Dredge 12

USGS DREDGE LOG

SHIP/LEG F7-91-WP

STATION # 18

DREDGE # D12

DEPTH INTERVAL(m) 2235 - 2150

DEPTH(m)corrected 2235 - 2150

DATE JD 205 LOCAL July 25, 1991

TIME GMT 1519-1756 LOCAL _____

LATITUDE 08 11.74 TO 08 11.96

LONGITUDE 136 54.45 TO 136 54.87

TOTAL WEIGHT: DREDGE 300 CRUST < 1

PERCENTAGE OF ROCK COVERED BY CRUST < 1

PERCENT BROKEN FROM: OUTCROP 98 TALUS 2

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

DOMINANT SURFACE TEXTURE Smooth & Granular Patches

SUBSTRATE LITHOLOGY (1) 98% soft, white, poorly consolidated Limestone

(2) Vesicular Basalt

NODULES PRESENT 0

REMARKS: Mounds of foram-nann Lmst -

250 kg overboard

USGS DREDGE LOG

Depth Interval 2235 –

Julian Date 205

Cruise I.D. F7-91-WP

Local Date (m/d/y) JULY 25, 1991

Station No. 18

Chief Scientist Hein / Alan

Dredge No. D12

Tech on Watch Jon

IN WATER 1430

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	1400	1519	1756	
LATITUDE	8°10.73' N	08° 11.74'	08° 11.86	
LONGITUDE	136°55.06' E	136° 54.45'	136° 54.27	
WATER DEPTH	2~~8~~45	2235 W.O 2700 M	2150	

Site Description and Target : YAP 0 ON SOUTH SIDE GOING NW UPSLOPE 2200–1800

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
1	1600	2085	2700	1.8	350(.9)	NO BITES SO FAR
	1618	1950	"	1.6-1.8		DREDGE STARTING TO WORK
	1628	1940	2700			SMALL PUCKS 2.2-1.9
	1635	1930	"	2.6		SMALL SHARP BREAKS
	1639	1920		3.9		LARGEST ONE YET
	1649			1.7-1.9		SOFT SLOW BITES
	1650	1890		3.4		NICE BITE
	1653	1880		2.9		HANGING IN THERE
	1703	1875		3.2		
	1705	1875				STOPPING SHIP ~~SLOWLY~~ BRINGING IN WIRE
	1710	1895		4.0		
	1711	1895	2630	4.7		
	1712	1895	2612	6.0		
	1715	1695	2579			Hung Up, Pulling Ship Back
	1723	1930	2490			Still hung pulling in wire
	1729	1935	2469			Back the ship down the line, trying to loosen dredge.
	1743	2020	2320			Still Anchored

*on/off bottom, bites, etc.

OTHER COMMENTS:

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Bite	1745	2050	2311	6.8		Broke OFF
	1756	2150	2167	—		—

*on/off bottom, bites, etc.

OTHER COMMENTS:

D12

SW of Ngulu Atoll

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D12-1							✓		2x	
D12-2										
D12-3						✓				
D12-4						✓				
D12-5										
D12-6						✓				
D12-7										
D12-8						✓	✓			— Phosph-
D12-9						✓	✓			— Phosph-
D12-10						✓				
D12-11					✓	✓	✓			
D12-12										
D12-13										

SAMPLE DESCRIPTION

7200 kg discarded

Cruise Id: F7-91-WP Size (cm): 27x25x10 ~ 10x8x7 Location: S. W Nagle Mall [redacted]

Sample Id: D12-1 Weight (kg): 12 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: Several pieces had crusts broken off, crust w/o substrate probably from these.

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D12-1

Comments and XRD Mineralogy:

Sub

D12-1
Sample for paleo
XRD

Substrate Description

Rock Type: foraminiferal-nannofossil chalk poorly consolidated, burrowed in places, massive where not burrowed. burrows

Description: infilled with light brown limemud

Biology (?):

Described by: JSS

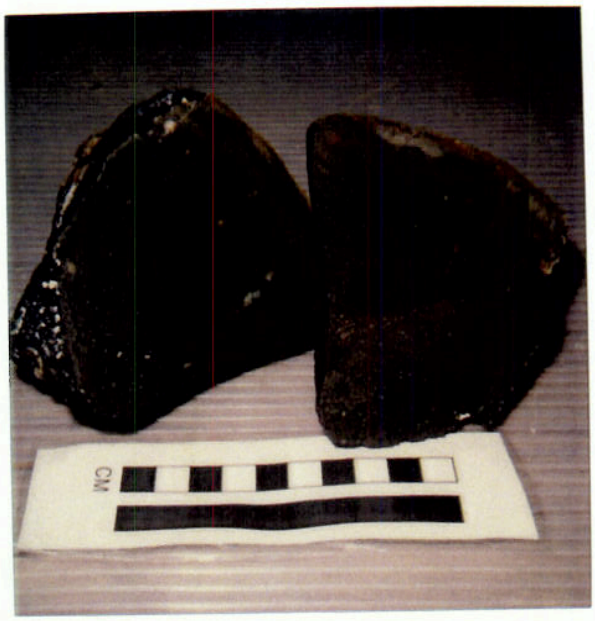
Subsampled by: ASD

SAMPLE DESCRIPTION

SW Ngulu Ridge

Cruise Id: F7-91 WP Size (cm): 15 x 11 x 10 Location: [redacted]

Sample Id: D12-2 Weight (kg): 1 Kg Depth (m): 2235 - 2150



D12-2

Mn Crust Description

Surface Texture: smooth to eroded patina

Mn Crust Thickness (mm):

Min: — Max: P Ave: —

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Subs

Substrate Description

Rock Type: Basalt

Description: Highly vesicular olivine phyric basalt olivine microphenocrysts replaced by iron oxides + iddingsite (?), oxidized margin

Biology (?): encrusting forams

Described by: ASD

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: FK-91HP Size (cm): 13 x 11 x 8 Location: SW [redacted] Nguku Ridge

Sample Id: D12-3 Weight (kg): ~1 kg Depth (m): 2235 - 2150

Mn Crust Description

Surface Texture: patina

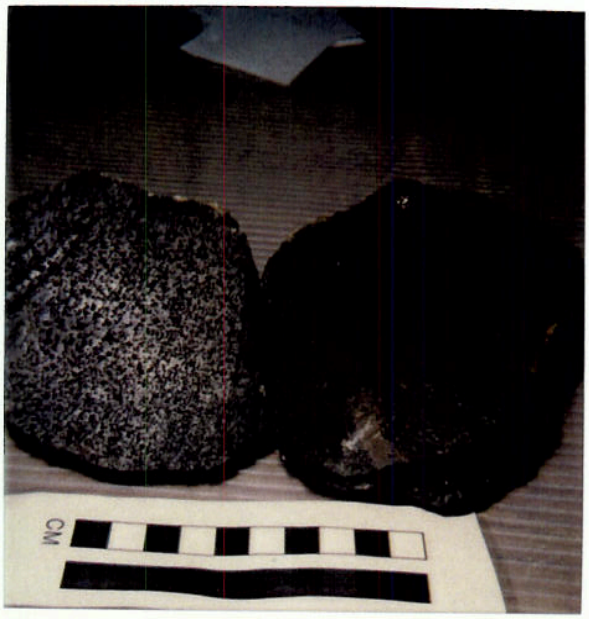
smooth to eroded

Mn Crust Thickness (mm):

Min:____ Max: ? Ave:____

Outer to Inner Layers (mm)

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



D12-3

Comments and XRD Mineralogy:

Sub

D12-3 T.S.

Substrate Description

Rock Type: Basalt

Description: highly vesicular olivine phyric like D12-2, but no oxidized rind

Biology (?): encrusting bryozoans

Described by: KSD

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: FT-91 WP Size (cm): many cobbles to 10 cm max Location: SW [redacted] Nguelu Ridge

Sample Id: D12-4 Weight (kg): 3.5 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: patchy smooth to eroded

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D12-4

Comments and XRD Mineralogy:

Subs

D12-4 T.S.

KORDI 30%

USGS 70%

Substrate Description

Rock Type: Basalt

Description: Highly vesicular olivine phyric like D12-3 but vesicles are larger. Olivine also pseudomorphs of iddingsite / Fe oxides

Biology (?): encrusting forams

Phosphorite fills vesicles

Described by: MSD

Subsampled by:

SAMPLE DESCRIPTION

SW Nguku Ridge

Cruise Id: F7-91 WP Size (cm): lots of pebbles and cobbles Location: [redacted]

Sample Id: D12-5 Weight (kg): ~40 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: Patchy smooth, granular

Mn Crust Thickness (mm):

Min: ____ Max: P Ave: ____

Outer to Inner Layers (mm)

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

D12-5

Comments and XRD Mineralogy:

Subsampl

RORST 25%
USGS 75%

Substrate Description

Rock Type: Basalt

Description: Highly vesicular basalt, as previous samples, most with small vesicles some a little larger olivine phyric as before

Biology (?):

Described by: ASD

Subsampled by:

most cobbles + pebbles uncut

SAMPLE DESCRIPTION

Cruise Id: FT-91 WP Size (cm): 3 cobbles Location: SW Nguru Ridge [redacted]

Sample Id: D12-6 Weight (kg): ~ 2 kg Depth (m): 2235-2150

Mn Crust Description

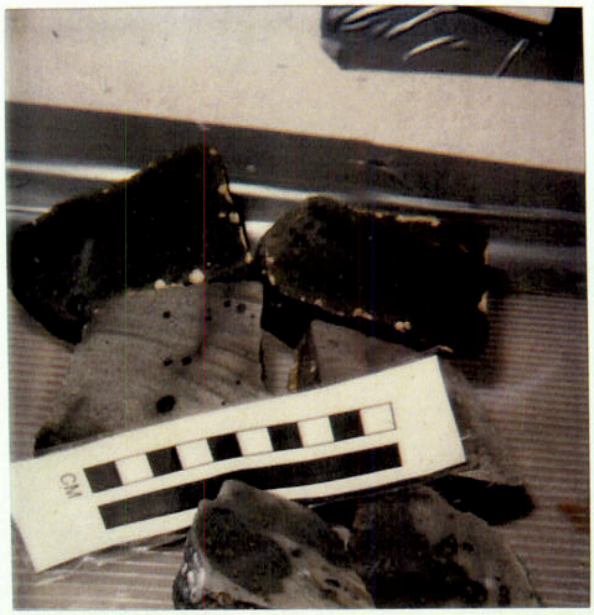
Surface Texture: Patchy eroded to smooth

Mn Crust Thickness (mm):

Min: ____ Max: P Ave: ____

Outer to Inner Layers (mm)

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



D 12-6

Comments and XRD Mineralogy:

Subsar

D12-6 T.S.

KORDI 40%

USGS 60%

Substrate Description

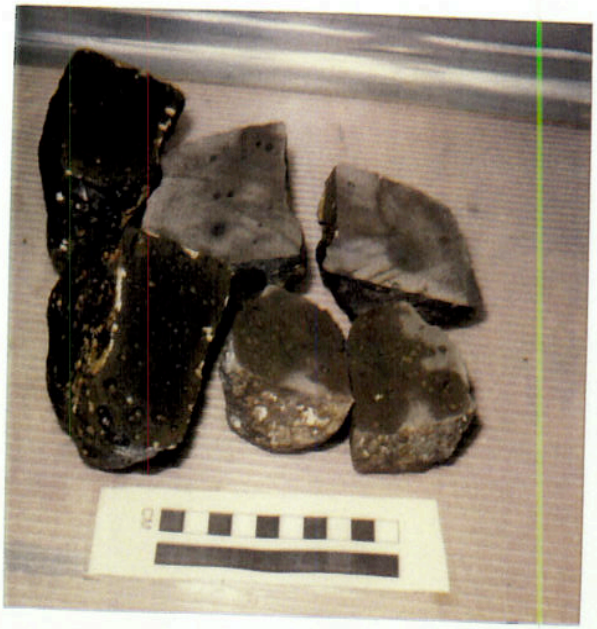
Rock Type: Basalt

Description: Mod. vesicular basalt, vesicles larger than in other basalts (to 1 cm), olivine (pseudomorphs) and rare plagioclase microphenocrysts

Biology (?): encrusting forams

Described by: ASD

Subsampled by:



SAMPLE DESCRIPTION

Cruise Id: F7-91 WP Size (cm): many Cobbles Location: SW Nagahle Ridge [redacted]

Sample Id: D12-7 Weight (kg): 1.0 Depth (m): 2235 - 2150

Mn Crust Description

Surface Texture: Patina

Mn Crust Thickness (mm):

Min:_____ Max: P Ave:_____

Outer to Inner Layers (mm)

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

D12-7

Comments and XRD Mineralogy:

Subsa

KORDI 50%
USGS 50%

Substrate Description

Rock Type: Basalt

Description: Vesicular basalt (small vesicles) olivine phyric (pseudomorphs) came out of breccia, all of trace of phosphatized

Biology (?): limestone matrix

all cut

Described by: ASD.

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 14x9x7~ 7x6x3 Location: SW Ngulu Ridge [redacted]

Sample Id: D12-8 Weight (kg): 3.5 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: patina

Mn Crust Thickness (mm):

Min:_____ Max: P Ave:_____

Outer to Inner Layers (mm)

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

D12-8

Comments and XRD Mineralogy:

Su

D12-8 DPTS XRD Phosphorite stn

KORDI ~35%

USGS ~65%

Substrate Description

Rock Type: Breccia

Description: basalt clasts (to 8cm) and angular "glassy" shards in ~~phosphatized limestone~~ phillipsite matrix, most clasts vesicular olivine basalt, shards mostly palagonite

~~Biology~~ (?): some fish glass areas?

Described by: ASD

Subsampled by:

SAMPLE DESCRIPTION

SW Ngatu Ridge

Cruise Id: FK-91-WP Size (cm): 14×13×7 Location: [redacted]

Sample Id: D12-9 Weight (kg): 1 kg Depth (m): 2235 - 2150

Mn Crust Description

Surface Texture: patina (very little)

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D 12-9

Comments and XRD Mineralogy:

Subs

d.p.T.S. D12-9

KORDI 50 %

USGS 50 %

Substrate Description

Rock Type: Hyaloclastite breccia

Description: Breccia contains small angular to subrounded vesicular basalt clasts and palagonite shards (some fresh glass may still be present) in phosphorite cement

Biology (?):

Described by: SD

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: FT-91-WP Size (cm): 18x11x7 Location: SW Ngatik Ridge

Sample Id: D12-10 Weight (kg): 2.5 Depth (m): 2235-2150

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D12-10

Comments and XRD Mineralogy:

Subs

D12-10 T.S.

KORDI ~ 50%

USGS ~ 50%

Substrate Description

Rock Type: Basalt

Description: Vesicular basalt, small round vesicles, some filled w. vesicles olivine (pseudomorphs) microphenocrysts

Phosphorite at top edge

Biology (?):

Described by: ASD

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: FT-91-WP Size (cm): 6×5×4 ~ 14 × 11 × 10 Location: SW Ngatea Ridge [redacted]

Sample Id: D12-11 Weight (kg): 1.0 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Subs

D12-11 A.P.T.S.
KORDI ~ 40%
USGS ~ 60%

Substrate Description

Rock Type: Basalt D2-11 OC, XRD 75 gm

Description: Vesicular basalt pillow wedge with glassy selvage, mostly palagonite small olivine (pseudomorphs) microphenocrysts

Biology (?):

Described by: ASD

Subsampled by: ASD

SAMPLE DESCRIPTION

SW Ngula Ridge

Cruise Id: FT-91-WP Size (cm): 15 x 12 x 7 Location: [redacted]

Sample Id: D12-12 Weight (kg): 1.5 Depth (m): 2235-2150

Mn Crust Description

Surface Texture: Patina

Mn Crust Thickness (mm):

Min:____ Max: P Ave:____

Outer to Inner Layers (mm)

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

D12-12

Comments and XRD Mineralogy:

Sub:

KORDI ~ 30%
USGS ~ 70%

Substrate Description

Rock Type: Basalt

Description: Highly vesicular basalt; small and large vesicles, olivine phyric like previous samples

Biology (?):

Described by: A SD

Subsampled by:

SAMPLE DESCRIPTION

SW Nagahi Ridge

Cruise Id: EW-91-WP Size (cm): 7x6x4 Location: ~~V2-91-GP~~

Sample Id: D12-13 Weight (kg): 0.2 Depth (m): 2235-2150

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D12-X13

Comments and XRD Mineralogy:

Sub

KORDI 1/2

USGS 1/2

Substrate Description

Rock Type: Pumice

Description:

Biology (?):

Described by: ASD

Subsampled by: