Dredge 27

USGS DREDGE LOG

SHIP/LEG FM-89-CP

STATION # 45

DREDGE # D27

DEPTH INTERVAL(m) 1670-1570

DEPTH(m)corrected 1670-1570

DATE JD 274 LOCAL 2 Oct 89

TIME GMT 2321-0113 LOCAL 10

LATITUDE 7°31.36'N TO 7°31.4'N

LONGITUDE 169°38.85'E TO 169°40.73'E

TOTAL WEIGHT: DREDGE 15 CRUST 10

PERCENTAGE OF ROCK COVERED BY CRUST 100

PERCENT BROKEN FROM: OUTCROP 100 TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 70 MINIMUM 10 AVERAGE 50

DOMINANT SURFACE TEXTURE Botryoidal

SUBSTRATE LITHOLOGY , breccia

NODULES PRESENT NONE

REMARKS: 1 small boulder w/ breccia substrate, several cobbles + some pebbles, mostly of crust fragments

Brittle stars + branching Coral

(H)

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	REE	OC	DPTS/TS	XRD	35mm Ph	Archive	Paleo
D27-1									½ To NORDI	
D27-2	✓	✓*	✓	✓✓			✓		" " "	
D27-3		✓ Scrape.							½ " "	
D27-4									" " "	
D27-5					✓				" " "	
D27-6									" " "	
D27-7	Biology									

USGS DREDGE LOG

Depth Interval 1670-1570

Julian Date 274

Cruise I.D. FID-89-CP

Local Date (m/d/y) 10/2/89

Station No. 45

Chief Scientist HEIN/KANG

Dredge No. 27

Tech on Watch O'TOOLE

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	2250	2321	0113	0145
LATITUDE	07 32.08N	7°31.36N	07 31.4 N	07°31.32N
LONGITUDE	169 41.07E	169°39.85E	169 40.73E	169°40.40E
WATER DEPTH	1740	1670	1570	1640

Site Description and Target :

	OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
252	ON BOTTOM	2321	1670	1795	—	.030/2.8	
	PAYING OUT	2321	"	"			SCOPE OUT
800	Scope out	2331	1590	2200	—	120/2.1	scope out
1629	BITE	2354	1495	"	4.5T	153/2.3	
	Bite	0000	1495	"	2.0 3.8 2.2		
	Bite	0005	1460	"	2.3, 2.3, 2.4		
	Hung	0006	1455	"	5.6, 4.7		Broke off at 4.7
	Hung	0010	1445	"	5.0, 5.5		Backing down
	Fell off	0027	1495	1885			fell off
2299 = farthest	Heading up line	0032	1490	1875			
	Bite	0034	1480	"	4.1		
23:34 1570m	Hung up	0037	1470	"	max 5.8		Slipped off after 2 min
	Another bite	0039			2.6		
	Bite	0041	1465	"	3.2, 3.9		
	Hung	0042	1460	"	5.6, 6.0		Backing down at 0045
	Off Bottom	0113	1570	1585			Slid off
	~~[illegible]~~	0140	1640				on deck

*on/off bottom, bites, etc.

OTHER COMMENTS:

Rhorhonov - may be off

1377

SAMPLE DESCRIPTION

Cruise Id: F10-89-CP Size: 36 x 24 x 15 (cm) Location: H Seamount

Sample Id: D27-1 Weight: 12 kg (kg) Depth: 1670-1570 (m)

Mn Crust Description
Surface Texture: Botryoidal

Mn Crust Thickness (mm):
Min: 60 Max: 70 Ave: 65

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.	22	30	25	finely Porous - Massive
2.	35	43	40	Black, massive, dense
3.				
4.				
5.				
6.				

D27-1 ; F10-89-CP

Comments and XRD Mineralogy:
Some phosph. filled vugs at the layer boundary

ANALYS

Subsample Number	Analysis	Layer Thickness

1/3 TO HORIZ

Substrate Description
Rock Type: Breccia

Description:
strongly altered brown, vesicular basalt pebbles in a yellow-brown matrix of altered glassy volcanogenic debris and phosph. cement + veins
large basalt pebbles in places; large (cm) phosp. filled vugs.

Biology ?: Encrusting Foram s

Described By: HEIN

Subsampled By:

SAMPLE DESCRIPTION

12 Cobbles + Large pebbles

Cruise Id: F10-89-CP Size: Cobbles + pebbles (cm) Location: H Seamount

Sample Id: D27-2 Weight: 5 (kg) Depth: 1670-1570 (m) *None Left

Mn Crust Description

Surface Texture: Subdued botryoidal to irregular to granular

Mn Crust Thickness (mm):

Min: 35 Max: 67 Ave: 60

Layers (Outer to Inner)(mm):

Min	Max	Ave	Texture & Color
1.			Same 2 layers
2.			as in #2
3.	lower Massive layer has a slightly more		
4.	porous upper half		
5.			
6.			

* None left

D27-2; F10-89-CP

Comments and XRD Mineralogy:

Large - Thick Crust Fragments w/ out substrate, but probably nearly complete

Substrate Description

Rock Type: NONE

Description:

Biology ?:

ANALYS

Subsample Number	Analysis	Layer Thickness
D27-2-1	CC, Au, Pt, REE; Bulk: 0-63 mm (13gm)	(>210 gm)
D27-2-2A	CC, REE; Layer 1: 0-25 (9gm)	(65 gm)
D27-2-2B	Layer 2: 25-45 mm (10gm)	(57 gm)
D27-2-2C	Layer 3: 45-65 mm (9gm)	(42 gm)

Trace of Substrate Removed from bottom of each

D27-2-3 XRD Silvery stuff on Bottom of Crust - Save enough for chem -

1 May 98: Sent a pce to Alex Halliday in Michigan

1/3 to KORDI -

Described By: HEIN

Subsampled By: HEIN

SAMPLE DESCRIPTION

4) Cobbles

4×4×2.5 (smallest)

Cruise Id: F10-89-CP Size: 13×11×2.5 (largest) (cm) Location: H Seamount

Sample Id: D27-3 Weight: ~2 kg (kg) Depth: 1670-1720 (m)

Mn Crust Description

Surface Texture: Botryoidal (<2mm) to granular - older part of crust were probably removed

Mn Crust Thickness (mm):
Min: 14 Max: 32 Ave: 23

Layers (Outer to Inner)(mm):

	Min	Max	Ave	Texture & Color
1.	9	20	14	Porous / filled with iron oxide
2.	lower cut	part off	15	Massive and dense
3.				
4.				
5.				
6.				

Comments and XRD Mineralogy:
- Some samples are devoid of older Mn crust and show only layer 2 (porous layer)

ANALYS D27-3; F10-89-CP

Subsample Number: D27-3 Analysis: CC Layer Thickness: 0-2 0.5mm

Serrated surface
6 pieces
(5.59gm)

Substrate Description
Rock Type: Absent

Description:

Biology ?: Encrusting forams

1/2 to HORDI

Described By: Yvon Subsampled By:

SAMPLE DESCRIPTION

≥50 pebbles

Cruise Id: F10-89-CP Size: various size fragments of Mn crust (cm) Location: H Seamount

Sample Id: D27-4 Weight: ~1 kg (kg) Depth: 1820-1830 (m)

Mn Crust Description

Surface Texture: Botryoidal to granular
- Most samples are devoid either of younger or older part of crust

Mn Crust Thickness (mm):
Min: _____ Max: 32 Ave: _____

Layers (Outer to Inner)(mm):

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

D27-4 ; F10-89-CP

Comments and XRD Mineralogy:
- Massive or porous
- Tiny pores filled with iron oxide

≥50 incomplete crust fragments

ANALYS

Subsample Number	Analysis	Layer Thickness

Substrate Description

Rock Type: Absent

Description:

½ to HORDE

Biology ?: Foraminifera

Described By: Joan Subsampled By:

SAMPLE DESCRIPTION

2 8 large pebbles 9×7×3 (largest)

Cruise Id: F10-89-CP Size: ~2.5×2×1.5 (small) (cm) Location: H Seamount

Sample Id: D27-5 Weight: <1 kg (kg) Depth: 1670-1570 (m)

Mn Crust Description

Surface Texture: Botryoidal to granular
- Old parts of some sample have been probably removed → relatively smooth surface

Mn Crust Thickness (mm):
Min: <1 Max: 30 Ave: 15

Layers (Outer to Inner)(mm):

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

NO PLATE

Comments and XRD Mineralogy:
- Massive and partially porous
- Tiny pores filled with iron oxide

ANALYSES

Subsample Number	Analysis	LayerThickness
D27-5-1	OC	Bulk Typical Substrate (13 gm)
		½ TO XRDI

Substrate Description

Rock Type: Breccia

Description:
- Altered basalt clasts (brown to grey) cemented by phosphorite
- Some cracks or pores filled with calcite crystals – Large Pocket of phosphorite in one sample

Biology ?: Foram Easy to remove

Described By: Yann Subsampled By:

SAMPLE DESCRIPTION

~ 6 small cobbles

Cruise Id: F10-89-CP Size: ~11.5 x 4 x 4 cm (cm) Location: H Seamount

Sample Id: D27-6 Weight: > 1 kg (kg) Depth: 1670-1720 (m)

D27-6; F10-89-CP

Mn Crust Description

Surface Texture: Botryoidal to granular

Mn Crust Thickness (mm):
Min: 17 Max: 40 Ave: 25

Layers (Outer to Inner)(mm):

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

Comments and XRD Mineralogy:
- Fragments of Mn crust
- Massive and slightly porous texture
- Some pores filled with iron oxide

ANALYS

Subsample Number	Analysis	Layer Thickness

Substrate Description

Rock Type: Absent

Description:

½ TO HORDI

Biology ?: Encrusting forams & ?

Described By: Yesa

Subsampled By: