Dredge 3

USGS DREDGE LOG

SHIP/LEG F7-91-WP

STATION # 3

DREDGE # 3

DEPTH INTERVAL(m) 2740-1860

DEPTH(m)corrected 2400-1900

DATE JD 199/200 LOCAL 7/18-7/19/91

TIME GMT 199/1955-200/0159 LOCAL 0200-555am 1200pm

LATITUDE 09°13.60' TO 9°14.96'

LONGITUDE 141°58.89' TO 14°59.50'

TOTAL WEIGHT: DREDGE 130 CRUST <5

PERCENTAGE OF ROCK COVERED BY CRUST 75% patina

PERCENT BROKEN FROM: OUTCROP 75 TALUS 25

THICKNESS OF MN CRUST: MAXIMUM 4 MINIMUM <1 AVERAGE <1

DOMINANT SURFACE TEXTURE granular, smooth patina

SUBSTRATE LITHOLOGY

1. 75% basalt
2. 20% yellow-brown siltstone
3. 5% white soft chalk

NODULES PRESENT 0

REMARKS: boulder to cobble size angular blocks of basalt; bedded to massive siltst.

USGS DREDGE LOG

Depth Interval 2200 - 1860

Julian Date 199 / 200

Cruise I.D. F7-91-WP

Local Date (m/d/y) July 19, 1991

Station No. 3

Chief Scientist Hein/Ahn

Dredge No. 3

Tech on Watch John / Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	1952	2340	0154 ~~0154~~	0234
LATITUDE	09° 12.26'	09° 13.60'	9°14.96 ~~09° 13.6~~	9° 15.64
LONGITUDE	141° 58.23'	141° 58.89'	141° ~~59~~.50	141° 59.76
WATER DEPTH	2780	2740	1860	1900

Site Description and Target : Graben on Caroline Ridge, dredge upslope from sed. rocks

Corrected Z = 2400 - 1900

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
In Water	1955	2780	—	—	—	—
Wire Out	2305	2745	1000m	—	—	—
(?) On Bottom	2340	2745	2420	—	—	moving slowly while letting out sc
Scope Out	2350	2740	3400	—	—	Speeding up to 1+ knots
	0005		3400			dredge tension up looks like its pul
Holding Position	0021	1895	3400			pulling in wire.
	0038	1880	3100	1.9 - 2.1		" " "
	0100	1865	2490	7.2		Hung Up going back wards
Bite	0108	1870	24~~00~~62			Broke Off, Holding Wire
Bite	0110	1880	24~~00~~62	6.6		
Bite	0113	1870	2462 ~~2462~~	2.5		
Bite	0115	1860	~~2462~~ 2462	5.5		
Bite	0120	1860	2462	3.9		
Bite	0125	1860	2462	3.9		
Bite	0128	1860	2462	5.6		
Bite	0130	1860	2462	3.9		
Bite	0134	1860	2400	5.5		Holding Position Pulling Wire In
Bite	0138	1860	2303	3.2, 3.2		

*on/off bottom, bites, etc.

OTHER COMMENTS:

D3

Fais Trough

Dredge Sample Summary Sheet

Sample ID	Bulk CC	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D3-1									X	
D3-2							X		X	
D3-3						X	X			
D3-4A, 4B						X X	X X			glass sample
D3-6						X	X			
D3-7a							X			glass
D3-7B						X	X			
D3-8					X	X	X			
D3-10					X	X	X			
D3-11						X	X			
D3-13						X	X			
D3-14						X	X			
D3-27-1							X		X	
27-2							X		X	
27-3					X		X		X	
27-4						X	X			

SAMPLE DESCRIPTION

Fars Trough
Graben on Caroline Ridge

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

Sample Id: D3-1 Weight (kg): ~0.100 Kg Depth (m): 2400-1900

Mn Crust Description

Surface Texture:

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

No PHoto

Outer to Inner Layers (mm)

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

NONE

Comments and XRD Mineralogy:

Substrate Description

Rock Type: Egg shell white mud - covered Basalts
Nanno - Foram ooze

Description:

Biology (?):

Analyses

Subsample No.	Analysis	Layer Thick.	Wt.(g)
D3-1	Paleo	- whole sample of U.S.G.S in Rose B. 20 minutes after on board	
1/2	U.S.G.S	- Rose Bentayol	
1/2	KORDI		

Described by: G.S

Subsampled by: G.S

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 3 Cobbles & 20-30 pebbles Location: Fair Trough V2-91-CP

Sample Id: D3-2 Weight (kg): 7 Depth (m): 2400 - 1900

Mn Crust Description

Surface Texture: Patina on Boring Surfaces

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D3 - 2

Comments and XRD Mineralogy:

Subsamp

D3-2 Paleo Sample Taken from
XRD interior of Rx

Substrate Description

Rock Type: Chalk

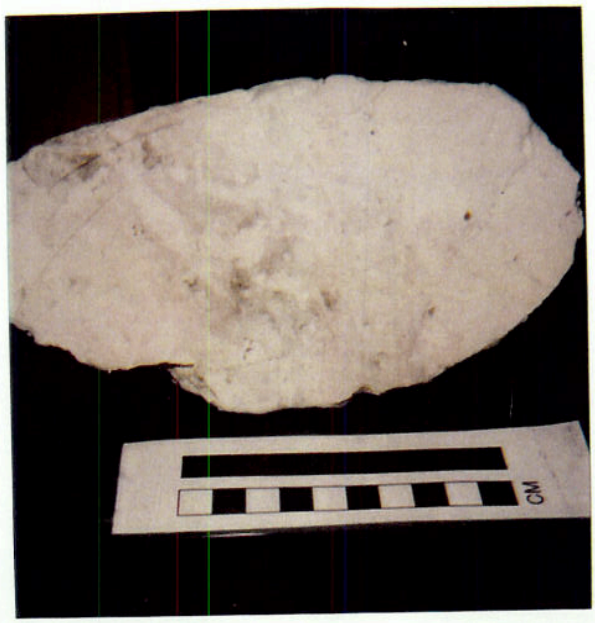
½ FGRDF
½ USGS

Description: Strongly bioturbated white to gray (dirty white) nannofossil-foram Chalky Poorly consolidated Strongly reacts w/ acid

Biology (?):

Described by: HEIN

Subsampled by: HEIN



D3-2

SAMPLE DESCRIPTION

Cruise Id: FR-91-WR Size (cm): [illegible] Location: ~~V2-91~~ CP

Sample Id: D3-3 Weight (kg): 14 kg Depth (m): 2400 - 1900

Mn Crust Description

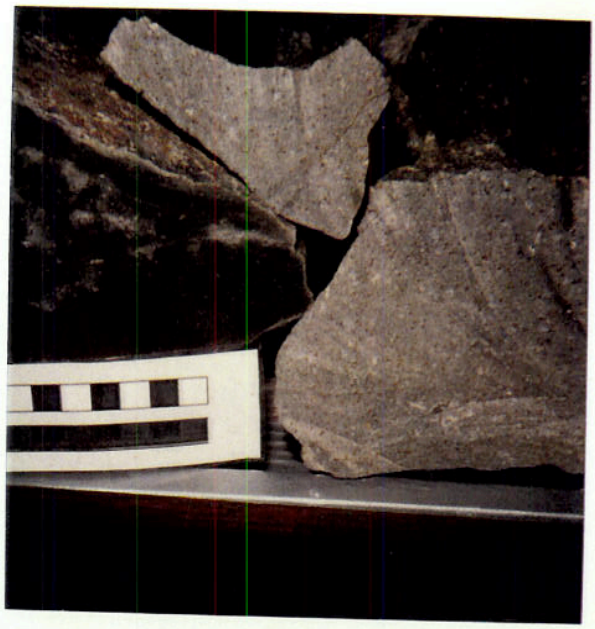
Surface Texture: [illegible]

Mn Crust Thickness (mm):

Min:_____ Max: [illegible] Ave:_____

Outer to Inner Layers (mm)

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



D3-3 cut Piece

Comments and XRD Mineralogy:

Su

D3-3 (2) TS XRD
1 HORD1
1 USGS

Substrate Description

Rock Type: [illegible] slightly to mod. altered Basalt

90% USGS
10% HORD1

Description: fine grained crystaline mass with 1-5mm plag. phenocrysts
Vesicles filled with black material
Alteration along fractures - Red

Biology (?): None

Described by: [illegible]

Subsampled by: HEIN

cut piece
not shown
on other
polaroid

D3·3
Whole Rock

Fair Trough
N. Cardinal Ridge [illegible]

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 17x27x30 Location: [redacted]
Sample Id: D3-4 Weight (kg): 16 Kg Depth (m): 2400-1900

Mn Crust Description

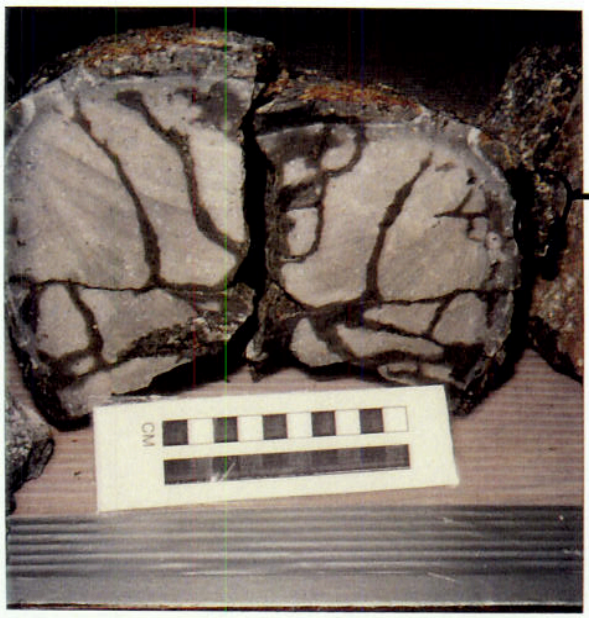
Surface Texture: Patina - eroded

Mn Crust Thickness (mm):

Min:_____ Max: Patina Ave:_____

Outer to Inner Layers (mm)

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



D3-

D3-4 Cut Piece

Comments and XRD Mineralogy:

Subs

D3-4A glass rind Davis Hand Carried
DPTS XRD

D3-4B (2) TS - basalt XRD
KORDI
USGS

98% USGS
2% KORDI

Substrate Description

Rock Type: Pillow Basalt

Description: 10mm altered glass rind
Dark Grey aphanetic - mod. altered
ground mass with 1-2mm
altered phenocrysts - plag.

Biology (?): None

Described by: [illegible]

Subsampled by:
HEIN

D3-4
Whole Rock

Fais Trough
N. Flank Caroline Rid
Graben

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): small boulders Location: [redacted]

Sample Id: D3-5 Weight (kg): 7.5kg Depth (m): 2400-1900

Mn Crust Description

Surface Texture: Patina

Mn Crust Thickness (mm):

Min:_____ Max: Patina Ave:_____

Outer to Inner Layers (mm)

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

D3-5 Cut Piece

Comments and XRD Mineralogy:

Sub

Substrate Description

Rock Type: slightly vesicular Basalt

Description: light Grey aphanitic Basalt. Minor plagioclase phenocrysts ~1mm
Vesicals ≤0.5mm filled with calcite (yellow-brown color)
Basalt fractured - some alteration + lined w/ calcite

Biology (?):

Described by:

Subsampled by:

D3-5
Whole Rock

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): Small boulder Location: Fais Trough [redacted]

Sample Id: D3-6 Weight (kg): 8 Depth (m): 2400-1900

Mn Crust Description

Surface Texture: patchy patina

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D3-6

Comments and XRD Mineralogy:

Subs

D3-6 2 TS XRD

(1 HORDI)
(1 USGS)

95% USGS
5% HORDI

Substrate Description

Rock Type: Basalt

Description: Gray-greenish alteration rind, Plag glomerocrysts, Px phyric

Biology (?):

Described by: HEIN

Subsampled by: HEIN

SAMPLE DESCRIPTION

Fais Trough
N Flank of Caroline & Graben

Cruise Id: FT-91-WP Size (cm): Small Boulder Location: [redacted]

Sample Id: D3-7 Weight (kg): 10 Kg Depth (m): [illegible]

Mn Crust Description

Surface Texture: [illegible] Patina

Mn Crust Thickness (mm):

Min:_____ Max: Patina Ave:_____

Outer to Inner Layers (mm)

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

D3-7 cut Pieces

Comments and XRD Mineralogy:

Sub

D3-7A glasseiro A. David has
DPTS XRD Carried
D3-7B (2) TS basalt XRD
(1 KORDI)
(1 USGS)

95% USGS
5% KORDI

Very minor calcite filled vesicles

Substrate Description

Rock Type: Pillow Basalt

Description: ~ Dark grey Aphanitic groundmass with phenocryst of plagioclase - 1-5mm
12-10mm altered glass rim. Black w/ red alteration.
3mm Dark dense rim between glass & basalt.

Biology (?): None

Described by: [illegible]

Subsampled by: A. [illegible]
HEIN

P3-7
Whole Rock

SAMPLE DESCRIPTION

Fox Trough

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

Sample Id: D3-8 Weight (kg): 23 kg Depth (m): 2470m - 1900

Mn Crust Description

Surface Texture: Patina eroded

Mn Crust Thickness (mm):

Min: Max: Patina Ave:

Outer to Inner Layers (mm)

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

D3-8
cut piece

Comments and XRD Mineralogy:

Sub

D3-8 DPTS - USGS
OC - 41gm
TS - HORDI
VCD
95% USGS
5% HORDI

Substrate Description

Rock Type: Pillow basalt Fresh

Description: Grey, very fine grained crystalline groundmass with 1-2mm sized plag phenocrysts 8-45mm alteration Rim - Basalt altered to a brown. Vesicles filled with chlorite? smectite - blue green - altered to brown

Biology (?): encrusting fauna

Described by: A S

Subsampled by: HEIN

D3-8
Whole Rock

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 17×12×14 Location: ~~V2-91-CP~~ N. Flank of Caroline Ridge Graben

Sample Id: D3-9 Weight (kg): 3.5 Depth (m): 2400 - 1800

Mn Crust Description

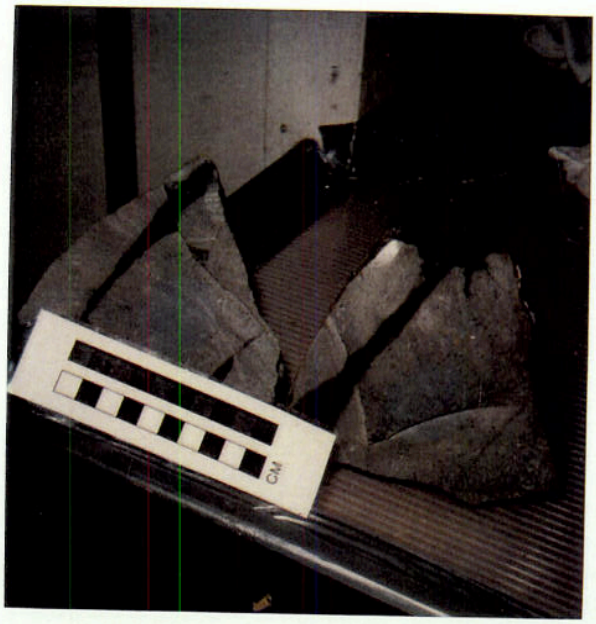
Surface Texture: Petine

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D3-9

Comments and XRD Mineralogy:

Subsan

Substrate Description

Rock Type: Vesicular Basalt

Description: Yellowish Gray Color

· Aphyric

· All vesicles filled by 2nd. minerals (?)

Analcite(?) ← : Green color or brown color (separated by color)

· Oxidized along the fracture

Biology (?): —

Described by: J. B Park.

Subsampled by:

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): 16×13×8 Location: [redacted] Fair Trough
Sample Id: D3-10 Weight (kg): 3 Depth (m): 2400-1900

Mn Crust Description

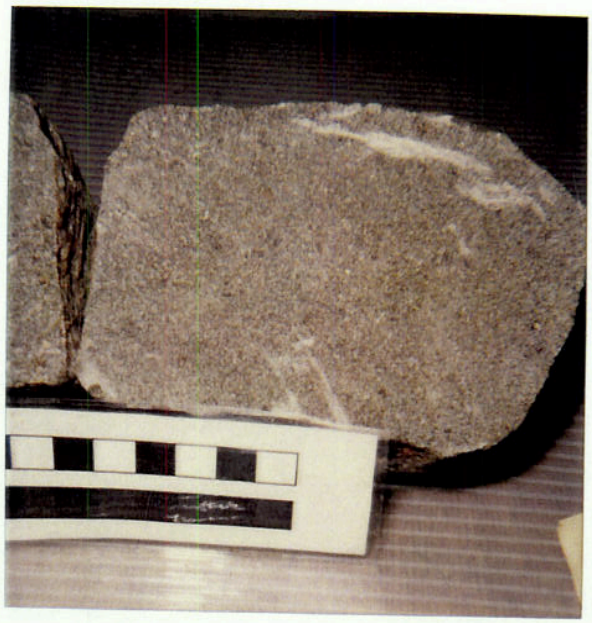
Surface Texture: granular Potato

Mn Crust Thickness (mm):

Min:_____ Max: <1 Ave:_____

Outer to Inner Layers (mm)

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



D3-10

Comments and XRD Mineralogy:

Subsam

D3-10 DPTS
D3-10 OC 31 gm

Substrate Description

Rock Type: Diabase

Description: Greenish-brown
Coarse-grained - equigranular
Px, Plag, olivine

Biology (?): NONE

⅔ USGS
⅓ MORDI

Described by: HEIN

Subsampled by: HEIN