SAMPLE DESCRIPTION

Cruise Id: F10-89-CP   Size: 19 x 15 x 9 / 13 x 10 x 7.5 / 16 x 9 x 9 (cm)   Location: F Seamount

Sample Id: D18-10   Weight: 10 (kg)   Depth: 1925-180 (m)

Mn Crust Description

Surface Texture: botryoidal, porous to micro-botryoidal & porous

Mn Crust Thickness (mm):

Min: 11   Max: 60   Ave: 40

Layers (Outer to Inner)(mm):

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

D18-10

F10-89-CP

Comments and XRD Mineralogy:

Several pieces w/ very different types of crust: 1) has 2 distinct layers 2) very thick and very thin 3) 2 layers

ANALY

Subsample Number	Analysis	LayerThickness
½ TO HORDI		

Substrate Description

Rock Type: Breccia

poorly sorted, subangular to angular

Description:

Clast supported, some phosphate cement and in veins. Clasts vary from fresh to highly altered. Some Mn cement and some uncemented areas in a sandy matrix of same stuff.

Biology ?: encrusting forams

Described By: Jorie   Subsampled By:

SAMPLE DESCRIPTION

11 x 11 x 2

Cruise Id: F10-89-CP Size: 6x11.5x3 (cm) Location: F - Seamount

Sample Id: D18-11 Weight: 2 (kg) Depth: 1925-180 (m)

Mn Crust Description

Surface Texture: Current smooth botryoids, w/ microbots

Mn Crust Thickness (mm):
Min: 8 Max: 15 Ave: 13

Layers (Outer to Inner)(mm):

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

D18-11

F10-89-CP

Comments and XRD Mineralogy:
Dense black crust

Substrate Description

Rock Type: Altered vesicular hornblende-olivine phyric basalt in limestone + basalt
this layer of substrate

Description:

Biology ?: Encrusting Foram

ANAL

Subsample Number	Analysis	LayerThickness

½ TO 4 ORDI

Described By: Joe.e Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 26 x 16 x 12 (cm) Location: Seamount F

Sample Id: D18-12 Weight: 2.5 (kg) Depth: 1925-1870 (m)

Mn Crust Description

Surface Texture: botryoidal / polished by current

Mn Crust Thickness (mm):
Min: 5 Max: 15 Ave: 10

Layers (Outer to Inner)(mm):

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

F10-89-CP
D18-12

Comments and XRD Mineralogy:

massive and dense / hard black and metallic luster

ANALYS

Subsample Number Analysis LayerThickness

TO HORDI

Substrate Description

Rock Type: limestone w/ phosphorite filling in burrow holes

Description: various size burrow holes present and some holes filled by phosphorite. Mn dendrite present in whole rocks

Biology ?: encrusting foram.

Described By: Joris

Subsampled By:

SAMPLE DESCRIPTION

5 pebbles + cobbles

Cruise Id: F10-89-CP Size: up to 7 (cm) Location: F Seamount

Sample Id: D18-13 Weight: < 1 kg (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: botryoidal to smooth w/ microbots. Fragmented

Mn Crust Thickness (mm):

Min: 3 Max: 20 Ave: 10

Layers (Outer to Inner)(mm):

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

No Photo

Comments and XRD Mineralogy:

Twists on these pieces vary from dense to porous; layering is not apparent on any of them.

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type: Massive to slightly vesicular, hornblende and olivine phyric basalt - Altered

Description: small pieces (cobbles) of basalt probably parts of volcaniclastic breccias from this same dredge

Biology ?:

Described By: Josie

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: up to 11 cm (cm) Location: E SEAMOUNT

Sample Id: D18-14 Weight: 8 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: botryoidal

Mn Crust Thickness (mm):
Min: 10 Max: 20 Ave: 15

Layers (Outer to Inner)(mm):

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

D18-14

F10-89-CP

Comments and XRD Mineralogy:
Dense crusts, For the most part these crusts are all very similar

Substrate Description

Rock Type: vesicular hornblende, olivine, and rarely plagioclase-phyric, very altered basalt (assorted pieces)

Description:
olivine, groundmass highly altered, hornblende still fresh (hand-picked), some glassy and friable, with phosphate, and green muds, fractures in filled w/ foram mud.

Biology ?: encrusting Forams

ANAL

Subsample Number	Analysis	LayerThickness
D18-14-1	Malcolm has for substrate ts only	

also, Malcolm handpicked ~5g HBL for dating. Eventually, may want some substrate for a better (complete) mineral separate

about 30%-40% of substrate given to Staudigel + some crusts - for Ar-Ar dating + isotopes

Described By: Joris & Malcolm

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: R10-89-CP Size: 15x11x8 (cm) Location: Seamount F

Sample Id: D18-15 Weight: 0.5 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: irregular w/ granular in side (crust probably removed

Mn Crust Thickness (mm):
Min: <1 Max: ? Ave: <1
almost layers cut off

Layers (Outer to Inner)(mm):

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

No pictures (photo)

Comments and XRD Mineralogy:
brown to dark brown color w/ Fe stains.
layers seems to be cut off.

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type: foram limestone

Description: burrow holes fill with phosphorite and sometimes fill with thin crust. abundant Mn dendrite in upper part and less in lower part

Biology ?: None

Described By: KAN 6 Subsampled By:

SAMPLE DESCRIPTION

about 50 pieces

Cruise Id: F10-89-CP Size: up to 14.5 (cm) Location: F Seamount

Sample Id: D18-16 Weight: 10 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: dominantly botryoidal, some current polished and fluted; a few porous, microbots in most

Mn Crust Thickness (mm):
Min: 2 Max: 23 Ave: 12

Layers (Outer to Inner)(mm):

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

No photo
many pieces
similar to D18-1
D18-2
D18-3

Comments and XRD Mineralogy:
Dorso Black Crusts,

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type: foraminiferal limestones, burrowed and w/ dissolution vugs

Description: some burrows infilled w/ phosphate; Mn and Fe stainings

½ TO HORDI

Biology ?: encrusting forams

Described By: JOR Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Small pebbles ≈ 200 pieces To small Cobbles (cm) Location: F Seamount Compl

Sample Id: D18-17 Weight: 12 kg total (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: Botryoidal (Tops)
Dense-massive lower layers
Granular sides, some smooth + fluted + polished

Mn Crust Thickness (mm):
Min: 5 Max: 40 Ave: 20

Layers (Outer to Inner)(mm):

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

NO Photo

Comments and XRD Mineralogy:

≈ 200 Crust fragments, top, lower, side pieces, mostly complete

Substrate Description

Rock Type: NONE

Description:

Biology ?:

ANALYSES

Subsample Number	Analysis	LayerThickness
2 to HORDI		
some pieces scraped + put in w/ D18-18		

Described By: [illegible]

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Cobble (cm) Location: F Seamount Couple

Sample Id: D18-18 Weight: 15 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: Botryoidal, some granular

Mn Crust Thickness (mm):

Min: 25 Max: 50 Ave: 40

Layers (Outer to Inner)(mm):

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

NO Photo

Comments and XRD Mineralogy:

large, mostly complete crust fragments

Some w/ phosphorite

Substrate Description

Rock Type: NONE

Description:

Biology ?:

ANALYSES

Subsample Number	Analysis	Layer Thickness	
D18-18-	CC	≤ 0.5 mm	5.5gm
		Scraped	
		Surface	

Some pieces scraped

½ to HARDE

Described By:

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Pebbles To Cobbles (cm) Location: F Seamount Complex

Sample Id: D18-19 Weight: 12 Kg (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: Granular Petina on Some

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

No Photo

Comments and XRD Mineralogy:

~150 Lms fragments

Substrate Description

Rock Type: Limestone

Description: [illegible] + White-gray Pethal [illegible] Gray foram Lms.

Biology ?: Borings, Encrusting Forams

ANALYSES

Subsample Number	Analysis	LayerThickness

½ To HORDI

Several Pieces To Sy Schlanger

Described By: [illegible]

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Pebbles-Small Cobbles (cm) Location: F Seamount Complex

Sample Id: D18-20 Weight: 1.5 kg (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: NONE

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

No Photo

Comments and XRD Mineralogy:

ANALYSES

Subsample Number	Analysis	LayerThickness
D18-20-1	OC	Bulb (49gm)
" " "	TS	

1 piece to Sy Schlanger

Substrate Description

Rock Type: Pebbly Sandstone + Pebbly granulestone

Description: Volcanic basalt pebbles in [illegible] composed of 1. basalt 2. [illegible] 3. hornblende [illegible] in calcite cement

Biology ?: some pieces nearly [illegible] limestone

Described By: HEIN

Subsampled By: HEIN

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Pebbles + Cobbles (cm) Location: F Seamount Complex

Sample Id: D18-21 Weight: 5 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: Granular; rarely botryoidal or smooth

Mn Crust Thickness (mm):
Min: 0 Max: 20 Ave: 10

Layers (Outer to Inner)(mm):

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

no photos

Comments and XRD Mineralogy:

ANALYSES

Subsample Number	Analysis	LayerThickness

½ to KORDI

Substrate Description

Rock Type: Breccia + pebbly Sandstone

Description: Not as much shell debris or Calcite [illegible] as in D18-20 Sand to small pebble-sized basalt clasts + hornblende crystals in fine-grained matrix + calcite cement; Many hornblende [illegible]

Biology ?:

Described By: HEIN

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 2-8 cm (cm) Location: F Seamount Complex

Sample Id: D18-22 Weight: ~2 kg (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: NONE

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

F10-89-CP
DREDGE 18-22

Comments and XRD Mineralogy:

ANAL

Subsample Number	Analysis	Layer Thickness
All to MSPringle		
numbered D18-22-1 → 17		
for thin section, dating if possible		
Rock Taken Ar-Ar Isotope Studies		

Substrate Description

Rock Type: Assorted aphric & hornblende, plagioclase, pyroxene (?), and altered to olivine basalts

Description:

Biology ?:

Described By: Malcolm

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Pebbles (cm) Location: F Seamount Complex

Sample Id: D18-23 Weight: <1 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: NONE

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

NO Photo

Comments and XRD Mineralogy:

Pumice Pebbles

pale to dark gray

ANALYSES

Subsample Number	Analysis	LayerThickness

Substrate Description

Rock Type:

Description:

Biology ?:

Described By: HEIN

Subsampled By:

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: Pebble (cm) Location: F Seamount Complex

Sample Id: D18-24 Weight: <1 (kg) Depth: 1925-1800 (m)

Mn Crust Description

Surface Texture: NONE

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Layers (Outer to Inner)(mm):

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

Comments and XRD Mineralogy:

Siliceous sponge fragments + worm-like thing

Substrate Description

Rock Type:

Description:

Biology ?: Siliceous sponge, worm

ANALYSES

Subsample Number	Analysis	LayerThickness

Described By: HEIN

Subsampled By: