USGS DREDGE LOG

Depth Interval _____ Julian Date 289

Cruise I.D. F11-90-CP Local Date (m/d/y) 10-16-90

Station No. 1 Chief Scientist Hein/Ann

Dredge No. 1 Tech on Watch Walt Olson

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	289/0625	0712	1013	~~1054~~
LATITUDE	10°27.29	10°27.19	10°27.02	continued station
LONGITUDE	156°40.93	156 41.13	156 41.80	
WATER DEPTH	2210	2200	2105	

Site Description and Target : Dredging across the high area of Line 3. Summit area appears to be to the south and side echos of it are on the 3.5 record of Line 3

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
ON Bottom ~~0712~~	0712	2200	2236			Letting out scope - moving up line
	0723	2190	2801			scope is out/taking up slack
Slack up dredge	0800	2140	2801			bits of little little bites
Bite	0825	2135	"	190		2 bites
~~Bite~~ Bite	0826	2130	"	212	089/.7kts	2 bites
"	0830	2135	"	212		
"	0835	2120	"	200		
"	0837	2125	"	219		
"	0837	2125		225		
"	0846	2120	"	196		
"	0847	2120	"	204		
"	0848	2125	"	207		hung
"	0849	2125	"	218		still hung
"	0853	2130	"	198		
"	0855	2135	"	221		hung
"	0857	2135	"	231		
	0900	2135		210		
	0901			202		

*on/off bottom, bites, etc.

OTHER COMMENTS:

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USGS DREDGE LOG

Depth Interval _____

Cruise I.D. F/1-90-CP

Station No. 1

Dredge No. 1

Julian Date 289

Local Date (m/d/y) 10/16/90

Chief Scientist Hein

Tech on Watch Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Start of a bite	0904		2801			
Broke off	0906	2140	"	2.01		
Start of a bite	0906		"	1.99		Broke right away
Bite	0907		"	2.03		
Bite	0909			1.99		
Bite	0910			1.98		
Bite	0912			2.07		
Bite	0912	2155		2.04		
Bite	0913			2.24		
Start	0914			~~2.80~~		
Broke off	0918	2175		2.80		
Bite	0918	2175		2.51		Bring wire in / not dp
Bite	0920	2175		2.8		
Bite	0923			4.0		Broke off 9.26
Bite	0928	2180	~~FAST~~	3.40		Ship moving south
Start Bite	0928	2180	~~FAST~~			and west - pulled
Still Hung	0935		2590			by dredge
Broke		2130	2562	3.80		

*on/off bottom, bites, etc.

OTHER COMMENTS:

Bite	0938	2130	2527	3.48
Bite	0939	"	2506	3.09
Bite	0940		2493	3.76
	0940		2477	4.04
	0941		2467	3.20

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USGS DREDGE LOG

Depth Interval _____ Julian Date _____

Cruise I.D. _____ Local Date (m/d/y) _____

Station No. 1 Chief Scientist _____

Dredge No. 1 Tech on Watch _____

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Bite	942	2120	2440	4.61		
Bite	943		2425	3.50		
Bite	946	2120	2375	4.27		
Start Bite	950	2135		5.2		Broke off @ 952
Hung up	952					
Backing Down	1000	2120	2220			Still hung up
Still hung	1007	2105	2130	5T		Still hung
	10		2104	5.60		

*on/off bottom, bites, etc.

OTHER COMMENTS:

USGS DREDGE LOG

Ship nav was jumping E-W this is where the ship really was - correct from nav file.

1990 when dredge hit the bottom but the depth was 2080 - 2050 was a guess as to depth the dredge was really at.

Depth Interval 2335-2300¢ 2050-1980 m

Julian Date 292

Cruise I.D. FH-90-CP

Local Date (m/d/y) 10/19/90

Station No. 2

Chief Scientist Hein / Ahn

Dredge No. 2

Tech on Watch Walter

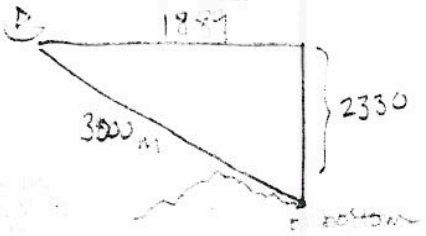
	On Station	Dredge on Btm 1st part	Dredge on Btm 2nd part	Dredge off btm 1st part	Dredge off btm 2nd part	Off Station
GMT	292/0039	292/0129	292/0516	292/0430	292/0658	0734
LATITUDE	09050.84 N	9 50.9	9 50.99	951.12	950.99	
LONGITUDE	148° 28.0	148 28.02	148 27.02	148 28.13	148 27.12	
WATER DEPTH	2330 m	2335	1990	For both of these the ship went back to water deeper than the original start point in order to pull the dredge off		

Site Description and Target : [illegible] of Volcanic rock.

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Unknown	0129	2335	2320			Moving up line/paying out scope
Short bite	0140	2305	3000m			Taking up slack
Turning ship to repair wire line	0150	—				Will dredge up line beam on
Starting to dredge	0239	2150				Very small bites
Small bite	0242			2.0		Prob. sediment
Another bite	0246			3.7		Dass broke off 0250
Continued bite	0250	2110	[illegible]			Rocking down, cutting
Break off	0311	2060	2938	5.0		cable in & out
On another	0312		2923	4.2		Heaving cable in and out
Bite & Rocking down on	0331	2005				heave up good
Still [illegible]	0400	2300	2520			reeling in
Off bottom	0430	2120	2375			reeling in to 2000m
Heaving up slack to 2000m	0436		2000			2000m out & holding
On another	0516	1990	2080			Moving up line/paying out scope
Speed is out	0520		2500			Moving up line/taking up scope
Starting to dredge	0533	1965	2500	2.4		broke off
Bite	0534	"	"	2.3		
Bite	0536			2.4		

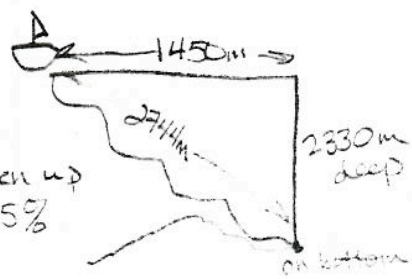
*on/off bottom, bites, etc.

OTHER COMMENTS:



Starting to Real Scenario

255 m taken up in slack 8.5%



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USGS DREDGE LOG

Depth Interval _____ Julian Date _____

Cruise I.D. _____ Local Date (m/d/y) _____

Station No. _____ Chief Scientist _____

Dredge No. _____ Tech on Watch _____

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Bites	537	1930	2500	2.4, 2.2		
Bite	538			2.15		
Bite	555	1895		2.30		
Bite	557			2.2		
Bites	559			2.2, 2.2		
Bite	600	1885		3.8		
Hung up	601					
"	0636	1905	2250			Backing down/reelling in
Breakoff	0650	2030	2160	Yugs up to 5T		
Off bottom	0658					Bringing it in
On deck	0734					

*on/off bottom, bites, etc.

OTHER COMMENTS:

USGS DREDGE LOG

Depth Interval 2650 - 2580

Julian Date 292

Cruise I.D. F11-90-CP

Local Date (m/d/y) 10-19-90

Station No. 3

Chief Scientist Hein- Ahn

Dredge No. 3

Tech on Watch Walter

	On Station 3	Dredge on Btm	Dredge off btm	Off Station
GMT	292 0850	0940	1242	
LATITUDE	9 50.93	9 50.99	9 51.13	
LONGITUDE	148 31.93	148 31.69	148 30.98	
WATER DEPTH	2690	2650	2610	

Site Description and Target : Further down the slope from station 2 possibly across a debris deposit

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Dredge in water	0851	2690				
Dredge on bottom	0940	2650	2630			Moving up line / paying out slope
Scope out	0954	2635	3400			moving up line
Nibbles	1027	2580				
Bite	1037			1.91		
Hung	1038			2.60		@ 1041 broke
Bite	1042	2560		2.44		
Bites	1043			2.6, 2.6		
Bite	1044			2.4		
Bite	1045			3.0		
Bite	1047			2.4		Tension skipping - Lots of grabs
Bite	1049	2550		2.8		
Bite	1050			2.6		
Bites	1051 to 1106			2.4-2.8		Continual bites each ¼ to 1 m
Bite	1106			2.9		
Bites	1107 to 1122	2530 to 2500		2.3-2.6		Ditto above
Bite	1123	2500		2.7		
Bites	1124 to 1128			2.4-2.6		Ditto above

*on/off bottom, bites, etc.

OTHER COMMENTS:

Bite	1128			2.8		
Bites	1128 to 1140	2495		2.3-2.7		

USGS DREDGE LOG

Page 2 F11-90-CP Sta 3

Depth Interval _____ Julian Date _____

Cruise I.D. _____ Local Date (m/d/y) _____

Station No. _____ Chief Scientist _____

Dredge No. _____ Tech on Watch _____

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
tung up	1140		~3400	up to 7.1		
Buckling down	1200	2470	~3400			Reeling in cable
off Bite	1240	2600	2633			
off Bottom	1242	2610	2600			
on deck	1333					

*on/off bottom, bites, etc.

OTHER COMMENTS:

Started dredging at 1600 m along — Therefore farthest dredge went was 1629 along which is 1600 m behind the furthest the ship went

USGS DREDGE LOG

Depth Interval _____ Julian Date 293

Cruise I.D. F11-90-CP Local Date (m/d/y) 10/21/90

Station No. 5 Chief Scientist Hein/Ahn

Dredge No. 4 Tech on Watch Ransom Rideout

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Bites	1840		3685	4.0		
	1841			2.6		break
	1842	2715	3665			
Bites	1844		3637	4.8		4.8 & climbing
Bites	1845	2710	3637	5.2		broke off at 5.2
Scope in	1846	2700		2.4-2.5		Start Pulling in
Scope out	1847					Pull Backout to 3700 doing nothing
	1849	2700	3700			at 3700 now
Bites	1851		3700	3		
	1854	2690	3696	2.5		Tension dropped start paying in
Bites	1857	2700	3660	3.6		broke off
	1858			2.5-2.6		Back to Steady Tension
	1900	2690	3660	2.6-2.8		Steady at 2.8
	1902			2.1		Tension dropped !
	1904		3660	2.3		Scraping along bottom taking small bites
	1908					Pull up & over San Pay terrace
Scoping in	1910					
	1911					bag stuck ?

*on/off bottom, bites, etc.

OTHER COMMENTS:

USGS DREDGE LOG

Depth Interval _____ Julian Date 293

Cruise I.D. F11-90-CP Local Date (m/d/y) 10/21/90

Station No. 5 Chief Scientist Hein/Ahn

Dredge No. 4 Tech on Watch Ransom Rideout

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Scoping in slowly	1912	2705	3660	2.4-2.5		Bag moving little
Scoping in bite	1916		3600	4.5		broke at 4.5
bites	1917		3600	5.0		backing bite broke at 5
			3600	3.0		
	1918	2705	3600	3.6		Steady at 3.6
Bites	1919-		3600	5.0		hung up at 5 ton
Slowly Scoping in	1922		3600			back down wire
" "	1926	2695	3522	5.2		Tension drop little Still hung up on lift terrace backing down
" "	1933		3522	3.5-4		Paying out wire
	1937	2685	3450	4		increase speed tension to 4
	1939	2680	3380	4		Steady at 4 ton
bites? " "	1942	2680	3300	5.5		still paying in
" "	1944		3227	2.5		continue to pay in ~~backing down~~ line
sm. bite	1952	2750	3000			paying in
	1955	2750	2933-2925	3.4		
backing down			2915	3.7-4.0		Hung up
	2000	2780	~ 2910	4.0		Broke loose
	2006	2800				

*on/off bottom, bites, etc.

OTHER COMMENTS:

USGS DREDGE LOG

Depth Interval 2900 - 2774 | Julian Date 293

Cruise I.D. F11-90-CP | Local Date (m/d/y) 10/21/90

Station No. 5 | Chief Scientist Hein / Ahn

Dredge No. 4 | Tech on Watch Ransom Rideout

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	293/1605	1723	2006	
LATITUDE	08° 33.17N	08°33.08	08°31.96	
LONGITUDE	144°59.80E	144°59.84	145° 00.45	
WATER DEPTH	3225	3195	2774	

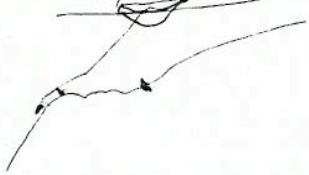
Site Description and Target : Dredge deepest slope to obtain datable basalt; Dredging below 1st terrace/bench

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Dredge in water	1625	3205				
Dredge on Bottom	1723	3195	3130			
	1728					start to get tension paying out little wire
	1747	3035				Gentle Pulls No Bites
	1754					Riding on cables
STARTING TO DREDGE	1755	2980	3500			
	1804	2890				No large bites just dragging along
	1805			2.1		Steady pull at 2.1
Little Nibble	1806	2875	3500	2.3		
	1811	2850	3600			slowly coming up to 3400 (wire)
	1812	2850	3580	3		Steady Tension, brake about at 4
	1817	2830				Paying out again,
	1818	2850	3600			taking up slack then start paying
	1[illegible]			2.3		
	1826	2800	3500	2.3-2.5		Tension Pretty Steady
	1831					Paying out to 3700
	1834		3700			
	1839	2730	3700	2.4		Starting Pulling in

*on/off bottom, bites, etc.

OTHER COMMENTS:

Ship went up over lip of terrace, however the dredge probably hung up below slope/terrace break.



USGS DREDGE LOG

Depth Interval 2745 -2600

Julian Date 293

Cruise I.D. FI-90-CP

Local Date (m/d/y) 10/21/90

Station No. 5

Chief Scientist [illegible]

Dredge No. [illegible] 5

Tech on Watch Ransome/Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	293/1605	293/2241	294/0219	
LATITUDE	08°33.17N	8°30.54	8°29.77	
LONGITUDE	144°59.80	145 02.41	145 03.79	
WATER DEPTH	3225	2745	2595	

Site Description and Target : Slope above first terrace on [illegible]; dredge up to 2325m where next "terrace occurs

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
[illegible]	[illegible]	2750	—	—	—	—
ON BOTTOM	2241	2745	2707			
	2249	2740	3000			scoping out wire
	2251	2740	3200	1.7 steady		moving up slope
	2317	2700	3260			" " "
	2330	2650	"	2.0 steady pull		probably dragging through sediment
	2343	2630	"	3.5		
	0024	2605	"			probably off bottom or bouncing
	0050	2520	"			or dragging through sediment
Hung up	0103		"	up to 5.2		
Still well hung	0115	2470	3295			Pulled up to 5.2 letting out cable
Backing down	0120		3287			Still hung
" "	0140	2550	3070			
" "	0152	2600	2800m	up to 5 many times		Still hung
" "	0202	2600	2680m	up to 5		Still hung
Broke off	0215	2595	2637	>4		
off	0217	2595	2580			
On deck	0306	2620				

*on/off bottom, bites, etc.

OTHER COMMENTS:

Farthest along was 4178m
∴ Dredge got to 2900 to 3000 along
Depth at that interval was ~2600m

1167 w/ 8.5% slack ← $\sqrt{1,363,264}$ = (1167) behind sh
1st steady pulls @ ~1300 alo

2745 $a^2+b^2=c^2$

3260 → 2983 counting slack

So 1170 to 1300m behind ship

USGS DREDGE LOG

Depth Interval 2050-1840

Julian Date 299

Cruise I.D. F11-90-CP

Local Date (m/d/y) 10/26/90

Station No. 6

Chief Scientist Hein Ahn

Dredge No. 6

Tech on Watch Walt

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT	1016	1055	1257	1637
LATITUDE	1127.02	1127.15	1128.83	11°27.16 N
LONGITUDE	13948.89	13949.01	13948.94	139°48.78 E
WATER DEPTH	2140	2050	1865	1950

Site Description and Target : South facing flank of a small plateau dredging along summit slope and possibly over the top. Dredging from south to north Heading 000

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
On bottom	1055	2050	2080			Paying out scope/moving up slope
Scope is out	1104	1980	2600			Moving up slope
[illegible] incr. in tension	1132	1875	2600	~1.4 range		up from 1.2-1.3
Bite	1134	1875		1.8		
Bite	1136	1875		1.7		
Bite	1138			2.0		
Bite	1139			2.45		
Bite	1140			2.5		
	1142	pretty		2.5		
	1143	flat		2.9		
Bites	1144			2.3, 2.6		
Bite	1146		2600	2.8		
Bite	1149			3.75		
[illegible] up	1152	1885		4.0-6.0		Broke off @ 5.5 @ 1200
Bites	1201			2.2, 2.3		
Bites	1202			2.8, 2.8		
	1203	1885		3.1		
Bite	1204	1885		2.6, 2.6,	2.6, 2.9	

*on/off bottom, bites, etc.

OTHER COMMENTS:

Predicted 1207 → 1269 ← 1610361 / A^2 → m behind ship based on when tension 1st rose @ 1134 Gives 7% slack

4202500 d^2

5,812,861 / w^2

2410

2050 d

W

2600 - 221 = 2379

2600 - 2410 = 190 → 7% slack

W^2 5659641 → based on 8.5% slack

d^2 4202500

A^2 1457141 → 1207=1

1525 / 257

1464

USGS DREDGE LOG

Depth Interval Page 2 Julian Date _____

Cruise I.D. _____ Local Date (m/d/y) _____

Station No. 6 continued Chief Scientist _____

Dredge No. 6 continued Tech on Watch _____

	On Station	Dredge on Btm	Dredge off btm	Off Station
GMT				
LATITUDE				
LONGITUDE				
WATER DEPTH				

Site Description and Target : _____

OPERATION*	GMT	DEPTH (m)	WIRE OUT (m)	TENSION	HDG/SPD	COMMENTS
Bite	1205	1885		3.9		
Bite	1207			3.0, 3.7		
Bite	1208			2.8		
Bite	1211	1860		2.5, 2.5, 2.9		
Hung	1212		2600	3.6		Broke off - bringing wire in
Bite	1214			3.8		
Lots of small bites	1220					Reeling wire in
Bite	1222	1850		2.5		" " "
Bite	1223	1850		2.6, 2.7, 2.5		
Bite	1224	1840	2500	2.6, 3.6		
Bites	1225			3.3, 3.3		
Bite	1226			2.6, 2.8		
bite	1229			2.6		
Small bites - frequent	1230-1255			2.1-2.5		While reeling in
Off bottom	1257	1855				
on deck	1334					

*on/off bottom, bites, etc.

OTHER COMMENTS: