DREDGE 34

SAMPLE ID	*Mn CHEM	Pt & Au*	REE *	Si Chem*	P.Sect.	35mm Pho	Archive	Paleo	XRD				
D34-1	✓			✓ Mnss.									
D34-2	✓			✓ Sandst.									
D34-3	✓							✓					
D34-4													
D34-5	✓	✓											
D34-6													
D34-7					✓								
D34-8	✓	✓	✓										
D34-9													
D34-10		✓						✓					

* All chemistry samples have XRD mineralogy done also.

DREDGES

CRUISE I.D.: F2-88-HW

DREDGE I.D.: D34

ROCKS RECOVERED: ~10 kg MnO_2-cemented bedded foram-rich sediment; vesicular basalt aphyr frags 0.5 kg

APPROXIMATE RECOVERED WEIGHT (KG): 10kg

% RECOVERY WITH CRUST:

NUMBER OF ROCKS SAVED: All

APPROXIMATE SAVED WEIGHT (KG): 10 kg

TIME/DEPTH/LOCATION NOTES:

S 2460m 20° 32.6' 155° 20.05'
E 2160m 32.7' 19.8'

GENERAL DESCRIPTION OF RECOVERY:

SAMPLING OBJECTIVES:

2000-m coral reef

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 7cm-longest (cm) Location: _____

Sample Id: D34-1 Weight: 2 (kg) Depth: 2460-2160 (m)

Mn Crust Description

Surface Texture: botryoidal smooth and granular

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

Layers (Outer to Inner)(mm):

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

F2-88-HW
D34-1

Approx To Hydrothermal Layer

Comments and XRD Mineralogy:
Various small pieces of Mn Sandstone w/ dense gray layer of hydrothermal Mn

(Stored in 2 bags; only 1 used)

Substrate Description

Rock Type: Mn Sandstone, fragmented

Description:

Biology ?:

ANAL

Subsample Number	Analysis	LayerThickness-Explanat
A	C.C.	Hydrothermal layer from various pieces
D34-1B	O.C.	Sandstones from sample 1A; homogenized for 1B

Described By: JSM Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 4.5x5x2.2 (cm) Location: _____

Sample Id: D34-2 Weight: <1 (kg) Depth: 2460-2460 (m)

Mn Crust Description

Surface Texture: microbotryoidal to smooth, Botryoidal on sides

Mn Crust Thickness (mm):
Min: 1 Max: 2mm Ave: 1mm

Layers (Outer to Inner)(mm):

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

F2-88-HW
D34-2

Comments and XRD Mineralogy:
This sandstone only sample of whole dredge that doesn't look totally Black

Substrate Description

Rock Type: Sandstone

Description:
well sorted, rounded to sub-angular sandstone w/ Fe & Mn (?) cement. Fine to Medium Grained

Biology ?: _____

ANAL

Subsample Number	Analysis	LayerThickness-Explanat
D34-2A	C.C.	Skinned Mn crust [illegible]
	5gm	[illegible] crust so [illegible]
		Clean. Hard to get enough [illegible]
D34-2B	O.C	Sandstone substrate
	7.6gm	

Described By: JSM Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 7.5 largest dimension (cm) Location: _____

Sample Id: D34-3 Weight: 2 (kg) Depth: 2460-2[illegible] (m)

Mn Crust Description

Surface Texture: porous to bathygida

Mn Crust Thickness (mm):

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

Layers (Outer to Inner)(mm):

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

F2-88-HW

D34-3

Comments and XRD Mineralogy:

several samples of foraminiferal sandstone

Substrate Description

Rock Type: foraminiferal sandstone

Description: Cemented by hydrothermal Mn, several pieces have very thin hydrogenous crust

Biology ?: encrusting forams

ANAL

Subsample Number	Analysis	LayerThickness-Explana
D34-3	CC-Paleo	3 pieces homogen for Chemistry

Described By: JSM Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 8 (largest dimension) (cm) Location: _____

Sample Id: D34-4 Weight: 2 (kg) Depth: 2460-2160 (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.				

D34-4
F2-88-HW

Comments and XRD Mineralogy:
These samples have dense layers of Mn gray, submettalic in each sample [illegible] Some have the suggestion of a hydrogenous crust.

ANAL

Subsample Number	Analysis	LayerThickness-Explar
2 pieces lamp[illegible]		[illegible]

Substrate Description

Rock Type: Foraminiferal sandstone w/ Mn cement

Foraminiferal sandstone w/ Mn cement

Description:
Fine to medium grained foraminiferal sandstone with hydrothermal Mn cement

Fine to medium grained forminiferal sandstone with hydrothermal Mn cement

Biology ?: encrusting forams.

Described By: JSM Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 11x4.5x4 11x7x3, 8.5x5.5x2 (cm) Location:

Sample Id: D34-5 Weight: 2 (kg) Depth: [illegible] (m)

Mn Crust Description

Surface Texture: Porous, gr[illegible] to [illegible]

Mn Crust Thickness (mm):
Min: <1mm Max: <1mm Ave: <1mm

Layers (Outer to Inner)(mm):

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

F2-88-HW
D34-5

Comments and XRD Mineralogy:
Pieces of hydrothermal Mn cementing foraminiferal sandstone.

Each sample has a dense Mn layer, submetallic, some have very thin hydrogenous crust. Dense layer on bottom of sample. Mn seems to have percolated up through sandstone.

Substrate Description

Rock Type: Mn Sandstone, Foraminiferal

Description:
Foraminiferal sandstone cemented by dense hydrothermal Mn, The sandstone is very porous & friable

Biology ?: encrusting forams

ANAL

Subsample Number	Analysis	LayerThickness-Explana
D34-5	CC, Pt, Au	[illegible] thick [illegible], layer from bottom of one piece.
	23gm	

Described By: JSM Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 16 x 11 x 5 (cm) Location:

Sample Id: D34-6 Weight: 2 (kg) Depth: 2460-2160 (m)

Mn Crust Description

Surface Texture: Microbotryoidal to irregular

Mn Crust Thickness (mm):

Min: 1mm Max: 2mm Ave: 1mm

Layers (Outer to Inner)(mm):

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

F2-88-HW
D34-6

Comments and XRD Mineralogy:

Dense layer of hydrothermal Mn, gray to camel gray colored. Dense Mn occurs on bottom of sample also, some elongate, rod shaped w/ very thin dark hydrogenous crust covering it.

Very Interesting Textures associated w/ the hydrothermal Mn

Substrate Description

Rock Type: Mn Sandstone, Fine grained sandstone with hydrothermal Mn cement

Description:

Above the dense hydrothermal layer, detrital sandstone; Below the layer of grain of coal sandstone.

Biology ?: encrusting [illegible]

ANAL

Subsample Number	Analysis	Layer Thickness-Explana

Described By: JSM Subsampled By:

F2-88-HW
D34-6

F2-88-HW
D34-6
same as above but upside down

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 13.5 x 9 x 2.5 14.5 x 10 x 3 (cm) Location:

Sample Id: D34-7 Weight: < 1 kg each (kg) Depth: 2460-2160 (m)

Mn Crust Description

Surface Texture: Rough, microbotryoidal

Mn Crust Thickness (mm):

Min: 1mm Max: 1.5mm Ave: 1mm

Layers (Outer to Inner)(mm):

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

F2-88-HW

D34-7

Comments and XRD Mineralogy:

Samples appear to have broken off along lower layer of dense hydrothermal Mn.

Dense Mn has some structure, ie vesicles and laminae

Substrate Description

Rock Type: Mn cemented Sandstone

Description:

Fine to medium grained Mn cemented sandstone w/dense hydrothermal layer at bottom of sample.

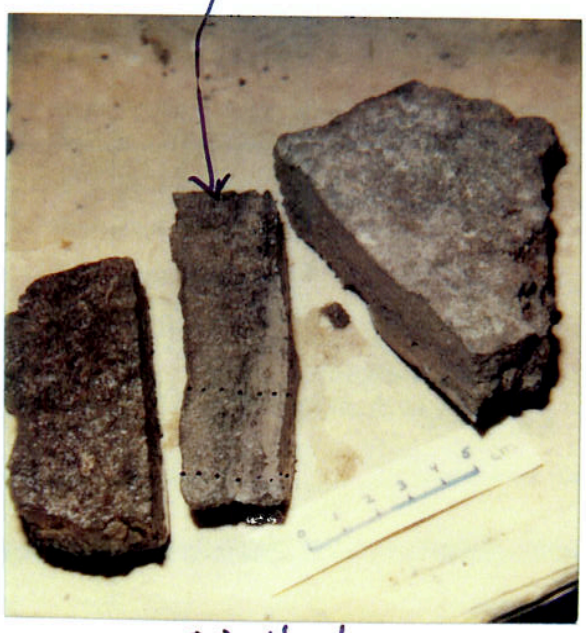
Very few foraminifera in lower part of sandstone

Biology ?: [illegible]

ANAL

Subsample Number	Analysis	LayerThickness-Explana
D34-7	OPTS	For textural study

Described By: JSM Subsampled By:



F2-88-HW

D34-7

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: (largest) 8×6.5×3.5 (cm) Location: _____

Sample Id: D34-8 Weight: <1 kg each (kg) Depth: 2460-2160 (m)

Mn Crust Description

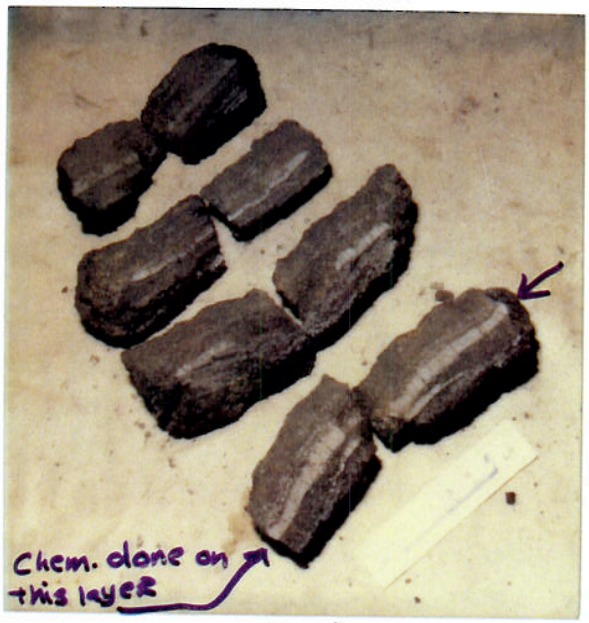
Surface Texture: Rough to microbrain [illegible]

Mn Crust Thickness (mm):

Min: 1mm Max: 1.5mm Ave: 1mm

Layers (Outer to Inner)(mm):

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



F2-88-HW

D34-8

Comments and XRD Mineralogy:

Various pieces of Mn sandstone with dense Mn layer (3 to 6 mm thick)

Powdery looking, very black Mn on bottom of some of these sooty looking

Substrate Description

Rock Type: Mn cemented Sandstone

Description:

Fine [illegible] mass below the dense Mn layer

Biology ?: encrusting Fo[illegible]

ANAL

Subsample Number	Analysis	LayerThickness-Explana
D34-8	Pt, Au, CC	Dense Hydrothermal Mn 20gm
D34-8	Ree	Dense Hydrothermal Mn 5gm

Described By: JSM Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: 11.5 x 10.5 x 4.2 (cm) Location: _____

11 x 9.5 x 4

Sample Id: D34-9 Weight: 1 kg/each (kg) Depth: 2460-2160 (m)

Mn Crust Description

Surface Texture: Rough to [illegible], microbotryoidal

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

Layers (Outer to Inner)(mm):

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

F2-88-HW

D34-9

Comments and XRD Mineralogy:

Patches of dense Mn, no good, well defined layer

The top of one sample has impression of hydrothermal layer on it

Bottom of both very granular, coated w/ black sooty looking Mn

Substrate Description

Rock Type: Sandstone w/ Mn [illegible] friable

Description:
Fine to medium grain sandstone w/ forams, cemented by hydrothermal Mn

Biology ?: encrusting forams

ANAL

Subsample Number	Analysis	LayerThickness-Explanat
D34-9	CC, Paleo	½ of one sample homogenized and split.

CC

Bulk

Rx

Described By: JSM Subsampled By: JSM

SAMPLE DESCRIPTION

Cruise Id: F2-88-HW Size: [illegible] 6.5x3x2.[illegible] Mn (cm) Location: _____

Sample Id: D34-10 Weight: <1 (kg) Depth: 2460-2160 (m)

Mn Crust Description

Surface Texture: _____

Mn Crust Thickness (mm):

Min: 1 Max: 2 Ave: 1

crust on sandstone sample only

Layers (Outer to Inner)(mm):

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

F2-88-HW

D34-10

Comments and XRD Mineralogy:

Two small samples one Mn Sandstone w/ dense layer (5mm thick) at the bottom of sample; one sample one dense hydrothermal Mn, some sand but it is 90% hydrothermal [illegible]

Substrate Description

Rock Type: Mn sandstone

Description:

Biology ?: Nyet

ANAL

Subsample Number	Analysis	LayerThickness-Explanat

Described By: JSM Subsampled By: