DREDGE 22

USGS DREDGE LOG

SHIP/LEG F10-87-CP

STATION # 36

DREDGE # D22

DEPTH INTERVAL(m) 1270-1245

DEPTH(m)corrected 1270-1245

	JD	LOCAL
DATE	271	28 Sept. 1987
	GMT	LOCAL
TIME	0709	1909

LATITUDE 08°43.7' TO 08°43.63N

LONGITUDE 163°11.4' TO 163°12.88E

TOTAL WEIGHT: DREDGE 46 CRUST 30

PERCENTAGE OF ROCK COVERED BY CRUST 100 (except pumice)

PERCENT BROKEN FROM: OUTCROP 100 (except pumice) TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 80 MINIMUM 10 AVERAGE 60

DOMINANT SURFACE TEXTURE Botryoidal

SUBSTRATE LITHOLOGY Breccia

NODULES PRESENT 0

REMARKS: 1 large boulder of breccia w/ 60 mm crust — several small pieces of same, pile of crust frags. pile of pumice pebbles - brown to gray; badly beatup silica sponge and small fish

white to cream 5mm thick layers of phosphorite

Dr[illegible] ple Summary Sheet

~~Stub, Sample, photo~~

Sample ID	Bulk CC	Layer CC	Pt & Au	REE	OC	DPTS/TS	XRD	35mm Ph	Archive	Paleo
D22-1	✓	✓	✓	✓	✓	—	✓	✓	✓	✓
D22-2	ALL	TO KORDI								
D22-3	surface ✓									
D22-4										
D22-5										

USGS DREDGE LOG

Depth Interval 1270-1245 Julian Date 271

Cruise I.D. F10-89-CP Local Date (m/d/y) _____

Station No. 36 Chief Scientist Hein/Kang

Dredge No. 22 Tech on Watch O'Toole

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	271/0503	0525	0709	0733
LATITUDE	08° 43.92 N	08°43.7	08° 43.63 N	08° 43.47N
LONGITUDE	163° 11.46 E	163°11.4	163° 12.88 E	163° 13.10E
WATER DEPTH	1250	1270 m	1245m	1275 m

Site Description and Target : Rocks from 1270-1245

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
112 along Onbottom	0525	1270	1255			112 m along the line
Scope is out	0551	1230	1700 m			Taking out slack
Tighten up wire	0607	1230	"			990m along line
Start Dredging	0609	1225	"	1.7,1.6		1015 m along line
Bite	0611	1225	"	2.0		
Bite	0614	1225	"	2.6		
Hang	0623	1225	"	2.5		Broke off
Bite	0626	1225	"	1.5,2.5,1.7		
Bite	0627	1225	"	2.5		
Bite	0628	1225	"	1.9,1.7,1.6,1.7		
Bite	0630	1225	"	4.2		
Bite	0632	1225	"	2.2		
Bite	0639	1230	"	1.5,2.5		
Bite	0642	1230	"	2.5		
Bringing up	0709	1240	"	—		
Off Bottom	0709	1245	1245	—		
END Station	0733	1275				

*on/off bottom, bites, etc.

OTHER COMMENTS:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 53 X 29 X 19 (cm) Location: G Seamount

Sample Id: D22-1 Weight: 24 (kg) Depth: 1270-1245 (m)

Mn Crust Description

Surface Texture: Botryoidal on 2 sides
Smooth on one edge

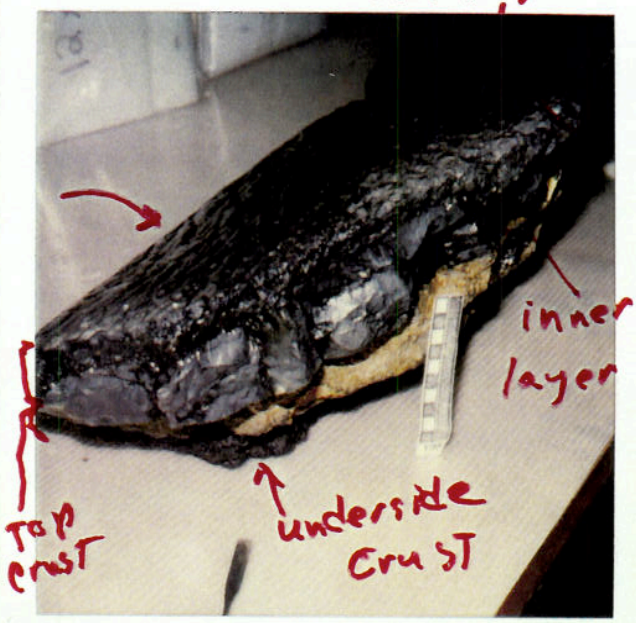
Mn Crust Thickness (mm):
Min: 30 Max: 80 Ave: 65
40

Top side + underside

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.	10	20	12	Porous, sl to stain
2.	18	20	22	massive, black, small vugs infilled geopedal phosphorite
3.	30	32	31	massive, black fine parallel to bedding cracks infilled w/ phosphorite
4.				
5.				
6.				

boundary distinct



Comments and XRD Mineralogy:
2 sides + one edge exposed to Seawater - Substrate broke off + exposed on one edge from a ledge

phosphorite fills vugs in crust + Lms lenses + laminae in substrate + fracture fill in lower crust

Geopedal vugs of phosporite in cut section (see photo)

Substrate Description

Rock Type: Breccia

Description:
yellow-green granule to small pebble size clasts of phosphorite + lo altered glassy volcanic debris in a fine-grained matrix of the same w/ Mn cement also

Biology ?: Foram Sand in Vugs - Removed D22-1-1

SLABBED FOR ARCHIVE

ANALY D22-1; F10-89-CP

Subsample Number	Analysis	Layer Thickness
D22-1-1	Paleo	Foram Sand

D22-1A: XRD, BULK CC Pt (0-64mm) 53g
REE (13.9g)

D22-1B: XRD, CC (0-13mm) 49g
REE (12.8g)

D22-1C: XRD, CC (13-35mm) 74.5g
REE (25.2g)

D22-1D: XRD, CC (35-66mm) 54.4g
REE (13.4g)

Lms D22-1E - XRD, OC 34g
Slab U-series + other isotopes - Onions
DPTS
Lms-phosph. lenses

35 mm slide G Smith

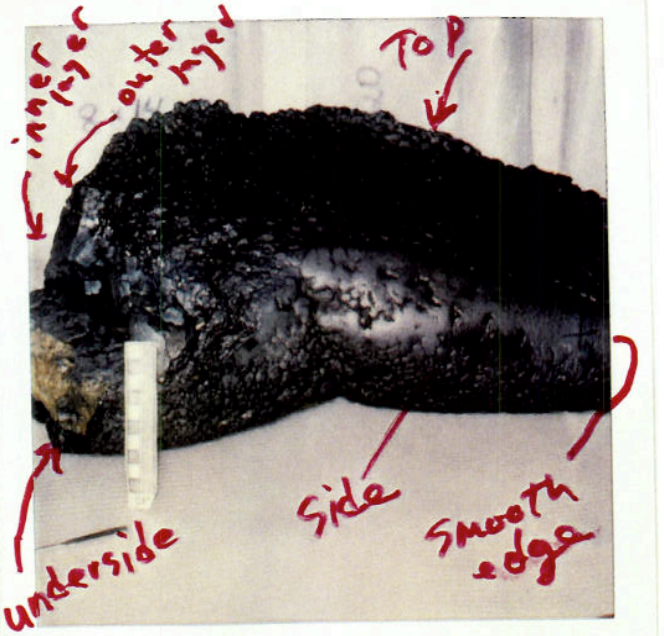
D22-1E-1A } DPTS
D22-1E-1B } sea location on Polaroid

D22-1E-A = XRD, O_2 + S[illegible]
D22-1E-B = XRD [illegible]
[illegible] XRD [illegible]

Described By: HEIN

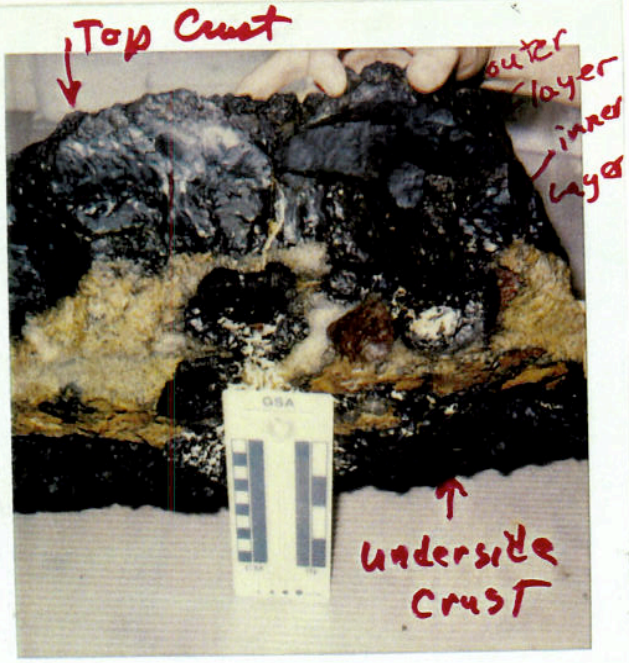
Subsampled By: R.O.

D22-1
F10-89-CP



D22-1; F10-89-CP

Slab like this given to O'Nions

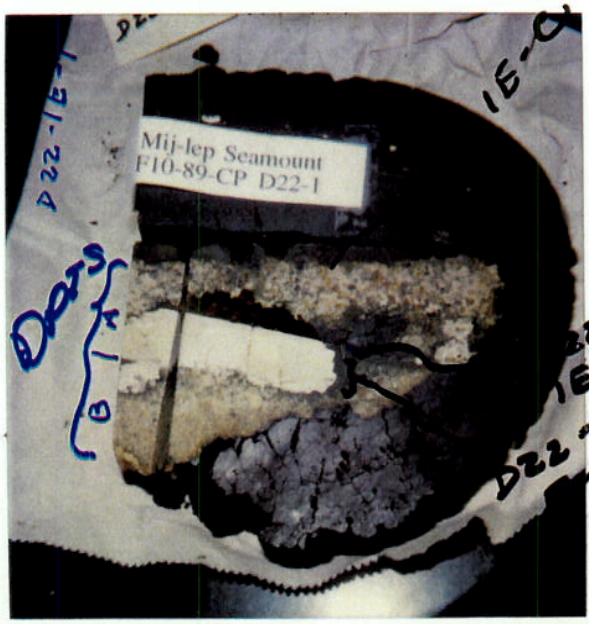


D22-1; F10-89-CP

coarser grained - grains partially supported in phosphorite

finer grained

F10-89-CP
D22-1


Mij-lep Seamount
F10-89-CP D22-1

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 2 pieces broken from D22-1 during dredging (A) 23×15×14 (B) 28×19×13 (cm) Location: G Seamount

Sample Id: D22-2 Weight: 8 (kg) Depth: 1270-1245 (m)

Mn Crust Description

Surface Texture: Botryoidal Top, side, underside, Smooth on edge between Top and side

3 surfaces exposed to seawater - on Ledge

Mn Crust Thickness (mm):

	Min	Max	Ave
Top	14	70	60
Underside	3	48	30

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.			15	Porous, layered
2.			45	V. Dense, massive, black. layer of phos. blebs at top of layer, and separated from lowermost 6 mm by a fracture; Phos. Laminae
3.				below the fracture
4.				
5.				
6.				

Comments and XRD Mineralogy:

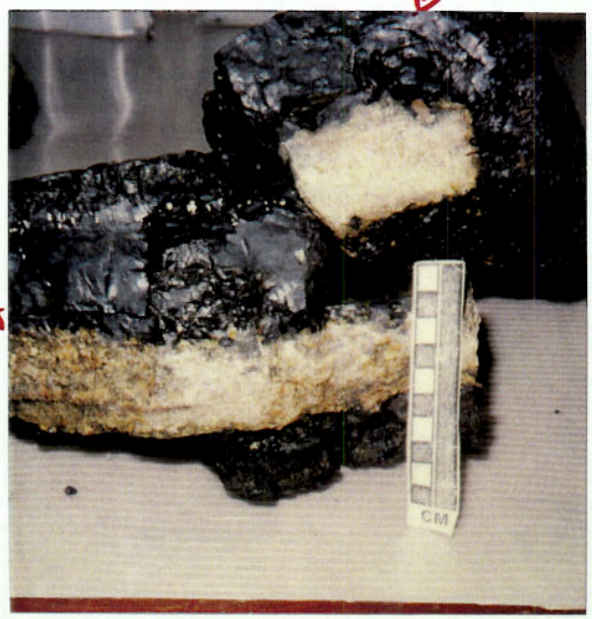
1 phosphorite fracture fill in lower crust

Substrate Description

Rock Type: Breccia To granulestone

Description: granule to small pebble-sized clasts of phosphorite and yellow-green altered glassy volcanic debris in a finer-grained matrix of the same w/ Mn cement also -

Biology ?: Lenses of phosphorite- Lms



D22-2; F10-89-CP

ANALYS

Subsample Number	Analysis	Layer Thickness

D22-2; F10-89-CP

Described By: HEIN

Subsampled By:

ALL TO KORDI

SAMPLE DESCRIPTION

Pebbles to

Cruise Id: FIO-89-CP Size: Cobbles (cm) Location: G Seamount

Sample Id: D22-3 Weight: 8 (kg) Depth: 1270-1245 (m)

Mn Crust Description

Surface Texture: dominantly botryoidal; most fragments probably from D22-1

Mn Crust Thickness (mm):
Min: 5 Max: 40 Ave: 25

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.				
2.				
3.				
4.				
5.				
6.				

No photo

Comments and XRD Mineralogy:

≈ 60 Crust fragments, some w/ substrate described for # 1+2 + some w/ phosphorite lenses Lms

Inner, outer, side, underside, and combination fragments

Substrate Description

Rock Type: Breccia or granulostone

Description: Same as # 1

Biology ?: —

ANALYSES

Subsample Number	Analysis	LayerThickness	
D22-3	CC	0 - ≤ 0.5 mm	5gm
		9 pieces Scraped	not enough for XRD

Described By: HEIN

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: — (cm) Location: G Seamount

Sample Id: D 22-4 Weight: <1 (kg) Depth: 1270-1245 (m)

Mn Crust Description

Surface Texture: NONE

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.				
2.				
3.				
4.				
5.				
6.				

NO Photo

Comments and XRD Mineralogy:

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type: NONE

Description:

Biology ?: Stack of Silicosponge and spicules — many fragments. ~ 40 cm long reddish wip-flexible, w/ outer casing + hard but flexible white inner tube. Small fish (looks like pirana) thrown out).

Described By: HEIN

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Small to large Pebbles (cm) Location: G Seamount

Sample Id: D22-5 Weight: 1 kg (kg) Depth: 1270-1245 (m)

Mn Crust Description
Surface Texture: NONE

Mn Crust Thickness (mm):
Min: _____ Max: _____ Ave: _____

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.				
2.				
3.				
4.				
5.				
6.				

NO Photo

Comments and XRD Mineralogy:

~ 60 pumice pebbles

Substrate Description
Rock Type: Pumice

Description: dark to pale gray

Biology ?: _____

ANALYSES

Subsample Number	Analysis	LayerThickness

Described By: HEIN

Subsampled By: