ORKUSTOFNUN
NATIONAL ENERGY AUTHORITY

MÝRDALSSANDUR
A geophysical survey

Freyr Thórarinsson
Halina Gudmundsson

OS79022/JKD06
Reykjavík, May 1979

Prepared for
Jarðefnaiðnaður h/f

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Fjölritað af
OFFSETFJÖLRITUN HF.

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ABSTRACT

This report describes the results of a geophysical survey of the pumice on Mýrdalssandur. The survey included both geoeletrical and seismic measurements. The thickness of dry pumice above groundwater table was found to be about 3-5 meters in the lower half of the area, and increase to over 20 meters in the uppermost part of the area. The bedrock underlying the pumice is found to be relatively flat, at an elevation of 10-25 meters below sea level.

1 INTRODUCTION

In the second week of July, 1978, a geophysical survey was carried out on Mýrdalssandur by the National Energy Authority, Dept. of Econ. Geology. The survey consisted of the geoelectrical soundings described in chapter 2 and the seismic survey described in chapter 3. The geophysical field work and preliminary interpretation was supervised and carried out by the geophysicists Kristján Ágústsson and Freyr Thórarinsson. Final interpretation of the geoelectrical and seismic data was done by geophysicists Freyr Thórarinsson and Halina Gudmundsson respectively. Geologist Freysteinn Sigurdsson was in charge of the project and carried out the complementary geological investigation, jointly with geologist Gylfi Einarsson of the Technical Institute of Iceland.

The aim of the survey was to map the thickness of the pumice overlying the bedrock in the area and to map the thickness of pumice above groundwater in the area. The joint interpretation of the compiled geophysical data shows, that the electrical soundings, which are more widely distributed than the seismic profiles, give a reasonable estimate of the mean depth to bedrock at each sounding location, at least in the areas covered by the seismic survey. All three exploration methods give fairly identical values as to the thickness of the dry pumice, i.e. the depth to groundwater table, the main target of the survey.

In this report, all the loose sediments on Mýrdalssandur are classified as pumice, wet and dry. Indeed, for the most part, these sediments consist of pumice, at least at the surface, but may be mixed to a considerable degree with sand and gravel.

2 THE GEOELECTRICAL SURVEY

The geoelectrical survey consisted of 22 vertical electrical soundings (abbreviated as VES) with a Schlumberger array. Their location is shown in fig. 1 and given in table 1.

The VES are interpreted as three lithostratigraphic units: Dry pumice above ground-water table, wet pumice below ground-water table and bedrock. In fig. 2 is shown the thickness of the first layer, dry pumice above ground-water table, and also elevation of the ground-water table above sea level, i.e. the piezometric height. In fig. 3 is shown the thickness of the first two layers together, and also the elevation of the bedrock with respect to sea level. These are the main results of the geoelectrical survey, and they are also presented in table 1.

Fig. 4 shows a resistivity profile, which gives a fairly good idea of the lithostratigraphic structure of the area. The thickness of dry as well as wet pumice increases inland, especially above mount Hjörleifs-höfdi.

The bedrock is divided at 200 ohm-meters into high and low resistivity bedrock. This seems to correspond to the high and low velocity bedrock found in the seismic surveys and furthermore seems to delineate the "foundation" of mt. Hjörleifshöfdi.

Finally, fig. 5 shows the distribution of interpreted resistivity values and their correspondance with the lithostratigraphic classification. These classes are distinctively separated in resistivity values, except for a slight overlap between high resistivity bedrock and wet pumice, but these overlapping values are clearly separated in the individual surroundings.

The interpretation of the VES presented here in table 1 and figs. 2-5 is done by a computer program which selects, by iterations, the interpretation model and the corresponding curve, which has a least-square-deviation from the measured values. A starting model has to be selected, the number of layers in the model being its most important feature. Any parameter of this initial model, i.e. the thickness or the resistivity of any layer, can be fixed, as opposed to being variable. For further details about this computer program, see "Johansen, H.K., 1977, a Man/Computer Interpretation System for Resistivity Soundings over a Horizontally Stratified Earth, Geophysical Prospecting 25, 667-697".

The interpreter has to select the optimal number of layers for each VES and decide what parameters in which VES should be fixed to get a consistent and plausible interpretation of the "geoelectrical-stratigraphy" of the area. In the interpretation presented in this report, the following resistivities were fixed: The resistivity of wet pumice at 400 ohm-meters in M-XIII, M-XVIII, M-XX and M-XXI and at 650 ohm in M-XIV. The value for low resistivity bedrock was fixed at 130 ohm-meters for M-XVII. Finally, the surface resistivity in M-IV was fixed, for technical reasons. All other resistivity values were variable, and thickness of layers was never fixed.

3 THE SEISMIC SURVEY

The seismic survey consisted of 20 refraction and 21 reflection profiles, covering the same ground. The location of profiles was marked by pegs, each bearing the same number as the profile it locates. These numbers are M-I and M-1 to M-21, and the location of the pegs is shown in fig. 1 and given in tables 2 and 3. The interpretation of the refraction and reflection profiles is given in tables 2 and 3 respectively, and shown in figs. 6, 7, and 8. Fig. 6 shows the uppermost seismic section (cf. fig. 1), including profiles M-9 to M-15 and M-21. Fig. 7 shows the section including M-1 to M-8 and M-I, and fig. 8 shows the seismic section closest to the shore, including profiles M-16 to M-20.

The seismic profiles, like the VES, are interpreted in terms of three litho-stratigraphic units, dry pumice above ground-water level, wet pumice below ground-water level and bedrock. Figures 6-8 show the interpreted thickness of dry and wet pumice on the three seismic sections. Furthermore, they show the seismic velocity of the layers from refraction profiles and the apparent velocity down to bedrock from reflection profiles. The depth down to bedrock according to the geoelectrical soundings is also depicted in figs. 6 and 7. This comparison shows a good correlation between the VES and the seismic survey, and suggest that the VES interpretation from the upper half of Mýrdalssandur, where no seismic profiling was carried out, should generally give a reasonable estimate of pumice thicknesses.

The bedrock is here separated into two lithostratigraphic sub-units, high velocity and low velocity bedrock. This division seems to correspond with the division into high and low resistivity bedrock mentioned in chapter 2, and seemingly reflects the same geologic phenomena, i.e. the submerged "foundation" of mt. Hjörleifshöfdi. The seismic refraction recording was done with a 12-channel ABEM-Trio seismometer with 10 m spacings between geophones. The total geophone spread was thus 110 m. The seismic impulse was provided by dynamite explosives. All profiles, except M-19, were reversed. All profiles, exept M-1 and M-2, were shot twice in each direction, with offset distances of 10 and 100 meters (i.e. the distance from the shotpoint to the first geophone). The quality of the refraction profiles is generally rather good.

The seismic reflection recording was done with a single-channel Huntec Seismograph, model FS-3 with a facsimile printer, using a sledge as an energy source and an arrey of 12 geophones. For each recording, the seismic impact was delivered at 40-60 points with an interval of 1 meter. Several recordings were made for each profile. The quality of the recordings is generally acceptable, although far from noise-free.

ÁGRIP Á ÍSLENSKU

Jarðkönnunardeild Orkustofnunar gerði í júlí 1978 könnun á þykkt Mýrdalssands milli Múlakvíslar og Blautukvíslar, með jarðeðlisfræðilegum mælingum. Könnunin var gerð fyrir Jarðefnaiðnað h/f. Gerðar voru 22 viðnámsmælingar, 20 hljóðbrotsmælingar og 21 hljóðspeglunarmæling. Niðurstöður túlkunar þessara mælinga er að finna í töflum 1-3. Ennfremur er að finna í viðauka mæliferla og túlkunarferla allra viðnámsferla allra viðnámsmælinganna.

Á mynd 1 er sýnd staðsetning allra mælinganna, eða nánar tiltekið hæla, sem notaðir voru til að merkja mælistaðina fyrir landmælingu. Á mynd 2 er sýnt bæði dýpi á jarðvatn (feitletrað) og jarðvatnshæð (skáletrað) samkvæmt viðnámsmælingum. Á mynd 3 er sýnd þykkt sandsins (feitletrað) og hæð berggrunnsins yfir sjó (skáletrað) samkvæmt viðnámsmælingum. Mynd 4 sýnir þversnið upp sandinn samkvæmt viðnámsmælingum. Mynd 5 sýnir dreifingu viðnámsgilda. Myndir 6-8 sýna niðurstöður túlkunar hljóðbrots- og hljóðspeglunarmælinganna og samanburð þeirra við viðnámsmælingarnar. Sá samanburður gerir í fyrsta lagi kleift að túlka viðnámsmælingarnar í nágrenni Hjörleifshöfða með meiri nákvæmni en ella, og í öðru lagi styrkir hann almennt niðurstöður viðnámsmælinganna.

Helstu niðurstöur eru þær, að dýpi á jarðvatn er 3-5 m niður á móts við Hjörleifshöfða, en eykst upp sandinn og er yfir 20 m í nágrenni Hafurseyjar. Grunnbergið undir sandinum er flatt inn til landsins og yfirborð þess er á 10-25 m dýpi undir sjávarmáli.

TABLES

EXPLANATIONS TO TABLE 1.

M:	Number of sounding
D:	Date
x,y,z:	Coordinates
R°:	Orientation of VES (east of true north)
L:	Number of layer
ρ:	Resistivity of layer
h:	Thickness of layer
d:	Depth to base of layer
m-m:	Minimal-maximal possible thickness of layer, within 68% confidence limits
s:	m-m expressed as percentage of thickness of layer (times 1/2)

TABLE 1: MÝRDALSSANDUR - Geoelectrical survey

M	D	x	y	z	R°	L	ρ	h	d	m-m	s	Comment
M-I	780704	612 180	7 036 230	14,38	90	1	3000	0.1	0.1			Compiled
						2	13000	4.	4.			from
						3	350	35.	40.			two runs
						4	(35)					
M-II	780704	610 430	7 036 380	17,66	≅0	1	11300	1.5	1.5			
						2	10200	3.0	4.5	4.4-4.7	4	
						3	313	27.	32.	28-37	14	
						4	143	88.	120.			
						5	34					
M-III	780705	610 280	7 039 160	37,55	0	1	10900	4.4	4.4		1	
						2	328	72.	77.	73-81	6	
						3	130					
M-IV	780705	610 830	7 037 770	24,44	0	1	14000	0.3	0.3			Fix.res.
						2	10500	2.8	3.1	3.0-3.2	2	
						3	430	38.	41.	39-43	5	
						4	180					
M-V	780705	609 200	7 039 110	37,52	12	1	4870	0.5	0.5			
						2	12400	6.3	6.8	6.6-7.0	2	
						3	510	54.	60.	57-64	5	
						4	160					
M-VI	780706	612 170	7 034 960	7,70	94	1	6730	3.0	3.0	2.9-3.0	2	
						2	424	18.	21.	19-24	11	
						3	280	24.	45.			
						4	18					
M-VII	780706	610 650	7 035 360	11,70	98	1	17500	0.3	0.3			Uncertain
						2	8500	3.5	3.8			values
						3	1430	9.7	13.5			
						4	221	64.	77.	76-79	2	
						5	15					
M-VIII	780706	611 600	7 050 190	155,51	145	1	20300	0.7	0.7			
						2	6710	4.1	4.8			
						3	20500	23.	28.	26-30	7	
						4	741	94.	122.	98-157	24	
						5	300					
M-IX	780706	610 300	7 040 630	50,99	16	1	9550	9.3	9.3	No outp.		
						2	419	45.	55.	"		
						3	280	58.	113.	"		
						4	130			"		
M-X	780707	608 50	7 036 40	≅10	26	1	9100	0.3	0.3			Computer
						2	5910	3.3	3.6	3.5-3.7	2	iteration
						3	432	27.	31.	28-33	9	not
						4	250					finished

TABLE 1: MÝRDALSSANDUR - Geoelectrical survey

M	D	x	y	z	R°	L	ρ	h	d	m-m	s	Comment
M-XI	780707	614 690	7 036 450	≅12	163	1	12000	3.9	3.9		1	
						2	404	32.	36.	32-42	13	
						3	181	54.	90.			
						4	34					
M-XII	780707	614 150	7 039 480	27,91	176	1	12200	2.9	2.9	No outp.		
						2	439	44.	47.	"		
						3	227	79.	126.	"		
						4	65			"		
M-XIII	780707	612 640	7 039 250	31,61	165	1	15600	3.4	3.4			
						2	1330	10.	13.	13-14	5	
						3	400	31.	45.	40-51	16	Fix. res.
						4	222	60.	105.			
						5	95					
M-XIV	780708	612 880	7 048 870	121,69	170	1	44800	0.7	0.7			
						2	15500	23.	24.		1	
						3	650	86.	110.	107-114	3	Fix. res.
						4	150					
M-XV	780708	614 30	7 046 60	≅80,	96	1	28300	1.3	1.3			
						2	14900	16.	18.	17-18	1	
						3	603	83.	101.	98-104	3	
						4	82					
M-XVI	780708	615 610	7 045 380	63,33	≅175	1	21000	2.3	2.3			
						2	12200	8.4	11.	10-11	3	
						3	583	61.	72.	70-74	2	
						4	82					
M-XVII	780708	610 690	7 042 680	65,85	174	1	18900	0.6	0.6			
						2	10600	14.	15.			
						3	467	64.	78.	64-96	21	
						4	338	104.	182.	162-204	11	
						5	130					Fix. res.
M-XVIII	780709	610 720	7 044 170	80,58	174	1	12900	1.6	1.6			
						2	6560	18.	20.		1	
						3	400	85.	105.	99-111	6	Fix. res.
						4	190					
M-XIX	780709	610 720	7 045 500	94,85	175	1	17600	0.8	0.8			
						2	6630	31.	32.	32-33	2	
						3	410	82.	114.	100-131	14	
						4	170					
M-XX	780709	610 870	7 046 570	97,00	30	1	15100	1.2	1.2			
						2	4540	36.	37.	37-38	1	
						3	400	91.	128.	117-140	9	Fix. res.
						4	220					
M-XXI	780710	611 590	7 040 220	42,69	1	1	18000	1.1	1.1			Compiled
							10500	5.	6.			from
							≅400	50-60	55-65			two
							≅90					runs
M-XXII	780710	608 520	7 047 150	135,66	146	1	13500	1.0	1.0			Compiled
						2	2500	0.5	1.5			from
						3	10000	14.	16.			two runs
						4	≅2000	≅20.	≅35.			
						5	?	?				

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TABLE 2

JARÐSVEIFLUMÆLINGAR
Refraction seismic

Staður: MÝRDALSSANDUR Ár: 79

Hæll nr.		Hnit: Y-norður	Hnit: X-vestur	Hæð m y.s.	Hljóðhraði, km/s: V_1	V_2: V_u og V_d	V_2: V_t	V_3: V_u og V_d	V_3: V_t	Þykkt, m: 1. lag h_1	Þykkt, m: 2. lag h_2	Dýpi, m á 3. lag H_2
M-I	A	7.036.230	612.180	14,38	0,3	1,4	1,4	2,6	2,5	4,0	27	31
	B				0,3	1,4		2,4		4,0	31	35
M- 1	A	7.036.230	612.490	12,75		1,5	1,5	2,6	2,6	∿4,0?	34	∿38
	B					1,5		2,7		∿4,0?	37	∿41
M- 2	A	7.036.220	612.810	13,78		1,5	1,5	5,9	5,0	∿4,0?	52	∿56
	B							4,4		∿4,0?		≤40 (max)
M- 3	A	7.036.210	613.100	14,36	0,3	1,4	1,4	4,9	5,0	5,2	41	46
	B				0,3	1,4		5,2		5,0	52	57
M- 4	A	7.036.200	613.450	14,80	0,3	1,5	1,5	5,6	4,2	5,6	56	62
	B				0,3	1,5		3,3		4,8	56	66*
M- 5	A	7.036.210	611.860	17,00	0,3	1,4	1,4	4,5	4,0	6,0	42	48
	B				0,3	1,3		3,6		4,8	45	50
M- 6	A	7.036.230	611.540	16,87	0,3	1,4	1,4	3,8	3,7	5,6	≤23	29 (min)
	B				0,3	1,3		3,6		5,4	32	37
M- 9	A	7.039.350	610.090	39,29	0,3	1,6	1,6	2,3	2,3	6,0	36	42
	B				0,3	1,6		2,3		6,0	≥42	48 (min)
M-10	A	7.039.430	610.380	39,30	0,3	1,6	1,6	2,0	2,1	5,6		36
	B				0,3	1,5		2,2		6,9		38
M-11	A	7.039.510	610.660	39,52	0,3	1,7	1,6			5,6		
	B				0,3	1,6				4,4		
M-12	A	7.039.630	611.000	39,21	0,3	1,5	1,6	2,3	2,3	6,0	31,0	37,0
	B				0,3	1,6		?		7,2	≫36	>43 (min)
M-13	A	7.039.810	611.220	40,38	0,3	1,6	1,6			7,2		
	B				0,4	1,6				7,2		
M-14	A	7.040.040	611.420	41,40	0,3	1,5	1,6			7,7		
	B				0,3	1,6				6,9		
M-16	A	7.034.960	612.170	7,70	0,3	1,5	1,5	2,4	2,2	4,0	38	42,0
	B				0,3	1,5		2,1		4,0	37,5	41,0
M-17	A	7.034.970	612.470	7,29	0,3	1,5	1,5	3,6	3,7	4,0	50,0	54,0
	B				0,3	1,5		3,7		4,0	53,0	57,0
M-18	A	7.034.000	612.770	7,50	0,3	1,7	1,6		3,7?	4,0	∿56,0?	60,0 (min)
	B				0,3	1,5				2,4	∿57,0?	60,0 (min)
M-19	A	7.035.010	613.070	7,67		1,6	1,6				>65,0	67,0 (min)

Ath.

* Depth value including correction ∿5,0 m

V = velocity / hljóðhraði
u = up-dip / hallar upp
d = down-dip / hallar niður
t = true / réttur

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TABLE 3

JARÐSVEIFLUMÆLINGAR

Reflection seismic

Staður. MÝRDALSSANDUR Ár. 79

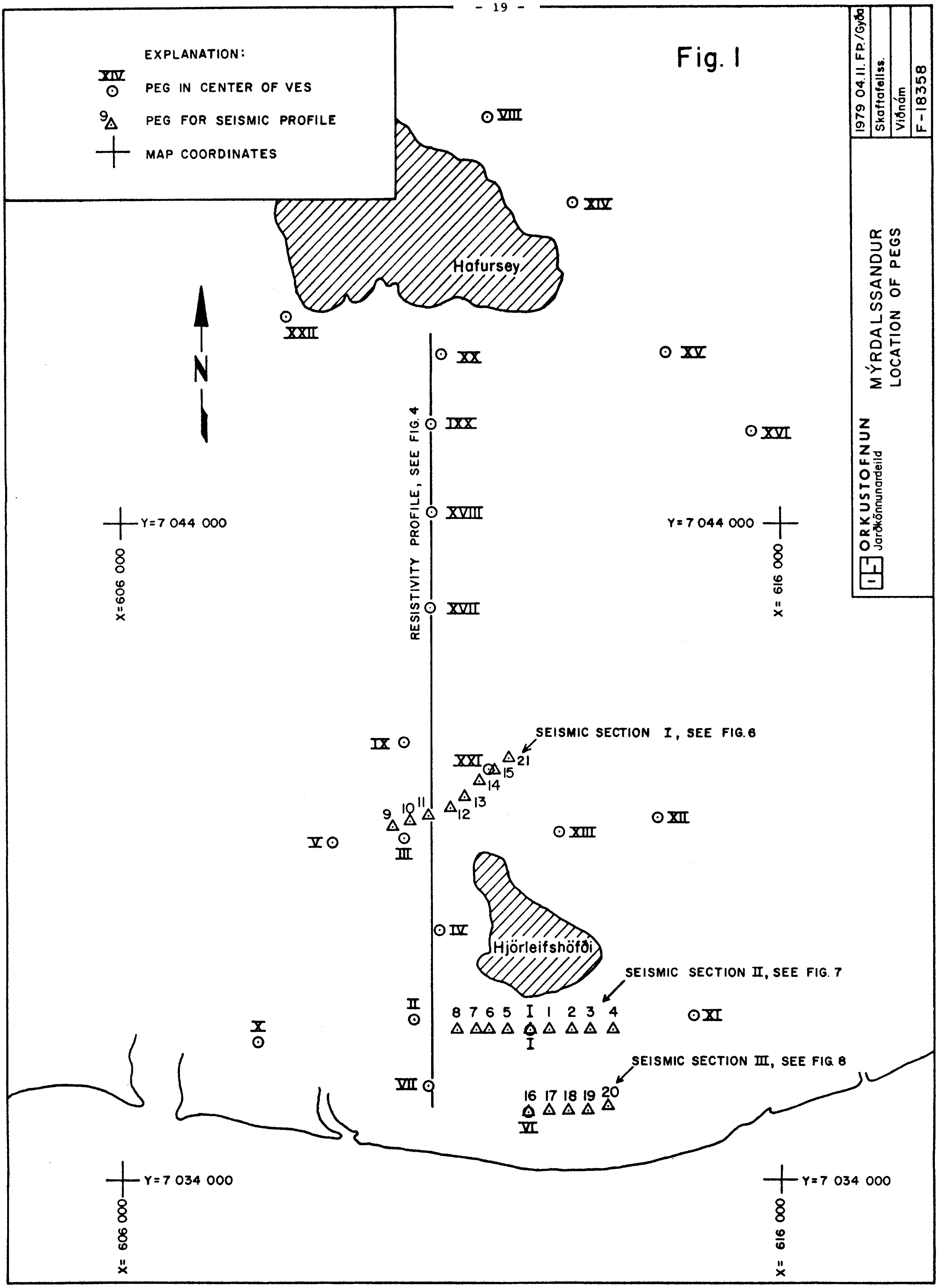
Hæll nr.		Hnit Y-norður	Hnit X-vestur	Hæð m y.s.	Hljóðhraði, km/s V_1	V_2 V_u og V_d	V_2 V_t	V_3 V_u og V_d	V_3 V_t	Þykkt, m 1. lag h_1	Þykkt, m 2. lag h_2	Dýpi, m á 3. lag H_2
M-I	A	7.036.230	612.180	14,38		1,1						34
	V					1,1						31
M- 2	A	7.036.220	612.810	13,78		1,2						43?
	V					1,3						50
M- 6	A	7.036.230	611.540	16,87								
	V					1,0/1,3						31/50
M- 7	A	7.036.230	611.340	16,57		1,3						40
	V											
M- 8	A	7.036.230	611.080	15,63		1,3						64
	V											
M- 9	A	7.039.350	610.090	39,29		1,2/1,3						44/64
M-10	A	7.039.430	610.380	39,30		1,2/1,3						38/50
M-11	A	7.039.510	610.660	39,52		1,3						45
M-12	A	7.039.630	611.000	39,21		1,2						52
M-13	A	7.039.810	611.220	40,38		1,3						55
M-14	A	7.040.040	611.420	41,40		1,2						55
M-15	A	7.040.240	611.640	42,39		1,2						53
M-16	A	7.034.960	612.170	7,70		1,3						39
	V					1,3						36
M-17	A	7.034.970	612.470	7,29		1,3						54
	V					1,2						48
M-18	A	7.034.000	612.770	7,50		1,3						60
	V											
M-19	A	7.035.010	613.070	7,67		1,3						70
	V					1,3						63
M-20	A	7.035.040	613.380	8,40		1,3						61
	V					1,3						63
M-21	A					1,2						52
	V					1,2						48

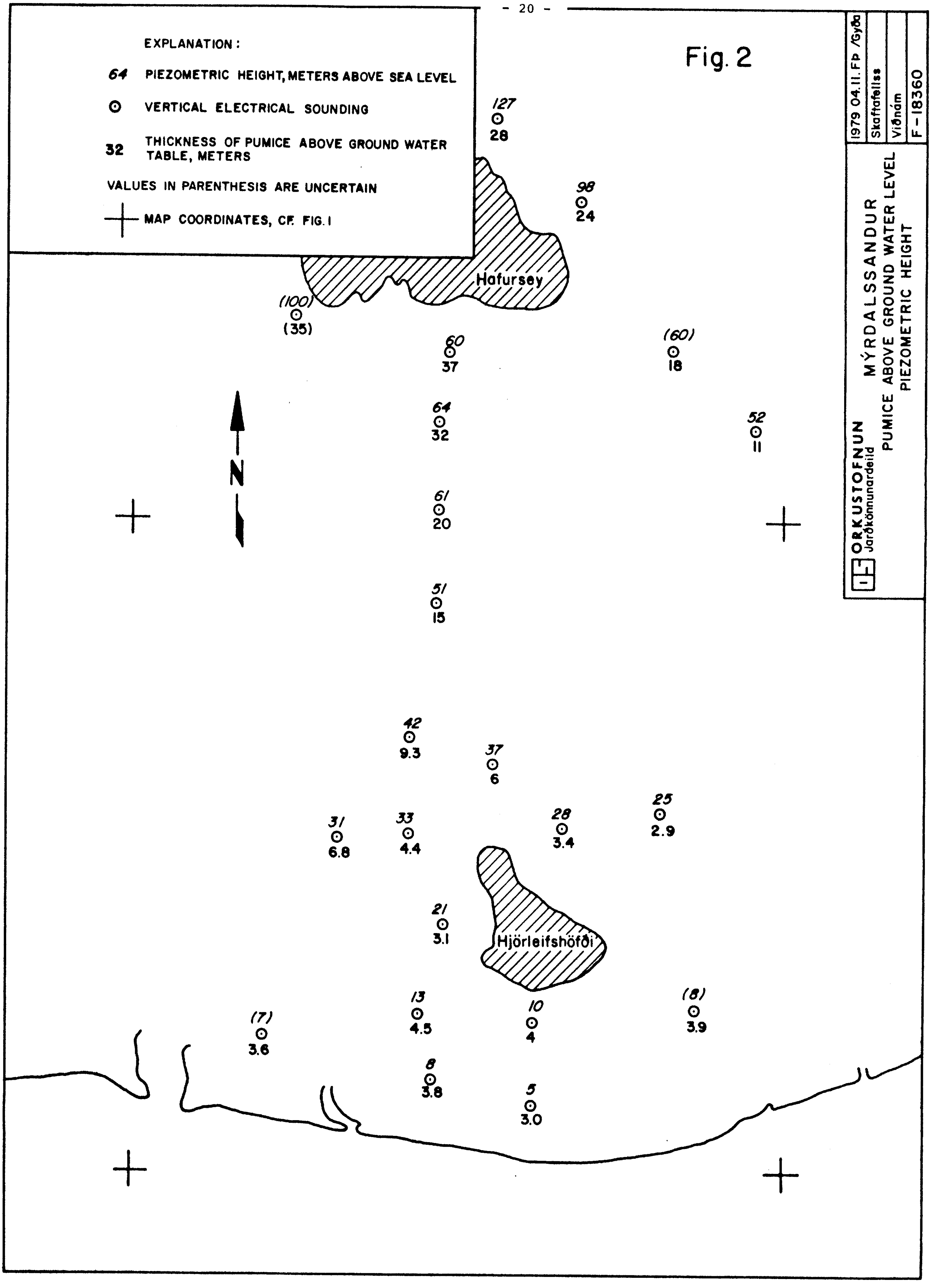
Ath.

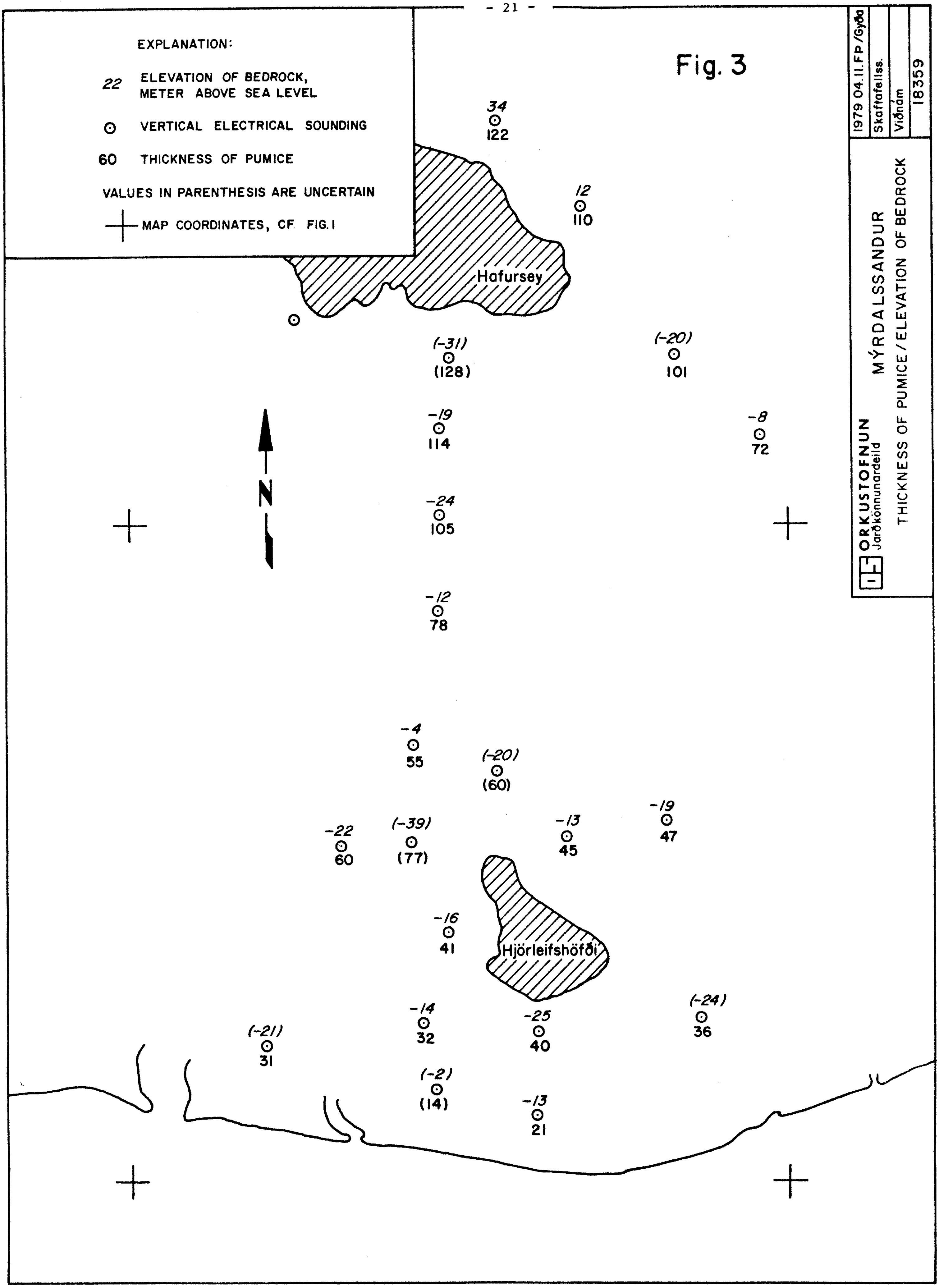
V = velocity / hljóðhraði
u = up-dip / hallar upp
d = down-dip / hallar niður
t = true / réttur

FIGURES

Fig. I


EXPLANATION:
XIV PEG IN CENTER OF VES
9 PEG FOR SEISMIC PROFILE
MAP COORDINATES
1979 04.11. FP./Gyða
Skaftafellss.
Viðnám
F-18358
MÝRDALSSANDUR
LOCATION OF PEGS
ORKUSTOFNUN
Jarðkönnunardeild
Hafursey
Hjörleifshöfði
N
RESISTIVITY PROFILE, SEE FIG. 4
SEISMIC SECTION I, SEE FIG. 6
SEISMIC SECTION II, SEE FIG. 7
SEISMIC SECTION III, SEE FIG. 8
Y=7 044 000
X=606 000
X= 616 000
Y=7 034 000
VIII
XIV
XXII
XX
XV
IXX
XVI
XVIII
XVII
IX
XXI
XII
XIII
V
III
IV
II
XI
X
VII
VI
I


EXPLANATION :
64 PIEZOMETRIC HEIGHT, METERS ABOVE SEA LEVEL
VERTICAL ELECTRICAL SOUNDING
32 THICKNESS OF PUMICE ABOVE GROUND WATER TABLE, METERS
VALUES IN PARENTHESIS ARE UNCERTAIN
MAP COORDINATES, CF. FIG. 1
Fig. 2
1979 04.11. FP /Gyða
Skaftafellss
Viðnám
F-18360
MÝRDALSSANDUR
PUMICE ABOVE GROUND WATER LEVEL
PIEZOMETRIC HEIGHT
ORKUSTOFNUN
Jarðkönnunardeild
Hafursey
Hjörleifshöfði
N
127 28
98 24
(100) (35)
60 37
(60) 18
64 32
52 11
61 20
51 15
42 9.3
37 6
25 2.9
28 3.4
33 4.4
31 6.8
21 3.1
13 4.5
10 4
(8) 3.9
(7) 3.6
8 3.8
5 3.0


EXPLANATION:
22 ELEVATION OF BEDROCK, METER ABOVE SEA LEVEL
VERTICAL ELECTRICAL SOUNDING
60 THICKNESS OF PUMICE
VALUES IN PARENTHESIS ARE UNCERTAIN
MAP COORDINATES, CF. FIG. 1
Fig. 3
1979 04.11.FP/Gyða
Skaftafellss.
Viðnám
18359
ORKUSTOFNUN
Jarðkönnunardeild
MÝRDALSSANDUR
THICKNESS OF PUMICE / ELEVATION OF BEDROCK
N
Hafursey
Hjörleifshöfði
34
122
12
110
(-31)
(128)
(-20)
101
-19
114
-8
72
-24
105
-12
78
-4
55
(-20)
(60)
-22
60
(-39)
(77)
-13
45
-19
47
-16
41
-14
32
-25
40
(-24)
36
(-21)
31
(-2)
(14)
-13
21

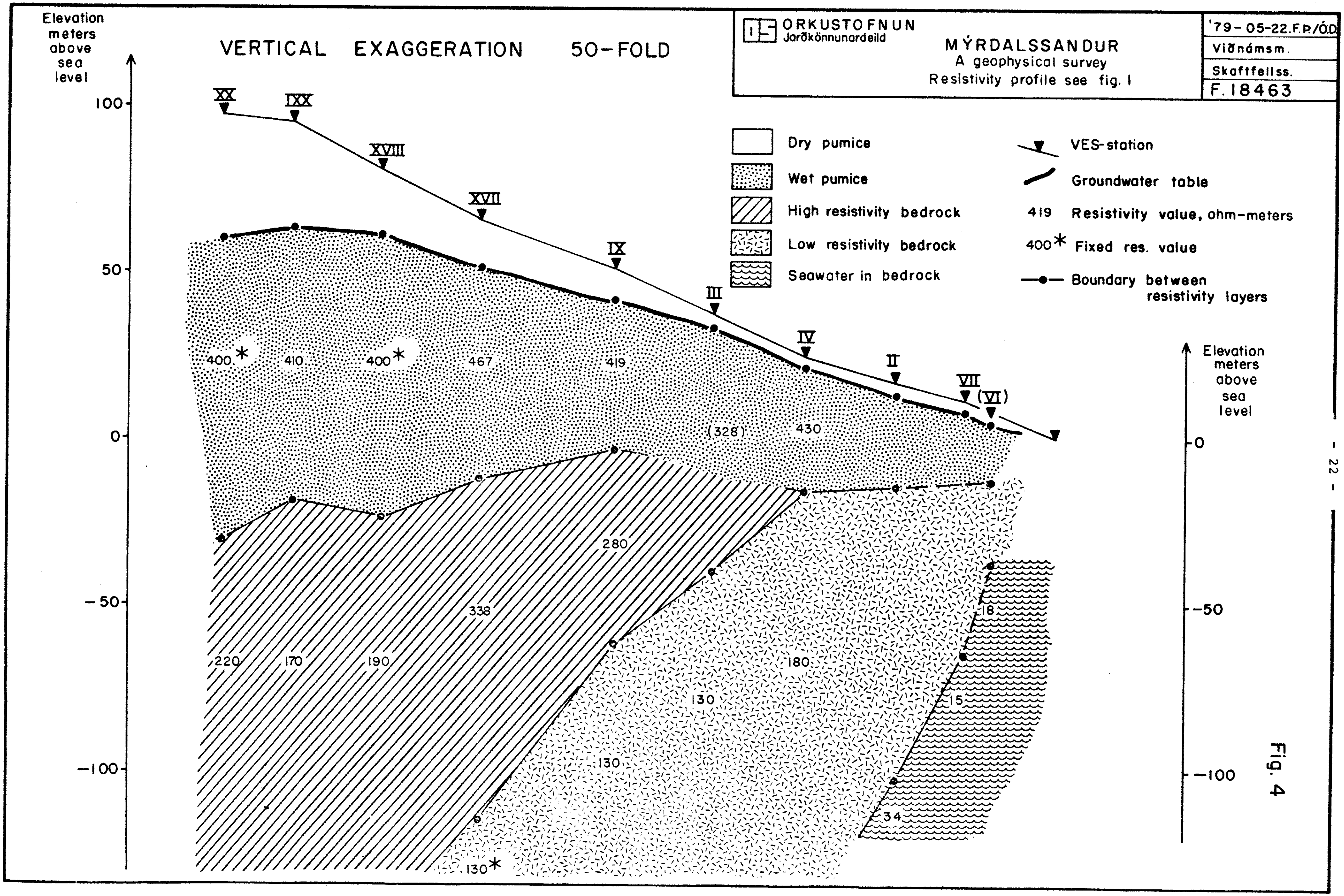

VERTICAL EXAGGERATION 50-FOLD
ORKUSTOFNUN
Jarðkönnunardeild
MÝRDALSSANDUR
A geophysical survey
Resistivity profile see fig. I
'79-05-22.F.P./Ó.D.
Viðnámsm.
Skaftfellss.
F.18463
Elevation meters above sea level
100
50
0
-50
-100
Dry pumice
Wet pumice
High resistivity bedrock
Low resistivity bedrock
Seawater in bedrock
VES-station
Groundwater table
419 Resistivity value, ohm-meters
400* Fixed res. value
Boundary between resistivity layers
XX
IXX
XVIII
XVII
IX
III
IV
II
VII
(VI)
400*
410
400*
467
419
(328)
430
220
170
190
338
280
180
130
130
130*
18
15
34

Fig. 4

ORKUSTOFNUN Jarðkönnunardeild	MÝRDALSSANDUR	'79. 05.22. F.Þ/Ó.D.
	DISTRIBUTION OF RESISTIVITY VALUES IN LAYERS BELOW GROUND WATER LEVEL	Skaftafellss.
		Viðnám
		F. 18464

Fig. 5

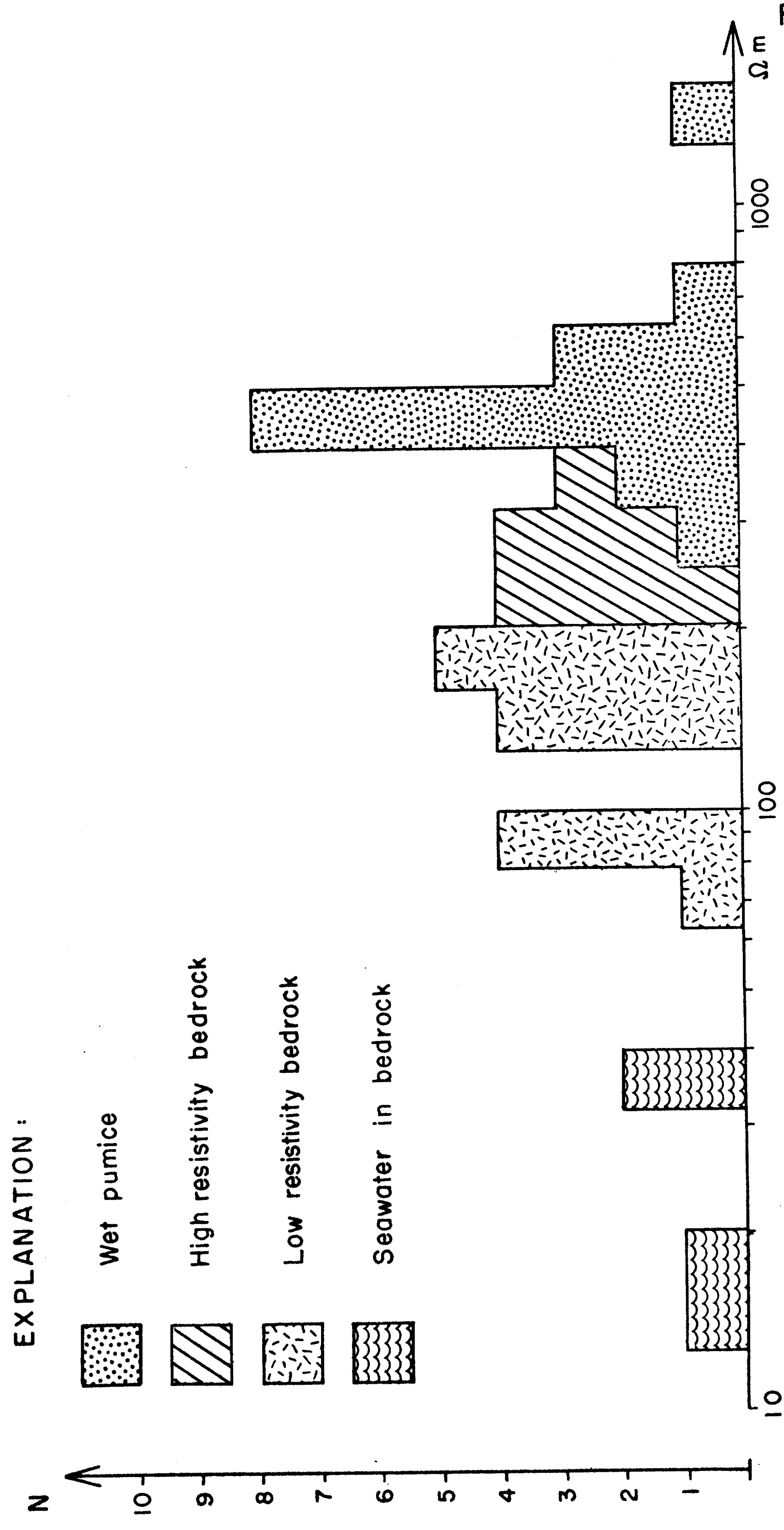
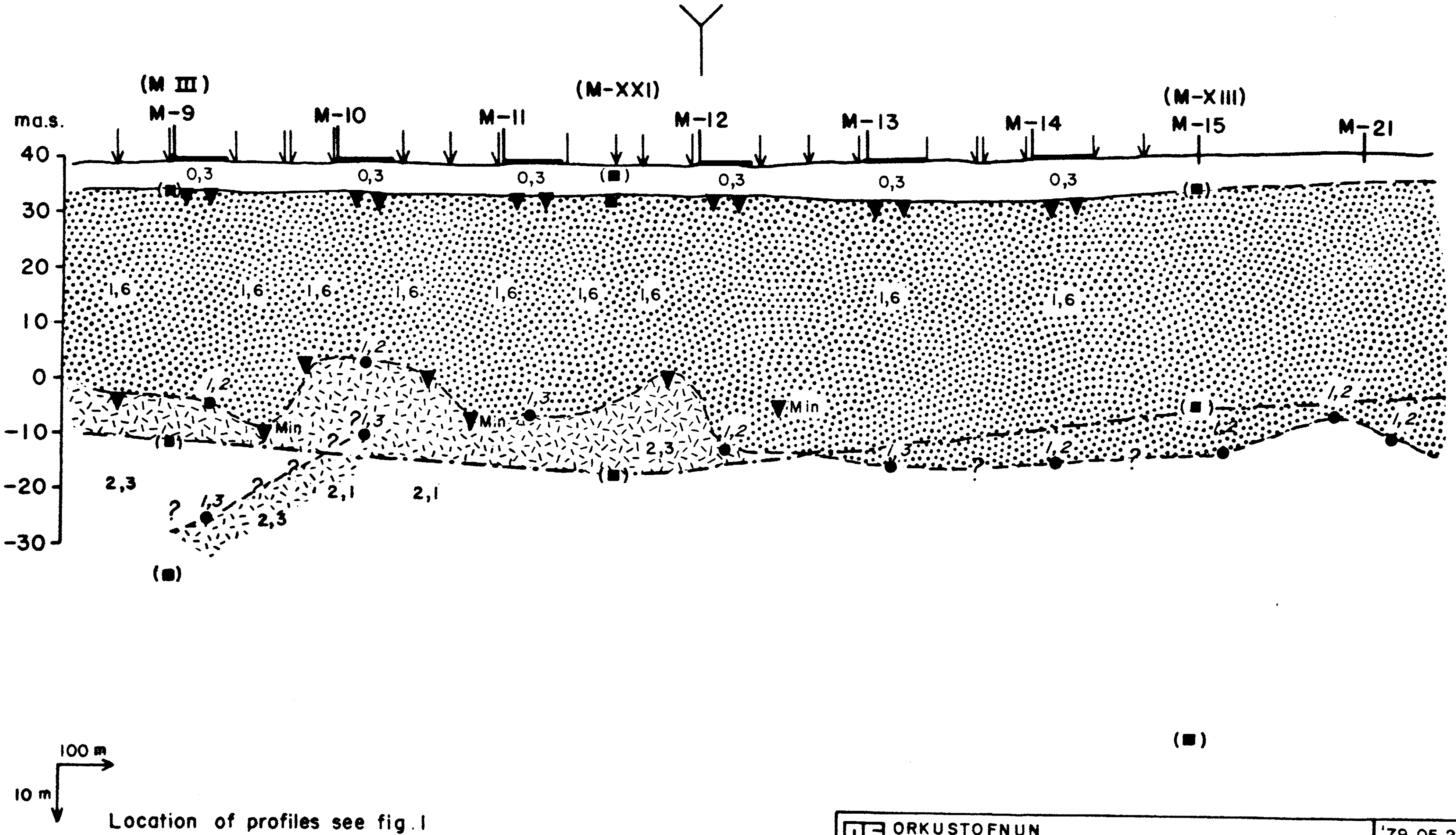


Fig. 6



Location of profiles see fig. 1
For legend see Fig. 8

ORKUSTOFNUN
Raforkudeild

MÝRDALSSANDUR
Seismic Section I

'79.05.22
Ha.G. /F.P. /Ó.D.
Skaftaf.s. Jarðsv.m.
F.18460

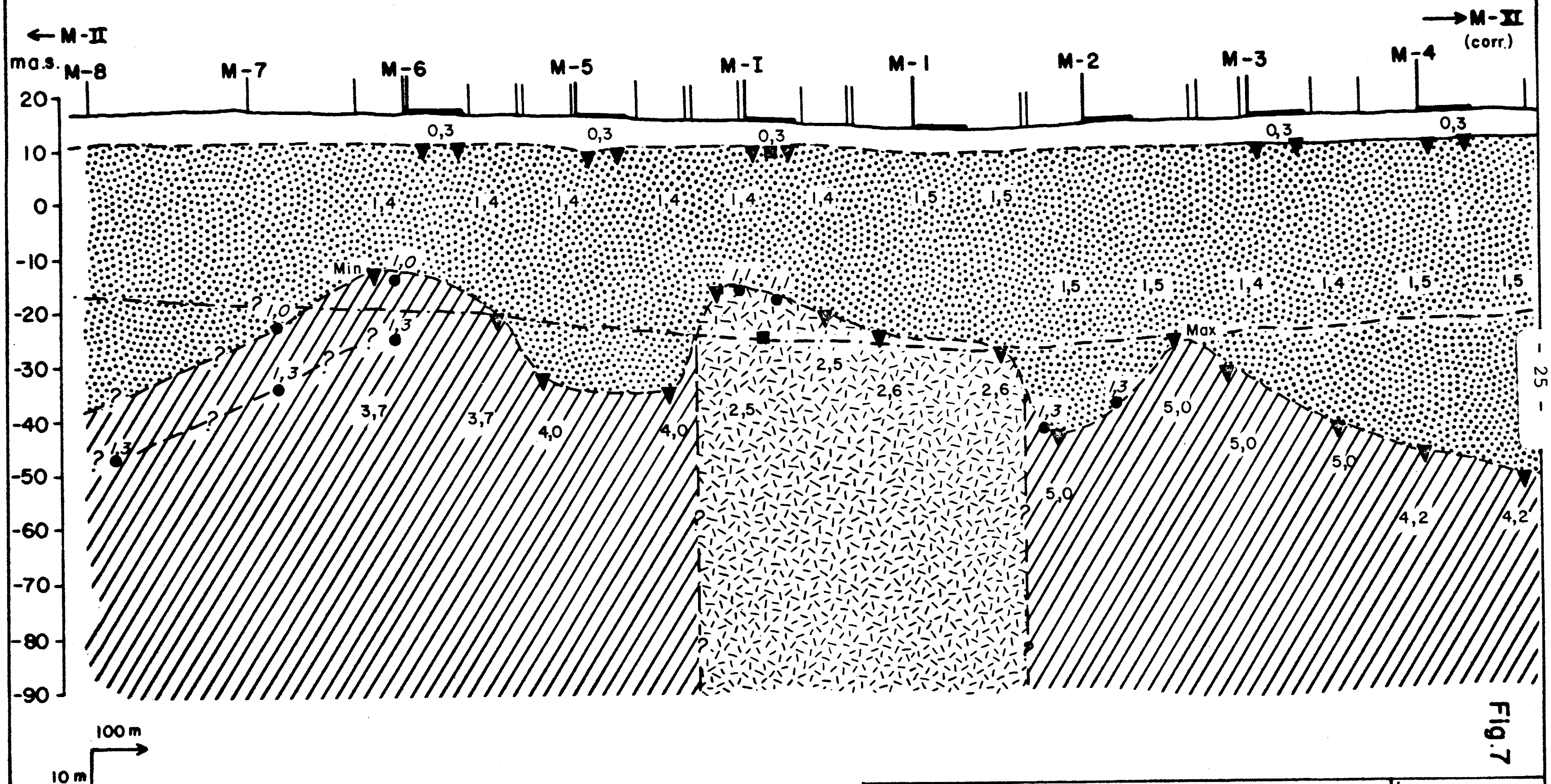


Fig.7

Location of profiles see fig. 1
For legend see fig. 8

ORKUSTOFNUN
Raforkudeild

MÝRDALSSANDUR
Seismic Section II

'79-05-22.
Ha.G./F.P./ÓD.
Skaftaf.s. Jarðsv.m
F.18461

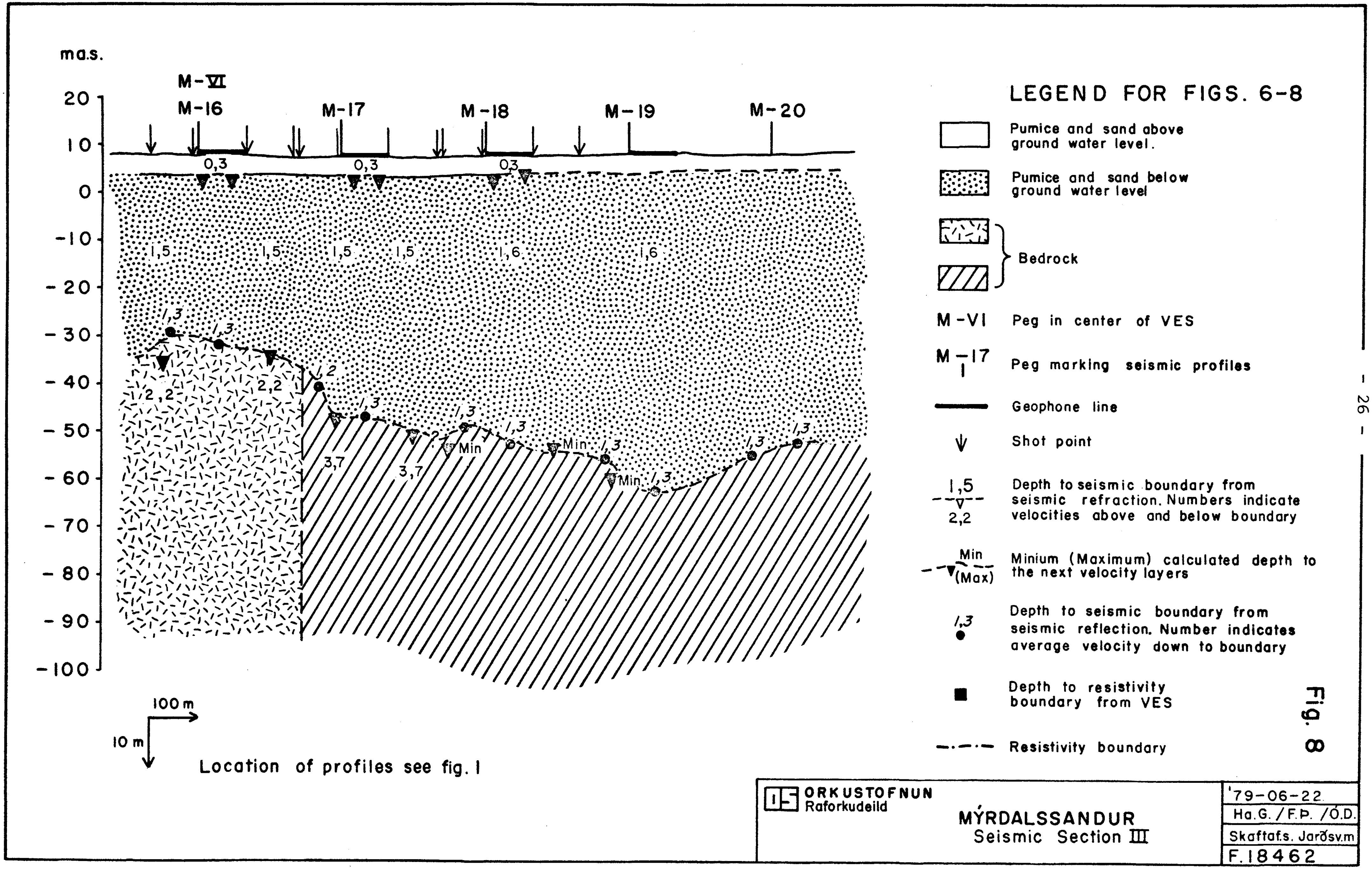
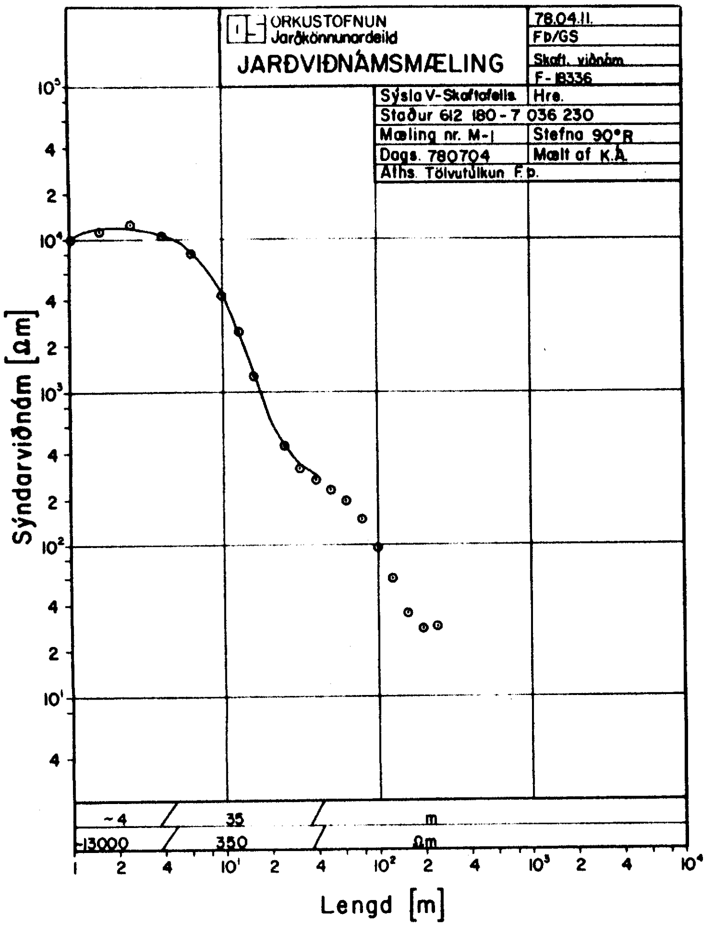
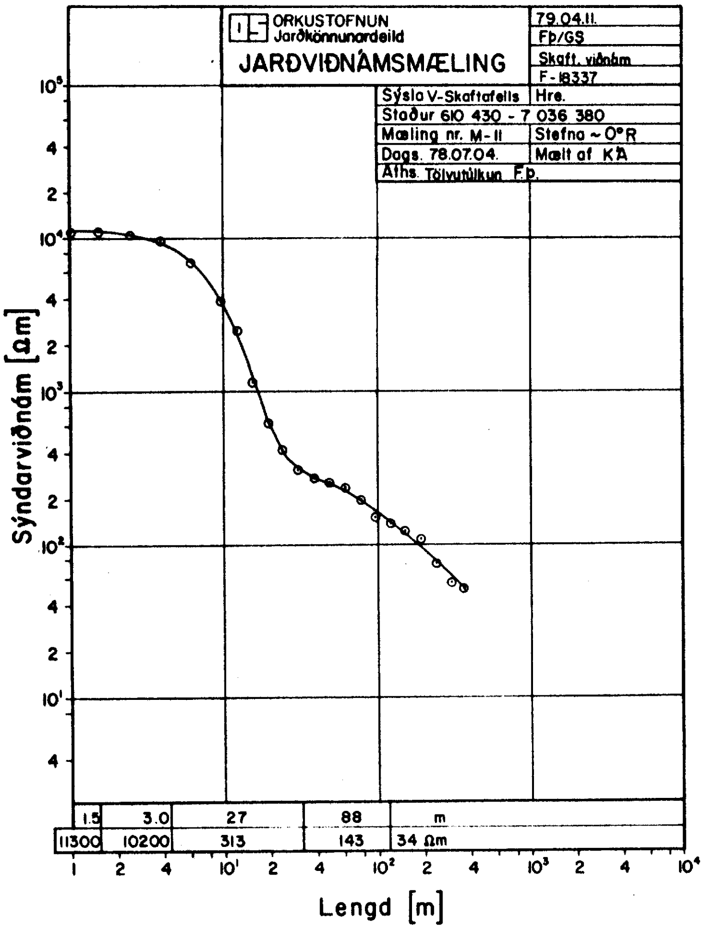

m a.s.
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
M-VI
M-16
M-17
M-18
M-19
M-20
0,3
0,3
0,3
1,5
1,5
1,5
1,5
1,6
1,6
1,3
1,3
2,2
2,2
1,2
1,3
3,7
3,7
Min
Min
Min
100 m
10 m
Location of profiles see fig. 1
LEGEND FOR FIGS. 6-8
Pumice and sand above ground water level.
Pumice and sand below ground water level
Bedrock
M-VI Peg in center of VES
M-17 Peg marking seismic profiles
Geophone line
Shot point
Depth to seismic boundary from seismic refraction. Numbers indicate velocities above and below boundary
Minium (Maximum) calculated depth to the next velocity layers
Depth to seismic boundary from seismic reflection. Number indicates average velocity down to boundary
Depth to resistivity boundary from VES
Resistivity boundary
ORKUSTOFNUN
Raforkudeild
MÝRDALSSANDUR
Seismic Section III
'79-06-22
Ha.G. / F.P. / Ó.D.
Skaftafs. Jarðsv.m
F. 18462

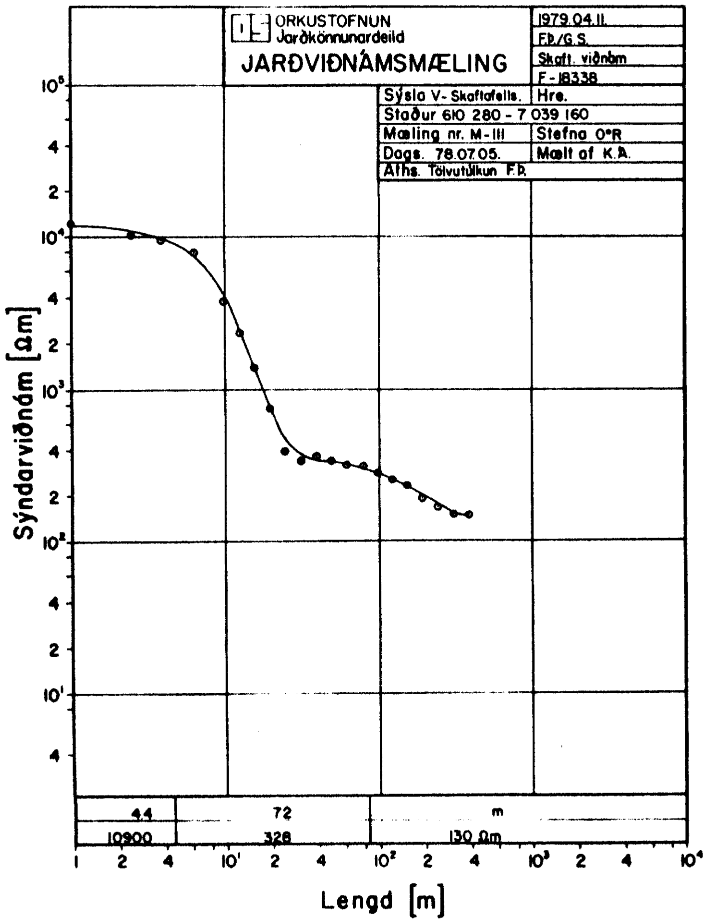
Fig. 8

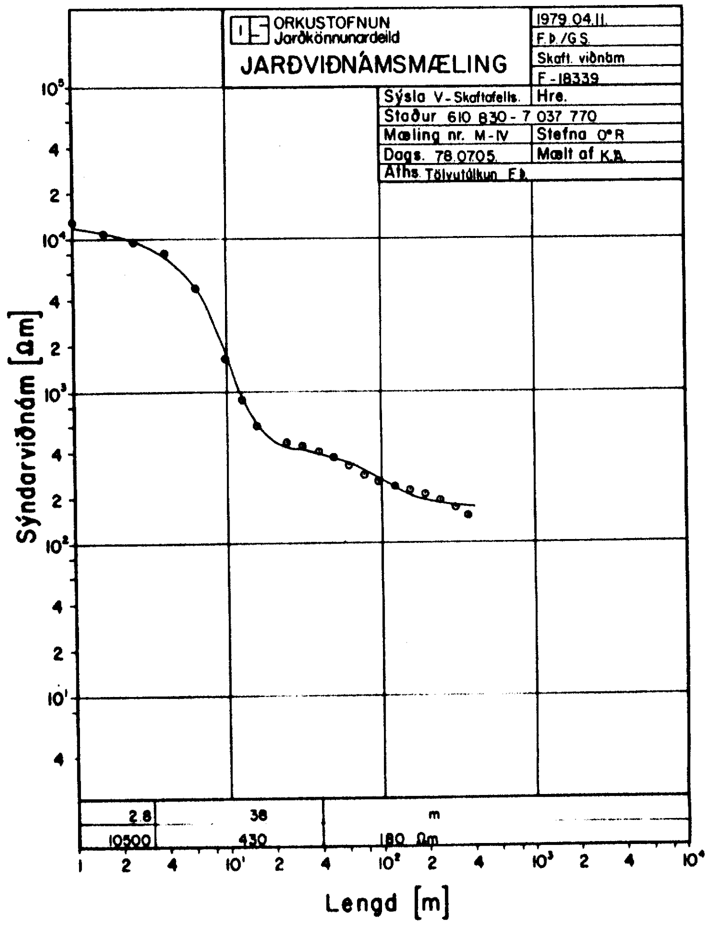
APPENDIX

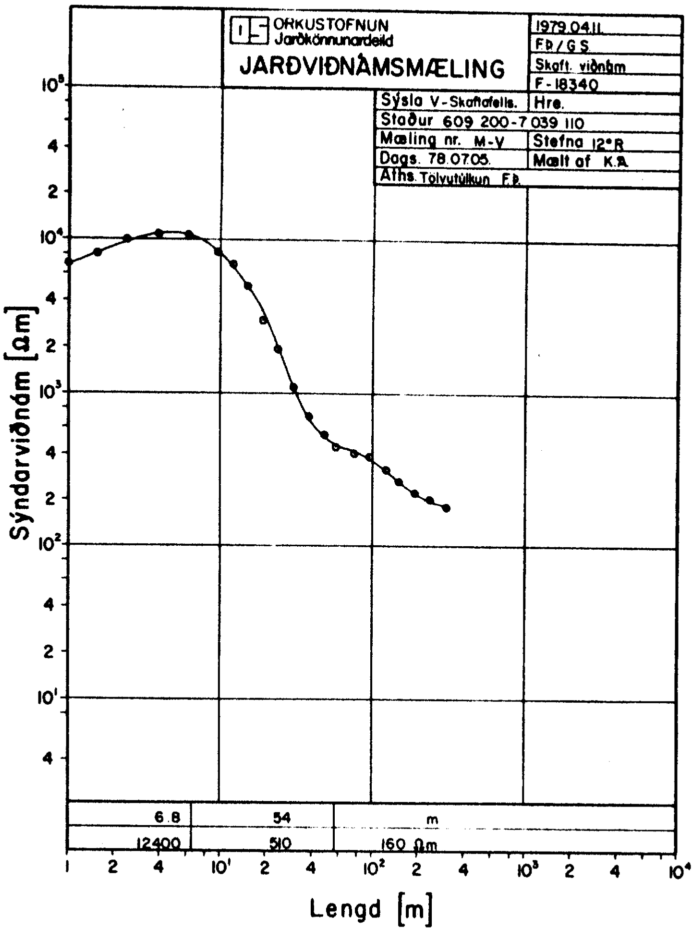
Geoelectrical sounding curves

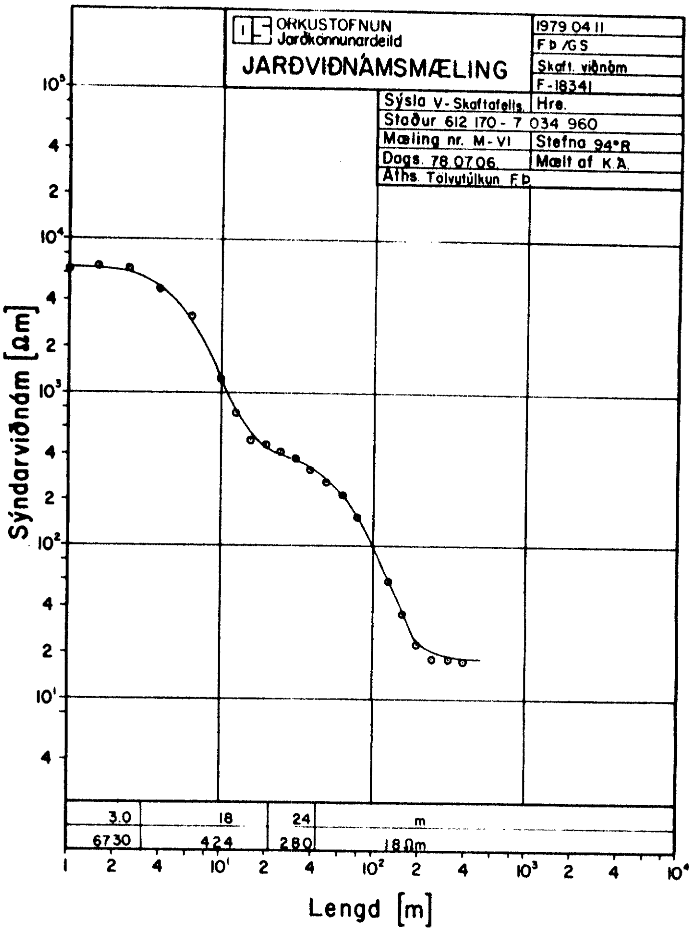

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
78.04.11.
Fþ/GS
Skaft. viðnám
F-18336
Sýsla V-Skaftafells. Hre.
Staður 612 180 - 7 036 230
Mæling nr. M-I
Stefna 90°R
Dags. 780704
Mælt af K.Á.
Aths. Tölvutúlkun F.þ.
~4
35
m
13000
350
Ωm
Sýndarviðnám [Ωm]
Lengd [m]

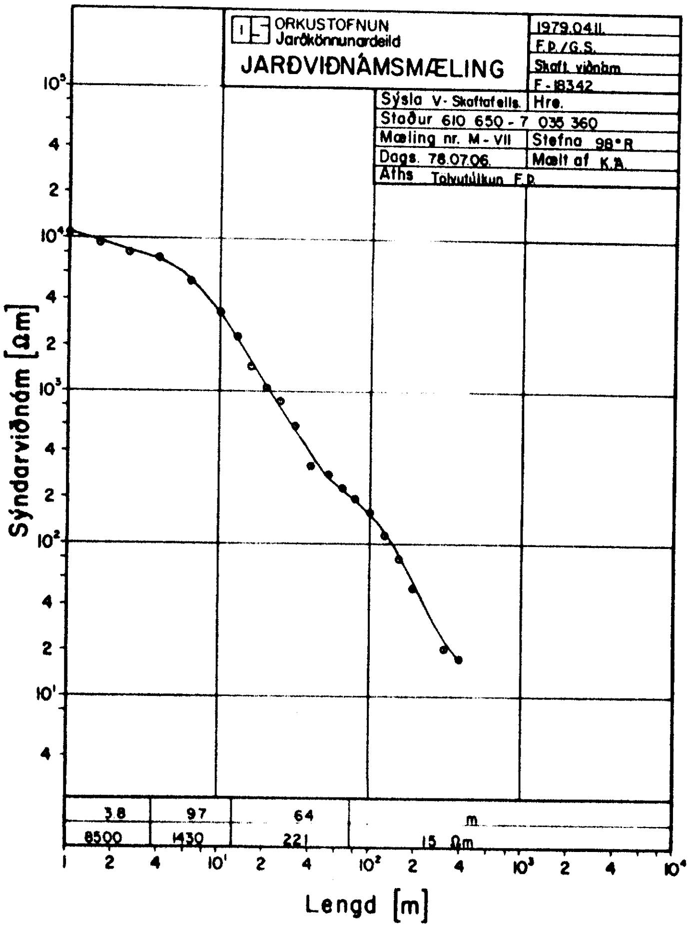

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
79.04.11.
Fþ/GS
Skaft. viðnám
F-18337
Sýsla V-Skaftafells Hre.
Staður 610 430 - 7 036 380
Mæling nr. M-II
Stefna ~0°R
Dags. 78.07.04.
Mælt af K.Á.
Aths. Tölvutúlkun F.þ.
1.5
3.0
27
88
m
11300
10200
313
143
34 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

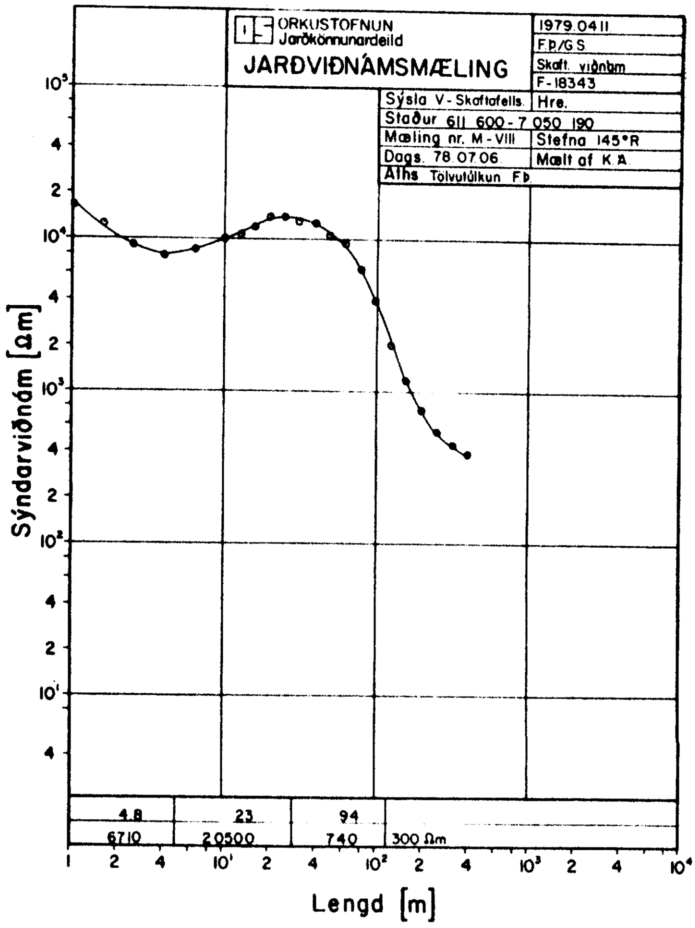

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
Fþ/GS.
Skaft. viðnám
F-18338
Sýsla V-Skaftafells. Hre.
Staður 610 280 - 7 039 160
Mæling nr. M-III
Stefna 0°R
Dags. 78.07.05.
Mælt af K.Á.
Aths. Tölvutúlkun F.þ.
4.4
72
m
10900
328
130 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

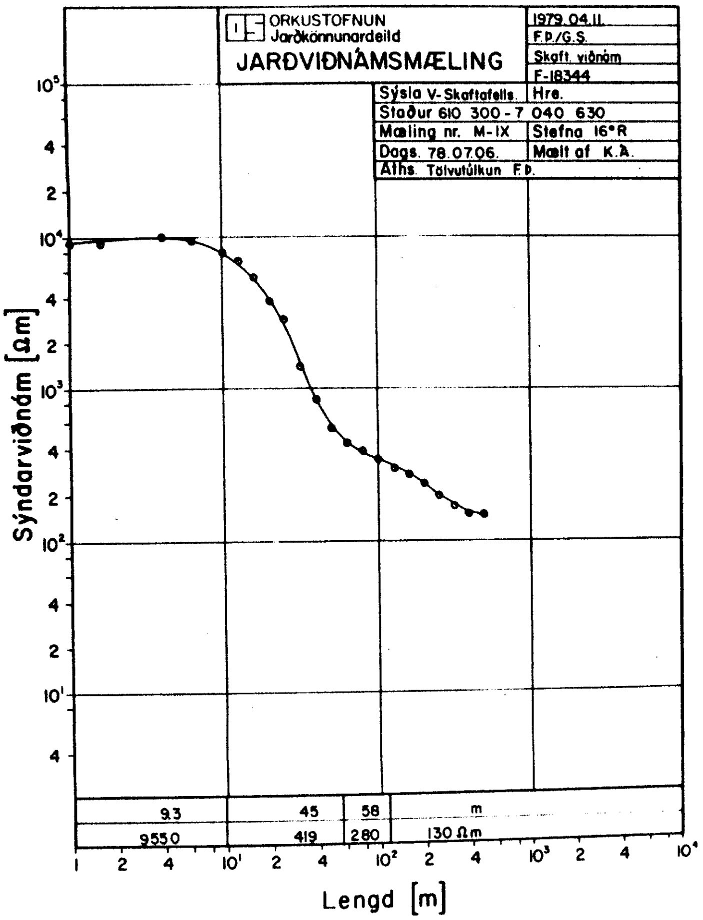

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.þ./G.S.
Skaft. viðnám
F-18339
Sýsla V-Skaftafells. Hre.
Staður 610 830 - 7 037 770
Mæling nr. M-IV
Stefna 0°R
Dags. 78.07.05.
Mælt af K.Á.
Aths. Tölvutúlkun F.þ.
2.8
38
m
10500
430
180 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

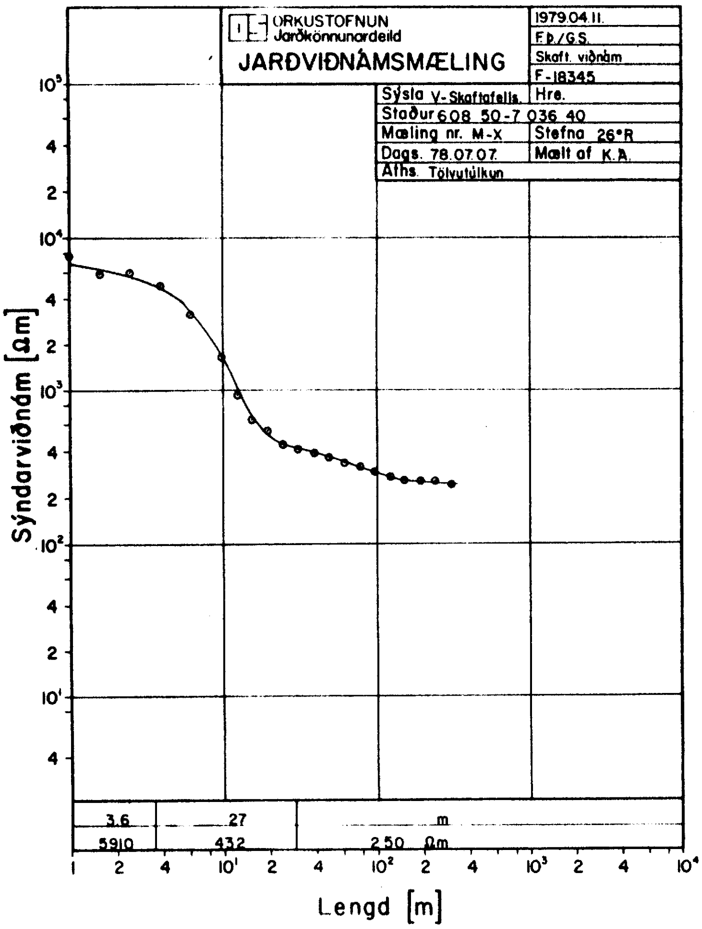

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/GS
Skaft. viðnám
F-18340
Sýsla V-Skaftafells.
Hre.
Staður 609 200-7 039 110
Mæling nr. M-V
Stefna 12°R
Dags. 78.07.05.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ.
6.8
54
m
12400
510
160 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

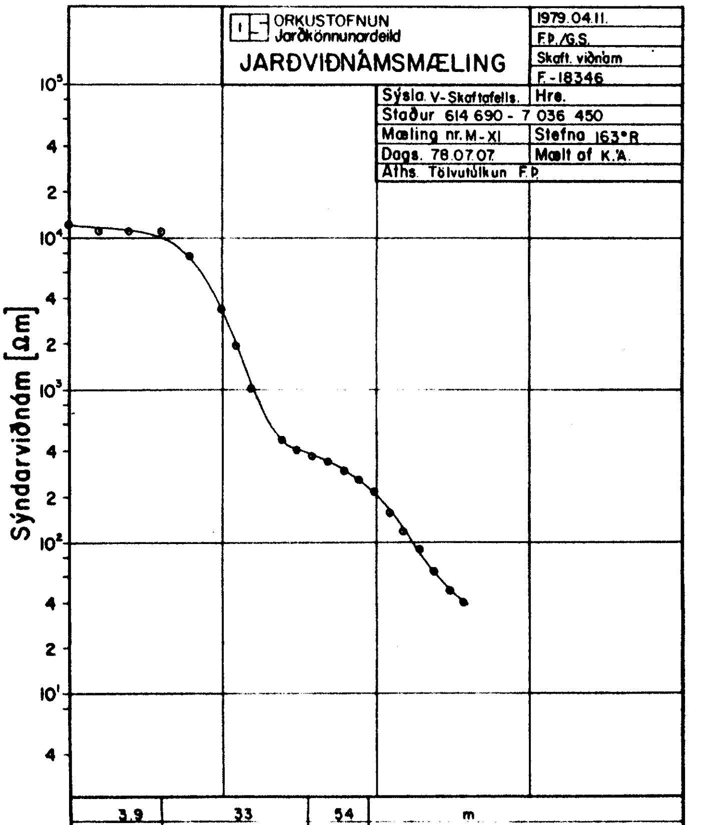

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11
FÞ/GS
Skaft. viðnám
F-18341
Sýsla V-Skaftafells.
Hre.
Staður 612 170-7 034 960
Mæling nr. M-VI
Stefna 94°R
Dags. 78.07.06.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ
3.0
18
24
m
6730
424
280
18 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

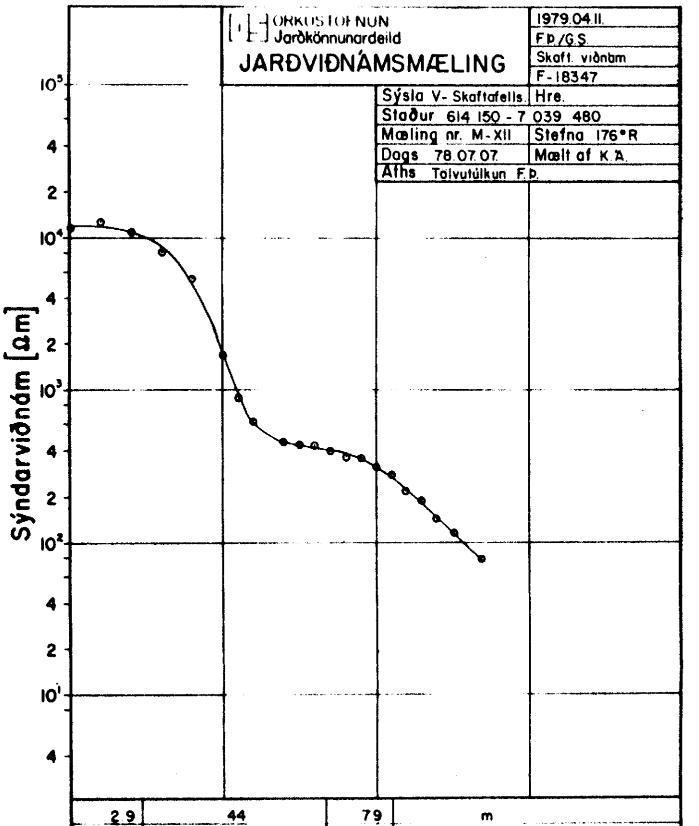

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/G.S.
Skaft. viðnám
F-18342
Sýsla V-Skaftafells.
Hre.
Staður 610 650-7 035 360
Mæling nr. M-VII
Stefna 98°R
Dags. 78.07.06.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ
3.8
97
64
m
8500
1430
221
15 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

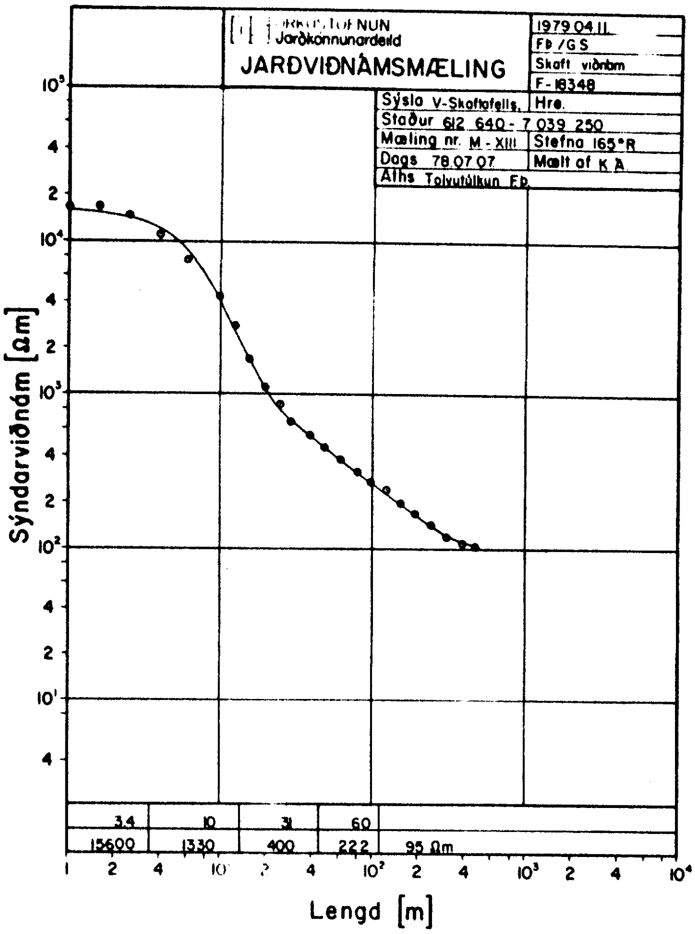

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11
FÞ/GS
Skaft. viðnám
F-18343
Sýsla V-Skaftafells.
Hre.
Staður 611 600-7 050 190
Mæling nr. M-VIII
Stefna 145°R
Dags. 78.07.06
Mælt af K.Á.
Aths. Tölvutúlkun FÞ
4.8
23
94
6710
20500
740
300 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

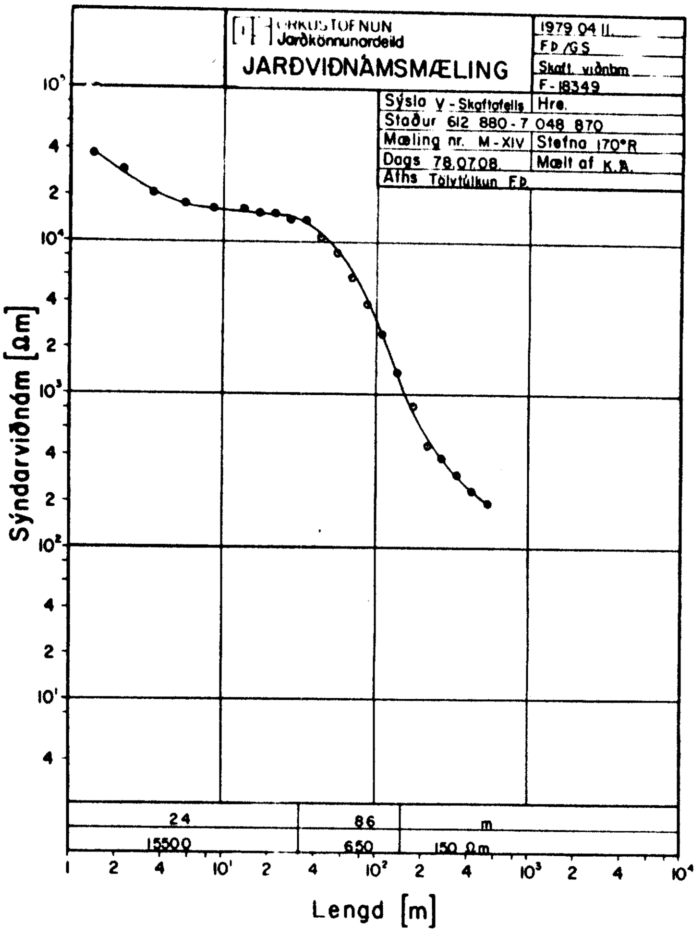

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnám
F-18344
Sýsla V-Skaftafells.
Hre.
Staður 610 300 - 7 040 630
Mæling nr. M-IX
Stefna 16°R
Dags. 78.07.06.
Mælt af K.Á.
Aths. Tölvutúlkun F.Þ.
9.3
45
58
m
9550
419
280
130 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

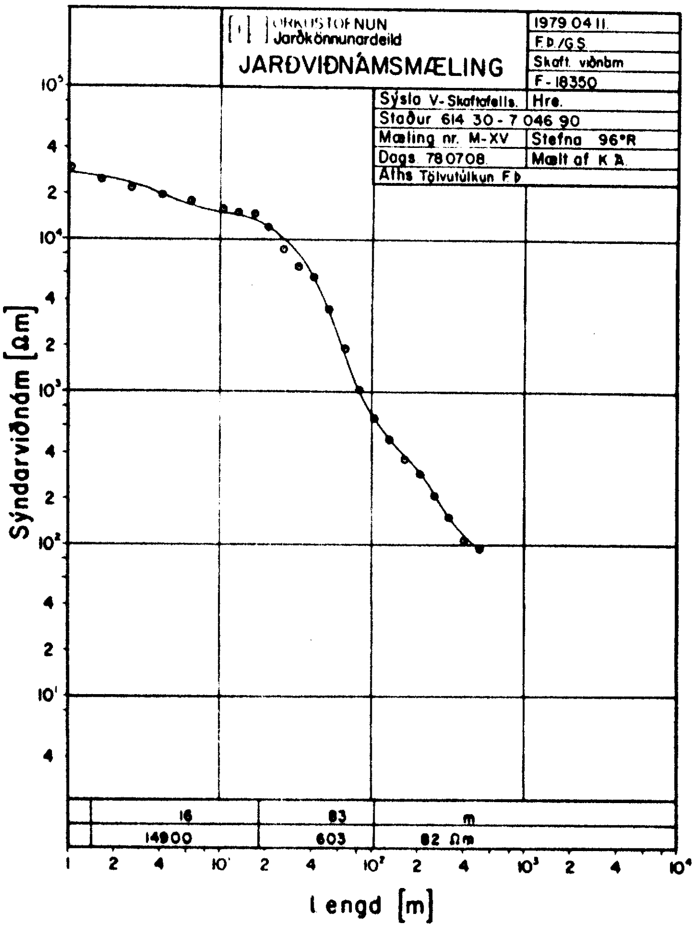

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnám
F-18345
Sýsla V-Skaftafells.
Hre.
Staður 608 50-7 036 40
Mæling nr. M-X
Stefna 26°R
Dags. 78.07.07.
Mælt af K.Á.
Aths. Tölvutúlkun
3.6
27
m
5910
432
250 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

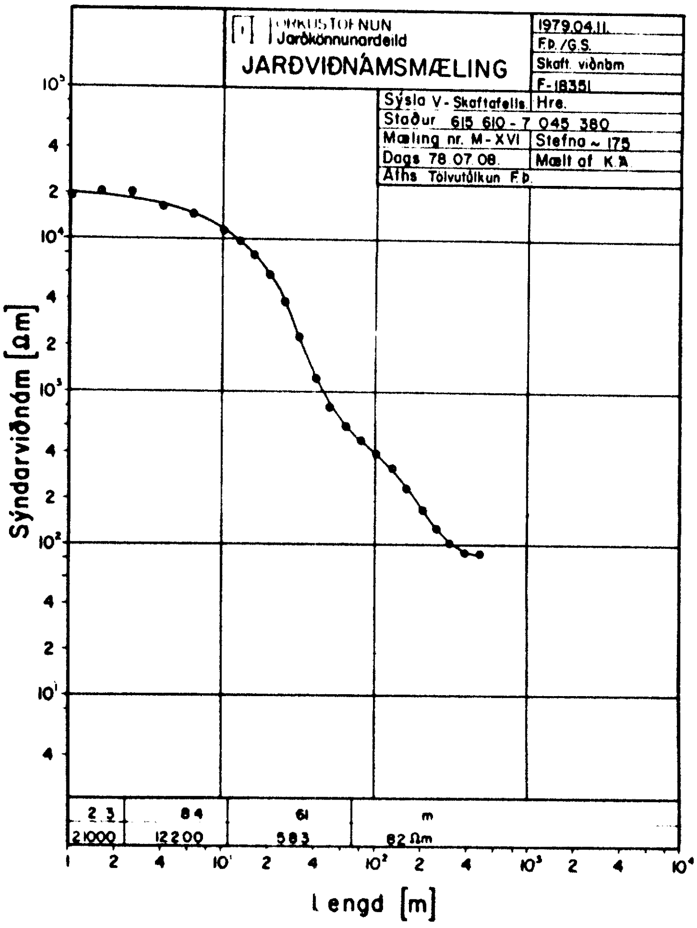

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnám
F-18346
Sýsla V-Skaftafells.
Hre.
Staður 614 690 - 7 036 450
Mæling nr. M-XI
Stefna 163°R
Dags. 78.07.07.
Mælt af K.Á.
Aths. Tölvutúlkun F.Þ.
3.9
33
54
m
12000
403
178
34 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

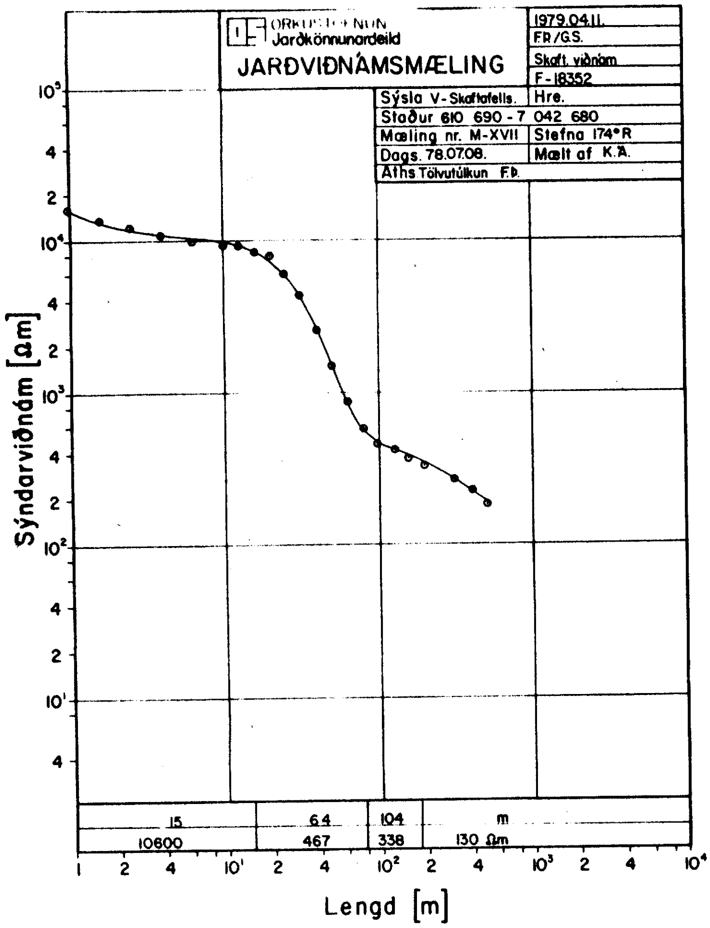

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnám
F-18347
Sýsla V-Skaftafells.
Hre.
Staður 614 150 - 7 039 480
Mæling nr. M-XII
Stefna 176°R
Dags 78.07.07.
Mælt af K.Á.
Aths Tölvutúlkun F.Þ.
2.9
44
79
m
12200
439
228
65 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

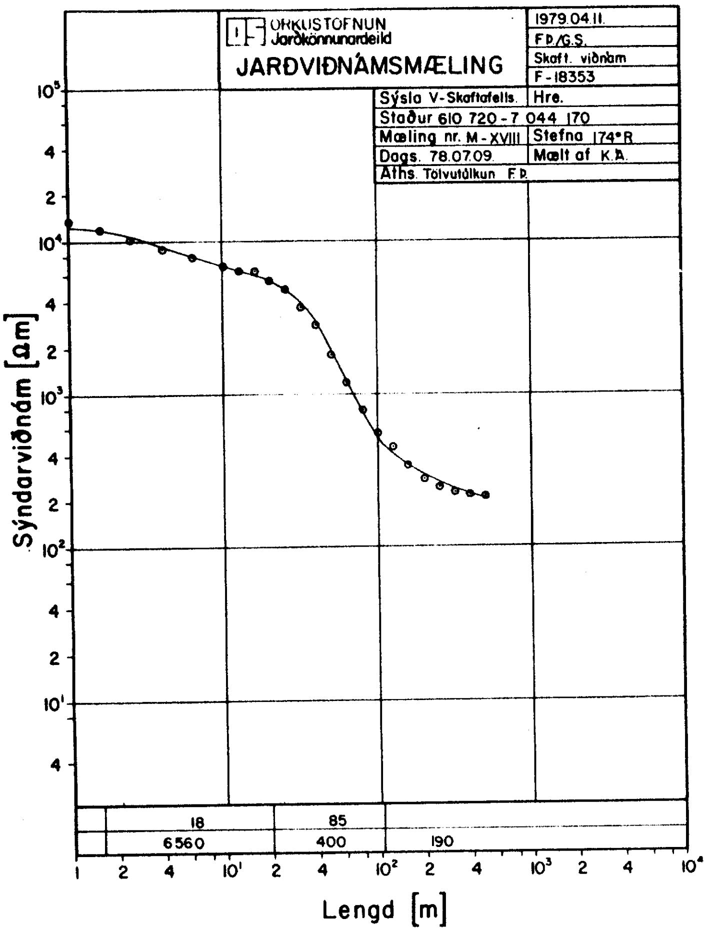

ORKUSTOFNUN Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979 04 11.
FÞ / GS
Skaft. viðnbm
F-18348
Sýsla V-Skaftafells. Hre.
Staður 612 640 - 7 039 250
Mæling nr. M-XIII Stefna 165°R
Dags 78 07 07 Mælt af K Á
Aths Tölvutúlkun FÞ
3.4 10 31 60
15600 1330 400 222 95 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

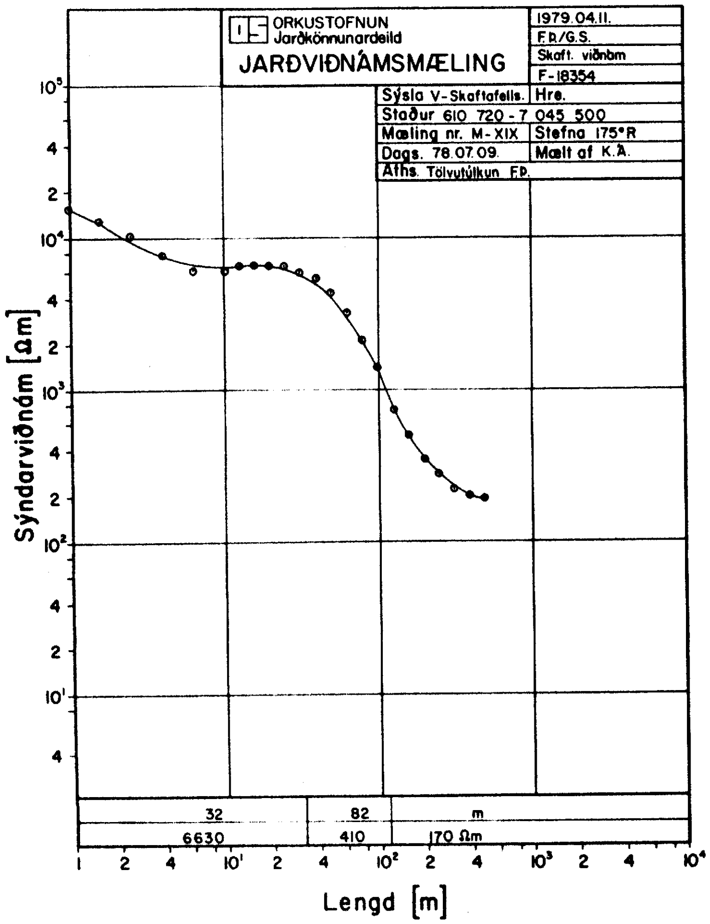

ORKUSTOFNUN Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979 04 11.
FÞ / GS
Skaft. viðnbm
F-18349
Sýsla V-Skaftafells Hre.
Staður 612 880 - 7 048 870
Mæling nr. M-XIV Stefna 170°R
Dags 78.07.08. Mælt af K.Á.
Aths Tölvutúlkun FÞ
24 86 m
15500 650 150 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

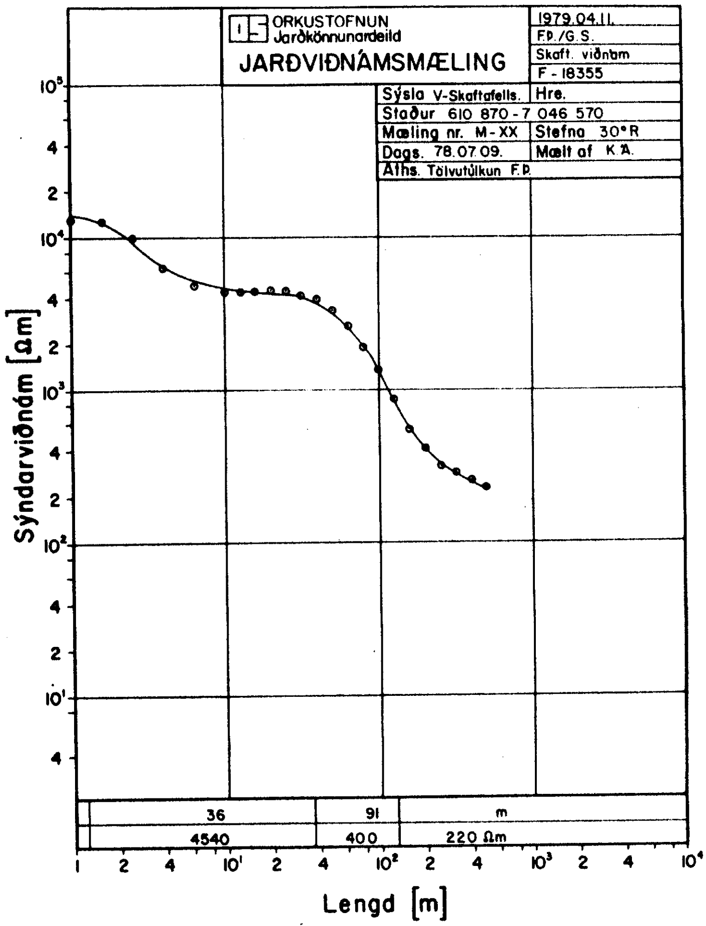

ORKUSTOFNUN Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979 04 11.
FÞ / GS
Skaft. viðnbm
F-18350
Sýsla V-Skaftafells. Hre.
Staður 614 30 - 7 046 90
Mæling nr. M-XV Stefna 96°R
Dags 78 07 08. Mælt af K Á
Aths Tölvutúlkun FÞ
16 83 m
14900 603 82 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

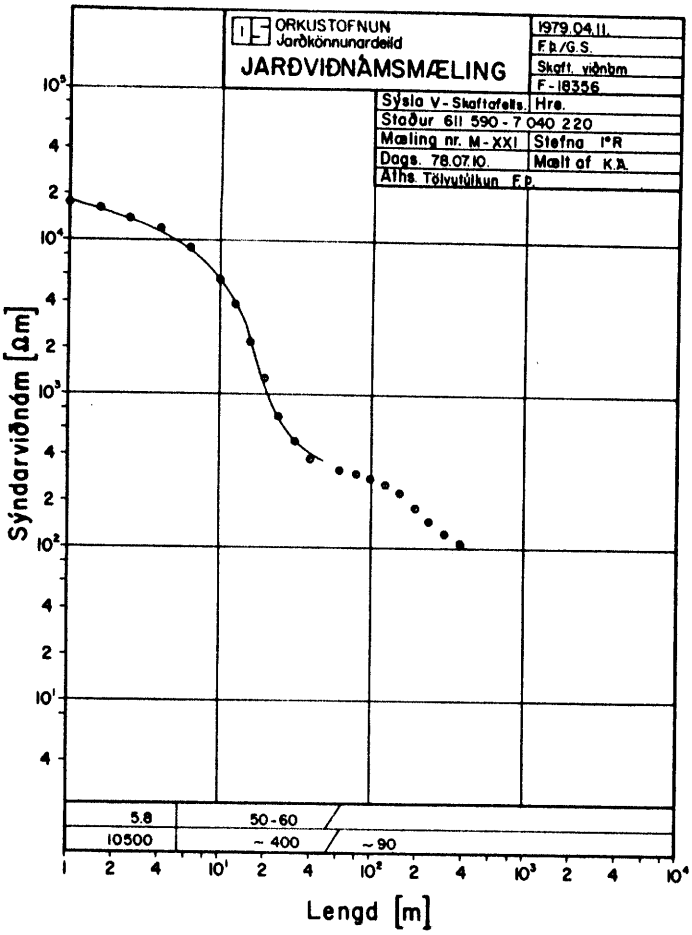

ORKUSTOFNUN Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ /G.S.
Skaft. viðnbm
F-18351
Sýsla V-Skaftafells Hre.
Staður 615 610 - 7 045 380
Mæling nr. M-XVI Stefna ~ 175
Dags 78 07 08. Mælt af K Á
Aths Tölvutúlkun FÞ
2.3 8.4 61 m
21000 12200 583 82 Ωm
Sýndarviðnám [Ωm]
Lengd [m]

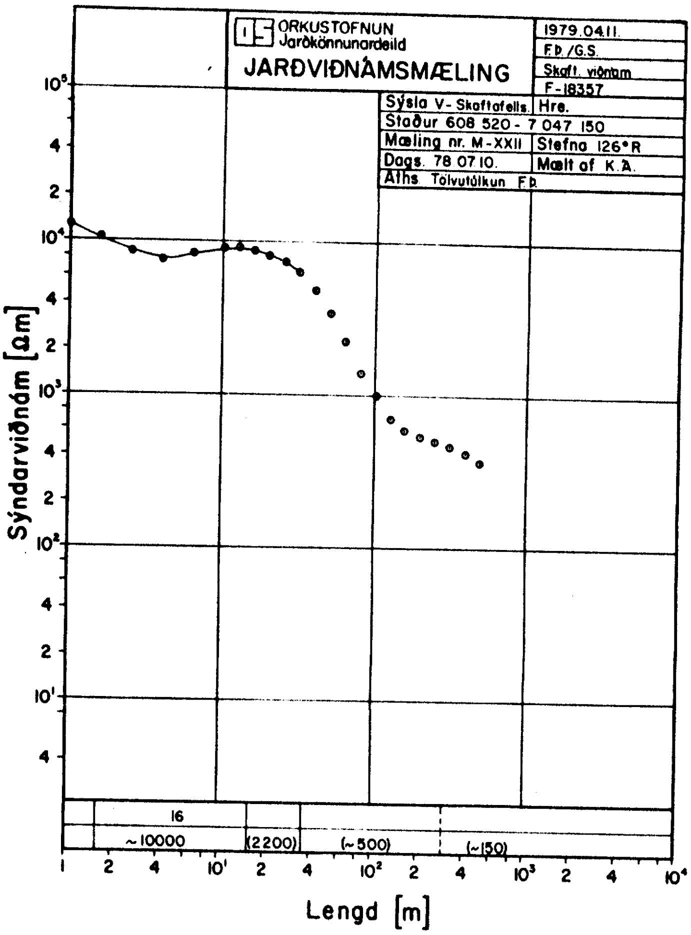

ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/GS.
Skaft. viðnám
F-18352
Sýsla V-Skaftafells.
Hre.
Staður 610 690-7 042 680
Mæling nr. M-XVII
Stefna 174°R
Dags. 78.07.08.
Mælt af K.Á.
Aths Tölvutúlkun FÞ.
15
64
104
m
10600
467
338
130 Ωm
Sýndarviðnám [Ωm]
Lengd [m]


ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/G.S.
Skaft. viðnám
F-18353
Sýsla V-Skaftafells.
Hre.
Staður 610 720-7 044 170
Mæling nr. M-XVIII
Stefna 174°R
Dags. 78.07.09.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ.
18
85
6560
400
190
Sýndarviðnám [Ωm]
Lengd [m]


ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/G.S.
Skaft. viðnám
F-18354
Sýsla V-Skaftafells.
Hre.
Staður 610 720-7 045 500
Mæling nr. M-XIX
Stefna 175°R
Dags. 78.07.09.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ.
32
82
m
6630
410
170 Ωm
Sýndarviðnám [Ωm]
Lengd [m]


ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
FÞ/G.S.
Skaft. viðnám
F-18355
Sýsla V-Skaftafells.
Hre.
Staður 610 870-7 046 570
Mæling nr. M-XX
Stefna 30°R
Dags. 78.07.09.
Mælt af K.Á.
Aths. Tölvutúlkun FÞ.
36
91
m
4540
400
220 Ωm
Sýndarviðnám [Ωm]
Lengd [m]


ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnþm
F-18356
Sýsla V-Skaftafells. Hre.
Staður 611 590-7 040 220
Mæling nr. M-XXI
Stefna 1°R
Dags. 78.07.10.
Mælt af K.Á.
Aths. Tölvutúlkun F.Þ.
Sýndarviðnám [Ωm]
5.8
50-60
10500
~400
~90
Lengd [m]


ORKUSTOFNUN
Jarðkönnunardeild
JARÐVIÐNÁMSMÆLING
1979.04.11.
F.Þ./G.S.
Skaft. viðnþm
F-18357
Sýsla V-Skaftafells. Hre.
Staður 608 520-7 047 150
Mæling nr. M-XXII
Stefna 126°R
Dags. 78.07.10.
Mælt af K.Á.
Aths. Tölvutúlkun F.Þ.
Sýndarviðnám [Ωm]
16
~10000
(2200)
(~500)
(~150)
Lengd [m]