SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 130x38x50 Location: RI

Sample Id: D3-16 Weight(kg): 0.5 kg Depth(m): 3180-3090

Mn Crust Description

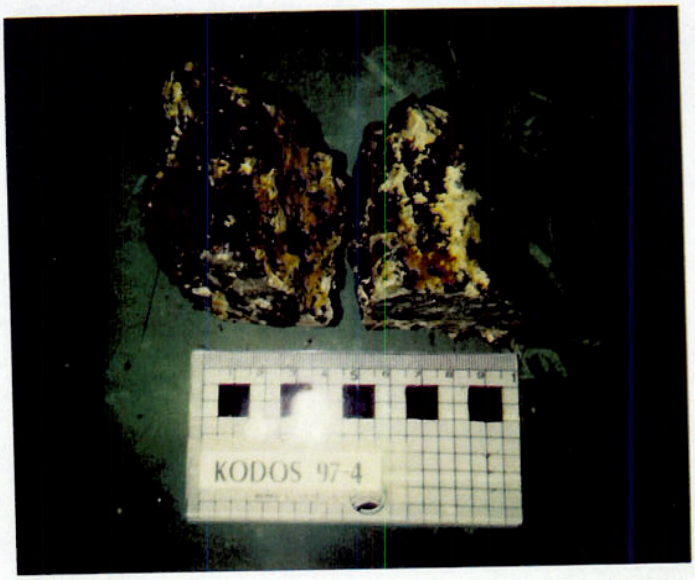
Surface Texture: Smooth Patina

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: Patina

Outer to Inner Layers(mm)

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



D3-16

Comments and XRD Mineralogy:

Substrate Description

RockType: Phosphorite

Description: Dense, heavy brown CFA w/ inclusions of dense pale brown CFA + lighter colored CFA inclusions.

Biology:

Described by: Hein

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

50% USGS
50% KORDI

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 9x4x5.5 Location: R1

Sample Id: D3-17 Weight(kg): 0.25 kg Depth(m): 3180-3090

Mn Crust Description

Surface Texture: granular patina

Mn Crust Thickness(mm):

Min: <1.0 Max: 1.5 Ave: 1.0

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)

All To HORDI

Substrate Description

RockType: Amygdaloidal basalt - altered

Description: basalt altered to clay vesicles 2mm to 10mm filled with zeolites, one corner covered with zeolite

ology:

Described by:
Susan Zielinski

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 **Size(cm):** 11x4x5 **Location:** R1

Sample Id: D3-18 **Weight(kg):** 0.35kg **Depth(m):** 3180-3090

Mn Crust Description

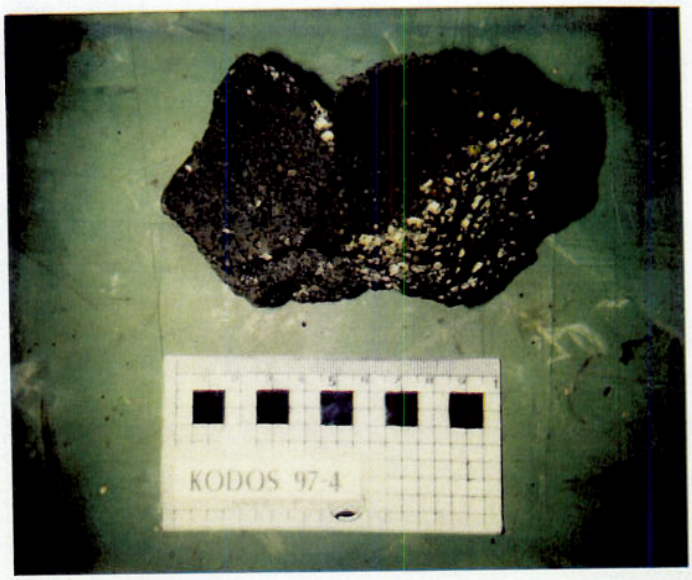
Surface Texture: /

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: _____

Outer to Inner Layers(mm)

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



D3-18

Comments and XRD Mineralogy:

Substrate Description

RockType: vesicular basalt

Description: reddish-brown to black vesicular basalt. Outer vesicles filled with CFA. Vesicles 1-6 mm

Mineralogy:

Described by: Susan Zielinski

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
½	KODOS		
½	USGS		

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 7.5x8x8 to 14x10x7.5 Location: R1

Sample Id: D3-19 Weight(kg): 3.0 kg Depth(m): 3180-3090

Mn Crust Description

Surface Texture: none

Mn Crust Thickness(mm):

Min: ✓ Max: ✓ Ave: ✓

Outer to Inner Layers(mm)

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

D3-19

Comments and XRD Mineralogy:

Substrate Description

RockType: highly altered vesicular basalt

Description: 4 pieces of basalt altered to clay minerals. Vesicles <1mm to 3mm, some filled with zeolite, some lined w/ calcite veins (minor) filled w/ CFA, some lined with calcite

ology:

Described by:
Susan Zielinski

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
D3-19-1A	for XRD & OC		89.75g

piece 1A & 2A taken by USGS the rest to KORDI

70% KORDI
30% USGS

Subsampled by:
Jim Hein

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 9x6x7 & 15x11x7 Location: R1

Sample Id: D3-20 Weight(kg): 4.5 kg Depth(m): 3180-3090

Mn Crust Description

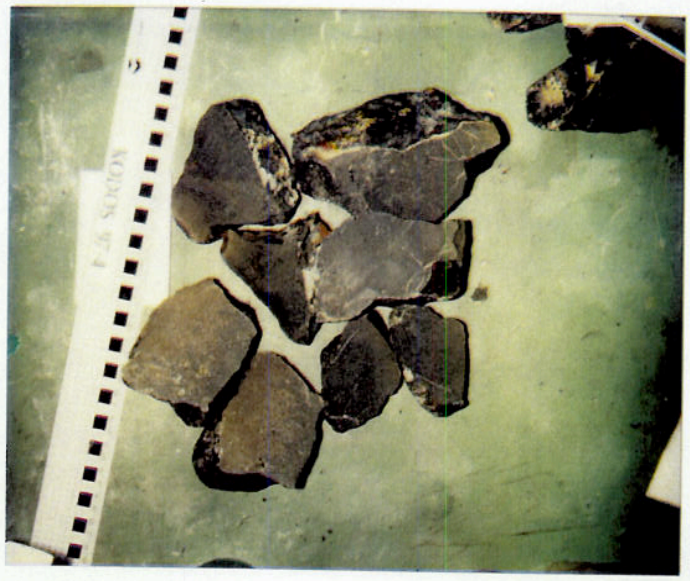
Surface Texture: —

Mn Crust Thickness(mm):

Min: — Max: — Ave: —

Outer to Inner Layers(mm)

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



D3 - 20

Comments and XRD Mineralogy:

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

All for PDI

Substrate Description

RockType: altered basalt

Description: 4 pieces of basalt
some CFA in veins of 2
small (<1mm to 2mm) vesicles
All are altered to clay minerals

ology:

escribed by:
Susan Zielinski

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): _____ Location: R1

Sample Id: D3-21 Weight(kg): 0.6+1.0=1.6kg Depth(m): 3180-3090

Mn Crust Description

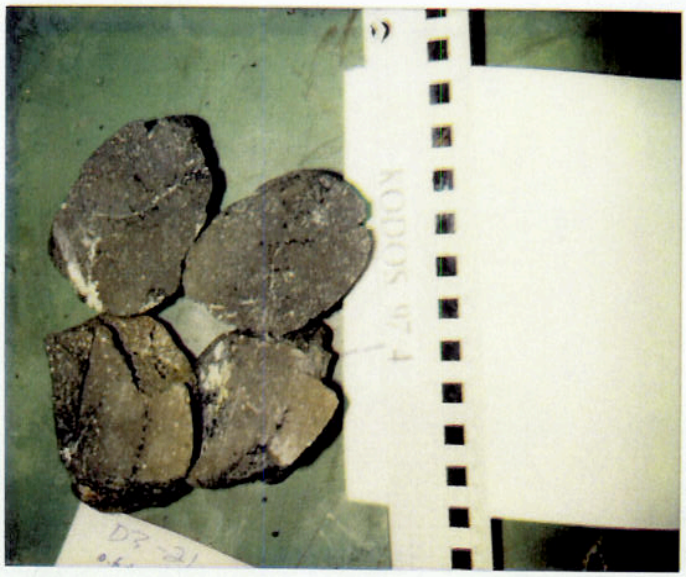
Surface Texture: lizard to partition

Mn Crust Thickness(mm):

Min: 0 Max: 0.5 Ave: 0.1

Outer to Inner Layers(mm)

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



D3-21

Comments and XRD Mineralogy:

single layer

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

ICORE 100 %

Substrate Description

RockType: light brown basalt with vesicles and fractures

Description:

Some vesicles are infilled with Mn-oxide, zeolite or clay

Mineralogy: a few doran at the surface of Mn-crust

Described by: KY Lee

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 8×12×2, 7×8×8, 8×13×14 Location: R1

mple Id: D3-22 Weight(kg): 1.2 + 0.6 + 2.0 = 4.0 kg Depth(m): 3180-3090

Mn Crust Description

Surface Texture: botryoidal to smooth

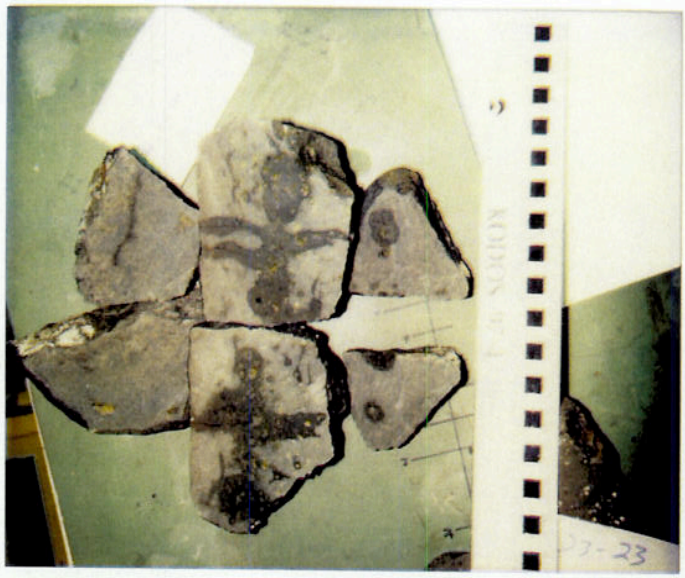
Mn Crust Thickness(mm):

Min: 0 Max: 3 Ave: 1

very thin (about 0 to 3mm)

Outer to Inner Layers(mm)

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



D3-22

Comments and XRD Mineralogy:

single layer

Subsample No.	Analysis	Layer Thick.	Wt.(g)
50%	USGS		
50%	KORBE		

Substrate Description

RockType: basalt, vesicular

Description:

some ~~vugs~~ vesicles infilled phospelite(?) or CFA(?)

logy: None

Described by: KT Lee

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 16 × 12 × 9 / 11 × 12 × 6.5 Location: R1

Sample Id: D3 - 23 Weight(kg): 1.9 + 1.5 = 3.4kg Depth(m): 3180 - 3090

Mn Crust Description

Surface Texture: smooth with 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:

patina

Substrate Description

RockType: dark brown basalt, vesicular

Description: vesicle infill with calcite

Mineralogy: none

Described by: KY Lee

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
	XRD	100%	

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 14 × 16 × 8 cm Location: R1

Sample Id: D3 - 24 Weight(kg): 1.8 kg Depth(m): 3180 - 3090

Mn Crust Description

Surface Texture: botryoidal to lizard

Mn Crust Thickness(mm):

Min: 0 Max: 1 Ave: 0.5 mm

very thin

Outer to Inner Layers(mm)

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

D3 - 24

Comments and XRD Mineralogy:

similar to portion

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
	KORPT 100%		

Substrate Description

RockType: dark brown basalt with small vesicles and fractures infilled with zeolite or CFA (?)

Description:

iogy: a few foram at the surface

Described by: KY LEE

Subsampled by:

SAMPLE DESCRIPTION

3 rocks: 7.5 cm², 8×10×4

Cruse Id: KODOS97-4 Size(cm): 15×10×10 Location: RA

Sample Id: D3-25 Weight(kg): 2.25 Depth(m): 3180-3090

Mn Crust Description

Surface Texture: granular to lizard skin

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: patina

Outer to Inner Layers(mm)

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

D3-25

Comments and XRD Mineralogy:

Local 2 cm² patch of MnO₂ patina on small rock only

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

½ to KORDI

½ to USGS

Substrate Description

RockType: Vesicular Basalt

Description: Aphanitic vesicular basalt. Light-brown groundmass contains common zeolite-filled vesicles. In 2 rocks, flow banding is reflected in subparallel orientation of 2mm (ave.) vesicles which in one rock grade from 2mm to 0.5 mm from one end of sample to other. 2 rocks also contain thin (ave. 3 mm) discontinuous surface coatings of cream-colored CFA? which supports disseminated palagonitic breccia fragments (<1 mm).

Lithology: ϕ

Described by: Laura B.

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 3 x [illegible] Location: [illegible]

Sample Id: D3-26 Weight(kg): 3 x [illegible] Depth(m): 3[illegible]

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				

Comments and XRD Mineralogy:

no Mn-crust

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

50% USGS

50% CORE

Substrate Description

RockType: large

phosphorite with dark brown basalt breccia and small altered light brown breccia

Description:

x dark brown basalt breccia with vesicle infilled with calcite zeolite & clay

x calcite infilling at contact between phosphorite & basalt breccia

logy:

None

Described by: KY Lee

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): 23½ x 10 x 10 Location: R1

Sample Id: D3-27 Weight(kg): 4.9kg Depth(m): 3190-3090

Mn Crust Description

Surface Texture: — no crust

vesicular basalt

Mn Crust Thickness(mm):

Min: — Max: — Ave: —

Outer to Inner Layers(mm)

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

D3-27

Comments and XRD Mineralogy:

no Mn-Crust

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

½ USGS

½ HOPDI

Substrate Description

RockType: Basalt

Description: Brown Basalt w/ CFA & Zeolites in vesicles & CFA in veins CFA surrounds sample - Was probably lg clast in breccia both ends completly altered to clay minerals

logy: NONE

Described by: Leanne Roberts

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): pebbles & minor cobbles Location: R 1

Sample Id: D3-28 Weight(kg): 29 Kg Depth(m): 3180 - 3090

Mn Crust Description

Surface Texture: no crust

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: _____

Outer to Inner Layers(mm)

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

D3 -28

27.3 kg

Comments and XRD Mineralogy:

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

All to Kordi

Substrate Description

RockType: Basalt. Light brown vesicular basalts with local surface coatings and vesical infill of phosphorite

Description: Bag of uncut pebbles and minor cobbles.

Biology: ∅

Described by: Laura B.

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): pebbles & cobbles Location: R1

Sample Id: D3-29 Weight(kg): 19 Kg Depth(m): 3180-3090

Mn Crust Description

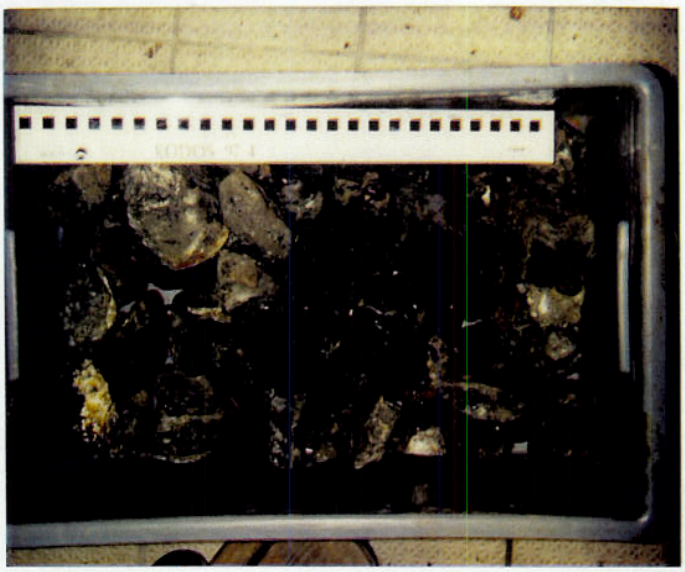
Surface Texture: no crust

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: _____

Outer to Inner Layers(mm)

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



D-3-29

21 kg

Comments and XRD Mineralogy:

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

All to Kordi

Substrate Description

RockType: Basalt

Description: Dark brown vesicular basalt with local surface coatings of Fe-Mn crust and phosphorite

Biology:

Described by: Laura B.

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): many pieces ave: 5 cm³ range 10×8×8 cm - 3×1.5×1.5 cm Location: R1

Sample Id: D3-30 Weight(kg): 3 Kg Depth(m): 3158 - 3090

Mn Crust Description

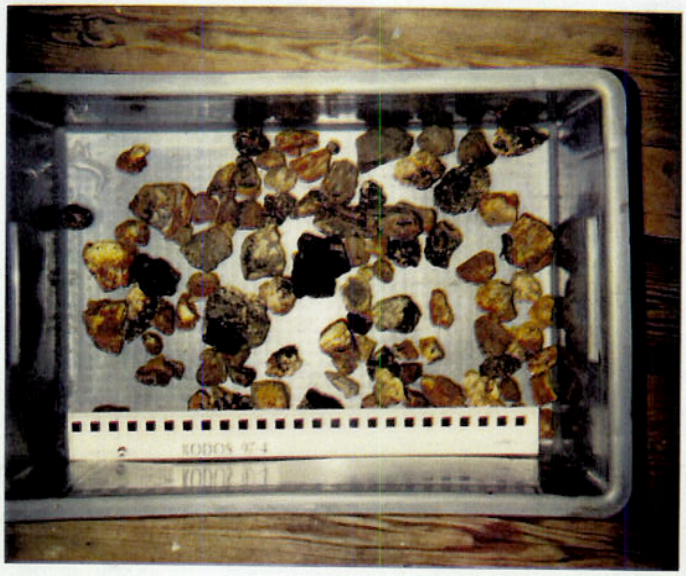
Surface Texture: no crust

Mn Crust Thickness(mm):

Min: _____ Max: _____ Ave: _____

Outer to Inner Layers(mm)

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



D3-30

4.1 kg

Comments and XRD Mineralogy:

Substrate Description

RockType:

Description: Misc. rock debris including basalt & vesicular basalt, etc

ology:

Described by: Laura B.

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

All to KORDI

Subsampled by:

SAMPLE DESCRIPTION

Cruse Id: KODOS97-4 Size(cm): pebbles & cobbles Location: R1

Sample Id: 3-31 Weight(kg): 2.3 kg Depth(m): 3180 - 3090

Mn Crust Description

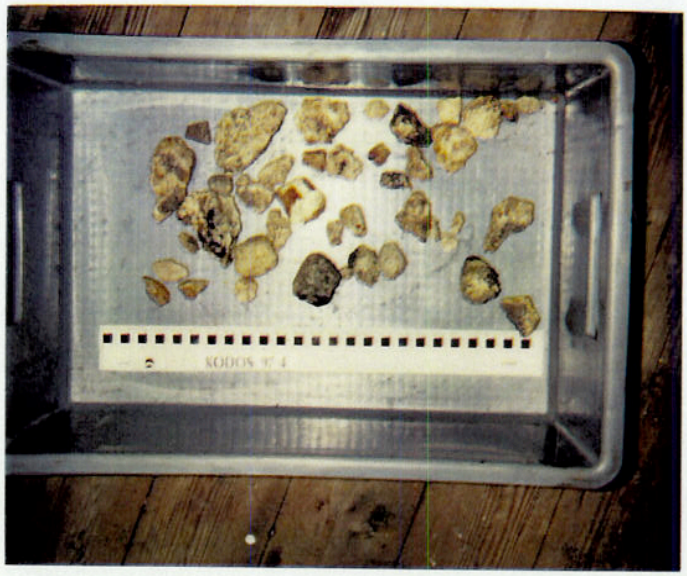
Surface Texture: grainy patina on a few

Mn Crust Thickness(mm):

Min: < 1 mm Max: < 1 mm Ave: < 1 mm

Outer to Inner Layers(mm)

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



D3-31

1.9 kg

Comments and XRD Mineralogy:

Analyses

Subsample No. Analysis Layer Thick. Wt.(g)

all to KORDI

Substrate Description

RockType: altered basalt (uncut)

Description: pebbles & cobbles of highly altered basalt

Biology:

Described by: Susie Zielinski

Subsampled by:

DREDGE OPERATIONS LOG

			JD	LOCAL
CRUISE	KODOS97-4	DATE	237	8 25 97
STATION	1	CHIEF SCIENTIST	MOON/LEE/HEIN	
DREDGE NO.	D3	TECH ON WATCH	KING	
DEPTH INTERVAL(m)	2480 – 3210			
Corrected Depth of Samples	3180 – 3090			

	ON STATION	DREDGE ON BOTTOM	DREDGE OFF BOTTOM	OFF STATION
time	0105	0205	0512	0608
lat	9° 31.58'	9°30.86'	9° 28.06'	9° 27.6'
lon	166° 05.53'	166° 04.66'	166° 03.47'	166° 03.4'
z	3346	3210	2480	2763

Site Description and Target: Recon of deeper water dredging

About 3000 m - 2500 m.

Operation*	GMT	Depth(m)	Wire Out(m)	Tension	HDG/SPD	Comments
dredge in H2O	0105	3346	0	0	150°/2.0	
on bottom	0205	3210			205°/1.0	9°30.86' / 166°04.66'
	0218	3160	3840		209°/0.9	3840 wire out
begin dredge	0220	3180	3854		209°/0.9	9°30.65' / 166° 04.42'
small bites	0229	3176	3889	2.6	207°/0.6	9°30.54' / 166°04.24
	0230	3166	3883	2.7~3	211°/0.9	9°30.53' / 166°04.22
Good bite.	0232	3188	11	3.1	211°/0.7	
11	0233	3113	3861	3 3.2 3.5 3.6	203/0.6	9°30.53' / 166°04.18
11	11	11	11	3.3 *		
11	0235	3114	3847	3 3.3	200/1.0	
11	0235	11	11	3.4 3.5 3.6		9°30.52 / 166.04.15
Big bite	0240	3080	3837	2.3 3.7 3.8	204/0.6	9°30.46' / 166°04.07
11	11	11	11	4	11	11
	0250	3014				

*on/off bottom, bites, etc.

Other Comments:

DREDGE OPERATIONS LOG

			JD	LOCAL
CRUISE	KODOS97-4	DATE	237	8 25 97
STATION	1	CHIEF SCIENTIST	MOON / LEE / HEIN	
DREDGE NO.	D3	TECH ON WATCH	HEIN	
DEPTH INTERVAL(m)				

ON STATION	DREDGE ON BOTTOM	DREDGE OFF BOTTOM	OFF STATION
	See Page 1		

Site Description and Target:

See Page 1.

Operation*	GMT	Depth(m)	Wire Out(m)	Tension	HDG/SPD	Comments
Small bites	0300	3060	3719	2.2	195 / 0.9	
"	0313	3094		"	150 / 2.0	
"	0317	3021		", 2.3	142 / 2.0	
"	0326	2880	3633	2.0, 2.1, 2.2		
"	0335	2814	3596	2.0, 1.8		
"	0340	2740	3563	2.1, 2.3	118 / 2.0	9°29 / 166°03.65
	0345	2660	3541	2.2, 1.9		
	0358	2580	3496	2.0, 1.9	115 / 1.6	
	0401	2574			12 / 1.5	
	0406	2613		2.0, 2.3	145 / 2.5	
	0410	2607		2.0, 1.8	90 / 2.6	
	0414	2467	3298	1.9, 2.0	70 / 2.3	
	0420	2440	3222	1.9, 2.1	90 / 1.8	
	0427	2411	3127		90 / 2.2	

*on/off bottom, bites, etc.

Other Comments:

DREDGE OPERATIONS LOG

CRUISE KODOS97-4

STATION 1

DREDGE NO. D3

DEPTH INTERVAL(m)

JD LOCAL

DATE 237 8.25.97

CHIEF SCIENTIST MOON / LEE / HEIN

TECH ON WATCH HEIN

ON STATION	DREDGE ON BOTTOM	DREDGE OFF BOTTOM	OFF STATION
	See Page 1		

Site Description and Target:

See Page 1

Operation*	GMT	Depth(m)	Wire Out(m)	Tension	HDG/SPD	Comments
	0430	2393	3096	1.9, 2.0	91 / 1.9	9°28.3 / 166°04.1W
	0437	2377	3027	1.9, 2.0	134 / 2.1	
off bottom	0515	2470		1.8, 1.9	184 / 0.7	9°28.06' / 166°03.87
off station	0608	2763	0		200 / 1.2	9°27.6 166°03.4E

*on/off bottom, bites, etc.

Other Comments: