PROTOCOL DREDGE

| Cruise No. SO 37 | Stat. No. Equipm. | Location | Area H |
|---|---|---|---|
| 19.5 | 6 DK | SO-37/1 | Titow Seamount |

Date 18/05 1985 | Protocol written by : Holbach / Herzig

Pinger on wire 300 m from dredge !

| | Time GMT | Latit. ~~N~~S | Longit. W | Water depth | Wire length | Tension (t) | ~~Remarks~~ KURS |
|---|---|---|---|---|---|---|---|
| begin operation | 02.55 | 23'19 | 176°06'03 | 1493 | 0 | 0 | |
| begin lowering | 03.10 | 23'19 | 176°06'03 | 1493 | 0 | 1 | |
| +1. bottom contact | 03.31 | 23'13 | 176°06'05 | 1551 | 1562 | 2 | |
| | 03.44 | 23'65 | 176°06'98 | 1476 | 1762 | 1 | |
| Bemerkungen: | 03.54 | 23'48 | 176°06'98 | 1300 | 1806 | 1 | |
| | 04.04 | 23'25 | 176°06'97 | 1000 | 1806 | 6.6 | 353° |
| Dredge Boden- | 04.14 | 23'19 | 176°07'04 | 1150 | 1806 | 7.3 | 321° |
| kontakt von | 04.19 | 23'10 | 176°07'08 | 1137 | 1806 | 6.5 | 328° |
| 1493-1150m* | 04.24 | 22'99 | 176°07'12 | 1135 | 1806 | 6.6 | 336° |
| * echte Tiefe | 04.30 | 22'86 | 176°07'20 | 1130 | 1806 | 5.0 | 336° |
| | 04.32 | 22'80 | 176°07'23 | 1131 | 1794 | 8.0 | 329° |
| | 04.35 | 22'77 | 176°07'26 | 1134 | 1802 | 9.0 | 311° |
| Dredge fest | 04.42 | 22'75 | 176°07'32 | 1138 | 1802 | 9.0 | 262° |
| | 04.59 | 23'03 | 176°07'29 | 1148 | 1534 | 3.0 | 105° |
| neue Anfahrt | 05.11 | 23'12 | 176°07'19 | 1375 | 1300 | 2.0 | 155° |
| Pinger auf 200 m | 05.19 | 23'07 | 176°07'30 | 1380 | 1432 | 1.0 | 340° |
| Verrutscht!? | 05.26 | 22'85 | 176°07'35 | 1140 | 1532 | 1.0 | 345° |
| Dredge "fliegt" | 05.35 | 22'71 | 176°07'46 | 1141 | 1582 | 7.6 | 241° |
| | 05.39 | 22'68 | 176°07'51 | 1137 | 1582 | 9.6 | 296° |
| begin heaving | 05.57 | 23'01 | 176°07'70 | 1377 | 1454 | 2.6 | 237° |
| end heaving | 06.26 | 22'60 | 176°08'24 | | | 1.8 | |
| end operation | 06.56 | 22'60 | 176°08'24 | | | | |

+Corrected data 0° 23.91 S 176° 6,98 W

ship course ....s.c..... calcul. mean water depth.....m

total time of bottom contact 146 .min ship velocity 1.5 .kts

bottom topography flacher Hang length of dredge section 1.4 ...m

Schiffsweg

Result

100 .kg Total 30 .kg Substrate

....kg Nodules ....kg Sediment

S037 6DK  Pinger 300 m fr. dredge  5-19-85

| | Time GMT | Lat S | Long W | Water depth | Wire length | Tens | Kts |
|---|---|---|---|---|---|---|---|
| begin operation: | 02.55 | 23°19' | 176°06'03" | 1483 | 0 | 0 | |
| begin lowering: | 03.10 | 23°19' | 176°06'03" | 1483 | 0 | 1 | |
| +1 bottom contact: | 03.31 | 23°13' | 176°06'65" | 1557 | 1562 | 2 | |
| begin leaving | 05.57 | 23'01" | 176°07.70" | | | | |
| end leaving | 06.26 | 22'60" | 176°08'24" | | | | |
| end operation | 06.56 | 22'60" | 176°08'24" | | | | |

total time bottom contact 146 min.
ship veloc. 1.5 kts
length of dredge 1.4 m
100 kg. total wt.
1 kg nodules
70 kg. crusts
30 kg. substrates

Substrates (AOB basalt)
Volcanogenic breccia
minor phosphorite

95% from outcrop

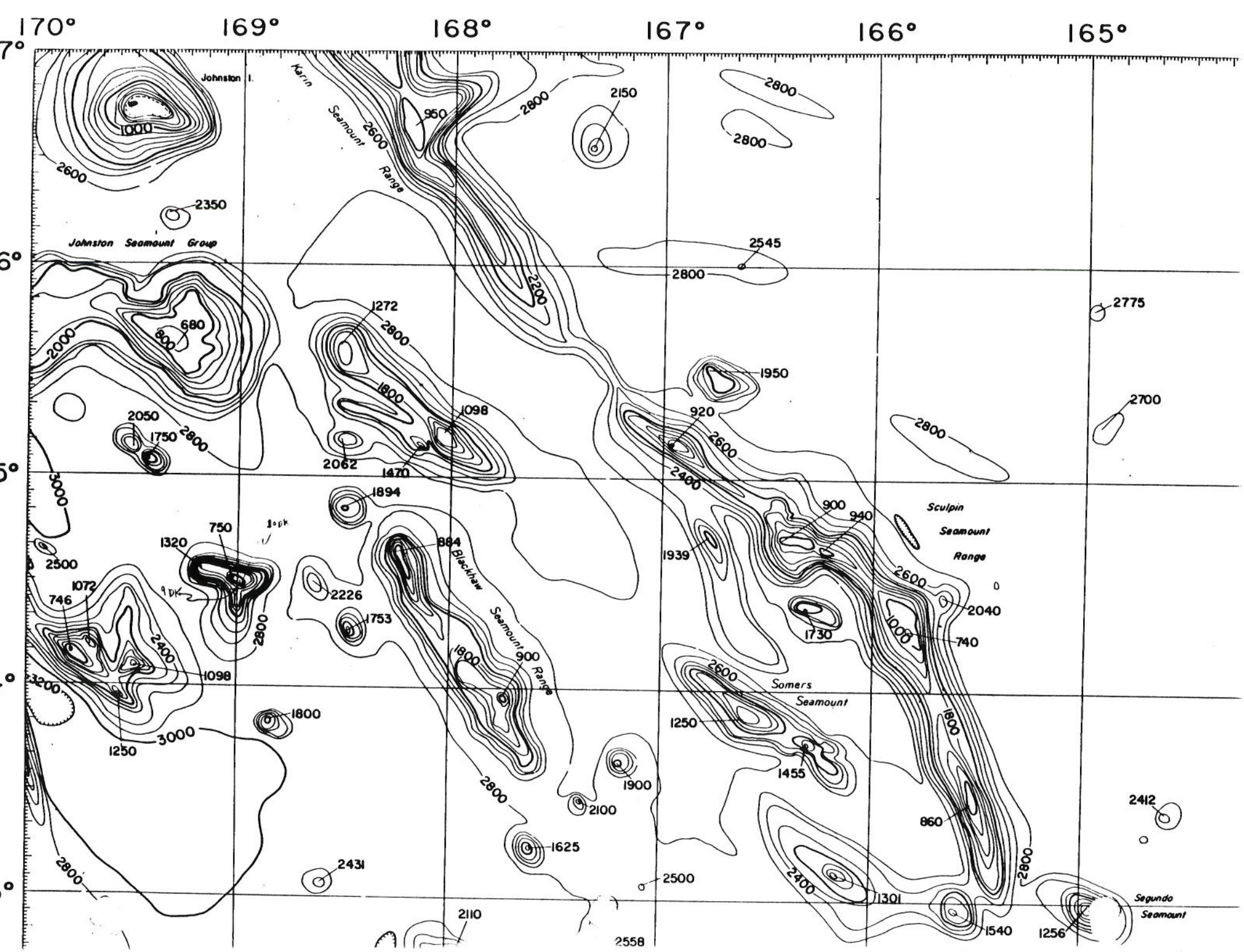
% crust in total dredge: ±100%

thickest crust 8 cm
thinnest crust ±2 cm } avge: 5 cm

Surface topog: botryoidal (in places smooth)
10% samples encrusted w/ forams

Substrate volcanogenic breccia, as in 5DK
2 generations crust on mm
lower - laminated, upper dendritic - strongly so in middle

| | 1 | 2 | 3 |
|---|---|---|---|
| Rock Type: | Basalt, Alk. Ol/cpx/hbl | Volcanogenic Breccia | → -do- |
| Color: | Medium Dark Gray (N4) | Dark yellowish-orange (10YR 6/6) to Pale yellowish-orange (10YR 8/6) (mean color) | Moderate Brown (5YR 4/4) mean color to moderate brown (5YR 3/2) and light brown (5YR 5/6) |
| Texture: | Subaphyric Intergranular (simple pxts) | → Pyroclastic/clastic | → -do- |
| Phenocrysts: | Olivine ≤1%, ±2 mm dia<br>Hornblende(?) ≤1%, ±2 mm dia<br>Augite(?) ≤1%, ±2 mm dia | Framework (Grains): AOB hyaloclastite cinders ±55%, ±2 mm dia avg; AOB clasts, ±25%, 5 mm dia avg | -do-, but ±50% Hyaloclastic cinders; ±20% AOB clasts |
| Groundmass: | (Prob.) Olivine, Plagioclase, Hornblende, Augite (not determined) | (Cement) Phosphorite, ±20% | ±30% chalk/phosphorite |
| | | Average Grain Size: ±8 mm (range: ±4 mm — ±3 cm) | ±5 mm (range: ≤1 mm — 4 cm) |
| | | Average grain shape: angular | → -do- |
| Vesicles: | generally absent; a few (<1%) irregular vug-like vesicles and a few (<1%) lensoid vesicles observed ±1 cm dia, empty or filled w calcite/smectite. | Sorting: very poorly sorted | moderately poorly sorted. |
| | | Porosity: very high | high |
| | | Permeability: low | high |
| Floation: | Slight to moderate (smectitization, oxidation) | → extensive/nearly complete (smectitization, oxidation, zeolitization, of hyaloclastite; phosphorization of cement) | → extensive (Oxidation, smectitization, zeolitization of matrix; phosphorization of cement. |
| Remarks: | pebble-to-boulder-size angular clasts serving as substrate for thick (2-8 cm) 2 generation laminar (lower crust), dense, hard to dendritic (upper crust) soft, punky, powdery ferromanganese crust, w/ knobby, warty surface topography; uppermost surface is rock in $Fe(OH)_3$(?); rock is jointed and joint planes display oxidative alteration aureoles in some pieces; several lensoid flat vesicles observed, which may indicate that the rock is a pillow lava, though no glassy rinds or palagonite are observed. phosphorite deposit (±2 cm thick) observed on some pieces beneath the $MnO_2$ crust. | → -do-, probably broken from outcrop by dredge<br>-do-<br>appears to be an incorporation of pre-existing $MnO_2$-covered angular AOB clasts in younger AOB hyaloclastite; interstices between the cinders and clasts infilled with calcareous ooze and subsequently phosphorized. | → very similar to 6DK2 but w/ more cement and larger avge grain size, somewhat better sorted, more indurated origins and diagenetic process appear quite similar. Cement appears to be more chalk and less phosphorite; AOB Clasts seem much more intensely oxidized than 6DK2 |


170°
169°
168°
167°
166°
165°
Johnston I.
Johnston Seamount Group
Karin Seamount Range
Blackhaw Seamount Range
Sculpin Seamount Range
Somers Seamount
Segundo Seamount
1000
2600
2350
950
2800
2150
2545
2200
2775
680
800
2000
1272
1800
1098
1950
920
2700
2050
1750
2062
1470
2400
3000
1894
900
940
750
1320
884
1939
2500
1072
746
2226
1753
2040
1730
740
1098
3200
1800
900
1250
1455
1900
2100
860
2412
1625
2431
2500
1301
2110
1540
1256
2558