Karin Ridge

E. Flank

USGS DREDGE LOG

01-CD1

SHIP/LEG F7-86-HW

STATION # 01

DREDGE # CD-1

DEPTH INTERVAL(m) 2255(??)-2200

DEPTH(m)corrected \

	JD	LOCAL
DATE	335	12-1-86
	ON GMT	~~LOCAL~~ OFF BOTTOM
TIME	1940	2254

LATITUDE 17°5.9' TO 17°06.02'

LONGITUDE 168°19.4' TO 168°22.39'

TOTAL WEIGHT: DREDGE 725 kg CRUST 70 kg

PERCENTAGE OF ROCK COVERED BY CRUST 50%

PERCENT BROKEN FROM: OUTCROP 70% TALUS 30%

THICKNESS OF MN CRUST: MAXIMUM 50 mm MINIMUM 0 AVERAGE 10 mm

DOMINANT SURFACE TEXTURE Smooth to small botryoidal

SUBSTRATE LITHOLOGY Cream to yellowish-tan bioclastic limestone w/abundant gastropod & pelecypod shells. Many have phosphorite layers & some limestones are phosphatized. A few limestones w/ Mn crust had a lot of Fe oxidization; Altered porphyritic basalt and hyalobasalt altered completely to Fe oxides & clays; phosphorite

NODULES PRESENT ≤1%; 0.5 to 4cm diameter; botryoidal surface

REMARKS: ≥40% basalt; ≤55% limestone; ≤2% mudstone; ≤1% nodules; All lmstn broken from outcrop & mudstone — most, but not all, basalt talus cobbles

Distribution: 365 kg Bur Mines (@ 800lbs)
330 kg Neptune
30kg USGS - dominantly substrate rocks

S. Johnston I. Ridge

USGS DREDGE LOG

SHIP/LEG F7-86-HW

STATION # 03

DREDGE # CD 2

DEPTH INTERVAL(m) 2650 to 2900m

DEPTH(m)corrected _____

DATE JD 337 LOCAL 12-3-86

TIME ON GMT 1436 ~~LOCAL~~ OFF BOTTOM 1457

LATITUDE 16° 26.4 TO 16° 24.4

LONGITUDE 169° ~~32.7~~ 31.8 TO 169° 32.7

TOTAL WEIGHT: DREDGE 500 kg CRUST 100 kg

PERCENTAGE OF ROCK COVERED BY CRUST 90 %

PERCENT BROKEN FROM: OUTCROP 80% TALUS 20%

THICKNESS OF MN CRUST: MAXIMUM 110 mm MINIMUM <1mm AVERAGE 50 mm

DOMINANT SURFACE TEXTURE smooth to elongate botryoidal

SUBSTRATE LITHOLOGY sedimentary rock mostly conglomerate + sandst. also minor chalk —

Sandst. is yellowish mod. to poorly indurated with subrounded + angular volcanic clasts to ~2-5 mm, conglomerate (or breccia) is well indurated with well rounded basaltic clasts some with Mn crust of their own in white, pinkish to reddish-tan phosphatized matrix, chalk is well-rounded and bioturbated; three big boulders, Two basal one volc. Breccia - All taken by USGS for possible age date

NODULES PRESENT yes, < 1%; 0.5 x 3.0 cm

REMARKS: ≥30 % crust with little or no substrate, ~25% volcanic breccia or conglomerate, ~43 % volcaniclastic sandstone, < 1% nodules, << 1% chalk,

Distribution:

300 kg Bu Mines ≈ (650 lbs)
100 kg USGS, Jim Hein
40 kg USGS, Alice Davis
5 kg DNA — Edith Chave +
55 kg Neptune Kevin Kelley

S. Johnston I.

Ridge USGS DREDGE LOG 05 - BMDS 3

SHIP/LEG Farnella/7

STATION # 05

DREDGE # BMDS-3

DEPTH INTERVAL(m) 2340-2700

DEPTH(m)corrected _____

	JD	LOCAL
DATE	338	Dec 3 1986
	ON GMT	~~LOCAL~~ OFF BOTTOM
TIME	0601	0805

LATITUDE 16°26.46' TO 16°27.21'

LONGITUDE 169°31.55' TO 169°31.90'

TOTAL WEIGHT: DREDGE 20 Kg CRUST 10 Kg

PERCENTAGE OF ROCK COVERED BY CRUST 95%

PERCENT BROKEN FROM: OUTCROP 100% TALUS 0

THICKNESS OF MN CRUST: MAXIMUM ~25 mm MINIMUM 0 AVERAGE ~10 mm

DOMINANT SURFACE TEXTURE Smooth to botryoidal

SUBSTRATE LITHOLOGY Basalt, & minor limestone, a little vole. breccia

NODULES PRESENT no

REMARKS: Sea floor shavings, basalt & Mn shaved off by the teeth on the dredge

Distribution: 2 kg USGS

17 kg Bu Mines ≈ (40 lbs)

S. Johnston I.

Ridge

USGS DREDGE LOG 06-JOD 4

SHIP/LEG F7-86-HW

STATION # 06

DREDGE # JOD 4

DEPTH INTERVAL(m) ? 2500-3000 m

DEPTH(m)corrected _____

DATE JD 338 LOCAL 12-4-86

TIME GMT 1130 (ON STATION) ~~LOCAL~~ never knew if it was on bottom

LATITUDE 16°26.6 TO 16° 27.0

LONGITUDE 169°29.7 TO 169° 35.0

TOTAL WEIGHT: DREDGE ~ 70 kg CRUST ~ 35 kg

PERCENTAGE OF ROCK COVERED BY CRUST ~ 90%

PERCENT BROKEN FROM: OUTCROP < 5% TALUS ~ 95%

THICKNESS OF MN CRUST: MAXIMUM 30 mm MINIMUM < 1 mm AVERAGE 20 mm

DOMINANT SURFACE TEXTURE botryoidal (large + small botryoids)

SUBSTRATE LITHOLOGY volcaniclastic breccia, minor basalt

very minor chalk,

much phosphorite

smooth on Basalts

NODULES PRESENT ≪ 1%

REMARKS: ~85% volcanic breccia composed of basaltic clasts angular to sub-rounded, mm to 5 cm size in greenish and tan colored phosphatized matrix ≈ 15% basalt that is aphyric, highly vesicular and amygdaloidal, trace of chalk pale brown pelagic ooze in fractures and covers some surfaces; one phosphorite substrate.

Distribution: 10 kg USGS

60 kg Japanese

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USGS DREDGE LOG 07-CD5

SHIP/LEG F7-86-HW

STATION # 07

DREDGE # CD 5

DEPTH INTERVAL(m) 2420-2750

DEPTH(m)corrected _____

DATE JD 338 LOCAL 12-4-86

TIME GMT ON 2000 ~~LOCAL~~ OFF BOTTOM 2028

LATITUDE 16°23.0' TO 16°24.5'

LONGITUDE 169°31.5' TO 169°33.5'

TOTAL WEIGHT: DREDGE 200 kg CRUST 40 kg

PERCENTAGE OF ROCK COVERED BY CRUST 50

PERCENT BROKEN FROM: OUTCROP 95 TALUS 5

THICKNESS OF MN CRUST: MAXIMUM 100 mm MINIMUM 20 mm (on mudst.) AVERAGE 45 mm

DOMINANT SURFACE TEXTURE Botryoidal

SUBSTRATE LITHOLOGY Limestone reefal - No Crust; Mudstone, greenish to pale brown - probable the dominant crust substrate. 1 Basalt in large boulder - 2 large cobbles = mudst. w/ crust - ; 2 Volc Breccia Substrate - Large amount of Thick Mn chips broken off the Mudst. substrate

NODULES PRESENT NO

REMARKS: Most Lms Rubble Thrown overboard - except 1 piece to Menlo + 2 to Woods Hole.

Distribution: 30 kg USGS
90 kg Bu Mines (≈ 200 lbs)
80 kg Neptune = Lms

W. Flank

W. Flank
Harin Ridge

USGS DREDGE LOG 08-CD6

SHIP/LEG F7-86-HW

STATION # 08

DREDGE # CD6

DEPTH INTERVAL(m) 2300 – 2150m

DEPTH(m)corrected _____

DATE JD 339 LOCAL Dec. 5. 86

TIME GMT 1422 (start) LOCAL

LATITUDE 16°58.5 TO 16°59.2

LONGITUDE 168°35.1 TO 168°35.2

TOTAL WEIGHT: DREDGE 365 kg CRUST 40 kg

PERCENTAGE OF ROCK COVERED BY CRUST 95%

PERCENT BROKEN FROM: OUTCROP 90 TALUS 10

THICKNESS OF MN CRUST: MAXIMUM 60 mm MINIMUM < 1 mm AVERAGE 28 mm

DOMINANT SURFACE TEXTURE NONE Dominant: Botryoidal, smooth, granular

SUBSTRATE LITHOLOGY Three Types: Volcanic breccia dominant; brown basalt second, mudstone third; (few gray basalt samples) although all 3 rock Types nearly equivalent in abundance – 1 small Lms Fragment.

NODULES PRESENT NO

REMARKS: 2 types of volcanic breccia (1) angular + subrounded clasts in a greenish-gray sandy matrix and (2) red-brown angular volcanic clasts in pale beige calcareous matrix,

2 large slabs of Volc. Breccia given To Bu. Mines w/ Crusts
2 " boulder of Basalt " " " " w/ Thin Crusts
1 " slab " mudst. " " USGS w/ Crus

Volc. Breccia has Thickest Crusts; mudst. Next, + basalt Thinnest –

Distribution: 50 kg USGS
315 kg Bu Mines (≈ 690 lbs)
0.2 kg Japanese

Sampled for
XRD, OC, O, Sr, U, Th,
Fl, Cl, S 35mm.
G. Smith 12/29/90

W. Flank

USGS DREDGE LOG 09-CD7

Karin Ridge

SHIP/LEG F7-86-HW

STATION # 09

DREDGE # CD7

DEPTH INTERVAL(m) (on & off bottom) 3100-1990

SAMPLE INTERVAL (between bites) 2360-2120

DEPTH(m)corrected

	JD	LOCAL
DATE	339	Dec 5 1986
	GMT start	~~LOCAL~~ finish (of station)
TIME	2010	2354

LATITUDE 16° 58.7 TO 16° 58.62

LONGITUDE 168° 34.5 TO 168° 32.99

(of on & off bottom)

TOTAL WEIGHT: DREDGE 270 kg CRUST 35 kg

PERCENTAGE OF ROCK COVERED BY CRUST 85%

PERCENT BROKEN FROM: OUTCROP 95% TALUS 5%

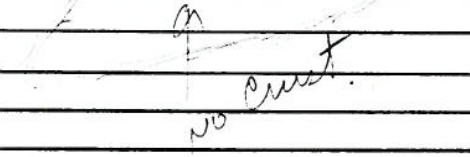
THICKNESS OF MN CRUST: MAXIMUM 72mm MINIMUM 0 AVERAGE 35mm

DOMINANT SURFACE TEXTURE 60% smooth; 40% botryoidal

SUBSTRATE LITHOLOGY Greenish-brown & reddish-brown mudstone dominant; basalt & lav. breccia minor lithologies; basalt dominantly altered brown w/ swirly-flow textures + calcitized + phosphatized to various degrees; textures are bizarre; some vugs filled w/ dog-tooth spar

NODULES PRESENT NO

REMARKS: One gigantic boulder of Mudstone Thrown over - crust w/ granular surface



Distribution:

30 kg : USGS

210 kg : Bu Mines

0.5 kg : Japanese

30 kg : Neptune

(≈ 460 lb)

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Karin Ridge

USGS DREDGE LOG 10-CD8

SHIP/LEG F7-86-HW

STATION # 10

DREDGE # CD8

on + off Bottom
DEPTH INTERVAL(m) 2675-1685 m

DEPTH(m)corrected _____

bites 1910-1850 m

	JD	LOCAL
DATE	340-	5 Dec 86
	Beg- GMT	~~LOCAL~~ End
TIME	0248	0551

LATITUDE 17° 02.15' TO 17° 05.17'

LONGITUDE 168° 34.92' TO 168° 32.43'

TOTAL WEIGHT: DREDGE 30 kg CRUST 10 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100

PERCENT BROKEN FROM: OUTCROP 100 TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 70 mm MINIMUM 20 AVERAGE 40

DOMINANT SURFACE TEXTURE Smooth to smoothed Botryoidal

SUBSTRATE LITHOLOGY Basalt, gray, +/or Volcanic Breccia

NODULES PRESENT NO

REMARKS:

Distribution: 1 kg USGS
29 kg Bu Mines (~60 lbs)

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Karin Ridge

USGS DREDGE LOG 11-JTD9

SHIP/LEG F7-86-HW

STATION # 11

DREDGE # JTD9

DATE JD 340 LOCAL 12-6-86

on & off bottom TIME GMT 0850 – ~~LOCAL~~ end 1105

DEPTH INTERVAL(m) 3050-2260

" " Bites 2910-2260

DEPTH(m)corrected

LATITUDE 16° 58.1 TO 16° 57.9

LONGITUDE 168° 34.5 TO 168° 33.5

TOTAL WEIGHT: DREDGE 450 kg CRUST 100 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 95% TALUS 5%

THICKNESS OF MN CRUST: MAXIMUM 70 mm MINIMUM ~1 mm AVERAGE 40+ mm

DOMINANT SURFACE TEXTURE mudstone

SUBSTRATE LITHOLOGY most mudstone; minor basalt; V. minor volcanic breccia; mudstone is greenish brown + bored in places just like other dredge hauls -

NODULES PRESENT NO

REMARKS:

Distribution:

10	kg	USGS
55	kg	Neptune
250	kg	Bu Mines (≈550 lbs)
135	kg	Japanese

W. Flank

Karin Ridge USGS DREDGE LOG 12-JOD 10

SHIP/LEG F7-86-HW

STATION # 12

DREDGE # JOD 10

DEPTH INTERVAL(m) 2830-2160
bite interval 2830-2160

DEPTH(m)corrected

DATE JD 340 LOCAL 12-6-86

TIME GMT 1241 LOCAL 1519

LATITUDE 16°58.7 TO 16°59.1

LONGITUDE 168°36.2 TO 168° 33.5

TOTAL WEIGHT: DREDGE 20 kg CRUST ~5 kg

PERCENTAGE OF ROCK COVERED BY CRUST ~95%

PERCENT BROKEN FROM: OUTCROP 50% TALUS 50%

THICKNESS OF MN CRUST: MAXIMUM 50 mm MINIMUM <1mm AVERAGE 30 mm 40-brec 10 Basa

DOMINANT SURFACE TEXTURE smooth

SUBSTRATE LITHOLOGY predominantly volcanic conglomerate, and minor basalt - One large slab of volcanic breccia w/ Thick crust ≈ 10-12 kg + many smaller pieces; rest is basalt w/ Thin crusts + Hall is Talus debris.

Volc. Breccia - Thick Crusts
Basalt - Thin Crusts

NODULES PRESENT none

REMARKS: Volcanic conglomerate gray-green sandy matrix with angular and sub-rounded clasts of altered basalt ranging from mm to several cm in size, basalt highly altered plagioclase-phyric,

Distribution: 2 kg USGS - Basalt Alice
18 kg Japanese

Karin Ridge

USGS DREDGE LOG 13-CD11

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SHIP/LEG F7-86-HW

STATION # 13

DREDGE # CD11

DEPTH INTERVAL(m) 2530-2240 m
bite interval 2530-2240 m

DEPTH(m)corrected

Sampler 2550-2300 m

	JD	LOCAL
DATE	12 6 86	340
on/off bottom	~~GMT~~ on	~~LOCAL~~ off
TIME	2038	2137

LATITUDE 17 08.3 TO 17 08.2

LONGITUDE 168 19.1 TO 168 19.3

TOTAL WEIGHT: DREDGE 300 kg CRUST 50 kg

PERCENTAGE OF ROCK COVERED BY CRUST 90

PERCENT BROKEN FROM: OUTCROP 90 TALUS 10

THICKNESS OF MN CRUST: MAXIMUM 30mm MINIMUM <1 mm AVERAGE 15mm

DOMINANT SURFACE TEXTURE Botryoidal-glassy → almost knotted,

SUBSTRATE LITHOLOGY Volcanic breccia dominant >60%; muddy Volcanic breccia ≈ 30%; basalt pebbles & small cobbles ≈ 10%. However the basalt cobbles are subrounded to angular clasts that removed from the volcanic breccia during dredging - Not from basalt outcrop on seafloor

NODULES PRESENT NONE

REMARKS: also common is smooth and bulbous & combinations of the 3 types - The glassy textures have several subvarieties & look like fresh glassy basalt flows from Hawaii

Distribution: 40 kg USGS
260 kg Bu Mines (≈ 570 lbs.
0.1 kg Japanese

E. Flank

Karin Ridge

USGS DREDGE LOG 14-CD12

SHIP/LEG 7

STATION # 14

DREDGE # CD12

DEPTH INTERVAL(m) on 2550-2110m off bottom

" " bites 2280-2100m

DEPTH(m)corrected

DATE JD 341 LOCAL Dec. 6, 1986

TIME START GMT 0031 ~~LOCAL~~ END

LATITUDE 17°06.28' TO 17°07.97'

LONGITUDE 168°17.34' TO 168° 20.02'

TOTAL WEIGHT: DREDGE 400 kg CRUST 70 kg

PERCENTAGE OF ROCK COVERED BY CRUST 80%+

PERCENT BROKEN FROM: OUTCROP 90+ TALUS 10%-

THICKNESS OF MN CRUST: MAXIMUM ~50mm MINIMUM ~1mm AVERAGE ~25mm

DOMINANT SURFACE TEXTURE Irregular botryoidal to smooth

SUBSTRATE LITHOLOGY Dominantly volc. breccia - 2 or 3 different types like CD-11; 30% of subangular to rounded basalt cobbles - most were probably clasts from the breccias. Some calcareous mud coating on the breccias; One large Breccia boulder (150 lbs) is cemented by calcite pore-fill = druzy Calcite - Much secondary Carbonate in the breccias. Breccias have mudst; Boxelt; and phosphorite clasts (one large one collected)

NODULES PRESENT NONE

REMARKS:

Distribution:

10 kg	USGS
10 kg	Japanese
75 kg	Neptune
305 kg	Bu Mines (~670 lbs)

Ridge

S. Johnston I.

USGS DREDGE LOG 15-CD13

Bite Interval 2310 - 2140

SHIP/LEG F7-86-HW

STATION # 15

DREDGE # CD13

DEPTH INTERVAL(m) 2310-2140m

bites 2310 - 2140

DEPTH(m)corrected

DATE JD 341 LOCAL 12-6-86

on/off bottom TIME GMT 1238 LOCAL 1408

LATITUDE 16° 26.2 TO 16° 25.2

LONGITUDE 169° 32.4 TO 169° 32.9

TOTAL WEIGHT: DREDGE 500 kg CRUST 140 kg

PERCENTAGE OF ROCK COVERED BY CRUST 98 %

PERCENT BROKEN FROM: OUTCROP 70% TALUS 25% Nods. 5% other

THICKNESS OF MN CRUST: MAXIMUM 70mm MINIMUM 10 mm AVERAGE 40 mm

DOMINANT SURFACE TEXTURE Smooth to irregular; Some botryoidal (Smooth and botryoidal)

SUBSTRATE LITHOLOGY Dominantly Tuff or Tuffaceous siltstone, highly altered, gray green 2 vole. Breccia boulders + several cobbles - broken from outcrop

NODULES PRESENT 25%; 5mm To 100 mm

REMARKS: Large # of small Nodules; one large almost complete Silicosponge -

Distribution: 40 kg USGS

3 kg Barna - DOI

457 kg Bu Mines (~1000 lbs)

S. Johnston I.

USGS DREDGE LOG 16-CD14

Ridge

Bite Interval 2340 - 2530

SHIP/LEG EF-86-HW

STATION # 16

DREDGE # CD14

DEPTH INTERVAL(m) bottom 2340-2370

DEPTH(m)corrected " " bites 2340-2530

DATE JD 341 LOCAL 12-7-86

TIME GMT 1643 LOCAL 1733 on off bottom

LATITUDE 16° 26.8 TO 16° 26.2

LONGITUDE 169°32.3 TO 169° 33.6

TOTAL WEIGHT: DREDGE 545 kg CRUST 60 kg

PERCENTAGE OF ROCK COVERED BY CRUST 80%

PERCENT BROKEN FROM: OUTCROP 40 TALUS 60

THICKNESS OF MN CRUST: MAXIMUM 60 mm MINIMUM <1 mm AVERAGE 25 mm

DOMINANT SURFACE TEXTURE smooth to granular

SUBSTRATE LITHOLOGY Basalt, highly vesicular; volcanic breccia + tuffaceous siltstone or tuff minor

NODULES PRESENT <5%

REMARKS: V. Large Basalt Boulders - V. Thick to thin crust = highly variable

Distribution:

35 kg	USGS
250 kg	Bu Mines (~550 lbs)
2 kg	Japanese
258 kg	Neptune

S. Johnston I. Ridge

USGS DREDGE LOG 17 - CD 15

SHIP/LEG F7-86-HW

STATION # 17

DREDGE # CD 15

DEPTH INTERVAL(m) 2250-2350

" " bites

DEPTH(m)corrected 2250-2350

DATE JD 341 LOCAL 12-7-86

TIME START GMT 1924 ~~LOCAL~~ end 2236

LATITUDE 16°25.0' TO 16°24.9'

LONGITUDE 169°31.0' TO 169°33.6'

TOTAL WEIGHT: DREDGE 115 Kg CRUST 25 Kg

PERCENTAGE OF ROCK COVERED BY CRUST 90%

PERCENT BROKEN FROM: OUTCROP 35% TALUS 65%

THICKNESS OF MN CRUST: MAXIMUM 60mm MINIMUM <1mm AVERAGE 20mm

DOMINANT SURFACE TEXTURE Small Botryoidal

SUBSTRATE LITHOLOGY Mudstone; basalt; greenish gray Tuffaceous mudst & siltstone

NODULES PRESENT <5 %

REMARKS: 1 large vesicular basalt boulder - Alice has piece of it -

Distribution: 10 kg USGS
1 kg Japanese
104 kg BuMines (~ 225 lbs)

S. Johnston I.

Ridge

USGS DREDGE LOG 18-I CD 16

SHIP/LEG F7-86-HW

STATION # 18

DREDGE # CD16

DEPTH INTERVAL(m) 2650 on 2520 off

DEPTH(m)corrected 2520-2540 bites

DATE JD 341 LOCAL Dec. 7 1986

TIME Begin GMT 2349 ~ ~~LOCAL~~ End 0300

LATITUDE 16°26.4' TO 16°25.27'

LONGITUDE 169°32.0' TO 169°33.5'

TOTAL WEIGHT: DREDGE 455 kg CRUST 150 kg

PERCENTAGE OF ROCK COVERED BY CRUST 98 %

PERCENT BROKEN FROM: OUTCROP 95 % TALUS 05 %

THICKNESS OF MN CRUST: MAXIMUM 120 mm MINIMUM 30 mm AVERAGE 65 mm

DOMINANT SURFACE TEXTURE Smooth To Smoothed Botry.

SUBSTRATE LITHOLOGY V. highly altered reddish brown & yellowish-brown Volcanic Breccia w/ phosphorite & Mn oxide veins - commonly mixed

NODULES PRESENT NONE

REMARKS: Collected 2 V. Large boulders - one for lobby of USGS

Distribution: 177 kg USGS

275 kg Bu Mines (~ 600 lbs)

3 kg Japanese

Ridge

USGS DREDGE LOG 19-CD17

S. Johnston I.

SHIP/LEG F1 86 HW

STATION # 19

DREDGE # CD 17

on & off bottom DEPTH INTERVAL(m) 2620 - 2600

bite interval 2620 - 2315

DEPTH(m)corrected

DATE JD 342 LOCAL Dec 7 86

on & off bottom TIME GMT 0439 ~~LOCAL~~ 0715

LATITUDE 16 26.68 TO 16 27.07

LONGITUDE 169 32.07 TO 169 32.59

TOTAL WEIGHT: DREDGE 775 kg CRUST 125 kg

PERCENTAGE OF ROCK COVERED BY CRUST 90+

PERCENT BROKEN FROM: OUTCROP 75 TALUS 25

THICKNESS OF MN CRUST: MAXIMUM 70 mm MINIMUM <1 mm AVERAGE 30 mm

DOMINANT SURFACE TEXTURE smooth; bulbous

SUBSTRATE LITHOLOGY Basalt (primary); Volc Breccia + Tuffaceous Siltstone; phosphorite

NODULES PRESENT yes <5%

REMARKS: Many bulbous cobbles that are either pure Mn or Thick Mn surrounding breccia rich w/ phosphorite - Several varieties of volcaniclastic Rxs

Several Large Boulders - ONE ~ 500 lbs; & Took 7 small pieces w/ crust (~ 2.0 cm Thick) + Alice has 1 large piece + 2 smaller ones -

Distribution:

25 kg	U.S.G.S.
8 kg	Japanese
382	Neptune
360	Bu Mines (~ 800 lbs)

S. Johnston I.

USGS DREDGE LOG 20-CD18

Ridge

SHIP/LEG F7-86-HW

STATION # 20

DREDGE # 18

DEPTH INTERVAL(m) 2560-2420

DEPTH(m)corrected (bites) _____

DATE JD 342 LOCAL 7-12-86

on/off bottom TIME GMT 0939 — 1110 ~~LOCAL~~

LATITUDE 16°25.6 TO 16°25.8

LONGITUDE 169°31.1 TO 169°33.2

TOTAL WEIGHT: DREDGE 130 kg CRUST 40 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 100% TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 60 mm MINIMUM 20 mm AVERAGE 40 mm

DOMINANT SURFACE TEXTURE Smooth; also bulbous + rippled

SUBSTRATE LITHOLOGY altered basalt, altered volc. breccia dominant, common altered basalt. very little substrate overall; one large boulder (0.5m X 0.25m) accounts for most of the substrate. 20% of dredge composed of Mn crust rubble.

NODULES PRESENT NONE

REMARKS:

Distribution: 6 kg U.S.G.S.
2 kg Japanese
122 kg Bu Mines (~270 lbs)

S. Johnston I.

Ridge

USGS DREDGE LOG

21-CD19

SHIP/LEG F7-86-HW

STATION # 21

DREDGE # CD19

DATE JD 342 LOCAL 12-8-86

TIME GMT 1245 LOCAL 1505

DEPTH INTERVAL(m) 2530-2880

" " bites 2430-2530

DEPTH(m)corrected

LATITUDE 16°26.7 TO 16°26.9

LONGITUDE 169°32.0 TO 169°33.9

TOTAL WEIGHT: DREDGE 25 kg CRUST ~10 kg

PERCENTAGE OF ROCK COVERED BY CRUST 80%

PERCENT BROKEN FROM: OUTCROP ~80% TALUS 20%

THICKNESS OF MN CRUST: MAXIMUM 25 mm MINIMUM <1 mm AVERAGE 10 mm

DOMINANT SURFACE TEXTURE smooth and botryoidal

SUBSTRATE LITHOLOGY limestone predominates, minor volcanic breccia and cobbles + pebbles of basalt

NODULES PRESENT <10%

REMARKS: limestone very poorly consolidated, basalt highly vesicular, volcanic breccia has volcanic, and limestone clasts, some with their own Mn crust

Distribution: 5 kg USGS

20 kg Bu Mines (~40 lbs)

Sampled for:

XRD, OC, O, Sr, U, Th, S, Fl, Cl

+ 35mm. G. Smith. 6/29/90

S. Johnston I.

USGS DREDGE LOG 22-CD 20

Ridge

SHIP/LEG E7-86-HW

STATION # 22

DREDGE # CD 20

DEPTH INTERVAL(m) 2070 - 2340 m

" " bites

DEPTH(m)corrected 2070 - 2280

DATE JD 342 LOCAL 12-8-86

TIME GMT 1817 to LOCAL 1945

on/off bottom

LATITUDE 16° 25.0 TO 16° 24.8

LONGITUDE 169° 31.5 TO 169° 31.9

TOTAL WEIGHT: DREDGE 70 kg CRUST 5 kg

PERCENTAGE OF ROCK COVERED BY CRUST 70

PERCENT BROKEN FROM: OUTCROP >99 TALUS <1

THICKNESS OF MN CRUST: MAXIMUM 15 mm MINIMUM <1 mm AVERAGE 2 mm

DOMINANT SURFACE TEXTURE granular to smooth

SUBSTRATE LITHOLOGY Volcanic breccia, 2 Types (1) Brecciated clasts of altered basalt in yellowish brown calcite(?) + clay cement (2) yellow, fine-grained vole. debris altered in calcite cement; 2 small basalt cobbles.

NODULES PRESENT NONE

REMARKS:

Distribution: 1 kg USGS

30 kg Bu Mines (~ 65 lbs)

30 kg Japanese

9 kg Neptune

USGS DREDGE LOG 23-CD21

Ridge

S. Johnston I.

SHIP/LEG F7-86-HW

STATION # 23

DREDGE # CD 21

DATE JD 342 LOCAL 12-8-86

TIME GMT 2129 ~~LOCAL~~

DEPTH INTERVAL(m) 2775-2350

DEPTH(m)corrected bites 2775-2370

LATITUDE 16°26'? TO

LONGITUDE 169°31'? TO

TOTAL WEIGHT: DREDGE 570 kg CRUST 180 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 85% TALUS 15%

THICKNESS OF MN CRUST: MAXIMUM 130 mm MINIMUM 5 mm AVERAGE 45 mm

DOMINANT SURFACE TEXTURE Smooth undulatory to bulbous surface

SUBSTRATE LITHOLOGY Basalt 40% volc. breccia 60%; few phosphorite

2 type basalts -

NODULES PRESENT NONE

REMARKS: Many large slabs w/ breccia (coarse-grained) substrate & thick crust - many basalt cobble sized rocks & many broken from outcrop; some completely coated w/ Mn have phosphorite or breccia nuclei -

Distribution:

50 kg U.S.G.S

500 kg Bu Mines (~1100 lbs)

20 kg Japanese

S. Johnston I.

Ridge

USGS DREDGE LOG 24-CD22

SHIP/LEG F7-86-HW

STATION # 24

DREDGE # CD22

DEPTH INTERVAL(m) 2630-2320
bites 2430-2340

DEPTH(m)corrected

DATE JD 343 LOCAL 12-8-86

TIME begin GMT 0122 ~~LOCAL~~ end

LATITUDE 16°25.5' TO

LONGITUDE 169°30.2' TO

TOTAL WEIGHT: DREDGE 12 kg CRUST 3 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 100 TALUS 0

THICKNESS OF MN CRUST: MAXIMUM 60 MINIMUM 20 AVERAGE 45

DOMINANT SURFACE TEXTURE Smooth To granular

SUBSTRATE LITHOLOGY Gray Basalt, some massive others vesicular

NODULES PRESENT NONE

REMARKS: All To Bu Mines

Distribution 12 kg Bu Mines

S. Johnston I. Ridge

USGS DREDGE LOG 25-CD 23

SHIP/LEG F7-86-HW

STATION # 25

DREDGE # CD 23

DEPTH INTERVAL(m) 2740-2340
" " bites 2340-2370

DEPTH(m)corrected

DATE JD 343 LOCAL 12-8-86

TIME GMT 0449 LOCAL 0747

LATITUDE 16°26.0' TO 16°26.20'

LONGITUDE 169°31.06 TO 169°33.75'

TOTAL WEIGHT: DREDGE 230 kg CRUST 50 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 85% TALUS 15%

THICKNESS OF MN CRUST: MAXIMUM 60 mm MINIMUM 2 mm AVERAGE 30 mm

DOMINANT SURFACE TEXTURE Modified Botryoidal 60%; smooth 40%

SUBSTRATE LITHOLOGY Basalt volcanic breccia; Basalt [illegible]

NODULES PRESENT NONE

REMARKS:

Distribution: 10 kg U.S.G.S
20 kg Japanese
200 kg Bu mines (≈ 440 lbs)

S. Johnston I.

Ridge

USGS DREDGE LOG 26-CD24

SHIP/LEG F7-86-HW

STATION # 26

DREDGE # CD 24

DATE JD 343 LOCAL 12-9-86

TIME on GMT 0928 ~~LOCAL~~ off 1128

DEPTH INTERVAL(m) 3160-2320 m
bite interval 2380-2290

DEPTHcorrected

Bottom LATITUDE 16° 25.58 TO 16 25.9

LONGITUDE 169° 30.69 TO 169 33.1

TOTAL WEIGHT: DREDGE 155 kg CRUST 30 kg

PERCENTAGE OF ROCK COVERED BY CRUST 85%

PERCENT BROKEN FROM: OUTCROP 90% TALUS 10%

THICKNESS OF MN CRUST: MAXIMUM 65 mm MINIMUM < 1 mm AVERAGE 40 mm

DOMINANT SURFACE TEXTURE Modified Botryoidal, mushroom type to smooth

SUBSTRATE LITHOLOGY Reddish brown volcanic Breccia; one small boulder of yellowish-brown; basalt cobbles, relatively fresh gray; Volcaniclastic Sandstone dominant substrate type

NODULES PRESENT NONE

REMARKS:

Distribution: 30 kg USGS
115 kg Bu Mines (~250 lbs)
10 kg Neptune

S. Johnston I.

Ridge

USGS DREDGE LOG 27-CD25

SHIP/LEG F7-86-HW

STATION # 27

DREDGE # CD25

DEPTH INTERVAL(m) 2320 - 2450
bites same

DEPTH(m)corrected

DATE JD 343 LOCAL 12-9-86

on & off TIME ~~GMT~~ 1427 LOCAL 1609

LATITUDE 16° 26.0 TO 16° 26.7

LONGITUDE 169° 32.3 TO 169° 33.0

TOTAL WEIGHT: DREDGE 550 kg CRUST 115 kg

PERCENTAGE OF ROCK COVERED BY CRUST 90%

PERCENT BROKEN FROM: OUTCROP 80% TALUS 20%

THICKNESS OF MN CRUST: MAXIMUM 90mm MINIMUM <1mm AVERAGE 45mm

DOMINANT SURFACE TEXTURE Smooth By Far; Smoothed Botryoidal distant second

SUBSTRATE LITHOLOGY Dominantly Basalt, gray; Basalt breccia

NODULES PRESENT NONE

REMARKS: Three large boulders one is a slab w/ 9cm-Thick crust - photo

Distribution: 1 kg USGS
549 kg Japanese

S. Johnston I. Ridge

USGS DREDGE LOG 28-CD26

S P/LEG F7-86-HW

STATION # 28

DREDGE # CD26

DEPTH INTERVAL(m) 2220-2440
" " bites 2220-2350

DEPTH(m)corrected

DATE JD 343 LOCAL 12-9-86

TIME begin GMT 1915 ~~LOCAL~~ end

LATITUDE 16°25.6' TO

LONGITUDE 169°27.8' TO

TOTAL WEIGHT: DREDGE 600 kg CRUST 90 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 80% TALUS 20%

THICKNESS OF MN CRUST: MAXIMUM 60mm MINIMUM 2mm AVERAGE 30mm

~~DOMINANT~~ SURFACE TEXTURE Irregular porous; smooth, & bulbous

SUBSTRATE LITHOLOGY Basalt dominant; several types of volcanic breccia, at least 3, maybe 4; phosphorite; Mn cobbles w/mn nuclei

NODULES PRESENT <1%

REMARKS: Six large boulders + slabs, all w/ basalt substrate except one w/ breccia.

Distribution: 40 kg USGS
20 kg Japanese
540 kg Bu Mines (~1200 lbs)

SE Karin Ridge

USGS DREDGE LOG 29-CD27

S P/LEG F7-86-HW

STATION # 29

DREDGE # CD27

DATE JD LOCAL

TIME GMT LOCAL

DEPTH INTERVAL(m) _____

DEPTH(m)corrected _____

LATITUDE _____ TO _____

LONGITUDE _____ TO _____

TOTAL WEIGHT: DREDGE _____ CRUST _____

PERCENTAGE OF ROCK COVERED BY CRUST _____

PERCENT BROKEN FROM: OUTCROP _____ TALUS _____

THICKNESS OF MN CRUST: MAXIMUM _____ MINIMUM _____ AVERAGE _____

DOMINANT SURFACE TEXTURE _____

SUBSTRATE LITHOLOGY _____

NODULES PRESENT _____

REMARKS: _____

Bag lost!

S. Karin

Karin Ridge

USGS DREDGE LOG 30 CD 28

SHIP/LEG F7-86-HW

STATION # 30

DREDGE # CD 28

DATE JD 344 LOCAL 12-10-86

TIME GMT begin 1956 ~~LOCAL~~ end 2230

DEPTH INTERVAL(m) 2210-1950 m

" " bites 2070-2210

DEPTH(m)corrected

LATITUDE ? TO 16° 40.8

LONGITUDE ? TO 168° 12.1'

— NO NAVIGATION —

TOTAL WEIGHT: DREDGE 40 kg CRUST 22 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 100% TALUS

THICKNESS OF MN CRUST: MAXIMUM 95 mm MINIMUM 2 mm AVERAGE 45 mm

DOMINANT SURFACE TEXTURE Granular rippled to granular bulbous

SUBSTRATE LITHOLOGY Basalt

NODULES PRESENT no

REMARKS:

Distribution - 40 kg USGS

S. Karin

Karin Ridge

USGS DREDGE LOG 31 CD29

SHIP/LEG E7-86-HW

STATION # 31

DREDGE # CD 29

DEPTH INTERVAL(m) 1950-2400

" " " " bites 2290-2390 1970-2120

DEPTH(m)corrected

DATE JD 344 LOCAL 12-10-86

TIME begin GMT 2302 ~~LOCAL~~ end 0412

LATITUDE 16°40.79' TO

LONGITUDE 168°12.11'(?) TO

TOTAL WEIGHT: DREDGE 295 kg CRUST 193 kg

PERCENTAGE OF ROCK COVERED BY CRUST 100%

PERCENT BROKEN FROM: OUTCROP 95% TALUS 5%

THICKNESS OF MN CRUST: MAXIMUM 150 mm MINIMUM 30 mm AVERAGE 75 mm

DOMINANT SURFACE TEXTURE Ripple Botryoidal

SUBSTRATE LITHOLOGY Volc. breccia, basalt

NODULES PRESENT None

REMARKS:

Distribution: 135 U.S.G.S.

140 kg Bu Mines (~310 lbs)

20 kg Japanese

S. Karin

Karin Ridge

USGS DREDGE LOG

32 CD30

S P/LEG F7-86-HW

STATION # 32

DREDGE # CD30

DATE JD 345 LOCAL 12-10-86

TIME begin GMT 0535 ~~LOCAL~~ end 0716

DEPTH INTERVAL(m) 2000-1920

" " bites 1950-1920

DEPTH(m)corrected

on top of bottom LATITUDE 16 33.19 TO 16 33.47

LONGITUDE 168 16.83 TO 168 16.38

TOTAL WEIGHT: DREDGE 220 kg CRUST 30 kg

PERCENTAGE OF ROCK COVERED BY CRUST 90 %

PERCENT BROKEN FROM: OUTCROP 60% TALUS 40%

THICKNESS OF MN CRUST: MAXIMUM 70 mm MINIMUM <1.0 mm AVERAGE 15 mm

DOMINANT SURFACE TEXTURE granular; irregular; botryoidal

SUBSTRATE LITHOLOGY basalt; second basalt breccia;

NODULES PRESENT None

REMARKS:

Distribution:

USGS 75 kg

Bu mines 77 kg (~170 lbs)

Japanese 68 kg (~150 lbs)

USGS DREDGE LOG

CRUISE/LEG _____

STATION # _____

DREDGE # _____

DATE JD _____ LOCAL _____

TIME GMT _____ LOCAL _____

DEPTH INTERVAL(m) _____

DEPTH(m)corrected _____

LATITUDE _____ TO _____

LONGITUDE _____ TO _____

TOTAL WEIGHT: DREDGE _____ CRUST _____

PERCENTAGE OF ROCK COVERED BY CRUST _____

PERCENT BROKEN FROM: OUTCROP _____ TALUS _____

THICKNESS OF MN CRUST: MAXIMUM _____ MINIMUM _____ AVERAGE _____

DOMINANT SURFACE TEXTURE _____

SUBSTRATE LITHOLOGY _____

NODULES PRESENT _____

REMARKS: _____