

Rock sample storage at OSU's MGR

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OSU

Oregon State University

Marine and Geology Repository

Supporting Earth, Ocean, and Antarctic Sciences

Overview

- NOAA and OSU-MGR sample identification and archival collaboration
- Sample archival process
- Digital sample availability and discovery
- Future endeavors

NOAA's Ocean Explorer Program

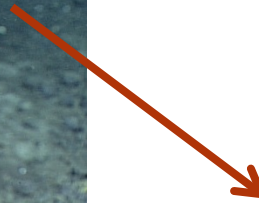
- Explores various areas of the ocean basins.
- Records the biology and geology of the seafloor.
- As of 2015 rock samples are being collected.
- Samples are sent to OSU's MGR for identification and processing.



Sample processing



Samples are collected using the deep explorer.



Initial metadata is collected.



Sample processing



Samples are sawed into slabs.

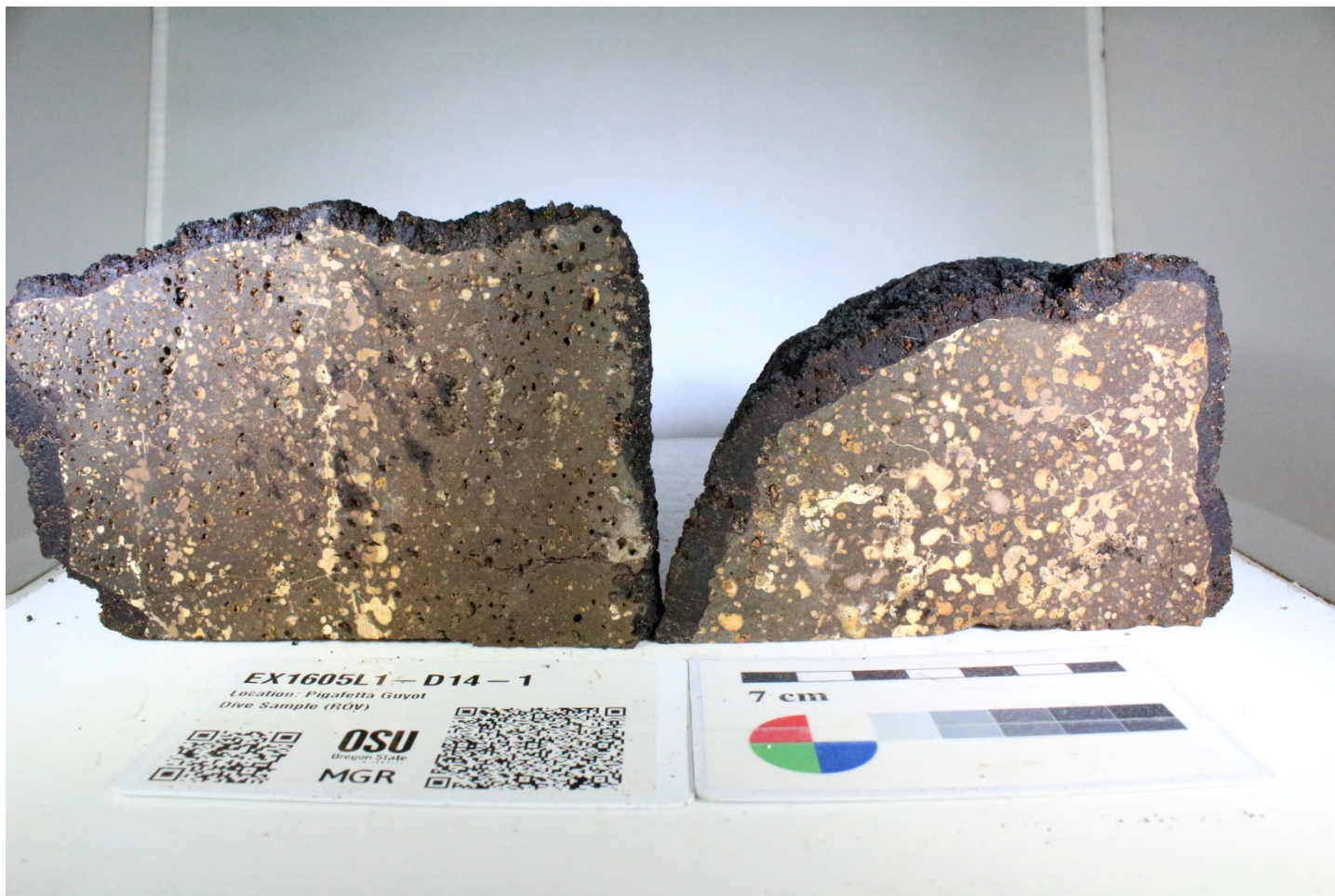
~20% of the sample is placed into an archival bag.

The card with all original metadata collected onboard is stored within the archival bag

Samples are photographed in a Light box.



Photographs



Labels

IGSN as described
by Rob. [Expedition
#]-[Dive number]-
Sample #.

Sample location.

General sample type

QR code leading to
the MGR website
where are sample
information can be
accessed.



QR barcode that
includes the
following hardcoded
sample information:

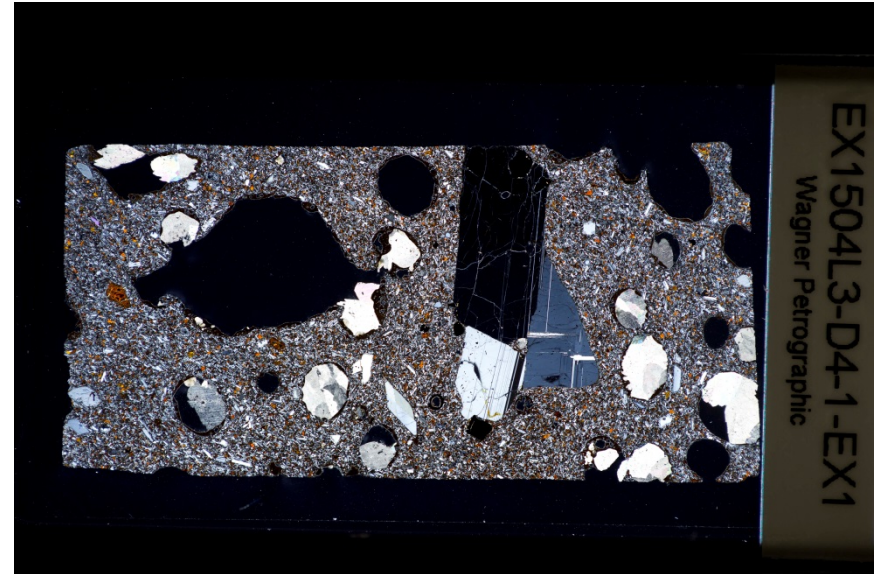
IGSN	Area
Lat	Location
Long	Sample weight
Depth	Principle Rock type



Labels




QR barcode that
links to the
expedition webpage

Thin sections



General Information				Whole Rock	Transmitted Light
Sample Name (IGSN)	EX1504L2-D14-4				
Describer	Kevin Konrad				
Sample Location	North Pioneer Ridge				
Lithology prefix	Olivine				
General Lithology	Basalt				
Texture 1	Vesicular				
Texture 2	Altered				
Whole Rock Original (%)	100	Check [Ph + Vs + Gm = 100%]	OK		
Whole Rock Present (%)	80	Check [Or = Pr + Rf]	OK		
Whole Rock Replaced (%)	20	Check [Or = Pr + Rf]	OK		
Total Groundmass Original (%)	100	Check [Gp + Gl + Ms = 100%]	OK		
Total Groundmass Present (%)	90	Check [Or = Pr + Rf]	OK		
Total Groundmass Replaced (%)	10	Check [Or = Pr + Rf]	OK		
Whole Rock Summary	A fine grained and vesicular basalt with apparent 'layers' of vesicular and non-vesicular groundmass. The vesicles range from no to complete infilling. Some iddingsite grains are found throughout. The sample contains a thin Mn coat.				
Thin Section Summary	A fine grained olivine-basalt with olivine phenocrysts completely recrystallized to iddingsite. The sample is highly vesicular with alteration infilling ranging from complete to none. Vesicles are unevenly distributed with zones with ~80% vesicularity and zones with only ~10%. Some fractures exist in thin section with halos of alterations throughout the groundmass. Groundmass consists of altered glass with some clinopyroxene, magnetite and plagioclase.				

PHENOCRYSTS [Ph]	OL	PLAG	OPX	CPX	SPINEL	OTHER	VESICLES [Vs]	GRNDM [Gm]	Cross Polarized
Original (%) [Or]	10						40	50	
Present (%) [Pr]	1						35	45	
Replaced / Filled (%) [Rf]	9						5	5	
Check [Or = Pr + Rf]	OK	OK	OK	OK	OK	OK	OK	OK	
Minimum Size (mm)	0.25						0.5		
Maximum Size (mm)	0.5						1		
Modal Size (mm)	0.3						0.75		
Shape	an-subhedral						subrounded		
Habit									
Zonation Type									
Zonation Extent									
Exsolution Type									
Special Features	Recrystallized to iddingsite								
Comments							Most are not infilled or minor palagonite. Some vesicles appear full infilled but may be altered		
GROUNDMASS [Gp]	OL	PLAG	OPX	CPX	SPINEL	OTHER	GLASS [Gl]	MSTASIS [Ms]	
Original (%) [Or]	3	15		3	10		69		
Present (%) [Pr]	0	12		3	10		0		
Replaced / Filled (%) [Rf]	3	3		0	0		69		
Check [Or = Pr + Rf]	OK	OK	OK	OK	OK	OK	OK	OK	
Minimum Size (mm)	0.02	0.02		0.002	0.03				
Maximum Size (mm)	0.03	0.05		0.01	0.04				
Modal Size (mm)		0.03		0.0075	0.04				
Shape		lath like							
Habit									
Comments	Little red blobs. Likely recrystallized olivine				Some lath like in shape		Grey and altered.		

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NOAA-EX1504

NOAA expedition EX1504 sampled seamounts in the Papahānaumokuākea Marine National Monument and the Johnston Atoll region of the Pacific using the submersible Deep Discoverer. OSU marine repository archives the rock samples collected during the expedition. Archived samples include basalts, fossil corals, phosphorites and more. Below are three links to the samples from each leg of the expedition.

EX1504 Leg2 are the red samples on the map below, or use the link to access the full datasets.

EX1504 Leg3 are the green samples on the map below, or use the link to access the full datasets.

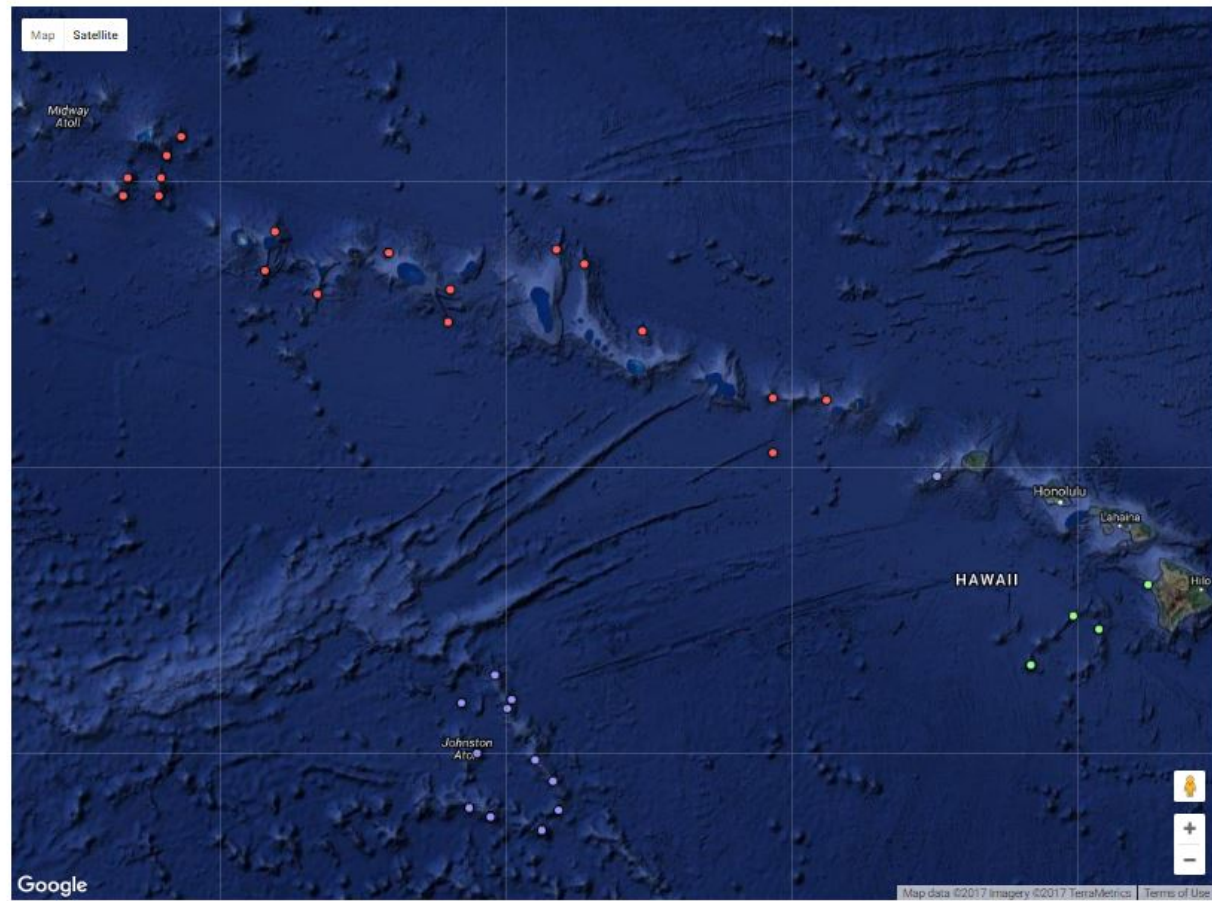
EX1504 Leg4 are the blue samples on the map below, or use the link to access the full datasets.

The map is searchable by the principal rock type in the drop down menu

For more information please visit the dedicated [NOAA Page](#) and [Background Information](#)

Principal Rock Type

-Select-



Online database

EX1504L2

Leg 2 of the EX1504 cruise of the Okeanos Explorer

View and download data by expanding each of the dive sites below

Go back to the [EX1504 map](#) or the [NOAA collections](#) page

EX1504L2-D1



EX1504L2-D2



EX1504L2-D3



EX1504L2-D4



EX1504L2-D5



EX1504L2-D6



EX1504L2-D7



EX1504L2-D8



Online database

EX1504L2



Leg 2 of the EX1504 cruise of the Okeanos Explorer

View and download data by expanding each of the dive sites below

Go back to the [EX1504 map](#) or the [NOAA collections](#) page

EX1504L2-D1

EX1504L2-D2

Sample	WR Thumbnail	Latitude	Longitude	Rock Type	Description	Whole Rock Image	TS Image	TSX Image
OSU-EX1504L2-D2-3		24.46°N	166.09°W	Mn-Crusted Basalt	Description	WR Image	TS Image	TSX Image
OSU-EX1504L2-D2-4		24.46°N	166.09°W	Mn-Crusted Basalt	Description	WR Image	TS Image	TSX Image

EX1504L2-D3

EX1504L2-D4

EX1504L2-D5

Future Endeavors

- RR1310 expedition (Tuvalu and Samoan seamounts; ~1750 dredged samples).
- MV1203 expedition (Walvis Ridge; >2000 dredged samples).
- Wax core and dredge samples from the Marquesas Islands and South East Indian Ridge.

