DREDGE 37
Syoyo Ridge

SAMPLE ID	Mn CHEM	Pt & Au	REE	Si Chem	P.Sect.	35mm Pho	Archive	Paleo	40 elem				
D37-1A	Bulk	Bulk	Bulk										
D37-1-B	Bulk	Bulk	Bulk						Bulk				
D37-2				Green Mud	24 ✓								
D37-3													
D37-4	Bulk												
D37-5	Bulk												

Mariana Is

Cruise I.D: ~~LS-83-HW~~

Sample Description

Sample I.D: Sta: D 37-1A

Location: Syoyo Ridge

Depth: 1417-1572 m

End piece

Size: 2 big bags Weight: _____

of pieces of crusts w/ some attached substrate

Mn crust thickness:

Total: min: _____ max: 30 mm ave: 20 mm

Inner crust: min: _____ max: _____ ave: _____

Outer crust: min: _____ max: _____ ave: _____

Surface texture: botryoidal

Internal structure: _____

layered: X

laminated: _____

massive: _____

porous: _____

dendritic: _____

other: _____

75% of crust removed from large boulder

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits: _____

Substratum:

Rock type: breccia

Description: Extremely altered greenish-orange to brown breccia w/ clasts of sandstone? pumice?, basalt?? all altering to clays

Mineralogy (XRD): _____

Analyses and subsamples:

analysis:	analyst:
Chemistry: bulk crust sent for Manheim, Pt group & Au, REE (see back)	L. Morgenson 7/86
XRD: bulk crust (from piece sent for chem) 37-1-1	

Good piece from Boulder

Mariana Is. boxed area sent for chem. (crust only)

D37-1A The piece sent for chem 7/86

There is sediment interspersed in the crust.

piece from which chem sample taken

dim. 9.5 X 11 X 7 cm wt: 662 gms (wet)

crust thickness:

min 1.5 cm max 2.5 cm ave 2.0 cm

From a large [illegible] boulder which [illegible] in dredge.

Sample Description

** Cruise I.D: ~~LS-83-HW~~ MARIANA ISLANDS

Sample I.D: Sta: D37-1B

Location: Sycyr Ridge

Depth: 1572-1417m

Total: 3 large bags, slab ≈ 3Kg

Size: 25x13x13cm Weight: 15 Kg total wt (wet)

2 bags full of [illegible] crust w/ little or no substrate

Mn crust thickness:

Total: min: 8mm max: 26mm ave: 14mm

Inner crust: min: max: ave:

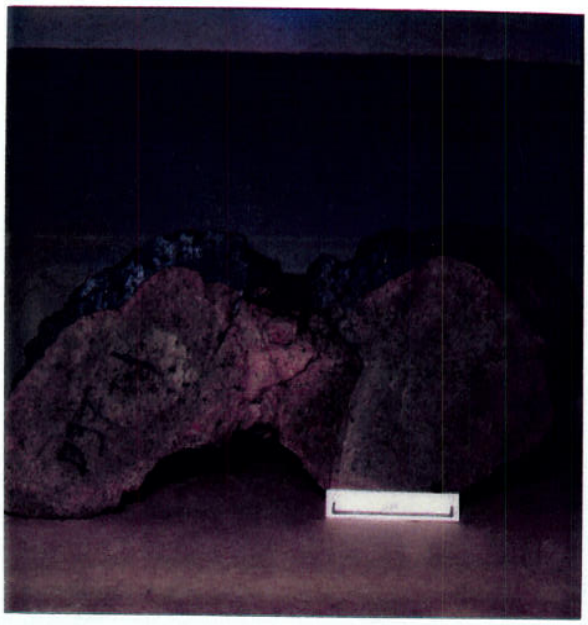
Outer crust: min: max: ave:

Surface texture: Medium botryoidal

Internal structure:

layered:
laminated:
massive:
porous: ✓ w/honeycomb texture in places
dendritic:
other:

Slab from Large Boulder
Cut onboard ship



MARIANA ISLANDS
D37-1-B SLAB

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: Extremely altered basalt??

Description: Green to orange to red-orange, well-rounded, well indurated (it is a breccia or sst) or very hard but can scratch surface w/knife so altering to clays. Has phenocrysts(?) of clear & green glassy qtz? olivine? & black phenocrysts of hornblende??

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:
* Homogenized ≈ 1 Kg of crust that was scraped of boulder on board ship and sampled for chemistry	
D37-1C-A - 'Manheim' pkg	
-A - pt group	
-A - gold	
-D - REE	
-E - Semi-quant.	
XRD on same as above	
D37-1C: bulk crust	

** Now divided into 5 bags total:
3 large bags of broken crust - 75% of crust removed from boulder on ship → D37-1C*
1 bag of rock [illegible] for chemistry & XRD - End piece D37-1A
[illegible] D37-1B - Cut on ship

Sample Description

Cruise I.D: ~~L5-83-HW~~ MARIANA ISLANDS

Sample I.D: Sta: D 37-2

Location: Syoyo Ridge

Size: 53x24x20 cm Weight: 19.62 kg

crust thickness:

Total: min: 2cm max: 9.5cm ave: 3cm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Medium botryoidal

Internal structure:

layered:
laminated:
massive: ✓
porous: ✓
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

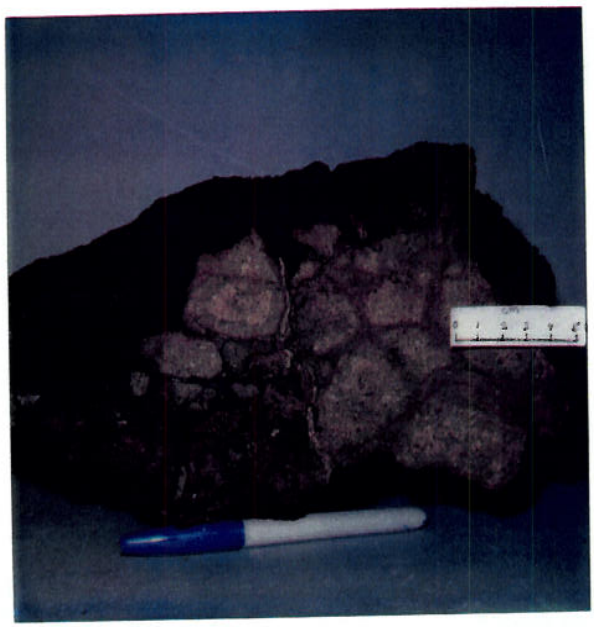
Abundant [illegible]
Some Fe-oxides in crust
A volcano shape [illegible] tube coated w/Mn

Substratum:

Rock type: Andesite(?) Breccia

Description: Greenish tan, altered sub-rounded poorly sorted (.5-10cm) moderately [illegible] abundant phenocrysts of clear rounded quartz & clear [illegible] & black [illegible] hornblende in a green to orange (Fe oxide stained) fairly well indurated mud matrix. Large vein [illegible] of rock of brown mud intermixed w/Mn & w/small (<5mm) sub-rounded volc. clasts.

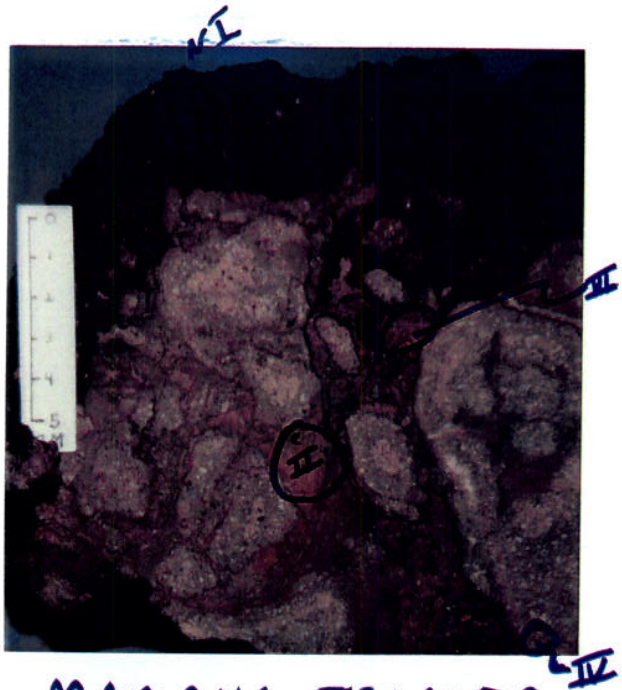
Mineralogy (XRD):



MARIANA ISLANDS
D37-2 smaller end

Analyses and subsamples:

analysis:	analyst:
XRD:	Charlaine
D37-2-I: bulk Mn	
D37-2-II: green mud	
D37-2-III: brown mud	
D37-2-IV: andesite clast	
polished thin section	Mann Retro.
doubly polished thin section	
Chemistry - majors	
D37-2-A green mud	



MARIANA ISLANDS
D37-2 Larger end section

MARIANA ISLANDS
D37-2A

MARIANA ISLANDS
D37-2B middle slab

Sample Description

Cruise I.D: ~~L5-83-HW~~ TT-198 MARIANA ISL.

Sample I.D: Sta: D37-3

Location: Syoyo Ridge

Size: 7x5x4cm 10x10x6cm to 11 pieces

Weight: 2.35 Kg

Mn crust thickness:

Total: min: 1cm max: 3cm ave: 2cm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: Botryoidal (smooth)

Internal structure:

layered:
laminated:
massive:
porous: ✓
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Fe-oxides throughout Mn crust
Abundant forams on surface of crust

Substratum:

Rock type: Volcaniclastic Breccia

Description: See D37-2
Most have little substrate, one has no substrate

Mineralogy (XRD):

MARIANA ISLANDS
D37-3

Analyses and subsamples:

analysis:	analyst:

MARIANA ISLANDS
D37-3

Sample Description

Cruise I.D: ~~L5-83-HW~~

Sample I.D: Sta: D 37-4

Location: Guam Ridge

Depth: 1417-1572 m

Size: [illegible] Weight: 696 gms (dry)

Mn crust thickness:

Total: min: [illegible] max: [illegible] ave: 2.5 cm

Inner crust: min: max: ave:

Outer crust: min: max: ave:

Surface texture: [illegible]

Internal structure:

layered:
laminated:
massive:
porous:
dendritic:
other:

Mineralogy (XRD):

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: [illegible]

Description: [illegible]

Mineralogy (XRD):

MARIANA ISLANDS
D37-4

Analyses and subsamples:

analysis:	analyst:
[illegible]	[illegible]

D37-4 Blocked part sent for bulk chem.
mariana Is. 7/86