Dredge 9

USGS DREDGE LOG

SHIP/LEG F7-91-WP

STATION # 15

DREDGE # 9

DATE JD 204 LOCAL 7/23/91

TIME GMT 0200-0528 LOCAL 1200-1531

DEPTH INTERVAL(m) 2250-2070

DEPTH(m)corrected 2250-2100

LATITUDE 9°30.17 TO 9°30.28

LONGITUDE 138°17.65 TO 138°17.39

TOTAL WEIGHT: DREDGE 14 CRUST <1

PERCENTAGE OF ROCK COVERED BY CRUST 80% patina

PERCENT BROKEN FROM: OUTCROP 75 TALUS 25

THICKNESS OF MN CRUST: MAXIMUM 2 MINIMUM <1 AVERAGE <1

DOMINANT SURFACE TEXTURE smooth to granular

SUBSTRATE LITHOLOGY (1) 70% greenschist
(2) 27% Marble
(3) 3% Limestone
(4) <1% pumice

NODULES PRESENT 0

REMARKS: Cobbles + pebbly

USGS DREDGE LOG

Depth Interval 2250-2070 Julian Date 204

Cruise I.D. F7-91-WP Local Date (m/d/y) July 23, 1991

Station No. 15 Chief Scientist Heinster / Ahnireeno

Dredge No. D9 Tech on Watch John / Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	0100	0200	0528	0614
LATITUDE	09° 30.2	9°30.17	9° 30.28'	9° 30.28'
LONGITUDE	138° 17.6	138°17.65	138° 17.39'	138° 17.25'
WATER DEPTH	2210	2250	2070	2019

Site Description and Target : Yap Island; West of Island 2200 meters and up slope from Here. (Diagonally across slope)

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
In Water	0116	2210	—	—	—	—
On bottom	0200	2250	? Didn't tell us			cutting out scope
Scope is out	0212		2800m			taking up slack
possibly a reading	0252	1995		up to 2.5		N1000 m ALO
tension increasing	0316	1888		up to 3T		1400 ALO where I expected to start dredging
Bite	0325	1775		4.5T		
pulls	0413	1843	2815m	7T		Paided wire to decrease tension
Pulling in wire	0419	1875				wire out ship tension very low
						wind + current = work against us!
Bite	0425	1880	2750	4.5T		
Hung up	0427	1880	2733	7T		only one angle possible with the wind.
"	0431	1890	2700	6.8		
"	0431	1870	26960	7.3		Holding for better wire angle
"	0438	1905	2654	over 7.5		Backing down
"	0442	1919	—	~7T		
"	0447	1950	2550	high 6's		
holding	0449	1955	2539	7.5		
"	0453	1990	2712	7.5		

*on/off bottom, bites, etc.

OTHER COMMENTS: Had a lot of trouble with cross current winds and current. Difficult maneuvering the ship.

1667
2250 | 2800

7840000
2625000
2=7-7500

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Running ST 11	0456		2501	7.75		Backing down
taking "	0503	2020	2452	7.5		"
"	0509	2030?	2439	7.64		
Broke OFF	0515		2413	7.5		
Break	0515	2050	–	3.8		
Pulling in WIRE	0519	2050	2350	~2T		weight on brake wait turn it might be off bottom.
OFF BOTTOM	0528	2060	2060			
Dredge on deck	0610					

*on/off bottom, bites, etc.

OTHER COMMENTS:

Waiting for slack + then pulling in.

D9

SE YAP ISLAND

ICP minors

Dredge Sample Summary Sheet

Sample ID	~~Bulk CC~~	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D9-1										
D9-2							X		X	
D9-3										
D9-4										
D9-5										
D9-6										
D9-7						X	X			
D9-8										
D9-9										
D9-10						X	X			
D9-11	2		2 X		2 X	X	2X			
D9-12										
D9-13	X		X		X	X	X			

SAMPLE DESCRIPTION

SE. side of Yap Island

Cruise Id: F7-91-WP Size (cm): ~2 pebbles Location: [redacted]

Sample Id: D9-1 Weight (kg): ~0.3kg Depth (m): 2250-2100

Mn Crust Description

Surface Texture: Patina eroded

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

No photo

Comments and XRD Mineralogy:

Rock Type: Bioclithite + (coral) fragments — mostly framework corals

Description: Misc. Pebbles
Moldic porosity
w/ Fe-Mn lining porespaces.

Biology (?): —

Described by: A. S.

Analyses

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

Subsampled by:

SAMPLE DESCRIPTION

E. Yap Island

Cruise Id: EW-91-WP Size (cm): 3.1 x 3.2 x 8 Location: [redacted]-91-CP

Sample Id: D9-2 Weight (kg): 0.088 Kg Depth (m): 2250 - 2100

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				

D9-2

Comments and XRD Mineralogy:

Subsample N

D9-2 - Polar XRD

Substrate Description

Rock Type: foraminiferal Limestone

Description: massive, yellowish white, boring lined with Fe-Mn ?

Biology (?): None

Described by: LS

Subsampled by: HEIN

SAMPLE DESCRIPTION

8.0 x 2.3 x 2

E. side of Yap Island

Cruise Id: F7-91-WP Size (cm): 5.5 x 6.6 x 7.3 Location: [redacted]

Sample Id: D9-3 Weight (kg): 0.05kg Depth (m): 2250-2100

Mn Crust Description

Surface Texture: Patina - eroded

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

No Photo

Comments and XRD Mineralogy:

Substrate Description

Rock Type: Pumice

Description: Brownish Grey, Vesicular, sub Rounded.

Biology (?): —

Described by: AS.

Analyses

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

Subsampled by:

D9-4

SAMPLE DESCRIPTION

SE. side of Yap Island

Cruise Id: F7-91-WP Size (cm): 3 pebble ~2 x 3.5 x ↓ largest Location: [redacted]

Sample Id: D9-5 Weight (kg): 0.2 Depth (m): 2250 - 2100

Mn Crust Description

Surface Texture: Smooth, eroded patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-5

Comments and XRD Mineralogy:

Su

Substrate Description

Rock Type: Quartz-Epidote-Plagioclase vein rock

Description: subtle gneissic layering, forest green

1-2mm layer of green light epidote

Biology (?): — encrusting forams

Described by: [illegible]

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: EW-91-WP Size (cm): 5.8 x 3.5 x 3.8 Location: [redacted]

Sample Id: D9-6 Weight (kg): 1 Depth (m): 2250 - 2100

Mn Crust Description

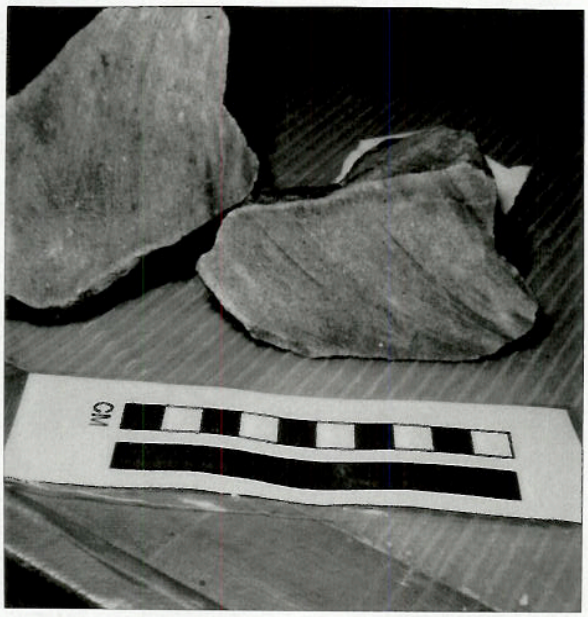
Surface Texture: eroded - Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D9-6

Comments and XRD Mineralogy:

Sub

50% 40R 1/1

Substrate Description

Rock Type: Marble

massive, medium-grained -

Description: smoky grey marble with occational 1-2mm white bryozoan of Marble with the white layer there is a reddish brown stain.

Biology (?): encrusting foram

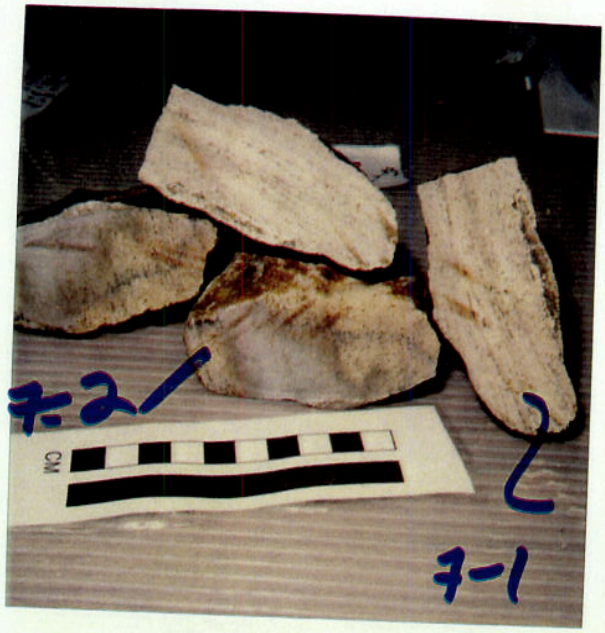
Described by:

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 18 x 9 x 3 / 11 x 8.5 x 3 Location: [redacted] SE. Yap Island

Sample Id: D9-7 Weight (kg): ~1.2 kg Depth (m): 2250-2100



D9-7

Mn Crust Description

Surface Texture: Smooth patina patchy

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:

Substrate Description

Rock Type: Marble with fossil Ghosts on 1 piece

Description: 50% of sample retains coral cell structure. Previous coated cell walls is layered now with alternating dirty yellow + grey calcite

Fe-Mn that

- marble is brownish grey with small veins of reddish brown

~~Biology (?):~~ Moldic Porosity present

D9-7-1 TS bedded Marble

XRD

7-2 has fossil Ghosts

50% KORDI

Described by: G.S.

Subsampled by: HEIN

SAMPLE DESCRIPTION

Cruise Id: FT-91-WP Size (cm): 5 x 2.5 x 2 Location: S.E Yap Island V2-91-CP

Sample Id: D9-8 Weight (kg): 0.44 Depth (m): 2250 - 2105

Mn Crust Description

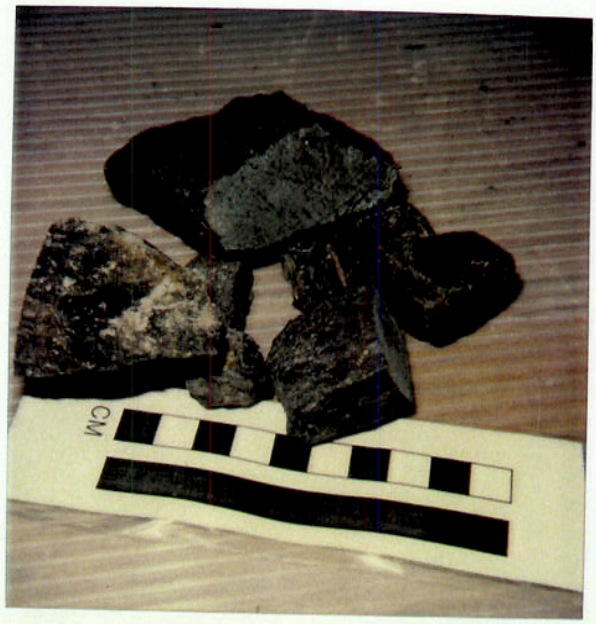
Surface Texture: Smooth, patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D 9-8

Comments and XRD Mineralogy:

Sub

Substrate Description

Rock Type: amphibolite ? + Greenschist (basalt ?)

60% HORDP
40% USGS

Description: Forest green, crystalline massive plagioclase, Amphibole ?, on one piece small fractured ? white vein.

Biology (?): Encrusting foram

Described by: DS.

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 7 x 4 x 4.5 Location: S.E Yap Island ~~V2-91-CP~~

Sample Id: D9-9 Weight (kg): 0.23 Depth (m): 2250-2100

Mn Crust Description

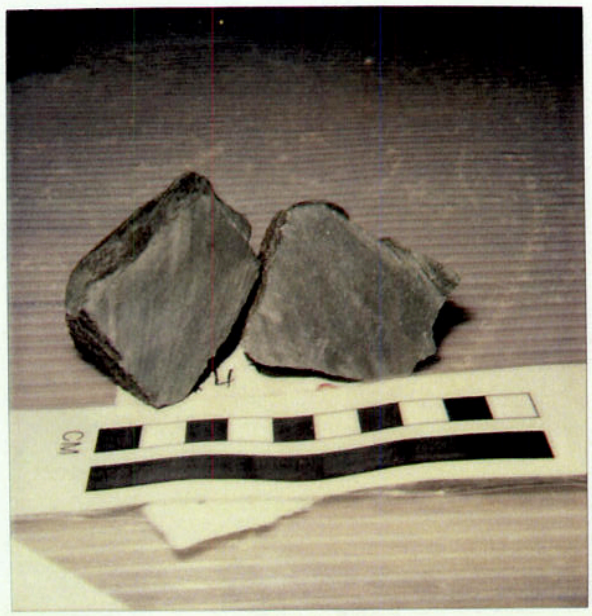
Surface Texture: eroded Pating

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D9-9

Comments and XRD Mineralogy:

Sub

Substrate Description

Rock Type: green schist (basalt)

40% KORDI
60% USGS

Description: grey, forest green amphiboles?
highly schistose with Plagioclase, mica,
small folds
>1 mm white cross cutting to foliation
Vein - includes silver - ~~metallic sulfide~~ ? ← mica

~~Biology (?):~~ —

Described by: [signature]

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): (L) 12 x 8 x 3 ~15 pebbles (M) 8.5 x 8 x 3 (S) 10 x 5 x 4 Location: S.E Yup Island ~~V2-91-CP~~

Sample Id: D9-10 Weight (kg): ~2 kg Depth (m): 2250-2100

Mn Crust Description

Surface Texture: Patchy eroded

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-10

Comments and XRD Mineralogy:

Sub

D9-10-1 TS
XRD

Substrate Description

Rock Type: green Schist
misc pebbles
→ Basalt & Sed. Rxs originally ←

Description: strongly to minor schistous ty (sp?)
varying degrees
~ altered to chlorite ? talc
silvery inclusions along - mica
fractures, veins + layers

50% USGS
50% TORDI

Biology (?):
several w/ folds

Described by: A.S

Subsampled by: G.S.

Encrusting forams.

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): ~21x15x9 Location: SE of Yap I. [redacted]

Sample Id: D9-11 Weight (kg): 2.5 kg Depth (m): 2250 - 2100

Greener Than Photo

Inclusion

D9-11

Mn Crust Description

Surface Texture: Smooth to granular Patchy

Mn Crust Thickness (mm):

Min: <1 Max: 1 Ave: <1

Outer to Inner Layers (mm)

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

Comments and XRD Mineralogy:

Subsample No

70% USGS
30% TORDI

Substrate Description

Rock Type: Greenschist (Diabase?) massive, uniform

Description: medium-grained, green-grey, Plag-Px?-Amph?-Mica; w/ inclusion of Fe-oxide, other metals (native?, Sulfides?), mica, maybe an hydraulic fracture breccia

~~Biology (?)~~: mica along fracture surfaces (Chlorite, + Epidote?)

Some Fe oxide? grains

V. magnetic

D9-11	DPTS	Host + Inclusion
D9-11A	XRD	Host
D9-11A	OC-ICP-An	Host - 60 gm
D9-11B	XRD	Inclusion
D9-11B	OC-ICP-An	Inclusion - 14.5 gm

Described by: HEIN

Subsampled by: HEIN

SAMPLE DESCRIPTION

10 pebbles L = 11 x 6 x 3.5 M = 7 x 5 x 4 S = 6 x 4 x 3

S.E. Yap Island

Cruise Id: F7-91-WP Size (cm): Location: ~~V2-91-CP~~

Sample Id: D9-12 Weight (kg): ~1.5 kg Depth (m): 2250-2100

D9-12

Mn Crust Description

Surface Texture: Smooth Patina, eroded on sharpe corners

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:

Subsa

Substrate Description

Rock Type: Marble

Description: Varying color + appearance ~ gneissic layering, patchy, white, smokey grey, green, one piece at the top had greenshist then alternating epidote/marble layers. Some alternating coarse + medium-grained

Biology (?): encrusting forams

Described by: [signature]

Subsampled by:

SAMPLE DESCRIPTION

SE Yap Island

Cruise Id: FT-91-WP Size (cm): 7 x 5 x 4 Location: V2-91-CP [redacted]

Sample Id: D9-13 Weight (kg): 0,22 Depth (m): 2250-2100

Mn Crust Description

Surface Texture: Patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-13

Comments and XRD Mineralogy:

Su

D9-13 OC, ICP, Au -66 gm

XRD

TS

Substrate Description

Rock Type: Amphibolite

Description: schistose, with dark + evergreen mineral = are Banded with micas ~5% >1mm sized white mineral dispersed throughout. Some silvery inclusions

Biology (?): encrusting forams

Described by: S

Subsampled by: Hein +

S. E. Yap Island

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 15x11x6 Location: [redacted]

Sample Id: D9-14 Weight (kg): ~2kg Depth (m): 2250-2100

Mn Crust Description

Surface Texture: Patchy, Patchy

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D9-14

Comments and XRD Mineralogy:

Su

50% USGS
50% KORDI

Substrate Description

Rock Type: Greenschist (Basalt)

Description: strongly shistose with beds of silver inclusions - mica fracture is light yellow - (Biotite?)

Biotite, Plag, Qtz?, Chlorite

vein: biotite, phlogopite, Qtz?, Plag? + white mica

Biology (?): encrusting forams

Described by: M.S.

Subsampled by: