(219)

DATE: 6 August 1984 SAMPLE:
CRUISE ID: SO 33 15 DK Box dredge
LOC: II
AREA: B

	time (GMT)	LAT (N)	LON (W)	water depth (m)	wire
ON BOTTOM =	0620	9°42.9798	162°10.0241	1602 (876 fm)	185
OFF BOTTOM =	0747	9° 43' 33"	162° 09' 53"	1487 (813 fm)	1290
(Corrected:)					

RECOVERY WEIGHT = total 36 kg crust 10 kg

CRUST THICKNESS = 0.5 cm – 4 cm Avg = 2 cm
2 generations
Partly polished surface (current scour texture)
SUBSTRATE = Hyaloclastite boulder (60 cm x 6 cm)

COMMENTS: Top of crust has "living" burrows, and a worm attached. Shark's tooth encrusted in the Mn, also scour texture on the Mn surface.

One large boulder w/ thick crust (4 cm) and chips of Mn crust (loose)
(large boulder, immediately decrusted + pounded into pieces)
* 1 bio sample

15 DK

15 DK

Gesamtmenge: 30 kg
10 kg Krusten

3-4 Probenstücke, hyaloklastisches Substrat, total umkrustet, einige isolierte flache Fe-Krusten Scheiben (vom Untergrund abgerissen)

15 DK 1 Hyaloklastit mit oberer + unterer Kruste (total umkrustet) Krustenmächtigkeit 2-4 cm, Oberfläche knotig 0,5-1 cm, 2 Generationen junge Kruste 1 cm, alte Kruste 2 cm, Unterseite feinknotige Fe-Kruste Oberfläche Substrat leicht alteriert und mit Praphonit durchsetzt. Größe 70 × 40 cm

15 DK 2 30 × 10 cm - total umkrusteter Hyaloklastit

15 DK 3 dichter, feinkörniger Hyaloklastit, umkrustet mit 0,5 cm mächtiger Kruste, feinknotige Oberfläche, Unterseite dünne Fe Kruste feinstknotig

Sample Description

Cruise I.D: So 33 15 DK Sample I.D: Sta: 15 DK Location: "Sonne Sm

162° 09' 53" W
9° 43' 33" N
(-) 1487 m.

Size: _____ Weight: _____

Mn crust thickness:

Total: min: _____ max: _____ ave: _____

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

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

Surface texture: _____

Internal structure: _____

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

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: _____

Description: _____

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:

15DK1	15DK2	15DK3
Rock Type: Basalt (AOB?) (massive)	Basaltic breccia	chalk foraminifera
Color: olive gray (5Y 4/1) to dusky yellowish-brown to grayish-brown (5YR 3/2)	Moderate brown (5YR 4/4)	very pale orange (10YR 8/2) to pale yellowish-brown
Texture: Aphanitic hyalopilitic	Clastic (hyalopilitic aphanitic)	granular
Phenocrysts: not observed	not observed	—
Groundmass: not resolved	not resolved	—
Vesicles: shape: round to irregular, size: ± 1mm – ± 5 mm, % 0 – ± 35 %	not detected	—
Alteration: strong – intense (Smectitization, Zeolitization? oxidation/hydration	intense oxidation! (Smectitization, Zeolitization? hydration	phosphorization?
Remarks: Scarcity of basalt (massive) in this dredge. pebble clasts included in basaltic breccia is dense, aphanitic highly smectitized; 2 other manganese-coated fragments are highly oxidized, very vesicular (top of a subaerial flow?); β-MnO_2(?) coating is thin (± 1mm), warty, following rough topography of vesicular basalt.	most abundant rock recovered – seems consistent with similar material dredged from other parts of the guyot: gravel-size fragments of glassy basalt cemented with calcite or calcareous ooze – probably phosphorized; much open space between grains not cement-filled; covered with thin (± 1 mm) layer of β-MnO_2(?) (has to some extent penetrated open spaces in breccia); follows rough topography of the breccia	rare coarse gravel-size fragments (main mass probably so friable that most was lost due to grinding by harder rocks in the dredge; contains ± 1 mm-dia pores; appears, in some samples, to have abundant coloring from MnO_2(?) dust.? Free nodules, warty, botryoidal surfaced 5-10 cm dia.; also some thicker ± 1 cm crusts on some hyaloclastite
Sorting: —	moderately sorted	moderately well-sorted
Cement: —	Calcite phosphorite Zeolite (?)	calcite/phosphorite?
Large grain size: —	± 3 mm (fine gravel)	± 0.20 mm
Matrix: —	intensely altered glassy basalt	80-90% Globigerina (Globorotalia(?)) ooze – consolidated, basaltic phosphorized glass shard (?) fragments, MnO_2 micro nodules(?)
Porosity:	± 35 %	± 50 %
Permeability: —	± 30 %	± 50 %
Grain shape: —	subangular to subround	flattened subrounded coarse gravel size

MISSING! (1-17-85)

Sample Description

Cruise I.D: S033

Sample I.D: Sta: 150K

Location: "Sonne" Sm
162°09'53"
9°43'33",
(-) 1487 m.

Size: _____ Weight: _____

Mn crust thickness:

Total: min: _____ max: _____ ave: _____

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

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

Surface texture: _____

Internal structure: _____

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

Mineralogy (XRD): _____

Associated alteration, phosphorite, or hydrothermal deposits:

Substratum:

Rock type: _____

Description: _____

Mineralogy (XRD):

Analyses and subsamples:

analysis:	analyst:

15DK4

Rock Type: Ferromanganese nodular

Color: Brownish-black (5YR 2/1)

Texture: dendritic (internally), grossly reniform, finely nodose surfaces

Remarks: probably dendritic accretion around volcanic, volcanogenic Sedimentary rock fragments (pebble-size) (not sawed open to see); subspherical to favoid in shape; very similar to nodules recovered in dredge 9

15DK5

ferromanganese encrustation

→ -do-

laminar internally

→ -do-

loose gravel-to-pebble-size fragments (angular, flat-spalls) derived from comminution (by dredge?) of encrustations on volcanic or volcanogenic sedimentary rock clasts (we were not allowed samples) (took a few scraps with no adhering substrates)

15DK6

Basalt hyaloclastite (ADS?)

Pale yellowish-orange (10YR 8/6) + Black (N1) (Pepper-and-salt texture) pyroclastic

(Matrix): Glass shards - ±80%

(Large Grain size): ± 1 mm

(Large Grain shape): subangular

(Cement): ferromanganese? (black granular, ± 20%.

(Sorting): moderately sorted

(Porosity): ± 80 %.

(Permeability): ± 50%

(Alteration): Totally altered (argillation to smectite, zolitization, plagioclazation of cement

(Remarks): subangular pebbles forming nuclei for accretion of dendritic ferromanganese oxide, often over coated w/ thin patina of brown remobilized iron oxide; remarkably similar (as is all matter from 15DK) to lithologies of 9DK