Dredge 2.5

USGS DREDGE LOG

Jaluit Atoll

SHIP/LEG FARNELLA

STATION # 42

DREDGE # 25

DEPTH INTERVAL(m) 3550-3380

DEPTH(m)corrected 3550-3380

DATE JD 273 LOCAL Oct 1 89

TIME GMT 0757-0900 LOCAL

LATITUDE 6°18.19'N TO 6°17.97'N

LONGITUDE 169°16.10'E TO 169°16.38'E

TOTAL WEIGHT: DREDGE 200 CRUST 8

PERCENTAGE OF ROCK COVERED BY CRUST 25

PERCENT BROKEN FROM: OUTCROP 80 TALUS 20

THICKNESS OF MN CRUST: MAXIMUM 3 MINIMUM <1 AVERAGE 2

DOMINANT SURFACE TEXTURE granular to lizard skin

SUBSTRATE LITHOLOGY 40% (1) yellow-green to redish-brown sandstone to pebbly sandstone (2) gray sandstone to pebbly sandstone (3) basalt
20% 40%

Large hornblende crystals in each lithology

1 cobble of mudstone like that in D24

NODULES PRESENT 0

REMARKS: white foram ooze also recovered

about 50kg discarded

Use of 3 lithology
Number for each lithology

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	REE	OC	DPTS/TS	XRD	35mm Ph	Archive	Paleo
D25-1	1/3 to KORDI				✓		✓			
D25-2										
D25-3	bulk surface ✓				✓		✓	(1/3 TO KORDI		
D25-4					✓		✓	(PIECE TO M. Pringle)		
D25-5					✓					✓
D25-6										
D25-7										
D25-8										✓
D25-9					✓	✓ pringle				

~~Sample for~~ TS ~~in~~ Lab →

USGS DREDGE LOG

Depth Interval 3550-3380 — Julian Date 273

Cruise I.D. F10-89-CP — Local Date (m/d/y) Oct 1 89

Station No. 42 — Chief Scientist Hein/Kang

Dredge No. 25 — Tech on Watch Corkie

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	0757	0900	1401	15:00
LATITUDE	6 18.26N	6° 18.19N	6° 17.97N	6° 18.04'N
LONGITUDE	169 15.88E	169° 16.10E	169 16.38E	169 16.61E
WATER DEPTH	3665	3550	3380	~~3380~~ 3280

Site Description and Target : Samples from ~~3550~~ 3550 - 3380

Lower Flanks of Jaluit Atoll to collect basalt for age dating

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
On Bottom	0900	3550	3650m			
Scope out	0914	3380	4000m			Scope
Bite	0955	3160m	~~4000m~~ ~~3160m~~	4.0		dredging mud
Hung	1012	3130m	4000m	5.0		
"	1014	3130m	4022	6.2T		Slacking out 20m.
Drifting north	1017	3125	4040	—	—	trying to pull off along contours
Backing down	1028		4057			
	1126	3400	3550	3T		Broke off off bottom
on bottom	1135	3355	3500			paying out scope
Scope out	1142	3295	4000			
background	1212			2.48T		dragging thru mud
bite	1221	3130	4000	3.5T		bite
"	1222	3130	4000	3.1T		"
"	1225	3100	"	5.9T		"
"	1231	3096	3967	4.9T		"
"	1235	3080	3925	4.1		
"	1241	"	3860	3.5		
"	"	"	3858	3.7		

*on/off bottom, bites, etc.

OTHER COMMENTS:

USGS DREDGE LOG

Depth Interval _____ Julian Date _____

Cruise I.D. _____ Local Date (m/d/y) _____

Station No. _____ Chief Scientist _____

Dredge No. _____ Tech on Watch _____

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
BITE	1245	3080	3825	5.1		
"	"	"	3822	3.6		
Back Down	1258	3070	3788			
Wire Out	1338	3170	3500			
	1353		[illegible]	[illegible]		Bringing Wire In
BITE	1400	3380	3425	6.1		
OFF BOTTOM	1401	3380	3390			
OFF STATION	1500	"				

*on/off bottom, bites, etc.

OTHER COMMENTS:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Largest - 55x35x25 Smallest - 4x5x3 (cm) Location: Jaluit Atoll

Sample Id: D25-1 Weight: 45 (kg) Depth: 3560-3380 (m)

Mn Crust Description

Surface Texture: smooth w/ micro botryoids, cauliflower botryoids that are porous & minor granular texture

Mn Crust Thickness (mm):
Min: pertina Max: 3 Ave: -

Layers (Outer to Inner)(mm):

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

D25-1

F10-89-CP

Comments and XRD Mineralogy:

one very large piece (wrapped separately 25-1-1) and ~50 smaller fragments, boulder to cobble.

Hornblendes picked out of some of the smaller pieces for M. Pringle (≤ 20g)

ANALY

Subsample Number	Analysis	Layer Thickness
D25-1B	OC (57.59)	Hyaloclastite (avoided basalt fragments)
D25-1A	XRD	cement/fracture fill

Handpicked 20g HBL → to M Pringle

1/3 to Kordi

D25-1-2 bagged separately

t.s. chip to M Pringle

Substrate Description

Rock Type: Altered (yellow-green) hyaloclastite and altered fractured basalt fragments. Basalts are moderately vesicular,

Description: hornblende & olivine phyric. (Very large up to 1.5x7mm hornblende crystals)

These 2 lithologies are probably due to fracturing and brecciation during emplacement. Some of the basalt pieces appear to be spalled billow rinds

Biology ?: some fractures have botryoidal coating of calcite and/or zeolite (reacts very mildly to HCL when dry) it is yellow green in color. Low temp solutions traveling through rocks? This cement permeates & cements several pieces. One piece has white calcite fracture fill.

One "vug" has a worm in it 2mm wide ~15mm long brown-gray in color

Described By: Schulz Subsampled By: Schulz

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Largest - 28x24x16 Smallest - 10x7x3 (cm) Location: Jaluit Atoll

Sample Id: D25-2 Weight: ~30 (kg) Depth: 3360-3380 (m)

Mn Crust Description

Surface Texture: Smooth microbotryoidal, porous botryoidal, granular

Mn Crust Thickness (mm):

Min: patina Max: 2mm Ave: 1mm

Layers (Outer to Inner)(mm):

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

No Photo

Comments and XRD Mineralogy:

Dense Mn

One large piece, 9 small pieces

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type: Altered basalts & hyaloclastite This group has greater than 50% altered basalts (same lithology as D25-1)

Description: This group is ½ way between D25-1 & D25-3. Mostly basalt (olivine & amphibole phyric) highly altered, w/ cement (calcite or zeolite) in fractures and throughout hyaloclastite

Biology ?:

Described By: Schulz

Subsampled By:

SAMPLE DESCRIPTION

~3.5×2.5×2 (smallest)

Cruise: F10-89-CP Size: 22×18×7 (largest) (cm) Location: Jaluit Atoll

Sample Id: D25-3 Weight: ~4 kg (kg) Depth: 3550-3382 (m)

Mn Crust Description

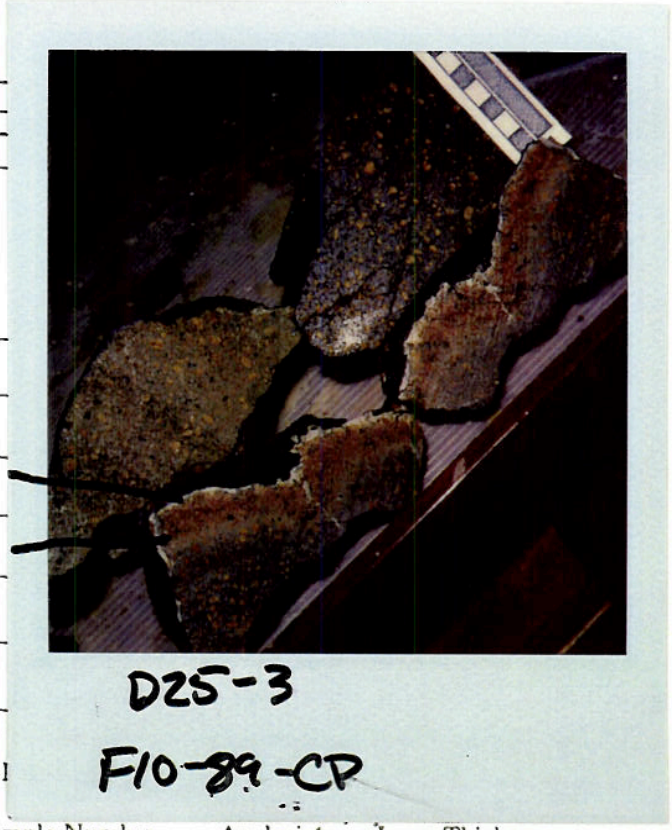
Surface Texture: botryoidal to granular

Mn Crust Thickness (mm):

Min: <1 Max: 3 Ave: 2

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.				
2.				phosphate layer
3.				
4.				altered glassy rind
5.				
6.				



D25-3

F10-89-CP

Comments and XRD Mineralogy:

Massive and dense textrue

ANAL

Subsample Number	Analysis*	LayerThickness
D25-3A *	CC	surface (5g)
D25-3A	XRD	" (0.5g)
D25-3B	OC	substrate (5g)
D25-3C	CC	Bulk 0-2mm of various samples 6 gm.

Substrate Description

Rock Type: Basalt (vesicular)

Description:

- Olivine phyres highly altered (orange)
- Black hornblend relatively fresh

One piece has light brown phosphate (up to 4mm) between basalt and crust.

Biology ?: Forams

* May not be recent surface - Fe-stained

Y3 to Kord:

Described By: Yoon Subsampled By: Yoon & Schulz

2 Bags of sample

SAMPLE DESCRIPTION

Largest 40x23x13
Smallest 2x2x3

Cruise: 10-89-CP Size: _____ (cm) Location: Jaluit Atoll

Sample Id: D25-4 Weight: ~20 (kg) Depth: 3550-3380 (m)

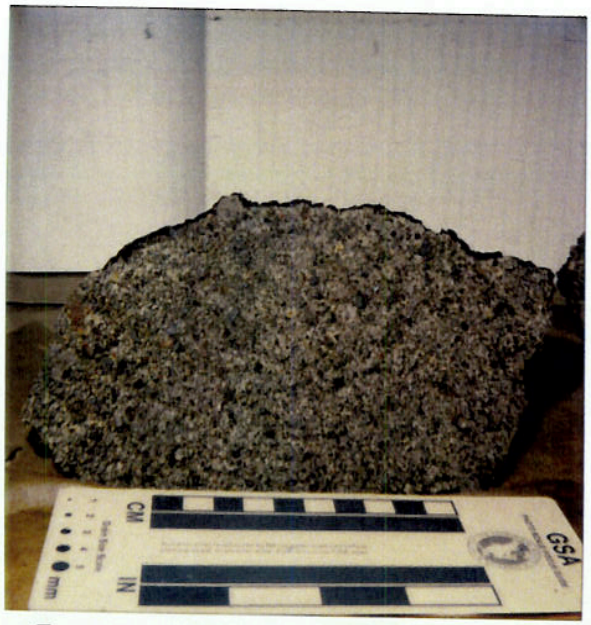
Mn Crust Description

Surface Texture: smooth microbotryoidal, granular porous; cauliflower botryoidal

Mn Crust Thickness (mm):
Min: ~~pathna~~ Max: 3mm Ave: 2mm

Layers (Outer to Inner)(mm):

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



F10-89-CP
D25-4

Comments and XRD Mineralogy:
large up to 10mm Clasts of yellowish-green waxy clay. probable altered glass? XRD of this clay ≈ celadonite

ANAL

Subsample Number	Analysis	Layer Thickness
D25-4A	OC (65g)	Bulk Sandstone
D25-4B	XRD	yellow green Clay clasts
TS		

Substrate Description

Rock Type: Volcaniclastic sandstone w/ ~~calcite~~ phillipsite cement
Gray Volcaniclastic sandstone w/ gray mud matrix clast. supported. Poorly sorted, angular to subrounded

Description: clasts. Graded; w/ gray mudstone (on top?) coarse grain ssm, calcite cemented on bottom. Friable. Mudstone is burrowed and bioturbated

Biology ?: _____

Large piece labeled D25-4-1

D25-4-2 given to M. Pringle for ts, hbb separates

Described By: Schulz

Subsampled By:

F10-89-CP
D25-4

Cruise: 10-89-CP Size: Largest 45 x 11 x 5 / Small 1 x 2 x 3 (cm) Location: Jaluit Atoll

Sample Id: D25-5 Weight: ~5 (kg) Depth: 3350-3380 (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:

Mn staining in borings

ANALYSES

Subsample Number	Analysis	LayerThickness
D25-5	OC & Paleo (~8.4g)	Bulk Mudstone

Substrate Description

Rock Type: yellow-brown calcareous silty mudstone

bioturbated and bored

Description:

Biology ?:

Described By: Schulz

Subsampled By:

Cruise Id: 10-89-CP Size: 3x2.5x2.5 3x1x2.5 (cm) Location: Jaluit Atoll

Sample Id: D25-6 Weight: <1 (kg) Depth: 3560-3380 (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: Pumice, white gray

2 small pebbles

Description:

Biology ?:

Described By: Schultz

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 3x2x2 (cm) Location: Jaluit Atoll

Sample Id: D25-7 Weight: < 1 (kg) Depth: 3560-3380 (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: Small limestone pebble

Description:

Biology ?:

Described By: Schulz

Subsampled By:

SAMPLE DESCRIPTION

Cruise: 10-89-CP Size: ~2 tablespoons (cm) Location: Jaluit Atoll

Sample Id: D25-8 Weight: <1 (kg) Depth: 3660-3380 (m)

Mn Crust Description

Surface Texture:

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

Layers (Outer to Inner)(mm):

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

Comments and XRD Mineralogy:

ANALYSES

Subsample Number	Analysis	LayerThickness
D25-8	preserved for Paula Quintrano	

Substrate Description

Rock Type: Foram Sand Scraped off samples in Debdge Bay

Description: Fixed in Rose Bengal Solution within 5 min of being on deck

Biology ?:

Described By: Schultz Subsampled By:

5cm → 30cm

Cruise Id: 10-89-CP Size: ASSORTED (cm) Location: JALUIT ATOLL

Sample Id: D25-9 Weight: 50 (kg) Depth: 3390-3380 (m)

Mn Crust Description

Surface Texture: NONE - PATINA

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

Comments and XRD Mineralogy:

Substrate Description

Rock Type: vesicular hornblende + altered olivine basalt

Description: assorted pieces, moderately altered to relatively fresh. Many broken fresh from outcrop

Biology ?:

ANALYSES

Subsample Number	Analysis	LayerThickness
3 largest pieces numbered		
D25-9-1 (see box 2 + 7 of 13		
D25-9-2 } for thin section +		
D25-9-3 } geochem to M Pringle		
Rest of basalts unnumbered		
5 next largest in Rock Box to M Pringle		
Rest in plastic dredge bag		
3 pieces taken AR-AR, Isotopes Staudigel		

Described By: M Pringle Subsampled By: