DREDGE 6

Dredge YAP B

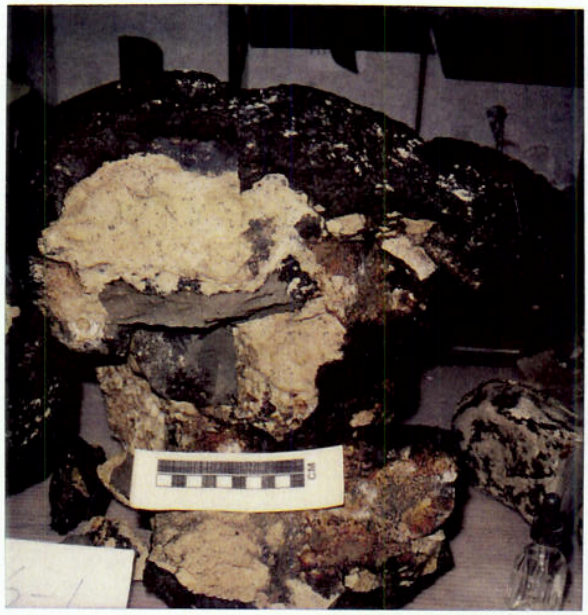
Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D10-1 A+B	X		X X	X	2 X	X	3 X			
-2										
-3	X				X	X	2 X	X (2)		
-4	X						X	X	X	
-5	X	X					3 X			
-6					X	X	X			
-7					2 X	(2) X	(3) X			
-8					X	X	X			
-9										
-10							(4) X			X
-11					X	(2) X	X			
-12							X		X	

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 65 x 46 x 30 Location: YAP B

Sample Id: D6-1 Weight (kg): 80 Kg Depth (m): 2050-1840



D6-1

Mn Crust Description

Surface Texture: Granular, small botryoidal

Mn Crust Thickness (mm):

Min: <1 Max: 50 Ave: 20

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1			8	Black, Porous
2				iron staining
3			12	Black massive dense
4				
5				
6				

Comments and XRD Mineralogy:

Substrate peppered w/ Mn & Fractures lined w/ Mn

Substrate Description

Rock Type: Altered Volcanic Ash or serpentine mottled white - Light Greenish-yellow Brown mixed with Grey Basalt - Coarse-grained -

Description: Boulder sized substrate: large massive slightly vesicular basalt surrounded by thick waxy altered volcanic ash or serpentine with minor small basalt, mud, and crust fragments - mottled white-green peppered with Mn oxide & iron stained patches on exterior zeolites (?) xstals in vesicles

Biology (?): <1% Encrusting Forams

Subsample

D6-1A	OC	~~Serpentine~~ smellite	41.5 g.
D6-1B	OC	Basalt	37.8 g.
D6-1B	TS	"	
D6-1C	CC, Pt, Au, REE	Bulk Crust,	0-19 m (130.5 g

30% NORDA

70% USGS

Described by: [signature]

Subsampled by: JW Joon

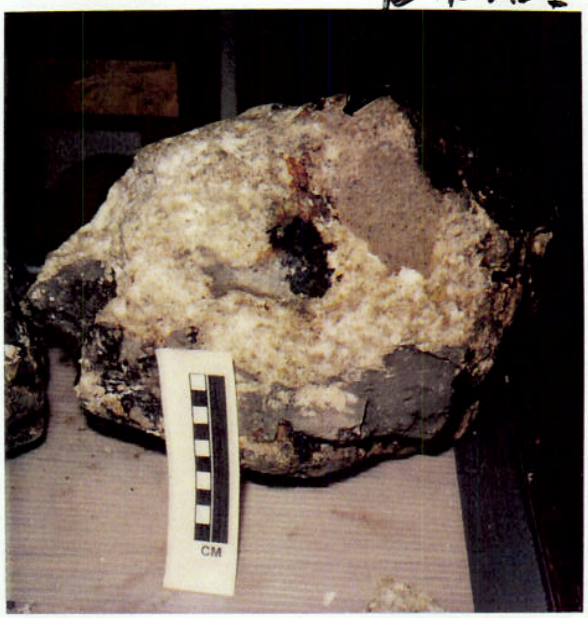
SAMPLE DESCRIPTION

43×24×20

Cruise Id: F11-90-CP Size (cm): 15×11×10 Location: YAP B

Sample Id: D6-2 Weight (kg): 50kg Depth (m): 2050-1840

To KORDI



D6-2

Mn Crust Description

Surface Texture: Granular — patina

Mn Crust Thickness (mm):

Min: Max: Patina Ave:

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Patina		Black, Porous
2				
3				
4				
5				
6				

Comments and XRD Mineralogy:

Same as D6-1 except No Crust

Subsar

Substrate Description

includes 2 Boulders

Rock Type: Serpentinite replaced & cemented Peridotite (or coarse grained basalt) breccia - mottled greenish - yellow - white

Description: basalt - peridotite clasts, massive to slightly vesicular + partly to completely serpentinized serpentine is peppered with

½ To KORDI - Pictured
½ To USGS - No Pictured
Fined Clast Size Breccia

Biology (?): <1% encrusting forams

Described by: JJ

Subsampled by:

Within some parts of the serpentine there are some angular pebble sized clasts: basalt. mud or crust fragments some clasts are full to partially rimed by a Mn oxide coating Possible zeolite in few peridotite vesicles

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 28x21.5x9 10.5 x 6.4 x 4.8 Location: YAP B

Sample Id: D6-3 Weight (kg): 23.9 Kg Depth (m): 2050 - 1840

Mn Crust Description

Surface Texture: Dominantly Smooth abraided flat botroids (50%) to smooth patina (50%) few granular

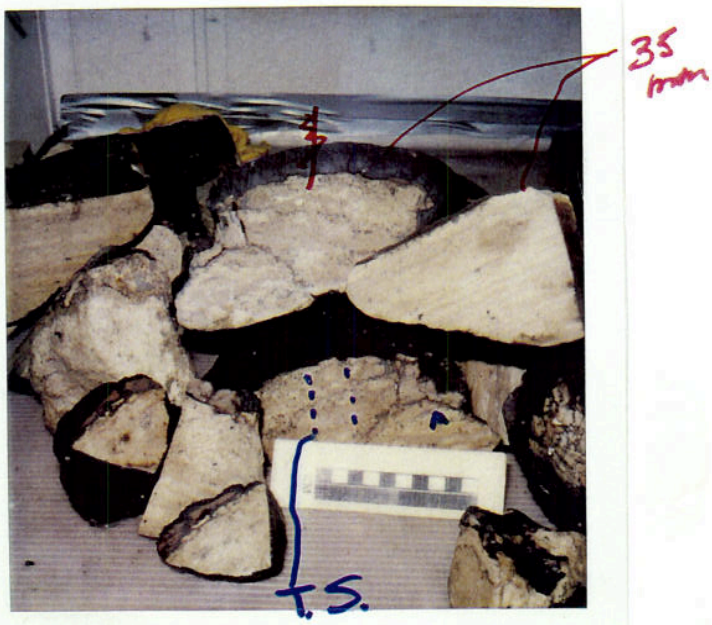
Rarely high relief Botroids

Mn Crust Thickness (mm):

Min: <1 Max: 45 Ave: 9

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	<1	45	9	Black, porous
2				Few with a thin patchy brown mud
3				layer in crust
4				minor fracturing, iron staining and small
5				to med. sized vugs
6				One with med. sized vug filled with encrusting forams



D6-3

Comments and XRD Mineralogy:

One Cobble - Crust? to 45mm

one large cobble - Crust uniformly 20mm - massive

rest of pieces ≤ 3mm

Substrate Description

Rock Type: Altered Volcanic Ash?, Light greenish yellow-brown or Serpentine?

Waxy

Description: Altered Ash? peppered w/ Mn oxide, massive to laminated, minor fractures & bored holes lined w/ Mn oxide & some filled w/ sediment, some bioturbation - some well bedded

Biology (?): <1% Encrusting Forams

Subsa

D6-3A - OC Serp 28gm

D6-3A - TS "

D6-3B CC Bulk Crust 0-17mm (91gm)

D6-3A Paleo Top layer

35mm - slides 2 samples

60% USGS

40% ITORDI

Described by: [signature]

Subsampled by: G.S & Ann fine-grained

one rock w/ a volcaniclastic breccia layer angular, pebble-sized basalt clasts in ash matrix

JW

SAMPLE DESCRIPTION

27.3 X 23 X 4.5

Cruise Id: F11-90-CP Size (cm): 9 X 6.5 X 3 Location: YAP B

Sample Id: D6-4 Weight (kg): 20 kg Depth (m): 2050 - 1840

Mn Crust Description

Surface Texture: Smooth, abraded botroids, Granular bottom

Mn Crust Thickness (mm):

Min: 1 Max: 10.4 Ave: 6

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	1	10.4	6	Black, massive,
2				porous + Fe stained
3				adjacent to lows
4				
5			4	Fe-Mn impregnated
6				Lms layer

A

35 mm

D6-4

Comments and XRD Mineralogy:

Subsample N

D6-4A	CC	Bulb Crust	0-10M (2.9gM)
D6-4B	Paler	Lms	(3.7gM)

Substrate Description

Rock Type: Limestone, Foraminiferal? 35mm slide Yellowish White

50% USGS
50% HORDI

Description: Extensively bored limestone w/ small to large holes Mn oxide coats all openings and fills in in dissolved spaces

Biology (?): <1% Encrusting forams

Described by: JGM

Subsampled by: 95

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 28 x 18 x 37 Location: YAP B

Sample Id: D6 - 5 Weight (kg): 15 Depth (m): 2050 - 1840

Mn Crust Description

Surface Texture: Granular to subdued botryoidal — smoothed botryoids

Mn Crust Thickness (mm):

Min: Patina (bottom) Max: 45 (top) Ave: 25

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	0	20	10	Slightly porous
2	5	25	15	Highly porous
3				
4				
5				
6				

D6-5

Comments and XRD Mineralogy:

Pores of layer 2 are filled with brownish soft sediments

Tiny pores of layer 1 are filled with Fe-oxide.

Substrate Description

Rock Type: Greenish fractured basalt uneven // fracture

Description:

thin parallel fractures

Sheared & serpentinized

Biology (?): Encrusting foram

Described by: Yam

Subsampled by: GS.

Sub

D6-5A	CC	Bulk Crust	0-33 mm (169 gm)
D6-5B	CC	layer	0-18 mm (63 gm)
D6-5C	CC	layer	18-33 mm (31 gm)

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 23×25×18 ~ pebbles Location: YAD B

Sample Id: D6-6 Weight (kg): 65 Depth (m): 2050-1840

Mn Crust Description

Surface Texture: Granular ~ all but 2 Cobbles = patina

Mn Crust Thickness (mm):

most 2 samples

Min: Patina Max: 30 Ave: Patina

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	<1	22	Patina	Porous
2	0	8		Massive & dense
3				
4				
5				
6				

D6-6

Comments and XRD Mineralogy:

- Most samples are encrusted by a thin Mn-layer

Subs

D6-6-1 TS Basalt - Basalt contact

D6-6-1 OC - wavy part only (26 gm)

Substrate Description

Rock Type: wavy Fractured basalt fresh - grey + greenish - altered, to brown altered

60% USGS

40% HORDI

Description:

- Parallel fractures (<2 cm long and <1 mm thick) are dominant
- Some samples include massive and fresh basalt fragments w/ the 11 fractured basalt = TS

Biology (?): Encrusting foram

Serpentine +/or phosphorite veins

Described by: Yeon

Subsampled by:

+ 2 bags of misc uncut basalt pebbles

SAMPLE DESCRIPTION

7×7×2~

Cruise Id: F11-90-CP Size (cm): 27×18×13 Location: YAP B

Sample Id: D6 - 7 Weight (kg): 40 Depth (m): 2050 ~ 1840

Mn Crust Description

Surface Texture: Granular to botryoidal (thickest crust sample)

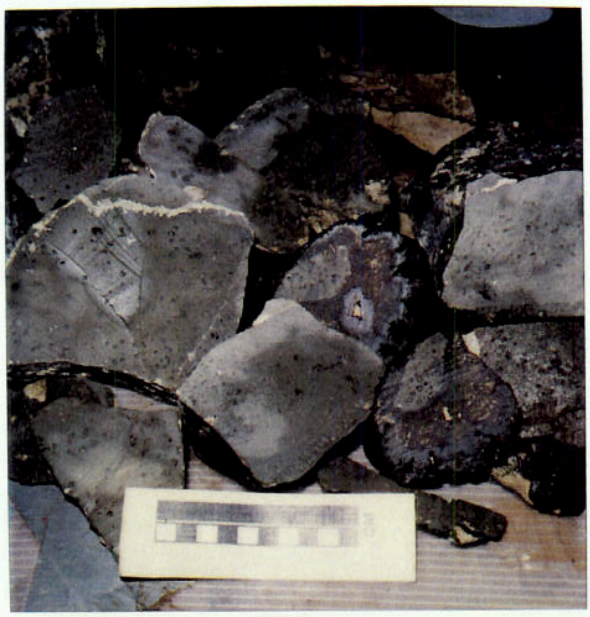
Mn Crust Thickness (mm):

Min: Patina Max: 45 Ave: Patina

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	0	10	5	Porous
2	0	8		Massive
3	<1	28		Porous
4				
5				
6				

* Sample with thickest crust



D6 - 7

Comments and XRD Mineralogy:

- Pores and vugs in layers 2 are filled with phosphorite
- Pores in layer 1 are mostly empty but rarely filled with Fe-oxide

Substrate Description

Rock Type: Vesicular basalt

Description:

- fresh - gray + green to brown altered
- Vesicular and fractures rarely filled with phosphorite +/or serpentine

Biology (?):

Sub

D6-7-1 TS Basalt

D6-7-1 OC Basalt (56 gm) K

D6-7-2 TS Basalt

D6-7-2 OC Basalt (36 gm) K

60% USGS

90% NORDI

Described by: Yoon

Subsampled by: HEIN

one w/ Thick Crust 45 mm bagged & boxed -

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 20x23x11 Cobble - 1 small cobble Location: YAP B

Sample Id: D6-8 Weight (kg): 30 Depth (m): 2050-1840

Mn Crust Description

Surface Texture: Granular - patina

Mn Crust Thickness (mm):

Min: Patina Max: Ave: Patina

Outer to Inner Layers (mm)

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

D6-8

Comments and XRD Mineralogy:

Sul

D6-8-1 OC Basalt (21 gm)

D6-8-1 TS Basalt

Substrate Description

Rock Type: Greenish massive basalt

Description:

Fractures are filled with phosphorite and carbonate. - serpentine veins soft

Probable clasts from the basalt - serpentine breccia

Biology (?): Encrusting forams

Described by: Yoon

Subsampled by: HEIN

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 20 x 12 x 12 ~6 x 4 x 3 Location: TAP B

Sample Id: D6-9 Weight (kg): 3 Depth (m): 2050-1840

Mn Crust Description

Surface Texture: Granular to irregular - smooth

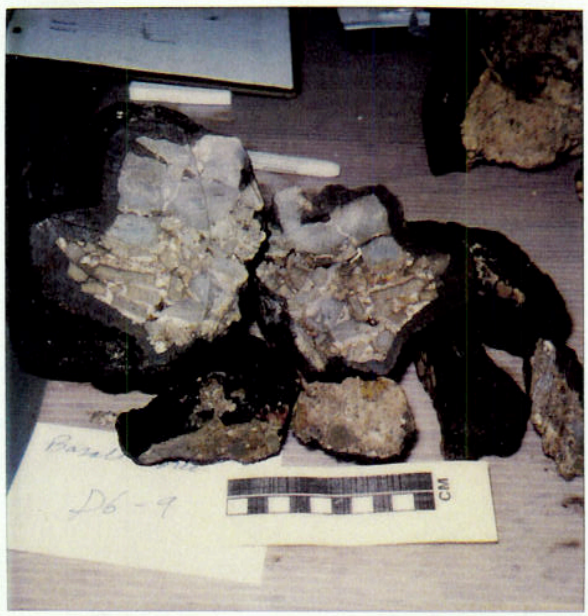
*Samples may be from talus

Mn Crust Thickness (mm):

Min: Patina (bottom) Max: 20 (top) Ave: 10

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	<1	20	10	Porous
2				
3				
4				
5				
6				



D6-9

Comments and XRD Mineralogy:

Pores and micro-fractures are filled with Fe-oxide

Sub

Substrate Description

Rock Type: Basalt breccia

60% USGS
40% MORB?

Description: Phosphorite Cement

Basalt clasts (max. 5x2cm) are cemented by cream-colored phosphorite and carbonate(?)

Some clasts are coated by thin manganese. -- Clasts differentially serpentinized

Biology (?): Encrusting forams

Described by: Yoon

Subsampled by:

2 large flat cobbles
1 small flat cobble

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 40×24×8 ~7.5×6×5 Location: YAP B

Sample Id: D6-10 Weight (kg): 20 Depth (m):

Mn Crust Description

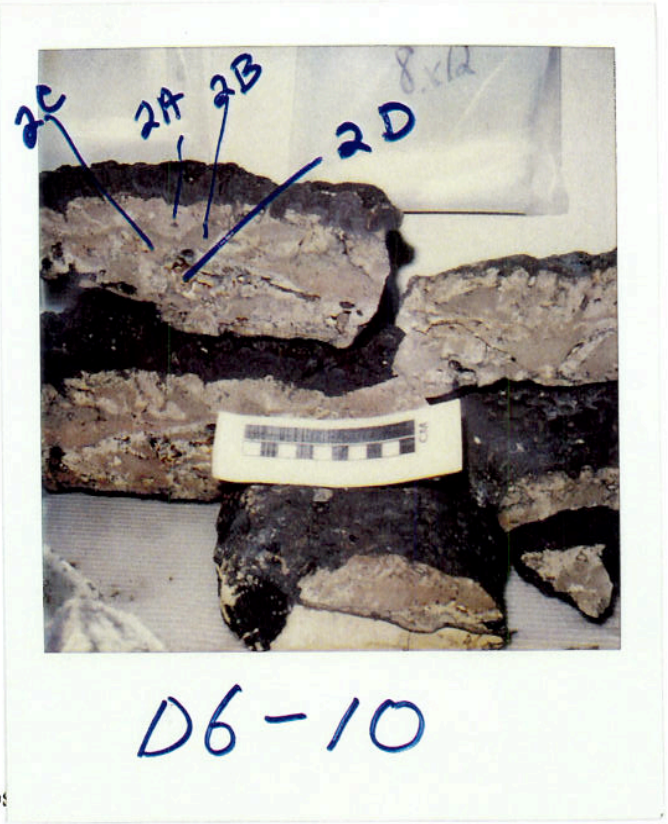
Surface Texture: Botryoidal to granular smoothed botryoidal

Mn Crust Thickness (mm):

Min: Patina Max: 25 Ave: 8
(on side and bottom)

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1	<1	25	8	Slightly porous
2				
3				
4				
5				
6				



Comments and XRD Mineralogy:

- Columnar growth structure of botryoids in thick-crust sample
- Pores filled with Fe-oxide

Subs

D6-10-1 Arch in water Crust

D6-10-2A XRD Pale Brown
2B XRD Dark Brown
2C XRD Red-brown
2D XRD Void fill

60% USGS
40% NORDT

Substrate Description

Rock Type: Bioturbated mudstone (brown color) - mottled brown

Description:

- Chaotically disturbed by burrowings
- Burrows are filled with lighter-colored sediments which are partially phosphatized.
- Walls of borings are coated by manganese. - peppered w/ Mn

Biology (?): Encrusting forams - abundant

Described by: Yeon

Subsampled by: HEIN

1 very small cobble w/ thick crust = D6-10-1

SAMPLE DESCRIPTION

4 large Cobbles

Cruise Id: F11-90-CP Size (cm): Varies ~21 x 16 x 17 cm Location: Yap B

Sample Id: D6-11 Weight (kg): 25 Kg Depth (m): 2050-1840

Mn Crust Description

Surface Texture: Smooth Patena weathered - missing in places

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D6-11

Comments and XRD Mineralogy:

Subs

D6-11-1 TS - Basalt K-Ar

D6-11-1 OC - Not w/ glass rind

D6-11-2 TS - Basalt - K-Ar

Substrate Description

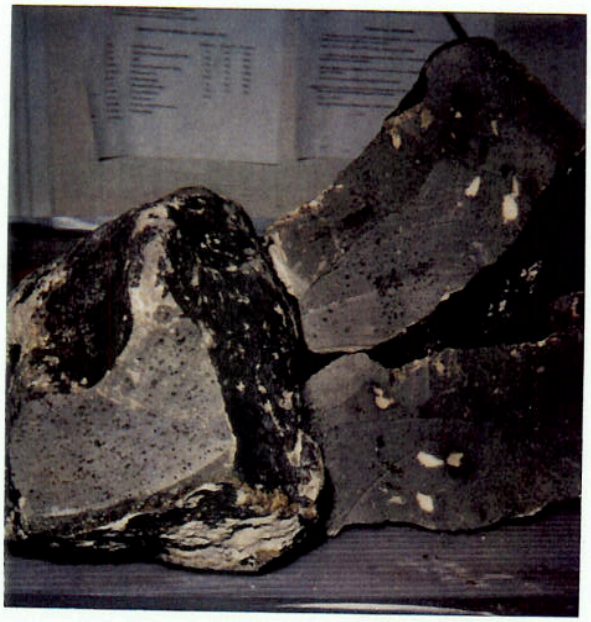
Rock Type: Vesicular Basalt with glass Rinds

Description: grey, vesicular - like in D6-7 except w/ glass rinds

Biology (?):

Described by: J.H

Subsampled by: JH



DC076

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): _____ Location: VAP B

Sample Id: D6-12 Weight (kg): 11 gm Depth (m): 2050-1840m

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				

No Pictures

Comments and XRD Mineralogy:

FORAM MUD

Substrate Description

Rock Type:

Description:

Biology (?): Foram OOZE
1 soft sponge in Alcohol

Described by: G.S.

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
D6-12	T-100		
D6-12	XRD		

Biology

Subsampled by: J.H