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Vitrinite reflectance (Ro) of dispersed organics from eleven **Scotian Shelf wells**

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Vitrinite reflectance has been determined on drill cuttings samples (Table IIa-k) from eleven wells (Table I) on the Scotian Shelf approximately 300km east southeast of Halifax, Nova Scotia. These samples were measured to take advantage of sampling done by contractor (Dr. P.K. Mukhopadhyay) and to mesh with his organic petrography studies of samples from suspected hydrocarbon source rock intervals.

Sample preparation followed the procedure for kerogen listed in Appendix I. VR data for this report was gathered using a Zeiss Photometer III system with a custom microcomputer interface providing on-line data acquisition and statistical summaries.

Table I
Well information

Well	GSC Loc #	Location	Total Depth	Water Depth
Abenaki J-56	D010	44°15'44.59"N 59°53'03.02"W	4569m	25.9m
Alma F-67	D239	43°36'18.49"N 60°39'56.49"W	5054m	68m
Cohasset D-42	D096	43°51'06.52"N 60°37'13.89"W	4427m	41.2m
Cohasset L-97	D177	43°56'37.19"N 60°29'58.55"W	4872m	21.6m
Demascota G-43	D125	43°41'27.2 "N 60°49'54.0 "W	4672m	54.3m
North Triumph B-52	D289	43°41'02.3 "N 59°52'56.7 "W	3960m	81m
North Triumph G-43	D281	43°42'19.1 "N 59°51'22.9 "W	4504m	74m
Penobscot L-30	D165	44°09'43.56"N 60°04'09.34"W	4267m	29.9m
Uniacke G-72	D228	44°11'29.17"N 59°41'09.75"W	5735m	153m
Venture B-52	D224	44°01'12.88"N 59°38'07.76"W	5960m	19.5m
Venture H-22	D232	44°01'24.13"N 59°33'06.14"W	5944m	22m

Remarks

The data (Tables IIa-k) are plotted on a log Ro vs. linear depth scale (Figures 1-11). For comparison in some wells, data from previous reports from proximal wells are also plotted. The maturation slopes for the comparison wells were determined by the least squares method.

The specific maturation levels, as set out in this report, are slightly modified from terminology used by Dow (1977; Appendix II).

Abenaki J-56

The maturation slope (0.216 log Ro/km) for this well is based on 13 data points (Table IIa; Figure 1). The points cover only a short section of the bottom of the well 10090-14420' (3078-4569m). All the data points fall within the 'oil window'.

Alma J-47

The maturation slope (0.249 log Ro/km) for this well is based on only 3 data points (Table IIb; Figure 2). The points give only limited coverage of the lower section of the well (4130-4890m). For comparison, data points and maturation slope (0.185 log Ro/km) previously reported for this well (Avery, 1990a) are plotted. This slope is based on data from 32 cuttings samples. The new Ro data fit well with the previous data and support the interpretation that the 'oil window' for this well is between 2300 and 4800m. The lower section below 4800 is beyond the 'oil window' and into the 'wet gas generation zone'.

Cohasset D-42

The maturation slope (0.242 log Ro/km) for this well is based on 6 data points (Table IIc; Figure 3). The points give uneven coverage of the lower section of the well 10000-14500' (3057-4420m). For comparison, the data points and maturation slope (0.097 log Ro/km) previously reported for this well (unpublished internal report; Avery) are plotted. This slope is based on only 3 data points from cuttings samples of which only the lowest overlaps the new data. A slope line based on both sets of data is also plotted and probably best represents the true maturation slope for this section of the well. All the data place the maturation of this section of the well within the 'oil window'

Cohasset L-97

The maturation slope (0.275 log Ro/km) for this well is based on 7 data points (Table IId; Figure 4). The points give uneven coverage of the lower section of the well (3100-4870m). When compared with the new data for Cohasset D-42 the maturation slopes are almost coincident. The upper two points are in the 'oil window' and the lower 5 are just below the boundary of the 'oil window' and into the 'wet gas generation zone' range.

Demascota G-43

The maturation slope (0.220 log Ro/km) for this well is based on 4 data points (Table IIe; Figure 5). The points give uneven coverage of the lower section of the well (11490-15250' or 3502-4648m). The deepest two points are based on only one reading each but fall very close to the deepest sample in the data set from an earlier report on this well (Avery, 1992). The data points in the new set fall within the 'oil window'.

North Triumph B-52

The maturation slope (0.224 log Ro/km) for this well is based on 5 data points (Table IIf; Figure 6). The points cover a short section of the bottom of the well (2660-3715m). The maturation curve based on these points indicates the start of the 'oil window' is at approximately 3066m.

North Triumph G-43

The maturation slope (0.123 log Ro/km) for this well is based on 6 data points (Table IIg; Figure 7). The points cover the section of the well from 2660 to 4755m. The maturation curve based on these points indicates this section of the well lies within the 'oil window'.

Penobscot L-30

The maturation slope (0.349 log Ro/km) for this well is based on 9 data points (Table IIh; Figure 8). The points cover the section of the well from 12280 to 14000' (3743-4267m). This slope value is higher than the other wells in this report and does not project to approximately 0.2% Ro at surface (see wells in Figures 2,5,9 & 10). It is similar to lower slopes in other wells in the area such as Venture B-43 (unpublished internal report; Avery), South Venture 0-59 (unpublished internal report; Avery) and Chebucto K-90 (Avery, 1990). The maturation curve, based on the 9 sample points, indicates this section of the well lies within the 'oil window'.

Uniacke G-72

The maturation slope (0.233 log Ro/km) for this well is based on 6 data points (Table IIi; Figure 9). The points give uneven coverage of the section of the well from 4265 to 5735m. For comparison, the maturation slope (0.143 log Ro/km) based on 23 data points reported for this well (Avery, 1989) is plotted. The new Ro data fit well with the previous data and support the interpretation of the 'oil window' for this well.

Venture B-52

The maturation slope (0.162 log Ro/km) for this well is based on 4 data points (Table IIj; Figure 10). The points give poor coverage of the section of the well from 2310 to 5960m (TD). The closely spaced data points from previous reports on this well (Avery, 1991) are also plotted. These points are considered very reliable because they were obtained from conventional core and therefore eliminate many of the problems, such as down-hole caving, associated with using drill cuttings. The maturation curve shown here indicates that the section between 2741 and 5405m lies within the 'oil window'.

Venture H-22

The maturation slope (0.069 log Ro/km) for this well is based on 4 data points (Table IIj; Figure 10). The points give uneven coverage of a short section of the well (3860-4710m). A single point from a previous report on this well (unpublished internal report; Avery) is also plotted. This point is considered very reliable because it was obtained from conventional core and therefore eliminates many of the problems, such as down-hole caving, associated with using drill cuttings. The maturation curve shown here indicates this section lies within the 'oil window'.

References

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Table IIa Summary of kerogen-based vitrinite reflectance for **Abenaki J-56**

Seq. #	Sample Labels	Depths in feet	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	Aben-01	10090-10100	0.51(±.06)	31	31
2	Aben-02	10800-10810	0.53(±.06)	30	30
3	Aben-03	12030-12040	0.57(±.08)	26	26
4	Aben-04	12350-12360	0.58(±.06)	26	26
5	K0861A	12880-12890	0.57(±.07)	13	13
6	Aben-05	13030-13040	0.60(±.08)	33	33
7	Aben-06	13270-13280	0.78(±.08)	32	32
8	Aben-07	13790-13800	0.76(±.04)	8	8
9	Aben-08	14080-14090	0.82(±.04)	11	11
10	Aben-09	14140-14150	0.89(±.06)	8	8
11	Aben-10	14210-14220	0.94(±.07)	23	23
12	Aben-11	14350-14360	0.92(±.04)	14	14
13	Aben-12	14410-14420	0.91(±.05)	20	20

Table IIb Summary of kerogen-based vitrinite reflectance for **Alma F-67**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	K0846A	3945-4130	0.92(±.10)	13	13
2	K0846B	4400-4595	1.02(±.10)	4	4
3	K0846C	4700-4890	1.46(±.12)	4	4

Table IIc Summary of kerogen-based vitrinite reflectance for **Cohasset D-42**

Seq. #	Sample Labels	Depths in feet	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	CoD42-01	10000-10030	0.64(±.05)	17	17
2	CoD42-02	10830-10840	0.71(±.05)	19	19
3*	CoD42-03	13430-13440	0.63(±.05)	15	15
4	CoD42-04	13740-13750	1.23(±.10)	13	7
5	CoD42-05	14160-14170	1.23(±.06)	48	29
6	CoD42-06	14370-14390	1.33(±.07)	29	16
7	CoD42-07	14490-14500	1.36(±.07)	20	16

Table IId Summary of kerogen-based vitrinite reflectance for **Cohasset L-97**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	CoL97-01	3095-3100	0.63(±.05)	28	28
2	CoL97-02	3190-3195	0.62(±.03)	17	17
3	CoL97-05	4465-4470	1.41(±.06)	11	10
4	CoL97-06	4540-4545	1.50(±.11)	24	22
5	CoL97-07	4615-4620	1.60(±.12)	19	18
6	CoL97-08	4850-4855	1.92(±.11)	21	20
7	CoL97-09	4865-4870	1.82(±.08)	9	7

* These values considered to be taken on caved cuttings.

Table IIe Summary of kerogen-based vitrinite reflectance for **Demascota G-32**

Seq. #	Sample Labels	Depths in feet	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	DeG32-01	11480-11490	0.73(±.08)	32	32
2	DeG32-02	11840-11850	0.72(±.05)	23	23
3	DeG32-05	15050-15060	1.17(±.00)	1	1
4	DeG32-06	15240-15250	1.32(±.00)	1	1

Table IIf Summary of kerogen-based vitrinite reflectance for **North Triumph B-52**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	K0857A	2660-2850	0.44(±.07)	17	17
2	K0857B	2860-3115	0.54(±.04)	16	16
3	K0857C	3210-3400	0.57(±.05)	23	23
4	K0857D	3415-3560	0.63(±.05)	17	17
5	K0858A	3560-3715	0.72(±.06)	20	20

Table IIg Summary of kerogen-based vitrinite reflectance for **North Triumph G-43**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	K0859A	2660-2750	0.58(±.06)	15	15
2	K0859B	2840-2975	0.59(±.07)	19	19
3	K0859C	3360-3550	0.65(±.05)	25	25
4	K0859D	3600-3710	0.69(±.05)	17	17
5	K0860A	4530-4600	0.83(±.10)	21	21
6	K0860B	4680-4755	1.15(±.10)	26	24

Table IIh Summary of kerogen-based vitrinite reflectance for **Penobsot L-30**

Seq. #	Sample Labels	Depths in feet	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	PeK30-01	12280-12290	0.61(±.06)	19	19
2	PeK30-02	12430-12440	0.67(±.06)	22	22
3	PeK30-03	12590-12600	0.73(±.07)	25	25
4	PeK30-04	12730-12740	0.73(±.06)	20	17
5	PeK30-05	12970-12980	0.77(±.07)	17	17
6	PeK30-06	13330-13340	0.85(±.06)	24	22
7	PeK30-07	13690-13700	0.84(±.08)	19	19
8	PeK30-08	13830-13840	0.95(±.04)	30	28
9	PeK30-09	13990-14000	1.02(±.10)	21	21

Table IIi Summary of kerogen-based vitrinite reflectance for **Uniacke G-72**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	UnG72-01	4265-4270	0.71(±.04)	16	15
2	UnG72-02	4980-4985	1.03(±.06)	11	11
3	UnG72-03	5015-5020	1.18(±.09)	18	18
4	UnG72-04	5135-5140	1.28(±.07)	22	21
5	UnG72-05	5660-5665	1.52(±.08)	15	12
6	UnG72-06	5730-5735	1.57(±.09)	24	24

Table IIj Summary of kerogen-based vitrinite reflectance for **Venture B-52**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	K0855A	2310-2485	0.45(±.04)	21	21
2	K0855B	2875-3045	0.57(±.06)	20	20
3	K0855C	3680-3740	0.72(±.09)	23	22
4	K0855D	5810-5960	1.66(±.08)	13	10

Table IIk Summary of kerogen-based vitrinite reflectance for **Venture H-22**

Seq. #	Sample Labels	Depths in metres	Mean Ro (SD) non-rotated	Number of Readings Total	Edited
1	K0856A	3860-3875	0.74(±.07)	26	26
2	K0856B	4175-4385	0.77(±.06)	19	19
3	K0856C	4410-4525	0.79(±.07)	20	20
4	K0856D	4550-4710	0.86(±.07)	27	27

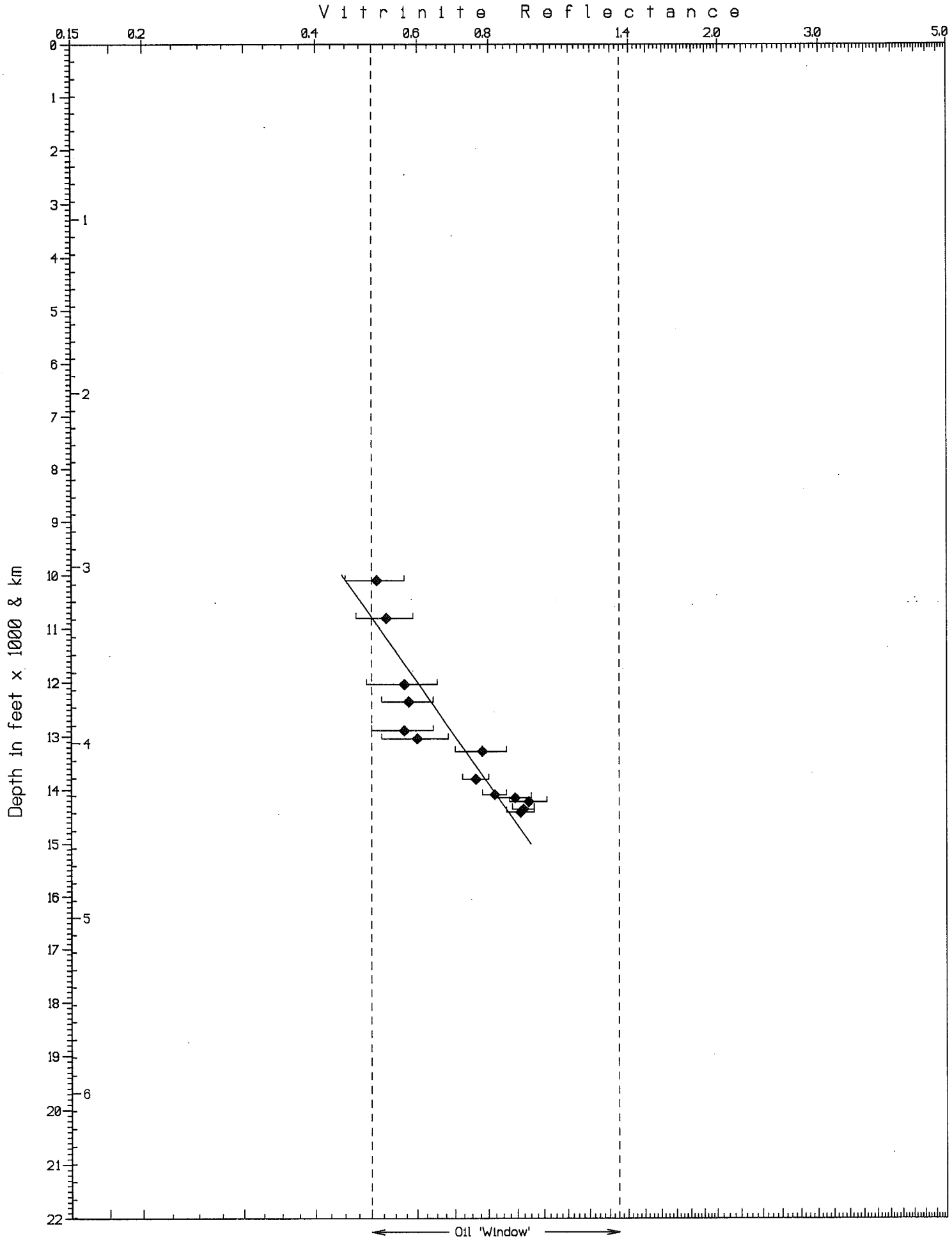


Fig. 1 Abenaki J-56

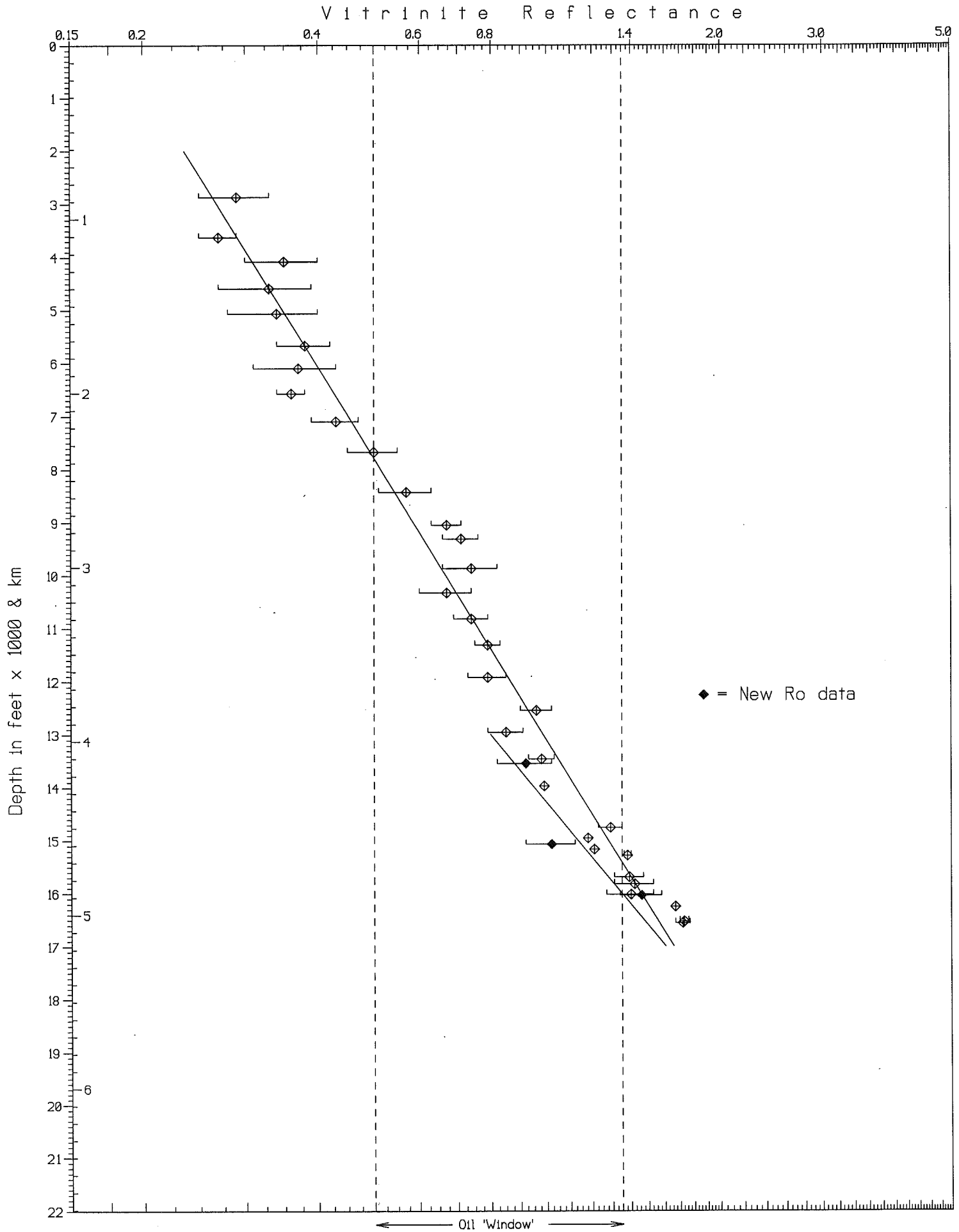


Fig. 2 Alma F-67

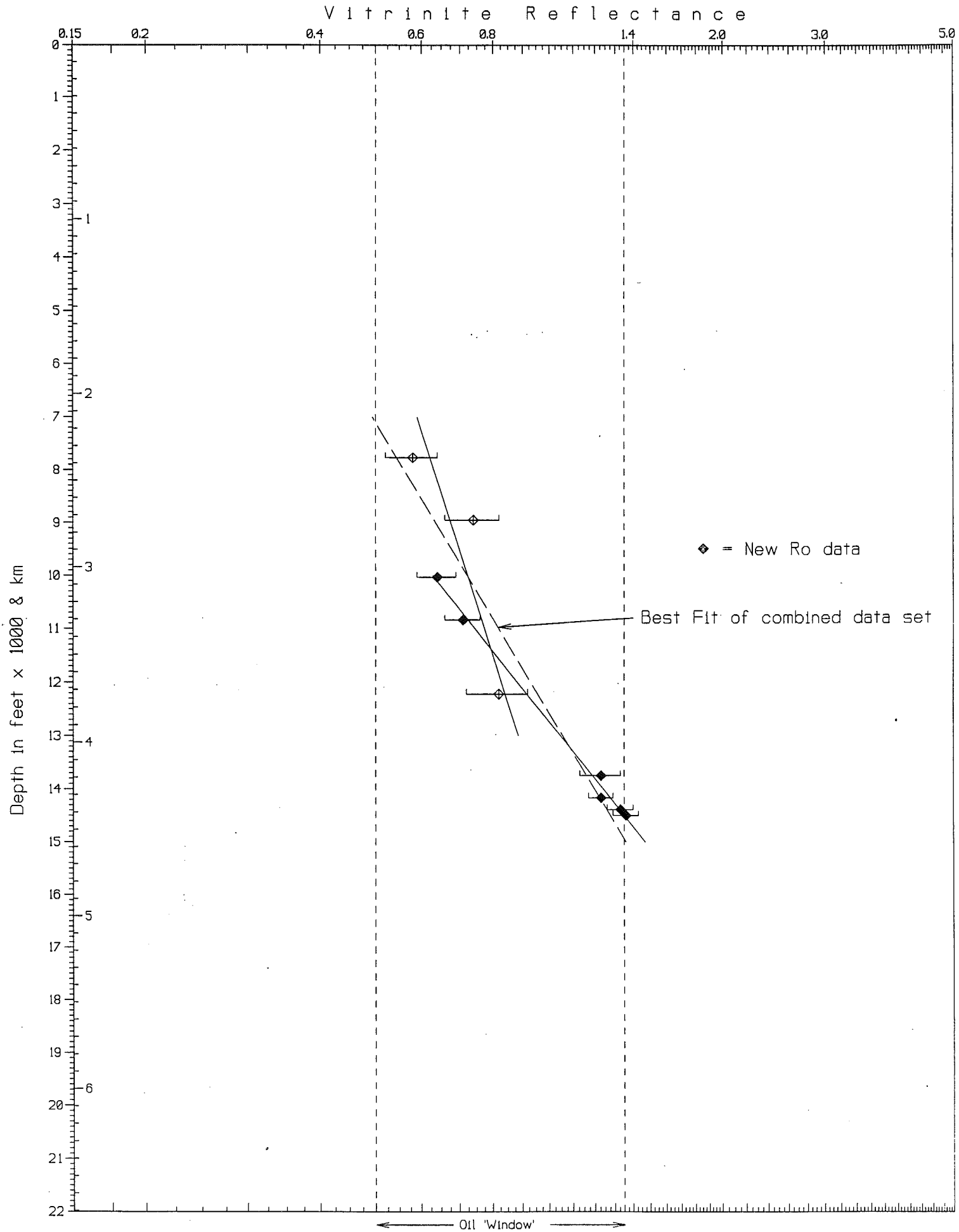


Fig. 3 Cohasset D-42

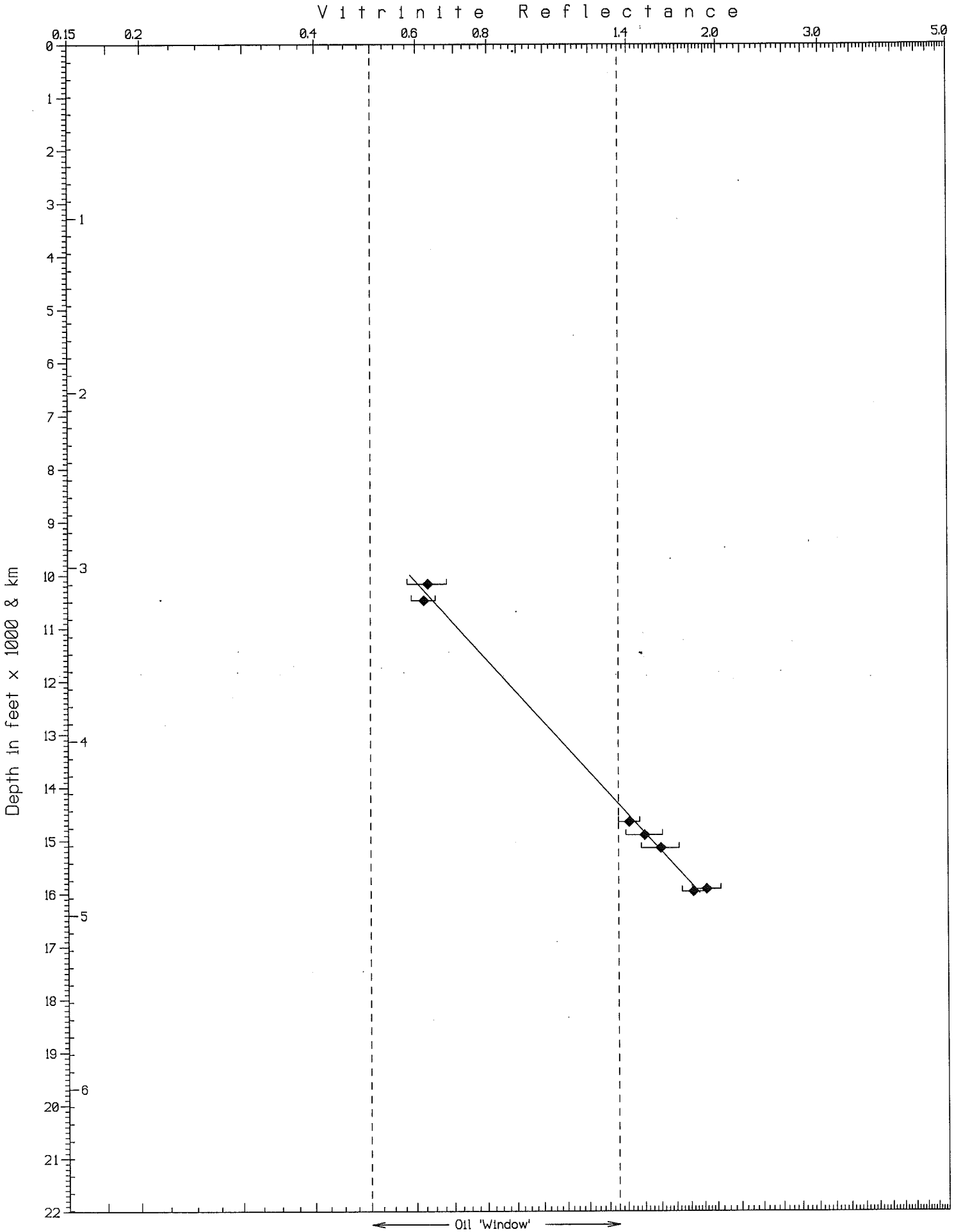


Fig. 4 Cohasset L-97

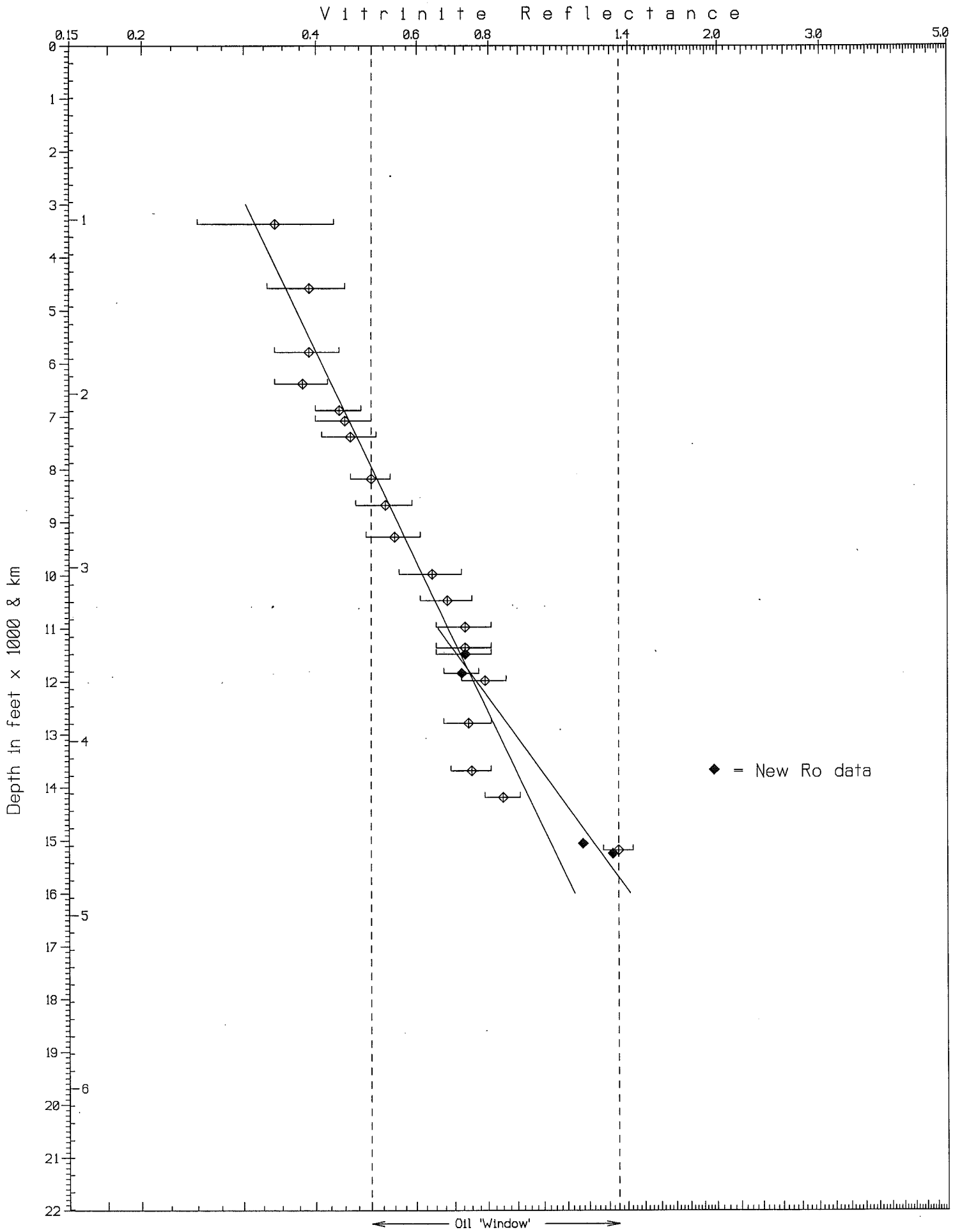


Fig. 5 Demascota G-43

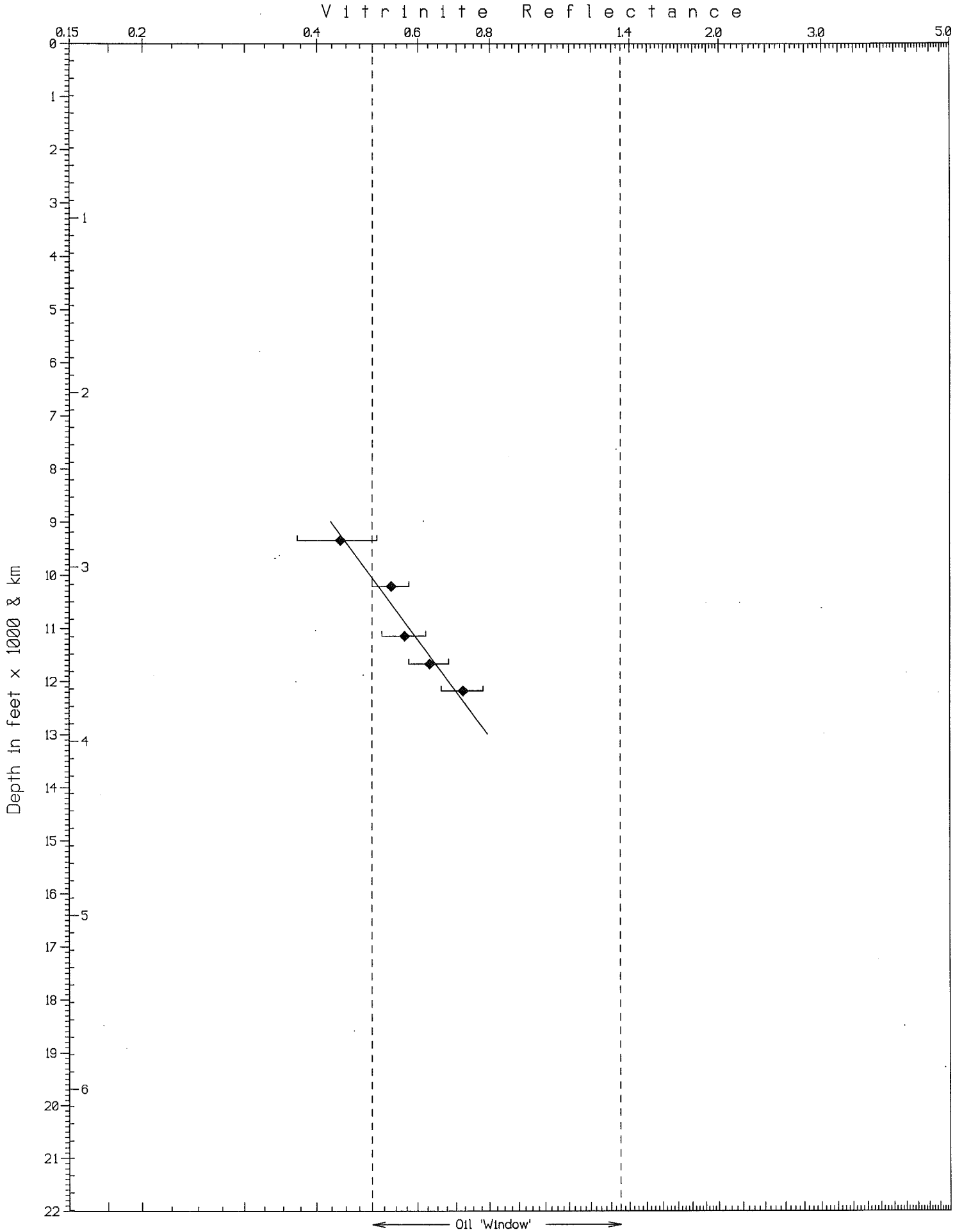


Fig. 6 North Triumph B-52

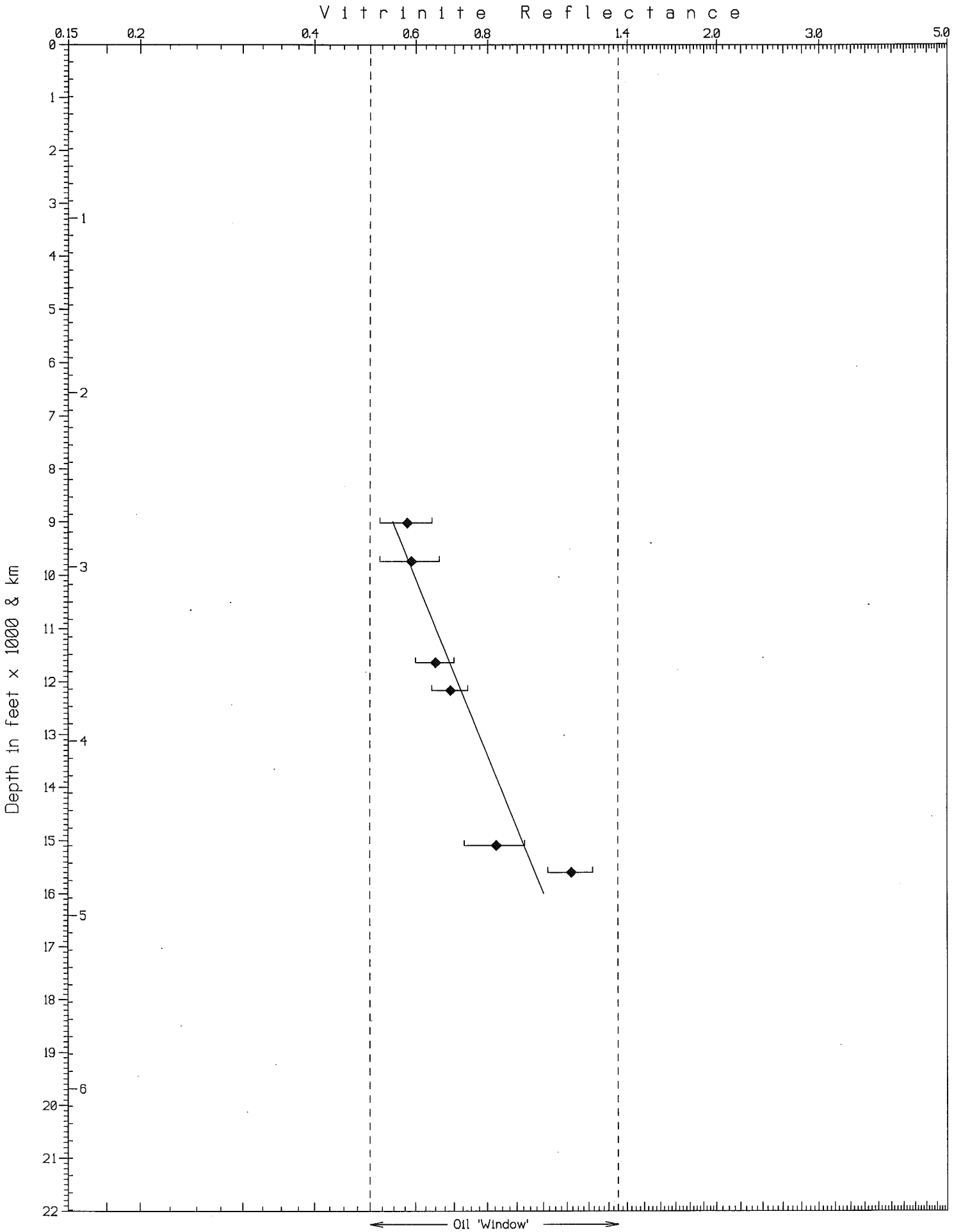


Fig. 7 North Triumph G-43

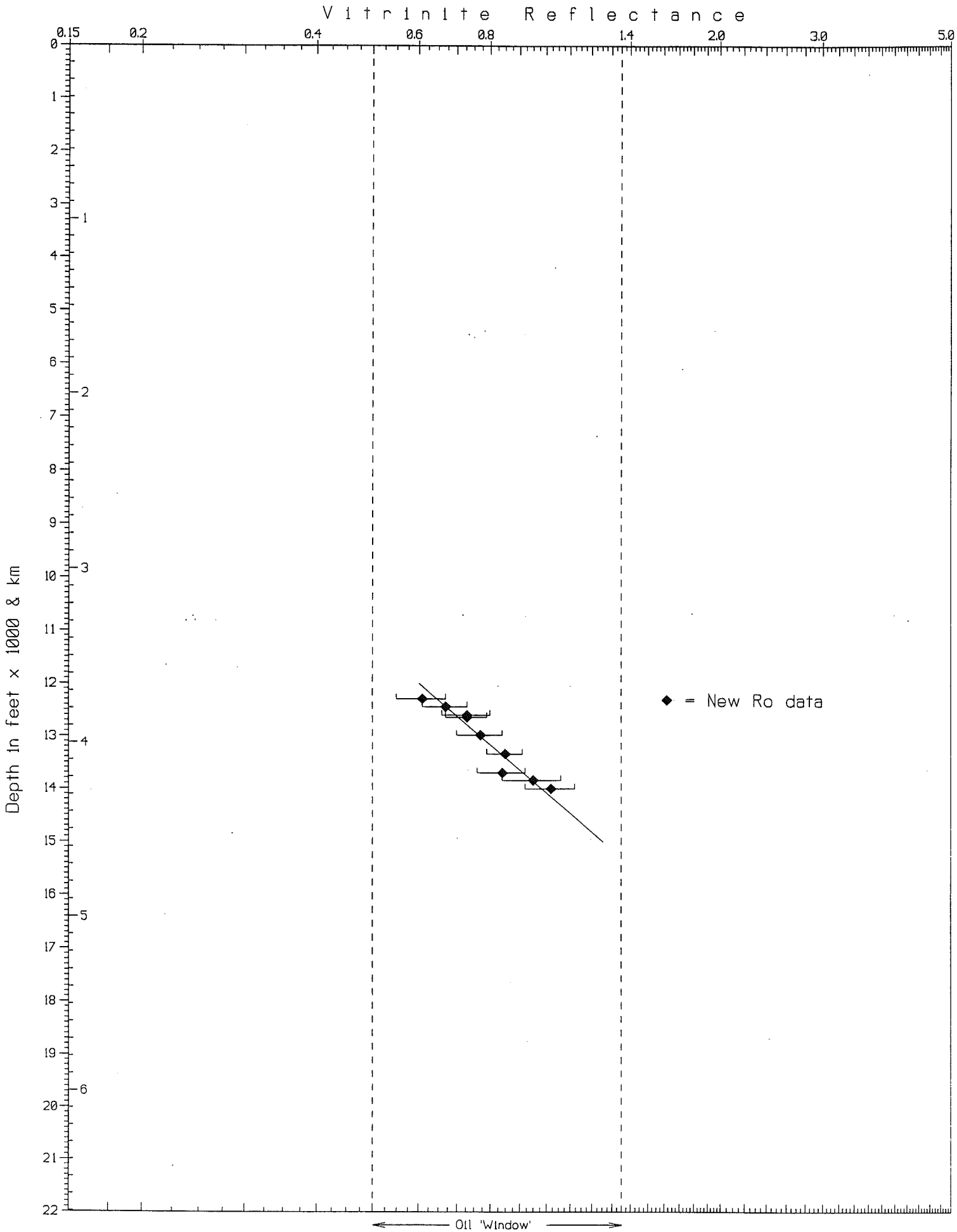


Fig. 8 Penobscot L-30

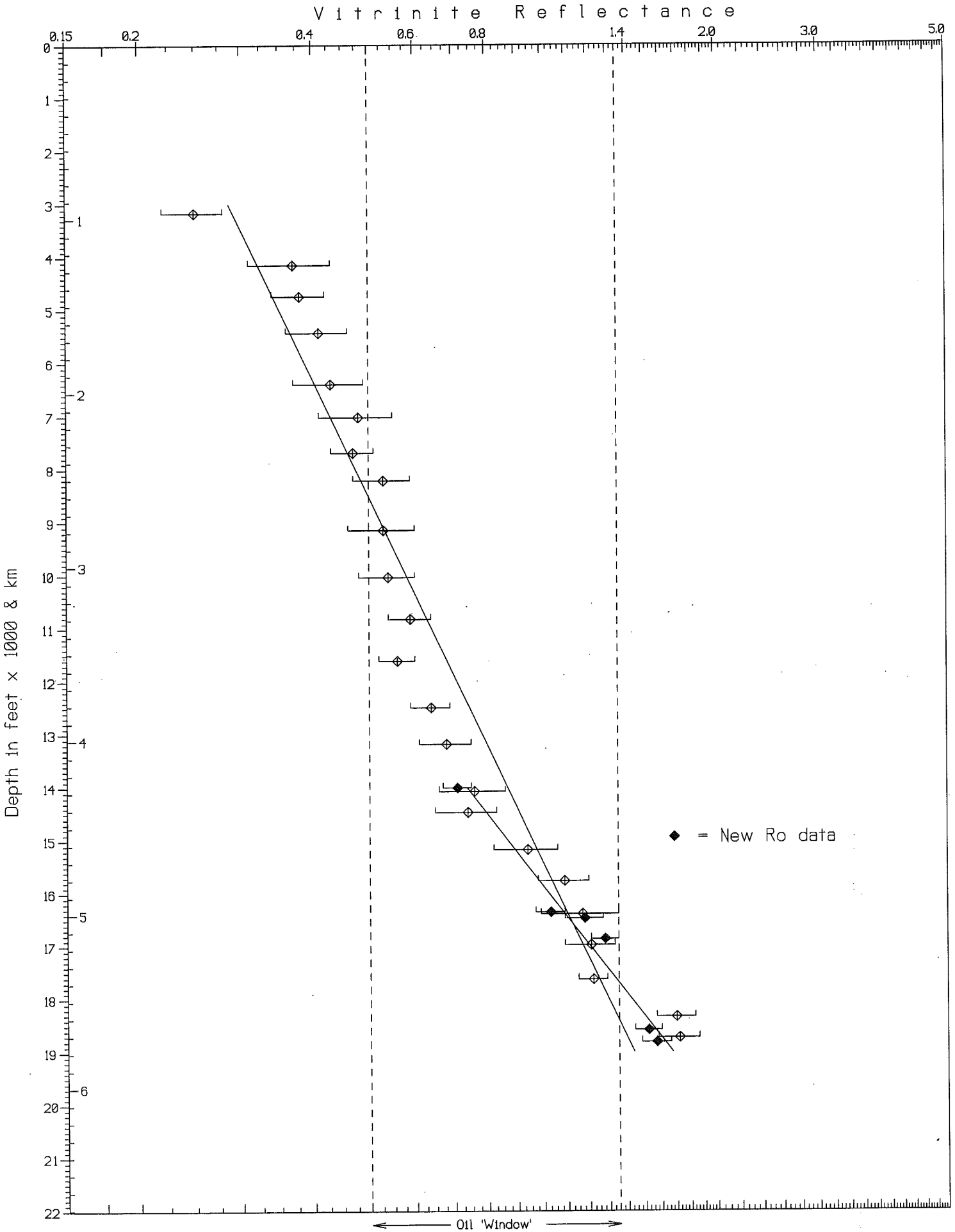


Fig. 9 Uniacke G-72

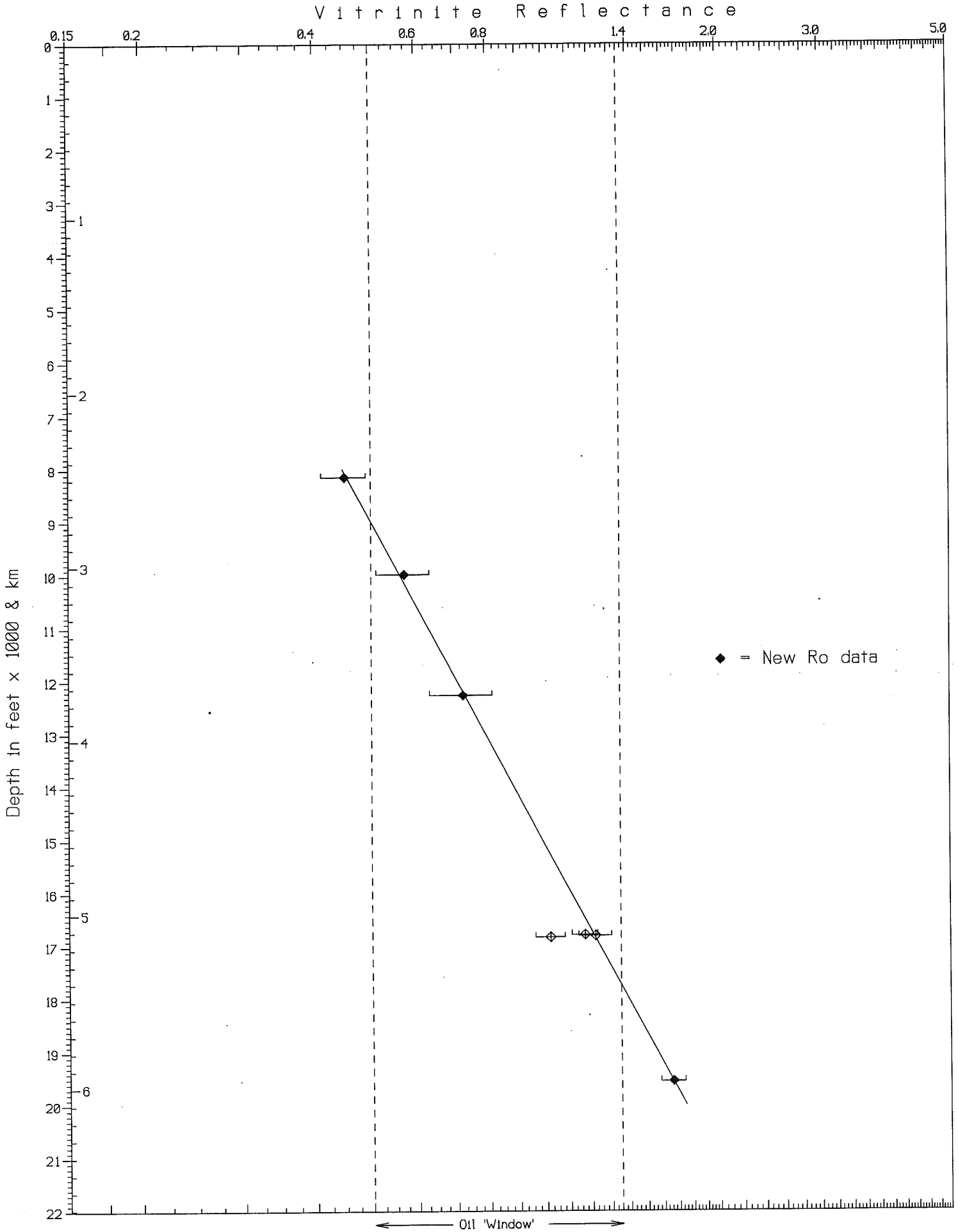


Fig. 10 Venture B-52

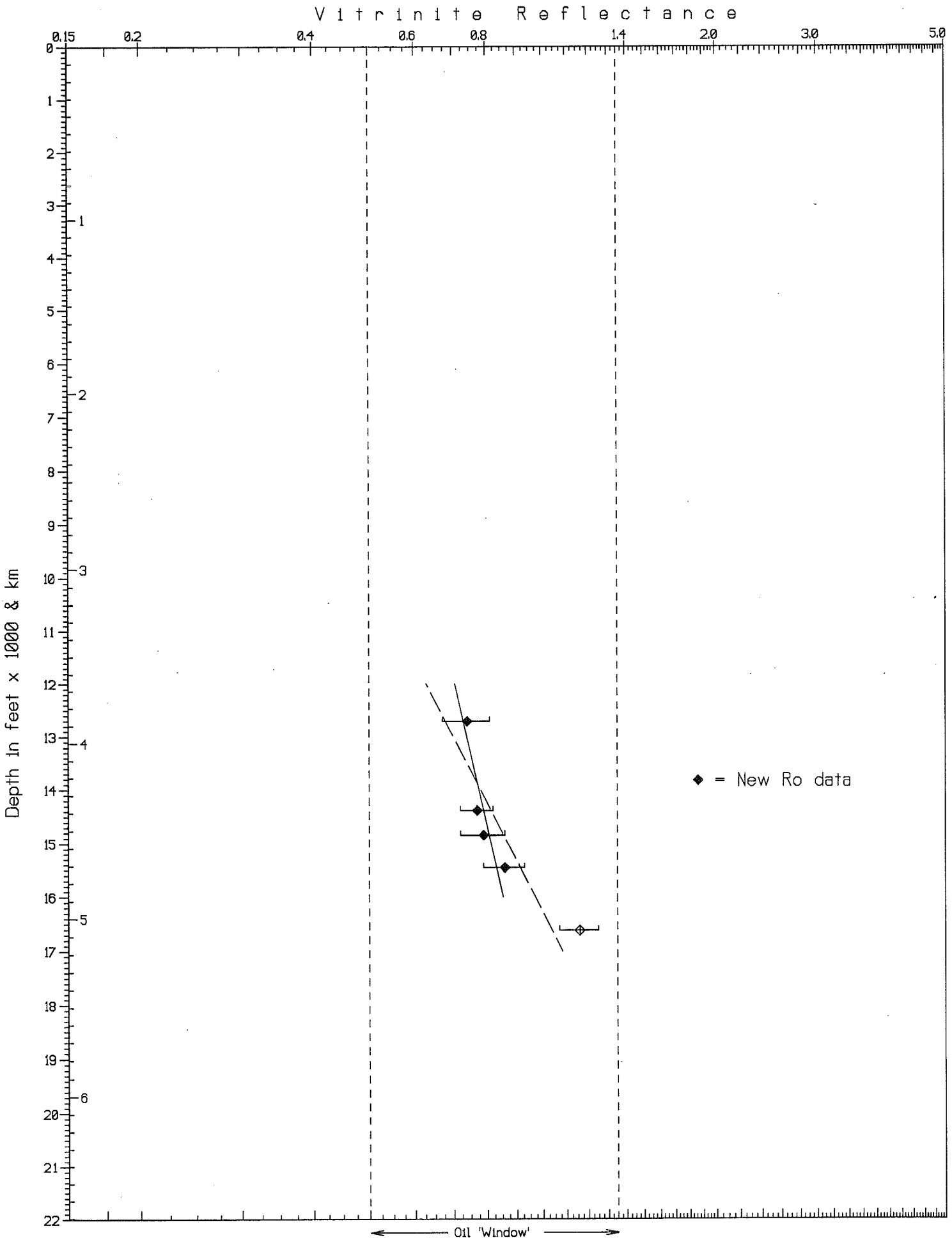


Fig. 11 Venture H-22

APPENDIX I

Kerogen Sample Preparation Method

CNSOPB Lab preparation

Preliminary wash
Dry samples in oven
Split: a. all of coarse to Petrology Lab
b. ½ medium to Palynology Lab
c. rest of medium and all of fine combined for Micropaleo Lab
Split "b" is delivered to Palynology Lab and treated as follows:

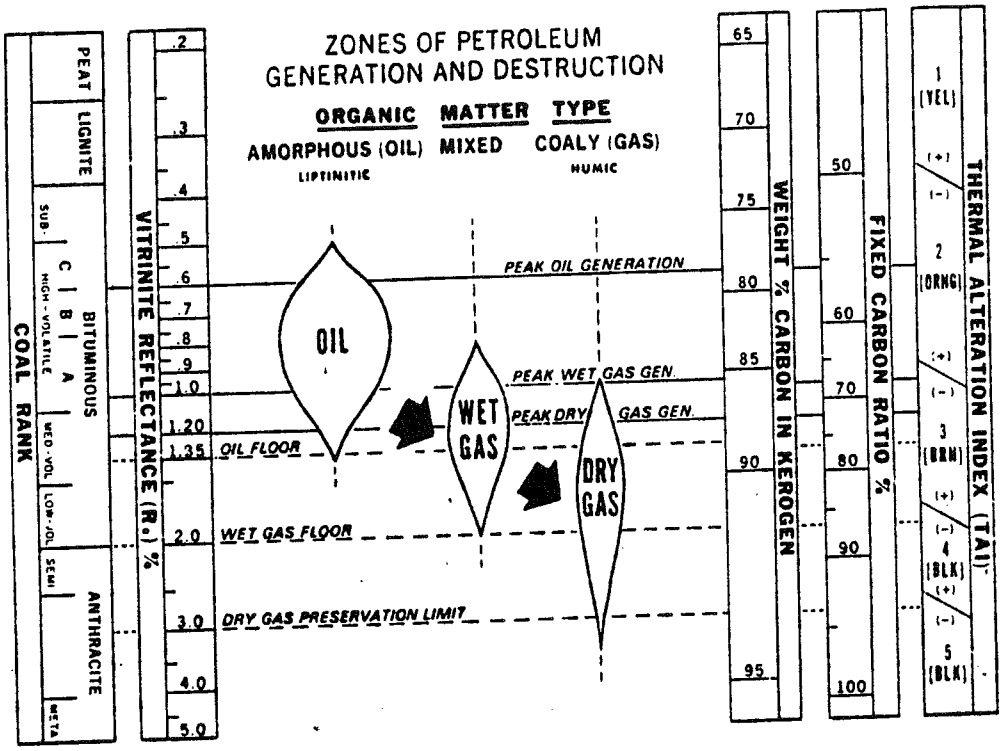
AGC PALYNOLOGY Lab preparation

Place 20-30 grams 250 ml plastic beaker.
Add 10% HC1 till reaction ceases (removes carbonates).
Wash (rinsed) 3 times.
Conc. HF overnight (removes silicates).
Wash (rinsed) 3 times.
Heat (60-65°C) conc. HCl (remove fluorides caused by HF).
Wash 3 times.
Transfer to 15 ml test tube with 4-5 ml 4% Alconox.
Differential centrifuge at 1500 rpm for 90 sec.
Decant.
Wash 3 times with centrifuging.
Float off organic fraction using 2.0 S.G. Znbr solution.
Centrifuge 1000 rpm, 8 min.
Float fraction into second test tube.
Wash 3 times with centrifuging.
Kerogen smear slide made.
Remaining kerogen material delivered to Vitrinite Reflectance Lab.

AGC VITRINITE REFLECTANCE Lab preparation

Pipette off excess water and place in plastic stubs (made to fit polisher).
Freeze dry and fix material for polishing with epoxy resin.
Polish with diamond based suspension to obtain low relief, scratch free surface.
Examine under oil lens, incident light at approximately 1000x mag'n.

Appendix II (Dow, 1977)



Note: In this report, the terminology used to describe the various maturation levels has been modified. The 'peak' designation, as used in this figure, has been changed to 'onset of significant' and 0.8 Ro is here used as the 'peak of oil generation'

Appendix III

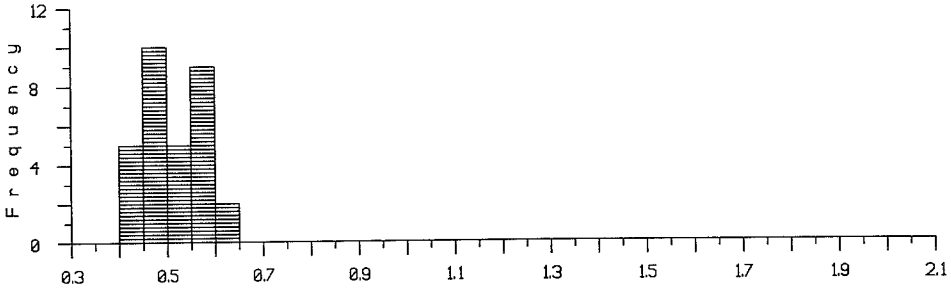
Reflectance Histograms

Aben-01, 10090-10100, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.40<	0.43<	0.43<	0.43<	0.45<	0.46<	0.46<	0.47<	0.47<	0.48<
1	0.48<	0.48<	0.48<	0.48<	0.49<	0.50<	0.50<	0.51<	0.53<	0.54<
2	0.55<	0.56<	0.56<	0.56<	0.57<	0.57<	0.57<	0.58<	0.58<	0.61<
3	0.65<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.51	0.06	31	0.40	0.65	15.83
Edit<	0.51	0.06	31	0.40	0.65	15.83

Reflectance Histogram

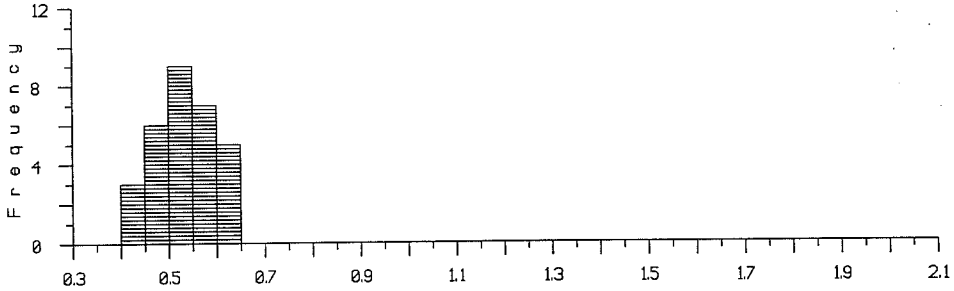


Aben-02, 10800-10810, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.42<	0.43<	0.45<	0.47<	0.47<	0.48<	0.48<	0.48<	0.49<	0.50<
1	0.51<	0.51<	0.51<	0.51<	0.52<	0.52<	0.53<	0.54<	0.55<	0.55<
2	0.56<	0.58<	0.58<	0.59<	0.59<	0.60<	0.60<	0.61<	0.62<	0.64<
3										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.53	0.06	30	0.42	0.64	15.89
Edit<	0.53	0.06	30	0.42	0.64	15.89

Reflectance Histogram

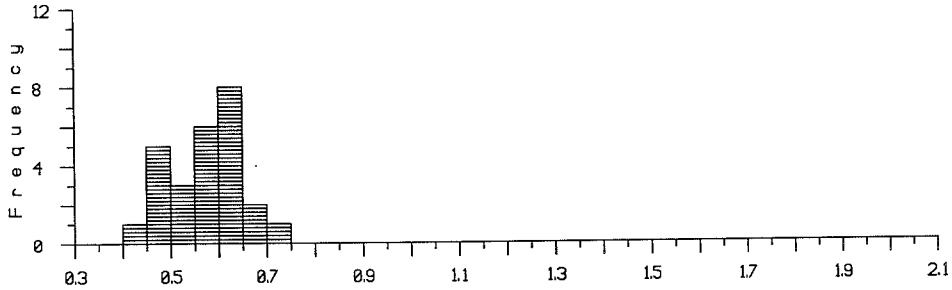


Aben-03, 12030-12040, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.41<	0.47<	0.47<	0.47<	0.48<	0.49<	0.51<	0.53<	0.53<	0.55<
1	0.56<	0.56<	0.58<	0.58<	0.59<	0.60<	0.60<	0.60<	0.61<	0.61<
2	0.63<	0.64<	0.64<	0.67<	0.69<	0.71<				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.57	0.08	26	0.41	0.71	14.78
Edit<	0.57	0.08	26	0.41	0.71	14.78

Reflectance Histogram

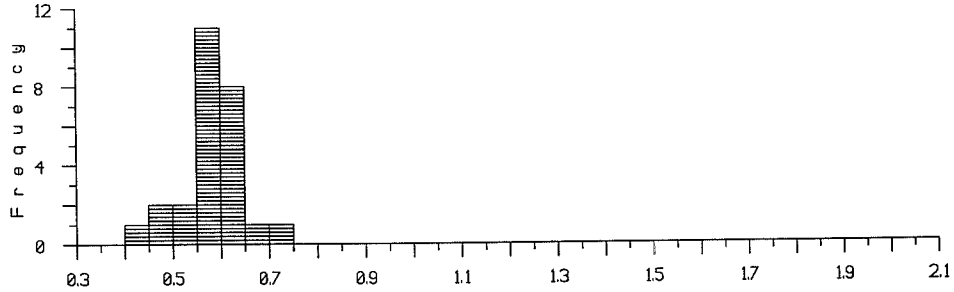


Aben-04, 12350-12360, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.45<	0.48<	0.49<	0.51<	0.52<	0.55<	0.56<	0.56<	0.56<	0.57<
1	0.57<	0.57<	0.57<	0.58<	0.58<	0.59<	0.60<	0.60<	0.60<	0.61<
2	0.62<	0.62<	0.63<	0.63<	0.68<	0.71<				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.58	0.06	26	0.45	0.71	15.01
Edit<	0.58	0.06	26	0.45	0.71	15.01

Reflectance Histogram

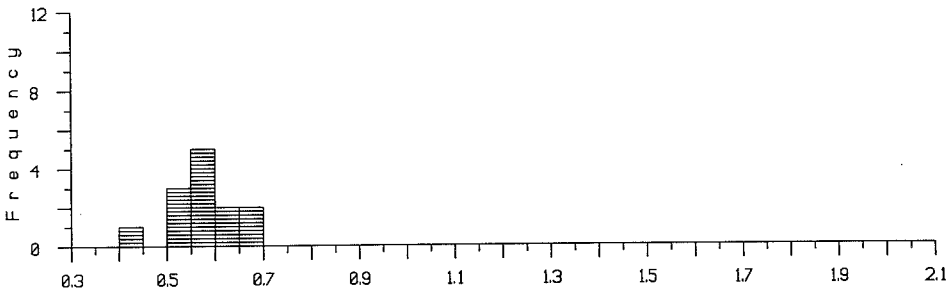


K0861A, 12880-12890, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.45<	0.50<	0.52<	0.53<	0.55<	0.55<	0.56<	0.57<	0.58<	0.63<
1	0.64<	0.66<	0.70<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.57	0.07	13	0.45	0.70	7.44
Edit<	0.57	0.07	13	0.45	0.70	7.44

Reflectance Histogram

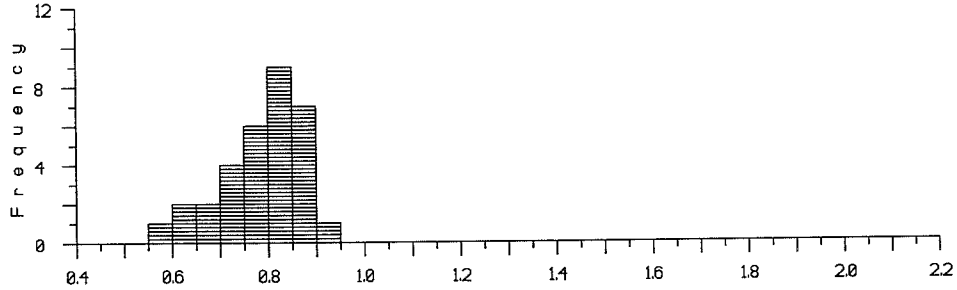


Aben-06, 13270-13280, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.58<	0.62<	0.64<	0.68<	0.70<	0.71<	0.73<	0.74<	0.74<	0.76<
1	0.76<	0.76<	0.78<	0.78<	0.79<	0.80<	0.80<	0.80<	0.81<	0.82<
2	0.82<	0.82<	0.84<	0.84<	0.85<	0.85<	0.85<	0.85<	0.85<	0.86<
3	0.87<	0.93<								

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.78	0.08	32	0.58	0.93	25.03
Edit<	0.78	0.08	32	0.58	0.93	25.03

Reflectance Histogram

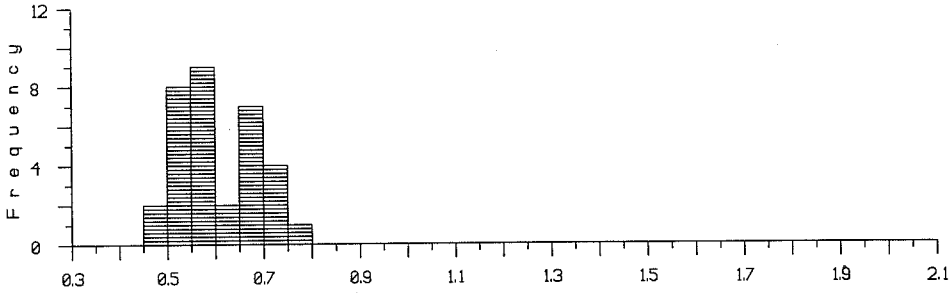


Aben-05, 13030-13040, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.49<	0.49<	0.50<	0.50<	0.51<	0.53<	0.53<	0.54<	0.54<	0.54<
1	0.56<	0.56<	0.57<	0.58<	0.59<	0.59<	0.59<	0.59<	0.59<	0.63<
2	0.63<	0.66<	0.66<	0.66<	0.66<	0.67<	0.67<	0.68<	0.71<	0.71<
3	0.71<	0.72<	0.76<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.60	0.08	33	0.49	0.76	19.92
Edit<	0.60	0.08	33	0.49	0.76	19.92

Reflectance Histogram

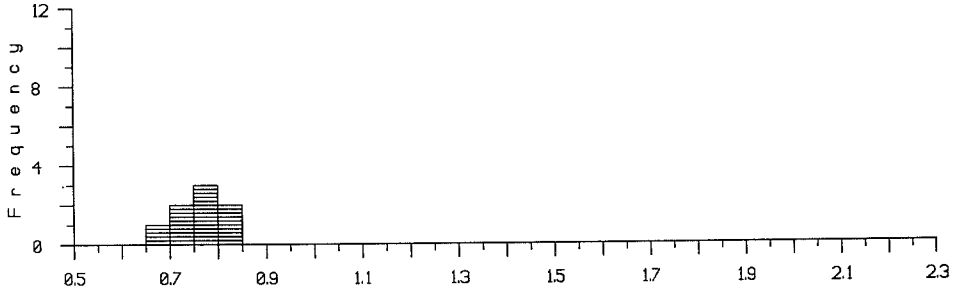


Aben-07, 13790-13800, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.70<	0.72<	0.74<	0.76<	0.76<	0.79<	0.80<	0.81<		

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.76	0.04	8	0.70	0.81	6.08
Edit<	0.76	0.04	8	0.70	0.81	6.08

Reflectance Histogram

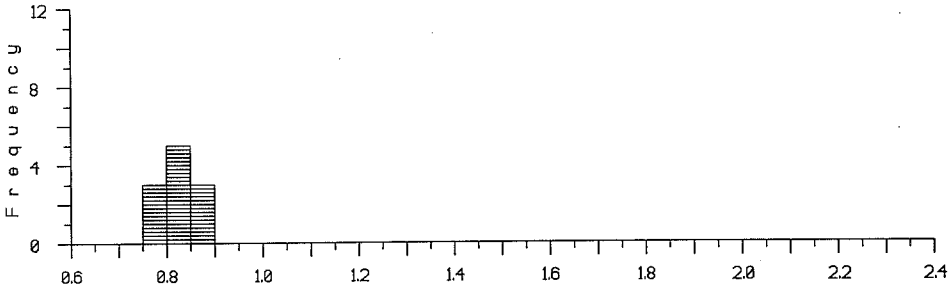


Aben-08, 14080-14090, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.76<	0.78<	0.79<	0.81<	0.81<	0.82<	0.82<	0.83<	0.85<	0.88<
1	0.89<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.82	0.04	11	0.76	0.89	9.04
Edit<	0.82	0.04	11	0.76	0.89	9.04

Reflectance Histogram

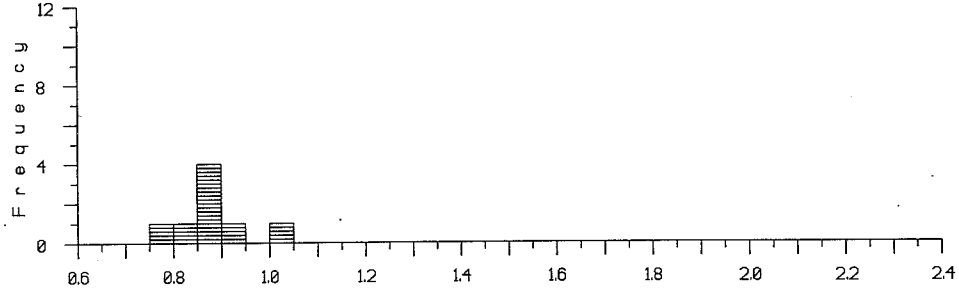


Aben-09, 14140-14150, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.79<	0.84<	0.87<	0.88<	0.89<	0.90<	0.92<	1.00<		

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.89	0.06	8	0.79	1.00	7.09
Edit<	0.89	0.06	8	0.79	1.00	7.09

Reflectance Histogram

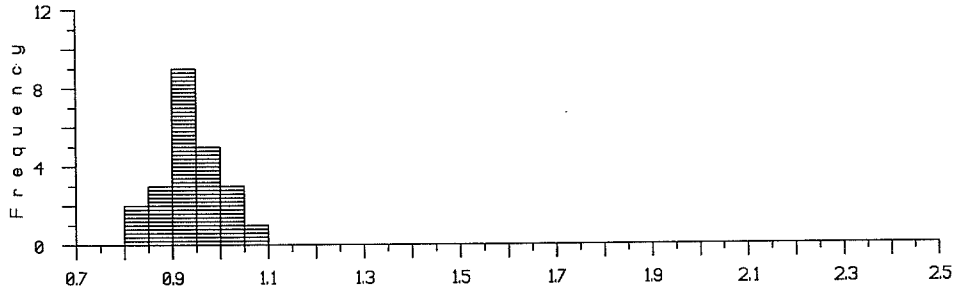


Aben-10, 14210-14220, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.80<	0.83<	0.88<	0.88<	0.89<	0.91<	0.91<	0.91<	0.91<	0.92<
1	0.92<	0.94<	0.95<	0.95<	0.96<	0.98<	0.98<	0.99<	0.99<	1.01<
2	1.02<	1.05<	1.09<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.94	0.07	23	0.80	1.09	21.67
Edit<	0.94	0.07	23	0.80	1.09	21.67

Reflectance Histogram

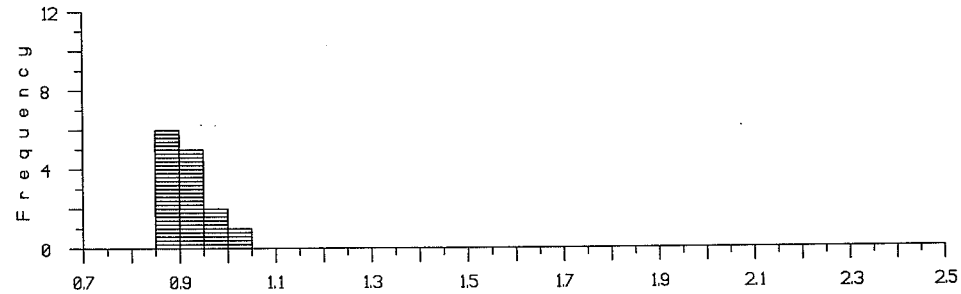


Aben-11, 14350-14360, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.86<	0.87<	0.88<	0.88<	0.89<	0.90<	0.91<	0.91<	0.92<	0.92<
1	0.94<	0.97<	0.97<	1.02<						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.92	0.04	14	0.86	1.02	12.84
Edit<	0.92	0.04	14	0.86	1.02	12.84

Reflectance Histogram

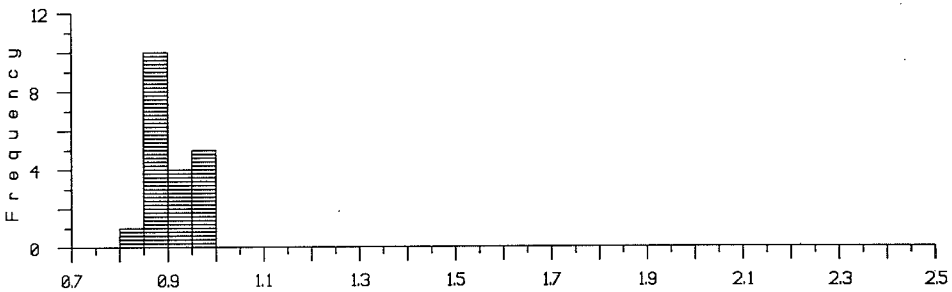


Aben-12, 14410-14420, Abenaki J-56 (JW-Muki Jan-94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.84<	0.85<	0.85<	0.87<	0.87<	0.87<	0.88<	0.88<	0.88<	0.88<
1	0.88<	0.92<	0.92<	0.93<	0.93<	0.96<	0.96<	0.98<	0.98<	0.98<
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.91	0.05	20	0.84	0.98	18.11
Edit<	0.91	0.05	20	0.84	0.98	18.11

Reflectance Histogram

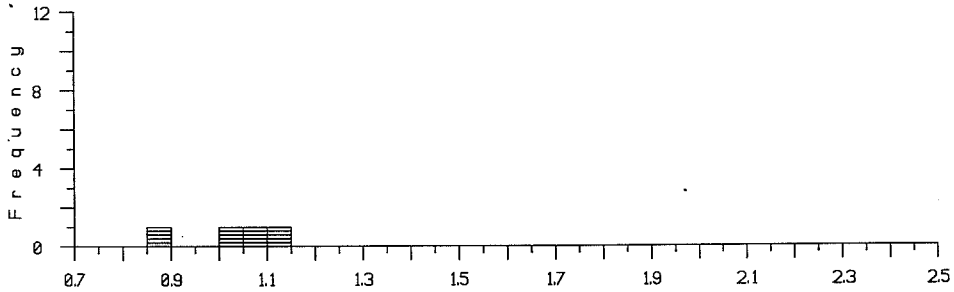


K0846B, 4400-4595m, Alma F-67 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.88<	1.00<	1.09<	1.10<						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.02	0.10	4	0.88	1.10	4.07
Edit<	1.02	0.10	4	0.88	1.10	4.07

Reflectance Histogram

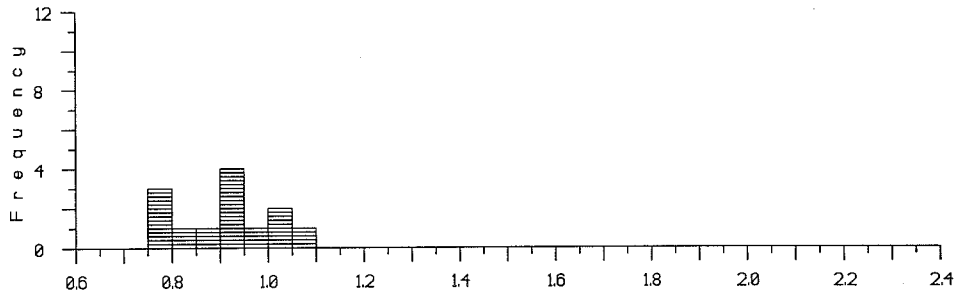


K0846A, 3945-4130m, Alma F-67 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.78<	0.78<	0.79<	0.84<	0.86<	0.92<	0.93<	0.94<	0.95<	0.98<
1	1.00<	1.05<	1.08<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.92	0.10	13	0.78	1.08	11.90
Edit<	0.92	0.10	13	0.78	1.08	11.90

Reflectance Histogram

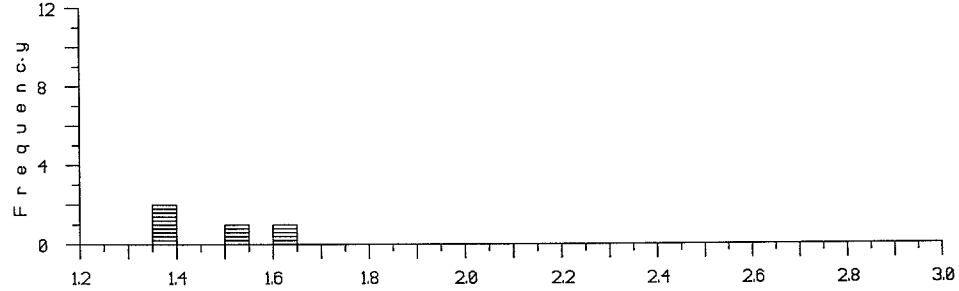


K0846C, 4700-4890m, Alma F-67 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.36<	1.37<	1.51<	1.61<						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.46	0.12	4	1.36	1.61	5.85
Edit<	1.46	0.12	4	1.36	1.61	5.85

Reflectance Histogram

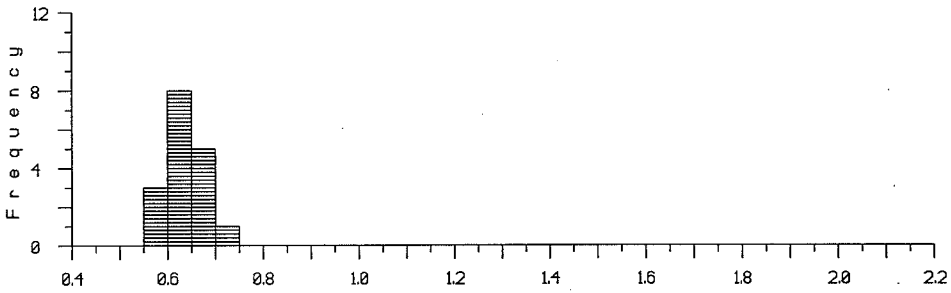


CoD42-01, 10000-10030', Cohasset D-42 (JW-Muk1 Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.56<	0.56<	0.59<	0.61<	0.61<	0.62<	0.63<	0.63<	0.63<	0.65<
1	0.65<	0.66<	0.69<	0.70<	0.70<	0.70<	0.72<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.64	0.05	17	0.56	0.72	10.91
Edit<	0.64	0.05	17	0.56	0.72	10.91

Reflectance Histogram

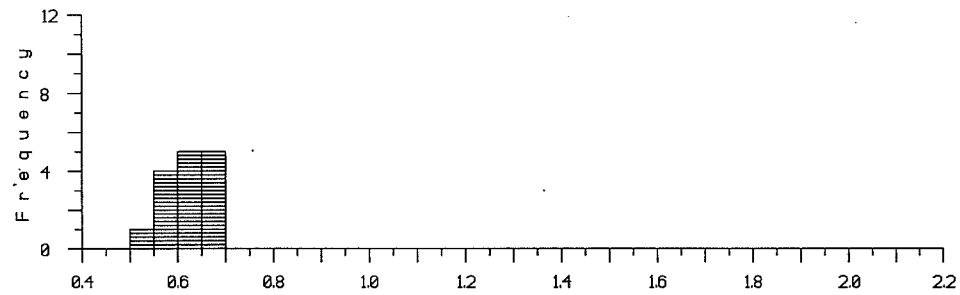


CoD42-03, 13430-13440', Cohasset D-42 (JW-Muk1 Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.54<	0.56<	0.57<	0.58<	0.59<	0.62<	0.64<	0.64<	0.64<	0.65<
1	0.66<	0.67<	0.67<	0.68<	0.70<					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.63	0.05	15	0.54	0.70	9.41
Edit<	0.63	0.05	15	0.54	0.70	9.41

Reflectance Histogram

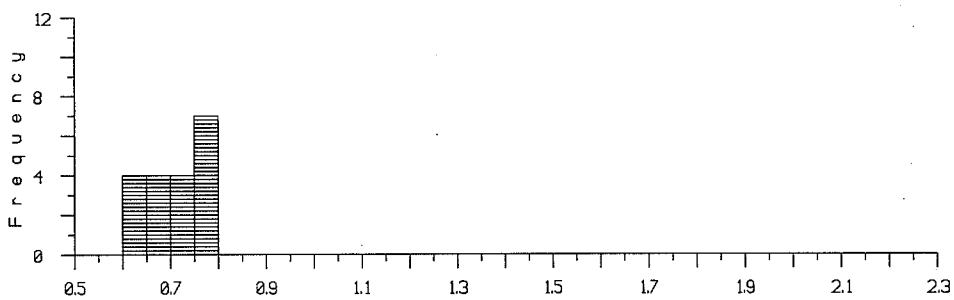


CoD42-02, 10830-10840', Cohasset D-42 (JW-Muk1 Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.60<	0.63<	0.64<	0.65<	0.66<	0.69<	0.69<	0.70<	0.71<	0.72<
1	0.73<	0.74<	0.75<	0.75<	0.76<	0.76<	0.77<	0.77<	0.79<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.71	0.05	19	0.60	0.79	13.51
Edit<	0.71	0.05	19	0.60	0.79	13.51

Reflectance Histogram

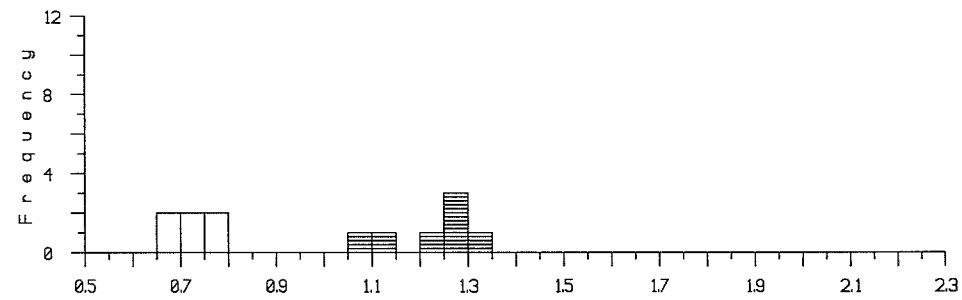


CoD42-04, 13740-13750', Cohasset D-42 (JW-Muk1 Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.68	0.70	0.71	0.74	0.79	0.79	1.07<	1.10<	1.23<	1.26<
1	1.29<	1.29<	1.34<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.00	0.27	13	0.68	1.34	12.99
Edit<	1.23	0.10	7	1.07	1.34	8.58

Reflectance Histogram

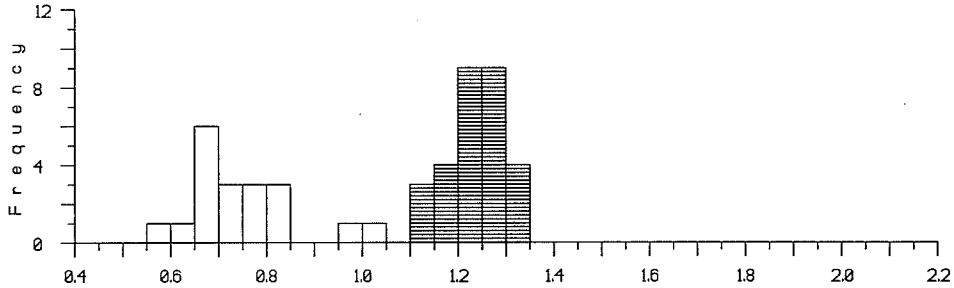


CoD42-05, 14160-14170', Cohasset D-42 (JW-Muki Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.55	0.62	0.67	0.68	0.69	0.69	0.70	0.70	0.71	0.73
1	0.74	0.75	0.75	0.79	0.80	0.81	0.83	0.98	1.04	1.10<
2	1.14<	1.15<	1.16<	1.16<	1.18<	1.18<	1.20<	1.20<	1.20<	1.21<
3	1.21<	1.22<	1.22<	1.22<	1.23<	1.25<	1.25<	1.26<	1.26<	1.27<
4	1.28<	1.29<	1.30<	1.30<	1.31<	1.31<	1.33<	1.33<		

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.04	0.25	48	0.55	1.33	49.95
Edit<	1.23	0.06	29	1.10	1.33	35.72

Reflectance Histogram

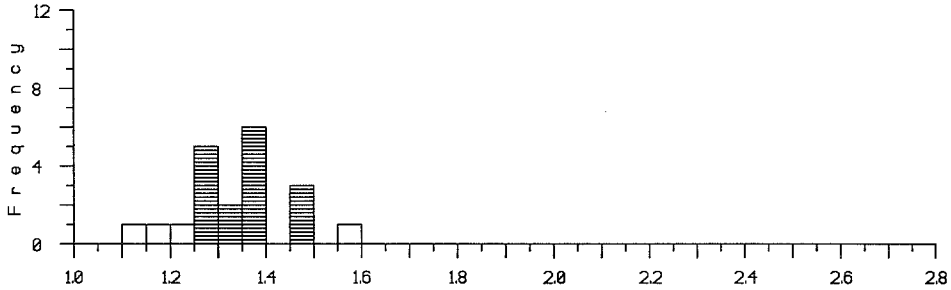


CoD42-07, 14490-14500', Cohasset D-42 (JW-Muki Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.13	1.18	1.20	1.27<	1.28<	1.28<	1.28<	1.30<	1.32<	1.33<
1	1.35<	1.35<	1.37<	1.38<	1.39<	1.40<	1.45<	1.46<	1.47<	1.58
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.34	0.11	20	1.13	1.58	26.77
Edit<	1.36	0.07	16	1.27	1.47	21.68

Reflectance Histogram

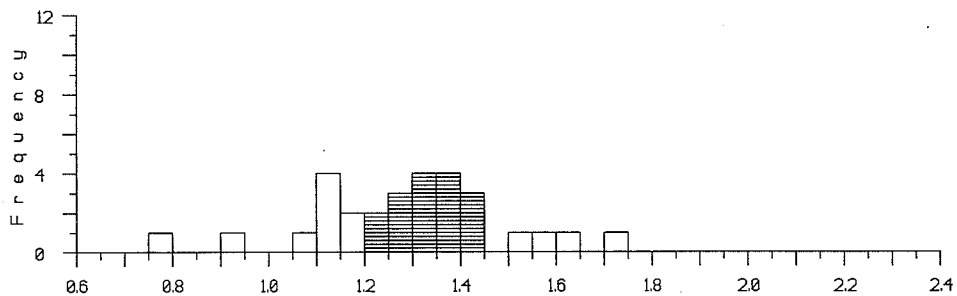


CoD42-06, 14370-14390', Cohasset D-42 (JW-Muki Jan 94)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.77	0.94	1.08	1.10	1.13	1.14	1.15	1.17	1.19	1.21<
1	1.22<	1.25<	1.28<	1.28<	1.32<	1.32<	1.32<	1.34<	1.36<	1.37<
2	1.39<	1.39<	1.42<	1.43<	1.44<	1.53	1.58	1.61	1.74	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.29	0.20	29	0.77	1.74	37.47
Edit<	1.33	0.07	16	1.21	1.44	21.34

Reflectance Histogram

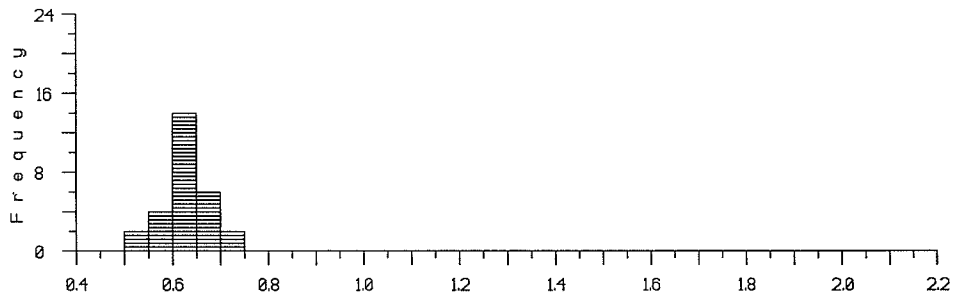


CoL97-01, 3095-3100m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.52<	0.54<	0.57<	0.58<	0.58<	0.59<	0.61<	0.61<	0.62<	0.62<
1	0.63<	0.63<	0.63<	0.64<	0.64<	0.64<	0.65<	0.65<	0.65<	0.65<
2	0.66<	0.66<	0.67<	0.67<	0.68<	0.70<	0.71<	0.73<		

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.63	0.05	28	0.52	0.73	17.73
Edit<	0.63	0.05	28	0.52	0.73	17.73

Reflectance Histogram

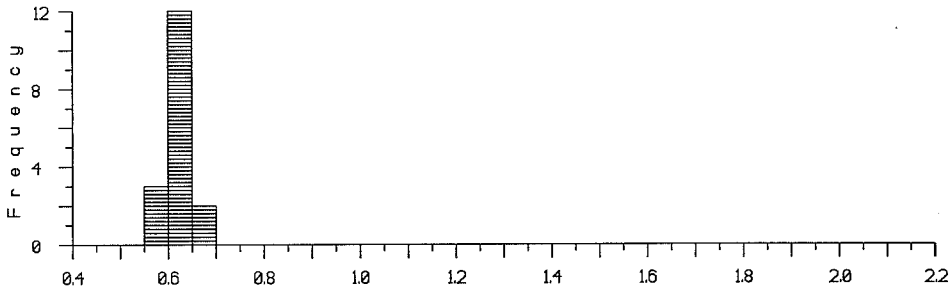


CoL97-02, 3190-3195m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.57<	0.58<	0.58<	0.60<	0.60<	0.60<	0.62<	0.62<	0.62<	0.62<
1	0.63<	0.64<	0.64<	0.64<	0.65<	0.66<	0.68<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.62	0.03	17	0.57	0.68	10.55
Edit<	0.62	0.03	17	0.57	0.68	10.55

Reflectance Histogram

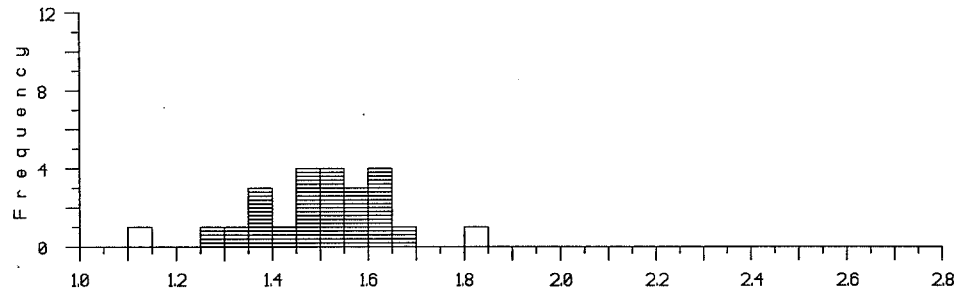


CoL97-06, 4540-4545m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.14	1.30<	1.33<	1.35<	1.37<	1.39<	1.41<	1.46<	1.46<	1.47<
1	1.49<	1.52<	1.53<	1.54<	1.55<	1.57<	1.58<	1.59<	1.61<	1.63<
2	1.63<	1.64<	1.68<	1.82						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.50	0.15	24	1.14	1.82	36.06
Edit<	1.50	0.11	22	1.30	1.68	33.10

Reflectance Histogram

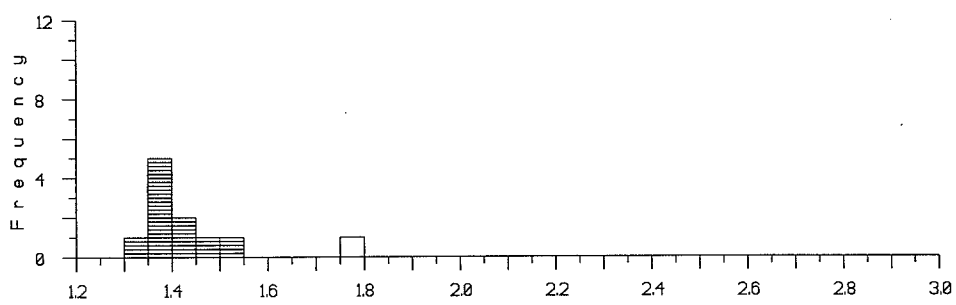


CoL97-05, 4465-4470m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.33<	1.35<	1.38<	1.38<	1.39<	1.40<	1.41<	1.43<	1.45<	1.54<
1	1.75									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.44	0.12	11	1.33	1.75	15.81
Edit<	1.41	0.06	10	1.33	1.54	14.06

Reflectance Histogram

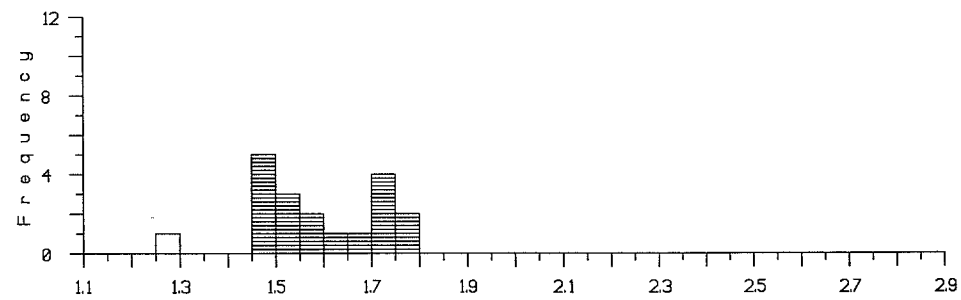


CoL97-07, 4615-4620m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.26	1.45<	1.46<	1.46<	1.47<	1.49<	1.50<	1.54<	1.54<	1.57<
1	1.59<	1.62<	1.68<	1.70<	1.72<	1.73<	1.74<	1.75<	1.77<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.58	0.14	19	1.26	1.77	30.04
Edit<	1.60	0.12	18	1.45	1.77	28.78

Reflectance Histogram

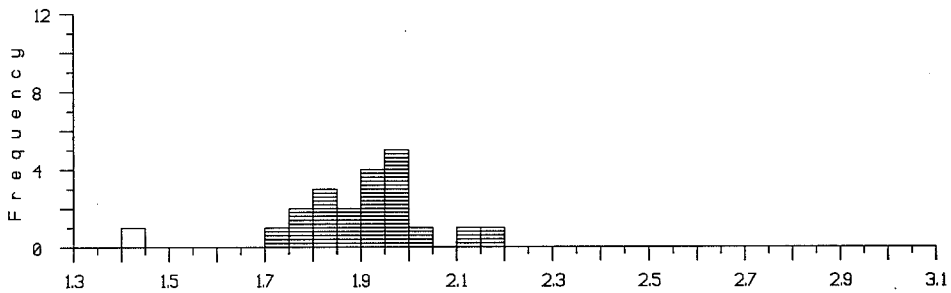


CoL97-08, 4850-4855m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.41	1.74<	1.75<	1.77<	1.82<	1.82<	1.84<	1.90<	1.90<	1.91<
1	1.92<	1.93<	1.94<	1.95<	1.95<	1.96<	1.97<	1.99<	2.05<	2.12<
2	2.17<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.90	0.16	21	1.41	2.17	39.81
Edit<	1.92	0.11	20	1.74	2.17	38.40

Reflectance Histogram

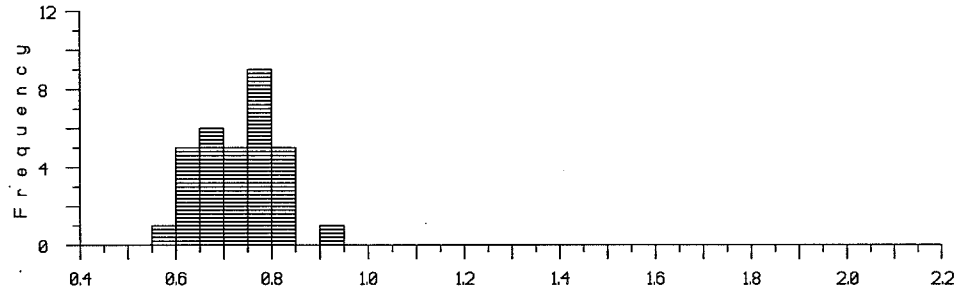


DeG43-01, 11480-11490', Demascota G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.57<	0.61<	0.61<	0.63<	0.64<	0.64<	0.66<	0.68<	0.68<	0.68<
1	0.69<	0.70<	0.71<	0.72<	0.73<	0.73<	0.73<	0.75<	0.75<	0.76<
2	0.76<	0.76<	0.76<	0.77<	0.77<	0.78<	0.80<	0.80<	0.82<	0.82<
3	0.82<	0.92<								

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.73	0.08	32	0.57	0.92	23.25
Edit<	0.73	0.08	32	0.57	0.92	23.25

Reflectance Histogram

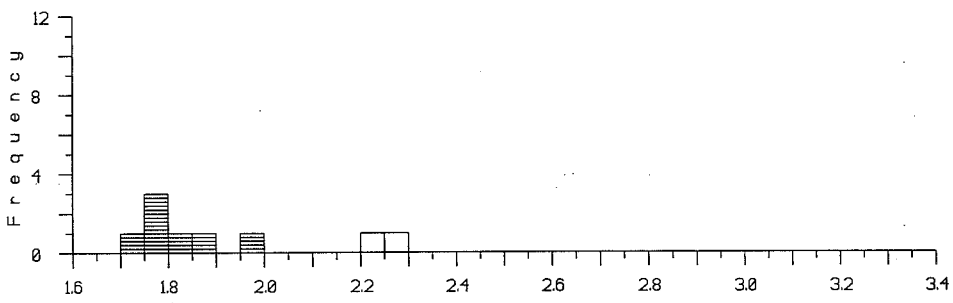


CoL97-09, 4865-4870m, Cohasset L-97 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.73<	1.76<	1.78<	1.79<	1.81<	1.88<	1.97<	2.20	2.25	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.91	0.19	9	1.73	2.25	17.17
Edit<	1.82	0.08	7	1.73	1.97	12.72

Reflectance Histogram

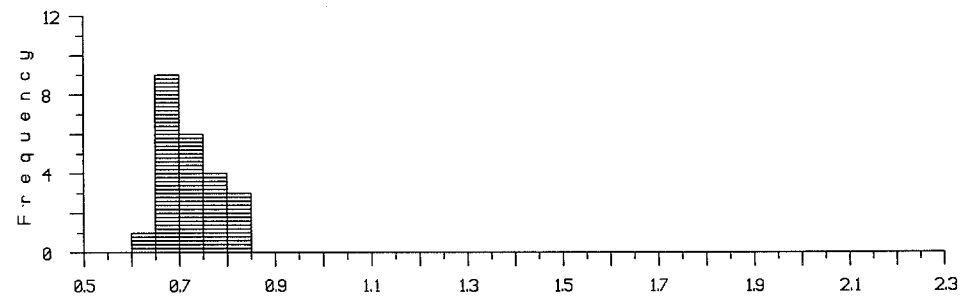


DeG43-02, 11840-11850', Demascota G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.64<	0.66<	0.66<	0.67<	0.68<	0.68<	0.69<	0.70<	0.70<	0.70<
1	0.71<	0.71<	0.71<	0.72<	0.72<	0.73<	0.76<	0.77<	0.77<	0.78<
2	0.80<	0.82<	0.83<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.72	0.05	23	0.64	0.83	16.61
Edit<	0.72	0.05	23	0.64	0.83	16.61

Reflectance Histogram

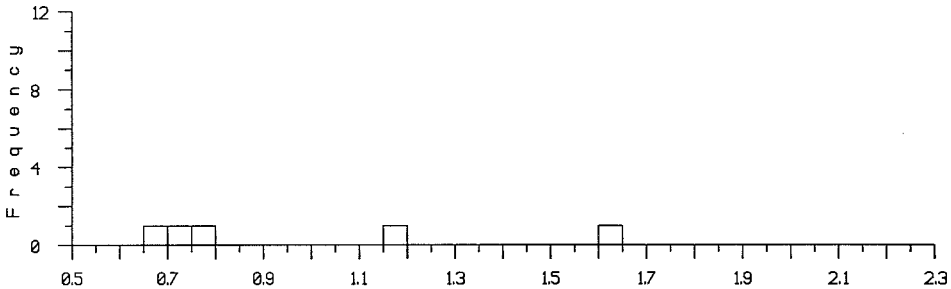


DeG43-05, 15050-15060', Demascota G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.69<	0.74<	0.75<	1.17<	1.61					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.99	0.40	5	0.69	1.61	4.96

Reflectance Histogram

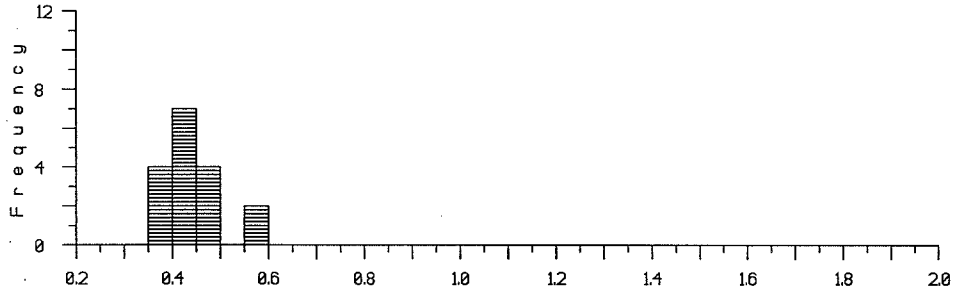


K0857A, 2660-2850m, North Triumph B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.36<	0.36<	0.37<	0.39<	0.40<	0.40<	0.40<	0.41<	0.42<	0.43<
1	0.43<	0.46<	0.48<	0.48<	0.48<	0.59<	0.59<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.44	0.07	17	0.36	0.59	7.45
Edit<	0.44	0.07	17	0.36	0.59	7.45

Reflectance Histogram

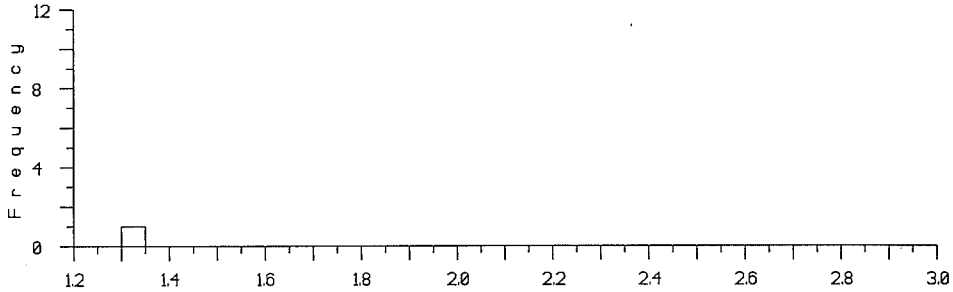


DeG43-06, 15240-15250', Demascota G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.32<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.32	0.00	1	1.32	1.32	1.32

Reflectance Histogram

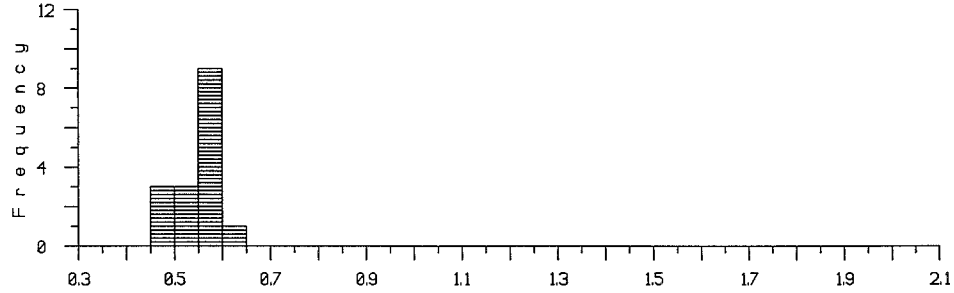


K0857B, 2860-3115m, North Triumph B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.46<	0.46<	0.47<	0.51<	0.52<	0.53<	0.55<	0.55<	0.55<	0.56<
1	0.57<	0.57<	0.57<	0.58<	0.58<	0.60<				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.54	0.04	16	0.46	0.60	8.63
Edit<	0.54	0.04	16	0.46	0.60	8.63

Reflectance Histogram

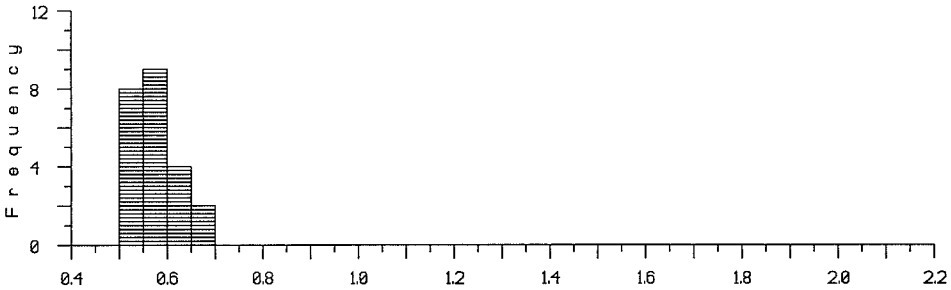


K0857C, 3210-3400m, North Triumph B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.50<	0.51<	0.52<	0.52<	0.52<	0.53<	0.53<	0.54<	0.55<	0.55<
1	0.55<	0.55<	0.55<	0.57<	0.57<	0.58<	0.58<	0.61<	0.61<	0.61<
2	0.62<	0.67<	0.68<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.57	0.05	23	0.50	0.68	13.02
Edit<	0.57	0.05	23	0.50	0.68	13.02

Reflectance Histogram

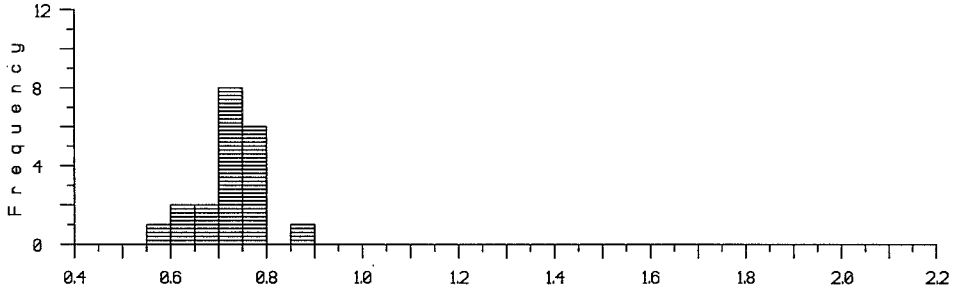


K0858A, 3560-3715m, North Triumph B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.59<	0.62<	0.64<	0.67<	0.69<	0.71<	0.71<	0.72<	0.72<	0.73<
1	0.73<	0.74<	0.74<	0.75<	0.75<	0.76<	0.77<	0.77<	0.79<	0.85<
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.72	0.06	20	0.59	0.85	14.45
Edit<	0.72	0.06	20	0.59	0.85	14.45

Reflectance Histogram

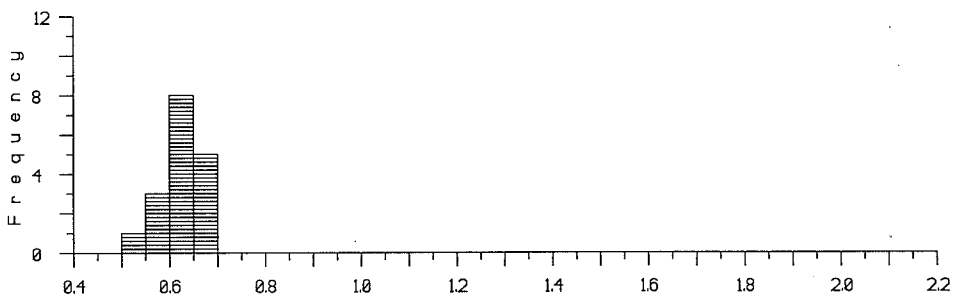


K0857D, 3415-3560m, North Triumph B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.51<	0.58<	0.58<	0.59<	0.61<	0.63<	0.64<	0.64<	0.64<	0.64<
1	0.65<	0.65<	0.66<	0.66<	0.67<	0.67<	0.70<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.63	0.05	17	0.51	0.70	10.72
Edit<	0.63	0.05	17	0.51	0.70	10.72

Reflectance Histogram

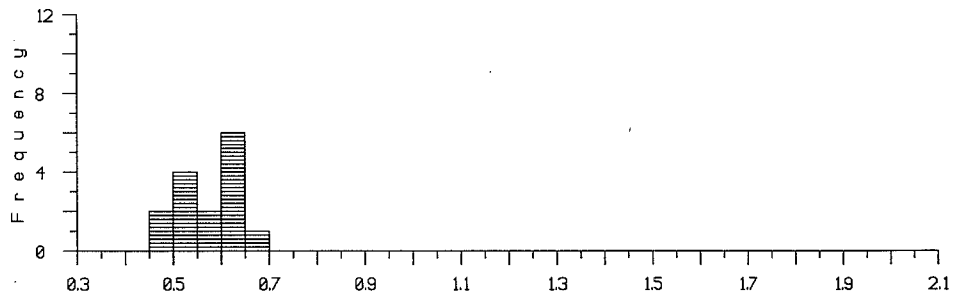


K0859A, 2660-2750m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.49<	0.49<	0.51<	0.52<	0.53<	0.54<	0.55<	0.59<	0.60<	0.61<
1	0.63<	0.63<	0.63<	0.64<	0.67<					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.58	0.06	15	0.49	0.67	8.63
Edit<	0.58	0.06	15	0.49	0.67	8.63

Reflectance Histogram

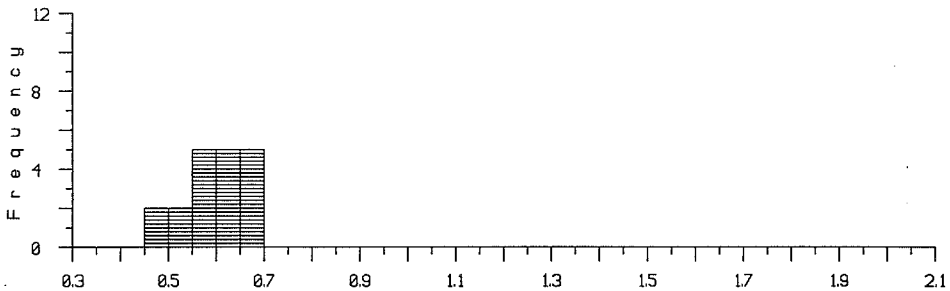


K0859B, 2840-2975m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.46<	0.46<	0.50<	0.54<	0.56<	0.57<	0.58<	0.59<	0.59<	0.61<
1	0.61<	0.62<	0.64<	0.65<	0.66<	0.66<	0.66<	0.66<	0.67<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.59	0.07	19	0.46	0.67	11.29
Edit<	0.59	0.07	19	0.46	0.67	11.29

Reflectance Histogram

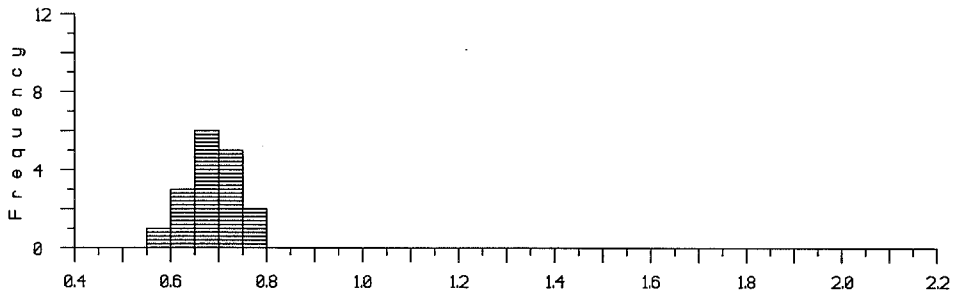


K0859D, 3600-3710m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.58<	0.64<	0.64<	0.65<	0.66<	0.68<	0.69<	0.70<	0.70<	0.70<
1	0.71<	0.72<	0.72<	0.72<	0.72<	0.76<	0.79<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.69	0.05	17	0.58	0.79	11.78
Edit<	0.69	0.05	17	0.58	0.79	11.78

Reflectance Histogram

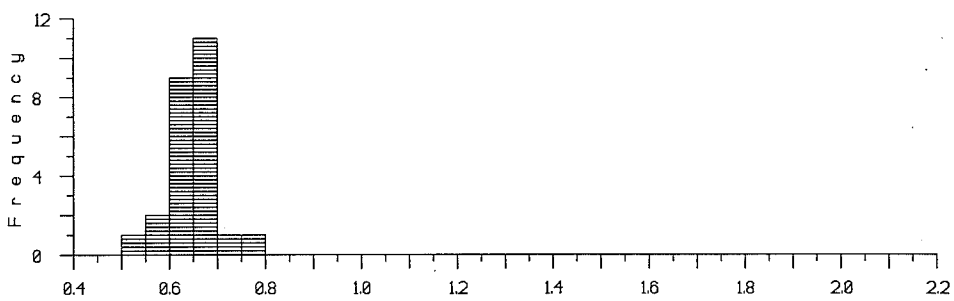


K0859C, 3360-3550m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.52<	0.56<	0.58<	0.60<	0.60<	0.60<	0.61<	0.61<	0.63<	0.63<
1	0.64<	0.65<	0.66<	0.66<	0.66<	0.67<	0.67<	0.68<	0.68<	0.69<
2	0.69<	0.70<	0.70<	0.71<	0.75<					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.65	0.05	25	0.52	0.75	16.15
Edit<	0.65	0.05	25	0.52	0.75	16.15

Reflectance Histogram

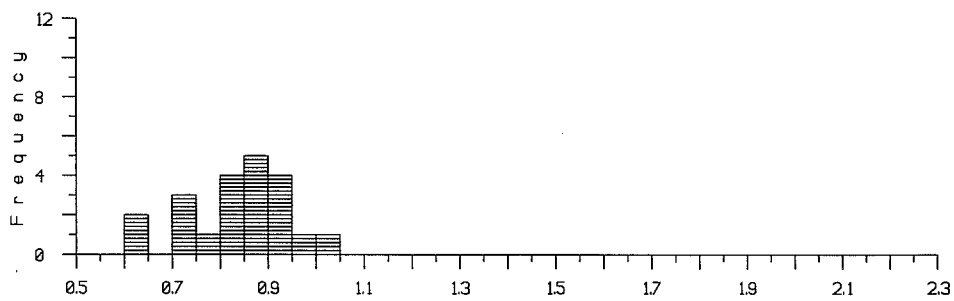


K0860A, 4530-4600m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.62<	0.65<	0.71<	0.72<	0.74<	0.76<	0.80<	0.83<	0.84<	0.84<
1	0.86<	0.87<	0.88<	0.89<	0.89<	0.91<	0.91<	0.91<	0.92<	0.96<
2	1.00<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.83	0.10	21	0.62	1.00	17.51
Edit<	0.83	0.10	21	0.62	1.00	17.51

Reflectance Histogram

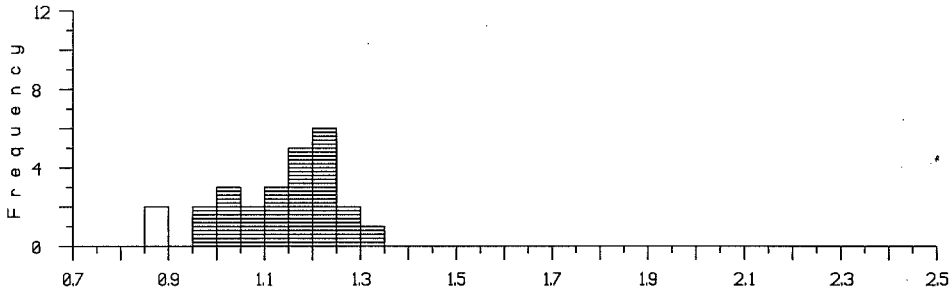


K0860B, 4680-4755m, North Triumph G-43 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.85	0.88	0.96<	0.97<	1.01<	1.03<	1.05<	1.07<	1.09<	1.10<
1	1.12<	1.14<	1.16<	1.16<	1.17<	1.17<	1.19<	1.20<	1.20<	1.21<
2	1.22<	1.22<	1.22<	1.25<	1.27<	1.33<				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.12	0.12	26	0.85	1.33	29.24
Edit<	1.15	0.10	24	0.96	1.33	27.51

Reflectance Histogram

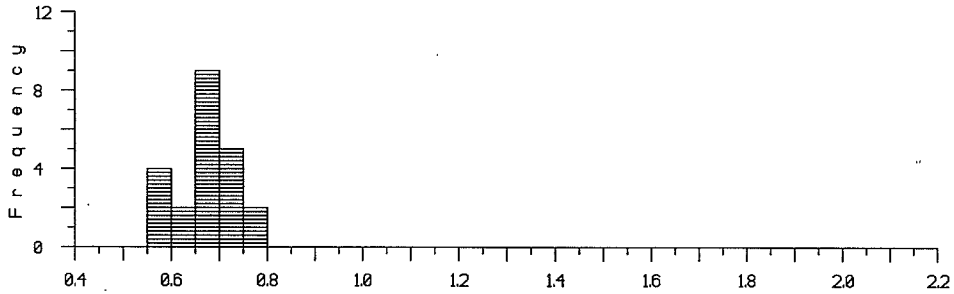


PeK30-02, 12430-12440', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.56<	0.57<	0.58<	0.59<	0.62<	0.64<	0.66<	0.66<	0.67<	0.67<
1	0.68<	0.68<	0.68<	0.68<	0.69<	0.71<	0.73<	0.73<	0.73<	0.73<
2	0.75<	0.76<								

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.67	0.06	22	0.56	0.76	14.77
Edit<	0.67	0.06	22	0.56	0.76	14.77

Reflectance Histogram

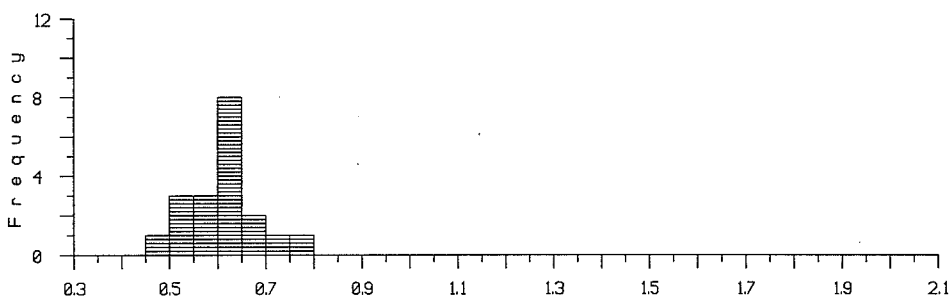


PeK30-01, 12280-12290', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.49<	0.53<	0.53<	0.54<	0.56<	0.58<	0.59<	0.60<	0.60<	0.60<
1	0.61<	0.61<	0.62<	0.63<	0.64<	0.67<	0.68<	0.71<	0.75<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.61	0.06	19	0.49	0.75	11.54
Edit<	0.61	0.06	19	0.49	0.75	11.54

Reflectance Histogram

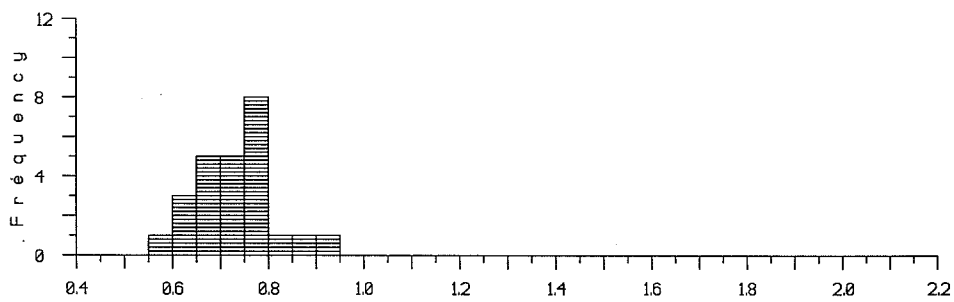


PeK30-03, 12590-12600', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.59<	0.62<	0.65<	0.65<	0.68<	0.68<	0.69<	0.70<	0.70<	0.71<
1	0.71<	0.72<	0.72<	0.74<	0.76<	0.77<	0.77<	0.77<	0.77<	0.77<
2	0.79<	0.79<	0.81<	0.86<	0.91<					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.73	0.07	25	0.59	0.91	18.33
Edit<	0.73	0.07	25	0.59	0.91	18.33

Reflectance Histogram

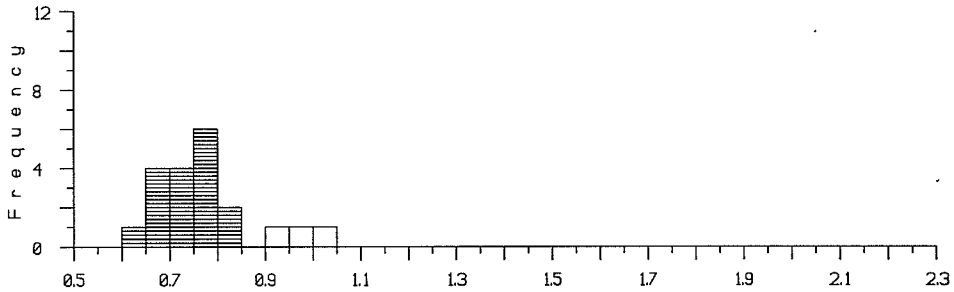


PeK30-04, 12730-12740', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.62<	0.66<	0.67<	0.69<	0.70<	0.71<	0.72<	0.72<	0.73<	0.75<
1	0.76<	0.76<	0.76<	0.77<	0.78<	0.82<	0.84<	0.92	0.97	1.04
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.77	0.11	20	0.62	1.04	15.39
Edit<	0.73	0.06	17	0.62	0.84	12.46

Reflectance Histogram

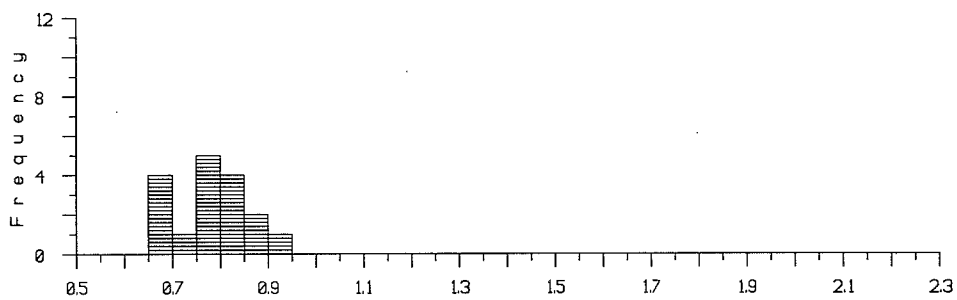


PeK30-05, 12970-12980', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.67<	0.68<	0.70<	0.70<	0.72<	0.75<	0.75<	0.75<	0.77<	0.79<
1	0.80<	0.80<	0.82<	0.84<	0.85<	0.86<	0.91<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.77	0.07	17	0.67	0.91	13.16
Edit<	0.77	0.07	17	0.67	0.91	13.16

Reflectance Histogram

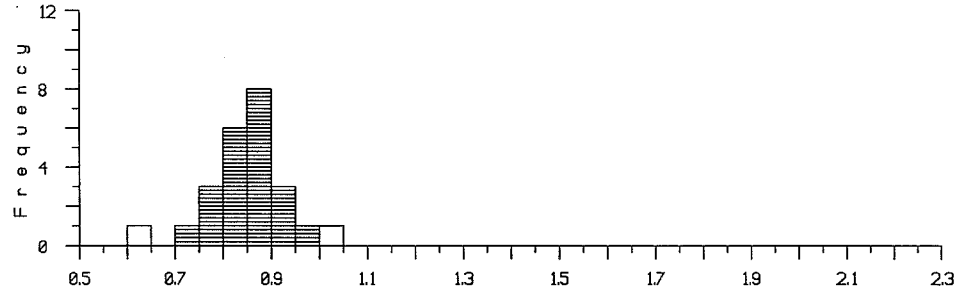


PeK30-06, 13330-13340', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.61	0.73<	0.75<	0.75<	0.79<	0.81<	0.82<	0.83<	0.83<	0.84<
1	0.84<	0.85<	0.85<	0.86<	0.87<	0.87<	0.87<	0.88<	0.89<	0.91<
2	0.92<	0.95<	0.97<	1.05						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.85	0.09	24	0.61	1.05	20.34
Edit<	0.85	0.06	22	0.73	0.97	18.68

Reflectance Histogram

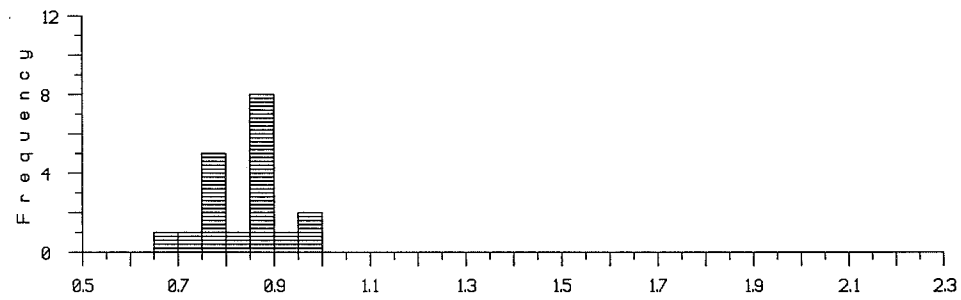


PeK30-07, 13690-13700', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.67<	0.74<	0.75<	0.76<	0.77<	0.77<	0.77<	0.84<	0.85<	0.85<
1	0.86<	0.87<	0.88<	0.88<	0.89<	0.90<	0.94<	0.96<	0.97<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.84	0.08	19	0.67	0.97	15.92
Edit<	0.84	0.08	19	0.67	0.97	15.92

Reflectance Histogram

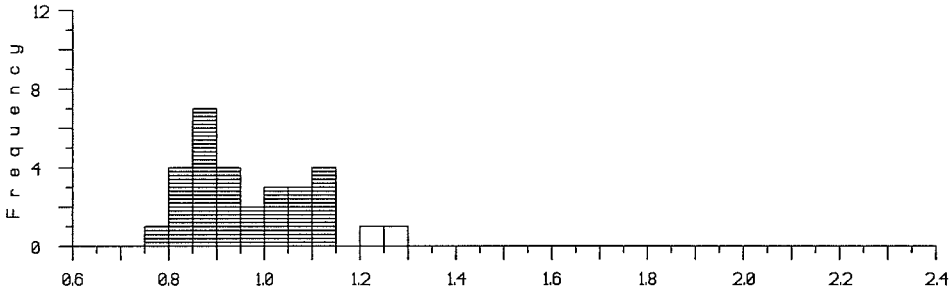


PeK30-08, 13830-13840', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.78<	0.81<	0.81<	0.83<	0.84<	0.85<	0.87<	0.88<	0.89<	0.90<
1	0.90<	0.90<	0.91<	0.91<	0.94<	0.94<	0.97<	0.99<	1.00<	1.04<
2	1.05<	1.06<	1.07<	1.09<	1.10<	1.10<	1.11<	1.14<	1.24	1.25
3										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.97	0.13	30	0.78	1.25	29.17
Edit<	0.95	0.11	28	0.78	1.14	26.68

Reflectance Histogram

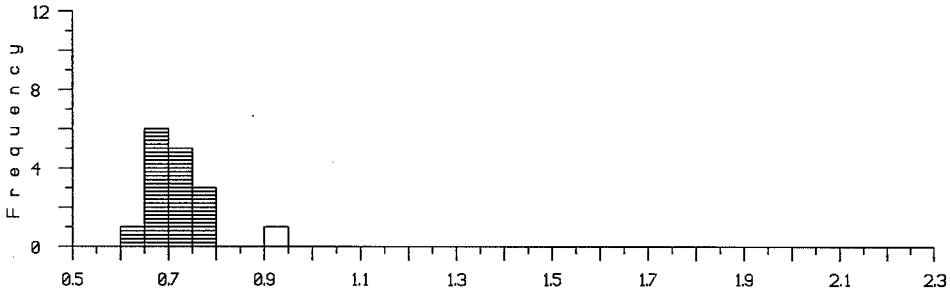


UnG72-01, 4265-4270m, Untacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.64<	0.66<	0.66<	0.66<	0.69<	0.70<	0.70<	0.71<	0.72<	0.72<
1	0.74<	0.74<	0.75<	0.75<	0.79<	0.92				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.72	0.07	16	0.64	0.92	11.55
Edit<	0.71	0.04	15	0.64	0.79	10.63

Reflectance Histogram

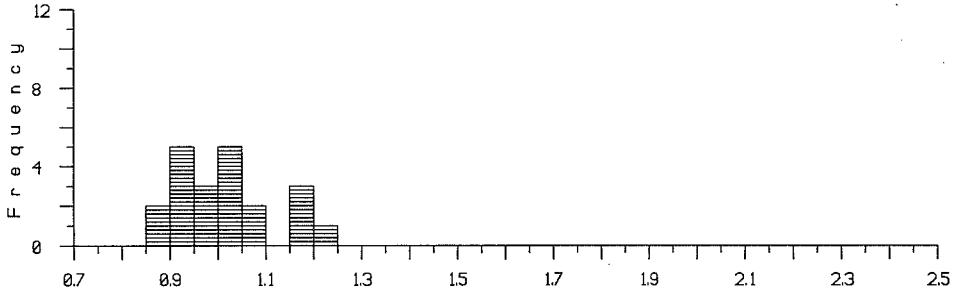


PeK30-09, 13990-14000', Penobscot K-30 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.86<	0.87<	0.91<	0.93<	0.93<	0.94<	0.95<	0.99<	0.99<	0.99<
1	1.00<	1.01<	1.01<	1.02<	1.05<	1.06<	1.07<	1.16<	1.19<	1.19<
2	1.21<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.02	0.10	21	0.86	1.21	21.33
Edit<	1.02	0.10	21	0.86	1.21	21.33

Reflectance Histogram

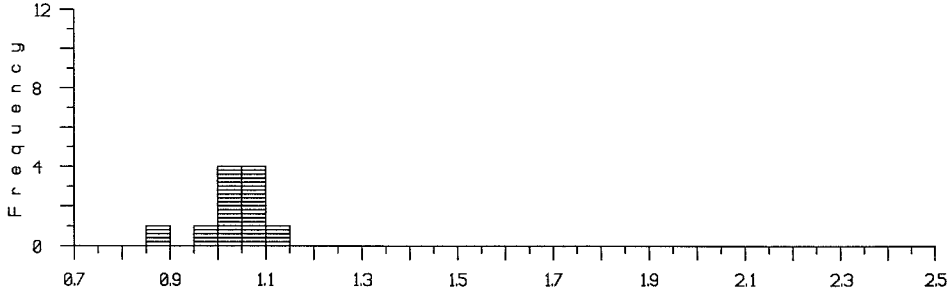


UnG72-02, 4980-4985m, Untacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.88<	0.99<	1.00<	1.00<	1.02<	1.04<	1.06<	1.07<	1.07<	1.08<
1	1.11<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.03	0.06	11	0.88	1.11	11.32
Edit<	1.03	0.06	11	0.88	1.11	11.32

Reflectance Histogram

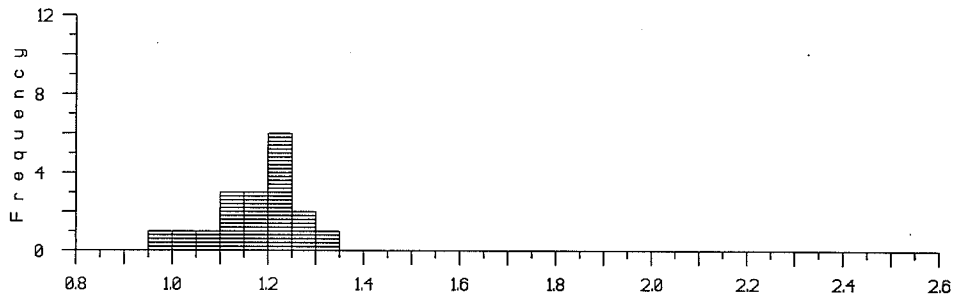


UnG72-03, 5015-5020m, Uniacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.97<	1.05<	1.08<	1.10<	1.12<	1.14<	1.16<	1.18<	1.19<	1.21<
1	1.21<	1.21<	1.22<	1.24<	1.24<	1.26<	1.27<	1.32<		

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.18	0.09	18	0.97	1.32	21.17
Edit<	1.18	0.09	18	0.97	1.32	21.17

Reflectance Histogram

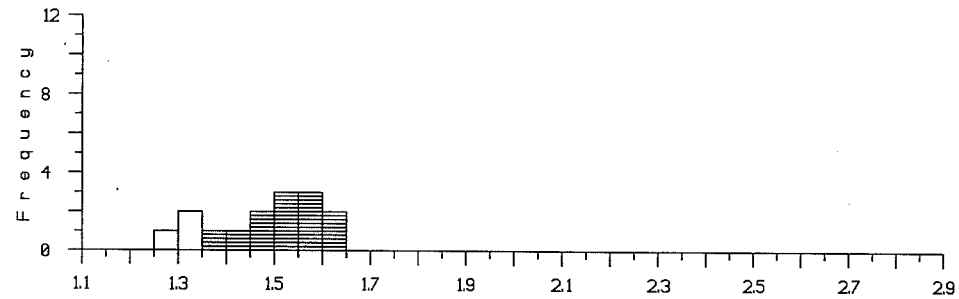


UnG72-05, 5660-5665m, Uniacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.28	1.31	1.32	1.40<	1.41<	1.45<	1.48<	1.51<	1.51<	1.55<
1	1.56<	1.57<	1.57<	1.64<	1.64<					

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.48	0.12	15	1.28	1.64	22.20
Edit<	1.52	0.08	12	1.40	1.64	18.29

Reflectance Histogram

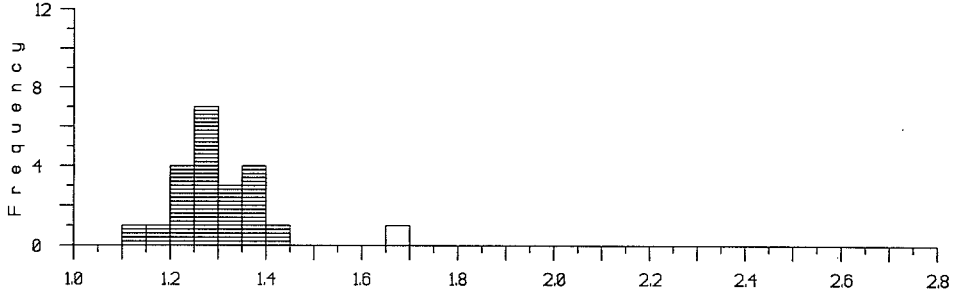


UnG72-04, 5135-5140m, Uniacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.10<	1.16<	1.20<	1.23<	1.24<	1.24<	1.26<	1.27<	1.27<	1.28<
1	1.28<	1.29<	1.29<	1.31<	1.31<	1.32<	1.35<	1.35<	1.37<	1.38<
2	1.42<	1.66								

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.30	0.11	22	1.10	1.66	28.58
Edit<	1.28	0.07	21	1.10	1.42	26.92

Reflectance Histogram

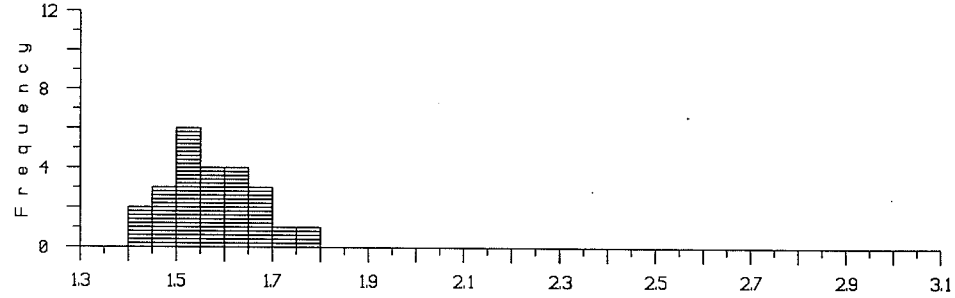


UnG72-06, 5730-5735m, Uniacke G-72 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.41<	1.43<	1.47<	1.48<	1.48<	1.50<	1.52<	1.54<	1.55<	1.55<
1	1.55<	1.57<	1.57<	1.58<	1.59<	1.60<	1.62<	1.65<	1.65<	1.66<
2	1.67<	1.67<	1.72<	1.75<						

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.57	0.09	24	1.41	1.75	37.78
Edit<	1.57	0.09	24	1.41	1.75	37.78

Reflectance Histogram

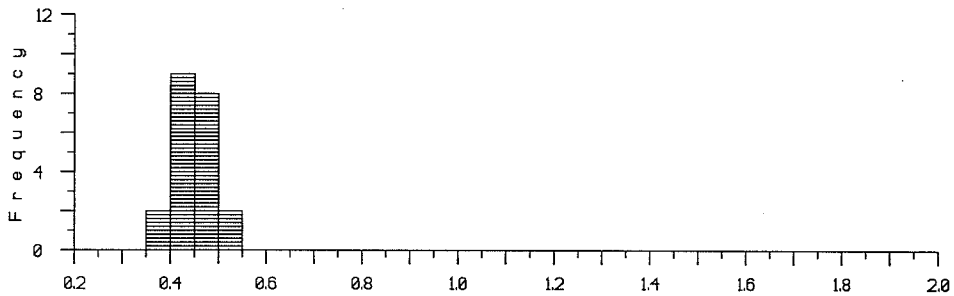


K0855A, 2310-2485m, Venture B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.37<	0.39<	0.41<	0.41<	0.42<	0.42<	0.42<	0.42<	0.43<	0.44<
1	0.45<	0.46<	0.47<	0.47<	0.47<	0.47<	0.47<	0.48<	0.49<	0.51<
2	0.53<									

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.45	0.04	21	0.37	0.53	9.40
Edit<	0.45	0.04	21	0.37	0.53	9.40

Reflectance Histogram

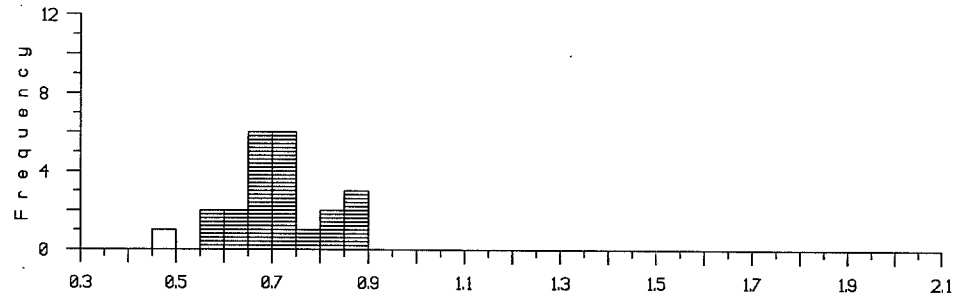


K0855C, 3680-3740m, Venture B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.49	0.58<	0.58<	0.62<	0.64<	0.67<	0.68<	0.69<	0.69<	0.70<
1	0.70<	0.71<	0.71<	0.72<	0.74<	0.74<	0.74<	0.79<	0.81<	0.81<
2	0.85<	0.88<	0.90<							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.71	0.10	23	0.49	0.90	16.44
Edit<	0.72	0.09	22	0.58	0.90	15.95

Reflectance Histogram

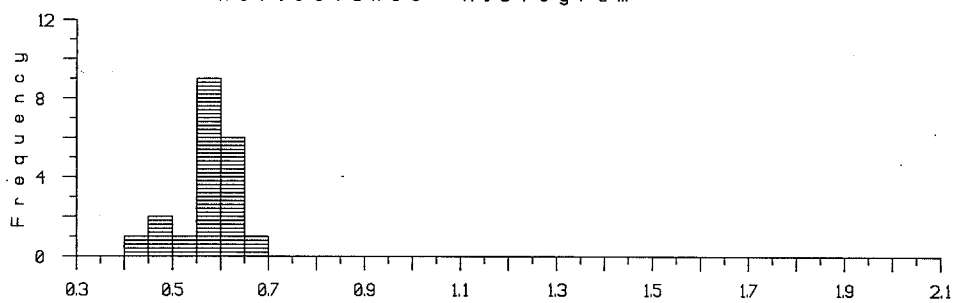


K0855B, 2875-3045m, Venture B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.45<	0.48<	0.49<	0.50<	0.55<	0.56<	0.57<	0.57<	0.58<	0.58<
1	0.58<	0.58<	0.59<	0.61<	0.61<	0.62<	0.62<	0.63<	0.64<	0.69<
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.57	0.06	20	0.45	0.69	11.50
Edit<	0.57	0.06	20	0.45	0.69	11.50

Reflectance Histogram

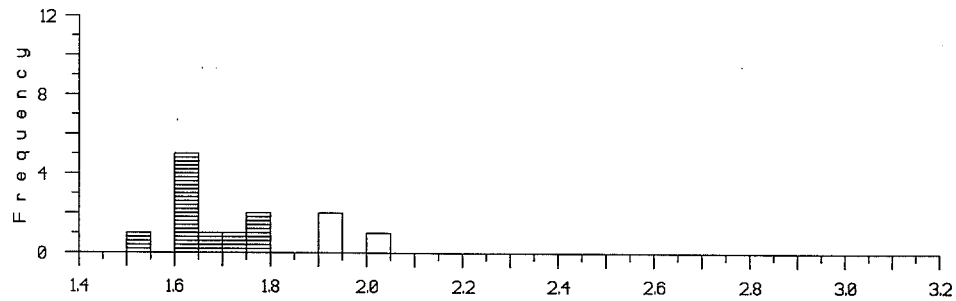


K0855D, 5810-5960m, Venture B-52 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	1.51<	1.60<	1.60<	1.62<	1.64<	1.65<	1.68<	1.72<	1.75<	1.78<
1	1.91	1.93	2.01							

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	1.72	0.15	13	1.51	2.01	22.40
Edit<	1.66	0.08	10	1.51	1.78	16.55

Reflectance Histogram

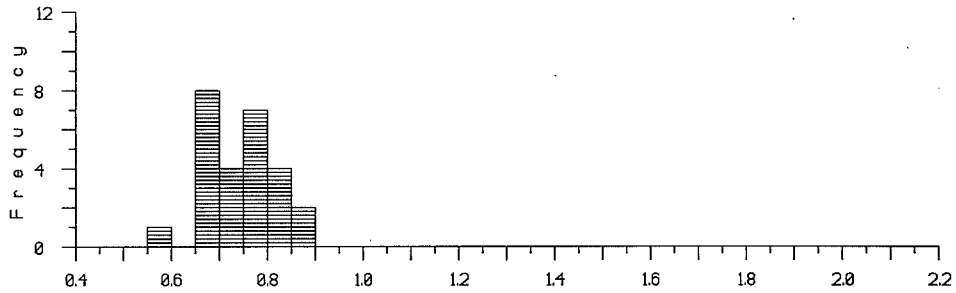


K0856A, 3860-3875m, Venture H-22 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.57<	0.67<	0.68<	0.68<	0.69<	0.69<	0.70<	0.70<	0.70<	0.71<
1	0.72<	0.72<	0.73<	0.75<	0.75<	0.75<	0.76<	0.78<	0.78<	0.79<
2	0.81<	0.82<	0.82<	0.83<	0.85<	0.86<				

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.74	0.07	26	0.57	0.86	19.31
Edit<	0.74	0.07	26	0.57	0.86	19.31

Reflectance Histogram

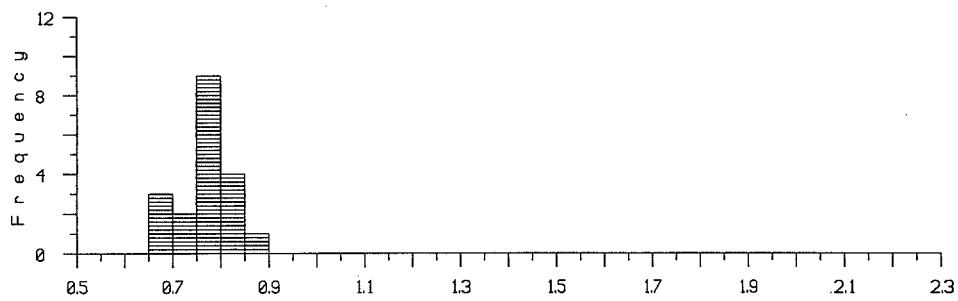


K0856B, 4175-4385m, Venture H-22 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.69<	0.69<	0.70<	0.71<	0.73<	0.76<	0.76<	0.77<	0.77<	0.77<
1	0.77<	0.78<	0.78<	0.79<	0.81<	0.81<	0.82<	0.83<	0.85<	

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.77	0.05	19	0.69	0.85	14.59
Edit<	0.77	0.05	19	0.69	0.85	14.59

Reflectance Histogram

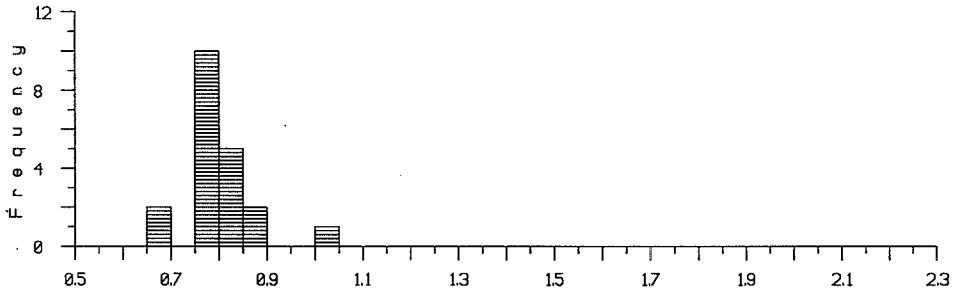


K0856C, 4410-4525m, Venture H-22 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.67<	0.70<	0.75<	0.75<	0.75<	0.76<	0.76<	0.77<	0.77<	0.78<
1	0.79<	0.79<	0.80<	0.81<	0.81<	0.81<	0.82<	0.90<	0.90<	1.00<
2										

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.79	0.07	20	0.67	1.00	15.89
Edit<	0.79	0.07	20	0.67	1.00	15.89

Reflectance Histogram



K0856D, 4550-4710m, Venture H-22 (JW-Muki)

Col >	1	2	3	4	5	6	7	8	9	0
Row	0.72<	0.75<	0.76<	0.76<	0.78<	0.78<	0.80<	0.81<	0.82<	0.82<
1	0.82<	0.83<	0.85<	0.85<	0.86<	0.87<	0.87<	0.88<	0.90<	0.90<
2	0.92<	0.92<	0.94<	0.96<	0.96<	0.98<	0.99<			

	Mean	Stand Dev	Pts	Min	Max	Sum
Total	0.86	0.07	27	0.72	0.99	23.10
Edit<	0.86	0.07	27	0.72	0.99	23.10

Reflectance Histogram