Dredge 6

S.E. WALL

USGS DREDGE LOG

SHIP/LEG F7-91-WP

STATION # 11

DREDGE # D6

DEPTH INTERVAL(m) 2400-2195

DEPTH(m)corrected 2200-2000m

DATE JD 201/202 LOCAL 7/21/91

TIME GMT 201/1453 - 202/0615 LOCAL 202/0053 - 1615

LATITUDE 09° 04.67 TO 09° 05.85'

LONGITUDE 141° 53.31' TO 141° 51.76'

TOTAL WEIGHT: DREDGE 400 CRUST <10

PERCENTAGE OF ROCK COVERED BY CRUST 50% Patina

PERCENT BROKEN FROM: OUTCROP 50 TALUS 50

THICKNESS OF MN CRUST: MAXIMUM 3 MINIMUM <1 AVERAGE <1

DOMINANT SURFACE TEXTURE smooth

SUBSTRATE LITHOLOGY

(1) 80% basalt boulders to pebbles

(2) 20% ss-siltst-mudst bedded

(3) <1% Breccia

NODULES PRESENT 0

REMARKS: 3/4 bag of boulder to large cobble-sized rocks mostly - 1 gray bucket of pebbles

≈ 40 kg discarded - mostly pebbles - + some of D6-1 ≈ 30%

USGS DREDGE LOG

Depth Interval 2200-2000m

Julian Date 201-202

Cruise I.D. F7-91-WP

Local Date (m/d/y) July 21 1991

Station No. 11

Chief Scientist Ahn/Hein

Dredge No. D6

Tech on Watch John/Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	201/1453	202/0110	0615	0700
LATITUDE	09°4.20N	09°04.67	09°05.85	9°05.5
LONGITUDE	141°54.5 E	141°53.31	141°51.76	141°51.5
WATER DEPTH	2835	~~2835~~ 2000	~2400 m	1860

Site Description and Target : Up the Edge of Fais Trough

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
In Water	0013	2200	-	-	-	-
On Bottom	0110	2195	2300	-	-	-
Scope Out	0120	2160	2600	-	-	-
Pulling Dredge	0139	2170	2600	-	-	-
Bite	0152	2160	"	3.8		
Increase in scope	0208	2160	2750			
Starting bite	0221	2160	"	∠2		
Bite	0223		"	∠3	-	
Broke off	0223	2200	"	3.2		
Bite	0225	~2200	"	3.75		
Bite	0335	1880	"	4.10		
Bite	0342	1870	"	3.03		
Bite	0344	1875	"	3.14		
Bite	0345	1875	"	3.01		
Bite	0348	1890	"	3.12		
Bite	0355	1880	"	3.20		
Bite	0408	1880	"	2.5		
Bite	0409	1810	"	6.2		hung up

*on/off bottom, bites, etc.

OTHER COMMENTS: Lost dredge 5; will retry with 6. Putting dredge in near mound that gave us bites in D5. When we backed down & pulled dredge off last bite it appeared to be near the edge of a drop off that went from 2000 m to 2620 m

D6

Fais Trough

Glass to AS Davis

Dredge Sample Summary Sheet

Sample ID	~~Bulk CC~~	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D6-1							~~✓~~		~~✓~~	
D6-2							✓		✓	
-3					✓		✓		✓	
-4							✓		✓	
-5							✓		✓	
-6						✓	✓		✓	
-7						2	2			Phosphorite Stru
-8							✓			
-9							✓		✓	
-10						TS ✓	✓			
-11						TS ✓	✓			
-12						DPTS ✓	✓			
-13						TS	✓			
-14	✓					DPTS ✓ TS ✓	✓			
-15						TS	✓			
-16					✓	TS	✓			
-17										
-18										
-19	✓			ICP-MS-X		✓ DPTS				
-20						TS	✓			
-21										
-22	~~✓~~				✓	TS ✓	✓			
-23	✓			ICP-MS-X		✓ DPTS				
-24										
-25										
-26	✓			ICP-MS-X		✓ DPTS (2)	✓			
-27										
-28										
-29										
-30										

D6

Fair Trough

Dredge Sample Summary Sheet

Glass to A.S. Davis

Sample ID	~~Bulk CC~~	Layer CC	Pt & Au	Ree	OC	DPTS/TS	XRD	35mm Photo	Paleo	Archive
D6-31	✓				DPTS ✓	TS ✓	3			
-32						TS	✓			
-33										
-34										
-35							✓			
-36										
-37										
-38						TS	✓			
-39						DPTS	✓			
-40						DPTS	✓			
-41							2			
-42										
-43										
-44							2			
-45										
-46										
-47										
-48	✓			ICP-MS X						

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): Small boulder Location: S.E Fars trough ~~V3-91-NP~~

Sample Id: D6-1 Weight (kg): ~35Kg Depth (m): 2200 - 2000

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				

D6-1

Comments and XRD Mineralogy:

Subs

Substrate Description

Rock Type: siltstone - sandstone turbidites

½ HORD I
½ 4SG-3

Description: alternating greenish brown siltstone - bioturbated, with normally graded fossiliferous sandstone. Turbidite sequences.
- similar to D6-2

back filled burrows
Load structures

Biology (?): encrusting forams

Described by: G.S.

Subsampled by:

DG-1

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): Small to Med Cobble Location: S.E wall Fais trough ~~[illegible]-91-NP~~

Sample Id: D6-2 Weight (kg): ~14 Depth (m): 2200 - 2000

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				

D6-2

Comments and XRD Mineralogy:

Sub: D6-2-1

D6-2-1 - Poles Composit of
XRD all beds

Substrate Description

Rock Type: Sandstone - siltstone
turbidite
Dark

½ USGS
½ HORDY

calcareous - Description: Dirty tan to light tan
bioturbated siltstone with
~2.5cm thick
normally graded foraminiferal
slightly calcareous - sandstone turbidite layer w/ same structure
at boundaries between the sandstone + siltstone

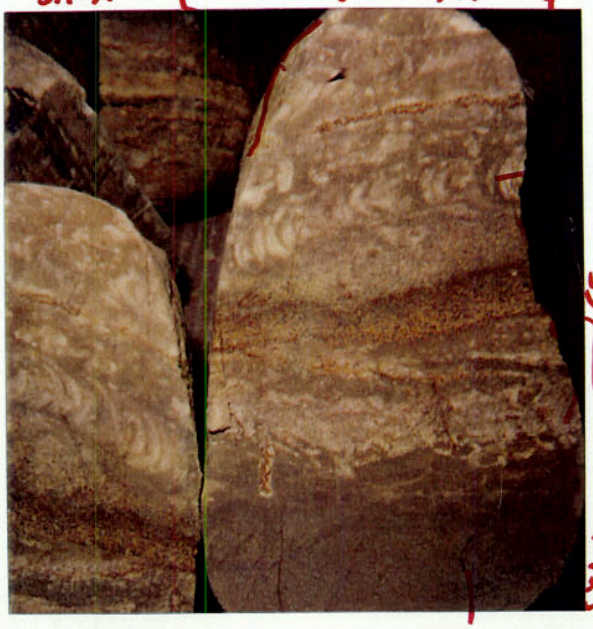
~~Biology~~ (?): occational beds of
chlorite or smectite (?) - calcareous

Described by: GS.

Subsampled by: HEIN

Numerous beds filled by [illegible]
rip-up clasts

D6-2 Pieces added



D6-2

SAMPLE DESCRIPTION

S. E. Wall Fans Trough

Cruise Id: FT-91-CP Size (cm): [illegible] Location: [redacted]

Sample Id: D6-3 Weight (kg): -10 Kg Depth (m): 2200 - 2000

Mn Crust Description

Surface Texture: 2% Patina, eroded

D6-3

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

D6-3-1 XRD

Dorler

OC 80 gm

½ HORDI

½ CISRS

Substrate Description

Rock Type: limestone, siltstone, sandstone turbidites

Description: Pale to medium yellow brown w/ heavily bioturbated siltstone layers with occasional 1mm - 30mm [illegible] graded sandstone turbidite beds — rip up clasts

Flame structures and manganese dendrites Present

Biology (?): encrusting forams

Described by: A.S. Subsampled by: HEIN

waxy - greenish mudstone beds (Tuffaceous)

alternate w/ Turbidites - Tuffaceous lenses

DG-3-1

DG-3

SAMPLE DESCRIPTION

Cruise Id: [illegible] Size (cm): [illegible] Location: [redacted]

Sample Id: 6-4 Weight (kg): [illegible] Depth (m): 2200 2000

Mn Crust Description

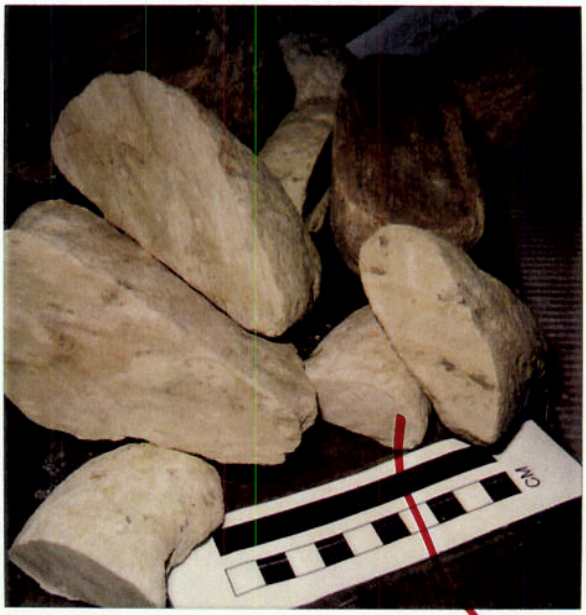
Surface Texture: None

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D6-4 D6-4-1

Comments and XRD Mineralogy:

Sub

D6-4-1 XRD
Poles

Substrate Description

Rock Type: Siltstone - mudstone Limestone
Tuffaceous
V. Pale greenish-brown

50% KORDI
50% USGS

Description: Heavily bioturbated
massive
Mn dendrites

Biology (?):

Described by: G.S.

Subsampled by: HEIN

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): Large Pebble Location: S.E Fairs Trough [redacted]

Sample Id: D6-5 Weight (kg): ~1kg Depth (m): 2200-2000

Mn Crust Description

Surface Texture: —

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D6-5-1

D6-5

Comments and XRD Mineralogy:

Sub

D6-5-1 XRD
Poles

50% HORDT
50% USGS

Substrate Description

Rock Type: clastic (siltsize) limestone

Description: highly carcareous cream to light tan limestone Heavely bioturbated. No relict bedding. Mn dendrites

Biology (?): None

Described by: G S

Subsampled by: HEIN

SAMPLE DESCRIPTION

J.E Wall - Fairstrom

Cruise Id: F7-91-WP Size (cm): 6 x 7.5 x 10 Location: [redacted]

Sample Id: D6-6 Weight (kg): >1 Kg Depth (m): 2200-2000

Mn Crust Description

Surface Texture: —

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D6-6

Comments and XRD Mineralogy:

S

D6-6 TS
Paleo
XRD

Substrate Description

Rock Type: sandstone - Foraminiferal, ms

Description: Fossiliferous, Gray, sandstone, massive
99% forams
1% coral + misc. shell

60 USGS
40 KORDI

Biology (?):

Described by: [signature]

Subsampled by: HEIN

SAMPLE DESCRIPTION

w/ 8 Pebbles

S.E Farstrough

Cruise Id: F7-91-WP Size (cm): 8.5 x 12.5 x 16 Location: ~~VS-91-NP~~

Sample Id: D6-7 Weight (kg): 5kg Depth (m): 2200-2000

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				

D6-7-1
1/2 of sample

Comments and XRD Mineralogy:

Sub

D6-7-2 DPTS XRD
D6-7-3 DPTS XRD

~~Phosphate Study~~

Substrate Description

Rock Type: Breccia

Description: Angular highly altered basalt clasts
matrix supported breccia.
matrix phosphatized carbonate
light cream to yellow.
Veins ~ calcite crystals

glass Rim, fragment too.

Biology (?): Encrusting foram
stalked organism

60% USGS
40% KORDI

Fresh glass clasts

Described by: [signature]

Subsampled by: HEIN

D6-7

D6-7

SAMPLE DESCRIPTION

Cruise Id: F7-91-WP Size (cm): Small pebbles Location: S.E Fars trough ~~V3-91-NP~~

Sample Id: D6-8 Weight (kg): >1Kg Depth (m): 2200-2000

Mn Crust Description

Surface Texture: Patina - eroded

D6-8

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:

Su

D6-8-1 XRD

100% USGS

Substrate Description

Rock Type: Siltstone clasts out of a breccia.

Description: Highly altered - reddish brown clasts - Moderately w/ reddish matrix with small white clasts slightly calcareous

slightly calcareous

+ relicts burrows

Biology (?): None

Described by: [signature]

Subsampled by: [signature]

SAMPLE DESCRIPTION

S.E Well Fairstrand

Cruise Id: F7-91-WP Size (cm): 2 mer. Pebbles Location: ~~V3-91-NB~~

Sample Id: D6-9 Weight (kg): ~1 Kg Depth (m): 2200-2000

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				

Comments and XRD Mineralogy:

Su

D6-9-2 Paleo

XRD

50% KORDI

50% USGS

Substrate Description

Rock Type: Breccia (1)

(2) Limestone

Description: (2) Bioturbated to massive cream to light greenish white. Bacings darker in color

(1) glass rims cemented onto one piece - basalt + glass in lms -

Biology (?): NO

Described by: [signature]

Subsampled by: HEIN

SAMPLE DESCRIPTION

S.E. Wall Fair Trough

Cruise Id: FT-91-WP Size (cm): 19 X 15 X 11 Location: ~~V3-91-NP~~

Sample Id: D6-10 Weight (kg): ~7 Depth (m): 2200 - 200

Mn Crust Description

Surface Texture: patina only very small spots

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D6-10

Comments and XRD Mineralogy:

Subs

D6-10 T.S., XRD

Substrate Description

Rock Type: Basalt

1 piece ~ 15%

Description: aphyric, fine grained phaneritic rock. Interior of flow or sill or dike. Mod. altered with oxidized

~~Biology (?)~~: none.

Described by: ASD,

Subsampled by: ASD & JCS

SAMPLE DESCRIPTION

Cruise Id: FT-91-W Size (cm): broken boulders Location: SE Wall of Fais Trough ~~V3-91-NP~~

Sample Id: D6-11 Weight (kg): 6 Depth (m): 2200 - 2000

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				

D6-11

Comments and XRD Mineralogy:

Subs

D6-11 - TS XRD

1 pc to KARDI ~20%

Substrate Description

Rock Type: Basalt

Description: Sparsely plag. phyric basalt w. plag. glomerocrysts in cryptocrystalline to glassy groundmass, small glass xtals mostly altered to palagonite. Small round vesicles.

~~Biology~~ (?):

Described by: ASD.

Subsampled by: ASD

T.S. D6-11-1

D6-11

SAMPLE DESCRIPTION

SE Wall of Fais Trough

Cruise Id: F7-91-WP Size (cm): broken boulder Location: ~~V3-91-NP~~

Sample Id: D 6-12 Weight (kg): 7 Depth (m): 2200 - 2000

Mn Crust Description

Surface Texture: patina in some areas

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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

D6 - 12

Comments and XRD Mineralogy:

Su

D6 - 2 DPTS - XRD

1 piece to XRD ~ 15%

Substrate Description

Rock Type: Basalt

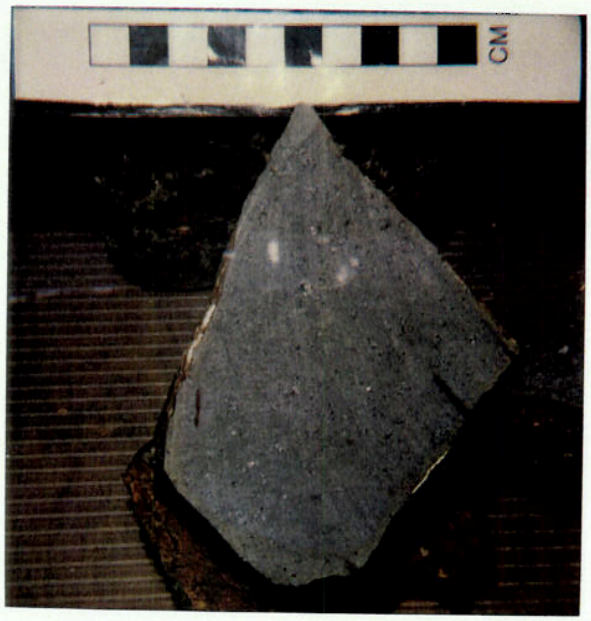
Description: Mod. amount of plag. + Cpx (?) glomero-crysts in phaneritic groundmass. Much alteration along surfaces

~~Biology (?)~~: similar to bas not as well developed as in

Described by: D6-13.

ASD.

Subsampled by: JSS & NSD



D6-12

SAMPLE DESCRIPTION

Cruise Id: F7-91-W Size (cm): pieces of broken boulder Location: SE Wall of Fair Tea... ~~V3-91-NP~~

Sample Id: D6-13 Weight (kg): 20 Depth (m): 2200-2000

Mn Crust Description

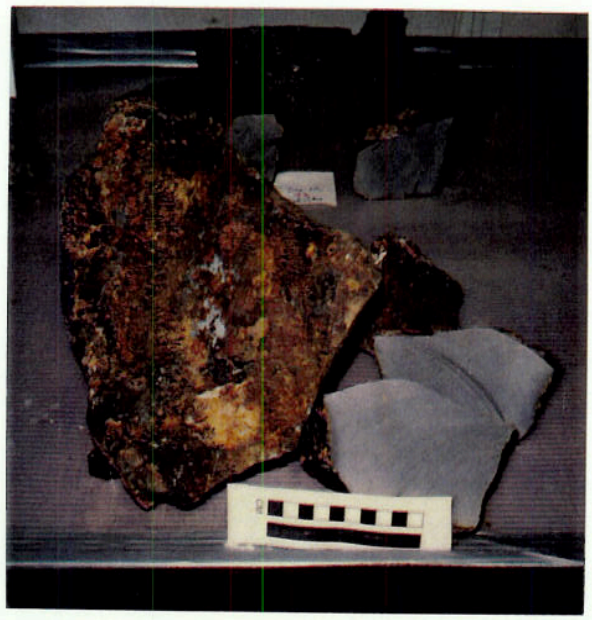
Surface Texture: patina in some areas, dendritic MnO on iron oxide coated surfaces

Mn Crust Thickness (mm):

Min:_____ Max:_____ Ave:_____

Outer to Inner Layers (mm)

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



D6-13

Comments and XRD Mineralogy:

Su

D6-13 ... XRD

Substrate Description

Rock Type: Basalt

Description: Moderately plagioclase (+cpx?) phyric with plagioclase (+cpx?) glomerocrysts in very fine grained crystalline groundmass.

1 piece to KORDI ~ 10%

~~Biology (?)~~: Thin glassy rind on some pieces. Much alteration along surfaces.

Described by: ASD.

Subsampled by: ASD JSS

D6-13

D6-13