DATE: 6-7 August 1984 SAMPLE:
CRUISE ID: SO 33 18 DK box dredge
LOC: II
AREA: B

	time (GMT)	LAT (N)	LON (W)	water depth (m)	wire on
ON BOTTOM =	2151	9° 42.3206	162° 11.0440	1940	2050
OFF BOTTOM =	~~0008~~	~~9° 44.0043~~	~~162° 10.1486~~	~~1482~~	
OR →	0038	9° 44.225	162° 9.821	1316	1756

time on bottom = 2 hr 47 min

RECOVERY WEIGHT = total 50 kg crust 2 kg

CRUST THICKNESS = .25 - 2 cm Avg = .5 cm

SUBSTRATE = hyaloclastite. Also pumice (white-gray) Scoria (glassy brown porous)
2 large pieces of hyaloclastite (25 x 35 x 9 cm)

COMMENTS:

Much biota - little stars, coral, 2 small bivalves, whale ear bone

* 1 Bio sample
* smear slides made

18 DK

SO33 18DK4 | SO33 18DK1

Rock Type:	~~Trachyte~~ Phosphorite pattern?	~~Trachyte flow breccia~~	Basalt, Massive
Color:	Grayish-orange (10YR 7/4)	Light brown (5YR 6/4) clasts; Pale brown (enclosing flow rock) (5YR 5/2)	pale-brown (5YR 4/2) to moderate yellowish-brown 10YR 5/4
Texture:	Vitrophyric	→ -do-	Subaphyric, Intersertal
Phenocrysts:	Feldspar (K-Spar?) - ±10%, ±5mm Amphibole (?) - ±5%, ±1mm	→ -do-	Olivine? ±5%, ±1mm dia Plagioclase? ±2%? ±1mm dia.
Groundmass:	Glass - ±82%	→ or more	- not resolved -
Vesicles:	shape - irregular elongat oval Size - ±1mm - ±3mm dia. % ±3 - ±30% filling: most lined w/ ~~phillipsite~~? needles Francolite	irregular ±3 mm dia ±1% - ±10% (some included clasts) (white rx)	Round - oval ± 2mm dia ± 25% chalcedony, calcite, phillipsite? usually open in interior
Alteration:	phenocrysts and groundmass appear to be totally altered, devitrified - probably the composition is now phillipsite/cristobalite/tridymite/Fe-Oxide Incorporates Volcanogenic material	Similar more oxidation?	Intense alteration to zeolites (phillipsite, smectite, Fe(OH)$_3$?) vesicles all lined with zeolite crystals / fragments are oxidized peripherally [illegible]
Remarks:	Rare specimens in the dredge appear as lapilli retaining spatter shapes derived from being hurled, still molten, through air - most compelling evidence yet for subaerial eruption and exposure of this seamount.	Rare specimens in the dredge, pebble-size fragments subangular composed of phosphorite glass with incorporated fragments of ~~trachytic vitrophyre~~ basaltic glass some of which is subscoriaceous very altered - probably altered, completely to zeolites.	Rare specimens in the dredge, pebble size fragments [illegible] vesicles vary [illegible] subaerial eruption [illegible] in all specimens suggests subjection to high degree of hydrothermal activity at some stage.

← appear to be coated thinly w/ Fe(OH)$_3$ or hematite —

Phosphorite

← halmyrogens →

SO33 18DK3

SO33 18DK2

Rock Type	Basaltic ~~Trachyte~~ hyaloclastite I	Basaltic Hyaloclastite II
Color:	varied: various shades yellow-green gray (5Y 8/4, 7/2, 6/4, 7/6, 5/2, 5GY 2/1)	Moderate brown (5YR 4/4) to very pale orange (10YR 8/2) (matrix) (cement)
Texture:	pyroclastic	Clastic (pyro?)
Matrix:	Basaltic ~~Trachytic~~ aphanitic glass shards, rock fragments in varying states of alteration, ± 70%, ± 0.5 mm dia.	Basaltic aphanitic ± 50%, ± 2 mm dia glassy debris Basaltic aphanitic ± 10%, ± 2 mm dia rock fragments
Cement:	Smectites (montronite?) Zeolites? ± 30%	Calcite, phosphorized? Zeolite?? Smectite? ± 40%
Avge grain size:	0.5 mm	± 2 mm dia
Sorting:	moderately sorted	moderately poor
Grain shape:	angular - subangular	angular to subround
Porosity:	± 25%	± 25%
Permeability:	± 20%	± 20%
Alteration:	Smectitization, zeolitization? hydration	extensive to total Zeolitization? Smectitization? oxidation, hydration
Remarks:	Similar to other dredged hyaloclastites, but contains lighter-colored rock fragments, greenish-yellow montronite? Some pieces (pebble-size) bear ± 2 mm thick layer of L-MnO₂? on exposed surfaces in turn coated allovers with thin film of Fe(OH)₃?	Very much resembles other basaltic hyaloclastites from this seamount; thin coating of L-MnO₂? (± 2 mm thick) covers surface of rough, irregular outcrops; in some cases, the coating is ± 3 cm thick, considerably smoother (reniform) on exposed surfaces

Same - AOB

But different type of hydrothermal alteration and deposit

Note: 18DK had some erratics? in it:

(18DK 5) 1. small pebbles of very light-colored, water-logged pumice

(18DK 6) 2. piece of scoriaceous very fresh, very recent basalt? with included angular fragments of trachyte? or similar silicic volcanic rx - certainly not from this seamounts effusal