Dredge 39 Alkatrez Seamount (Guyot), Marcus-Wake Seamounts

24° 03.2N / 149° 54.8'E - 24°08.3'N / 149° 58.6'E; 2400-1600 m.

Summary:

Content comprised of about 15 lbs rocks: chunks of white reef limestone and small pieces of basalts, some rounded, and Mn crusts.

Rock Groups:

Group I: Plagioclase phyric basalt
Samples 1, 2.

Group II: Plag-phyric mugearite (?)
Samples 3,4,5.

Group III: Plag, olivine-phyric basalt ,± cpx
Samples 6,7,8.

Group IV: Olivine ± cpx phyric basalt
Samples 13, 14.

Group V: Aphyric basalts & alkalic differentiates (some sparsely plag-phyric).
Samples 15-22.

Group VI: carbonates
Coarse well cemented bioclastic grainstone. the grains are mostly highly leached mollusc fragments, some micritic grains, minor coral. Abundant coarse dogtooth and equnat spar cement.
Packstone of poorly sorted shell debris and micritic particles. Also a large rudist with well developed canal structures: may be dateable.
Packstone/wackestone. Fine chalky micritic matrix with abundant fossils, including corals, mollusc debris, and gastropods. May be partially pelagic, but could be very imported if it is a backreef-facies.

Work Plans:

Thin sections: 1,2,3,4,5,6,9,10,13,14,15,16,17,18,20,21. Chose 10
Geochemistry: 2, 5,7,8,9,10,11,12,13,14,20,22.
Dating (Malcolm Pringle): 1,3,4,6,9,15,16,17,18,21.

Other (Robert vanWaasbergen): 28, 29, 30, 31, 32, 33
Thin sections of 28, 29, 30, 31.

Comments:

Dredge Number	39	39	39	39	39	39	39	39
Sample Number	1	2	3	4	5	6	7	9
PETROGRAPHER	HS	Hs	PEJ	BML	BML	BML	BML	BML
Approximate Weight <g>	200	150	50	60	60	200	40	300
Mn crust thickness	3	4	<1	0	0 - 2	0 - 3	0 - 1	0 - 1
Palagonite rind thickness				0	0	0	0	0
ROCK TYPE:(PHENO-ROCK)	pl (cpx)	pl (cpx)	pl (cpx)	pl (cpx)		pl ol		
STRUCTURAL	flo	flo	porph	phyric		phyric		
Mono-lithological?	y		y	y	s	y	s	s
Fresh Glass?	n		n	n	a	n	a	a
Rock Color	grey	s	tan	tan	m	gray	m	m
Groundmass Texture	int	a	int	int	e	int	e	e
Ave Grain Size (mm)		m				0.01		
% alteration		e			a	40	a	a
Phenocryst Texture/Distr.	3		5	5	s	3	s	s
Clinopyroxene %	<1	a	<1	<1		0		
size (mm)	<1	s	<1	<1	#		#	#
shape	subhedral		intergr.	sub	3		6	6
alteration %	fresh	#		30				
alteration phase		1						
Olivine %						1		
size (mm)						1.0		
shape						euh		
alteration %						20+		
alteration phase								
plagioclase %	2		5	7		0		
size (mm)	31811.0		1 - 3	0.5-2				
shape	euhedral		euh	sub				
alteration %	fr?		<20	40				
alteration phase								
amphibole %								
size (mm)								
shape								
alteration %								
alteration phase								
other %								
type								
size (mm)								
shape								
alteration %								
alteration phase								
Vesicles %	2		1	1		0		
type	rd							
size (mm)	1		~1	1				
shape	rd		rnd/irr	rnd/irreg				
total filling %	10		10	10				
filling-type	clay		clay	clay				
%	10		10	10				
filling-type								
%								
General appearance								
and/or other distinguishing								
characteristics								

39	39	39	39	39	39	39	39	39	39
8	10	11	12	13	14	15	16	17	18
BML	BML	BML	BML	BML	BML	BML	BML	BML	BML
50	300	100	70	100	30	20	10	30	20
0 - 1+	0 - 0.1	0	0 - 2	0	0	0 - 2	0 - 1	0 - 3	0 - 0.5
0	0	0	0	0	0	0	0	0	0
				ol (cpx)		pl (ol)		aphyric	
				phyric		phyric			
s	s	s	s	y	s	y	s	y	s
a	a	a	a	n	a	n	a	n	a
m	m	m	m	gray	m	gray	m	gray	m
e	e	e	e	inters	e	inter	e	inters	e
				0.1		0.01		0.1	
a	a	a	a	45	a	45	a	50	a
s	s	s	s	10	s	2	s	0	s
				tr		0			
#	#	#	#	<1	#		#		#
6	6	6	6	sub	1		1		1
				30	3		5		7
				10		tr			
				0.5-1		<1			
				euh		sub			
				100		100			
						2			
						1.0			
						sub			
						30			

39	39	39	39	39	39	39	39	39
19	20	21	22	23	24	25	26	27
BML	BML	BML	BML	BML	BML			
30	40	20	100	300	100			
0	0	0	0					
0	0	0	0					
ol	pl ol	ol	aphyric	blue	phosphorite	misc.	misc.	misc.
phyric	phyric	phyric		and tan	breccia	phosphorite	sediment	undescribed
y	y	y	y	phosphorite		chips	chips	basalt
n	n	n	n					chips,
tan	gray	gray-tan	tan					similar
micro. pl.	inter	inter	inter					lithologies
0.3	0.01	0.01	0.1					
65+	55	50-70	60					
2	2	1	tr					
0	0		tr					
			<1					
			euh					
			10					
2	2	1	<<1					
1.0	<1	<1						
sub	sub	sub						
100	100	100						
in	tr	0						
grnd mass	1.0							
	sub							
	50							
tr	1							
1	1 - 2							
rnd	irr							
0	5							
	zeo							
	5							

39					
28					
ecrystallized					
reef					
limestone					

Dredge 40 Summary: Seth Guyot

Location: 23°52.8'N 148°42.6'E to 23°52.6N 148°44.15E

Summary: about 200 g of material - two basalt cobbles.

Basalt Rock Groups:

Group I: Plag-phyric.

Group II

Group III

Group IV

Group V

Group VI

Work Plans:

Thin sections:

Dating:

Isotopes:

Alteration:

Dredge Number	40	40	40					
Sample Number	1	2	3					
PETROGRAPHER	MSP	MSP	MSP					
Approximate Weight <g>	40	150	200					
Mn crust thickness	0	<4						
Palagonite rind thickness								
ROCK TYPE:(PHENO-ROCK)	ol pl	aphyric						
STRUCTURAL								
Mono-lithological?	y							
Fresh Glass?	n							
Rock Color	gr-br							
Groundmass Texture	micrxln							
Ave Grain Size (mm	<0.5							
% alteration	?							
Phenocryst Texture/Distr.	2							
Clinopyroxene %	0							
size (mm)								
shape								
alteration %								
alteration phase								
Olivine %	1 - 2							
size (mm)	≤2							
shape	eu							
alteration %	100							
alteration phase	clays							
plagioclase %	≤1							
size (mm)	≤5							
shape	eu							
alteration %	<20							
alteration phase	clays							
amphibole %								
size (mm)								
shape								
alteration %								
alteration phase								
other %	<1							
type	spinel							
size (mm)	<2							
shape								
alteration %	10							
alteration phase	clay?							
Vesicles %	0							
type								
size (mm)								
shape								
total filling %								
filling-type								
%								
filling-type								
%								
General appearance								
and/or other distinguishing								
characteristics								

Tunes Dredge 41 SW rift Seth Guyot

23° 49.2' N/ 148° 40.5' E- 23° 49.1' N/ 148° 40.6' E (3400-3200m)

Summary: About 200 lbs, mainly two large boulders of VCL with thick Mn crusts. Also an assortment of basaltic cobbles, including some very well-rounded stream cobbles

Rock Groups:

Group I aphyric to sparsely - phyric basalts

Group A: sparsely ol (<1%) - plag (<1%) ± cpx massive basalts
Smpls: # 3,7,8
Chem: # 7,8 (all of sample #3 to MP)
TS: MP: # 3 HS: # 7,8

Group B: sparsely ol - plag - phyric vesicular AOB/hawaiite(?)
Smpls: # 4,5,6
Chem: # 4,5,6 (MP took a 1 cm slab of # 4, 6)
TS: MP: # 4, 6; HS: # 5

Group C: undifferentiated basaltic cobbles, some v. well-rounded, some oxidized red; Smpls: # 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 24, 26, 27A
Chem: each to HS, except 1 cm slab of #13 to MP also
TS: MP: # 13

Group II plag (1-3%) ± ol ± cpx - phyric, ± vesicular basalts

Group A: plag (1%) -cpx (1%) + ol massive basalts occur as cobbles and/or large fractured pieces in 2 large boulders (Smpls # 1 & 2) and 1 small cobble (#25). Also abundant zeolites and celadonite in fractures; rock best classified a (mono-lithogic?) VCL.
Smpls: # 1, 2, 25
Chem: #1, 2, 25 (MP took a 1" slab of #1 to try test mineral separate)
TS: MP: #1

Group B: several types of basaltic cobbl;es, all with plag <= 2mm, most altered completely to white clays. Smpl #9 has fresh plag bu relatively small -- might try plag separate if Smpls #3, (+ 7 + 8) don't work out.

Smpls: # 9, 10, 18, 21, 23 Chem: # All to HS

Group III Undescribed and bagged Mn crusts and substrate
Group IV Undescribed and bagged clastics
Group V Undescribed and bagged basaltic cobbles
Group VI Sharks tooth (#28)

Work Plans:

Thin sections: HS: #5, 7, 831
MP: **#1, 3, 4, 6, 13**

Dating: #1: plag, celadonite separate; #3: plag if can get enough; #4, 6, 13: possible WR IH, check thin section

Isotopes: #1: cpx; #3: groundmass separate after plag separate

SEAMOUNT ROCK DESCRIPTION

Dredge Number	41	41	41	41	41	41	41	41	41
Sample Number	1	2	3	4	5	6	7	8	9
PETROGRAPHER	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
Approximate Weight <g>	1000	750		200	300	150	200	100	50
Mn crust thickness	0-4	0-1	<3	<1	<1	<1	<1	<1	<1
Palagonite rind thickness	0	0	0	0	0	0			
ROCK TYPE:(PHENO-ROCK)	hyd/fl. brecc		cpx/ol.	ol micro	plag	aphyr	ol/cpx		pl/cpx/ol?
STRUCTURAL	w/cpx phyric		porph	phyric	porph	basalt	porphyry		porph.
Mono-lithological?	cobbles N		Y	Y	Y	Y	Y		Y
Fresh Glass?	N		N	N	N	N	N		N
Rock Colour	Brown		Gray	gray	gray	brown	gray		gray
Groundmass Texture	micro/inter		inter	inter	inter	inter	micro		inter
Ave Grain Size (mm)	0.02		0.05	0.03	0.05	0.1	0.01		0.03
% alteration	>80					>30	>10		~10?
Phenocryst Texture/Distr.	<1		≈2	1		0	3		4
Clinopyroxene %	<1		<1				1		1
size (mm)	1-3		0.5-15				0.5-1		~1
shape	eu		eu				eu/sub		eu
alteration %	>25		?				20-100		10-60
alteration phase	?								
Olivine %	<1		<1	tr			2		1(?)
size (mm)				0.5			0.5-0.1		1
shape				eu			eu		100
alteration %				100			100		30-100 ?
alteration phase									2
plagioclase %	1		<1		1	tr			0.5-2
size (mm)	ingm				1-2				eu
shape					eu				
alteration %					80-100				
alteration phase					clay				
amphibole %	?								
size (mm)									
shape									
alteration %									
alteration phase									
other %									
type									
size (mm)									
shape									
alteration %									
alteration phase									
Vesicles %	<1 in brecc not bkt		0	10	10	5	1	0	0
type									
size (mm)	1-3			0.5-1.1	0.5-2	0.5-15	1		
shape	irreg			irreg	rnd/irreg	rnd/irreg	irreg		
total filling %	20-30			10	10	10	100		
filling-type	zeo			zeo	zeo	zeo	?		
%	100			100	90	50			
filling-type					clay	clay			
%					10	70			

Same as #1

Same as #2

SEAMOUNT ROCK DESCRIPTION

Dredge Number	41	41	41	41	41	41	41	41	
Sample Number	10	11	12	13	14	15	16	17	18
PETROGRAPHER	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
Approximate Weight <g>	100	25	90	50	70	70	50	10	15
Mn crust thickness	<1	<1	<1	<1	<1	<1	0	<1	0-1
Palagonite rind thickness	0	0	0	0	0	0	0	0	0
ROCK TYPE:(PHENO-ROCK)	pl/ol/cpx				cpx	plag	aphyric		
STRUCTURAL	porph				porph	porph	porph		
Mono-lithological?	Y				Y	Y	Y		
Fresh Glass?	N				N	N	N		
Rock Colour	gray			violet	pink	pink	red		
Groundmass Texture	micro				micro	inter	aph		
Ave Grain Size (mm)	0.01	Same as #6	Same as #6	Same as #6	0.02	0.05	<0.01	Same as #6	Same as #14
% alteration	0.?				>50	>50	>100		
Phenocryst Texture/Distr.	6				<1	1	0		
Clinopyroxene %	1/2				<1				
size (mm)	0.5				0.5-1				
shape	eu/sub				eu/sub				
alteration %	?				>30				
alteration phase									
Olivine %	1/2								
size (mm)	1-4								
shape	eu								
alteration %	100								
alteration phase									
plagioclase %	5					1			
size (mm)	0.5-1					1-1.5			
shape	eu					eu			
alteration %	60-100					40-100			
alteration phase									
amphibole %									
size (mm)									
shape									
alteration %									
alteration phase									
other %									
type									
size (mm)									
shape									
alteration %									
alteration phase									
Vesicles %	0		<1	3	5	25	65	20	10
type									
size (mm)			1	2-4	0.5-2	0.5-3	0-4	1-2	0.5 1.5
shape			irr/irr	irr	irr	irr	irr/irr	irr	irr
total filling %			25	25	60	5	100	20	15
filling-type			clay	OX	clay/ox	zeo	clay	zeo	clay
%			25	15	60	5	100	10	50
filling-type				clay				clay	zeo
%				10				10	45

SEAMOUNT ROCK DESCRIPTION

Dredge Number	41	41	41	41	41	41	41	41	41
Sample Number	PEJ	20	21	22	23	24	25	26	27 A
PETROGRAPHER	19	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
Approximate Weight <g>	30	50	50	60	100	70	70	150	100
Mn crust thickness	<1 m	<3	<1	<1	<1	<6	0	0	0
Palagonite rind thickness	0	0	0	0	0	0	0	<1	<9
ROCK TYPE:(PHENO-ROCK)		Cpx	plag/ol	ply		ophyric	ply/ol	ol	plag
STRUCTURAL		porph	porph	porph		basalt	porph	porph	porph
Mono-lithological?		Y	Y	Y		Y		Y	Y
Fresh Glass?		N	N	N		N		N	N
Rock Colour		brown	brown	brown		violet		brown	violet
Groundmass Texture		aph	inter	inter		inter	micro	hyaline	micro
Ave Grain Size (mm)		<001	0.05	0.05		0.05	0.01	?	<0.01
% alteration		>60	>60	>70		>90		>75	>95
Phenocryst Texture/Distr.		<1	5	5		0		<1	<1
Clinopyroxene %	Same as #14	<1	0		Same as #22		Same as #1		
size (mm)		0.8							
shape		eu							
alteration %		fr?							
alteration phase									
Olivine %			1					<1	
size (mm)			~1					0.5-1	
shape			eu					eu	
alteration %			90					100	
alteration phase									
plagioclase %			4	5					<1
size (mm)			0.5-1.5	0.5-2					0.5-1
shape			eu/sub	eu/sub					eu/sub
alteration %			90-100	90-100					70-100
alteration phase									
amphibole %									
size (mm)									
shape									
alteration %									
alteration phase									
other %									
type									
size (mm)									
shape									
alteration %									
alteration phase									
Vesicles %		5	5	<1		8		2	4
type									
size (mm)		0.1-1	0.5-2	~1		1-10		0.5-4	1-3
shape		red/irr	irr	irr		irr		irr	irr
total filling %		10	30	10		5		10	55
filling-type		zeo	zeo	zeo		clay		clay	clay/ox
%		8	30	8		5		7	55
filling-type		clay		clay				zeol	
%		2		2				3	

Dredge 42 Seth Guyot (NW rift)

23° 53.5' N/ 148° 41.5' E- 23° 54.2' N/ 148° 42.9' E (2400-3600m)

Summary: About 250 lbs of basalt , volcanoclastic and hyaloclastic sediments, and some phosphatized pelagic limestone. Includes pillow breccia with nice internal quenched margins (Smpl #1) and palagonite rims up to 2 cm thick (i.e. smpls #8, 10).

Rock Groups:

Group I ol.(2-5%) - cpx (<1%) - phyric basalts

Samples seem to be from a very similar litohology with a nearly continuous gradation in vesicularity, from relatively massive samples (#1,11) to vesicular samples (up to 15%, #6,7,8,9). Some of the olivine is replaced by a relatively crystalline, green mineral phase (celadonite?) -- try to sepeate some for dating. Cpx occurrs as sparse phenocryts up to 10mm x 5mm; some appear resorbed (see slab from #3). Nice zeolite amigules on some samples (i.e., #6): Smpls: # 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 14

Chem: # **3**, 5, **6**, 7, **8**, 9, 10, 11, 14

TS: #**3**, 4, 5, **6**, 7, 8, 9, 10, 14

Group II cpx (2-5%) - ol (c. 2%) - plag (tr.- ?%) massive basalts

Cpx phenocrysts up to 2mm + many smaller microphenocrysts, at least some of which are plag. Smpl. #1 is a pillow breccia with nice internal chilled margins which may have fresh glass. The interior of Smpl #15 appears to have larger and more abundant microphenocryts of plag (and less cpx?) in a somewhat fresher, less oxidized (grey rather than brown) groundmass; it may in fact represent a separate, intrusive pulse of magma: Smpls: # 1, 13, 16, 15 (described sample is interior, exterior similar to others)

Chem: #1: 1" slab to HS, rest to MP, try glass separate?
#13, 15. 16: all to MP for now
TS: MP will make **#1, 13, 15, 16**

Group III plag (2%) ±ol ± cpx vesicular basalt

Sample #17 has relatively altered plag up to 4 mm x 2mm but some cores may still be fresh. **All to MP for TS** and mineral separate.

Group IV ol (1-2%) plag (<1%) ± cpx -phyric basalts

Four cobbles with various degress of alteration and vesicularity. Plag micro-phyric (< .5-1mm) but appears fresh, at least in smpl #20: Smpls: # 18, 19, 20, 21

Chem: ??; all of each to HS
TS: # **20**

Group V VCL's, HCL's, other sediment

#22-25: VCL and HCL; #26: phosphatized pelagic lms; #27: phosph (white); #28

Work Plans:

Thin sections: HS: 2, **3**, 4, 5, **6**, 7, 8, 9, 10, 14, **20**, 22: ordered 3, 20
MP: **1, 13, 15, 16, 17**

Dating: #1, 13, 15, 17, plag separate; #3 celadonite separate

Isotopes: cpx, ± glass ± plag from #1; cpx, celadonite from #3, cpx, celadonite from other Group I samples?; cpx ± plag from samples 13, 15, 16, plag separate from #17 (if enough)

Dredge Number	42	42	42	42	42	42	42	42
Sample Number	1	2	3	4	5	6	7	8
PETROGRAPHER	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
Approximate Weight <g>	1200	600	2000	1500	1000	120	1000	1500
Mn crust thickness	<25	<3	<6	<4	<6	<5	<5	<2
Palagonite rind thickness			0	0	0	0	0	0
ROCK TYPE:(PHENO-ROCK)	ol/cpx	cpx/ol?	ol	same as #3	same as #3	same as #3	same as #6	same as #6
STRUCTURAL	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry
Mono-lithological?	y	y	y	y	y	y	y	y
Fresh Glass?	?	n	n	n	n	n	n	n
Rock Color	brn-orange	gray	brown	brown	brown	brown	brown	brown
Groundmass Texture	micro	micro	aphanitic	aphanitic	aphanitic	aphanitic	aphanitic	aphanitic
Ave Grain Size (mm	<0.01	<0.01						
% alteration	>90	20-Oct	>50	>50	>50	>50	>50	>50
Phenocryst Texture/Distr.	5	2	3	3	3	3	3	3
Clinopyroxene %	3	2	<1	<1	<1	<1	<1	<1
size (mm)	0.5-1.5	0.5 - 2	0.2 - 1	0.2 - 1	0.2 - 1	0.2 - 1	0.2 - 1	0.2 - 1
shape	euhedral	sub/euh	euhedral	euhedral	euhedral	euhedral	euhedral	euhedral
alteration %	10-30?	30 - 100	10	10	10	10	10	10
alteration phase								
Olivine %	2	tr?	3	3	3	3	3	3
size (mm)	1 - 6	1 - 2	1 - 3	1 - 3	1 - 3	1 - 3	1 - 3	1 - 3
shape	euhedral	euhedral	euhedral	euhedral	euhedral	euhedral	euhedral	euhedral
alteration %		100	100	100	100	100	100	100
alteration phase								
plagioclase %								
size (mm)								
shape								
alteration %								
alteration phase								
amphibole %								
size (mm)								
shape								
alteration %								
alteration phase								
other %								
type								
size (mm)								
shape								
alteration %								
alteration phase								
Vesicles %	15		2	2	6	15	15	15
type			voids	voids				
size (mm)	<20		0.5-5	0.5-5	0.5 - 2+	1 - 10	1 - 10	1 - 10
shape	irr		irregular	irregular	rnd/irr	rnd	rnd	rnd
total filling %	20		10	10	80	50	50	50
filling-type	zeo		smectites	smectites	zeo	zeo	zeo	zeo
%	20		10	10	70	30	30	30
filling-type					clay	clays	clays	clays
%					10	20		
General appearance								
and/or other distinguishing								
characteristics								

42	42	42	42	42	42	42	42	42	42
9	10	11	12	13	14	15	16	17	18
PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	MSP
3000	2000	1000	150	150	300	500	600	500	50
<1	<15	<2	<2	<4	<3	<3	<4	<2	?
0	0	0	0	0	0	0	0	0	0
same as #6	ol/cpx?	ol/cpx?	same as #11	cpx	ol/cpx	plg/hb?	cpx	same as #11	ol-(plag)
porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	porphyry	pheric
y	Y	Y	Y	Y	Y	Y	Y	Y	y
n	N	N	N	N	N	N	N	N	n
brown	brown	brown	brown	lt. brown	brown	lt. gray	tan	brown	gray
aphanitic	hyaline	inter	inter	microxln	inter	aphanitic	aph/hyaline	inter	inter
	<0.01	0.05	0.05	0.01	0.05	<<0.01	<0.01	0.05	<0.01
>50	>90	>90	>90	>40	>90	20-40	>75	>90	>90
3	2	2	2	5	2	4	2	2	1
<1	tr?	tr?	tr?	5	tr?	<1	2	tr?	
0.2 - 1	0.5-4	0.5-4	0.5-4	0.5-2	0.5-4				
euhedral									
10									
3									
1 - 3									1
euhedral									0.5-3
100									euh
									100
									<1
									0.5
									sub
15									
									20
1 - 10									
rnd									0.5-2
50									rnd
zeo									10
30									clay
clays									5
									zeo
									5

42	42	42	42	42	42	42	42	42	42
19	20	21	22	23	24	25	26	27	28
MSP	MSP	MSP	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
200	200	100	1500	1200	800	500	100	100	1000
7	5	5	<1	<10	40	25			<10
0	0	0	0						
ol-plag	ol-(plag)	ol-(plag)	ol-pheric	Same	Same	Same	Carbonate	Phosphorite	Same
pheric	pheric	pheric	clasts	as	as	as	Sediments		as
y	y	y	y	#22	#22	#24			#24
n	n	n	n						
gray	gray	red-brown	brown						
inter	inter	inter	hyaline						
<0.01	<0.01	<0.01	<0.01						
>90	>90	>90	100						
3	2	1	2						
			tr?						
2	2	1	2						
0.5-3	0.5-3	2 to 4	1.0						
euh	euh	euh	euh						
100	100	100	100						
1	<1	tr							
0.5-1	0.5-1	<1							
sub	sub	sub							
4	0	35	<1		10				
1 to 4		1-10+	1 to 2		0.5-2				
rnd-irr		rnd-irr	rnd		rnd				
60		10	100		50				
clay		clay	clay, ox		clay				
60		8	100		25				
		MnOx			zeo				
		2			25				

Dredge 43 Seth Guyot (attempted carbonate dredge south, lost dredge)

Dredge 44 (Seth Guyot, W. Marcus-Wake Seamounts)

23° 42.6'N/148° 46.0'E to 23° 44.4'N/148° 48.0'E 3500m-3000m

Summary: A few boulders and cobbles of Mn-encrusted basalt, one large fossiliferous limestone boulder, minor Mn-oxide crusts, minor pelagic sediment.

Basalt Rock Groups:

Group I: Aphyric, massive basalts.

Note chilled margin(?) on #3; Smpls.3 and 18 are sparsely ol, plag, cpx phyric, but <<1%.: Samples: # 1, 2, 3, 4, 5, 18
Chem: # 1, 2
TS: # 1, 2

Group II: Olivine phyric basalts.
Group A: vesicular, 2-5% ol: Samples: # 6, 19, 20; Chem: # 6, 20; TS: **# 6, 20**
Group B: massive, 2-5% ol-phyric cobbles. Centers of 7 & 10 appear aphyric.
Samples: # 7, 8, 9, 10.; Chem: # all cobbles , all to HS.
Group C: massive, 3 - 5% olivine microphyric.Samples: # 11, 12, 13; Chem: # all cobbles, all to HS; TS: **# 12**

Group III: Plag (1 -3%), massive, microphyric basalt cobbles.
Samples 14, 15, 16, 17; Chem: small cobbles, all of 14 & 15 to MP all of 16 & 17 to HS; TS: MP: #14 & 15; HS: none chosen yet for 16&17

Group IV: Undescribed basaltic cobbles.
Some cut and resemble lithologies already described; rest could be described later.
Group V: Volcaniclastics and hyaloclastites.
21, 24: palagonite - single pieces or HCL?
22: relatively fine-grained vcl, fragments <1 cm, most much smaller, angular.
23: HCL cobble
26, 27, 28 VCL, including basaltic cobbles described.

Sediments:
Fine grained fossiliferous limestone. (wackestone) The matrix consits of sand to siltsized carbonate grains with some larger benthic forams, the fossil debris consists mostly of thin-walled rudist shells, with some coral fragments and gastropods. Probably a lagoonal facies, open lagoon environment. (D44-S1, S2)
Poorly preserved pelagic foram packstone (chalk), with occasional large shell fragments, possibly of neritic molluscs (??). (D44-S3).

Work Plans:
Thin sections: HS: 1, 2, 6, 12, 20, 26A took 1+6
MP: 14?, 15?
Dating: difficult plag separate on 14, maybe 15, check TS
Isotopes: include leached WR from #1 or #2

Dredge Number	44	44	44	44	44	44
Sample Number	1	2	3	4	5	6
PETROGRAPHER	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
Approximate Weight <g>	600	1000	50	50	250	1500
Mn crust thickness	<2	<2	<3	<3		<10
Palagonite rind thickness	0	0	0	1	1	ol
ROCK TYPE:(PHENO-ROCK)	ol	ol	ol	ol (micro)	ol (micro)	porph
STRUCTURAL	porph	porph	porph	phyric basalt	phyric basalt	y
Mono-lithological?	y	y	y	y	y	n
Fresh Glass?	n	n	n	n	n	purple-red
Rock Color	m gray	m gray	gray-brown	brown	gray	aphanitic
Groundmass Texture	microxln	microxln	microxln	microxln	microxln	<0.01
Ave Grain Size (mm)	0.01	0.01	0.01	0	0	100
% alteration	?	?	>25	>30	>30	5
Phenocryst Texture/Distr.	2%	2%	<1			
Clinopyroxene %						
size (mm)						
shape						
alteration %						
alteration phase						
Olivine %	<1	<1	<1	<1	<1	5
size (mm)	0.5-2	0.5-2	0.5-2	0.5-1	0.5-1	1 - 8
shape	eu/sub	eu/sub	eu/sub	eu	eu	eu
alteration %	100	100	100	100	100	100
alteration phase	clay	clay	cel, smect			?
plagioclase %						
size (mm)						
shape						
alteration %						
alteration phase						
amphibole %						
size (mm)						
shape						
alteration %						
alteration phase						
other %						
type						
size (mm)						
shape						
alteration %						
alteration phase						
Vesicles %	0	0	<<1			15
type	veins	veins				
size (mm)			0.5			0.5-20
shape			rnd			irr
total filling %			10			90
filling-type			clay			clay
%			10			80
filling-type						MnO
%						10
General appearance						
and/or other distinguishing						
characteristics						

44	44	44	44	44	44	44	44
7	8	9	10	11	12	13	14
PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
150	200	100	200	200	100	50	60
<3	<3	<3	<2	<4	<2	1	1
0	0	0	0	0	0	0	0
ol	ol	ol	ol	ol micro	ol cpx	ol cpx	cpx ol plag
phyric	porph	porph	porphyry	phyric	porphyry	porph	porph
y	y	y	y	y	y	y	y
n	n	n	n	n	n	n	n
gray	lt gray	lt gray	gray-brn	gray-brn	gray brn	gray-brown	gray
microxln	microxln	microxln	microxln	inter	micro	inters	inters
0.01	<0.01	<0.01	<0.01	0.02	<0.01	0.05	0.03
>35	?	?	>60	>40	?	~25	~25
2	6	6	3	6	5	6	4
			tr?		1	1	<1
			<0.05		0.5-1	0.5	0.5
					eu/sub	eu/sub	eu/sub
					<75	?	?
2	6	6	3	5	3	5	1
1 - 4	1 - 4	1 - 4	0.5-3	0.5-1	0.5-1	0.5-1	0.5-1
eu	eu	eu	eu	eu	eu	eu	eu
100	100	100	100	100	100	100	100
							3
							0.5-1
							eu
							100
20			6		<1	5	
0.5 - 2			<1		<1	0.5-105	
irr			irr		rnd	rnd	
100			100		0	30	
clay			clay			zeo	
100			100			30	

44	44	44	44	44	44	44	44
15	16	17	18	19	20	21	22
PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ	PEJ
100	50	25	50	50	100	100	200
2	2	1	1	1 - 6	<1	1 - 2	<1
0	0	0	0	0	0	0	some?
cpx ol plag	cpx ol	cpx ol	cpx ol	ol	ol	ol	/cl w/ cpx porpl
porph	porph	porph	porph	phyric	porph	porph	clasts
y	y	y	y	y	y	~y	n
n	n	n	n	n	n	n	n
brown	brown	brown	brn-gray	gray	gray	brown	brown
inters	microxln	microxln	microxln	inters	aphanitic	microxln	microxln
0.05	0.01	0.01	0.01	0.05	<0.01	0.01	0.01
>50	>75	>75	>50	?	<50	100	100
2	3	3	1	2	1	1	1
<1	1	1	,1			tr?	1
0.5	0.5	0.5	0.5-1				0.5
eu/sub	eu/sub	eu/sub	eu/sub				sub
?	?	?	?				>50
<1	<1	<1	2	2	1	1	
0.5-1	0.5-1	0.5-1	0.5-1.5	0.5-1	0.5-4	1 - 3	
eu	eu	eu	eu	eu	eu	eu	
100	100	100	100	100	100	100	
						tr?	
3				20	10	10	0
0.5-2				0.5-3	0.5-3	<0.5	
rnd				irr	irr	rnd	
50				100	100	100	
clay				clay	clay	zeo	
50				100	80	100	
					MnOx		
					20		

44	44	44	44	44	44	44	44
23	24	25	26	26a	27a	27b	28
PEJ	PEJ	PEJ	PEJ	PEJ	KMM	KMM	KMM
100	25	various	>1000		30	20	1000
0 - 4	0 - 10	unsorted	<1		5	5	25
?	?	and	0	0	8	3	Volcaniclastic
vcl w/ cpx porph	vcl w/ cpx porph	undescribed	vcl	ol	cpx pl	pl (micro)	breccia
clasts	clasts	basalt	clastic	porph	porph	phyric	Irregular
n	n	cobbles		y	(In HCL)	(in HCL)	fragments
n	n			n	n	n	of basalts
brown	brown			gray	med yell gray	med gray	and
hyaline	hyaline			inter	microxln	aphanitic	phosphorites
0.01	0.01			0.05	<0.01	<<0.01	many having
100	100			?	80	<20	their own
<1	<1			5	5?	micro	MnO coats
<1	<1			tr	<1	?	in a
0.5	0.5			<0.5	<0.5		hyaloclatite
sub	sub			eu/sub	eu		matrix
>50	>50			?	fr-50		
					4		
					0.2 - 1	0.1-0.5	
					eu	eu	
					100?	100	
					zeo?	cc/zeo	
						?	
						0.5	
						eu	
						100	
15	15		20	10	15		
					<0.5		
<0.05	<0.05		1 - 3	0.2-2	rnd		
rnd	rnd		rnd	rnd	20		
30	30		80	50	zeo		
zeo	zeo		clay	zeo	90		
30	30		75	80	MnOx		
			MnO	smect/MnO	10		
			5	20			
				also has a			
				12mm phosph-			
				phorite crust			

44	44
28a	28b
KMM	KMM
40	30
-20	-25
(pl)	(cpx?) ol
porph	porph
n	
lt gray	
aphanitic	inters w/ ol
<0.01	0.02
50	50
1	1
	tr?
	1
	<1
	eu
	100
	ox, sm
1	
1	
euh	
100	
clay	
0	20
	0.1-1
	rnd
	30
	sm/MnO
	90
	cc
	10