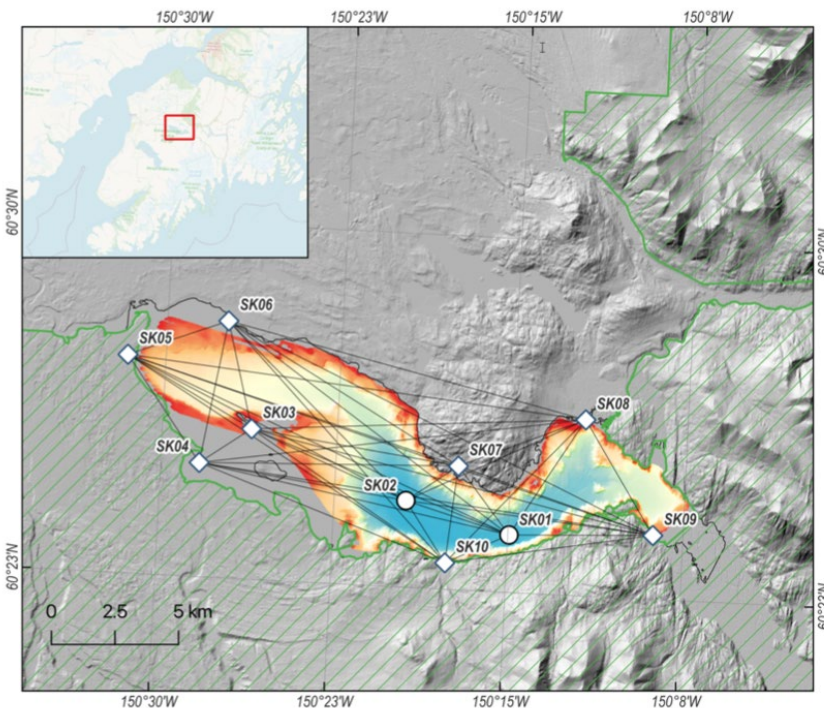
MicrOBS Recovery on January 27-28 using Cal. Poly Humboldt research vessel R/V Coral Sea.



<https://www.instagram.com/obsic.whoii>

Lake Basin Seismic Response Measurements for Lake Skilak, AK (USGS)

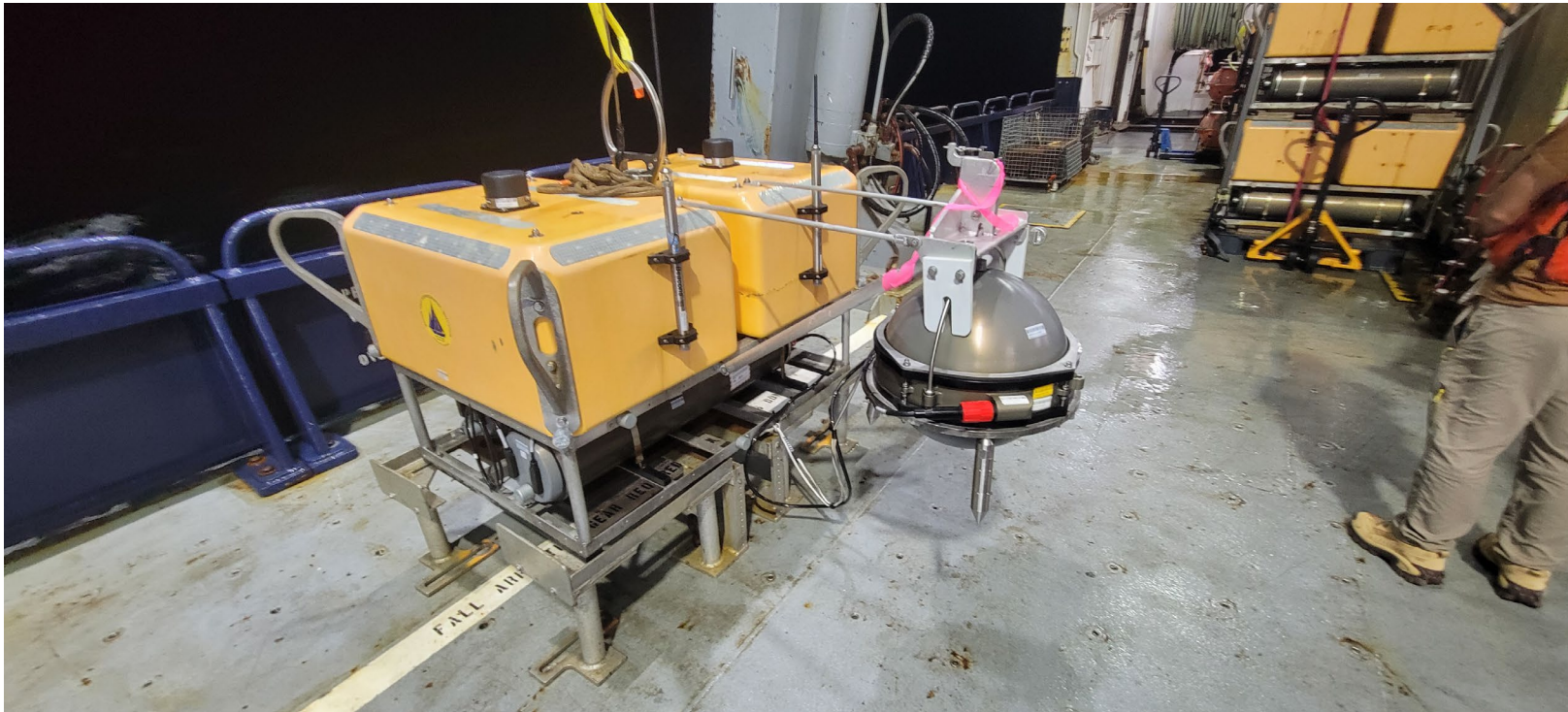
- Translating detailed lacustrine turbidite records into earthquake recurrence histories requires knowing how susceptible lake-bottom sediments are to shaking during earthquakes and tuning and amplification effects of the lake basin itself
- Measure ground motion amplification and tuning of earthquake arrivals using OBS and land stations



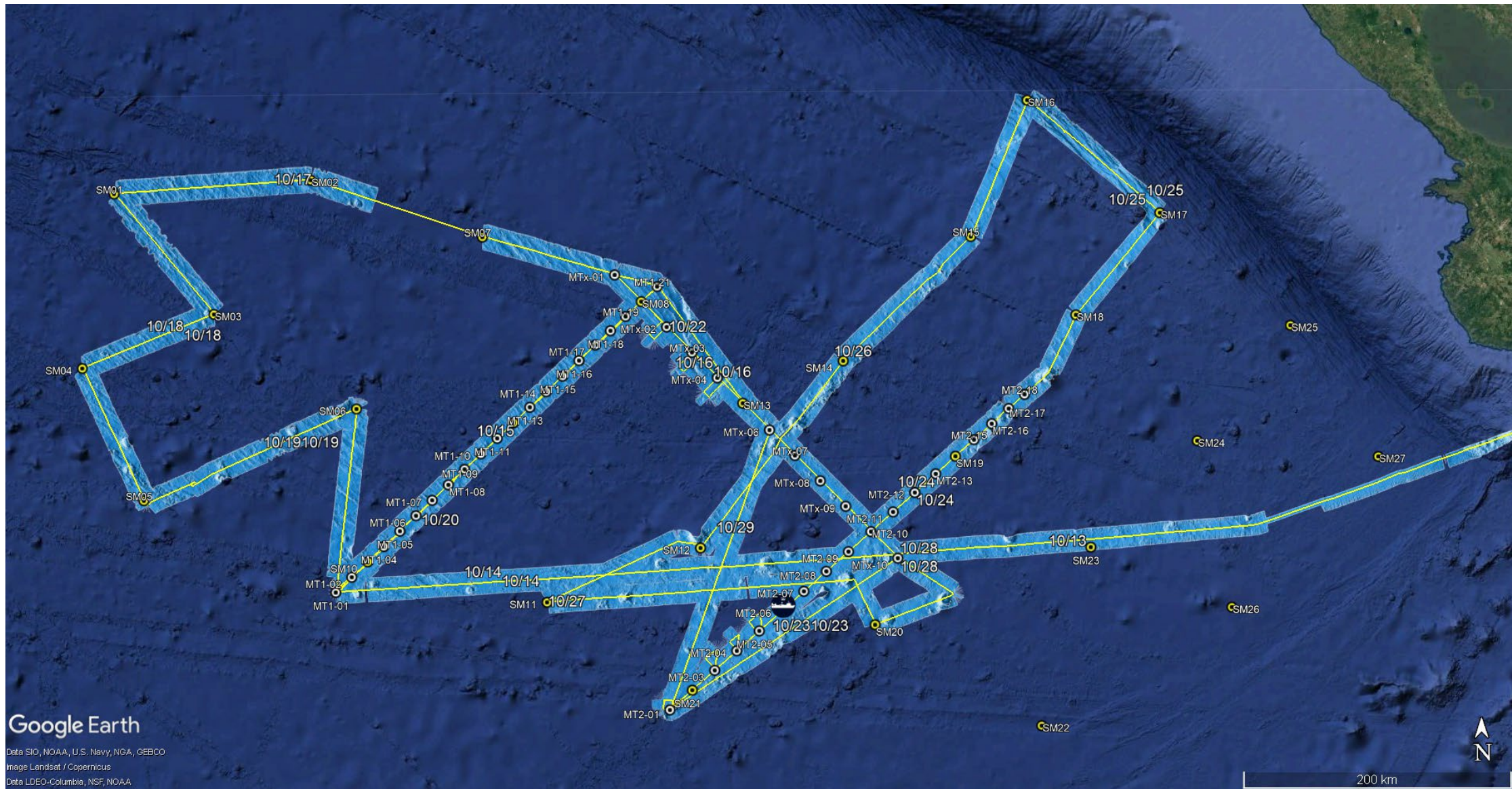
74 Broadband OBS at SIO MARFAC ready for loading on R/V Langseth; 42 OBEM instruments standing by



- **Second Deployment of Angler OBS with Nanometrics T-240 Seismometer**
- **First Deployment of Nanometrics T-120 OBS and T-360 OBS**







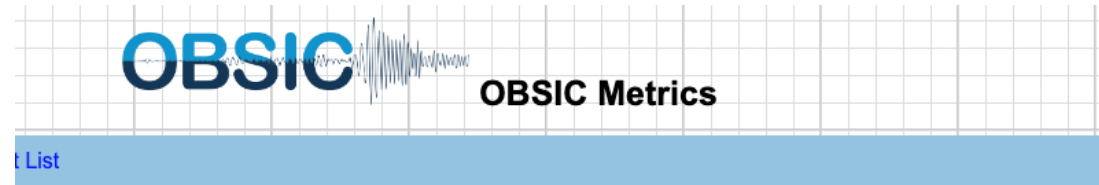


Data Submissions

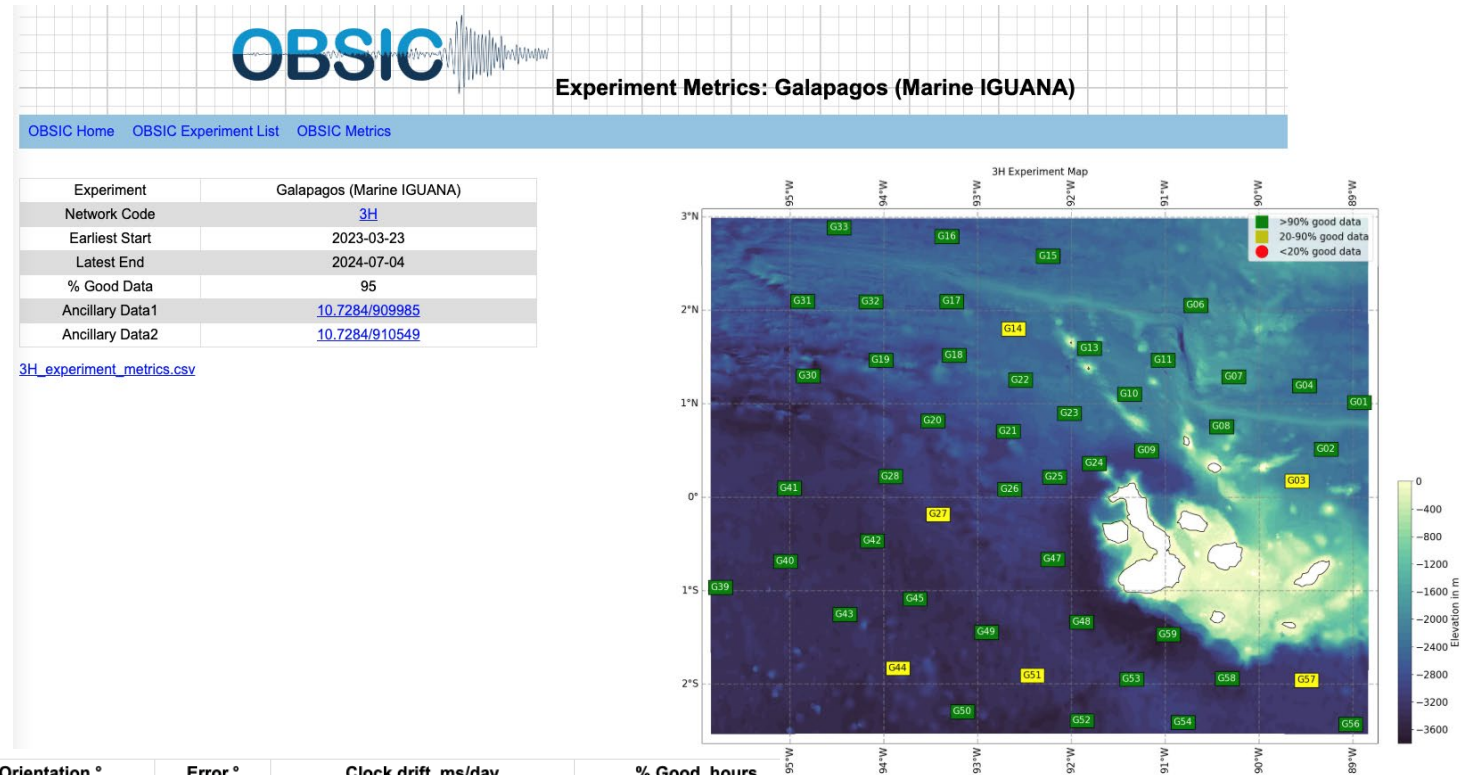
- Year-2 Axial Seamount (W. Wilcock) Network Code: 2F (2022-2024)
- Skilak Lake (N. Miller) Network Code: 6N (2024-2025)
- Mendocino Rapid Response (N. Miller) Network Code: 7S (2024-2025)

OBSIC Data Metrics

<https://obsic-metrics.who.edu/>



Experiment Name	Network ID	Year	Status	Good hours, %
Skilak Lake	6N	2024	restricted	98
Chain Transform Fault	2P	2024	restricted	87
SaLOON	3J	2023	restricted	83
Galapagos (Marine IGUANA)	3H	2023	restricted	95
Puerto Rico Trench	3B	2023	restricted	97
Axial Seamount	2F	2023	restricted	91
Carolina Trough/Blake Plateau	1V	2023	restricted	98
Cayman Rise	9R	2023	open	92
NESMA	3A	2023	open	63
Guerrero Gap	X4	2022	open	95
OHANA	8Q	2021	open	88
Queen Charlotte Fault	YI	2021	open	82
CASIE21 (Cascadia)	YR	2021	open	86
Andreanof Islands	YM	2020	open	100
Gofar Transform Fault	8A	2019	open	89
Pacific Array (Old ORCA)	7B	2019	open	80
Bransfield Strait	ZX	2019	open	81
Pacific Array (Young ORCA)	XE	2018	open	56
AACSE	XO	2018	open	74
Hawaii-Emperor Seamounts	ZU	2019	open	97
New England Seamounts	7K	2018	open	96
Hawaii RAPID Response	Z6	2018	open	90
Yellowstone Lake	YL	2017	open	84
PICTURES	XW	2016	open	98
ENAM	YO	2014	open	90



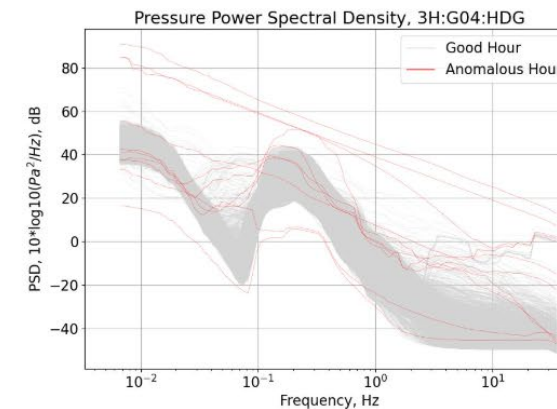
Station	Instrument Type	Depth, m	Deployed	Recovered	Orientation, °	Error, °	Clock drift, ms/day	% Good_hours
G01	WHOI_Angler	2352	2023-04-08	2024-06-24	197	3	-0.763	99
G02	WHOI_BBOBS	2369	2023-04-08	2024-06-27	130	12	0.279	97
G03	WHOI_BBOBS	2205	2023-04-08	2024-06-24	194	2	0.5	74
G04	WHOI_Angler	2260	2023-04-08	2024-06-24	348	3	0.333	98
G06	WHOI_Angler	2330	2023-04-09	2024-06-24	90	3	-1.099	99
G07	WHOI_ARRA	1642	2023-04-09	2024-06-24	7	2	0.019	98
G08	WHOI_BBOBS	2134	2023-04-07	2024-06-24	201	2	3.027	98
G09	WHOI_Angler	2716	2023-04-07	2024-06-21	82	4	1.327	99
G10	WHOI_BBOBS	2092	2023-04-06	2024-06-23	139	4	-0.657	98
G11	WHOI_BBOBS	2137	2023-04-06	2024-06-24	93	3	3.682	98
G13	WHOI_BBOBS	2313	2023-04-06	2024-06-23	33	3	2.119	99
G14	WHOI_ARRA	2489	2023-04-04	2024-06-24	29	2	-0.029	73
G15	WHOI_BBOBS	2389	2023-04-05	2024-06-27	246	2	1.409	98
G16	WHOI_BBOBS	2668	2023-04-05	2024-06-27	78	2	0.686	98
G17	WHOI_BBOBS	2586	2023-04-05	2024-06-28	154	2	1.201	98
G18	WHOI_BBOBS	2716	2023-04-04	2024-06-28	232	2	1.766	98

[OBSIC](#) [OBSIC Experiment List](#) [OBSIC Metrics](#) [3H Metrics](#)



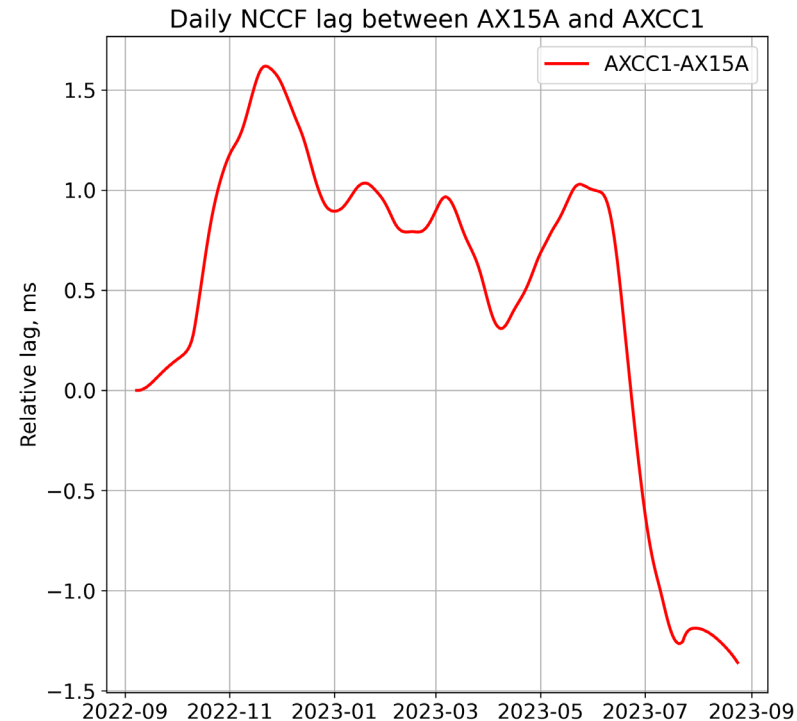
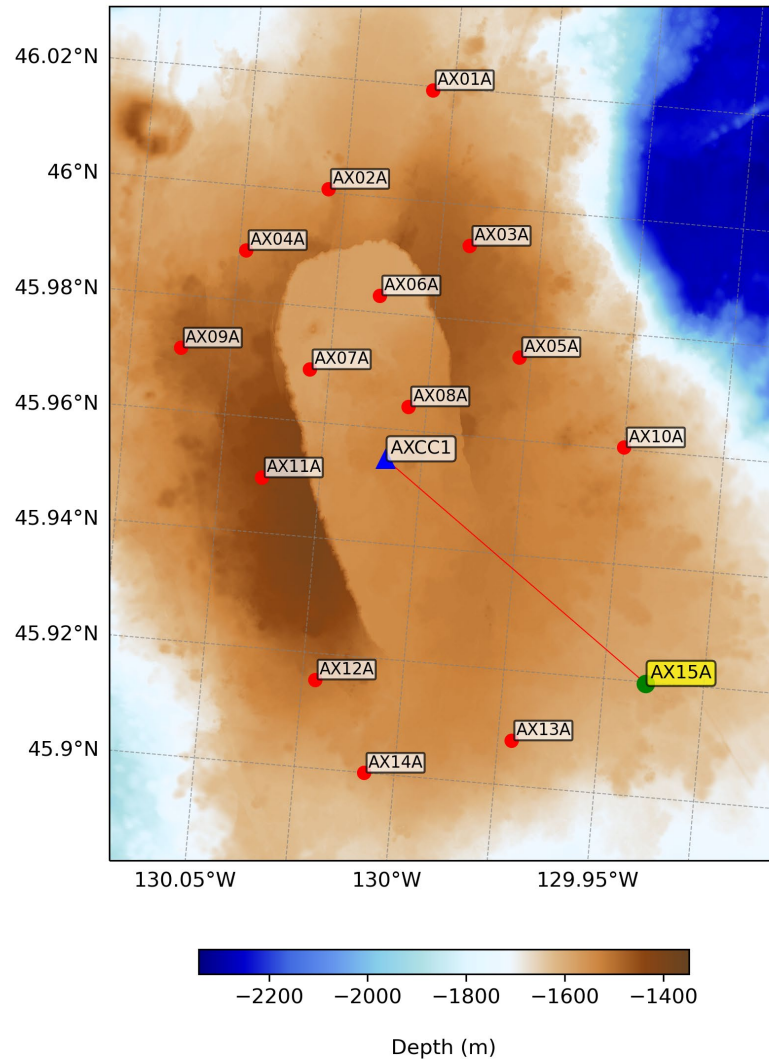
Hourly Psds

Pressure PSD PDF, 3H:G04:HDG



Time base recovery using noise cross-correlation function (NCCF): Station AX15A

Axial Seamount OBS locations



2F_AX15A	
Date	Correction, ms
2022-09-07	0.000
2022-09-08	-0.000
2022-09-09	0.001
2022-09-10	0.004
2022-09-11	0.007
2022-09-12	0.012
2022-09-13	0.018
2022-09-14	0.024
2022-09-15	0.032
2022-09-16	0.040
2022-09-17	0.048
2022-09-18	0.056
2022-09-19	0.065
2022-09-20	0.074
2022-09-21	0.083
2022-09-22	0.091
2022-09-23	0.099
2022-09-24	0.107
2022-09-25	0.115
2022-09-26	0.123
2022-09-27	0.130
2022-09-28	0.137
2022-09-29	0.144
2022-09-30	0.150
2022-10-01	0.157

- AX15A had no final clock sync
- Daily NCCF stable to within +/- 2 ms
- No appreciable drift for AX15A CSAC clock
- Corrections (data and code) available on next version of OBSIC metrics hub
- Also applied to 22 Gofar Transform Fault sites



OBSIC Formal Instrumentation Requests (01/01/2025–12/11/2025)

# of short-period OBS requested	Total # of OBS deployments requested	Experiment Location
108	108	Northern Pacific

Requests for *short-period OBS* to support active-source experiments

# of broadband OBS requested	Data recording duration requested (months)	Experiment Location
50	12	Eastern North Atlantic
42	15	Eastern Central Pacific
3	1	Western Atlantic
15	12	Mediterranean
40	15	Northern Pacific
6	1	Northeastern Pacific

Requests for *Broadband OBS*

Current OBSIC Fleet

- 25 SPOBS
- 80 BBOBS
- 9 RROBS
- 42 MSRI-funded Manta

SIO OBS Fleet

- 30 BBOBS
- 50+ SPOBS

OBS Type	Count
Short-Period OBS (WHOI "D2"): 4.5 Hz geophone; hydrophone; Quanterra Q330 data logger; Seascan clock	25
Broadband OBS (Glass-Ball Floatation): Nanometrics Trillium Compact seismometer in WHOI leveling system; Differential Pressure Gauge; Quanterra Q330 data logger; Seascan clock	27
Broadband OBS (Glass-Ball Floatation): Nanometrics Trillium Compact seismometer in Nanometrics leveling system; Differential Pressure Gauge; Quanterra Q330 data logger; Seascan clock	7
Broadband ARRA OBS (Syntactic Foam Floatation): Nanometrics Trillium Compact seismometer in Nanometrics leveling system; DPG; Quanterra Q330 data logger; Microsemi CSAC	13
Shielded Broadband Abalone OBS with Nanometrics Trillium Compact in Nanometrics leveling system, DPG; Nanometrics Pegasus OBS data logger; Seascan clock	15
Broadband Angler OBS (Syntactic Foam Floatation): Nanometrics T-240 seismometer in WHOI leveling system; DPG; Q8 data; logger; power-cycled CSAC; power-cycled Teledyne CSAC	6
Broadband Angler OBS (Syntactic Foam Floatation): Nanometrics T-120 Horizon seismometer in WHOI leveling system; DPG; Q8 data; logger; power-cycled CSAC; power-cycled Teledyne CSAC	10
Broadband Angler OBS (Syntactic Foam Floatation): Nanometrics Trillium Compact seismometer in Nanometrics leveling system; DPG; Quanterra Q8 data logger; power-cycled Teledyne CSAC	2
Rapid Response OBS (Sercel MicrObs): MEMS accelerometer and hydrophone, rechargeable battery; Glass-ball housing.	9

Long-Period Seismometer Purchases

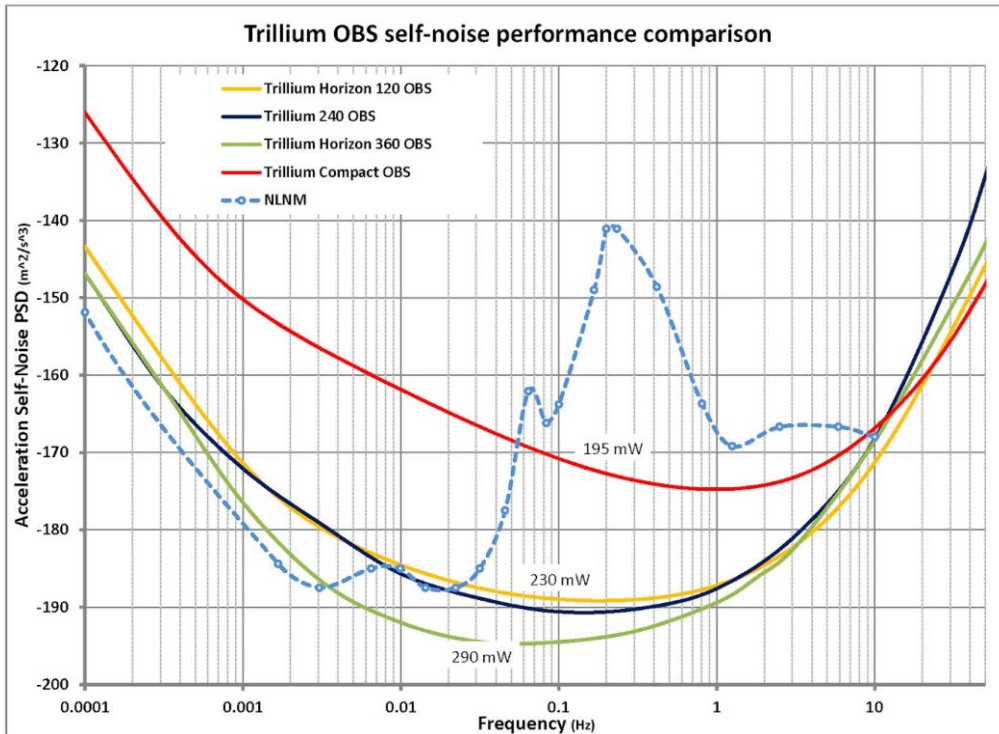
10 Nanometrics T-240 scheduled to be EOled (650 mW)

25 Nanometrics T-120 OBS

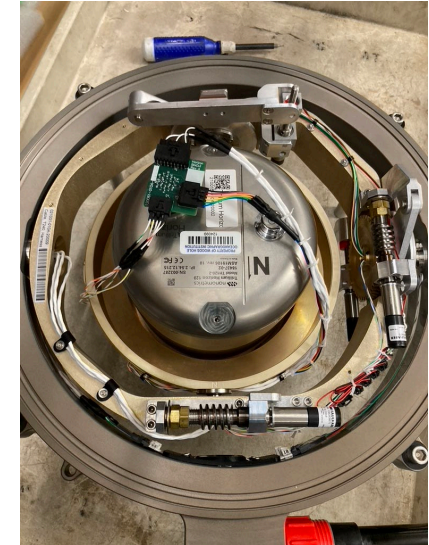
6 Nanometrics T-360 OBS;

24 Nanometrics 120 Horizon

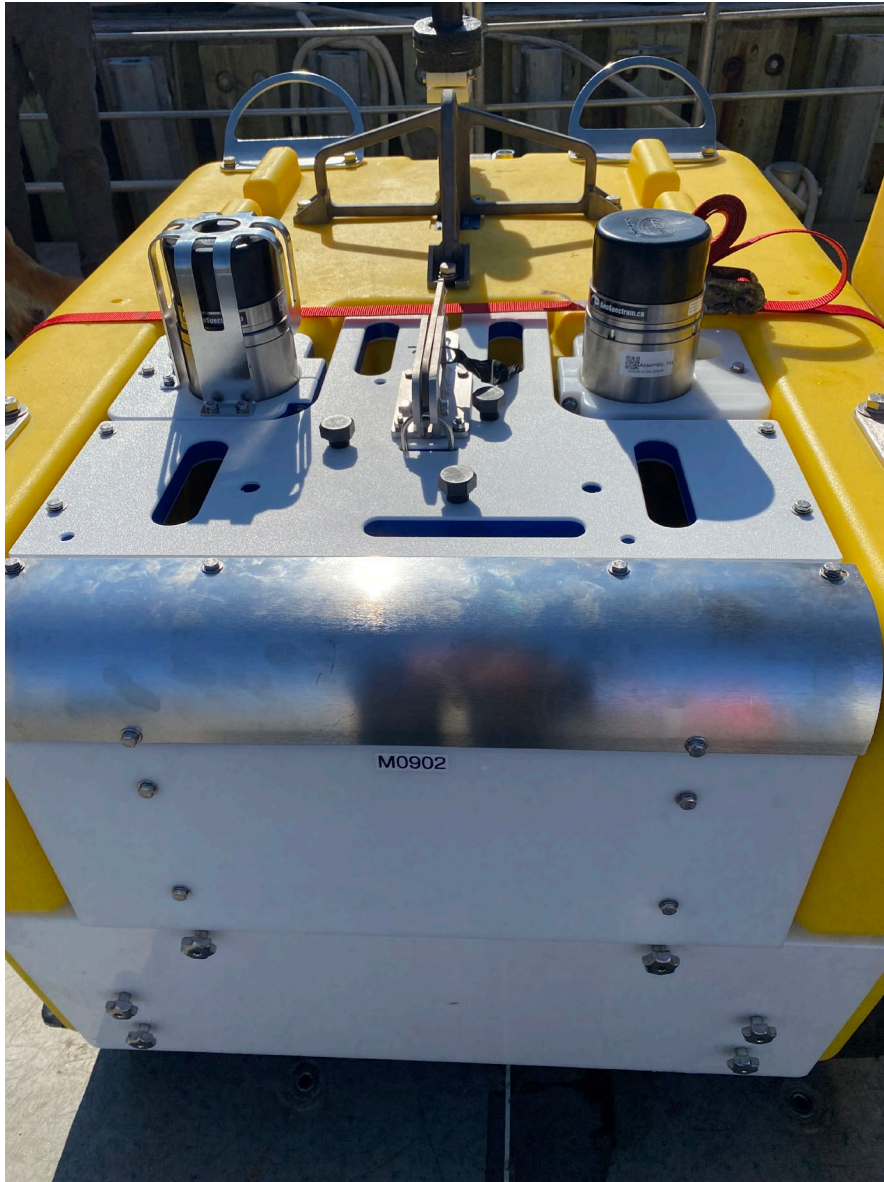
Hoping to add more using existing resources



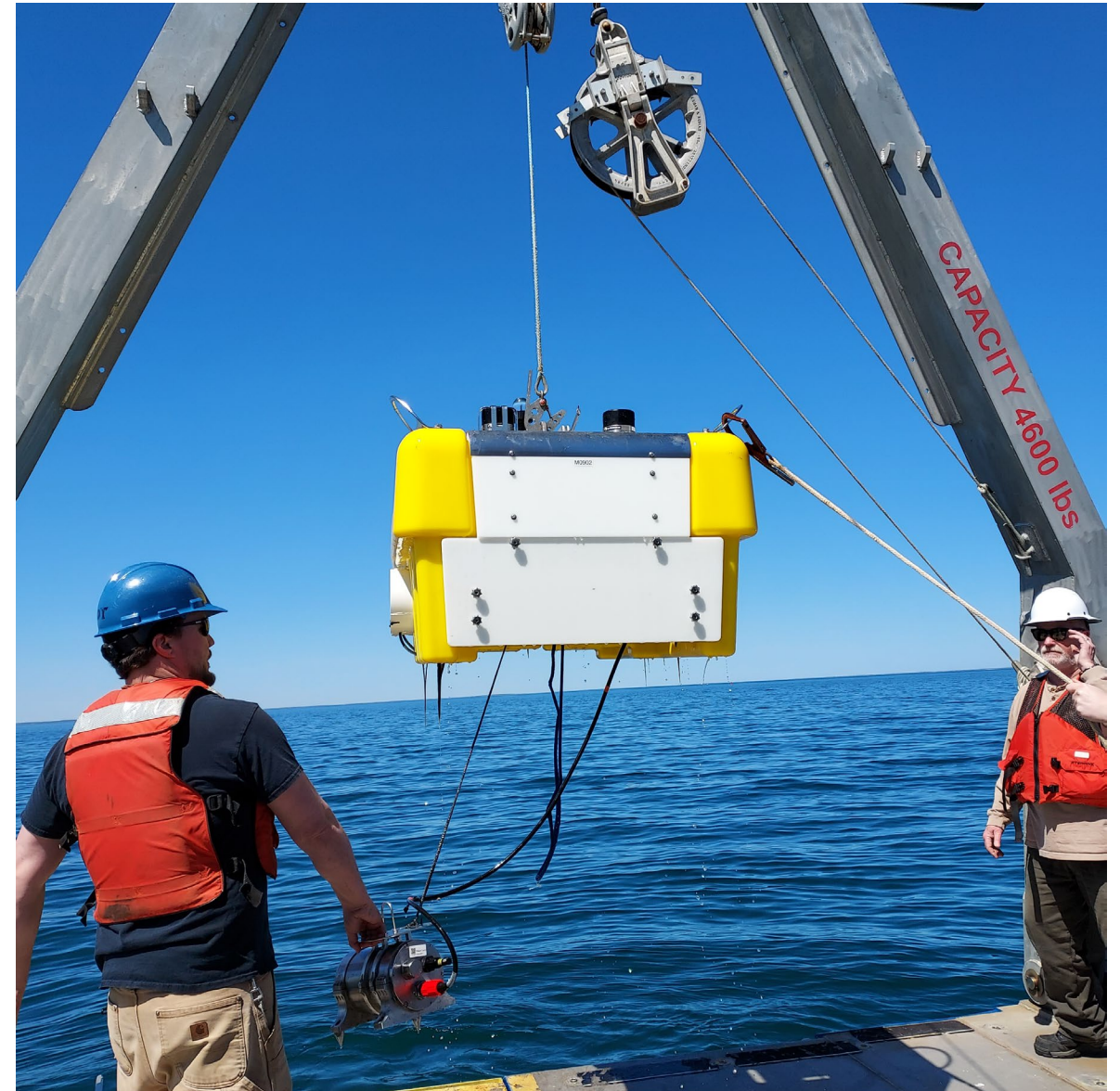
Data sheets say: 250 mW for 360 & 120; 230 mw for Horizon



Manta Seismometer Shield



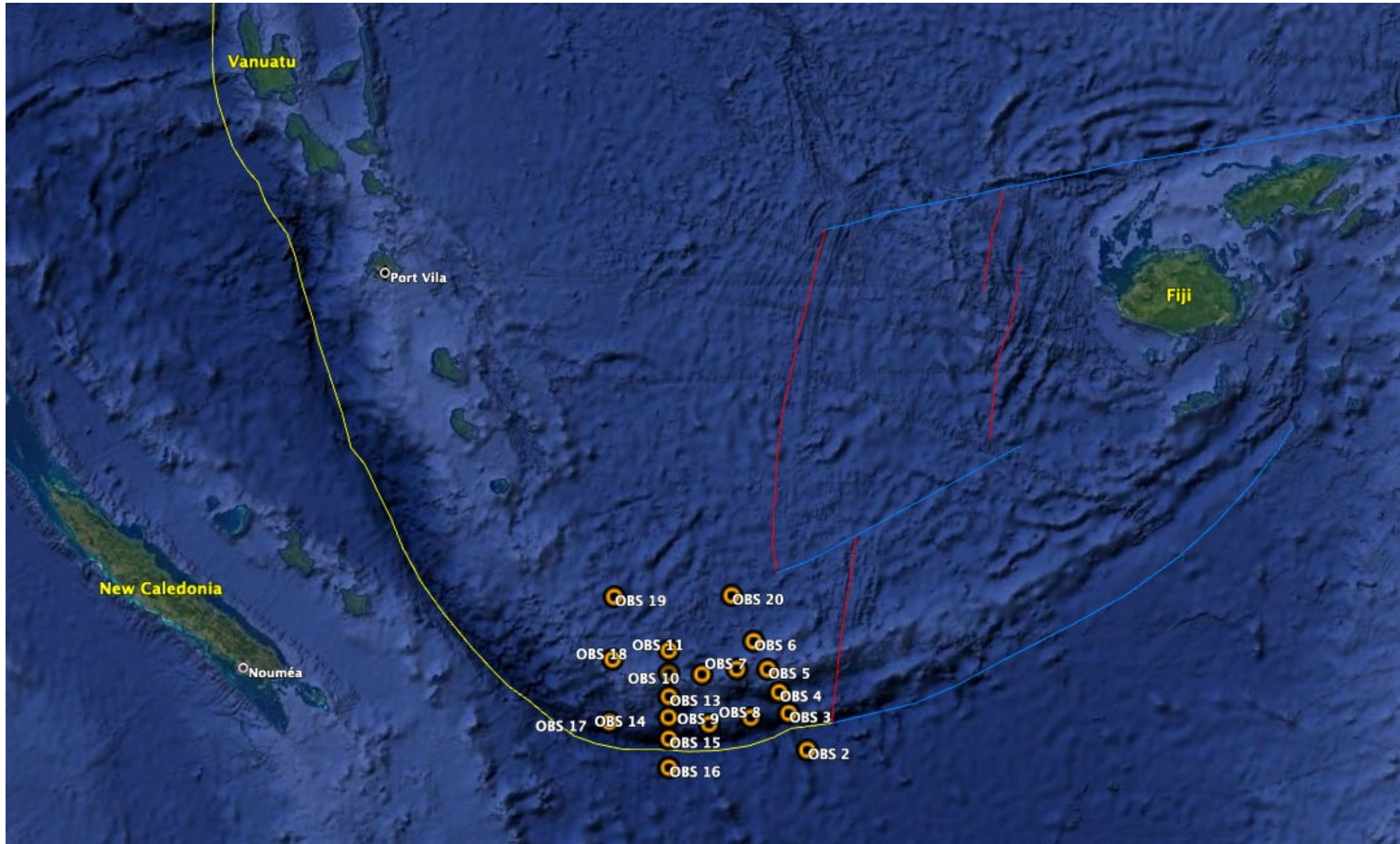
Manta Testing Offshore Woods Hole



OBSIC Cruises Scheduled for 2026

- *Wiens* Matthew-Hunter Trench (Deployment)
05/23/2026 – 06/12/2026
20 BBOBS for 15 months
R/V Thompson; Suva/Port Vila
- *Abers* NW New Zealand Volcanism (Deployment)
10/25/2026 – 11/05/2026
20 BBOBS for 15 months
R/V Thompson; Auckland/Auckland
- *Shuck* EN(F)A(I) (Active Source)
10/11/2026 – 11/21/2026
52 SPOBS; 52 Drops
R/V Langseth; Charleston/Savannah
- *Naif* Cocos Plate (EPIC) (Recovery)
11/21/2026 – 12/14/2026
27 BBOBS, 27 OBEM
R/V Sally Ride; San Diego/Puntarenas
- *Eilon* Galapagos Triple Junction (Recovery)
12/19/2026 – 01/18/2027
44 BBOBS
R/V Sally Ride; Puntarenas/San Diego

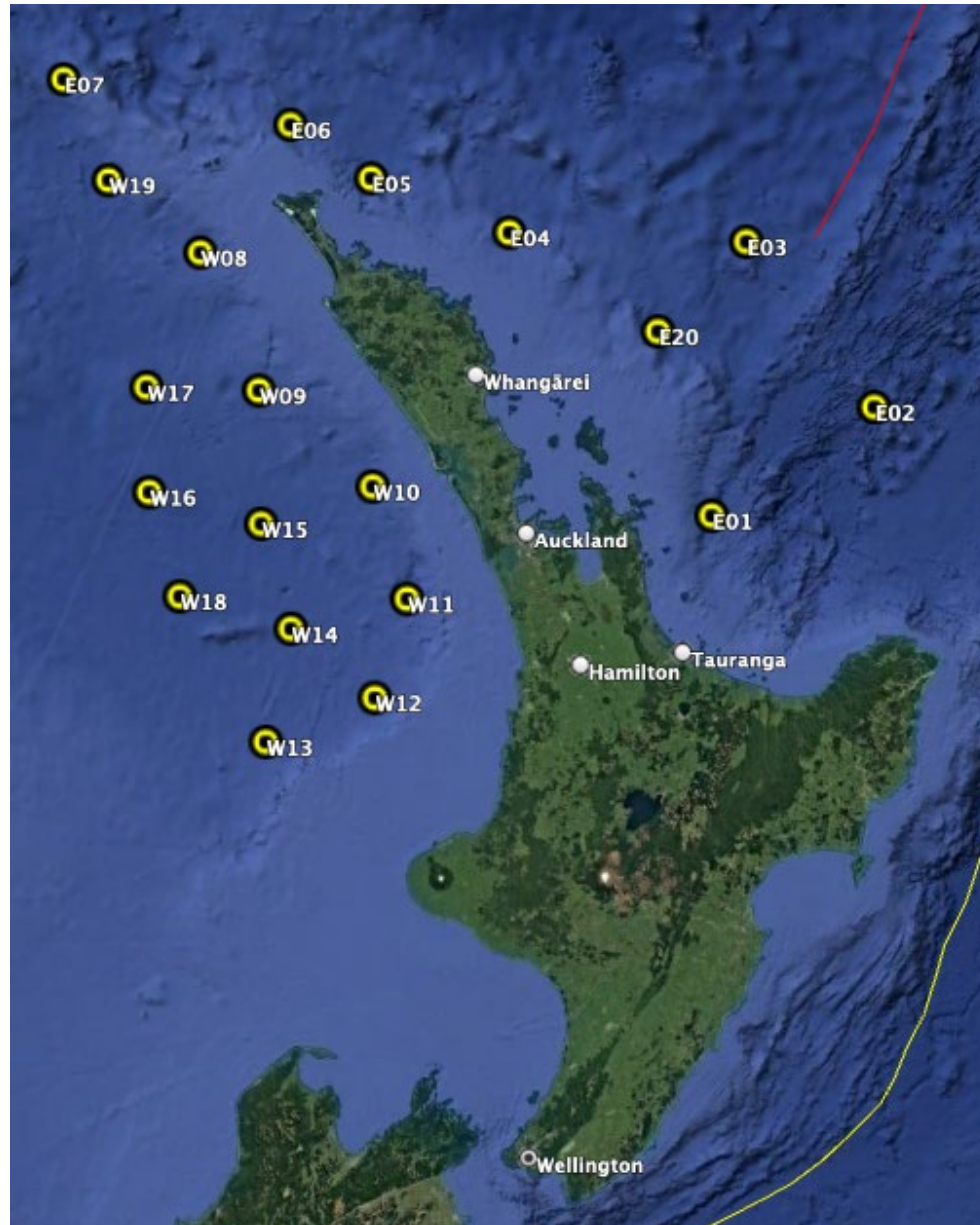
Matthew-Hunter Trench Deployment; 20 BBPBS for 15 months



Shuck: 52 OBS Active-Source Experiment



Abers NW New Zealand Volcanism Deployment; 20 BBPBS for 15 months



FDSN OBS-Standards Initiative

FDSN / OBS-standards Public

<> Code Issues 21 Pull requests Actions Projects Security Insights

main 1 Branch 4 Tags Go to file Code

WayneCrawford Delete other/drift_correct/temp 6dd5c69 · 3 weeks ago 89 Commits

Meetings	Update 2024-09-18.md	last month
References	Update README.md	7 months ago
other	Delete other/drift_correct/temp	3 weeks ago
README.md	Update README.md	3 months ago
preamble.md	Update preamble.md	9 months ago
standards.md	Update standards.md	last month
users.md	Update users.md	last month

README

OBS-standards

Definition of marine seismology data and metadata standards, and possibly creation of documents for users

The goals are to:

- define standards (and propose new ones if needed)
- Help data providers to create standardized data and metadata
- Help users to understand and use marine seismology data
- include standards in new "Guidelines for specific datasets" within the StationXML and miniSEED documentation

We want to have a document or documents ready for validation/vote before the next FDSN meeting (September 2025 Lisbon)

The current structure is

- one document on standards
- a second document on useful, publically available software tools
- a third `preamble.md` document that holds motivation information (was in original documents, not ready to throw it out yet)
- A "References" directory holding old standards documents

The first two documents are initially based on the information in the "References" directory

- Action Group for OBS data/metadata standards
- Part of FDSN Working Group V – Portable Instrumentation
- Wayne Crawford (IGPP) lead
- Active Participants from: France, Germany, Portugal, China, and U.S.A.
- <https://github.com/FDSN/OBS-standards/>

Experiment Map

Completed Experiments: Prior to 2018 (orange); 2018 - Current (green)
Click on the icon for information about the project and link to available data sets.

You may have to zoom in to access all of the icons.

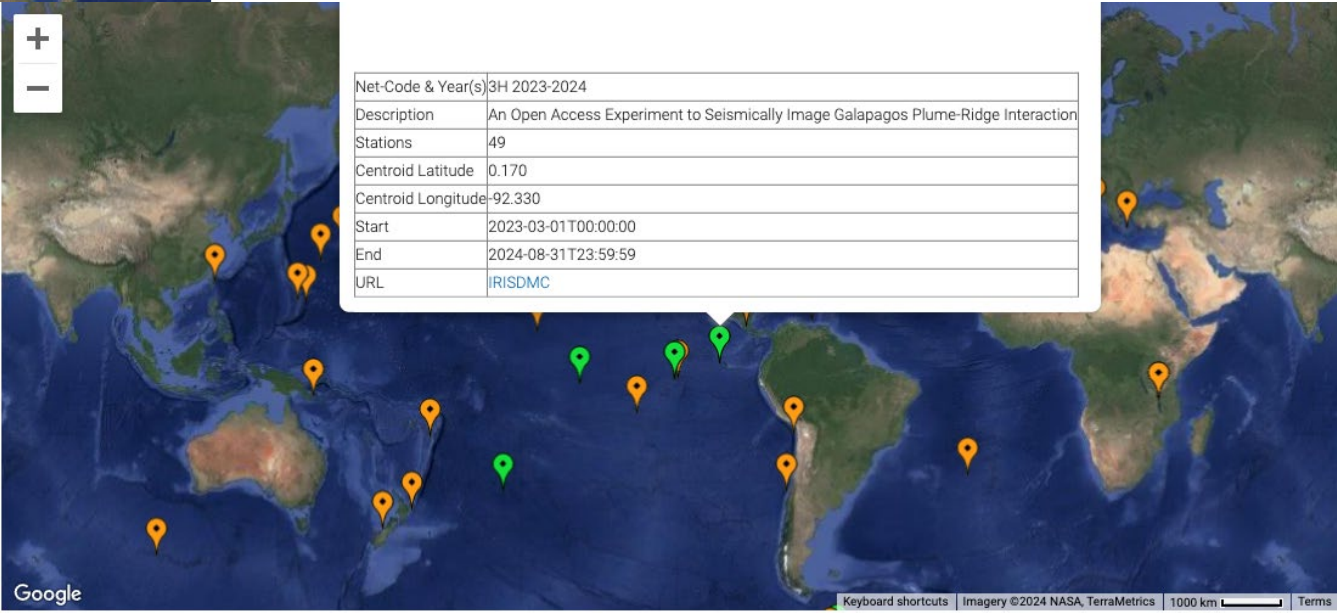


Did You Know?



OBSIP/OBSIC INSTRUMENTS HAVE SPENT 1,306 YEARS AT THE BOTTOM OF THE OCEAN

OBSIC Web-Page Addition



Net-Code & Year(s)	3H 2023-2024
Description	An Open Access Experiment to Seismically Image Galapagos Plume-Ridge Interaction
Stations	49
Centroid Latitude	0.170
Centroid Longitude	-92.330
Start	2023-03-01T00:00:00
End	2024-08-31T23:59:59
URL	IRISDMC

Did You Know?



OCEAN BOTTOM SEISMOGRAPHS HAVE BEEN DEPLOYED AT 2,943 STATIONS SINCE 2001 AS PART OF OBSIP/OBSIC

< >

OBSIP/OBSIC Assembled Data Sets

2001 – 2023: 43 Assembled Data Sets

Report No.	Name	Nickname	Start	End	Format	Type	Data
02-011	SEAR Ridge, EW-011	SEAR	2001	2002	SEG Y	OBSIP	Y
03-006	Far-Offset Active Imaging of the Mantle	FAMIM	2001	2001	SEG Y	OBSIP	Y
04-003	Contrasting Styles of Continental Breakup, the South and North Mergins, NW Australia	SMACOTB	2001	2001	SEG Y	OBSIP	Y
03-003	Hydrate Ridge, Ocean Margin	HDR	2002	2002	SEG Y	OBSIP	Y
04-018	Baja	BAJA	2002	2002	SEG Y	OBSIP	Y
04-020	Tolstoy	TOLSTOY	2003	2007	SEG Y PSE	OBSIP-SIO	Y
07-002	Seismicity, Structure, and Fluid Flow of the Tonga Subduction System	STF	2003	2003	SEG Y	OBSIP	Y
06-009	SE Caribbean Margin Active Experiment	SEMA	2004	2004	SEG Y	OBSIP	Y
07-030	COLZA Cruise	COLZA	2007	2009	PSEG Y	OBSIP	Y
08-002	TAIGER (active force and reaction)	TAIGER	2008	2008	none	PASSCAL/OBSIP	Y
08-003	Seis.Meas. of Caribbean Arc Position	COBAP	2008	2008	SEG Y	OBSIP	Y
08-012	Seis.Meas. of Caribbean Arc Position	COBAP	2008	2008	SEG Y	OBSIP	Y
08-014	Oceanic Transform Faulting: Foothills, Seismicity	OF	2008	2008	SEG Y	OBSIP	Y
08-022	TAIGER-OBSIP-segy	TAIGER-segy	2008	2009	SEG Y	OBSIP	Y
08-023	TAIGER-OBSIP-segy	TAIGER-segy	2008	2009	PSEG Y	OBSIP	Y
08-024	Seis.Meas. of Caribbean Arc Position	COBAP	2008	2008	SEG Y	OBSIP	Y
09-012	Lau Spreading Center Active-Inverse	LSCAI	2009	2009	SEG Y	OBSIP	Y
09-013	Lau Spreading Center Active-Inverse	LSCAI	2009	2009	PSEG Y	OBSIP	Y
09-014	3-D Seismic Tomography Experiment at the Tonga Subduction Ridge	FTOMO	2009	2009	SEG Y	OBSIP	Y
10-022	Shatsky Rise	SHATSKY	2010	2010	SEG Y	OBSIP	Y
11-016	Bering Sea Benthic Seafloor Experiment	BSSEA	2010	2011	SEG Y	OBSIP	Y
11-017	Gulf of Alaska Active Seafloor Experiment	GOALSEF	2010	2011	SEG Y	OBSIP	Y
11-018	Gulf of Mexico Research Consortium	GOMRC	2010	2010	SEG Y	OBSIP	Y
11-024	Alaska Large Scale Experiment to Understand the Great Thrust	ALLSE	2010	2010	SEG Y	OBSIP-SIO	Y
11-025	Salton Sea Seismicity	SSSIO	2011	2011	SEG Y PSE	OBSIP	Y
12-001	No Melt	NOMELT	2011	2013	SEG Y	OBSIP	Y
12-008	Marianas	MARIANASTREN	2012	2012	SEG Y	OBSIP	Y
12-015	Evolution and Dynamics of the de Fuentetaja Subduction Slab upper mantle aka OC1206A	COFANTIS	2012	2012	SEG Y	OBSIP	Y
13-007	MARINER: Seismic Investigation of the Rodeo Subduction System	MARINER	2012	2012	SEG Y	OBSIP	Y
14-005	Eastern North America Community Seismic Experiment	ENACE	2014	2014	SEG Y	OBSIP	Y
15-008	Crustal magmatism of the Sanторинi Subduction System	SM	2015	2015	SEG Y	OBSIP	Y
16-010	Study of Extensional magmatism in Malawi NE Tanzania	SEMA	2015	2015	SEG Y	OBSIP	Y
16-003	Evolution of Great Spreading Center	GREST	2016	2016	SEG Y	OBSIP	Y
16-005	Chile as a Large Scale Experiment in understanding the past and future of megathrust	CHILE	2016	2016	SEG Y	OBSIP	Y
18-015	Seismic imaging of the Hawaiian Islands	HI	2018	2018	SEG Y	OBSIP	Y
18-017	Bransfield Sea	Bransfield	2019	2020	SEG Y	OBSIC	Y
19-026	Alaska Active Seismic Community Experiment	ALACE	2019	2019	SEG Y	OBSIC	Y
20-026	Andreanoff Active Seismic Experiment	ASSE	2020	2020	SEG Y	OBSIC	Y
21-012	Queen Charlotte Fault Offshore Seismic Experiment	QCF	2021	2022	SEG Y	OBSIC	Y
21-008	An Open-Access Controlled-Seismicity Experiment Across Cascadia	COCS	2021	2021	SEG Y	OBSIC	Y
22-008	Guerrero Gap Active Seismic Experiment	GA	2022	2022	SEG Y	OBSIC	Y
23-026	Rift dynamics during the formation of the Cretaceous Plateau	CR	2023	2023	SEG Y	OBSIC	Y
23-027	Seismic Hazard in the Puerco Subduction, a convergent plate boundary	PH	2023	2023	SEG Y	OBSIC	Y

Warren: Deployment of 20 SPOBS for 11 months at Chain Transform



Naif: 12 month Deployment of 27 BBOBS and 42 OBEM (not all OBEM for 12 months)



