DREDGE 16

Yap 6 D16 Fais Trough

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D16-1									X	
3					X	X	X			
7					X	X	X			
8					X	2X	2X			
9					X	X	X			
10										
11										
12							5X	2X		
13							X	2X	X	
14										
15									X	

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): _____ Location: Fair Trough YAP G

Sample Id: D16-1 Weight (kg): 1 Depth (m): 1950-1385

Mn Crust Description

Surface Texture: N/A

NO PHOTO

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:

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
D16-1A	Paleo		

Substrate Description

Rock Type: White foram limestone

Description: Very fine grained - well consolidated mud with many borings

Biology (?):

Described by: JW

Subsampled by:

SAMPLE DESCRIPTION

one Boulder-size rock

Fais Trough

Cruise Id: F11-90-CP Size (cm): 35 X 26 X 23 Location: YAP G

Sample Id: D16-2 Weight (kg): 20.5 Depth (m): 1950 - 1385

D16-2

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness (mm):

Min: _____ Max: Patina Ave: _____

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1				Black, Red
2				IRON STAINED
3				
4				
5				
6				

Comments and XRD Mineralogy:

Subs

Substrate Description

Rock Type: Basalt

Grey to Black

Description: Thin altered outer layer on all exposed surfaces (including fractured surfaces). Very minor streaks of Fe staining fine grained vescular Basalt

Biology (?): encrusting forams on exposed surfaces

Alice

plag phyric

fresh - detable

If interested can cut large boulder on big saw - otherwise will sample D16-3

Now, which is smaller rock type (but same)

Described by: JW

Subsampled by:

All vesicules are small sized & are filled by a black material probably manganese oxide. Few deep fractures throughout the rock.

Minor unaltered small black vitreous areas are exposed in outer eyes

Rare radiating calcite growth on 1 side of Rock

Many small cobbles

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP
Sample Id: D16-3
Size (cm): 26 x 14 x 8.3 / 5.4 x 3.3 x 3
Weight (kg): 24.5
Location: YAP G
Depth (m): 1950-1385

Mn Crust Description

Surface Texture:
Smooth

Mn Crust Thickness (mm):

Min: Max: Patina Ave:

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1				Black,
2				Red or Yellow Fe stained
3				
4				
5				
6				

D16-3

Comments and XRD Mineralogy:

Subs

D16-3-1 OC, TS XRD Bulk RX (49gm)

Substrate Description

Rock Type: FRESH BASALT
Grey and Black
Clinky Basalt

Description: Fine grained basalt, main streaks of orange brown Fe staining, plag phyric (small), Small vesicles all filled w/ black mn oxide (?)

Fresh plag phyric
Doleritic rocks

30% HORDI
70% USGS

Biology (?): Encrusting forams

Described by: JW

Subsampled by:

2 different faces depending on cut - above is the horizontal cut (Gray color) vertical cut on sides appear as black

common microfractures - on or near surface usually filled by calcite. Very thin alteration layer & red or yellow-green iron staining - just exposed surfaces

Rare radiating calcite crystals on a surface

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): one Small boulder Location: YAD G

Sample Id: D16 - 4 Weight (kg): 24.8 Depth (m): 1950 - 1385

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness (mm):

Min: Max: Patina Ave:

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Patina		Black Yellow iron staining
2				
3				
4				
5				
6				

D16-~~3~~4

Comments and XRD Mineralogy:

Subs

30% HORD
70% USGS

Substrate Description

Rock Type: Basalt

Greenish black to black (Altered) - Brown

Altered

Description: Aphanitic Basalt, plag phyric small vesicles filled by Mn oxide (?), Alteration of outer layer of exposed surfaces from just surface to 1.5cm deep (Yellow & Red Fe stained)

Plag Phyric, fresh

Same as D16-2, 3

Datable - broken up - so can cut on small saw if needed

Biology (?): Encrusting forams

Described by: JW

Subsampled by: HEIN

- 2 different faces on rock
  1) Gray basalt w/ the black filled vesicles (horizontal face)
  2) Green or Greenish-black to black (side face or vertical face)

both plag phyric on black surface small, some calcite crystal on black surface from exposure -

SAMPLE DESCRIPTION

one small boulder

Cruise Id: F11-90-CP Size (cm): 28 x 18.5 x 17 Location: YAP G

Sample Id: D16-5 Weight (kg): 9.4 Depth (m): 1950 - 1385

Mn Crust Description

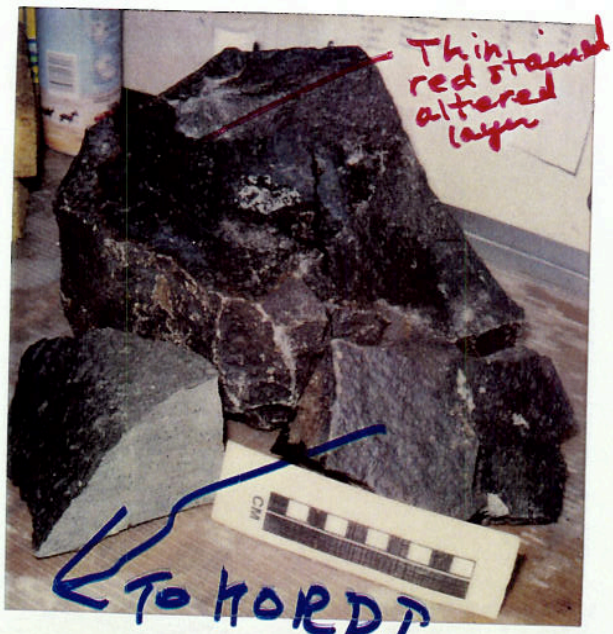
Surface Texture: Smooth

Mn Crust Thickness (mm):

Min: Max: Patina Ave:

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Patina		Black some red iron staining
2				
3				
4				
5				
6				



D16-5

Comments and XRD Mineralogy:

Subsamp

15% HORDI
85% USGS

Substrate Description

Rock Type: Basalt (Fresh)
Grey & Black
(same type as D16-2,3,4 ✓)

Description: Aphanitic Basalt
plag phyric, filled small
vesicles w/ black Mn oxide(?)
Thin altered surface layer
w/ red iron staining

broken into 3 pieces

Biology (?): encrusting foraams

Described by: JW

Subsampled by:

SAMPLE DESCRIPTION

one Boulder

Cruise Id: F11-90-CP Size (cm): 43 X 27 X 20 Location: YAF G

Sample Id: D16-6 Weight (kg): 18 Depth (m): 1950 - 1385

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness (mm):

Min:_____ Max: Patina Ave:_____

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Patina		Black, Red-Yellow
2				Fe staining
3				
4				
5				
6				

D16 - 6

Comments and XRD Mineralogy:

Subsamp

70% HORDI
30% USGS

Substrate Description

Rock Type: Basalt (Fresh)
Black + Grey
Same variety as D16-2,3,4,5

Description: Aphanitic Basalt plag phyric, all filled small vesicles + rim altered outer layer w/ iron staining yellow + red, few fractures in rock

Biology (?): encrusting forams

Described by:

JW

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 7 x 6 x 5 / 6 x 5 x 3.6 Location: YAP G

Sample Id: D16-7 Weight (kg): 1.8 Depth (m): 1950-1385

Mn Crust Description

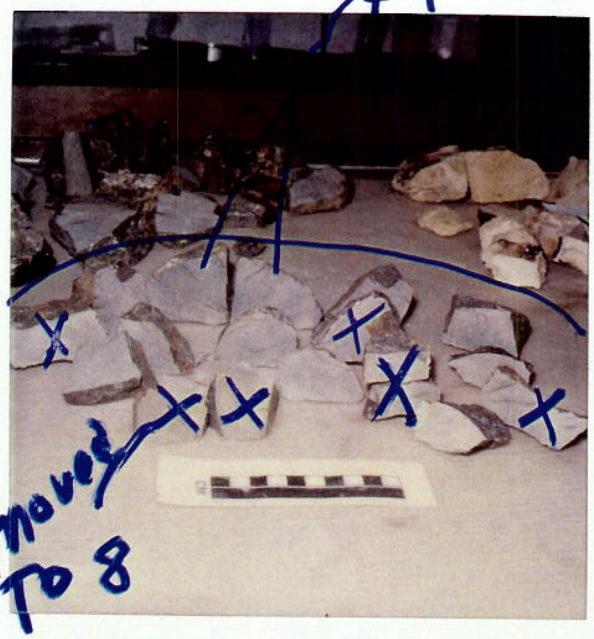
Surface Texture: Smooth

Mn Crust Thickness (mm):

Min:_____ Max: Potina Ave:_____

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Potina		Black Fe stained red
2				
3				
4				
5				
6				



D16-7

Comments and XRD Mineralogy:

Sub:

D16-7-1 OC, TS, Bulb
XRD (26 gm)

60% USGS
40% HORDI

Substrate Description

Rock Type: Basalt
Grey

Description: Aphanitic Basalt
plag phyric, minor
[illegible] of iron
staining, rare fractures iron
stained, some microvesicles?

Finer-grained & more altered
than D16-2-6
less plag phyric
brown alteration

Biology (?): Encrusting Gram

appear to be more than previous fresh breaks
D16-2-6 JW

Described by:

Subsampled by:

SAMPLE DESCRIPTION

many pebbles & cobbles

Cruise Id: F11-90-CP Size (cm): 14x12 x13 4x3x12 Location: KAP G

Sample Id: 16-8 Weight (kg): 17.7 Depth (m): 1950 - 1385

Mn Crust Description

Surface Texture: Smooth

Mn Crust Thickness (mm):

Min:_____ Max: Patina Ave:_____

Outer to Inner Layers (mm)

	Min	Max	Ave	Texture & Color
1		Patina		Black, Red Fe Stained
2				
3				
4				
5				
6				

calcite veins ⊥ to cooling surface

altered top layer

glassy rind & fracture

vesicles. Iron stain (fracture

Basalt Aphanitic Plag Phyric (fractures (different degrees of iron staining)

Comments and XRD Mineralogy:

Subs

D16-8 - 1A TS w/ outer Rind
1B TS inner part
1C XRD outer Rind
1B OC, XRD (75gm)

Substrate Description

Rock Type: Pillow Basalt: Glassy Black - Orange Brown to Grey

Description: 3 layers:

① Glassy Black Rind - Almost completely altered thin layer in surface, red iron staining, fractures, some fractures filled with calcite; few fractures usually extend down to 2nd or 3rd layer may have iron staining in vesicules or fractures

② In between light orange brown iron stained layer:

Much fresh Glass - Dove should look Through These

Biology (?): Encrusting Forams

Described by: JW Subsampled by: HEIN

vesicules, sometimes filled w/ calcite; may have few fractures from surface

③ Basalt: Aphanitic Basalt; may have minor vesicles near outer surface areas, plag phyric, some or minor Orange brown iron staining ranges from streaks or swirls to ring(s)

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 6 large [illegible] Location: YAP G

Sample Id: DIC0-9 Weight (kg): 5 Depth (m): 19.50-[illegible]

Mn Crust Description

Surface Texture: [illegible]

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

DIC0-9

Comments and XRD Mineralogy:

Subsa

D16-9-1 TS, OC Bulk RX
XRD
(66gm)

Substrate Description

Rock Type: [illegible]

Description: Coarse [illegible] with [illegible] + olivines [illegible] throughout [illegible] present [illegible] with calcite. Alteration is moderate to high

Coarser-grained than previous samples
50% KORDI
50% USGS

Biology (?):

Described by: [illegible]

Subsampled by: Ahn

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 7.5 x 5.8 x 2.9 Location: YAP G

Sample Id: D16-10 Weight (kg): 0.133 Depth (m): 1950 - 1385

Mn Crust Description

Surface Texture: Patina smooth

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D16-10

Comments and XRD Mineralogy:

Su

Substrate Description

Rock Type: Basalt

Coarse-grained

Description: Surface is covered with 1 to 10 mm of calcite. Thin Fe stained layer (altered?) between calcite + Basalt + along veins of calcite(?) Basalt is massive BLACK with few vesicles present

Biology (?):

Described by:

G.S.

Subsampled by:

Olivine

High percentage of glass (glassy surface on the [illegible]) Low percentage of [illegible].

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 7 cobbles to pebbles Location: VAP G

Sample Id: D16-11 Weight (kg): 2 Depth (m): 1950-1385

Mn Crust Description

Surface Texture: Patina smooth

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D16-11

Comments and XRD Mineralogy:

Subs

Substrate Description

Rock Type: Basalt Dense Pillowed Moderate alteration

Same as other rock types - especially D16-8 w/ glass except these all have calcite-filled vesicles

Description: Black, massive, aphanitic, with few vesicles present lined with calcite - one scoured greenish green! Low percentage of plagioclase present. several calcite veins present + also on surface of samples

Biology (?): relic worm tube

Described by: G.S.

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 50 x 12 x 10 ~10 x 12 x 6 Location: YAP G

Sample Id: D16-12 Weight (kg): 55 Depth (m): 1950 ~ 1385

Prev of Kordi

D16-12-1,2,3

~~D16-12-1~~

XRDS

35mm

D16-12 1,2,3,4 Zndholf 4 G.S. 35mm slid

D16-12-6 35mm slides

Mn Crust Description

Surface Texture: Granular, covers most surface exposed at the seafloor

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave: Patina

Outer to Inner Layers (mm)

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

D16-12

Comments and XRD Mineralogy:

Sub

35 mm slide D16-12-5 XRD Dark Brown Layer

D16-12-1 XRD sandstone

D16-12-2 XRD olive green Burrow fill

D16-12-3 XRD yellow Burrow fill

D16-12-4 XRD Dark green layer

pebbly mudst + pebbly SS Turbidites debris flows

These are the largest pieces left in tact

Thickest is 14 cm

35mm slide of largest piece D16-12-6

Substrate Description

Rock Type: Bedded mud- and sandstone (yellowis brown to greenish brown) volcaniclastic RxS.

Description: Non-calcareous sand layers and lenses are intercalated with bioturbated mud; sand layers are commonly graded (turbidite?) burrows are filled with calcareous sediments. good fissility along bedding plane

Biology (?): Encrusting forams

Described by: Yoon

Subsampled by: G.S.

+ D16-12-5

D16-12-5 DPTS J.W.

Redue 35mm slides mislabled 12-1.2.3.4.5 is Long + labled 12-5 watch it, friable!

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 37×27×14 (7 pieces) ~7×6×4 Location: YAP G

Sample Id: D16-13 Weight (kg): 25 Depth (m): 1950 ~ 1385

Mn Crust Description

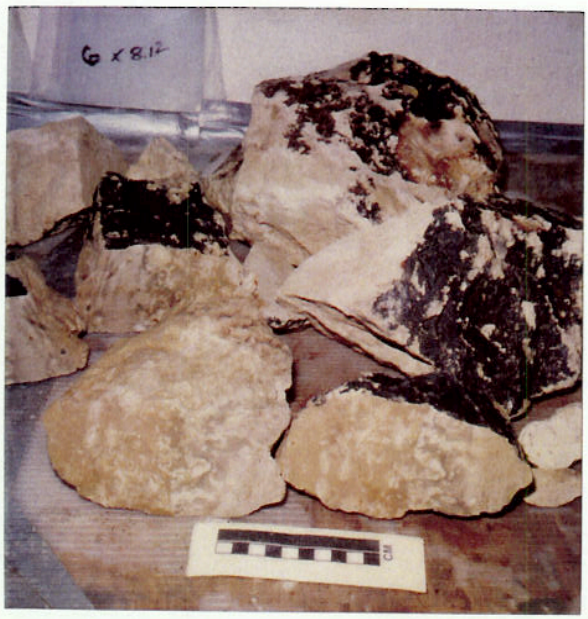
Surface Texture: Granular covers most of surface exposed at seafloor

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave: Patina

Outer to Inner Layers (mm)

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



D16-13

Comments and XRD Mineralogy:

Sul

D16-13-1 Polar
XRD

Substrate Description

Rock Type: Bioturbated limestone

Description: · yellowish brown
· intensely disturbed by burrows
· Some burrows are stained by Fe-oxide on the wall.

50% HORDS
50% USGS

Biology (?):

Described by: Yoon

Subsampled by: HEIN

SAMPLE DESCRIPTION

Cruise Id: F11-90-CP Size (cm): 14 x 10 x 6 ~ 4 x 5 x 3 Location: YAP G

Sample Id: D16 - 14 Weight (kg): 0.4 Depth (m): 1950 ~ 1325

D16-14

Mn Crust Description

Surface Texture: Granular

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave: Patina

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Subsa

50% HORDE
50% USGS

Substrate Description

Rock Type: Massive limestone with mud-clasts pebbly Lms

Description:

· yellowish brown limestone devoid of bioturbation - or completely bioturbated

· coarse-sand to granule-sized mud-clasts (non calcareous) are included

Biology (?):

Described by: Yoon

Subsampled by:

SAMPLE DESCRIPTION

Miscellaneous Cobbles

Cruise Id: F11-90-CP Size (cm): ~100 to pebbles Location: YADG

Sample Id: D16-15 Weight (kg): 30 Depth (m): 1950-1385

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

No photo

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
D16-15	PALEO		

Substrate Description

Limestone?

Rock Type: DARK TAN to Black altered foraminiferal siltstone

12 kg discarded
50% y rest to KORDI
50% To USGS

Description: Bioturbated (?) with some layering still present, lighter color - No bioturbation
Foram tests present
Calcitic, manganese present in flakes

Biology (?):

Described by: G.S.

Subsampled by: G.S.