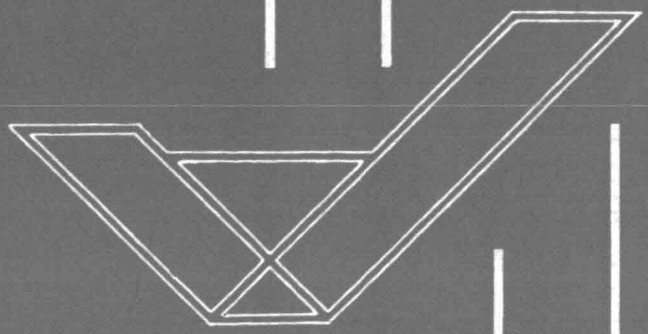

Onderzoek beddingvormen bij zandtransport (bijlagen)

H. Vermaas

Rapport no. R/1980/01/H

Technische Hogeschool Delft

Afdeling Civiele Techniek

Vakgroep Vloeistofmechanica

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Lab. voor Vloeistofmechanica afd C.T. T.H. Delft

Zeefanalyse t.b.v. Henk Vermaas — datum 27-10-77

nr 1	gewicht voor zeving —		
zeef	gewicht	%	kum %
>1000	–		0
850 (841)	1.57	1.28	1.28
710 (707)	92.93	75.76	77.04
600 (595)	26.69	21.76	98.80
425 (420)	1.11	0.90	99.70
300 (297)	0.19	0.15	99.85
<300	0.18	0.15	100.–
totaal	122.67		

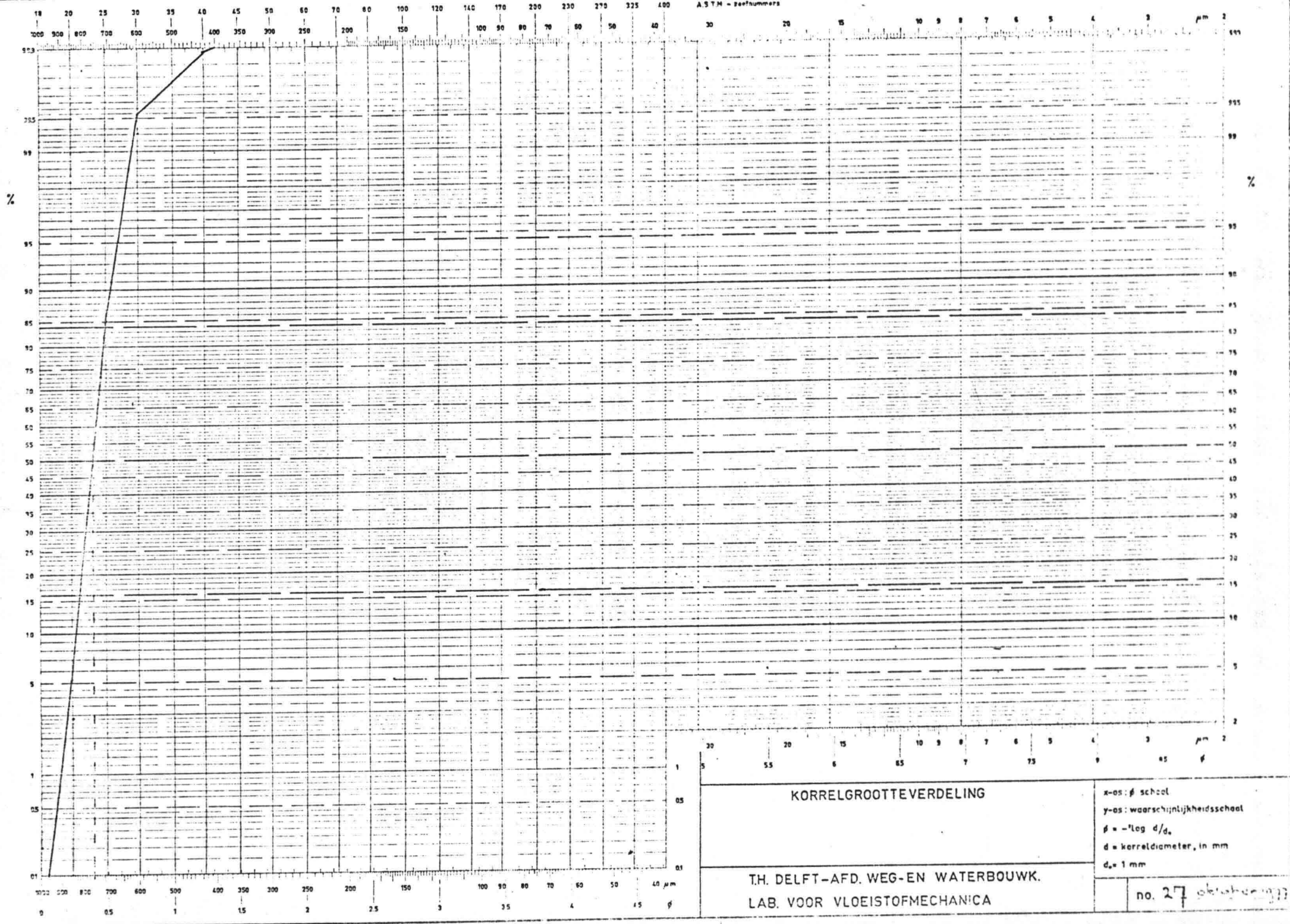
nr 4	gewicht voor zeving 77.97		
zeef	gewicht	%	kum %
>1000	–	–	–
850	4.10	5.26	5.26
710	62.29	79.90	85.16
600	11.20	14.37	99.53
425	0.27	0.35	99.88
300	0.05	0.06	99.94
<300	0.05	0.06	100.–
totaal	77.96		

nr 2	gewicht voor zeving 114.42 gr.		
zeef	gewicht	%	kum %
>1000	–	–	–
850	3.24	2.83	2.83
710	90.97	79.54	82.37
600	19.60	17.14	99.51
425	0.46	0.40	99.91
300	0.05	0.04	99.95
<300	0.05	0.04	99.99
totaal	114.37		

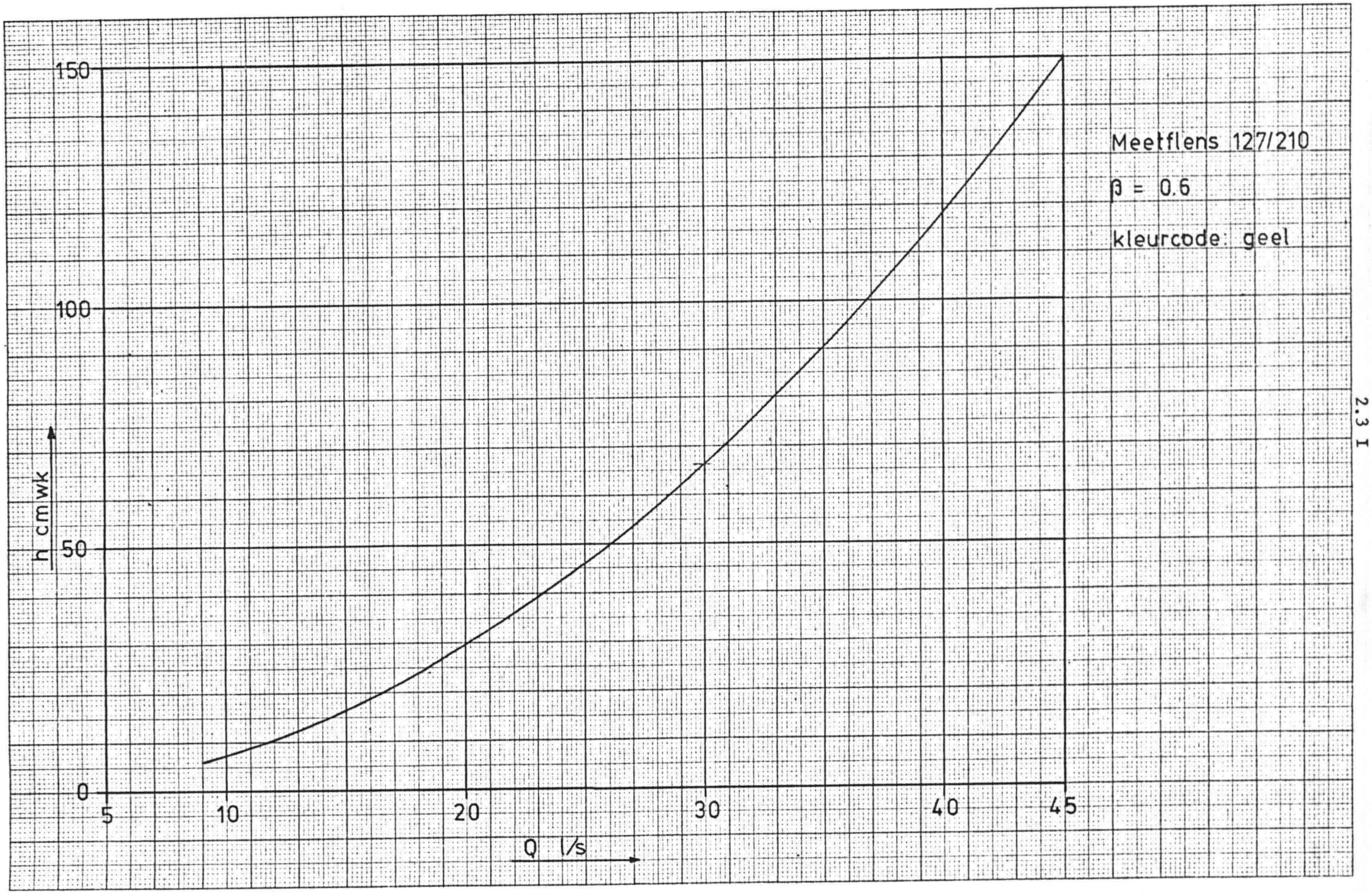
nr 5	gewicht voor zeving 71.38		
zeef	gewicht	%	kum %
>1000	–	–	–
850	5.88	8.24	8.24
710	56.46	79.13	87.37
600	8.66	12.14	99.51
425	0.26	0.36	99.87
300	0.05	0.07	99.94
<300	0.04	0.06	100.–
totaal	71.35		

nr 3	gewicht voor zeving 132.31		
zeef	gewicht	%	kum %
>1000	–	–	–
850	7.34	5.55	5.55
710	102.71	77.66	83.21
600	20.14	15.23	98.44
425	1.40	1.06	99.50
300	0.38	0.29	99.79
<300	0.28	0.21	100.–
totaal	132.25		

nr —	gewicht voor zeving —		
zeef	gewicht	%	kum %
totaal			


A.S.T.M. - zeefnummers
%
KORRELGROOTTEVERDELING
x-as: ϕ schaal
y-as: waarschijnlijkheidsschaal
ϕ = -²log d/d₀
d = korreldiameter, in mm
d₀ = 1 mm
T.H. DELFT-AFD. WEG-EN WATERBOUWK.
LAB. VOOR VLOEISTOFMECHANICA
no. 27

2.2


150
100
50
0
h cm wk
5
10
20
30
40
45
Q l/s
Meetflens 127/210
β = 0.6
kleurcode: geel

2.3 I

MEETLENS D=210.1MM D_KL=169.6MM BETA= 0.8

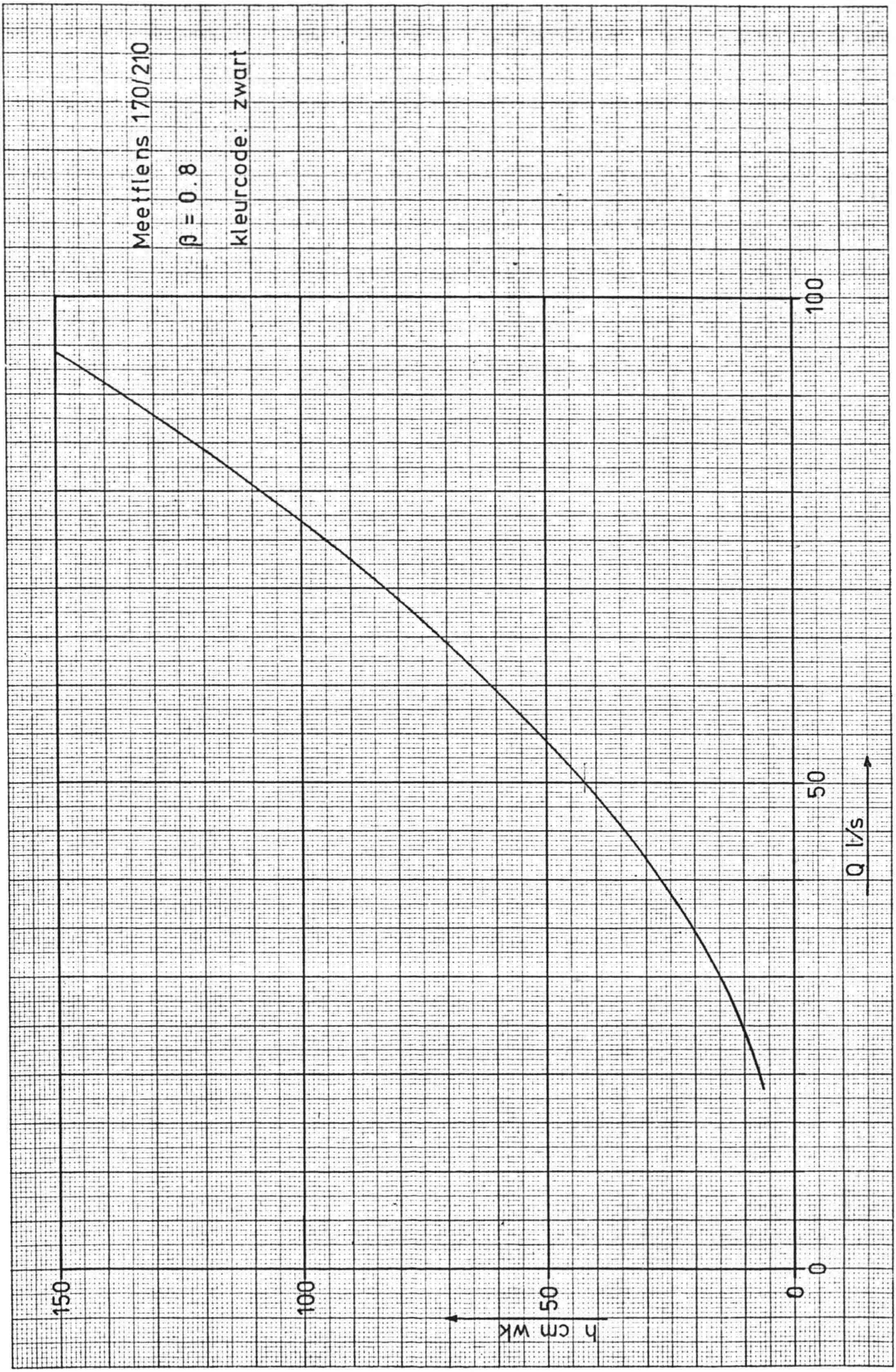
DH	Q	DH	Q
6	19.0	45	51.7
7	20.5	50	54.5
8	21.9	55	57.2
9	23.2	60	59.7
10	24.5	65	62.1
12	26.8	70	64.5
14	28.9	75	66.7
16	30.9	80	68.9
18	32.8	85	71.0
20	34.5	90	73.1
22	36.2	95	75.0
24	37.8	100	77.0
26	39.4	110	80.7
28	40.8	120	84.3
30	42.3	130	87.7
35	45.6	140	91.0
40	48.8	150	94.2

MEETLENS D=210.1MM D_KL=148.4MM BETA= 0.7

DH	Q	DH	Q
6	13.2	45	36.0
7	14.3	50	37.9
8	15.3	55	39.8
9	16.2	60	41.5
10	17.0	65	43.2
12	18.6	70	44.8
14	20.1	75	46.4
16	21.5	80	47.9
18	22.8	85	49.4
20	24.0	90	50.8
22	25.2	95	52.2
24	26.3	100	53.6
26	27.4	110	56.2
28	28.4	120	58.7
30	29.4	130	61.1
35	31.7	140	63.4
40	33.9	150	65.6

MEETLENS D=210.1MM D_KL=127.2MM BETA= 0.6

DH	Q	DH	Q
6	9.1	45	24.7
7	9.8	50	26.0
8	10.5	55	27.3
9	11.1	60	28.5
10	11.7	65	29.7
12	12.8	70	30.8
14	13.8	75	31.9
16	14.8	80	32.9
18	15.7	85	33.9
20	16.5	90	34.9
22	17.3	95	35.9
24	18.1	100	36.8
26	18.8	110	38.6
28	19.5	120	40.3
30	20.2	130	41.9
35	21.8	140	43.5
40	23.3	150	45.0


Meetflens 170/210
β = 0.8
kleurcode: zwart
h cm wk
150
100
50
0
0
50
100
Q l/s

DATUM	BEGIN LIFTST.	BEGIN TYD	EIND LIFTST.	EIND TYD	TYD SINDS START PROEF	TEMPERATUUR VERHOGING	EFFECTIEF TRANSPORT	OPGEVANGEN ZANDVANG
9-5	9.14	9^{u55}	38.59	16^{u10}		21.3 °C		
10-5	38.59	11^{u50}	61.05	15^{u55}	6^{u15}	21.4 °C		67 kg
11-5	11.05	11^{u53}	36.58	17^{u13}	11^{u10}	21.2 °C		
12-5	36.58	11^{u30}	57.88	16^{u00}	16^{u30}	21.2 °C		67 kg
16-5	7.88	9^{u30}	36.75	15^{u40}	21^{u00}	20.5 °C		
17-5	36.75	10^{u25}	62.75	15^{u55}	27^{u10}	20.5 °C		95 kg
18-5	13.00	11^{u30}	32.70	15^{u40}	32^{u40}	21.1 °C		
19-5	32.70	11^{u30}	57.55	17^{u00}	36^{u50}	20.4 °C		106 kg
23-5	7.60	9^{u30}	33.44	15^{u00}	42^{u20}	21.2 °C		
24-5	33.40	10^{u05}	59.27	15^{u35}	47^{u50}	22.2 °C		122 kg
25-5	9.35	10^{u30}	40.58	16^{u15}	53^{u00}	21.5 °C		
26-5	40.58	12^{u05}	57.55	15^{u40}	59^{u55}	21.5 °C		129 kg
29-5	7.55	10^{u32}	34.13	16^{u02}	63^{u30}	21.5 °C		
30-5	34.13	10^{u30}	60.01	15^{u45}	69^{u00}	21.5 °C		134 kg
31-5	10.01	8^{u55}	32.98	13^{u40}	74^{u15}	21.8 °C		
1-6	32.98	10^{u20}	61.64	16^{u20}	79^{u00}	22.0 °C		149 kg
5-6	11.64	10^{u00}	40.20	16^{u00}	85^{u00}	22.3 °C		
6-6	40.20	10^{u05}	58.81	14^{u05}	91^{u00}	22.7 °C		129 kg
7-6	9.64	11^{u25}	28.38	15^{u25}	95^{u00}	23.0 °C		
8-6	28.38	9^{u25}	56.74	15^{u25}	99^{u00}	23.2 °C		126 kg
12-6 [1]	6.85	9^{u50}	16.15	11^{u50}	105^{u00}	21.8 °C		
12-6 [2]	16.15	12^{u35}	25.67	14^{u55}	107^{u00}	21.9 °C		
12-6 [3]	25.67	15^{u05}	35.27	17^{u05}	109^{u00}	21.9 °C		
13-6 [4]	35.27	9^{u05}	44.15	11^{u55}	111^{u00}	21.9 °C		
					113^{u00}			

EXPERIMENT Nº 7

30 cm mialle gout.

LAB. v. VLOEISTOFMECHANIKA

ONDERZOEK S.V.35

DATUM	BEGIN LIFTST.	BEGIN TYD	EIND LIFTST.	EIND TYD	TYD SINDS START PROEF	Temperatuur. VERHANG	EFFECTIEF TRANSPORT	OPGEVANGEN ZANDVANG
13-6 [5]	44.15	11^{u25}	53.48	13^{u25}	11^{u00}	21.8°C		
13-6 [6]	53.48	13^{u50}	61.22	15^{u30}	11^{u50}	21.9°C		152 kg.
14-6 [6]	11.28	10^{u20}	12.90	10^{u40}	11^{u40}	21.9°C		
14-6 [7]	12.90	11^{u05}	22.18	13^{u15}	11^{u00}	21.9°C		
14-6 [8]	22.18	13^{u30}	31.67	15^{u30}	11^{u50}	21.9°C		
14-6	31.67	15^{u50}	37.25	17^{u00}	12^{u00}	21.9°C		
15-6	37.25	10^{u25}	41.21	11^{u15}	12^{u10}	21.9°C		
15-6	41.21	11^{u40}	50.60	13^{u40}	12^{u30}	21.9°C		
15-6	56.60	14^{u10}	59.70	16^{u10}	12^{u50}	22.0°C		119 kg
16-6	9.70	10^{u00}	19.05	12^{u00}	12^{u70}	22.1°C		
16-6	19.05	12^{u25}	28.53	14^{u25}	12^{u90}	22.1°C		
20-6 [9]	28.53	10^{u15}	37.94	12^{u15}	13^{u10}	22.0°C		
20-6 [10]	37.94	12^{u40}	47.40	14^{u40}	13^{u30}	22.0°C		
20-6 [11]	47.40	15^{u00}	55.96	17^{u00}	13^{u50}	22.1°C		128 kg
21-6 [12]	11.40	10^{u30}	20.85	12^{u30}	13^{u70}	22.1°C		
21-6 [13]	20.85	12^{u55}	30.41	14^{u55}	13^{u90}	22.1°C		
22-6 [14]	30.41	9^{u50}	39.82	11^{u30}	14^{u10}	22.1°C		
22-6 [15]	39.82	11^{u55}	49.20	13^{u55}	14^{u30}	22.2°C		
22-6 [16]	49.20	14^{u05}	58.45	16^{u05}	14^{u50}	22.3°C		123 kg
23-6 [17]	9.80	10^{u45}	19.20	12^{u45}	14^{u70}	22.4°C		
26-6 [18]	19.20	9^{u30}	28.49	11^{u30}	14^{u90}	22.5°C		
26-6 [19]	28.49	11^{u55}	37.84	13^{u55}	15^{u10}	22.6°C		
26-6 [20]	37.84	14^{u15}	47.15	16^{u15}	15^{u30}	22.7°C		
					15^{u50}			

EXPERIMENT Nº 1
30 cm smalle goot.

LAB. v. VLOEISTOFMECHANIKA
ONDERZOEK S.V.35

DATUM	BEGIN LIFTST.	BEGIN TYD	EIND LIFTST.	EIND TYD	TYD SINDS START PROEF	temp. VERHANG	EFFECTIEF TRANSPORT	OPGEVANGEN ZOND HANG
4-7-'58	9.80	9u25	43.64	16u40		20 °C		
5-7	43.64	10u00	62.25	14u00	7u15	19.8°C		171 kg
6-7	5.54	9u45	30.85	15u00	11u15	19.8°C		
7-7	30.85	9u37	61.62	16u07	16u30	20.°C		159kg
10-7	11.62	9u10	47.89	16u25	23u10	19.5°C		
11-7	47.89	9u30	63.87	13u30	30u45	19.5°C		223kg
12-7	16.20	9u35	48.93	16u25	34u15	19.5°C		
13-7	48.93	9u30	62.08	12u15	41u05	19.5°C		
1-8	12.08	11u55	35.45	16u55	43u50	19.5°C		
2-8	35.45	8u55	61.39	14u25	48u50	19.6°C		243kg
3.8	11.39	9u45	39.52	15u45	54u20	19.6°C		
7-8	39.52	9u25	62.60	14u15	60u20	19.7°C		230kg
8-8	12.60	11u25	33.34	15u55	65u10	19.5°C		
9-8	33.34	10u15	60.08	16u00	70u55	19.5°C		220kg
10-8	10.08	9u25	37.15	15u55	76u40	19.7°C		
14-8	37.15	9u30	61.55	14u40	82u10	19.8°C		241kg
15-8 |2	11.55	10u40	18.28	12u10	87u20	19.9°C		
15-8 |3	18.28	12u30	24.77	14u00	88u50	20.°C		
15-8 |4	24.77	14u20	31.60	15u50	90u20	20.2°C		
16-8 |5	31.60	9u05	38.52	10u35	91u50	20.2°C		
16-8 |6	38.52	10u55	45.36	12u25	93u20	20.2°C		
16-8 |7	45.36	12u45	52.45	14u15	94u50	20.2°C		
16-8 |8	52.45	14u35	59.37	16u05	96u20	20.2°C		215kg
21-8 |9	9.37	8u35	16.44	10u05	97u50	20.2°C		
					99u20			

EXPERIMENT Nº

breedte goot 50 cm.

LAB. v. VLOEISTOFMECHANIKA

ONDERZOEK S.V.35

DATUM	BEGIN LIFTST.	BEGIN TYD	EIND LIFTST.	EIND TYD	TYD SINDS START PROEF	Temp VERWISSING	EFFECTIEF TRANSPORT	OPGEVANGEN ZAND HANG
21-8 [10]	16.44	12u30	23.35	12u00	99u20	20.2°C		
21-8 [11]	23.35	12u30	30.28	14u00	100u50	20.3°C		
21-8 [12]	30.28	14u25	37.50	15u55	102u20	20.3°C		
22-8 [13]	37.50	8u50	44.44	10u10	103u50	20.3°C		
22-8 [14]	44.44	10u35	51.36	12u05	105u20	20.4°C		
22-8 [15]	51.36	12u30	58.42	14u00	106u50	20.5°C		244 kg
22-8 [16]	9.00	15u10	15.44	16u40	108u20	20.5°C		
23-8 [17]	15.44	8u05	22.36	9u35	109u50	20.6°C		
23-8 [18]	22.36	10u00	29.31	11u30	111u20	20.6°C		
23-8 [19]	29.31	11u50	36.19	13u20	112u50	20.5°C		
24-8 [20]	36.19	8u30	43.14	10u00	114u20	20.7°C		B2b
					115u50			

EXPERIMENT Nº

breedte goot: 50 cm.

LAB. v. VLOEISTOFMECHANIKA

ONDERZOEK S.V.35

Nº meting.	1	–	–	2	–	–	3	–	–	4	–	–	5	–	–	
Tyd na begin proef	1074		–	1094	–	–	1114	–	–	1134	–	–	1154	–	–	
BAND Nº	12	–	–	12	–	–	12	–	–	12	–	–	12	–	–	
SPOOR Nº	1	(2)	3	1	(2)	3	1	(2)	3	1	(2)	3	1	(2)	3	
SCHAALDELING	4v	–	–	4v	–	–	4v	–	–	4v	–	–	4v	–	–	
BANDSNELHEID	15/16"	–	–	15/16"	–	–	15/16"	–	–	15/16"	–	–	15/16"	–	–	
teller stand BEGIN	7	33	7	84	59	84	109	133	109	179	156	179	202	224	202	
EIND	33	59	33	109	84	109	133	156	133	202	179	202	224	247	224	
LOOPTIJD WAGEN	8.00	8.02	8.00	8.02	8.00	8.02	8.04	8.01	8.04	8.00	7.57	8.00	8.03	8.03	8.03	
BEGINSPANNING ~~+2.60 m~~	-2.47	-2.66	+2.58	-0.98	-1.31	+1.17	-0.94	-0.79	+0.60	-0.59	-1.19	+1.13	-0.82	-0.89	+0.47	
EINDSPANNING ~~+2.00 m~~	-0.67	-0.51	-0.09	+0.97	+1.03	+1.08	+1.30	+1.32	-1.42	+0.71	+1.01	-0.95	+0.60	+1.02	-1.10	
NULVLAK Z=30	1.13	+40 =	41.13	1.13	+40 =	41.13	1.13	+40 =	41.13	1.13	+40 =	+41.13	1.13	+40 =	41.13	
referentievlakmeting PROVE NR.	24.57	+40 =	64.57	24.57	+40 =	64.57	24.57	+40 =	64.57	24.57	+40 =	64.57	24.57	+40 =	64.57	
NAALD 4.50 m	28.82	+35.75	64.57	28.82	+35.75	64.57	28.82	+35.75	64.57	28.82	+35.75	64.57	28.82	+35.75	64.57	
NAALD 20.50 m	28.46	+36.11	64.57	28.46	+36.11	64.57	28.46	+36.11	64.57	28.46	+36.11	64.57	28.46	+36.11	64.57	
stromend water NAALD 4.50 m	23.87	+35.75	59.62	24.69	+35.75	60.44	24.33	+35.75	60.08	24.79	+35.75	60.54	24.43	+35.75	60.18	
NAALD 20.50 M	20.91	+36.11	57.02	20.91	+36.11	57.02	21.35	+36.11	57.46	20.77	+36.11	56.88	21.24	+36.11	57.35	

EXPERIMENT Nº: Smalle goot 30 cm.

OPMERKINGEN

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 A

Nº meting.	6	-	-	7	-	-	8	-	-	9	-	-	10	-	-	
Tyd NA begin proef	117u	-	-	119u	-	-	121u	-	-	123u	-	-	125u	-	-	
BAND Nº	12	-	-	12	-	-	12	-	-	12	-	-	12	-	-	
SPOOR Nº	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
SCHAAL 10cm =	4u	-	-	4u	-	-	4u	-	-	4u	-	-	4u	-	-	
BANDSNELHEID	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	
telferstand BEGIN	269	247	269	291	813	291	354	333	354	573 375	592 397	573 375	631	611	631	
EIND	291	269	291	313	333	313	375	354	375	592	611	592	649	630	649	
LOOPTIJD WAGEN	8.10	8.11	8.10	8.07	8.08	8.07	8.04	8.04	8.04	8.09	8.15	8.09	8.15	8.15	8.15	
BEGINSPANNING x = 2.00 m	-1.64	-1.98	+1.57	-0.35	-0.44	+0.13	-0.33	-0.43	+0.22	-3.37	-3.30	-3.31	-2.85	-2.96	-2.74	
EINDSPANNING x = 22.00 m	+0.84	+0.88	-0.92	+0.94	+0.80	-0.94	+1.92	+1.88	-1.78	+1.19	+1.10	+0.61	+0.45	+0.68	+0.71	
NULVLAK Z = 0	0.23	+40	4023	0.23	+40	+4023	0.23	+40	4023	4170	+40	4170	4170	+40	4170	
ferentievlakmeting PROVE NR.	21.73	+40	+6073	21.73	+40	6173	21.73	+40	6173	20.76	+40	60.76	20.76	+40	60.76	
NAALD 4.50 m	26.02	+35.71	61.73	26.02	+35.71	61.73	26.02	+35.71	61.73	25.11	+35.65	60.76	25.11	+35.65	60.76	
NAALD 20.50 m	25.66	+36.07	61.73	25.66	+36.07	61.73	25.66	+36.07	61.73	24.70	+35.90	60.76	24.78	+35.90	60.76	
froimend water NAALD 4.50 m	24.39	+35.71	60.10	24.78	+35.71	6049	24.45	+35.71	60.16	24.20	+35.65	5993	24.45	+35.65	60.10	
NAALD 20.50 M	20.62	+36.07	5659	20.97	+36.07	5704	21.04	+36.07	57.11	20.07	+35.90	56.85	20.67	+35.90	5665	

EXPERIMENT Nº: smalle goot. 30 cm

OPMERKINGEN: Sporen 8 en 9 staan op de band 5 metingen

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 B

Nº meting.	11.	-	-	12	-	-	13	-	-	14.	-	-	15	-	-	
Tijd NA begin proef	1374	-	-	1.39u	-	-	1414	-	-	1430	-	-	1450	-	-	
BAND Nº	12	-	-	12	-	-	12	-	-	12	-	-	12	-	-	
SPOOR Nº	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
SCHAAL 10cm =	4v	-	-	4v	-	-	4v	-	-	4v	-	-	4v	-	-	
BANDSNELHEID	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	
tellerstand BEGIN	649	668	649	705	686	705	723	741	723	775	758	775	791	808	791	
EIND	668	686	668	723	705	723	741	758	741	791	775	791	808	825	808	
LOOPTIJD WAGEN	8.15	8.15	8.15	8.09	8.09	8.09	8.08	8.05	8.08	8.05	8.03	8.05	8.06	8.07	8.06	
BEGINSPANNING x = 2.00 m	-0.98	-1.13	-1.06	-1.15	-1.26	-0.98	-2.86	-2.97	-2.51	-3.21	-3.21	-3.04	-1.07	-1.20	-1.26	
EINDSPANNING x = 22.00 m	-0.01	+0.04	+0.11	+0.73	+0.40	+0.49	+0.65	+0.65	+0.92	+0.66	+0.33	+0.47	+0.60	+0.65	+0.77	
NULVLAK Z = 0	1.70	+40	41.70	1.70	40	41.70	1.70	40	41.70	1.70	40	41.70	1.70	42	41.70	
ferentievlakmeting PROVC NR.	20.76	+40	60.76	20.76	40	60.76	20.76	40	60.76	20.76	42	60.76	20.76	42	60.76	
NAALD 4.50 m	2601	+3565	60.76	25.11	3565	60.76	25.11	3565	60.76	25.11	3565	60.76	25.11	3565	60.76	
NAALD 20.50 m	24.78	+3598	60.76	24.78	3598	60.76	24.78	3598	60.76	24.78	3598	60.76	24.78	3595	60.76	
rotmend water NAALD 4.50 m	24.84	3565	6049	24.62	3565	60.27	24.44	3565	60.09	24.23	3565	59.88	24.87	3565	60.52	
NAALD 20.50 M	21.22	3568	5720	20.97	3598	5695	20.82	3580	5680	21.04	3598	57.02	20.97	3598	56.95	

EXPERIMENT Nº: Smalle goot. 30 cm.

OPMERKINGEN:

LAB. v. VLOEISTOFMECHANIKA.

Onderzoek S.V. 35

2.6.C

N° meting.	16	–	–	17	–	–	18	–	–	19	–	–	20	–	–	
Tijd na begin proef	1474	–	–	149u	–	–	151u	–	–	153u	–	–	155u	–	–	
BAND N°	0	–	–	0	–	–	0	–	–	0	–	–	0	–	–	
SPOOR N°	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
SCHAAL 10 cm ≙	4u	–	–	4u	–	–	4u	–	–	4u	–	–	4u	–	–	
BANDSNELHEID	15/16"	15/16"	15/16"	15/16"	15/16"	15/16"	15/16"	–	–	15/16"	–	–	15/16"	–	–	
tellerstand BEGIN	35	10	35	62⁵	90	62⁵	142	116	142	168	194	168	245	220	245	
EIND	60	35	60	88	113	88	165	140	165	191	216	191	266	242	266	
LOOPTIJD WAGEN	8.05	8.04	8.05	8.09	8.05	8.09	8.03	8.04	8.03	8.02	8.02	8.02	8.04	8.03	8.04	
BEGINSPANNING x = 2.00 m	-0.96	-1.04	-0.99	-2.15	-2.93	-3.26	-3.00	-2.99	-2.73	-1.90	-1.11	-0.96	-1.69	-1.83	-1.70	
EINDSPANNING x = 22.00 m	+0.21	+0.13	+0.38	+0.03	-0.04	+0.13	+0.75	+0.84	+0.89	+0.83	+0.60	+0.70	+0.53	+0.59	+0.92	
NULVLAK Z = 0	1.70	40	4170	1.70	40	4170	1.70	40	4170	1.70	40	4170	1.70	40	4170	
referentievlakmeting PROVE NR.	20.76	40	6076	20.76	40	6076	20.76	40	6076	20.76	40	6076	20.76	40	6076	
NAALD 4.50 m	25.11	3565	6076	25.11	3565	6076	25.11	3565	6076	25.11	3565	6076	25.11	3565	6076	
NAALD 20.50 m	24.78	35.98	6076	24.79	35.98	6076	24.78	35.98	6076	24.78	35.98	6076	24.78	35.98	6076	
stromend water NAALD 4.50 m	24.80	3565	60.41	23.95	3565	59.60	24.86	3565	6051	24.48	3565	6013	24.86	3565	60.01	
NAALD 20.50 M	21.51	3598	57.41	20.74	3598	56.72	20.89	3598	57.37	21.25	3598	57.23	21.25	3598	57.23	

EXPERIMENT N°	malle goot.	30 cm.
OPMERKINGEN		

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 D

Nº meting.	1	-	-	2	-	-	3	-	-	4	-	-	5	-	-	
Tijd na beginproef	87 u	-	-	89 u	-	-	91 u	-	-	93 u	-	-	95 u	-	-	
BAND Nº	8	-	-	8	-	-	8	-	-	8	-	-	8	-	-	
SPOOR Nº	1	2	3	1	2	3.	1	2	3	1	2	3	1	2	3	
SCHAAL 10cm ?	4v	-	-	4v	-	-	4v	-	-	4v	-	-	4v	-	-	
BANDSNELHEID	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	
tellerstand BEGIN	10	40	10	100	70	100	130	161	130	215	187	215	240	265	240	
EIND	37	66	37	123	96	123	155	183	155	238	210	238	262	287	262	
LOOPTIJD WAGEN	815	818	815	807	808	807	804	815	804	809	810	809	804	806	804	
BEGINSPANNING x = 2.00 m	-4.58	-3.62	-2.75	-214	-2.63	-2.54	-1.86	-2.21	-2.02	-1.22	-2.49	-1.45	-3.55	-3.05	-2.80	
EINDSPANNING x = 22.00 m	+0.45	+0.17	0.00	+0.23	+0.58	+0.97	+0.47	+0.55	-0.40	+0.22	+0.18	+0.50	+0.30	+0.30	-0.30	
NULVLAK Z=0	0.25	+40	40≈25	0.25	+40	40≈25	0.25	+40	40≈25	0.25	+40	40≈25	0.25	+40	40≈25	
ferentievlakmeting PROVE NR.	18.20	+40	5820	18.20	+40	5820	18.20	+40	5820	18.20	+40	5820	18.20	+40	5820	
NAALD 4.50 m	22.57	35.63	5820	22.57	35.63	5820	22.57	35.63	5820	22.57	35.63	5820	22.57	35.63	5820	
NAALD 20.50 m	22.19	36.01	5820	22.19	36.01	5820	22.19	36.01	5820	22.19	36.01	5820	22.19	36.01	5820	
rolmend water NAALD 4.50 m	22.16	35.63	57.79	22.40	35.63	58.11	22.45	35.63	58.01	22.35	35.63	57.98	22.04	35.63	57.67	
NAALD 20.50 M	19.53	36.01	55.54	18.93 19.53	36.01	54.24	19.00	36.01	55.01	19.60	36.01	55.61	19.23	36.01	55.24	

EXPERIMENT Nº breede goot. 50 cm.

OPMERKINGEN

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 E

N° meting.	6	-	-	7	-	-	8	-	-	9	-	-	10	-	-	
Tijd na beginproef	97u	-	-	99u	-	-	101u	-	-	103u	-	-	105u	-	-	
B.T.D N°	8	-	-	8	-	-	8	-	-	8	-	-	8	-	-	
SPOOR N°	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
SCHAAL 10cm =	4v	-	-	4v	-	-	4v	-	-	4v	-	-	4v	-	-	
BANDSNELHEID	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	
tellerstand BEGIN	315	290	315	340	365	340	415	390	415	440	484	440	515	490	515	
EIND	337	312	337	361	386	361	435	410	435	460	465	460	534	509	534	
LOOPTIJD WAGEN	805	803	805	802	805	802	805	802	805	802	802	802	801	801	801	
BEGINSPANNING x = 2.00 m.	-1.42	-0.81	-0.61	-1.64	-2.00	-1.79	-1.41	-1.87	-1.71	-0.58	-0.53	-1.45	-3.26	-3.05	-3.26	
EINDSPANNING x = 22.00 m	+0.37	+0.35	+0.14	+0.44	+0.43	+0.56	+0.59	+0.36	-0.03	-0.15	+0.24	+0.64	+0.95	+0.32	+0.27	
NULVLAK Z = 0	0.25	+40	5825	025	+40	5825	025	+40	5825	010	+40	5810	010	+40	5810	
referentievlakmeting PROVE NR.	1820	+40	5820	1820	+40	5820	1820	+40	5820	1677	+40	5677	1677	+40	5677	
NAALD 4.50 m	2257	+35.63	5820	2257	3563	5820	2257	3563	5820	2103	3574	5677	2103	3574	5677	
NAALD 20.50 m	2219	+36.01	5820	2219	+36.01	5820	2219	+36.01	5820	2056	+36.11	5677	2056	+36.11	5677	
rolmend water NAALD 4.50 m	2255	+35.63	58.18	2234	+35.63	5792	2264	+35.63	58.27	2234	+35.74	+5803	2230	+35.74	+5804	
NAALD 20.50 M	1914	+36.01	5518	1869	+36.01	54.70	1919	+36.01	5520	1908	+36.11	-5519	1867	+36.11	54.78	

EXPERIMENT N°: breedgoot — 50 cm

OPMERKINGEN: -

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 F

N° meting.	1	-	-	12	-	-	13	-	-	14	-	-	15	-	-	
Tijd na begin proef	107u	-	-	109u	-	-	111u	-	-	113u	-	-	115u	-	-	
BAND N°	8	-	-	8	-	-	8	-	-	8	-	-	10	-	-	
SPOOR N°	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
SCHAAL 10cm =	4v	-	-	4v	-	-	4v	-	-	4v	-	-	4v	-	-	
BANDSNELHEID	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	15/16"	-	-	
telferstand BEGIN	540	565	540	605	585	605	630	655	630	703	680	703	16	45	16	
EIND	560	583	560	623	603	623	648	673	648	721	689	721	41	70	41	
LOOPTIJD WAGEN	8.00	8.00	8.00	7.58	7.58	7.58	7.57	7.57	7.57	8.00	7.57	8.00	8.00	8.00	8.00	
BEGINSPANNING L = 2.00 m	-1.11	-0.51	-0.41	-2.13	-2.93	-2.43	-3.71	-3.24	-2.09	-2.67	-2.98	-3.62	-4.15	-2.54	-2.58	
EIND SPANNING X = 22.00 m	+0.92	+0.83	+0.39	+0.87	+0.67	+0.06	+0.54	-0.19	+0.57	+1.06	+0.62	+0.16	+0.53	+0.48	+0.72	
NULVLAK Z = 0	0.10	+40	4010	0.10	+40	4010	0.10	+40	4010	0.10	+40	4010	010	+40	4010	
ferentievlakmeting PROVE NR.	16.77	+40	5677	16.77	+40	5677	1677	+40	5677	16.77	+40	5677	16.77	+40	5677	
NAALD 4.50 m	21.03	3574	5677	21.03	3574	5677	21.03	3574	5677	21.03	3574	5677	21.03	3574	5677	
NAALD 20.50 m	20.56	3611	5677	20.56	3611	5677	20.56	3611	5677	20.56	3611	5677	20.56	3611	5677	
roimend water NAALD 4.50 m	22.37	3574	5811	2165	3574	5739	2236	3574	5810	22.00	3574	5734	22.05	3574	5779	
NAALD 20.50 m	19.35	3611	5546	18.68	[illegible]	5479	19.59	[illegible]	5570	19.43	[illegible]	5554	19.06	[illegible]	5517	

EXPERIMENT N° drecce goot 50 cm.

OPMERKINGEN

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6 G

N° meting.	16	–	–	17	–	–	18	–	–	19	–	–	20	–	–	
Tijd na beginproef	1170	–	–	1190	–	–	1210	–	–	1230	–	–	1250	–	–	
BAND N°	10	–	–	10	–	–	10	–	–	10	–	–	10	–	–	
SPOOR N°	1	(2)	3	1	(2)	3	1	(2)	3	1	(2)	3	1	(2)	3	
SCHAAL 10cm :	40	–	–	40	–	–	40	–	–	40	–	–	40	–	–	
BANDSNELHEID	15/16"	–	–	15/16"	–	–	15/16"	–	–	15/16"	–	–	15/16"	–	–	
tellerstand BEGIN	105	75	105	136	165	136	215	190	215	240⁵	269	240⁵	320	296	320	
EIND	130	100	130	159	187	159	237	213	237	263	291	263	342	318	342	
LOOPTIJD WAGEN	803	758	803	800	800	800	800	758	800	758	759	758	759	756	759	
BEGINSPANNING x = 2.00 m	-2.85	-1.22	-0.53	-0.97	-0.80	-0.90	-2.06	-2.48	-1.72	-1.11	-0.96	-1.55	-4.43	-3.15	-2.79	
EINDSPANNING x = 22.00 m	+0.89	+0.41	+0.04	-0.70	-0.60	-0.39	-0.71	-0.29	+0.11	-0.66	-1.37	-0.33	+0.28	+0.66	+0.83	
NULVLAK Z = 0	010	+40	4070	010	+40	4070	010	+40	4070	010	+40	4070	010	+40	4070	
referentievlakmeting PROVE NR.	16.77	+40	5677	16.77	+40	5677	16.77	+40	5677	16.77	+40	5677	16.77	+40	5677	
NAALD 4.50 m	21.03	+3574	5672	21.03	+3574	5677	21.03	+3574	5677	21.03	+3574	5677	21.03	+3574	5677	
NAALD 20.50 m	20.56	+3611	5671	20.56	+3611	5677	20.56	+3611	5677	20.56	+3611	5677	20.56	+3621	5677	
rolmend water NAALD 4.50 m	2255	+3574	58.29	2312 19 2.	+3574	58.66	2220	+3574	5704	2265	+3574	5839	2253	+3574	58.27	
NAALD 20.50 M	1928	+3611	55.39	1927	+3611	5538	1917	+3611	5520	1942	+3611	5553	1967	+3621	55.78	

EXPERIMENT N° breede goot. 50 cm.

OPMERKINGEN

LAB. v. VLOEISTOFMECHANIKA

Onderzoek S.V. 35

2.6. H

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 1
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (.10E-3)	WATER SURFACE SLOPE (.10E-3)	BOTTOMSLOPE (.10E-3)				K-VALUE (M)	TEMPERATURE (GR.C)	CHEZY COEFF. (M.S/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	1	250374	9.21.10	.196	1.495	1.616	1.670	1.825	1.628	1.708	.040	11.6	31.2
2	2	250374	11.20.20	.197	1.538	1.607	1.014	2.181	2.063	1.752	.045	11.8	30.4
3	3	250374	13.28.18	.198	1.635	1.522	1.352	1.332	1.859	1.514	.052	11.9	29.3
4	4	250374	15.20.49	.198	1.703	1.423	2.316	1.300	1.354	1.656	.055	12.0	28.8
5	1	260374	9.20.03	.197	1.565	1.529	1.590	1.401	1.526	1.506	.045	12.3	30.3
6	1	270374	9.18.13	.203	1.495	1.533	1.710	1.454	1.705	1.623	.052	12.7	29.6
7	2	270374	11.20.27	.195	1.606	1.533	1.761	1.273	1.764	1.599	.045	12.8	30.3
8	3	270374	13.25.47	.198	1.535	1.478	2.358	1.696	1.086	1.713	.045	12.9	30.3
AVERAGE				.198	1.571	1.530	1.721	1.558	1.623	1.634	.047	12.3	30.0
STANDARD DEVIATION				.002	.073	.063	.450	.319	.304	.091	.005	.5	.8

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 1
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M,10E-2)				VARIANCE (M2,10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	1	250374	3,648	2,855	3,483	3,329	13,307	8,149	12,132	11,196
2	2	250374	4,408	2,745	3,946	3,700	19,434	7,537	15,567	14,179
3	3	250374	3,645	2,766	3,597	3,336	13,283	7,648	12,935	11,289
4	4	250374	3,468	2,920	3,008	3,132	12,027	8,528	9,046	9,867
5	1	260374	3,475	2,634	3,042	3,050	12,073	6,939	9,253	9,422
6	1	270374	3,257	3,025	2,981	3,088	10,610	9,149	8,884	9,547
7	2	270374	3,028	2,533	3,176	2,912	9,168	6,417	10,086	8,557
8	3	270374	3,924	2,534	3,946	3,468	15,395	6,419	15,571	12,462
AVERAGE			3,607	2,751	3,397	3,252	13,162	7,598	11,684	10,815
STANDARD DEVIATION			,421	,178	,405	,256	3,146	,986	2,809	1,850

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 1
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	1	250374	.019	.083	.127	.014	.072	.131	.017	.070	.137
2	2	250374	.018	.090	.172	.039	.072	.129	.026	.080	.181
3	3	250374	.028	.078	.169	.017	.066	.141	.023	.067	.172
4	4	250374	.015	.073	.148	.017	.074	.125	.020	.063	.129
5	1	260374	.036	.088	.132	.003	.059	.130	.034	.074	.120
6	1	270374	.034	.076	.135	.024	.073	.122	.031	.072	.139
7	2	270374	.036	.069	.136	.022	.064	.157	.029	.083	.140
8	3	270374	.030	.084	.188	.020	.061	.117	.018	.082	.203
AVERAGE			.027	.080	.151	.020	.068	.131	.025	.074	.153
STANDARD DEVIATION			.008	.007	.022	.010	.006	.013	.006	.007	.029

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 1
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	1	250374	.382	1.795	3.375	.266	1.327	2.793	.477	1.889	4.927	33	44	29
2	2	250374	.298	1.963	4.858	.515	1.325	3.971	.599	1.950	5.241	28	43	30
3	3	250374	.249	1.551	5.383	.445	1.154	2.810	.479	1.470	6.902	36	49	39
4	4	250374	.244	1.703	4.342	.354	1.409	2.714	.399	1.378	3.970	34	41	42
5	1	260374	.594	1.949	4.813	.098	1.179	2.593	.392	1.632	2.702	29	50	34
6	1	270374	.386	1.925	6.078	.418	1.193	3.113	.428	1.517	3.378	31	48	40
7	2	270374	.513	1.606	3.612	.384	1.208	3.032	.853	1.991	3.846	36	48	30
8	3	270374	.572	1.958	5.053	.357	1.170	2.946	.406	1.881	4.338	26	50	28
AVERAGE			.405	1.806	4.689	.355	1.246	2.997	.504	1.713	4.413	31	46	34
STANDARD DEVIATION			.141	.168	.894	.127	.094	.429	.156	.242	1.291	3	3	5

CALCULATIONS ARE MADE WITH REGARD TO THE SINGLE PROFILESLOPE.

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 2
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (.10E-3)	WATER SURFACE SLOPE (.10E-3)	BOTTOMSLOPE (.10E-3)				K-VALUE (M)	TEMPERATURE (GR.C)	CHEZY COEFF. (M.5/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	1	230474	15.10.04	.199	1.495	1.546	1.312	.968	1.207	1.162	.045	14.5	30.4
2	1	240474	9.23.29	.193	1.552	1.522	2.133	2.150	1.387	1.890	.038	14.6	31.4
3	2	240474	11.21.25	.197	1.536	1.557	1.951	1.500	1.940	1.797	.044	14.6	30.5
4	3	240474	13.30.49	.195	1.606	1.597	1.833	1.526	1.849	1.736	.044	14.7	30.4
5	4	240474	15.28.16	.197	1.745	1.781	1.222	1.760	1.588	1.523	.058	14.8	28.4
6	1	250474	9.20.57	.200	1.383	1.497	2.293	1.180	.854	1.442	.040	14.9	31.4
7	2	250474	11.21.29	.199	1.633	1.602	1.881	1.449	.642	1.324	.054	15.0	29.0
8	3	250474	13.26.11	.198	1.690	1.680	.940	1.772	1.821	1.511	.055	15.0	28.8
9	4	250474	15.16.28	.198	1.885	1.739	1.475	1.730	1.840	1.682	.068	15.2	27.3
10	1	260474	9.18.28	.201	1.493	1.449	2.005	1.304	.866	1.392	.048	14.9	30.1
11	2	260474	11.19.42	.196	1.480	1.539	1.369	1.162	1.396	1.309	.040	15.0	31.3
12	4	260474	15.13.38	.201	1.480	1.402	2.521	2.011	.946	1.826	.047	15.1	30.2
AVERAGE				.198	1.582	1.574	1.745	1.543	1.361	1.550	.049	14.9	29.9
STANDARD DEVIATION				.002	.139	.113	.478	.356	.456	.234	.009	.2	1.3

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 2
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M.10E-2)				VARIANCE (M2.10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	1	230474	3.601	2.895	3.897	3.464	12.968	8.381	15.184	12.178
2	1	240474	3.698	2.872	3.210	3.260	13.676	8.247	10.303	10.742
3	2	240474	3.209	2.934	3.243	3.129	10.295	8.609	10.520	9.808
4	3	240474	3.347	2.558	3.405	3.103	11.203	6.543	11.593	9.780
5	4	240474	3.620	2.969	3.534	3.374	13.103	8.814	12.490	11.469
6	1	250474	3.522	2.801	3.120	3.148	12.404	7.844	9.736	9.995
7	2	250474	3.408	2.882	3.330	3.207	11.611	8.305	11.092	10.336
8	3	250474	4.081	2.430	3.512	3.341	16.655	5.906	12.331	11.631
9	4	250474	3.813	3.069	3.355	3.412	14.541	9.420	11.255	11.739
10	1	260474	4.007	2.760	3.488	3.418	16.054	7.619	12.167	11.947
11	2	260474	3.962	2.700	3.439	3.367	15.700	7.292	11.827	11.606
12	4	260474	2.707	2.757	2.871	2.779	7.351	7.600	8.245	7.725
AVERAGE			3.581	2.802	3.367	3.250	12.962	7.882	11.395	10.746
STANDARD DEVIATION			.386	.178	.252	.193	2.659	.978	1.706	1.286

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 2
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	1	250474	.035	.072	.137	.014	.060	.145	.031	.087	.164
2	1	240474	.033	.085	.143	.022	.071	.135	.013	.076	.130
3	2	240474	.037	.069	.139	.031	.074	.127	.020	.078	.162
4	3	240474	.031	.082	.141	.020	.065	.111	.015	.082	.163
5	4	240474	.042	.081	.131	.017	.076	.127	.023	.075	.143
6	1	250474	.034	.075	.147	.016	.068	.162	.038	.080	.145
7	2	250474	.025	.073	.173	.021	.070	.106	.022	.069	.170
8	3	250474	.034	.087	.184	.032	.062	.098	.041	.077	.127
9	4	250474	.028	.089	.150	.028	.078	.142	.029	.080	.156
10	1	260474	.023	.093	.164	.032	.066	.120	.054	.080	.139
11	2	260474	.034	.087	.180	.018	.059	.105	.021	.082	.140
12	4	260474	.029	.067	.134	.020	.065	.144	.032	.071	.136
AVERAGE			.032	.080	.152	.023	.068	.127	.027	.078	.148
STANDARD DEVIATION			.005	.009	.019	.007	.006	.019	.009	.005	.014

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 2
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	1	230474	.334	1.598	3.334	.421	1.012	2.093	.581	2.130	4.715	38	59	28
2	1	240474	.441	2.028	5.143	.513	1.234	2.123	.305	2.311	4.798	28	48	25
3	2	240474	.535	1.575	5.492	.587	1.427	2.642	.361	2.027	5.221	37	40	27
4	3	240474	.719	1.835	4.123	.459	1.073	2.405	.444	2.168	4.710	31	54	26
5	4	240474	.637	1.499	2.746	.266	1.261	2.679	.321	1.676	4.745	37	47	33
6	1	250474	.465	1.922	4.654	.214	1.164	2.731	.575	1.704	4.079	30	51	35
7	2	250474	.540	1.479	3.957	.339	1.120	2.307	.516	1.540	3.851	40	54	38
8	3	250474	.606	1.606	5.125	.464	1.018	1.813	.450	1.649	4.001	33	58	33
9	4	250474	.569	1.625	3.140	.346	1.141	2.454	.564	1.647	4.039	33	51	33
10	1	260474	.387	2.118	5.265	.439	1.264	2.508	.667	2.157	5.036	28	47	26
11	2	260474	.662	2.037	4.139	.188	1.208	3.590	.380	2.038	4.619	26	49	29
12	4	260474	.514	1.816	3.946	.279	1.220	2.622	.556	1.493	2.861	32	48	38
AVERAGE			.534	1.762	4.255	.359	1.178	2.497	.477	1.878	4.390	32	50	30
STANDARD DEVIATION			.114	.226	.896	.117	.117	.441	.117	.286	.651	4	5	4

CALCULATIONS ARE MADE WITH REGARD TO THE SINGLE PROFILESLOPE.

DELFT HYDRAULICS LABORATORY

T,O,W, SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (,10E-3)	WATER SURFACE SLOPE (,10E-3)	BOTTOMSLOPE (,10E-3)				FROUDE NUMBER	TEMPERATURE (GR,C)	CHEZY COEFF, (M,S/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	2	120678	9,54,00	,183	1,250	-2,167	-1,875	-2,784	-3,649	-2,769	,408	21,8	43,4
2	4	120678	12,39,00	,187	1,250	-2,850	-2,494	-2,623	-2,525	-2,547	,393	21,9	40,0
3	6	120678	15,09,00	,186	1,250	-2,183	-2,335	-2,648	-2,308	-2,430	,399	21,9	42,2
4	2	130678	9,09,00	,183	1,250	-3,050	-2,021	-1,964	-2,038	-2,007	,407	21,9	41,2
5	4	130678	11,29,00	,185	1,250	-2,358	-2,405	-2,374	-2,218	-2,332	,401	21,8	41,9
6	2	140678	10,34,00	,182	1,250	-2,925	-2,427	-2,824	-2,363	-2,538	,410	21,9	41,7
7	4	140678	13,04,00	,184	1,250	-2,875	-2,201	-2,455	-2,235	-2,297	,403	21,9	41,0
8	6	140678	15,34,00	,185	1,250	-2,542	-2,387	-2,495	-2,375	-2,419	,401	21,9	41,5
9	2	200678	12,19,00	,185	1,250	-2,567	-2,531	-2,659	-2,712	-2,634	,400	22,0	41,3
10	4	200678	14,44,00	,184	1,250	-2,875	-2,062	-2,320	-2,191	-2,191	,404	22,0	41,2
11	6	200678	17,04,00	,189	1,250	-2,742	-2,271	-2,510	-2,234	-2,338	,387	22,1	39,4
12	2	210678	12,34,00	,187	1,250	-2,767	-2,492	-2,693	-2,564	-2,583	,395	22,1	40,3
13	4	210678	14,59,00	,186	1,250	-2,742	-2,593	-2,601	-2,397	-2,531	,398	22,1	40,7
14	2	220678	11,34,00	,186	1,250	-2,383	-2,644	-2,856	-2,588	-2,696	,396	22,1	41,3
15	4	220678	13,59,00	,188	1,250	-2,975	-2,351	-2,470	-2,500	-2,441	,391	22,2	39,4
16	6	220678	16,09,00	,190	1,250	-2,467	-2,224	-2,560	-2,126	-2,303	,384	22,3	39,6
17	2	230678	12,49,00	,184	1,250	-2,400	-2,583	-2,837	-2,561	-2,660	,406	22,4	42,4
18	2	260678	11,34,00	,191	1,250	-2,617	-1,854	-2,291	-1,944	-2,030	,383	22,5	39,1
19	4	260678	13,59,00	,189	1,250	-2,417	-2,031	-2,120	-2,054	-2,069	,388	22,6	40,1
20	6	260678	16,19,00	,188	1,250	-2,317	-2,476	-2,348	-2,644	-2,489	,392	22,7	41,0
AVERAGE				,186	1,250	-2,611	-2,313	-2,522	-2,411	-2,415	,397	22,1	40,9
STANDARD DEVIATION				,002	,000	,269	,238	,238	,363	,220	,008	,3	1,1

DELFT HYDRAULICS LABORATORY

T,O,W, SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M,10E-2)				VARIANCE (M2,10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	2	120678	2,139	1,838	2,202	2,060	4,575	3,378	4,851	4,268
2	4	120678	1,807	1,643	1,846	1,765	3,266	2,699	3,409	3,125
3	6	120678	1,794	1,831	1,772	1,799	3,217	3,351	3,138	3,236
4	2	130678	2,115	1,860	1,788	1,921	4,475	3,458	3,198	3,711
5	4	130678	1,938	1,774	1,746	1,819	3,756	3,148	3,048	3,317
6	2	140678	2,126	2,092	1,906	2,041	4,519	4,375	3,633	4,176
7	4	140678	2,046	1,799	1,715	1,853	4,187	3,236	2,940	3,454
8	6	140678	1,936	1,734	1,785	1,818	3,747	3,007	3,185	3,313
9	2	200678	1,756	1,588	1,682	1,676	3,085	2,522	2,831	2,813
10	4	200678	2,105	1,763	1,794	1,887	4,432	3,109	3,218	3,586
11	6	200678	2,022	1,782	1,865	1,890	4,088	3,176	3,477	3,580
12	2	210678	2,033	1,688	1,845	1,856	4,135	2,851	3,404	3,463
13	4	210678	1,863	1,516	1,643	1,674	3,470	2,299	2,699	2,823
14	2	220678	1,818	1,606	1,689	1,704	3,307	2,579	2,851	2,913
15	4	220678	1,960	1,693	1,789	1,814	3,841	2,866	3,199	3,302
16	6	220678	1,926	1,576	1,725	1,743	3,711	2,485	2,975	3,057
17	2	230678	1,895	1,635	1,671	1,734	3,590	2,674	2,791	3,018
18	2	260678	1,913	1,650	1,874	1,812	3,661	2,722	3,511	3,298
19	4	260678	1,922	1,695	1,814	1,810	3,692	2,872	3,290	3,285
20	6	260678	1,829	1,708	1,750	1,762	3,345	2,919	3,063	3,109
AVERAGE			1,947	1,724	1,795	1,822	3,805	2,986	3,236	3,342
STANDARD DEVIATION			,119	,128	,120	,104	,465	,458	,459	,389

DELFT HYDRAULICS LABORATORY

T,O,M, SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	2	120678	,034	,057	,098	,026	,045	,075	,015	,044	,075
2	4	120678	,016	,046	,072	,020	,043	,070	,025	,048	,085
3	6	120678	,018	,048	,073	,024	,048	,073	,035	,051	,063
4	2	130678	,033	,059	,101	,015	,046	,071	,021	,047	,074
5	4	130678	,000	,048	,077	,022	,044	,067	,022	,047	,070
6	2	140678	,020	,053	,092	,012	,047	,081	,020	,044	,073
7	4	140678	,025	,053	,104	,014	,046	,076	,021	,047	,085
8	6	140678	,016	,053	,082	,025	,045	,067	,010	,046	,077
9	2	200678	,021	,045	,084	,017	,038	,060	,019	,043	,079
10	4	200678	,040	,058	,114	,014	,043	,074	,018	,045	,077
11	6	200678	,017	,053	,104	,027	,044	,067	,022	,051	,085
12	2	210678	,035	,056	,090	,032	,045	,065	,019	,050	,082
13	4	210678	,016	,053	,078	,018	,043	,062	,014	,047	,061
14	2	220678	,032	,050	,073	,020	,040	,060	,027	,046	,074
15	4	220678	,025	,052	,093	,022	,042	,063	,017	,047	,084
16	6	220678	,016	,048	,088	,016	,037	,065	,015	,044	,077
17	2	230678	,015	,046	,073	,021	,039	,060	,017	,048	,075
18	2	260678	,037	,052	,083	,017	,041	,063	,021	,047	,077
19	4	260678	,022	,051	,074	,026	,042	,059	,022	,050	,071
20	6	260678	,022	,045	,072	,024	,044	,067	,020	,045	,071
AVERAGE			,023	,051	,086	,021	,043	,067	,020	,047	,076
STANDARD DEVIATION			,010	,004	,013	,005	,003	,006	,005	,002	,007

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	2	120678	,553	1,023	1,869	,450	,878	1,645	,346	,819	1,527	39	45	47
2	4	120678	,324	,801	1,889	,419	,953	2,071	,465	,912	2,316	49	41	43
3	6	120678	,341	1,144	1,937	,467	1,272	2,363	,644	1,374	2,130	33	29	25
4	2	130678	,598	1,120	2,249	,437	1,032	2,313	,330	1,115	2,133	33	39	33
5	4	130678	,053	,922	2,331	,423	1,040	2,104	,442	1,059	2,099	41	35	35
6	2	140678	,393	,946	1,864	,264	,972	1,836	,396	,975	1,818	38	38	38
7	4	140678	,396	,856	2,129	,422	,854	2,879	,519	,929	2,888	44	44	41
8	6	140678	,521	,990	2,682	,507	,988	1,947	,138	,935	1,829	37	38	40
9	2	200678	,399	,808	1,658	,438	,782	1,505	,496	,839	1,769	48	48	46
10	4	200678	,653	1,037	1,754	,495	,916	1,747	,334	,918	1,645	38	40	42
11	6	200678	,386	,813	1,670	,387	,829	1,578	,511	,894	1,546	43	43	41
12	2	210678	,632	,826	1,337	,636	,907	2,233	,588	,898	1,537	46	43	43
13	4	210678	,367	,823	1,392	,567	,884	1,333	,512	,909	1,403	46	44	42
14	2	220678	,302	,937	1,916	,389	,940	1,941	,590	,940	1,591	42	42	42
15	4	220678	,421	,854	1,542	,529	,865	1,521	,528	,950	1,575	45	45	41
16	6	220678	,353	,807	2,190	,473	,745	1,274	,253	,788	1,373	47	49	43
17	2	230678	,396	,796	1,393	,372	,845	1,405	,584	1,080	1,731	50	45	36
18	2	260678	,551	1,048	1,531	,552	,915	1,406	,470	,937	1,574	37	42	42
19	4	260678	,579	,944	1,570	,519	,918	1,557	,471	,971	1,798	40	41	39
20	6	260678	,434	,923	2,178	,435	,911	2,187	,610	1,023	2,216	41	41	37
AVERAGE			,433	,921	1,854	,459	,922	1,842	,461	,963	1,825	41	41	39
STANDARD DEVIATION			,140	,110	,358	,081	,111	,421	,129	,127	,373	5	4	4

DELFT HYDRAULICS LABORATORY

T,O,W, SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (,10E-3)	WATER SURFACE SLOPE (,10E-3)	BOTTOMSLOPE (,10E-3)				FROUDE NUMBER	TEMPERATURE (GR,C)	CHEZY COEFF, (M,5/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	2	150878	12,14,00	,178	1,250	-2,106	-1,925	-2,001	-1,852	-1,926	,424	19,9	45,8
2	4	150878	14,04,00	,181	1,250	-1,875	-1,963	-2,114	-1,945	-2,007	,414	20,1	45,4
3	6	150878	16,54,00	,189	1,250	-1,481	-2,525	-2,912	-2,418	-2,618	,388	20,2	44,1
4	2	160878	8,39,00	,184	1,250	-1,519	-2,956	-2,551	-2,055	-2,521	,404	20,2	46,2
5	4	160878	11,29,00	,183	1,250	-1,894	-2,460	-2,336	-1,781	-2,193	,407	20,2	44,3
6	6	160878	14,04,00	,179	1,250	-2,044	-2,233	-2,520	-2,088	-2,280	,421	20,2	45,6
7	8	160878	16,39,00	,183	1,250	-1,919	-2,009	-2,256	-2,023	-2,096	,409	20,2	44,5
8	2	210878	9,09,00	,182	1,250	-1,806	-2,934	-2,960	-2,386	-2,760	,412	20,2	45,6
9	4	210878	11,34,00	,178	1,250	-2,038	-2,163	-2,421	-2,020	-2,202	,424	20,2	46,0
10	6	210878	14,04,00	,185	1,250	-1,656	-2,424	-2,585	-2,213	-2,407	,402	20,3	45,0
11	8	210878	16,29,00	,179	1,250	-1,625	-2,623	-3,004	-2,872	-2,833	,423	20,3	48,4
12	2	220878	9,14,00	,186	1,250	-1,501	-3,042	-2,740	-2,358	-2,713	,397	20,3	45,3
13	4	220878	11,39,00	,185	1,250	-1,375	-2,945	-3,037	-2,986	-2,989	,401	20,4	47,1
14	6	220878	14,04,00	,181	1,250	-1,638	-2,150	-2,948	-2,776	-2,625	,414	20,5	46,8
15	8	220878	16,44,00	,181	1,250	-1,813	-2,530	-2,177	-2,289	-2,332	,415	20,5	45,9
16	2	230878	9,39,00	,181	1,250	-2,050	-2,519	-2,321	-2,602	-2,481	,414	20,6	44,6
17	4	230878	12,04,00	,183	1,250	-1,662	-1,703	-2,165	-1,811	-1,893	,409	20,6	45,9
18	6	230878	14,24,00	,186	1,250	-1,788	-2,416	-2,214	-1,664	-2,098	,397	20,6	43,5
19	2	240878	10,04,00	,189	1,250	-1,556	-1,886	-1,760	-1,152	-1,599	,389	20,7	43,7
AVERAGE				,183	1,250	-1,755	-2,390	-2,475	-2,173	-2,346	,409	20,3	45,5
STANDARD DEVIATION				,003	,000	,220	,399	,376	,451	,364	,011	,2	1,2

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M,10E-2)				VARIANCE (M2,10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	2	150878	2,232	1,787	2,180	2,066	4,982	3,195	4,753	4,310
2	4	150878	1,960	1,862	2,128	1,983	3,841	3,466	4,526	3,944
3	6	150878	2,178	1,965	2,100	2,081	4,745	3,862	4,408	4,338
4	2	160878	2,144	1,822	2,059	2,008	4,597	3,320	4,239	4,052
5	4	160878	2,183	1,944	2,070	2,066	4,766	3,781	4,287	4,278
6	6	160878	2,439	1,855	1,896	2,064	5,950	3,443	3,596	4,330
7	8	160878	2,417	2,122	2,272	2,270	5,840	4,503	5,160	5,168
8	2	210878	2,916	2,117	2,080	2,371	8,505	4,480	4,327	5,771
9	4	210878	2,277	2,201	2,413	2,297	5,184	4,844	5,823	5,284
10	6	210878	2,475	2,099	2,085	2,220	6,126	4,406	4,349	4,960
11	8	210878	2,298	1,810	1,912	2,007	5,281	3,276	3,656	4,071
12	2	220878	2,320	1,919	2,383	2,207	5,383	3,683	5,679	4,915
13	4	220878	2,291	1,875	2,394	2,187	5,247	3,517	5,732	4,832
14	6	220878	2,621	2,186	2,192	2,333	6,869	4,779	4,803	5,483
15	8	220878	2,377	1,903	2,344	2,208	5,648	3,621	5,494	4,921
16	2	230878	2,558	2,208	2,435	2,400	6,542	4,874	5,929	5,782
17	4	230878	2,350	2,142	2,365	2,286	5,523	4,586	5,595	5,235
18	6	230878	2,779	2,151	2,307	2,413	7,724	4,628	5,324	5,892
19	2	240878	2,296	2,108	2,409	2,271	5,272	4,442	5,804	5,173
AVERAGE			2,374	2,004	2,212	2,197	5,685	4,037	4,920	4,881
STANDARD DEVIATION			,226	,149	,172	,139	1,111	,597	,753	,622

DELFT HYDRAULICS LABORATORY

T,O,W, SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	2	150878	,030	,062	,092	,036	,051	,075	,017	,063	,116
2	4	150878	,019	,051	,095	,024	,049	,083	,020	,056	,083
3	6	150878	,032	,062	,109	,022	,052	,092	,027	,057	,101
4	2	160878	,023	,056	,104	,010	,045	,069	,023	,050	,105
5	4	160878	,012	,055	,097	,026	,050	,071	,014	,048	,095
6	6	160878	,033	,060	,104	,018	,047	,080	,024	,048	,078
7	8	160878	,020	,061	,124	,018	,050	,102	,030	,062	,118
8	2	210878	,027	,064	,167	,028	,053	,100	,026	,053	,090
9	4	210878	,015	,059	,104	,020	,050	,128	,014	,054	,115
10	6	210878	,017	,056	,100	,028	,047	,094	,020	,054	,106
11	8	210878	,019	,055	,129	,020	,046	,073	,020	,047	,095
12	2	220878	,020	,055	,097	,028	,050	,088	,026	,055	,098
13	4	220878	,019	,051	,113	,020	,047	,086	,021	,055	,136
14	6	220878	,032	,063	,128	,018	,048	,124	,027	,053	,138
15	8	220878	,022	,060	,110	,023	,046	,083	,037	,058	,127
16	2	230878	,035	,068	,133	,004	,063	,220	,015	,067	,115
17	4	230878	,031	,061	,114	,022	,059	,086	,030	,067	,130
18	6	230878	,017	,053	,130	,026	,056	,090	,018	,062	,102
19	2	240878	,025	,056	,113	,016	,050	,088	,018	,059	,106
AVERAGE			,024	,058	,114	,021	,051	,096	,023	,056	,108
STANDARD DEVIATION			,007	,005	,018	,007	,005	,034	,006	,006	,017

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	2	150878	,656	1,115	1,735	,569	1,105	2,468	,572	1,205	2,320	35	33	31
2	4	150878	,589	1,246	2,208	,398	1,060	2,230	,389	1,039	2,484	31	36	38
3	6	150878	,611	1,136	2,317	,497	1,018	2,632	,485	1,077	1,774	31	37	35
4	2	160878	,687	1,114	1,820	,139	,900	2,007	,434	,949	2,841	30	44	40
5	4	160878	,077	1,018	2,461	,430	,938	1,651	,324	,916	3,184	35	41	41
6	6	160878	,573	1,109	2,602	,381	,976	2,615	,343	1,141	2,716	33	39	31
7	8	160878	,346	,957	2,313	,525	1,032	2,017	,513	1,223	2,019	37	35	33
8	2	210878	,490	1,038	2,387	,285	1,040	2,387	,537	,980	2,343	36	36	37
9	4	210878	,561	1,235	2,276	,294	,980	2,589	,380	1,072	2,288	32	40	37
10	6	210878	,408	,940	2,101	,227	,920	2,256	,614	1,217	1,848	37	39	31
11	8	210878	,450	1,024	3,061	,480	1,061	3,093	,347	,944	2,239	39	36	41
12	2	220878	,361	1,003	2,436	,414	,936	1,620	,453	,908	1,847	38	42	39
13	4	220878	,248	,890	1,592	,435	,851	1,994	,442	1,007	1,885	42	46	38
14	6	220878	,529	,898	2,400	,332	,831	2,581	,398	1,040	3,153	40	43	34
15	8	220878	,487	,976	1,886	,449	,972	2,295	,529	1,097	2,624	40	39	35
16	2	230878	,289	1,140	2,964	,570	1,067	2,343	,605	1,279	2,867	34	36	30
17	4	230878	,605	1,127	2,607	,592	1,310	3,655	,574	1,541	3,342	33	29	26
18	6	230878	,304	,949	2,143	,657	1,420	3,058	,470	1,420	3,067	38	27	27
19	2	240878	,599	1,269	3,397	,290	1,220	3,511	,322	1,208	3,226	30	32	32
AVERAGE			,467	1,062	2,353	,419	1,033	2,474	,459	1,119	2,530	35	37	34
STANDARD DEVIATION			,161	,116	,454	,135	,149	,552	,096	,171	,522	3	4	4

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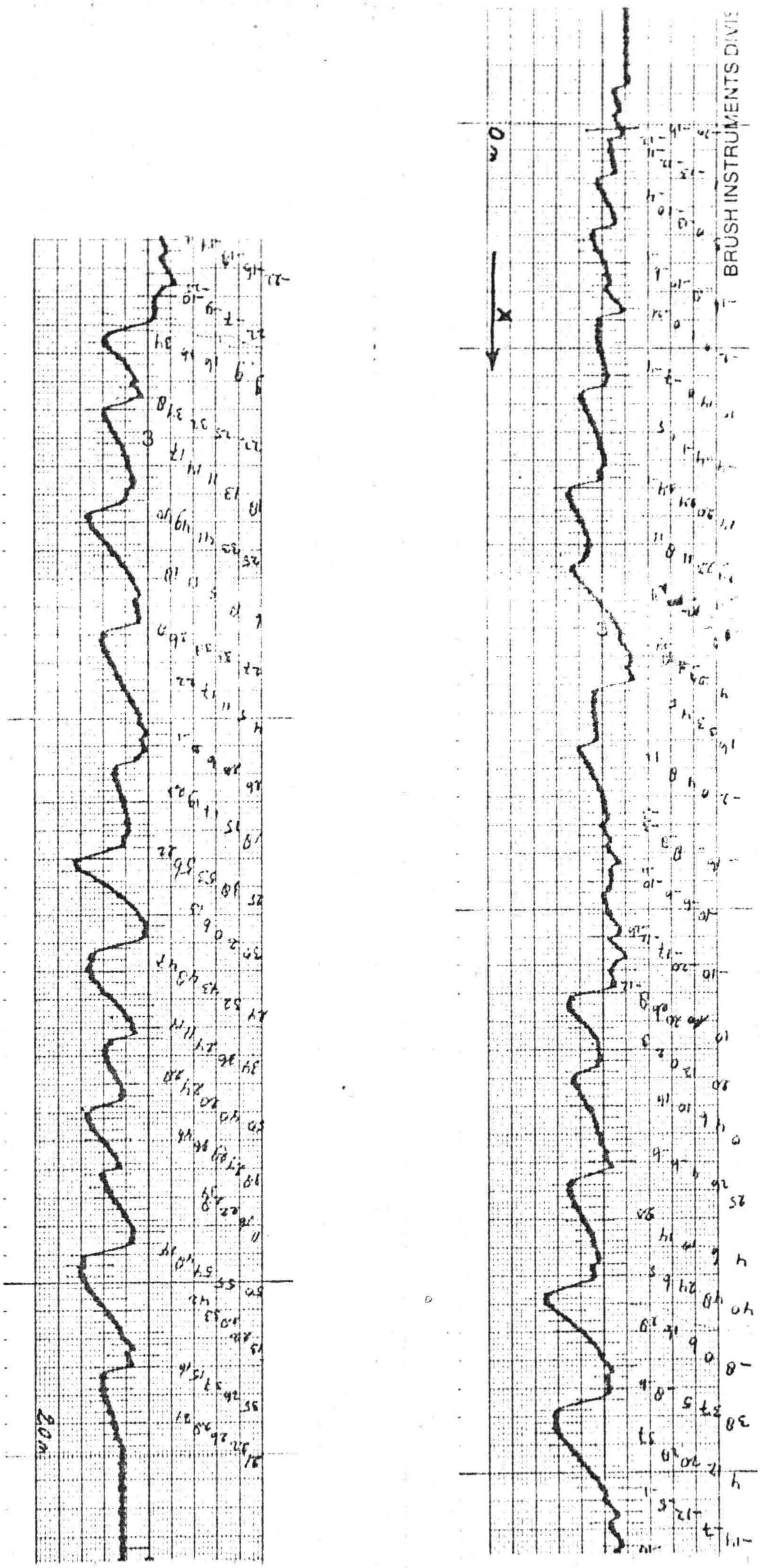

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DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (.10E-3)	WATER SURFACE SLOPE (.10E-3)	BOTTOMSLOPE (.10E-3)				K-VALUE (M)	TEMPERATURE (GR.C)	CHEZY COEFF. (M.5/8)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	6	120678	15.09.00	.183	.002	-1.637	-2.182	-1.705	-1.941	-1.943	.008	21.9	40.2
2	2	130678	9.09.00	.175	.002	-2.288	-2.048	-2.002	-1.738	-1.929	.018	21.9	34.3
3	4	130678	11.29.00	.181	.002	-1.769	-2.009	-2.132	-1.914	-2.018	.010	21.8	38.8
4	2	140678	10.34.00	.177	.002	-2.194	-1.928	-2.163	-1.709	-1.933	.017	21.9	34.6
5	4	140678	13.04.00	.178	.002	-2.156	-2.180	-2.102	-2.078	-2.120	.017	21.9	34.7
6	6	140678	15.34.00	.180	.002	-1.906	-2.490	-2.536	-2.357	-2.461	.012	21.9	37.2
7	2	200678	12.19.00	.182	.002	-1.925	-2.047	-2.155	-2.379	-2.194	.014	22.0	36.2
8	4	200678	14.44.00	.179	.002	-2.156	-1.237	-1.375	-1.370	-1.327	.017	22.0	34.6
9	6	200678	17.04.00	.185	.002	-2.056	-1.450	-1.533	-1.195	-1.393	.021	22.1	33.4
10	2	210678	12.34.00	.183	.002	-2.075	-1.811	-1.939	-1.353	-1.701	.019	22.1	34.0
11	4	210678	14.59.00	.181	.002	-2.056	-2.208	-2.385	-2.204	-2.266	.017	22.1	34.9
12	2	220678	11.34.00	.184	.002	-1.788	-1.955	-2.375	-2.454	-2.261	.012	22.1	37.4
13	4	220678	13.59.00	.182	.002	-2.231	-2.183	-2.350	-2.210	-2.247	.023	22.2	32.7
14	6	220678	16.09.00	.187	.002	-1.850	-1.443	-1.802	-1.224	-1.490	.016	22.3	35.3
15	2	230678	12.49.00	.180	.002	-1.800	-2.288	-2.504	-2.255	-2.349	.010	22.4	38.5
16	2	260678	11.34.00	.184	.002	-1.962	-2.126	-2.402	-1.956	-2.161	.017	22.5	34.8
17	4	260678	13.59.00	.185	.002	-1.812	-1.794	-1.648	-1.640	-1.694	.013	22.6	36.7
18	6	260678	16.19.00	.185	.002	-1.737	-1.582	-1.885	-1.905	-1.790	.012	22.7	37.6
AVERAGE				.182	.002	-1.967	-1.942	-2.055	-1.882	-1.960	.015	22.1	35.9
STANDARD DEVIATION				.003	.000	.192	.333	.344	.403	.335	.004	.3	2.0

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M,10E-2)				VARIANCE (M2,10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	6	120678	1,864	1,951	1,871	1,896	3,476	3,807	3,502	3,595
2	2	130678	2,260	1,957	1,957	2,058	5,109	3,828	3,829	4,256
3	4	130678	2,072	1,856	1,847	1,925	4,294	3,443	3,412	3,716
4	2	140678	2,286	2,245	2,006	2,179	5,224	5,039	4,026	4,763
5	4	140678	2,126	1,948	1,996	2,024	4,521	3,796	3,986	4,101
6	6	140678	1,979	1,833	1,857	1,890	3,915	3,360	3,448	3,574
7	2	200678	1,851	1,698	1,807	1,785	3,426	2,882	3,265	3,191
8	4	200678	2,234	1,889	1,883	2,002	4,989	3,570	3,545	4,035
9	6	200678	2,108	1,844	1,901	1,951	4,445	3,402	3,614	3,820
10	2	210678	2,116	1,766	1,847	1,910	4,478	3,118	3,412	3,669
11	4	210678	1,930	1,562	1,709	1,733	3,723	2,439	2,920	3,027
12	2	220678	1,922	1,723	1,772	1,806	3,692	2,969	3,140	3,267
13	4	220678	2,010	1,797	1,869	1,892	4,040	3,230	3,492	3,587
14	6	220678	2,028	1,655	1,814	1,833	4,114	2,739	3,291	3,382
15	2	230678	1,938	1,734	1,758	1,810	3,757	3,008	3,089	3,285
16	2	260678	2,029	1,810	1,970	1,936	4,117	3,275	3,881	3,758
17	4	260678	1,983	1,748	1,823	1,851	3,930	3,057	3,322	3,436
18	6	260678	1,866	1,756	1,817	1,813	3,480	3,083	3,300	3,288
AVERAGE			2,033	1,821	1,861	1,905	4,152	3,336	3,471	3,653
STANDARD DEVIATION			,134	,149	,082	,110	,554	,567	,306	,430

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	6	120678	.037	.055	.073	.021	.051	.073	.035	.054	.063
2	2	130678	.033	.059	.101	.035	.049	.067	.024	.051	.073
3	4	130678	.030	.056	.076	.031	.048	.067	.031	.051	.070
4	2	140678	.041	.065	.092	.040	.056	.081	.023	.050	.074
5	4	140678	.027	.056	.104	.024	.048	.076	.021	.051	.085
6	6	140678	.028	.054	.082	.034	.049	.067	.025	.051	.077
7	2	200678	.025	.047	.084	.024	.041	.060	.029	.048	.079
8	4	200678	.043	.061	.113	.030	.050	.074	.017	.050	.076
9	6	200678	.023	.057	.104	.026	.046	.070	.026	.053	.091
10	2	210678	.028	.058	.089	.035	.048	.076	.019	.052	.081
11	4	210678	.034	.056	.078	.025	.044	.062	.039	.051	.061
12	2	220678	.038	.054	.073	.029	.046	.060	.026	.051	.074
13	4	220678	.028	.055	.097	.028	.046	.064	.022	.048	.084
14	6	220678	.038	.058	.088	.026	.042	.064	.019	.048	.076
15	2	230678	.025	.048	.073	.021	.040	.060	.019	.051	.074
16	2	260678	.037	.055	.084	.022	.047	.063	.021	.046	.065
17	4	260678	.027	.053	.074	.028	.045	.059	.030	.052	.071
18	6	260678	.024	.044	.070	.022	.040	.066	.018	.043	.070
AVERAGE			.031	.055	.086	.028	.046	.067	.025	.050	.075
STANDARD DEVIATION			.006	.005	.013	.005	.004	.007	.006	.003	.008

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	6	120678	.341	1.353	1.936	.450	1.247	1.887	.683	1.519	1.897	22	24	18
2	2	130678	.598	1.020	1.859	.560	1.029	1.835	.368	1.045	1.848	25	27	25
3	4	130678	.736	1.170	2.343	.445	1.171	2.103	.448	1.169	2.097	24	24	24
4	2	140678	.692	1.192	1.860	.249	1.095	1.833	.460	1.197	1.815	23	25	23
5	4	140678	.595	.974	2.135	.345	.908	2.873	.520	.977	2.886	28	30	27
6	6	140678	.525	1.067	2.684	.535	1.068	1.948	.523	1.064	1.831	26	26	26
7	2	200678	.501	.859	1.646	.488	.825	1.503	.500	.894	1.766	33	36	33
8	4	200678	.653	1.055	1.750	.694	1.053	1.737	.556	1.051	1.633	28	28	28
9	6	200678	.387	.862	1.670	.376	.807	1.578	.559	.861	1.543	31	33	31
10	2	210678	.643	.849	1.339	.635	.850	1.248	.582	.852	1.238	34	34	31
11	4	210678	.513	.842	1.236	.564	.842	1.148	.585	.894	1.402	34	34	32
12	2	220678	.650	1.033	1.914	.600	1.033	1.938	.590	1.034	1.739	28	29	29
13	4	220678	.564	.965	1.542	.584	.942	1.520	.527	.902	1.539	30	31	32
14	6	220678	.614	.935	2.185	.319	.786	1.268	.491	.835	1.291	30	36	34
15	2	230678	.483	.820	1.226	.376	.817	1.216	.586	1.066	1.668	34	32	27
16	2	260678	.750	1.132	1.533	.551	.959	1.406	.469	.968	1.574	26	29	30
17	4	260678	.578	1.029	1.570	.570	.950	1.555	.577	.987	1.591	27	30	29
18	6	260678	.457	.929	2.175	.440	.871	2.186	.055	.926	2.213	31	33	31
AVERAGE			.571	1.005	1.811	.488	.959	1.710	.504	1.013	1.754	28	30	28
STANDARD DEVIATION			.112	.143	.392	.120	.134	.426	.132	.164	.378	3	3	4

CALCULATIONS ARE MADE WITH REGARD TO THE SINGLE PROFILESLOPE.

DELFT HYDRAULICS LABORATORY

T.O.w. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (.10E-3)	WATER SURFACE SLOPE (.10E-3)	BOTTOMSLOPE (.10E-3)				K-VALUE (M)	TEMPERATURE (GR.C)	CHEZY COEFF. (M.5/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	2	150878	12.14.00	.179	.002	-2.106	-1.761	-1.697	-1.100	-1.519	.016	19.9	32.2
2	4	150878	14.04.00	.182	.002	-1.875	-2.395	-2.354	-1.462	-2.070	.012	20.1	33.6
3	6	150878	16.54.00	.191	.001	-1.481	-2.650	-3.126	-2.528	-2.768	.009	20.2	35.4
4	2	160878	8.39.00	.188	.002	-1.519	-2.252	-1.537	-1.102	-1.630	.008	20.2	35.9
5	4	160878	11.29.00	.186	.002	-1.894	-1.544	-1.020	-.704	-1.089	.017	20.2	32.0
6	6	160878	14.04.00	.181	.002	-2.044	-.985	-1.850	-1.322	-1.386	.016	20.2	32.0
7	8	160878	16.39.00	.186	.002	-1.919	-.642	-.689	-.404	-.578	.017	20.2	31.9
8	2	210878	9.09.00	.186	.002	-1.806	-1.669	-1.480	-1.479	-1.543	.014	20.2	32.8
9	4	210878	11.34.00	.178	.002	-2.038	-1.889	-2.480	-2.722	-2.364	.014	20.2	32.9
10	6	210878	14.04.00	.168	.002	-1.656	-1.691	-2.081	-1.571	-1.781	.011	20.3	34.2
11	8	210878	16.29.00	.182	.002	-1.625	-1.825	-2.631	-3.007	-2.487	.007	20.3	36.5
12	2	220878	9.14.00	.190	.002	-1.501	-2.655	-2.280	-1.676	-2.204	.008	20.3	35.6
13	4	220878	11.39.00	.190	.001	-1.375	-1.686	-2.534	-3.136	-2.452	.006	20.4	37.6
14	6	220878	14.04.00	.185	.002	-1.637	-.979	-2.179	-2.076	-1.744	.009	20.5	35.3
15	8	220878	16.44.00	.185	.002	-1.812	-1.402	-.629	-.231	-.754	.013	20.5	33.2
16	2	230878	9.39.00	.183	.002	-2.050	-2.235	-2.594	-1.892	-2.240	.019	20.6	31.4
17	4	230878	12.04.00	.182	.002	-1.662	-2.868	-2.677	-1.969	-2.505	.008	20.6	35.9
18	6	230878	14.24.00	.185	.002	-1.788	-3.133	-2.917	-2.983	-3.011	.013	20.6	33.3
19	2	240878	10.04.00	.188	.002	-1.556	-2.065	-2.276	-1.654	-1.998	.009	20.7	35.4
AVERAGE				.185	.002	-1.755	-1.912	-2.054	-1.738	-1.901	.012	20.3	34.0
STANDARD DEVIATION				.004	.000	.220	.663	.717	.856	.660	.004	.2	2.5

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M.10E-2)				VARIANCE (M2.10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	2	150878	2.257	1.889	2.322	2.156	5.093	3.570	5.391	4.685
2	4	150878	1.957	1.970	2.252	2.060	3.830	3.881	5.073	4.261
3	6	150878	2.274	2.156	2.221	2.217	5.170	4.648	4.934	4.917
4	2	160878	2.294	1.876	2.168	2.113	5.261	3.520	4.702	4.494
5	4	160878	2.231	1.988	2.157	2.125	4.977	3.951	4.653	4.527
6	6	160878	2.529	1.942	1.783	2.085	6.396	3.771	3.179	4.449
7	8	160878	2.452	2.177	2.355	2.328	6.013	4.738	5.545	5.432
8	2	210878	3.025	2.151	1.975	2.384	9.150	4.629	3.902	5.893
9	4	210878	2.436	2.433	2.442	2.437	5.932	5.920	5.966	5.939
10	6	210878	2.708	2.294	2.206	2.403	7.333	5.261	4.866	5.820
11	8	210878	2.435	1.955	1.928	2.106	5.931	3.822	3.716	4.490
12	2	220878	2.548	2.077	2.528	2.384	6.492	4.314	6.389	5.732
13	4	220878	2.473	2.032	2.579	2.362	6.117	4.129	6.653	5.633
14	6	220878	2.830	2.421	2.313	2.521	8.009	5.861	5.351	6.407
15	8	220878	2.432	1.823	2.340	2.198	5.916	3.322	5.476	4.905
16	2	230878	2.630	2.231	2.285	2.382	6.918	4.976	5.219	5.705
17	4	230878	2.271	2.235	2.529	2.345	5.159	4.994	6.397	5.517
18	6	230878	2.901	2.278	2.172	2.450	8.415	5.188	4.717	6.107
19	2	240878	2.437	2.123	2.433	2.331	5.939	4.506	5.920	5.455
AVERAGE			2.480	2.108	2.263	2.283	6.213	4.474	5.160	5.283
STANDARD DEVIATION			.257	.180	.208	.143	1.302	.765	.920	.660

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	2	150878	.030	.062	.088	.037	.051	.075	.017	.067	.115
2	4	150878	.025	.049	.095	.035	.054	.084	.030	.062	.083
3	6	150878	.032	.065	.109	.029	.056	.092	.034	.061	.101
4	2	160878	.022	.057	.103	.023	.050	.069	.023	.054	.104
5	4	160878	.031	.068	.097	.026	.049	.070	.013	.047	.094
6	6	160878	.033	.066	.104	.039	.053	.076	.023	.049	.078
7	8	160878	.027	.067	.123	.022	.054	.101	.021	.061	.116
8	2	210878	.028	.061	.165	.035	.057	.097	.034	.050	.073
9	4	210878	.030	.065	.104	.020	.053	.128	.012	.057	.102
10	6	210878	.034	.066	.099	.027	.051	.093	.031	.054	.105
11	8	210878	.033	.061	.127	.019	.050	.072	.025	.048	.095
12	2	220878	.022	.066	.096	.037	.057	.088	.029	.062	.112
13	4	220878	.021	.058	.112	.031	.054	.086	.029	.065	.136
14	6	220878	.057	.069	.128	.031	.057	.123	.034	.058	.137
15	8	220878	.022	.060	.110	.030	.048	.082	.037	.059	.125
16	2	230878	.035	.066	.132	.034	.061	.093	.015	.068	.104
17	4	230878	.032	.062	.115	.022	.058	.087	.034	.073	.130
18	6	230878	.017	.053	.131	.026	.059	.092	.048	.062	.089
19	2	240878	.025	.059	.113	.030	.055	.089	.009	.056	.107
AVERAGE			.028	.062	.113	.029	.054	.089	.026	.059	.106
STANDARD DEVIATION			.006	.005	.018	.006	.004	.016	.010	.007	.018

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 101
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	2	150878	.657	1.079	1.734	.568	1.080	2.448	.573	1.243	2.314	26	26	22
2	4	150878	.184	1.122	2.032	.669	1.138	2.232	.623	1.074	2.478	26	24	26
3	6	150878	.612	1.076	2.090	.529	.952	1.589	.739	1.112	1.721	26	30	26
4	2	160878	.673	1.157	1.816	.278	1.026	2.000	.593	.997	2.187	23	28	29
5	4	160878	.665	1.401	2.464	.536	1.000	1.649	.325	.826	1.578	19	29	35
6	6	160878	.703	1.211	2.590	.553	1.112	2.601	.337	1.155	2.714	23	26	25
7	8	160878	.352	1.037	2.304	.593	1.184	2.494	.689	1.105	1.845	28	25	26
8	2	210878	.406	.961	2.377	.591	1.143	2.379	.545	1.047	2.331	28	23	26
9	4	210878	.630	1.149	2.195	.294	.930	2.590	.376	1.185	2.864	22	29	23
10	6	210878	.644	1.140	2.783	.207	.939	2.235	.477	1.160	1.846	20	24	26
11	8	210878	.614	1.114	3.052	.468	1.192	3.102	.451	1.000	2.239	27	25	27
12	2	220878	.593	1.248	3.629	.607	.999	1.617	.648	1.008	1.842	23	29	29
13	4	220878	.311	.939	1.585	.579	.985	1.991	.561	1.184	1.885	30	30	24
14	6	220878	.487	.959	2.395	.402	.980	2.575	.400	1.160	3.146	28	26	23
15	8	220878	.476	.926	1.675	.556	.938	2.283	.515	.954	2.076	31	30	31
16	2	230878	.281	.993	1.939	.593	1.003	1.796	.649	1.218	1.822	29	27	20
17	4	230878	.609	1.178	2.587	.593	1.069	1.858	.574	1.459	2.646	25	21	18
18	6	230878	.293	.997	2.148	.416	1.452	3.067	1.135	1.638	3.225	26	20	18
19	2	240878	.600	1.213	3.398	.302	1.405	3.515	.227	1.173	3.230	24	21	25
AVERAGE			.515	1.100	2.357	.491	1.080	2.317	.549	1.142	2.315	25	25	25
STANDARD DEVIATION			.162	.123	.560	.134	.148	.530	.196	.179	.528	3	3	4

CALCULATIONS ARE MADE WITH REGARD TO THE SINGLE PROFILESLOPE.

DELFT HYDRAULICS LABORATORY

T,O,W, SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 1

NUMBER	FILE NUMBER		MEAN TIME	WATER DEPTH (M)	MEASURED ENERGY SLOPE (,10E-3)	WATER SURFACE SLOPE (,10E-3)	BOTTOMSLOPE (,10E-3)				K-VALUE (M)	TEMPERATURE (GR,C)	CHEZY COEFF, (M,S/S)
	NUMBER	DATE					PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE			
1	2	120678	9,54,00	,181	,002	-1,625	-1,185	-2,651	-3,855	-2,564	,007	21,8	41,2
2	4	120678	12,39,00	,180	,002	-2,137	-3,171	-3,343	-3,102	-3,205	,019	21,9	34,1
3	6	120678	15,09,00	,183	,002	-1,637	-2,182	-1,705	-1,941	-1,943	,008	21,9	40,2
4	2	130678	9,09,00	,175	,002	-2,288	-2,048	-2,002	-1,738	-1,929	,018	21,9	34,3
5	4	130678	11,29,00	,181	,002	-1,769	-2,009	-2,132	-1,914	-2,018	,010	21,8	38,8
6	2	140678	10,34,00	,177	,002	-2,194	-1,928	-2,163	-1,709	-1,933	,017	21,9	34,6
7	4	140678	13,04,00	,178	,002	-2,156	-2,180	-2,102	-2,078	-2,120	,017	21,9	34,7
8	6	140678	15,34,00	,180	,002	-1,906	-2,490	-2,536	-2,357	-2,461	,012	21,9	37,2
9	2	200678	12,19,00	,182	,002	-1,925	-2,047	-2,155	-2,379	-2,194	,014	22,0	36,2
10	4	200678	14,44,00	,179	,002	-2,156	-1,237	-1,375	-1,370	-1,327	,017	22,0	34,6
11	6	200678	17,04,00	,185	,002	-2,056	-1,450	-1,533	-1,195	-1,393	,021	22,1	33,4
12	2	210678	12,34,00	,183	,002	-2,075	-1,811	-1,939	-1,353	-1,701	,019	22,1	34,0
13	4	210678	14,59,00	,181	,002	-2,056	-2,208	-2,385	-2,204	-2,266	,017	22,1	34,9
14	2	220678	11,34,00	,184	,002	-1,788	-1,955	-2,375	-2,454	-2,261	,012	22,1	37,4
15	4	220678	13,59,00	,182	,002	-2,231	-2,183	-2,350	-2,210	-2,247	,023	22,2	32,7
16	6	220678	16,09,00	,187	,002	-1,850	-1,443	-1,802	-1,224	-1,490	,016	22,3	35,3
17	2	230678	12,49,00	,180	,002	-1,800	-2,288	-2,504	-2,255	-2,349	,010	22,4	38,5
18	2	260678	11,34,00	,184	,002	-1,962	-2,126	-2,402	-1,956	-2,161	,017	22,5	34,8
19	4	260678	13,59,00	,185	,002	-1,812	-1,794	-1,648	-1,640	-1,694	,013	22,6	36,7
20	6	260678	16,19,00	,185	,002	-1,737	-1,582	-1,885	-1,905	-1,790	,012	22,7	37,6
AVERAGE				,182	,002	-1,958	-1,968	-2,149	-2,042	-2,052	,015	22,1	36,1
STANDARD DEVIATION				,003	,000	,201	,456	,450	,633	,438	,004	,3	2,3

DELFT HYDRAULICS LABORATORY

T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 2

NUMBER	FILE NUMBER		STANDARD DEVIATION (M,10E-2)				VARIANCE (M2,10E-4)			
	NUMBER	DATE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE	PROFILE 1	PROFILE 2	PROFILE 3	AVERAGE
1	2	120678	2,156	1,906	2,387	2,149	4,649	3,631	5,697	4,659
2	4	120678	1,803	1,636	1,923	1,787	3,250	2,677	3,699	3,209
3	6	120678	1,864	1,951	1,871	1,896	3,476	3,807	3,502	3,595
4	2	130678	2,260	1,957	1,957	2,058	5,109	3,828	3,829	4,256
5	4	130678	2,072	1,856	1,847	1,925	4,294	3,443	3,412	3,716
6	2	140678	2,286	2,245	2,006	2,179	5,224	5,039	4,026	4,763
7	4	140678	2,126	1,948	1,991	2,022	4,521	3,796	3,964	4,093
8	6	140678	1,979	1,833	1,857	1,890	3,915	3,360	3,448	3,574
9	2	200678	1,851	1,698	1,807	1,785	3,426	2,882	3,265	3,191
10	4	200678	2,234	1,889	1,883	2,002	4,989	3,570	3,545	4,035
11	6	200678	2,108	1,844	1,901	1,951	4,445	3,402	3,614	3,820
12	2	210678	2,116	1,766	1,847	1,910	4,478	3,118	3,412	3,669
13	4	210678	1,930	1,562	1,709	1,733	3,723	2,439	2,920	3,027
14	2	220678	1,922	1,723	1,772	1,806	3,692	2,969	3,140	3,267
15	4	220678	2,010	1,797	1,869	1,892	4,040	3,230	3,492	3,587
16	6	220678	2,028	1,655	1,814	1,833	4,114	2,739	3,291	3,382
17	2	230678	1,938	1,729	1,758	1,808	3,757	2,990	3,089	3,279
18	2	260678	2,029	1,810	1,970	1,936	4,117	3,275	3,881	3,758
19	4	260678	1,983	1,748	1,823	1,851	3,930	3,057	3,322	3,436
20	6	260678	1,866	1,756	1,817	1,813	3,480	3,083	3,300	3,288
AVERAGE			2,028	1,815	1,890	1,911	4,132	3,317	3,592	3,680
STANDARD DEVIATION			,140	,149	,141	,121	,575	,561	,575	,478

DELFT HYDRAULICS LABORATORY

T.O.N. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 3

NUMBER	FILE NUMBER		DUNEHEIGHT (M) PROFILE 1			DUNEHEIGHT (M) PROFILE 2			DUNEHEIGHT (M) PROFILE 3		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM
1	2	120678	.021	.053	.097	.026	.047	.075	.017	.044	.074
2	4	120678	.027	.048	.071	.020	.043	.065	.031	.050	.086
3	6	120678	.037	.055	.073	.021	.051	.073	.035	.054	.063
4	2	130678	.033	.059	.101	.035	.049	.087	.024	.051	.073
5	4	130678	.030	.056	.076	.031	.048	.067	.031	.051	.070
6	2	140678	.041	.065	.092	.040	.056	.081	.023	.050	.074
7	4	140678	.027	.056	.104	.024	.048	.076	.021	.051	.085
8	6	140678	.028	.054	.082	.034	.049	.067	.025	.051	.077
9	2	200678	.025	.047	.084	.024	.041	.060	.029	.048	.079
10	4	200678	.043	.061	.113	.030	.050	.074	.017	.050	.076
11	6	200678	.023	.057	.104	.026	.046	.070	.026	.053	.091
12	2	210678	.028	.058	.089	.035	.048	.076	.019	.052	.081
13	4	210678	.034	.056	.078	.025	.044	.062	.039	.051	.061
14	2	220678	.038	.054	.073	.029	.046	.060	.026	.051	.074
15	4	220678	.028	.055	.097	.028	.046	.064	.022	.048	.084
16	6	220678	.038	.058	.088	.026	.042	.064	.019	.048	.076
17	2	230678	.025	.048	.073	.021	.040	.060	.019	.051	.074
18	2	260678	.037	.055	.084	.022	.047	.063	.021	.046	.065
19	4	260678	.027	.053	.074	.028	.045	.059	.030	.052	.071
20	6	260678	.024	.044	.070	.022	.040	.066	.018	.043	.070
AVERAGE			.031	.055	.086	.027	.046	.067	.025	.050	.075
STANDARD DEVIATION			.006	.005	.013	.005	.004	.006	.006	.003	.008

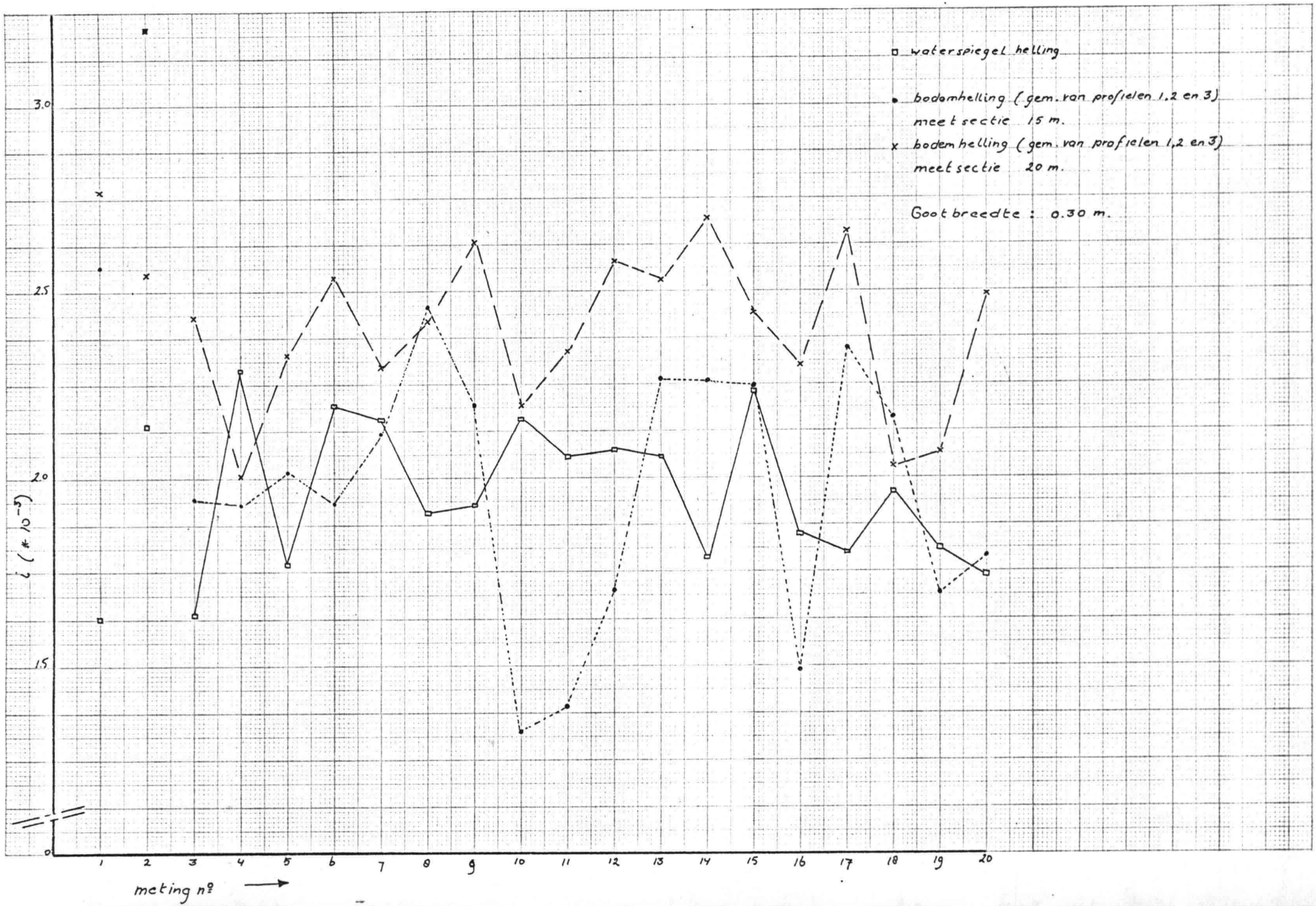
DELFT HYDRAULICS LABORATORY

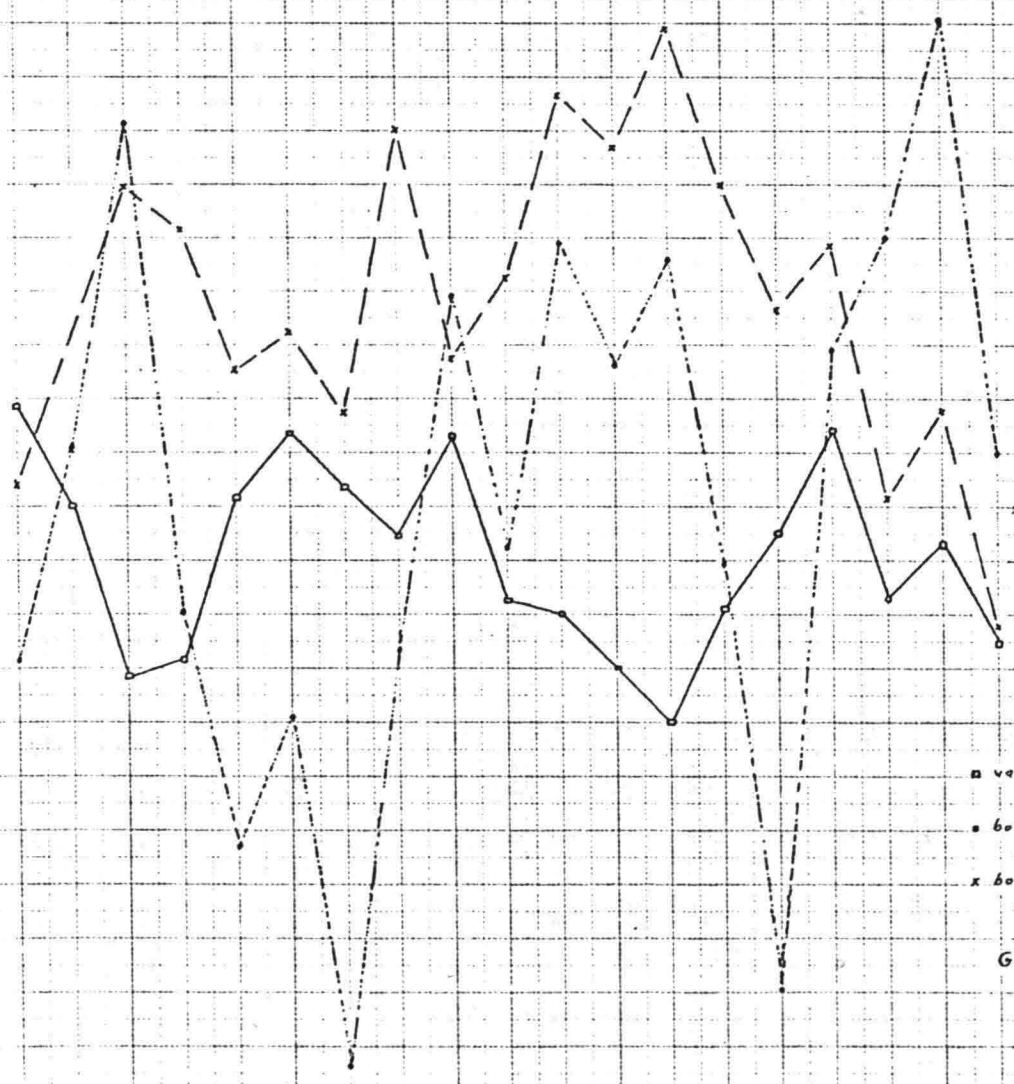
T.O.W. SEDIMENT TRANSPORT IN RIVERS

TEST : 100
TABLE: 4

NUMBER	FILE NUMBER		DUNELENGTH (M) PROFILE 1			DUNELENGTH (M) PROFILE 2			DUNELENGTH (M) PROFILE 3			NUMB. OF ZERO-CROSSINGS		
	NUMBER	DATE	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	MINIMUM	AVERAGE	MAXIMUM	PROFILE 1	PROFILE 2	PROFILE 3
1	2	120678	.372	.933	1.870	.451	.870	1.643	.344	.843	1.527	32	33	33
2	4	120678	.323	.817	1.458	.426	.819	1.843	.466	.799	1.847	34	35	34
3	6	120678	.341	1.353	1.936	.450	1.247	1.887	.683	1.519	1.897	22	24	18
4	2	130678	.598	1.020	1.859	.560	1.029	1.835	.368	1.045	1.848	25	27	25
5	4	130678	.736	1.170	2.343	.445	1.171	2.103	.448	1.169	2.097	24	24	24
6	2	140678	.692	1.192	1.860	.249	1.095	1.833	.460	1.197	1.815	23	25	23
7	4	140678	.595	.974	2.135	.345	.908	2.873	.520	.977	2.886	28	30	27
8	6	140678	.525	1.067	2.684	.535	1.068	1.948	.523	1.064	1.831	26	26	26
9	2	200678	.501	.859	1.646	.488	.825	1.503	.500	.894	1.766	33	36	33
10	4	200678	.653	1.055	1.750	.694	1.053	1.737	.556	1.051	1.633	28	28	28
11	6	200678	.387	.862	1.670	.376	.807	1.578	.559	.861	1.543	31	33	31
12	2	210678	.643	.849	1.339	.635	.850	1.248	.582	.852	1.238	34	34	31
13	4	210678	.513	.842	1.236	.564	.842	1.148	.585	.894	1.402	34	34	32
14	2	220678	.650	1.033	1.914	.600	1.033	1.938	.590	1.034	1.739	28	29	29
15	4	220678	.564	.965	1.542	.584	.942	1.520	.527	.902	1.539	30	31	32
16	6	220678	.614	.935	2.185	.319	.786	1.268	.491	.835	1.291	30	36	34
17	2	230678	.483	.820	1.226	.376	.817	1.216	.586	1.066	1.668	34	32	27
18	2	260678	.750	1.132	1.533	.551	.959	1.406	.469	.968	1.574	26	29	30
19	4	260678	.578	1.029	1.570	.570	.950	1.555	.577	.987	1.591	27	30	29
20	6	260678	.457	.929	2.175	.440	.871	2.186	.055	.926	2.213	31	33	31
AVERAGE			.549	.992	1.796	.483	.947	1.713	.494	.994	1.747	29	30	28
STANDARD DEVIATION			.127	.142	.379	.115	.132	.404	.130	.166	.362	3	3	4

CALCULATIONS ARE MADE WITH REGARD TO THE SINGLE PROFILESLOPE.


waterspiegel helling
bodemhelling (gem. van profielen 1,2 en 3) meetsectie 15 m.
bodemhelling (gem. van profielen 1,2 en 3) meetsectie 20 m.
Goot breedte : 0.30 m.
i (* 10⁻⁵)
3.0
2.5
2.0
1.5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
meting nº

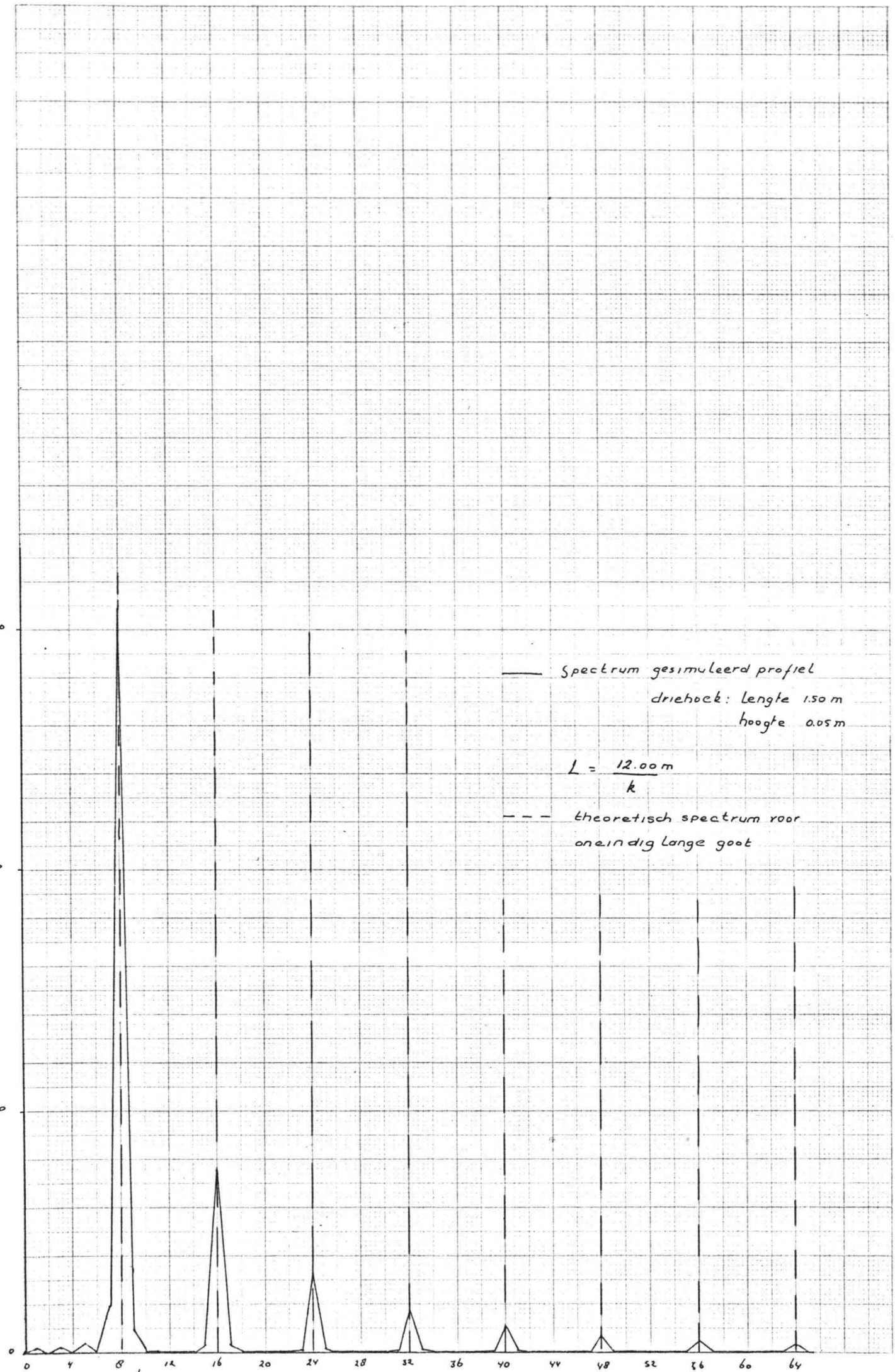


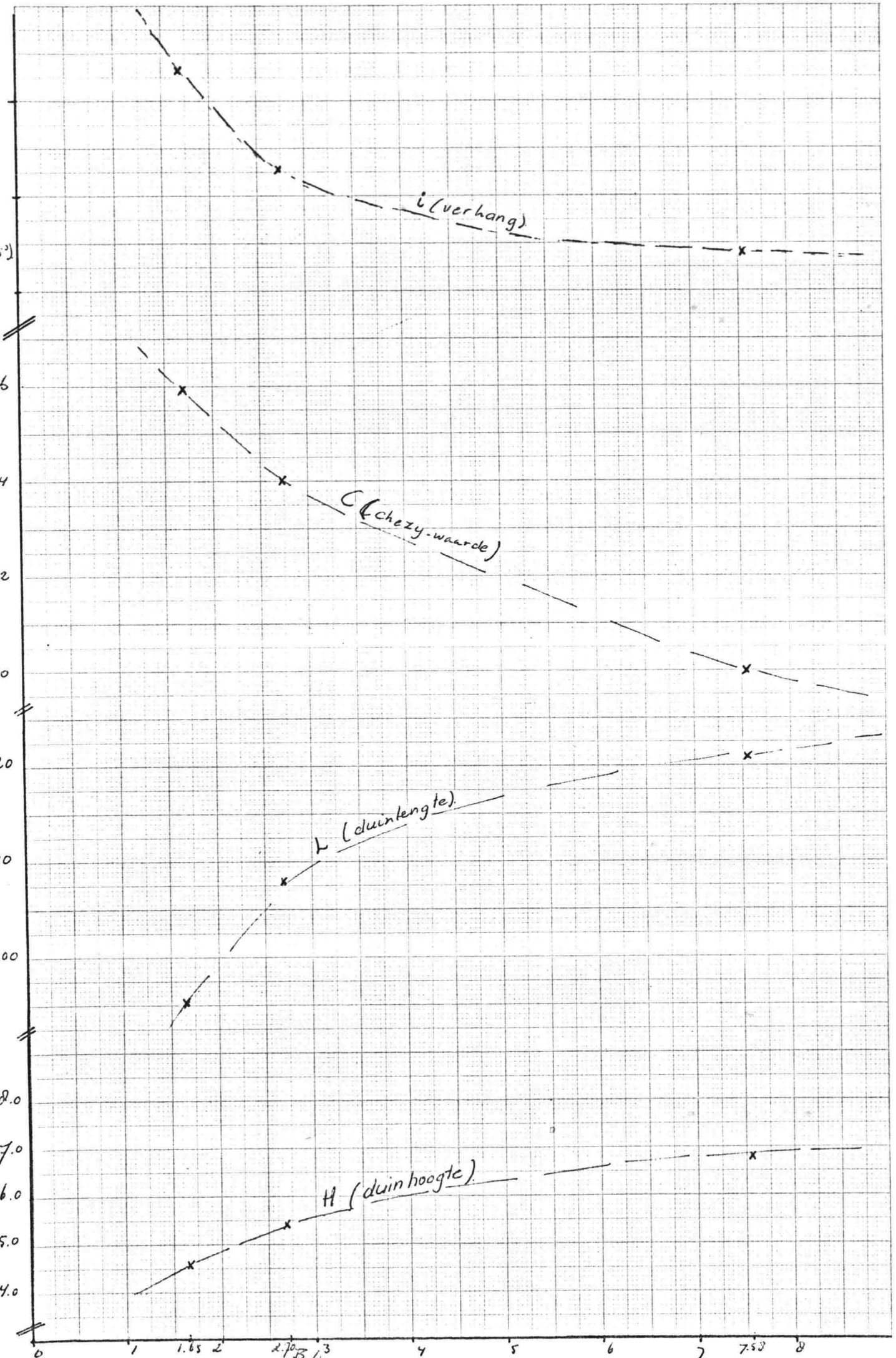
□ waterspiegel helling

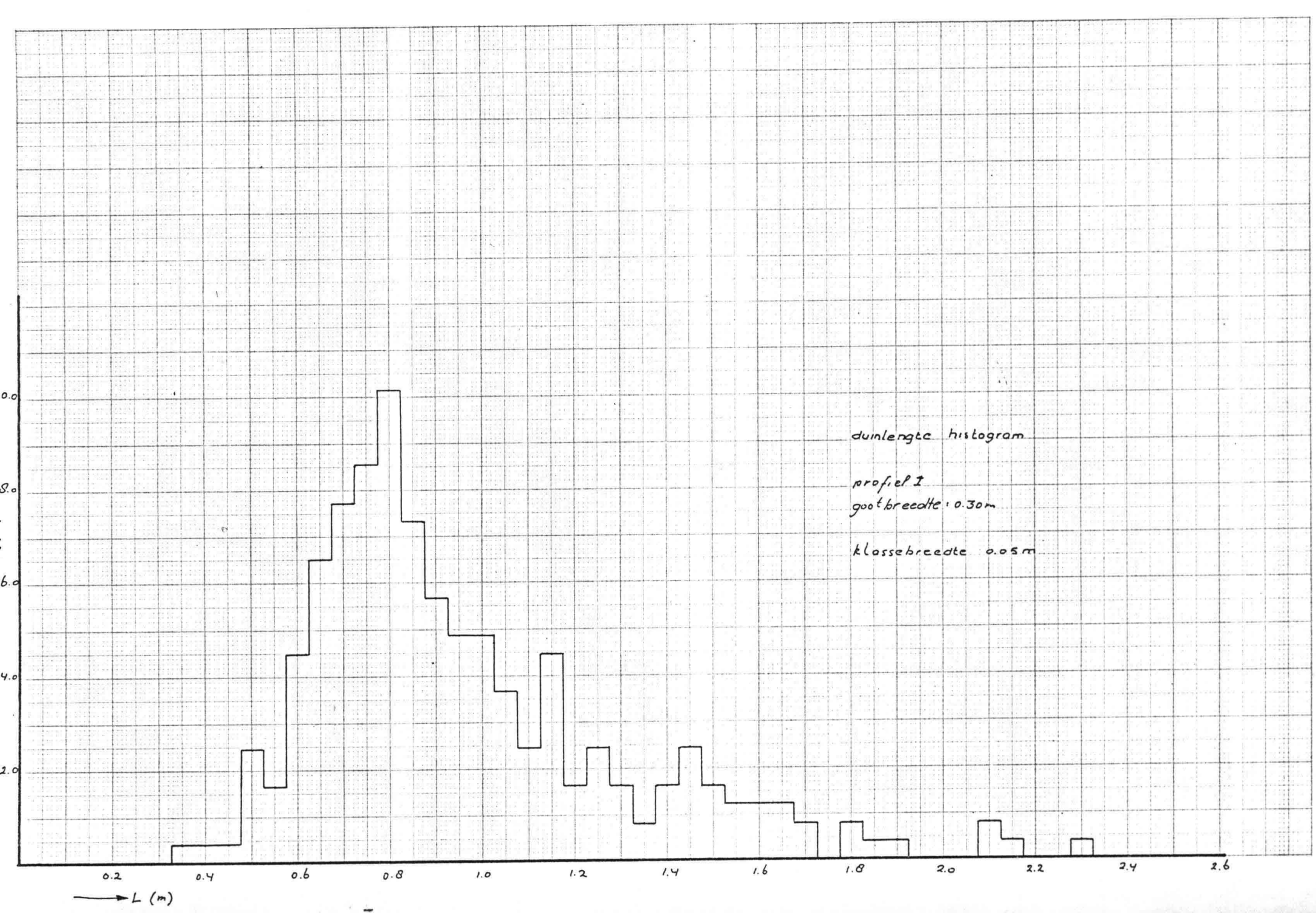
• bodem helling (gem. van profielen 1,2 en 3) meetsectie 15 m.

x bodem helling (gem. van profielen 1,2 en 3) meetsectie 10 m

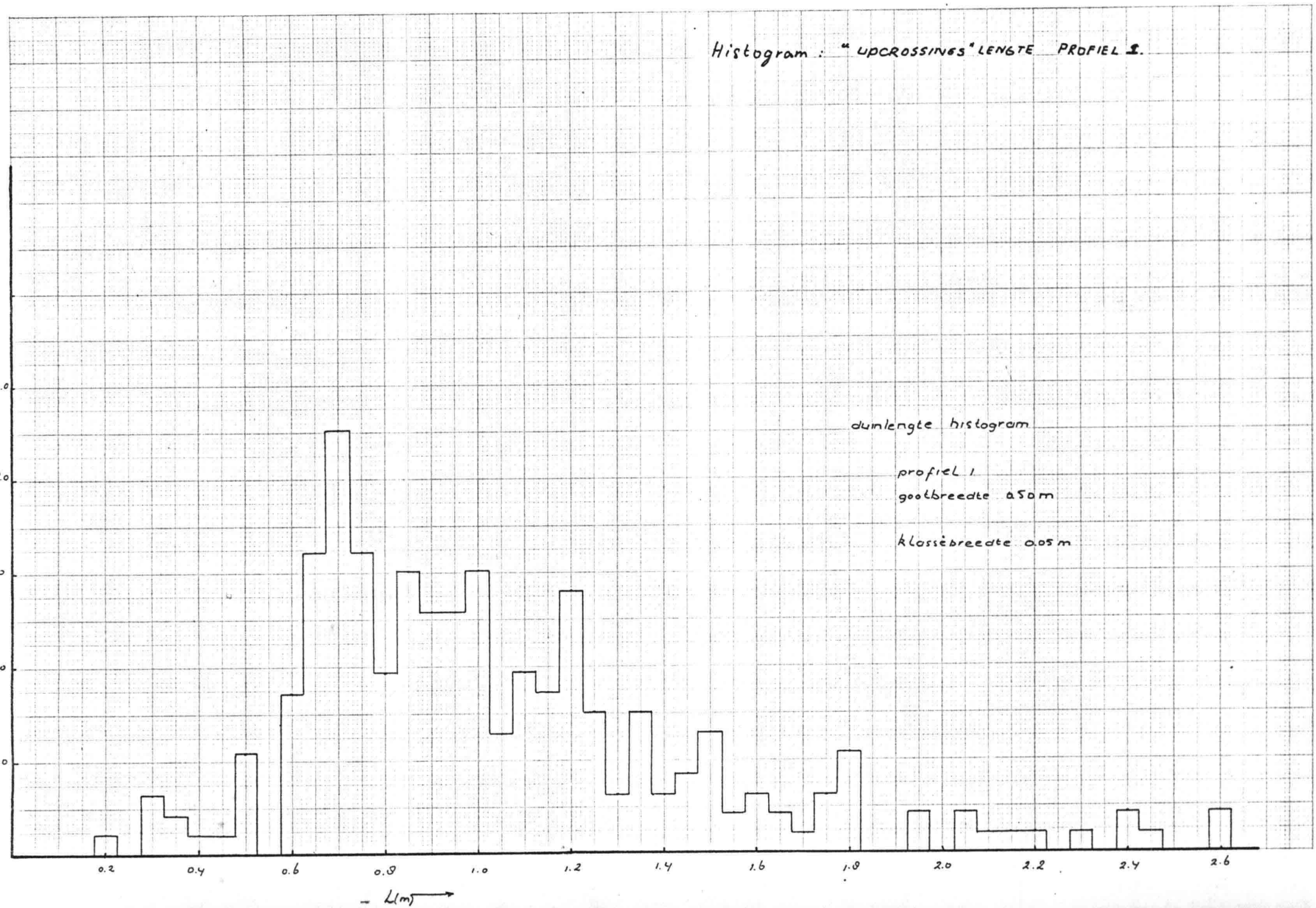
Gootbreedte: 0.50 m

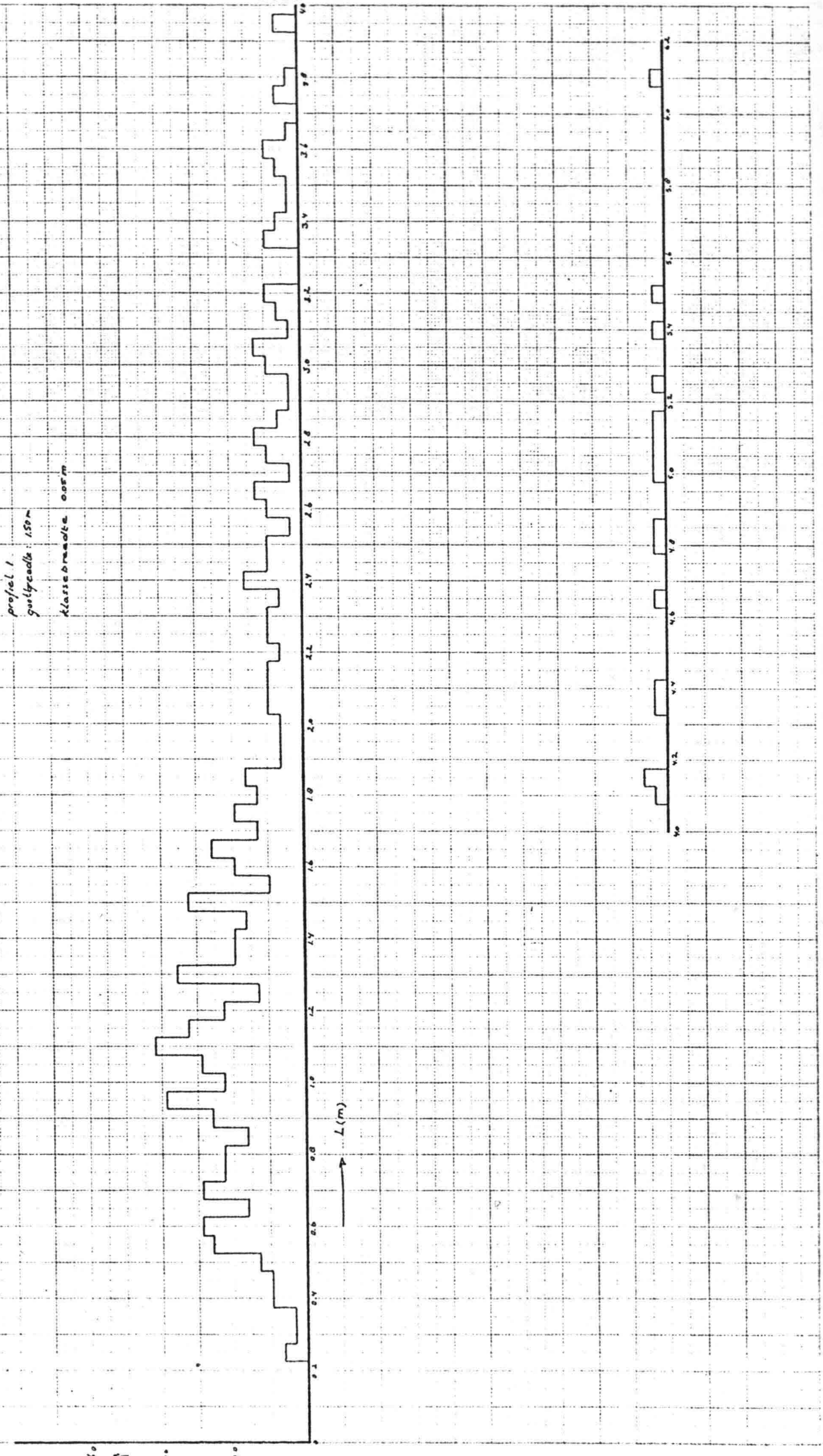

Spectrum gesimuleerd profiel
driehoek: lengte 1.50 m
hoogte 0.05 m
L = 12.00 m / k
theoretisch spectrum voor oneindig lange goot
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64

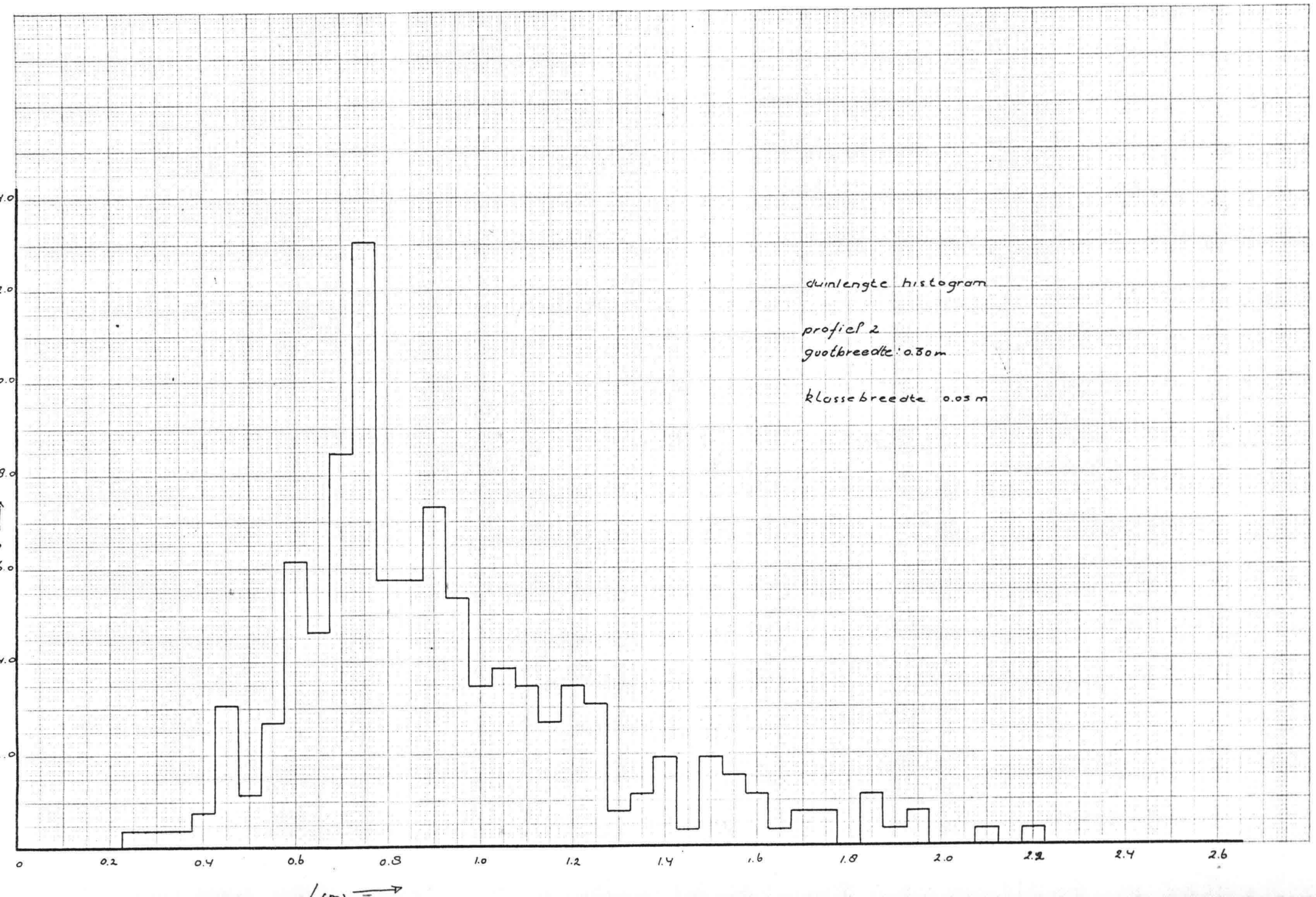

i (verhang)
C (chezy-waarde)
L (duinlengte)
H (duinhoogte)
0
1
1.65
2
2.70
3
4
5
6
7
7.53
8
8.0
7.0
6.0
5.0
4.0


duinlengte histogram
profiel I
goot breedte : 0.30m
klassebreedte 0.05m
0.0
8.0
6.0
4.0
2.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
L (m)

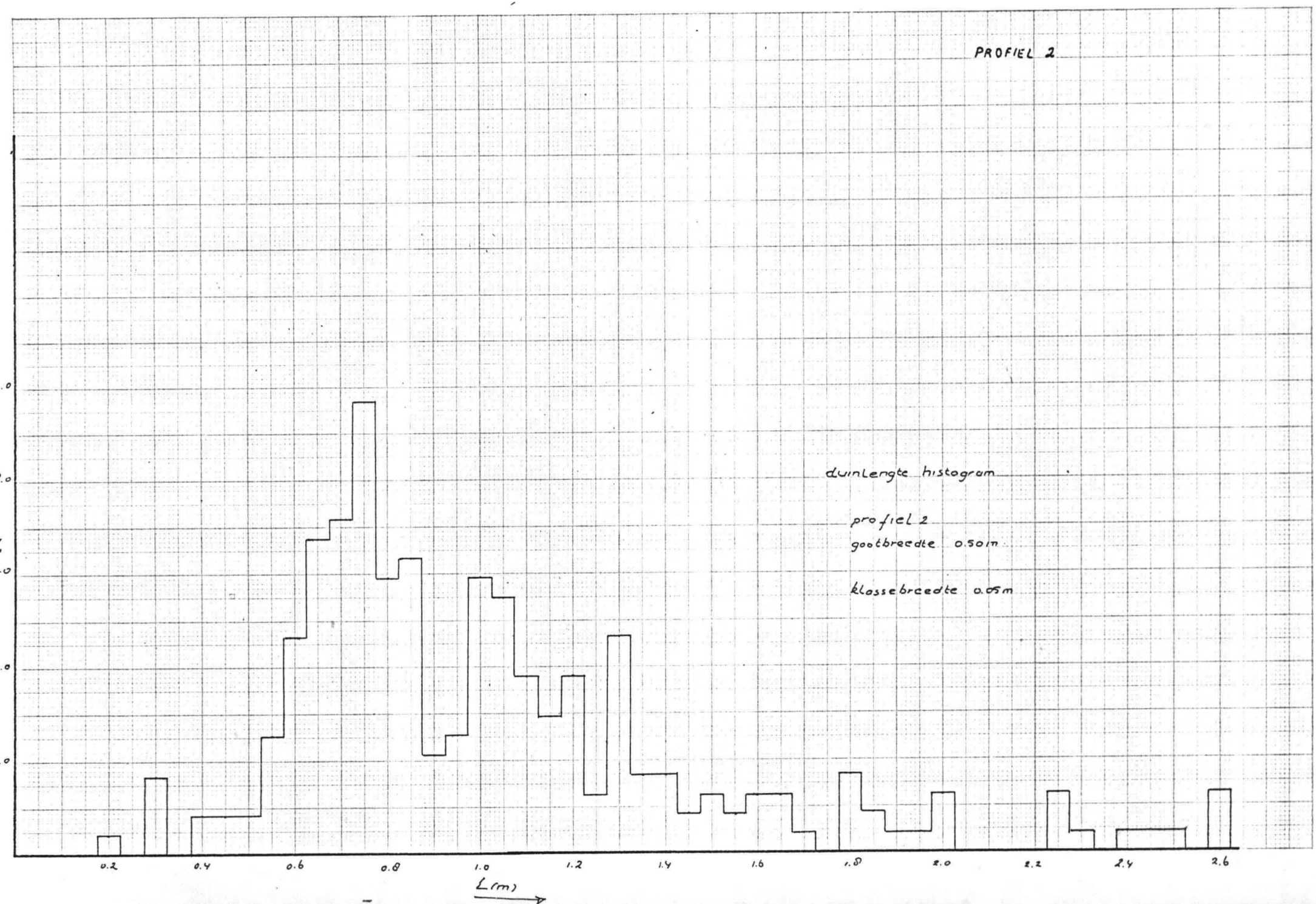
Histogram : "UPCROSSINGS" LENGTE PROFIEL 1.

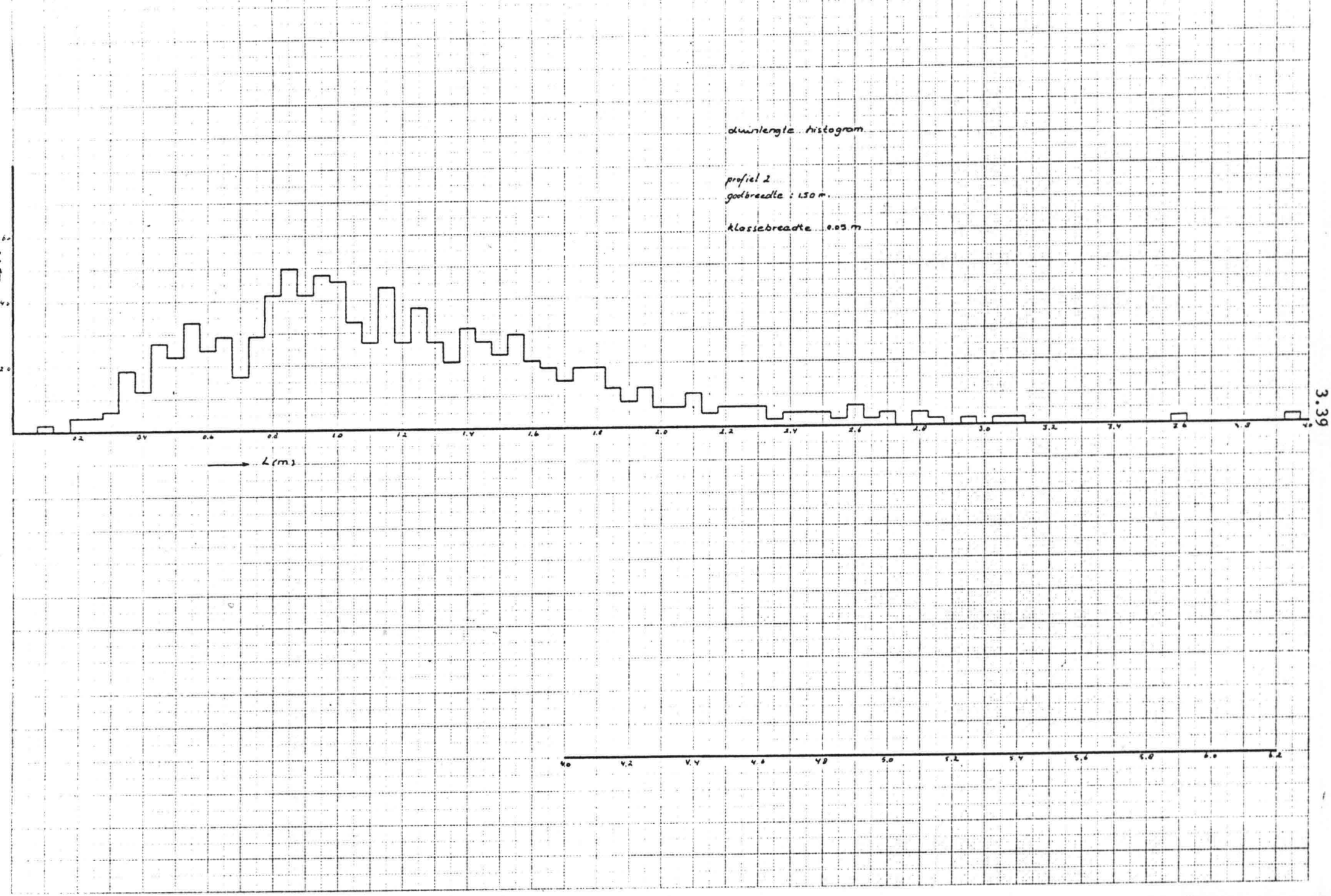


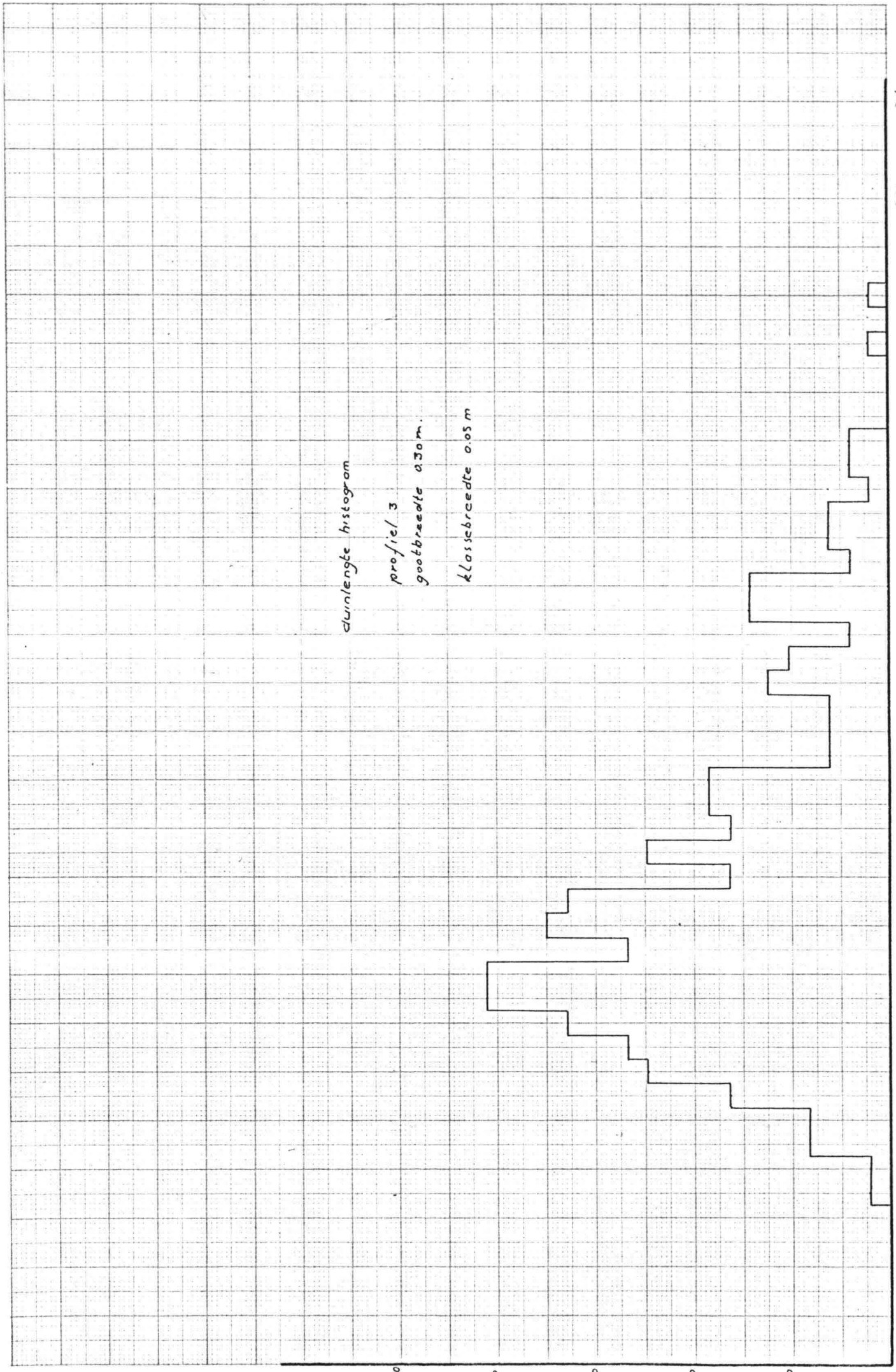

duinlengte histogram
profiel 1
gootbreedte: 1.50m
klassebreedte 0.05m
L(m)

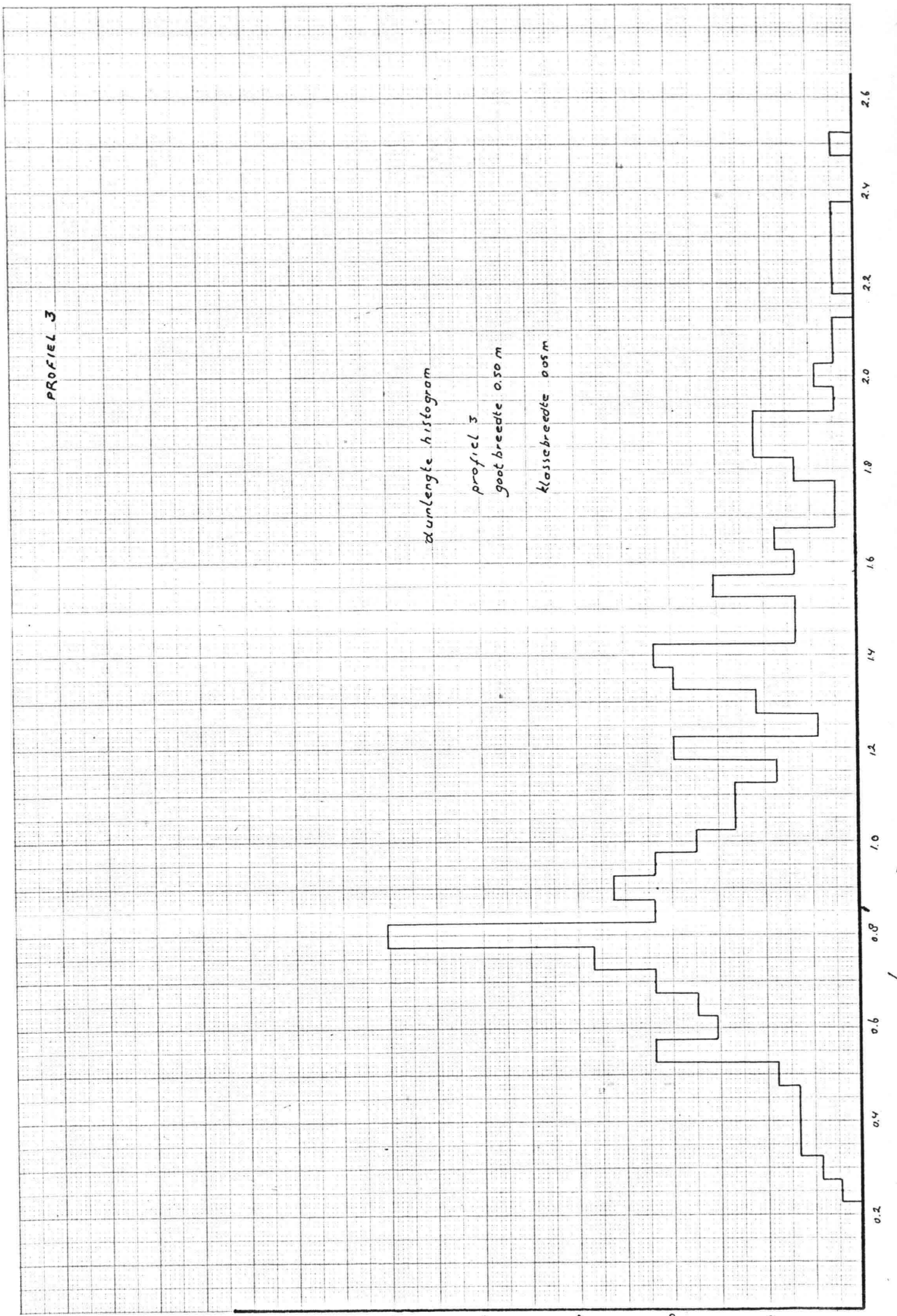

duinlengte histogram
profiel 2
gootbreedte: 0.30 m
klassebreedte 0.05 m
0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6

PROFIEL 2


duinlengte histogram
profiel 2
grootbreedte 0.50m
klassebreedte 0.05m
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
L (m)


doorlengte histogram
profiel 2
goolbreedte : 1.50 m.
klassebreedte 0.05 m
L (m)

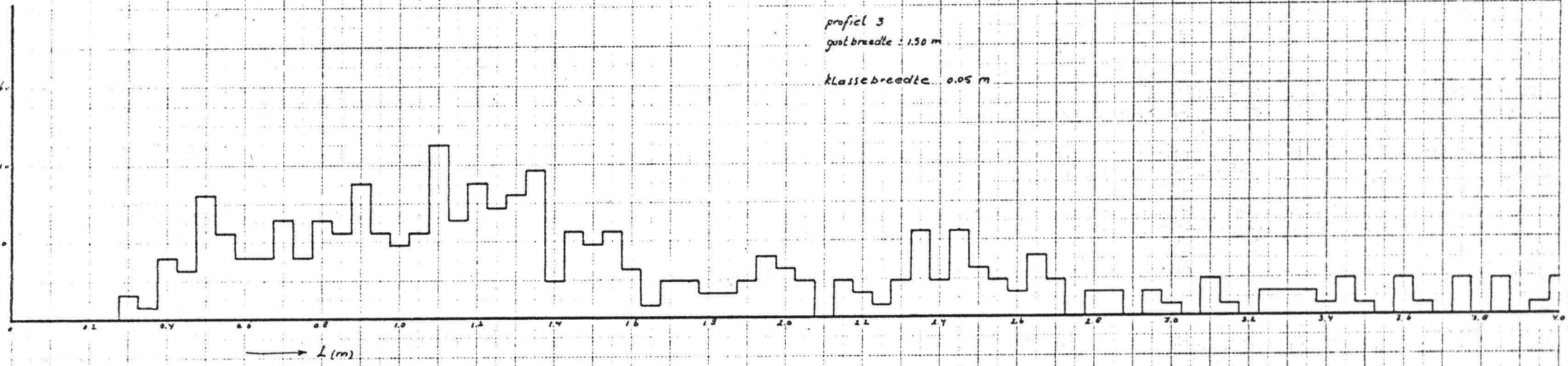

duinlengte histogram
profiel 3
grootbreedte 0.30m.
klassebreedte 0.05 m
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
L (m)

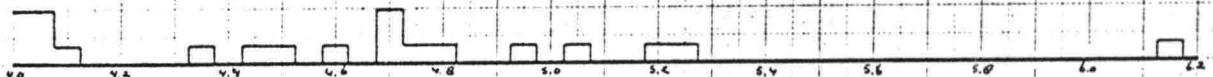

PROFIEL 3
dwarslengte histogram
profiel 3
goot breedte 0.50 m
klassebreedte 0.05 m
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2.2
2.4
2.6
(m)

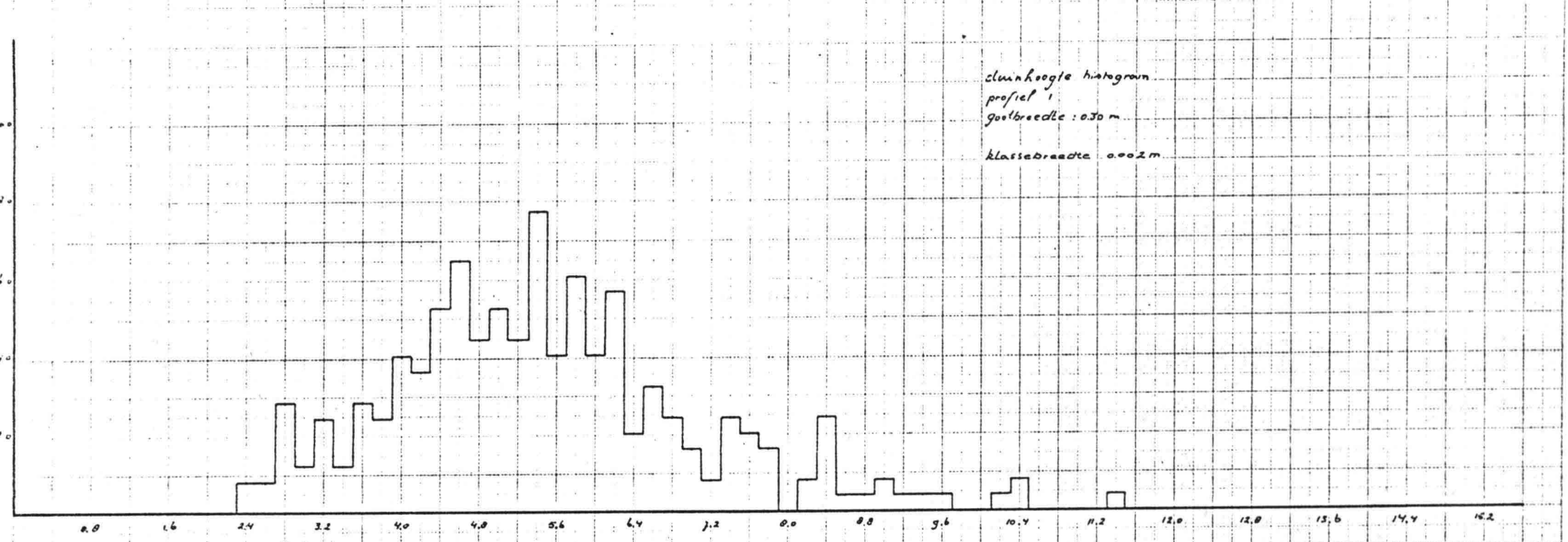
dumlengte histogram

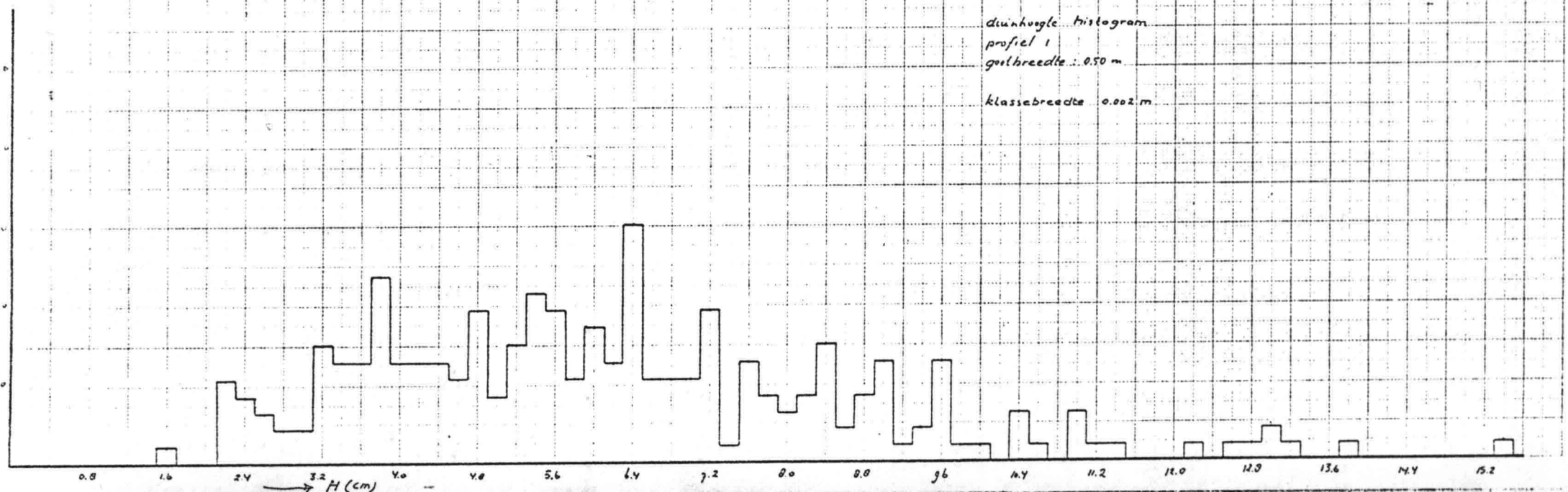
profiel 3
goot breedte : 1.50 m

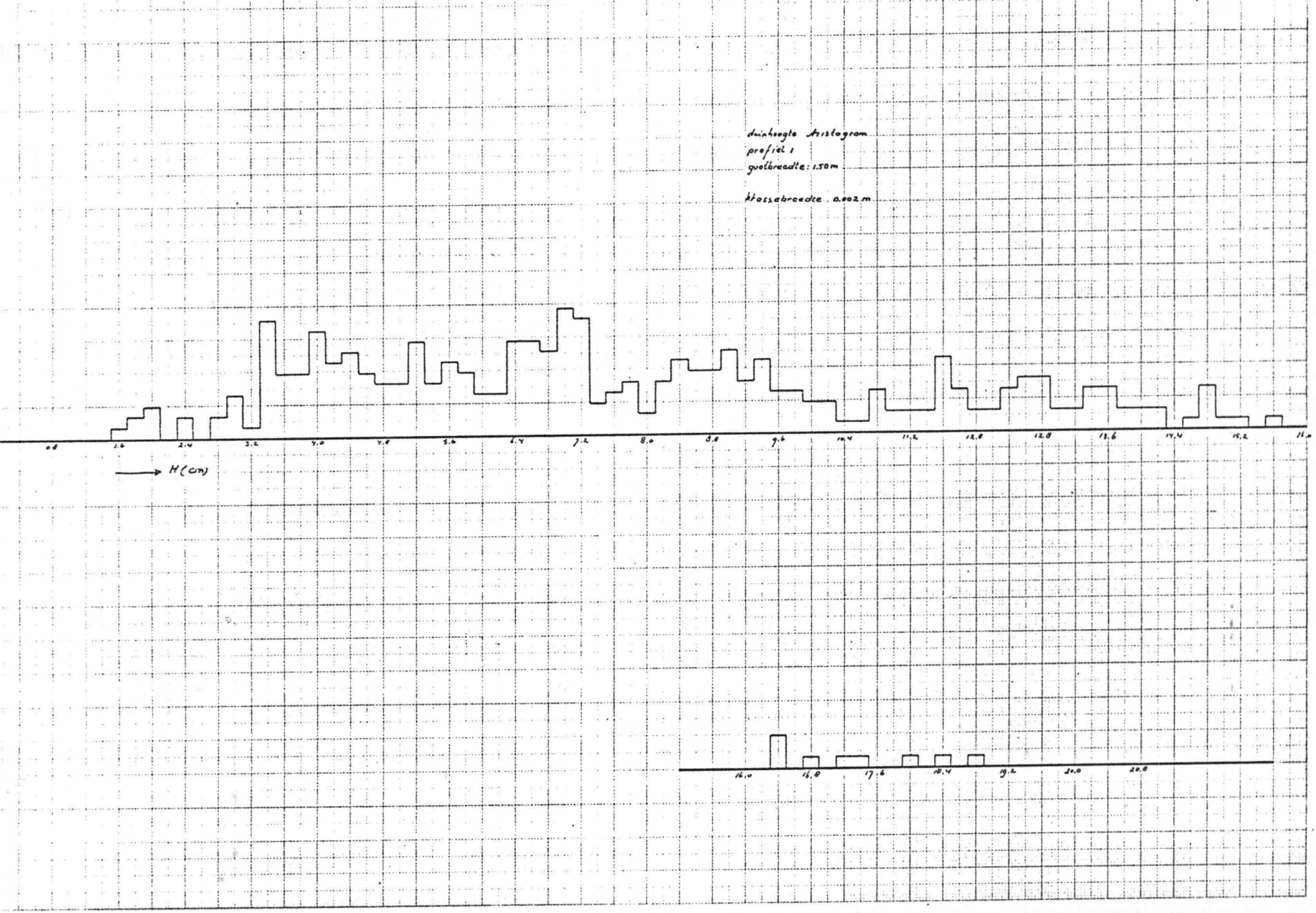
klassebreedte 0.05 m

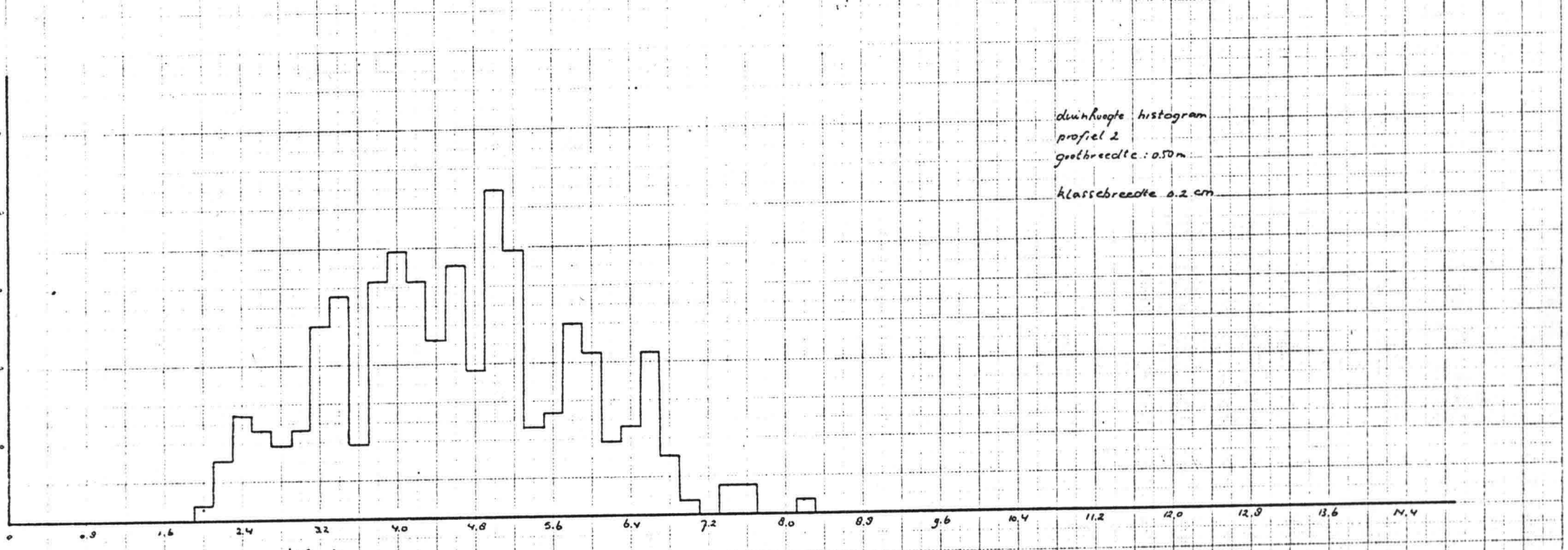


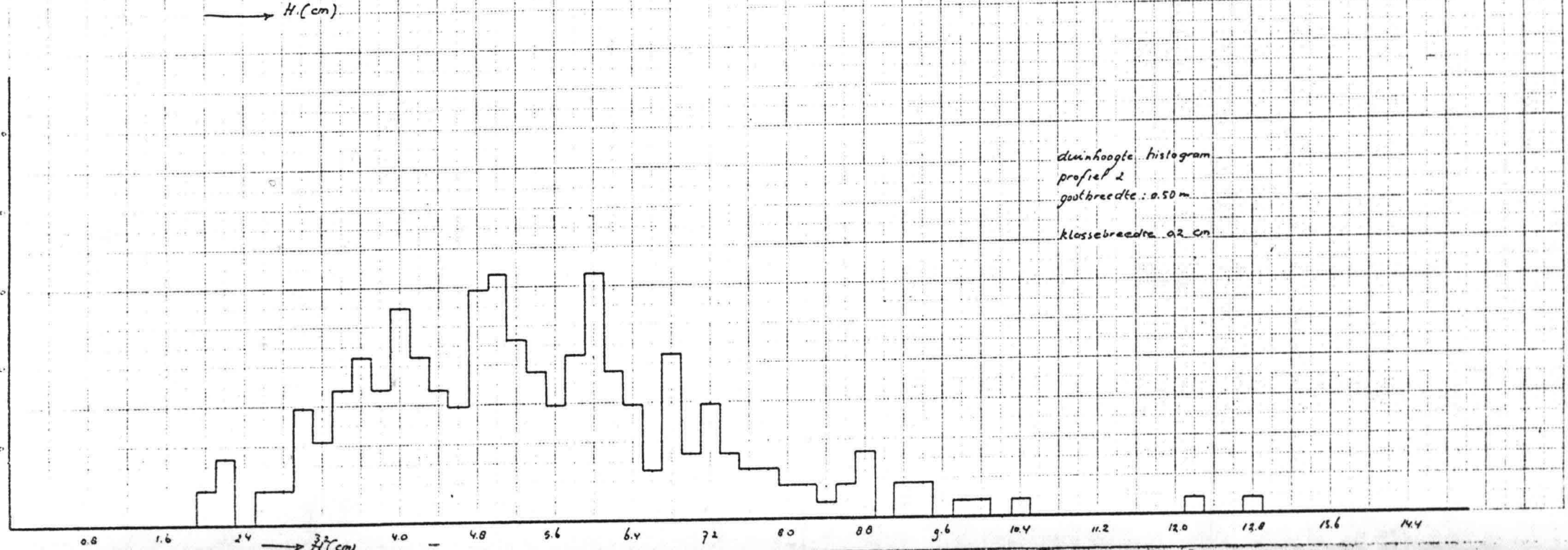


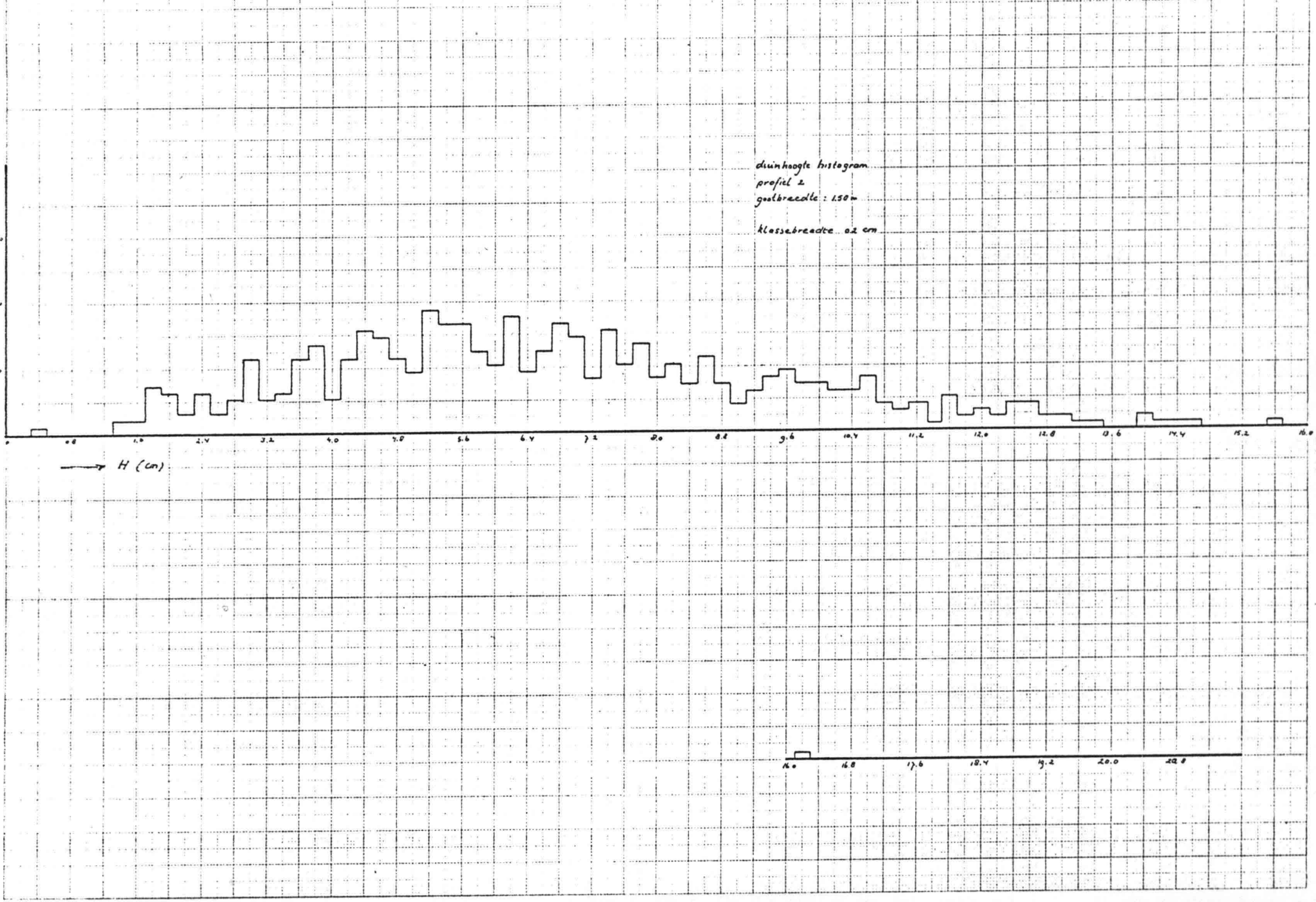

duinheuvel histogram
profiel 1
goothreedte : 0.30 m
klassebreedte 0.002 m
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
H (cm)

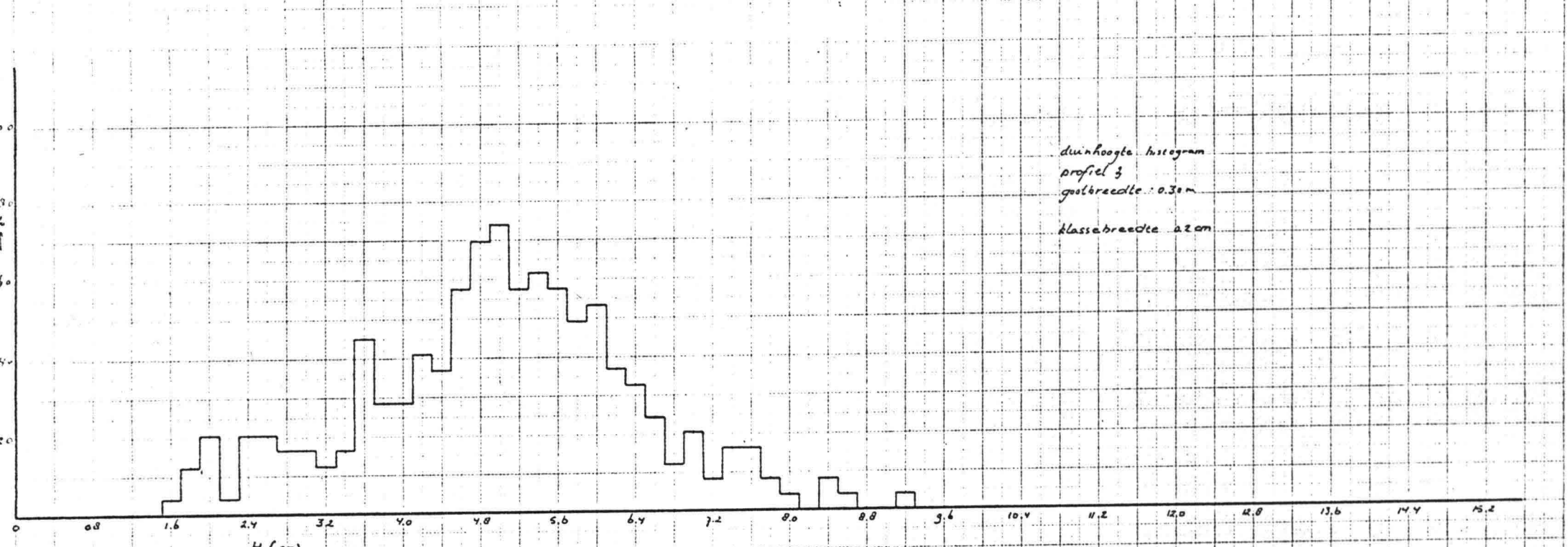

duinheuvel histogram
profiel 1
goothreedte : 0.50 m
klassebreedte 0.002 m
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
H (cm)

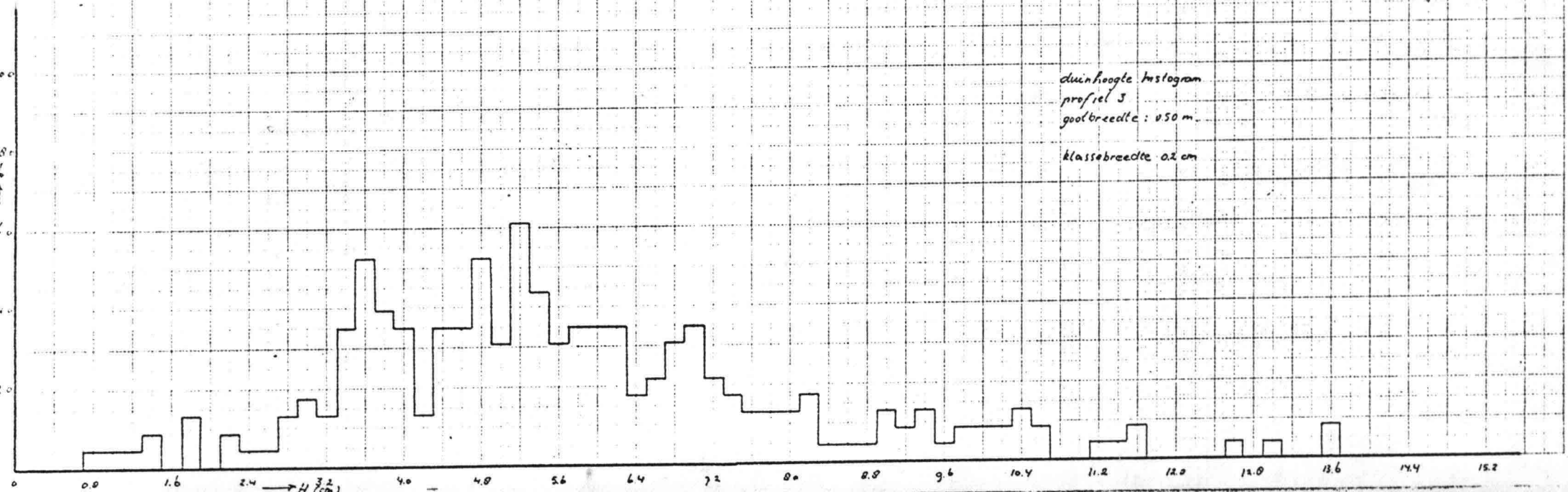

duinhoogte histogram
profiel 1
gootbreedte: 1.50m
klassebreedte 0.002 m
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
16.0
H (cm)
16.0
16.8
17.6
18.4
19.2
20.0
20.8

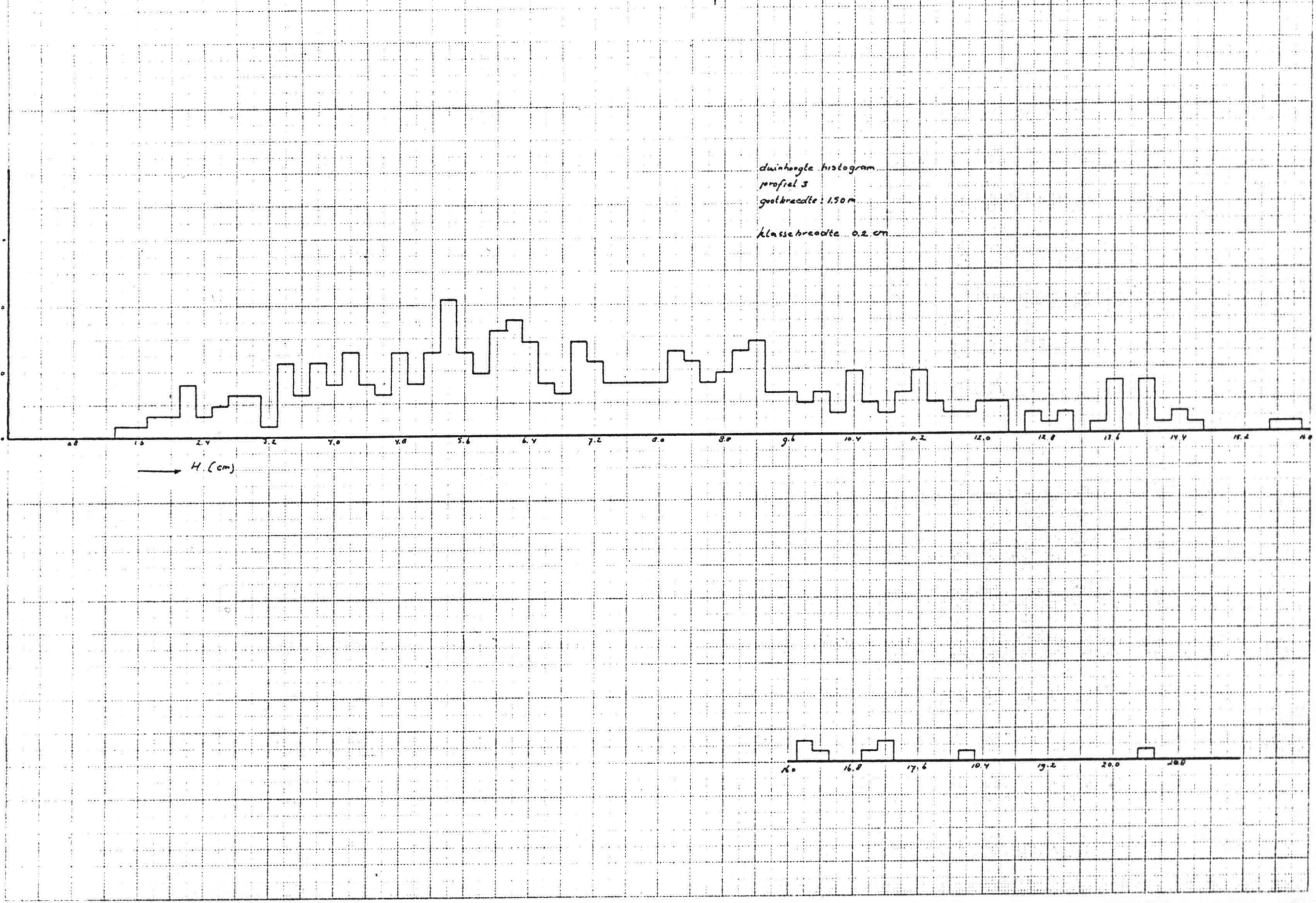

duinhoogte histogram
profiel 2
goothreedte : 0.50 m
klassebreedte 0.2 cm
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
H (cm)

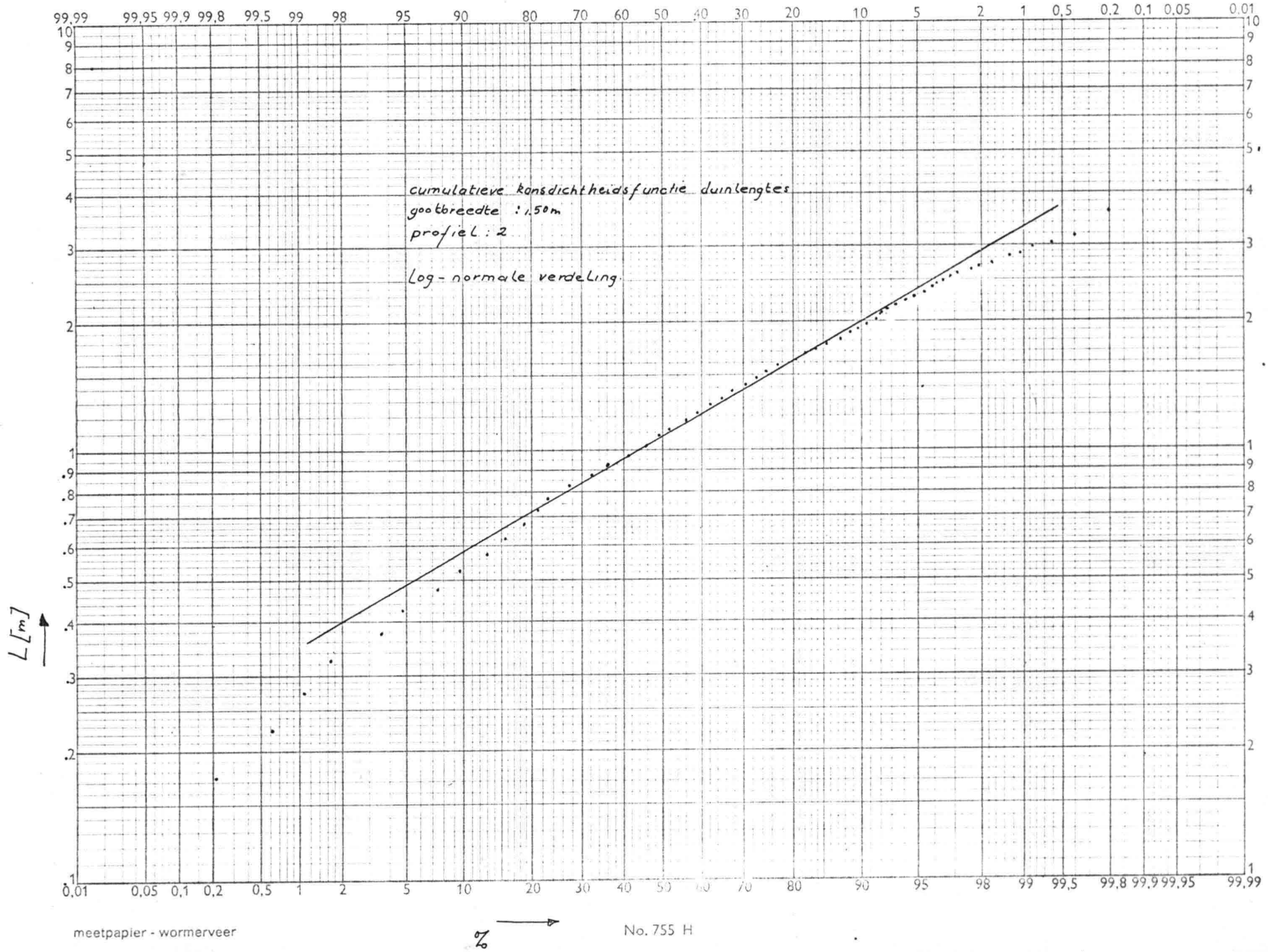

duinhoogte histogram
profiel 2
goothreedte : 0.50 m
klassebreedte 0.2 cm
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
H (cm)


duinhoogte histogram
profiel 2
goalbreedte : 1.50 m
klassebreedte 0.2 cm
0.8
1.0
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
16.0
16.8
17.6
18.4
19.2
20.0
22.8
H (cm)

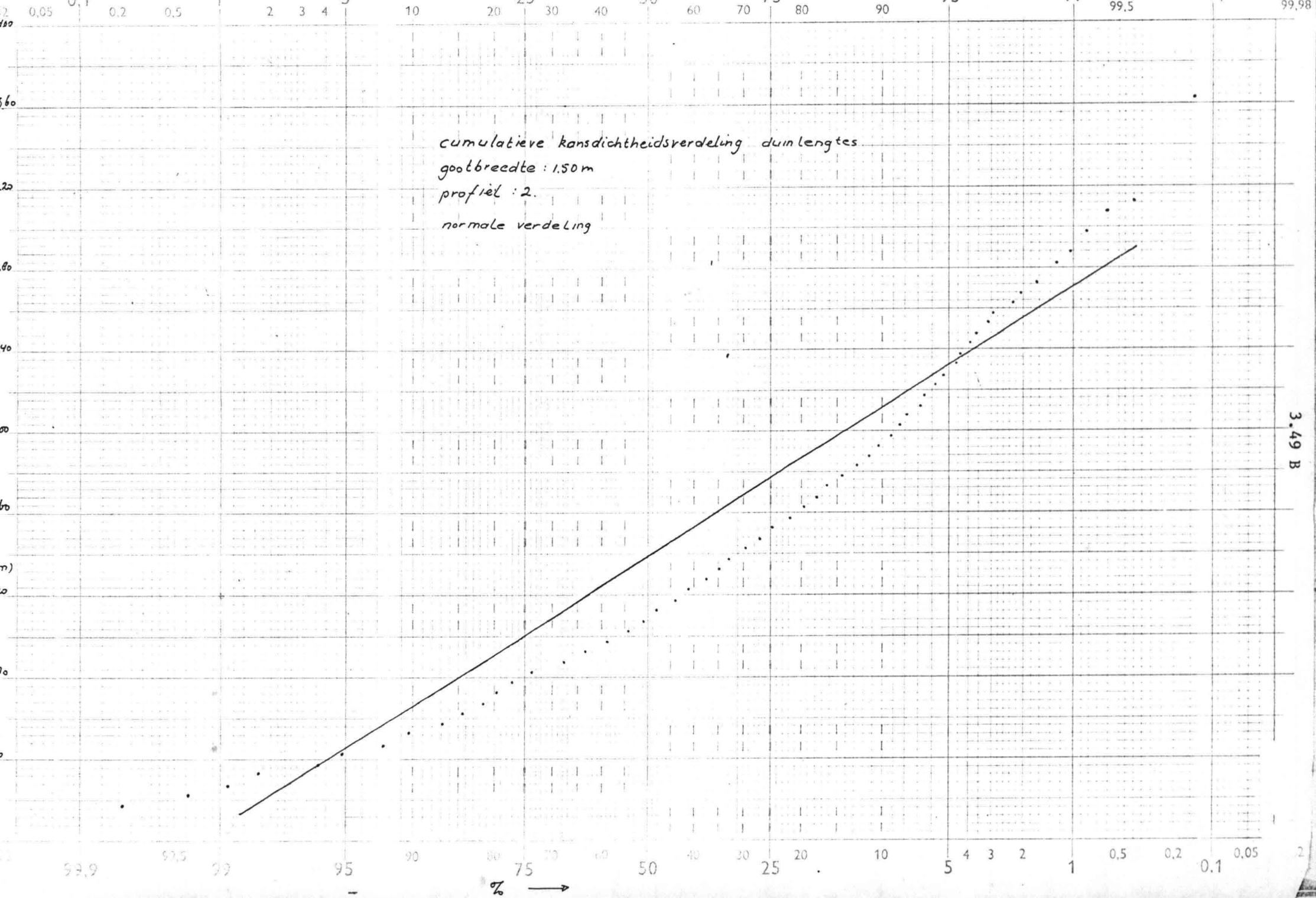

duinhoogte histogram
profiel 3
goolbreedte : 0.30 m
klassebreedte 0.2 cm
0
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
H (cm)


duinhoogte histogram
profiel 3
goolbreedte : 0.50 m
klassebreedte 0.2 cm
0
0.8
1.6
2.4
3.2
4.0
4.8
5.6
6.4
7.2
8.0
8.8
9.6
10.4
11.2
12.0
12.8
13.6
14.4
15.2
H (cm)


dwinhoogte histogram
profiel 3
goot breedte : 1.50 m
klasse breedte 0.2 cm
H. (cm)

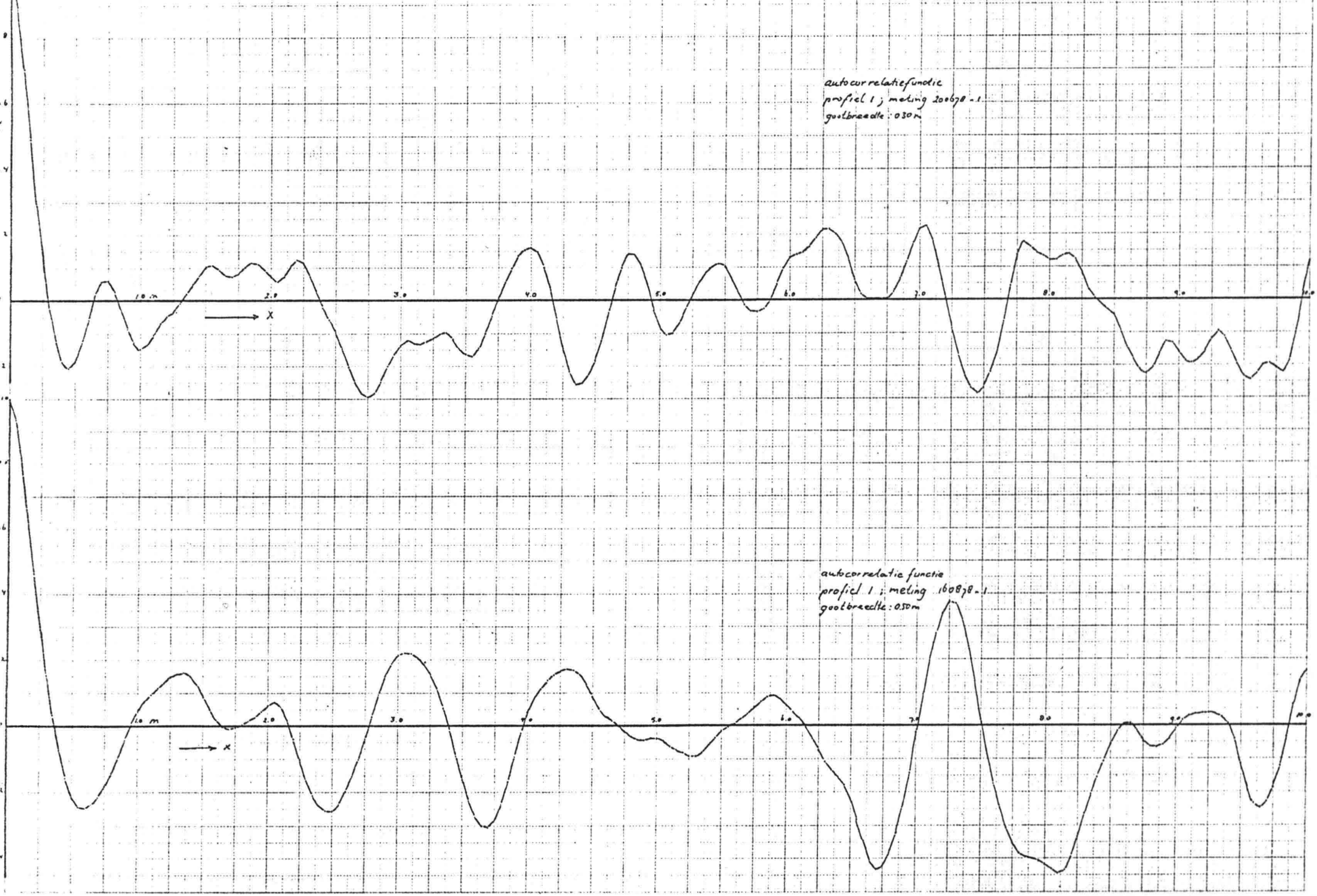

cumulatieve kansdichtheidsfunctie duinlengtes
gootbreedte : 1.50m
profiel : 2
Log - normale verdeling
L [m]
%
99.99 99,95 99.9 99.8 99.5 99 98 95 90 80 70 60 50 40 30 20 10 5 2 1 0,5 0.2 0.1 0.05 0.01
0,01 0,05 0,1 0,2 0,5 1 2 5 10 20 30 40 50 60 70 80 90 95 98 99 99,5 99,8 99,9 99,95 99,99
meetpapier - wormerveer
No. 755 H

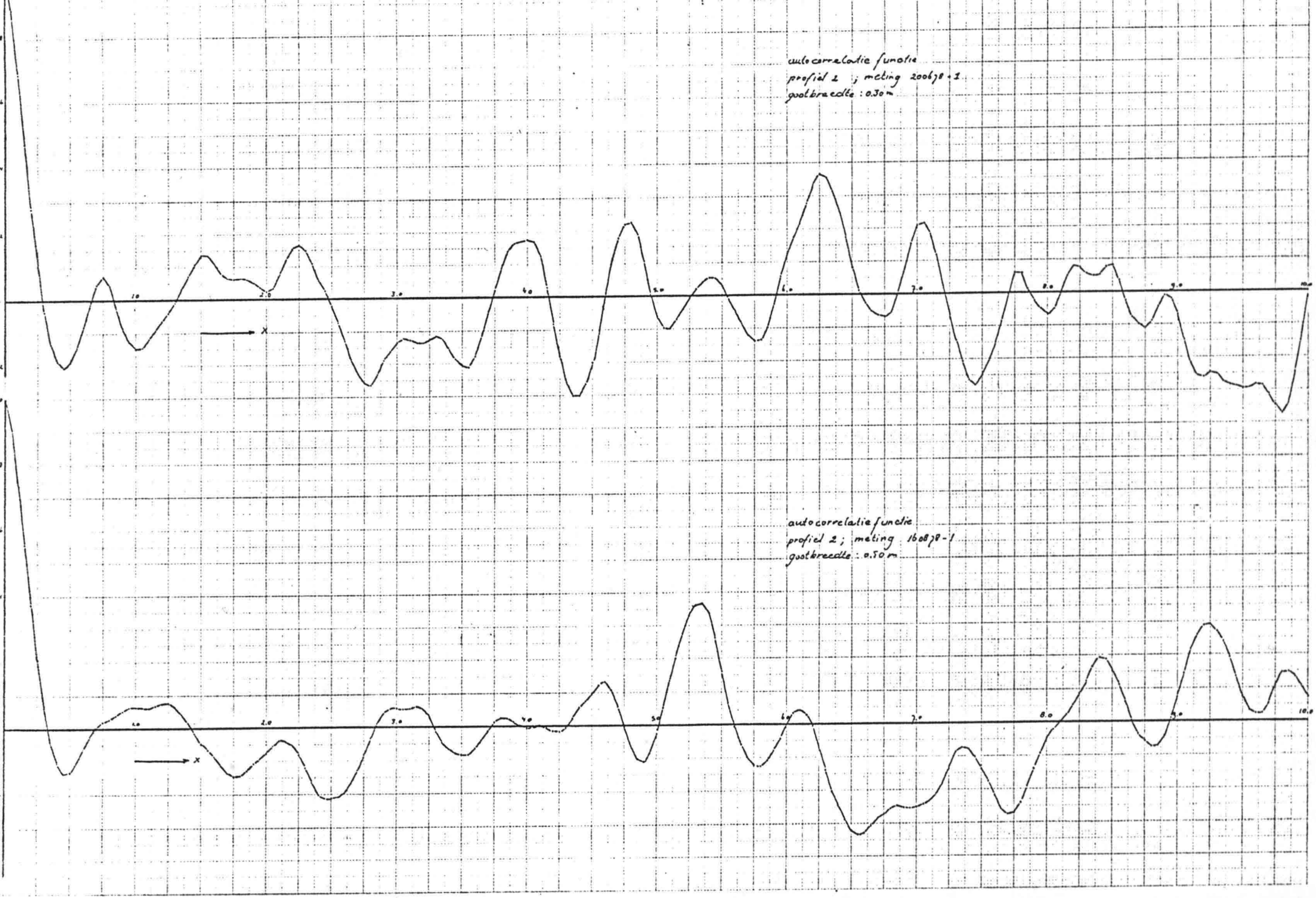
3.49 A

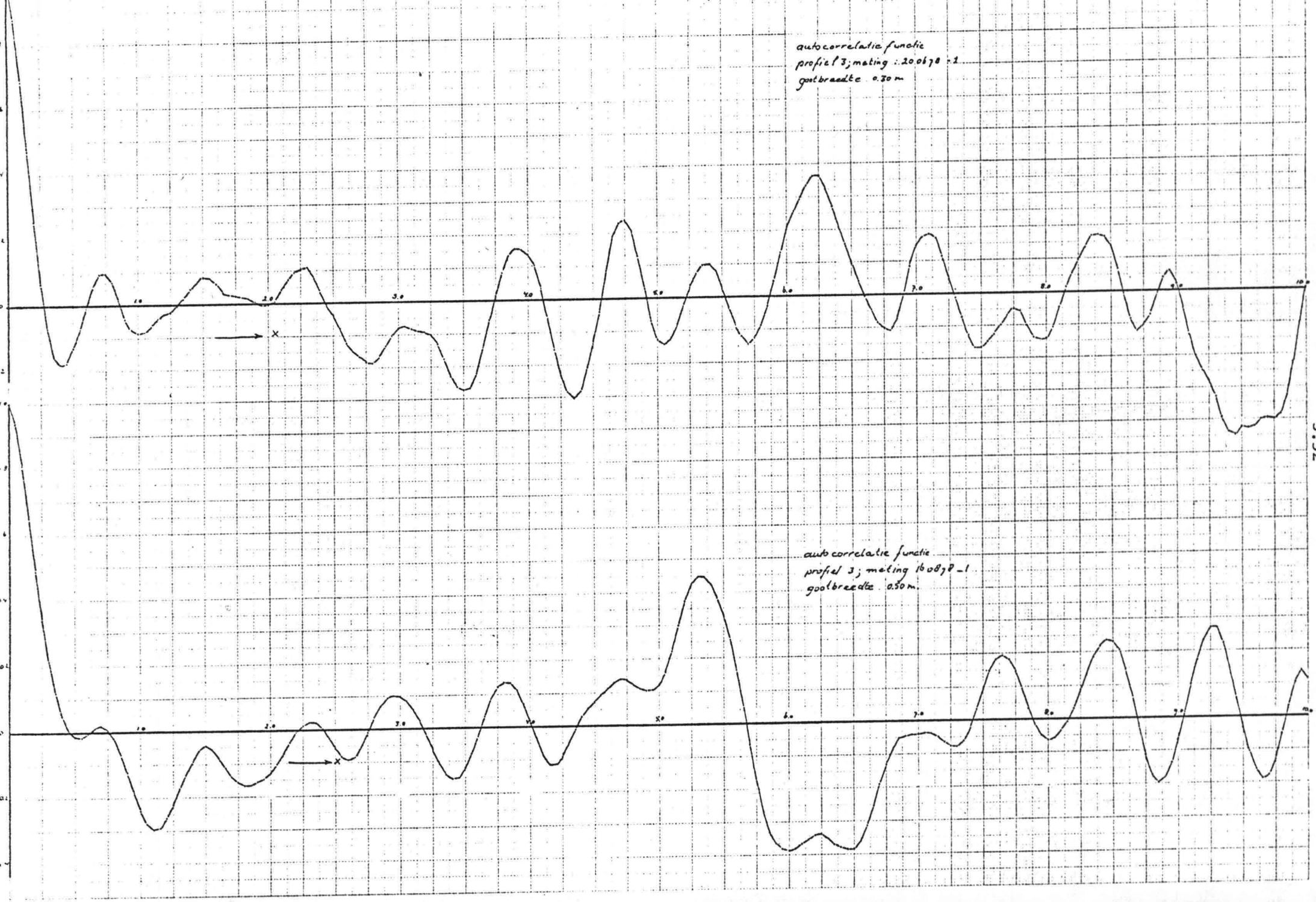

cumulatieve kansdichtheidsverdeling duinlengtes
goolbreedte : 1.50 m
profiel : 2.
normale verdeling
3.49 B
0,05 0,1 0,2 0,5 2 3 4 10 20 30 40 60 70 80 90 99,5 99,98
99,9 99,5 99 95 90 80 75 70 60 50 40 30 25 20 10 5 4 3 2 1 0,5 0,2 0,1 0,05
%

Som der kwadraten

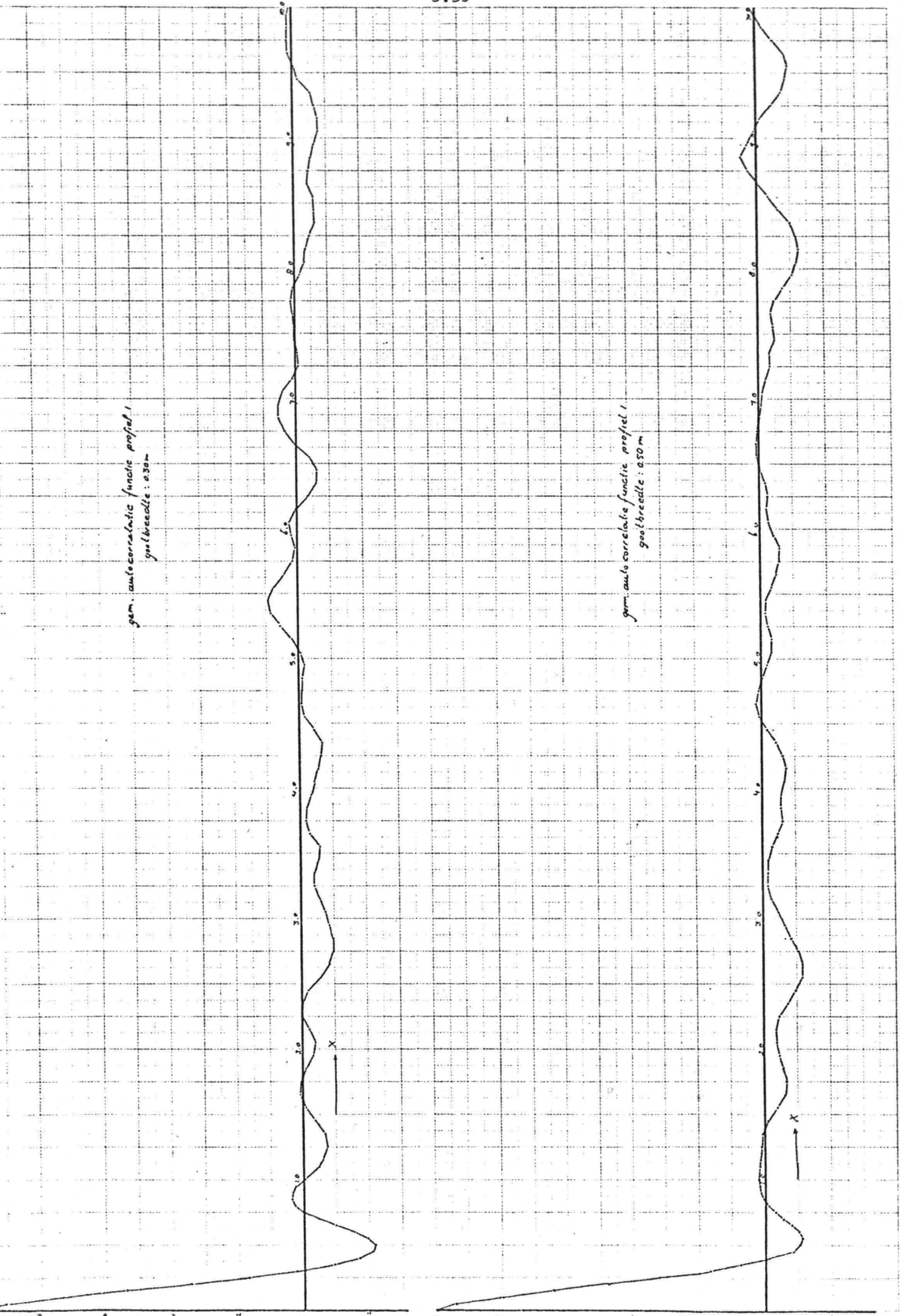
duinhoogten	gootbreedte 0.30 m			gootbreedte 0.50 m			gootbreedte 1.50 m		
	prof: 1	2	3	1	2	3	1	2	3
Rayleigh verd.	10.7	13.7	11.8	5.8	8.5	6.6	3.7	2.2	2.8
Normale verd.	3.3	5.4	2.4	4.6	3.5	3.8	3.9	1.7	2.6
Log-norm.verd.	3.5	5.9	3.4	4.5	3.4	3.3	3.4	1.7	2.5
duinlengten									
Rayleigh verd.	12.9	15.9	9.7	11.0	12.5	8.5	3.2	2.0	4.4
Normale verd.	5.8	8.2	5.1	7.4	8.8	7.8	3.4	1.7	4.4
Log-norm.verd.	3.4	6.4	3.0	5.7	6.7	6.1	2.3	1.6	3.5
Parameters:	Log-normale verdeling								
duinhoogten	gootbreedte 0.30 m			gootbreedte 0.50 m			gootbreedte 1.50 m		
	prof: 1	2	3	1	2	3	1	2	3
schatter gemid.(m)	0.054	0.047	0.053	0.060	0.053	0.056	0.075	0.067	0.073
schatter stand. afwijking (m)	0.0027	0.0029	0.0025	0.0044	0.0032	0.0037	0.0053	0.0046	0.0050
duinlengten									
schatter gemid. (m)	0.87	0.85	0.89	0.95	0.91	0.98	1.42	1.13	1.41
schatter stand. afwijking (m)	0.31	0.31	0.34	0.37	0.37	0.45	0.64	0.51	0.67

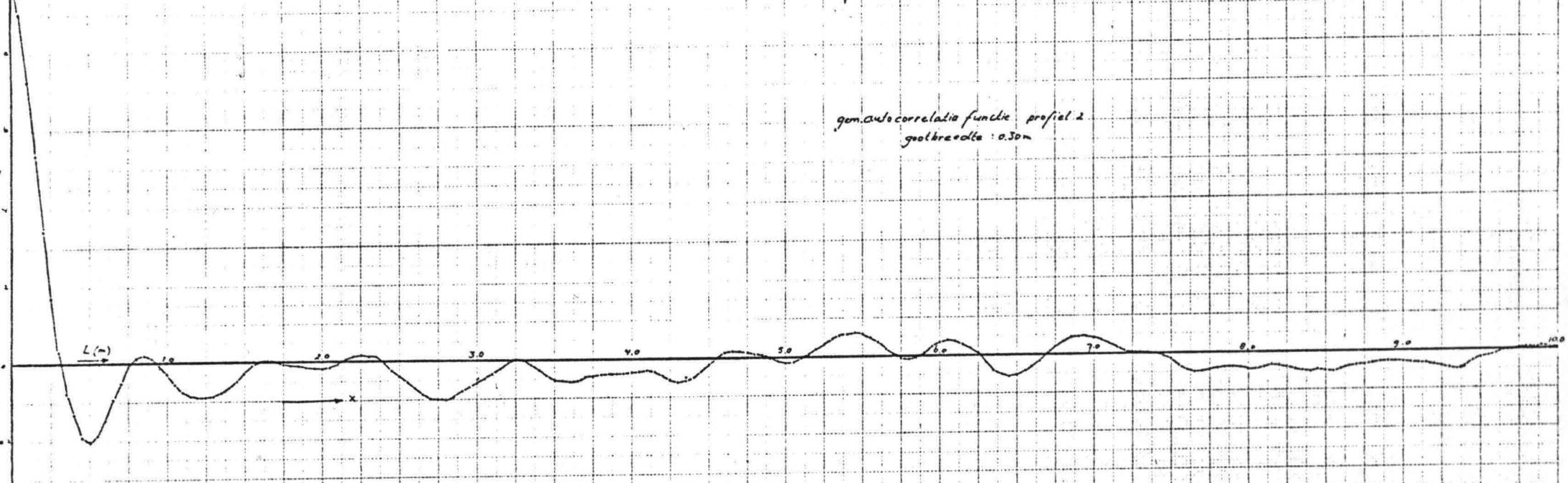

autocorrelatiefunctie
profiel 1 ; meting 200678-1
gootbreedte : 0.30 m
1.0 m
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X
autocorrelatie functie
profiel 1 ; meting 160878-1
gootbreedte : 0.50 m
1.0 m
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X

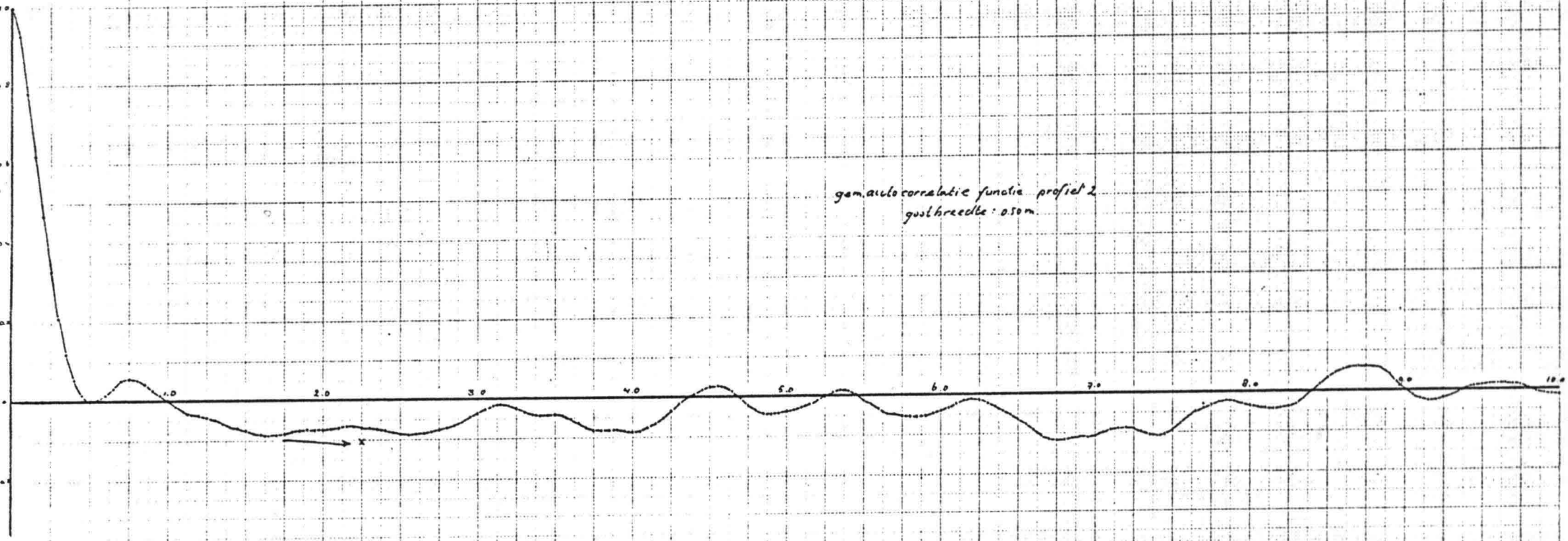

autocorrelatie functie
profiel 2 ; meting 200678-1
gootbreedte : 0.30 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X
autocorrelatie functie
profiel 2 ; meting 160878-1
gootbreedte : 0.50 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
X

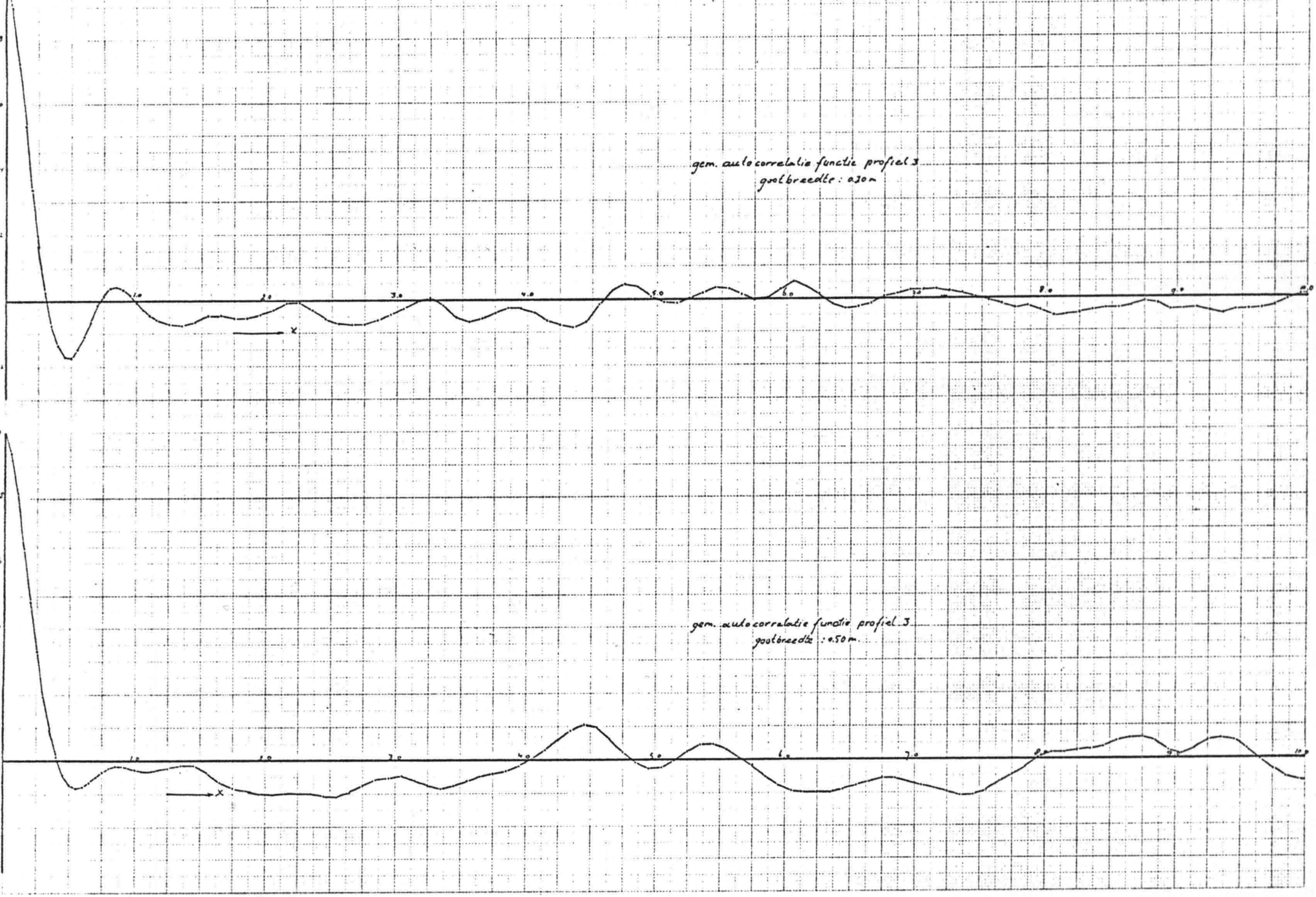

autocorrelatie functie
profiel 3; meting : 200678 - 1
goolbreedte 0.20 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10
X
autocorrelatie functie
profiel 3; meting 160879 - 1
goolbreedte 0.50 m.
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X

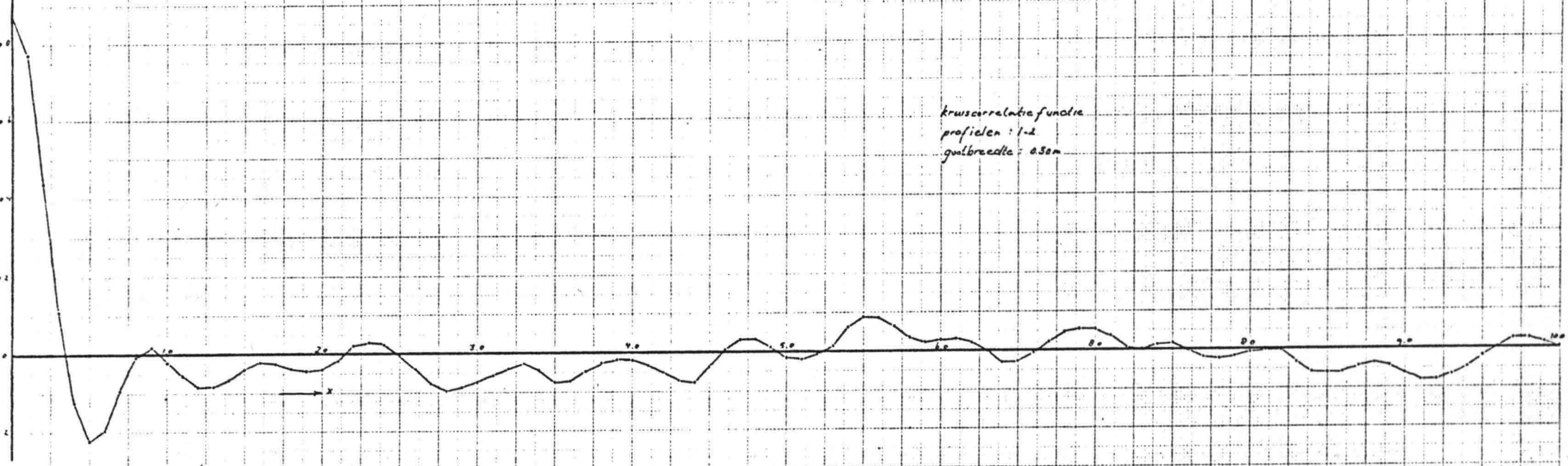
3.52

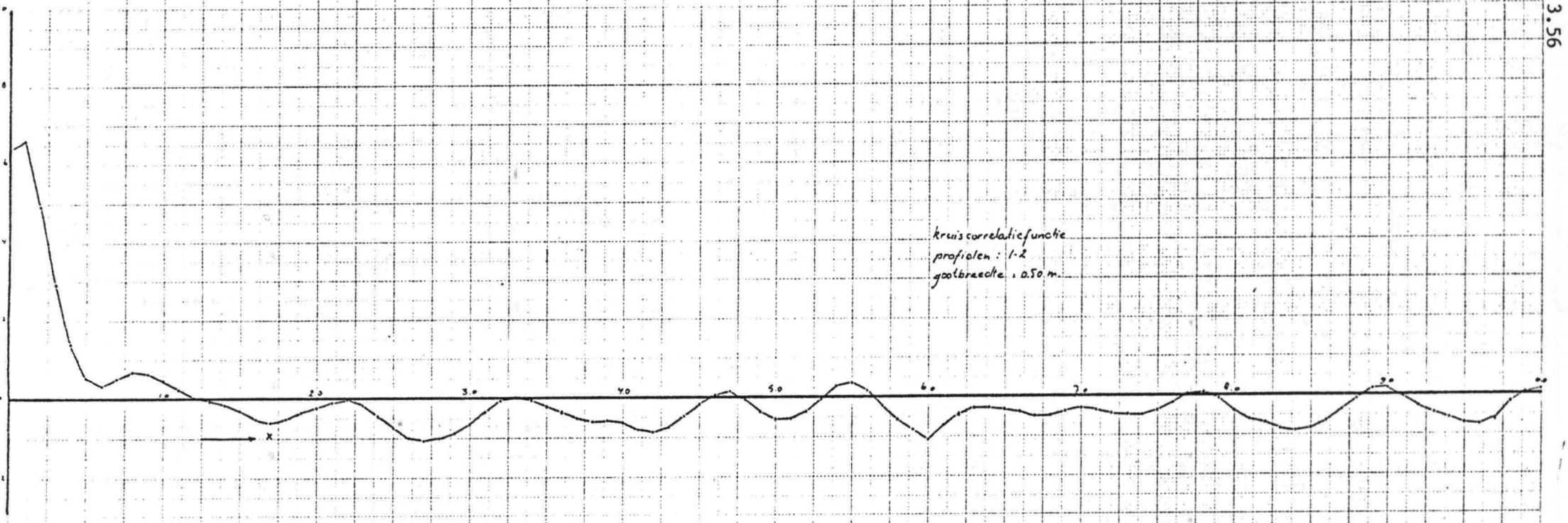

gem. autocorrelatie functie profiel 1
goot breedte : 0.30 m
gem. autocorrelatie functie profiel 1
goot breedte : 0.50 m
X
X


gem. autocorrelatie functie profiel 2
goolbreedte : 0.30 m
L(m)
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
x

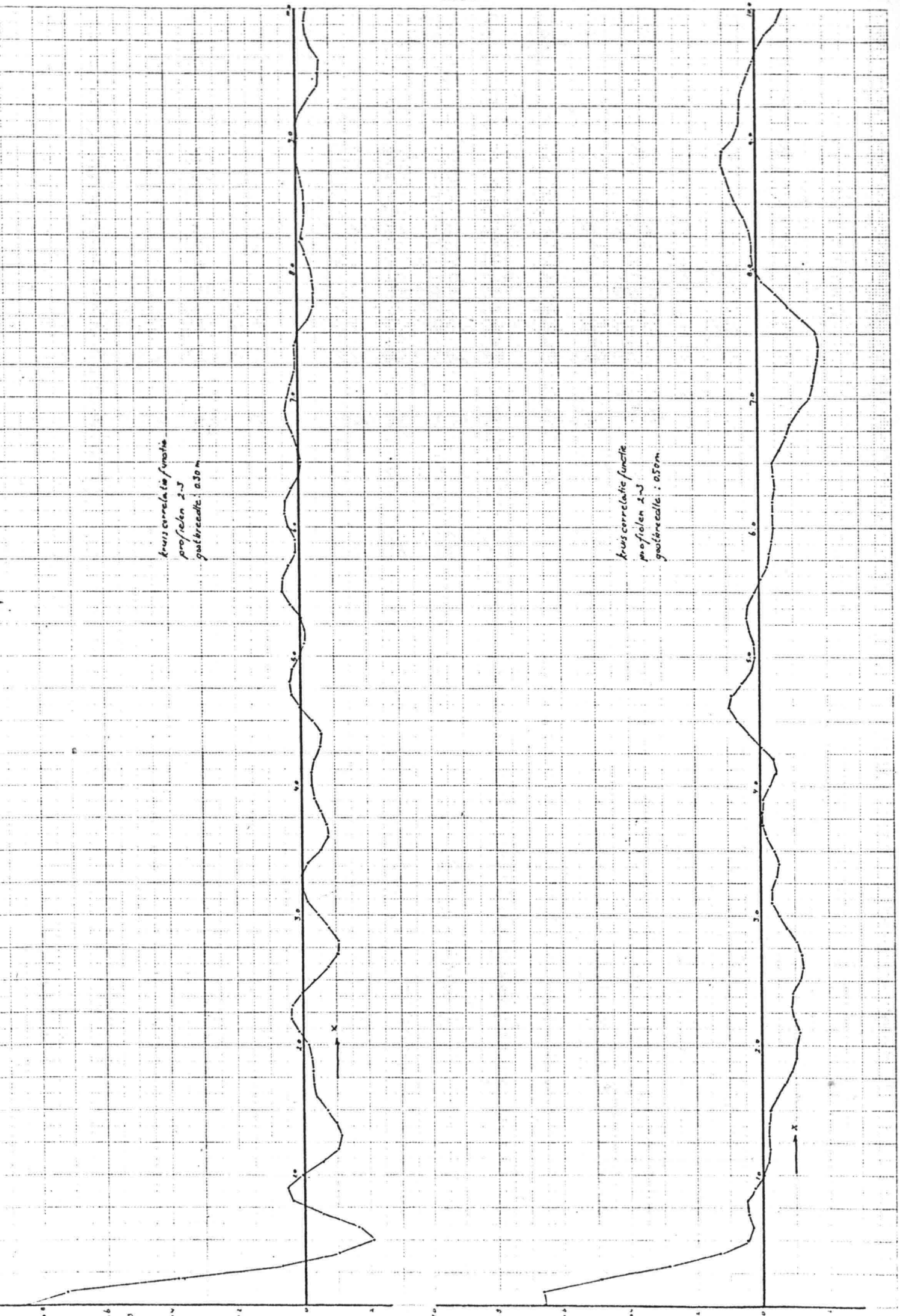

gem. autocorrelatie functie profiel 2
goolbreedte : 0.50 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
x

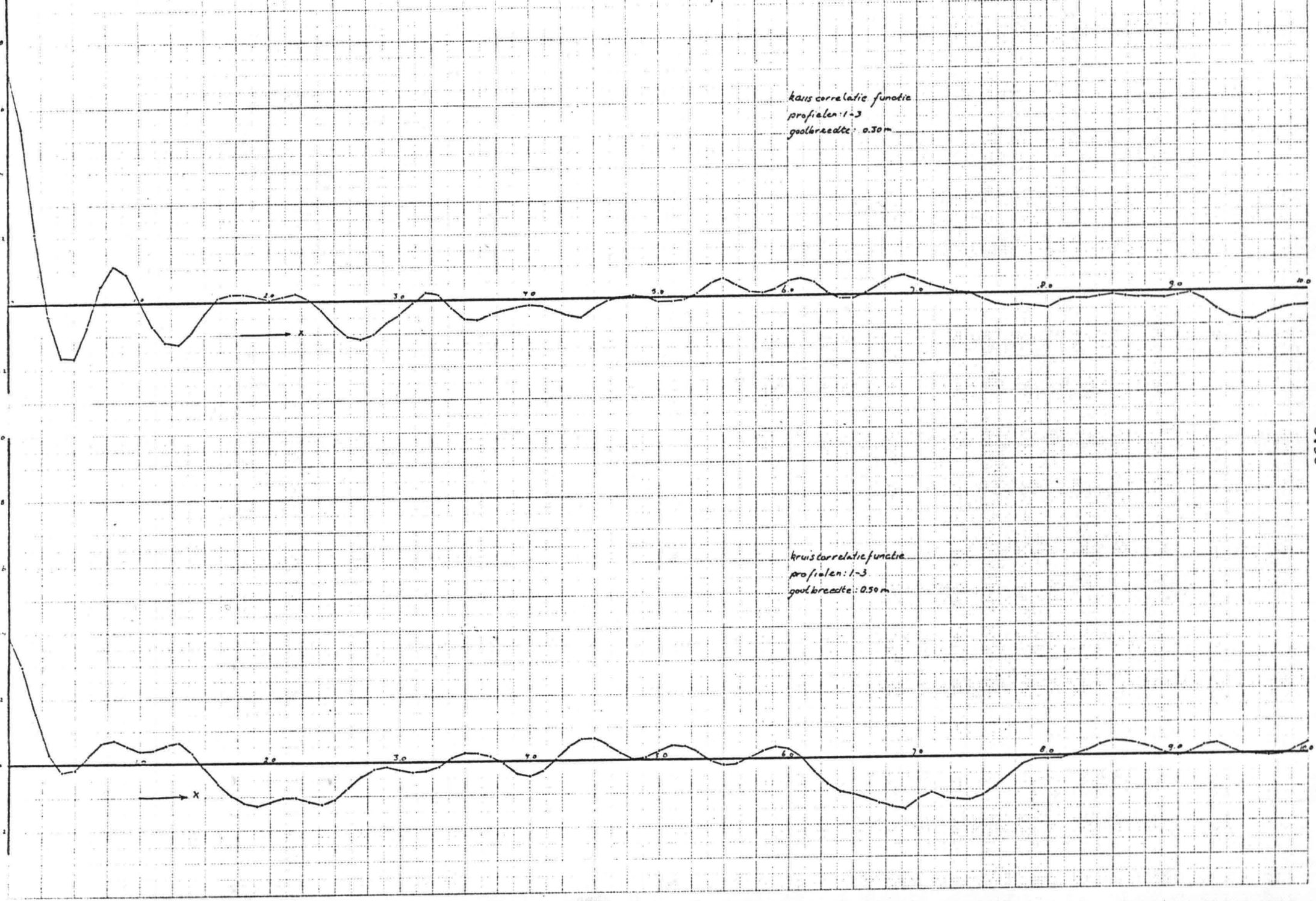

gem. autocorrelatie functie profiel 3
goolbreedte : 0.30 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X
gem. autocorrelatie functie profiel 3
goolbreedte : 0.50 m.
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X

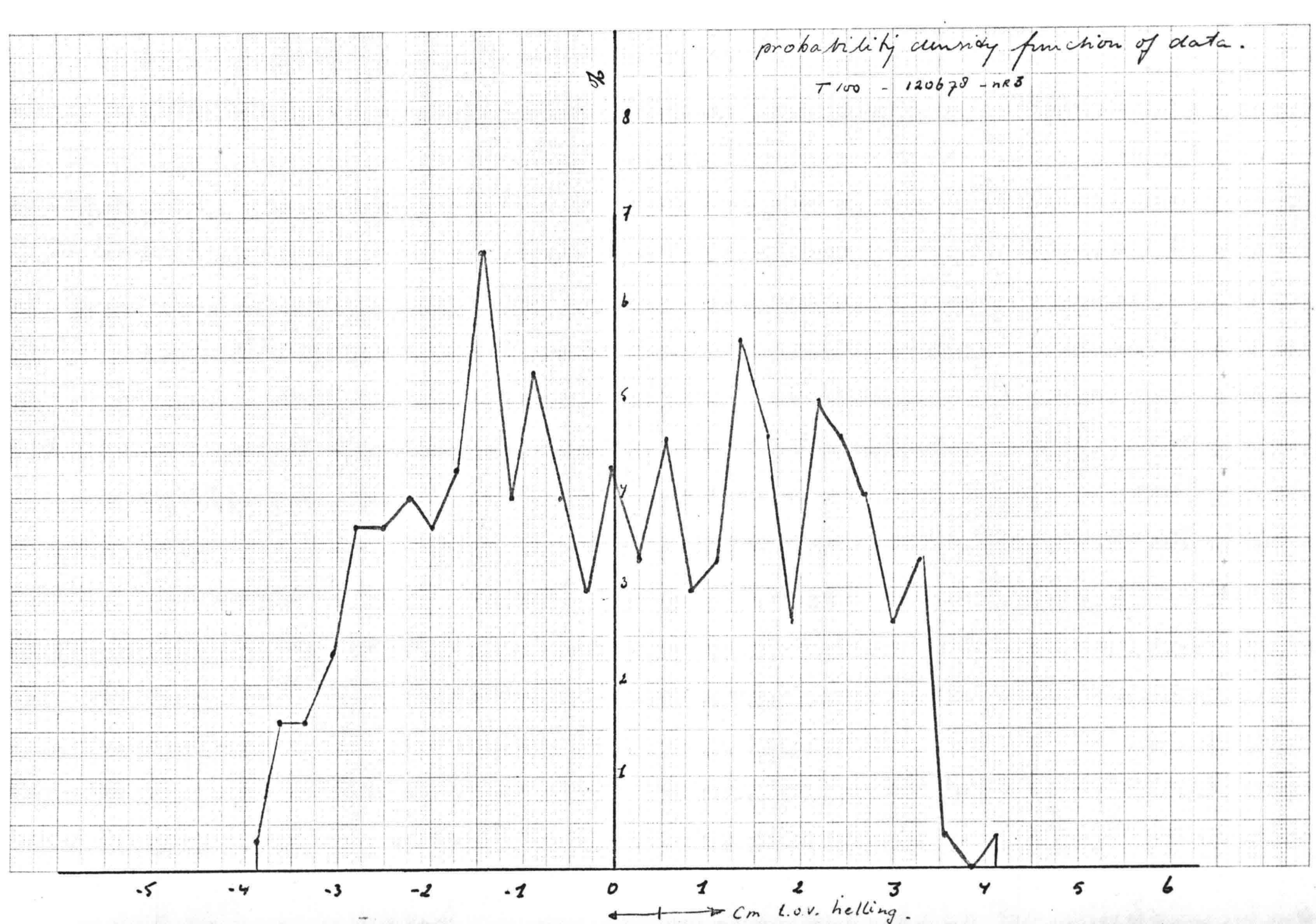

kruiscorrelatiefunctie
profielen : 1-2
goolbreedte : 0.50 m
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
X

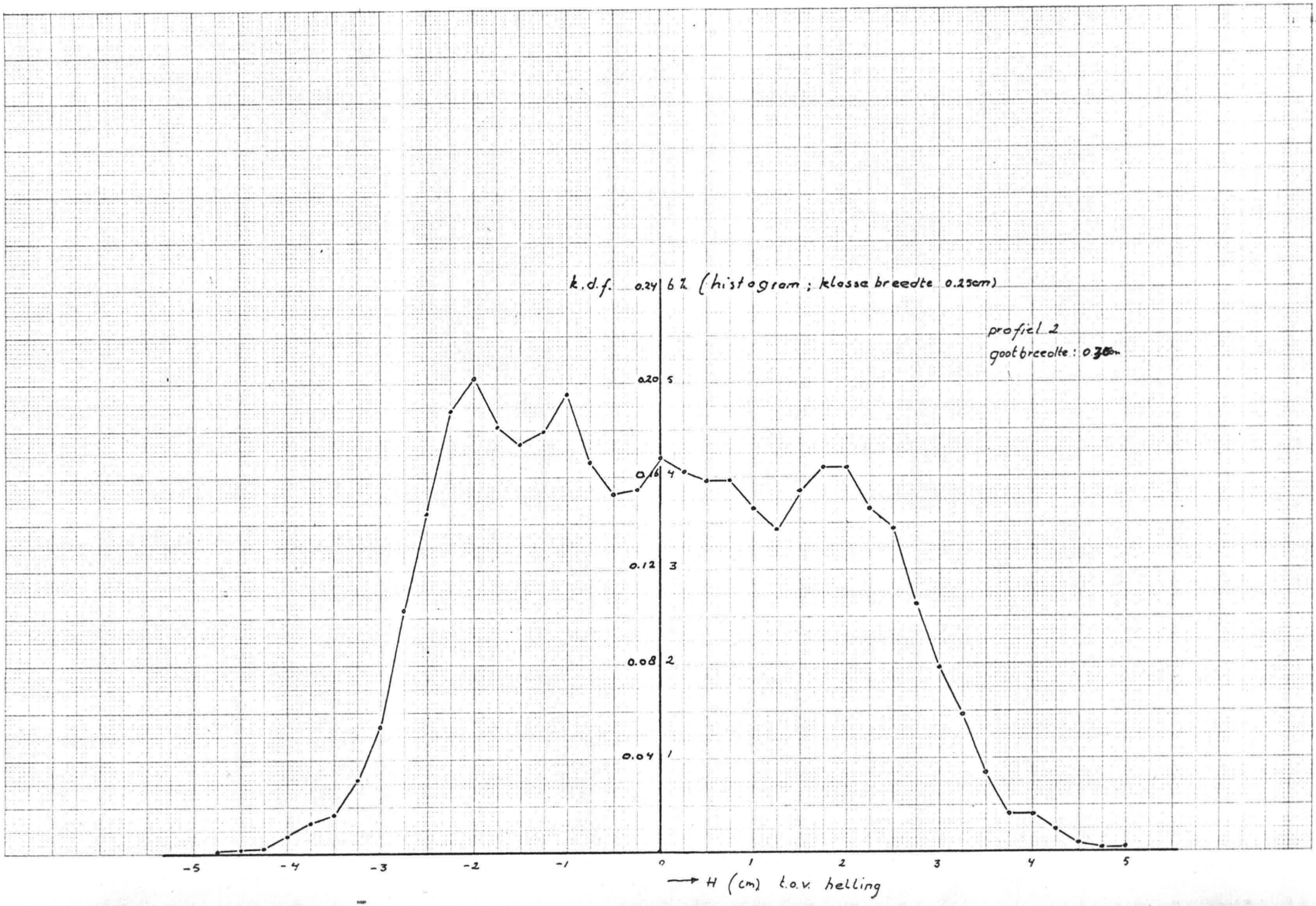

kruiscorrelatiefunctie
profielen : 1-2
goolbreedte : 0.50 m.
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
X

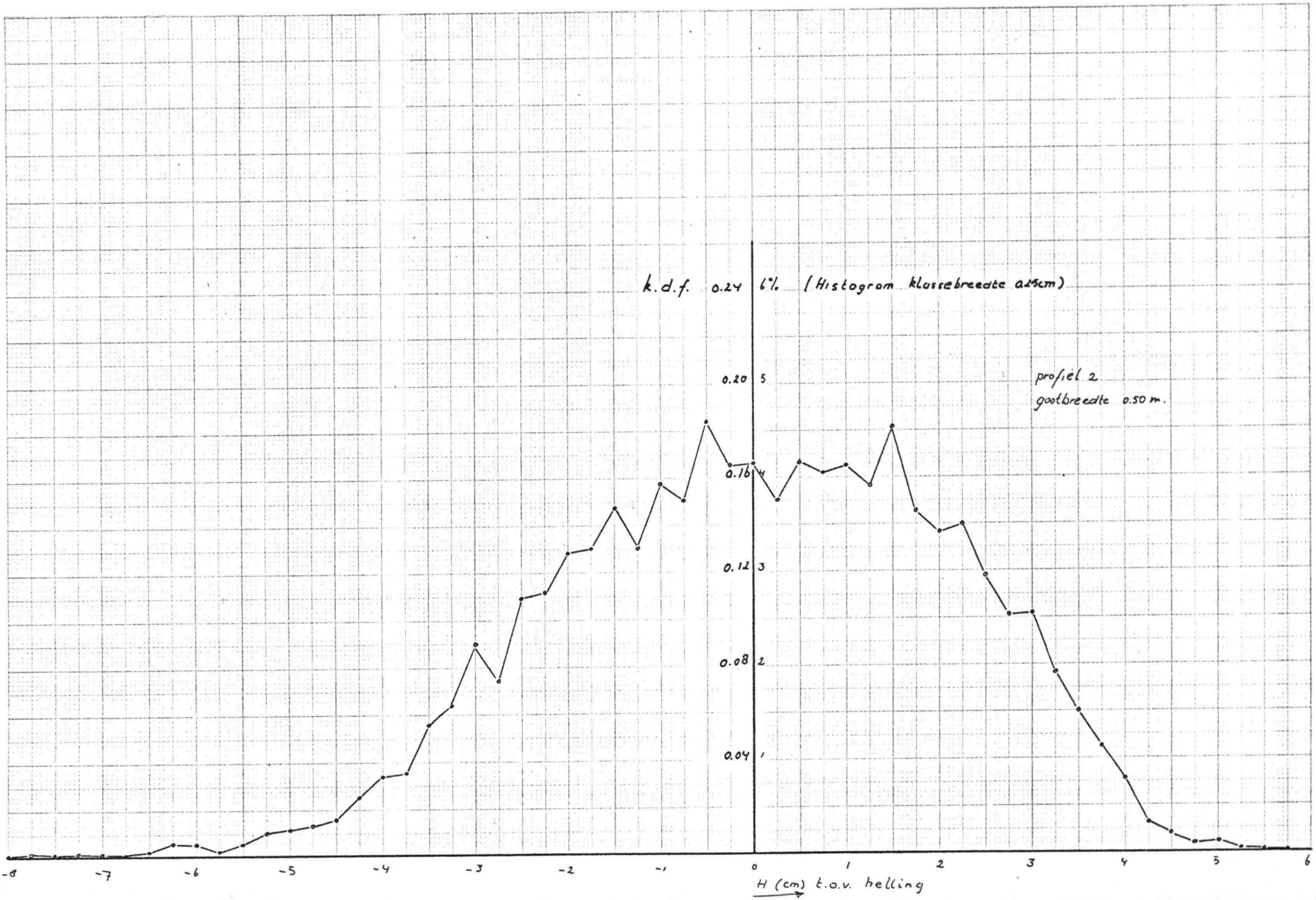
3.56

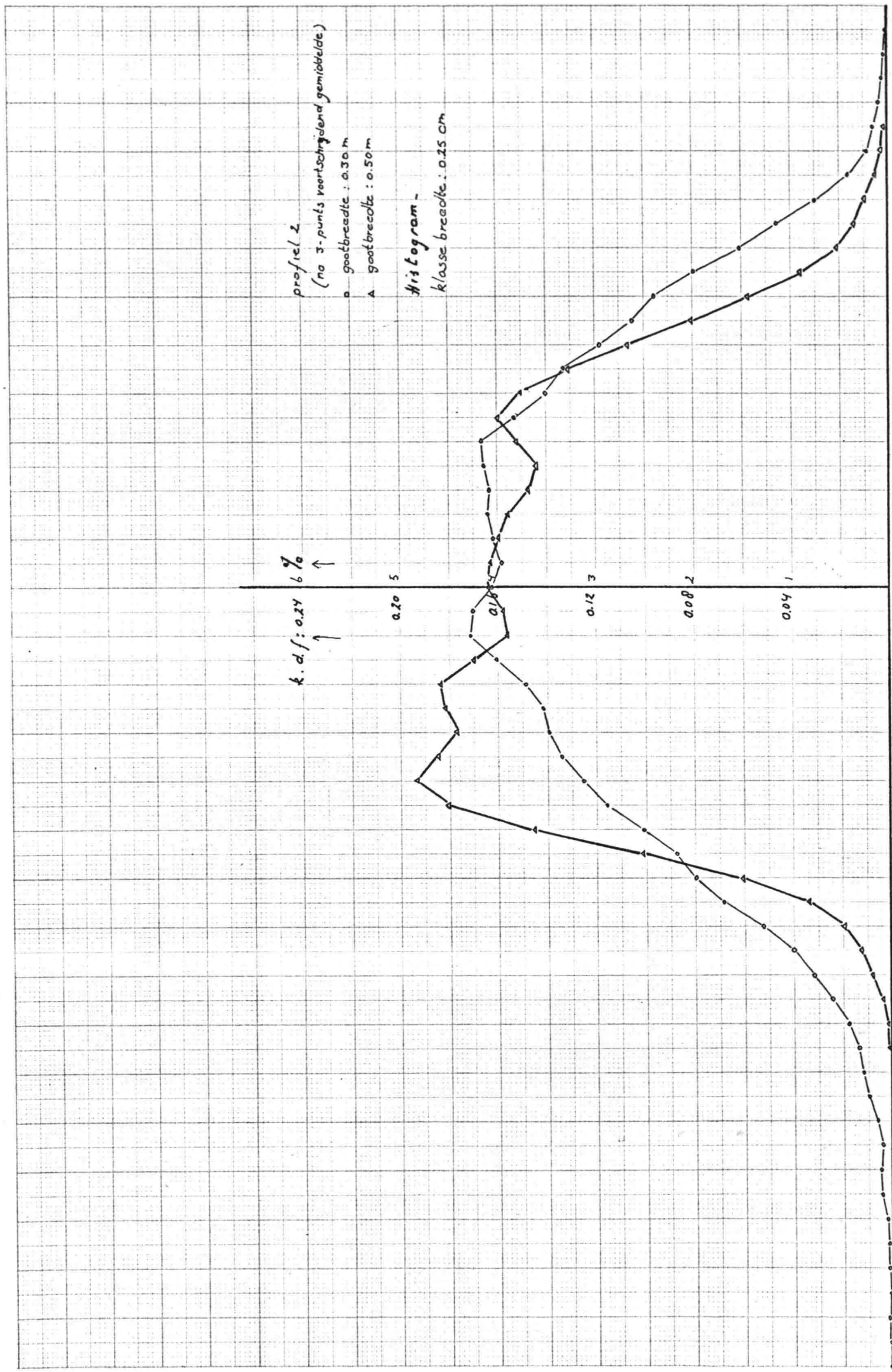

kruiscorrelatie functie
profielen 2-3
gaatbreedte: 0.30 m
x
kruiscorrelatie functie
profielen 2-3
gaatbreedte: 0.50 m
x

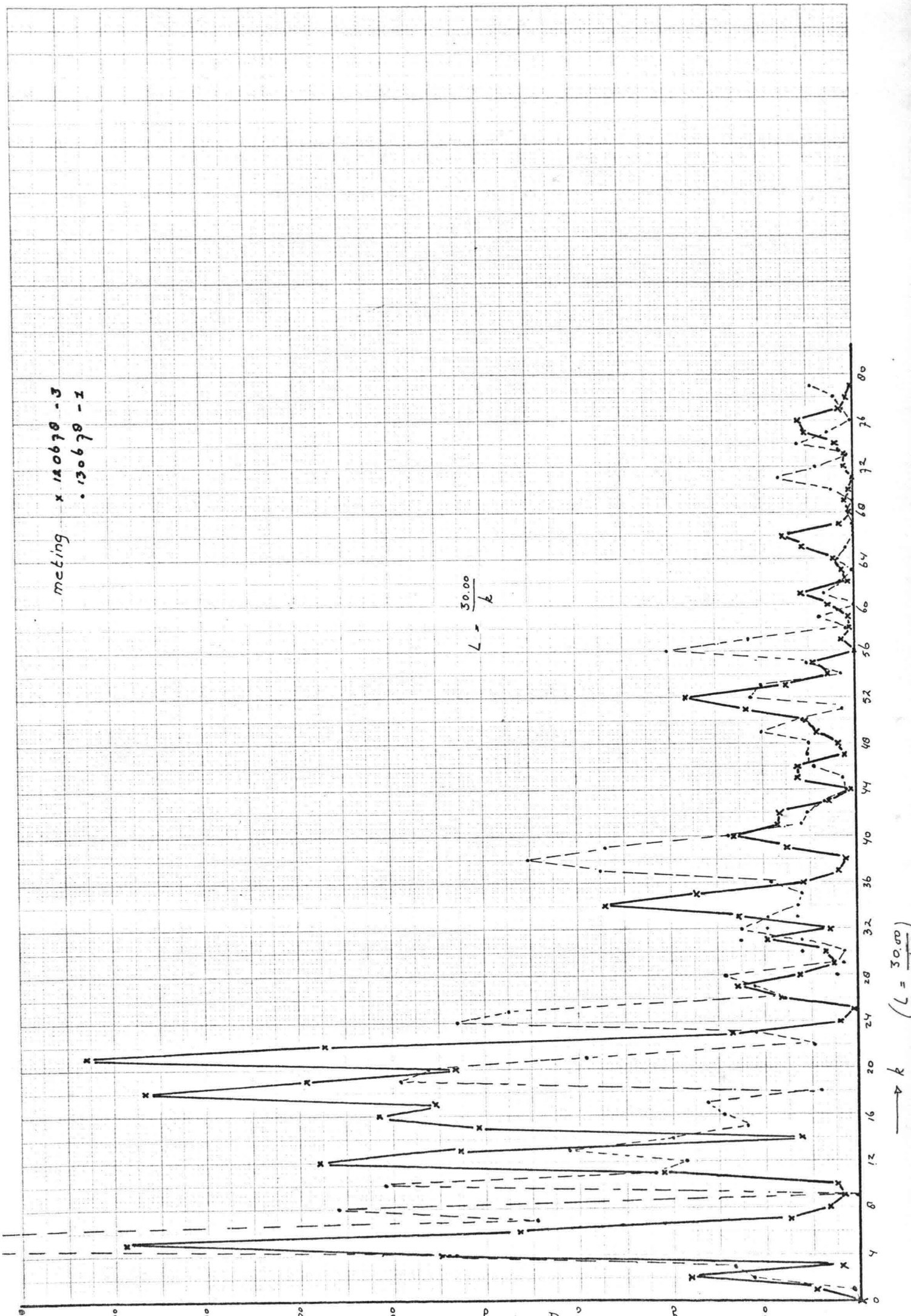

kruis correlatie functie
profielen: 1-3
goolbreedte: 0.30 m
X
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0
kruis correlatie functie
profielen: 1-3
goolbreedte: 0.50 m
X
1.0
2.0
3.0
4.0
5.0
6.0
7.0
8.0
9.0
10.0

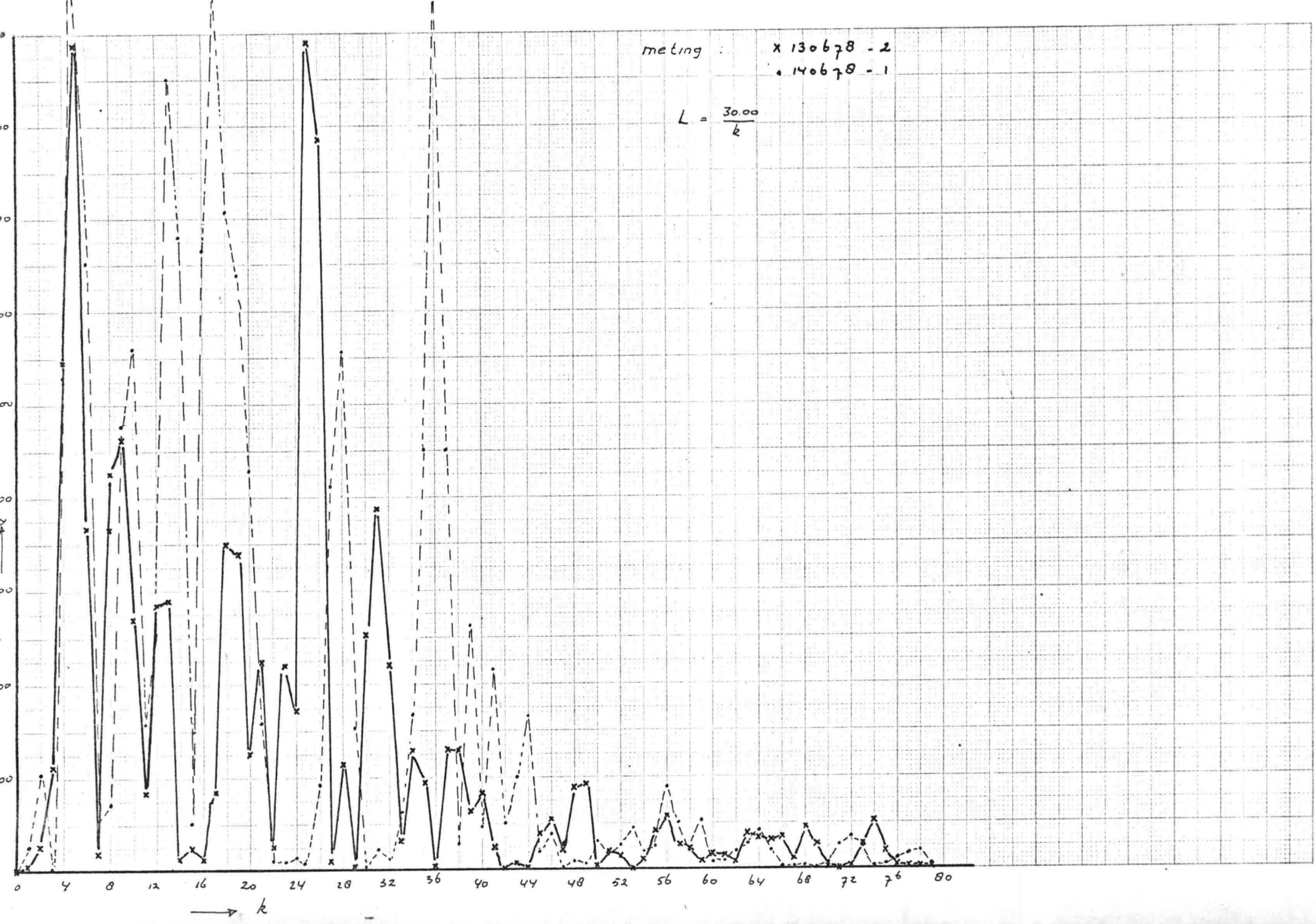

probability density function of data.
T 100 - 120678 - nr 3
fp
8
7
6
5
4
3
2
1
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
Cm l.o.v. helling.


k.d.f.
0.24 6 %
(histogram ; klassebreedte 0.25cm)
profiel 2
goot breedte : 0.38m
0.20 5
0.16 4
0.12 3
0.08 2
0.04 1
-5
-4
-3
-2
-1
0
1
2
3
4
5
→ H (cm) t.o.v. helling

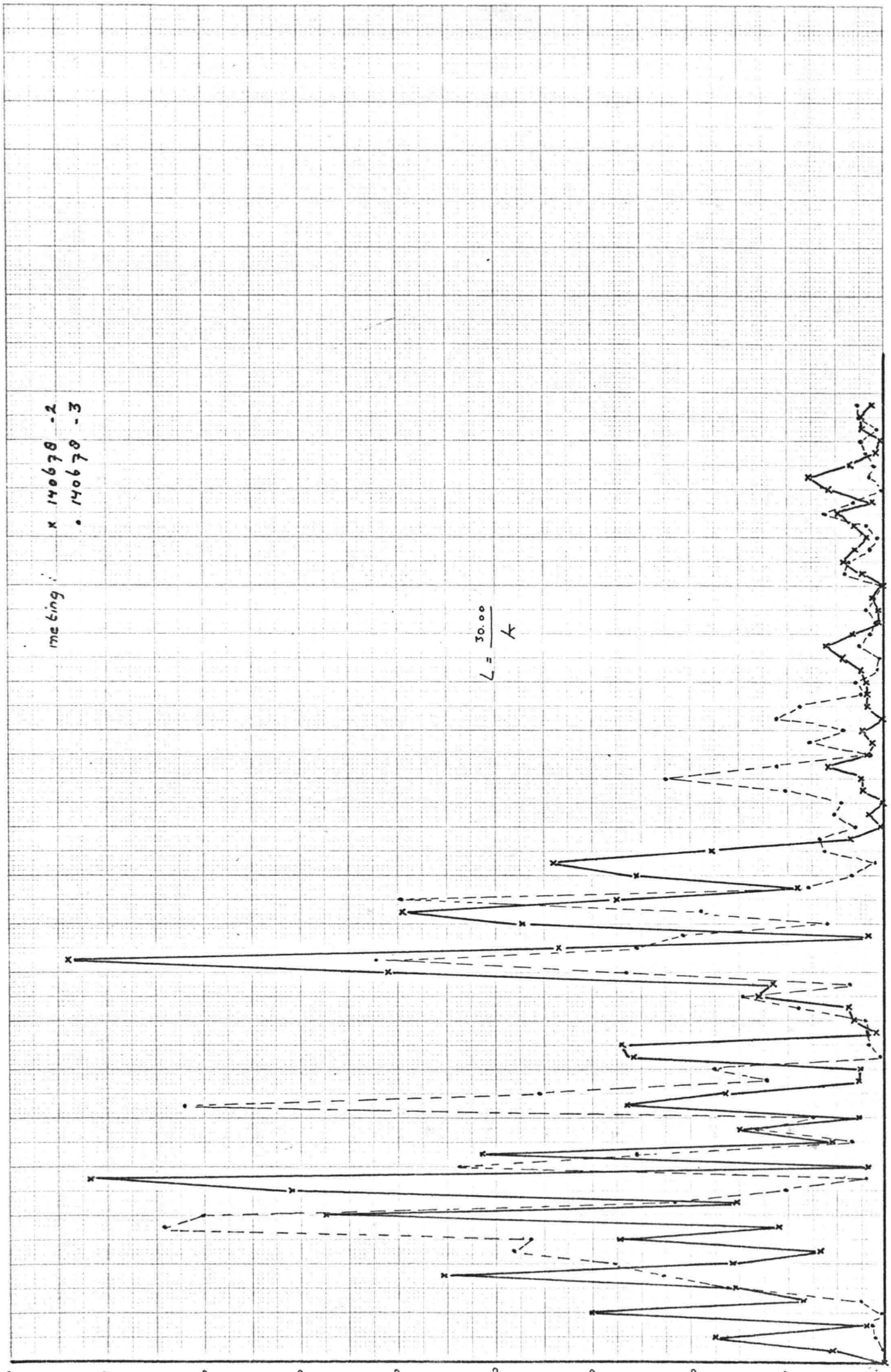

k.d.f.
0.24
6%
(Histogram klassebreedte 0.25cm)
profiel 2
goolbreedte 0.50 m.
0.20
5
0.16
4
0.12
3
0.08
2
0.04
1
-8
-7
-6
-5
-4
-3
-2
-1
0
1
2
3
4
5
6
H (cm) t.o.v. helling

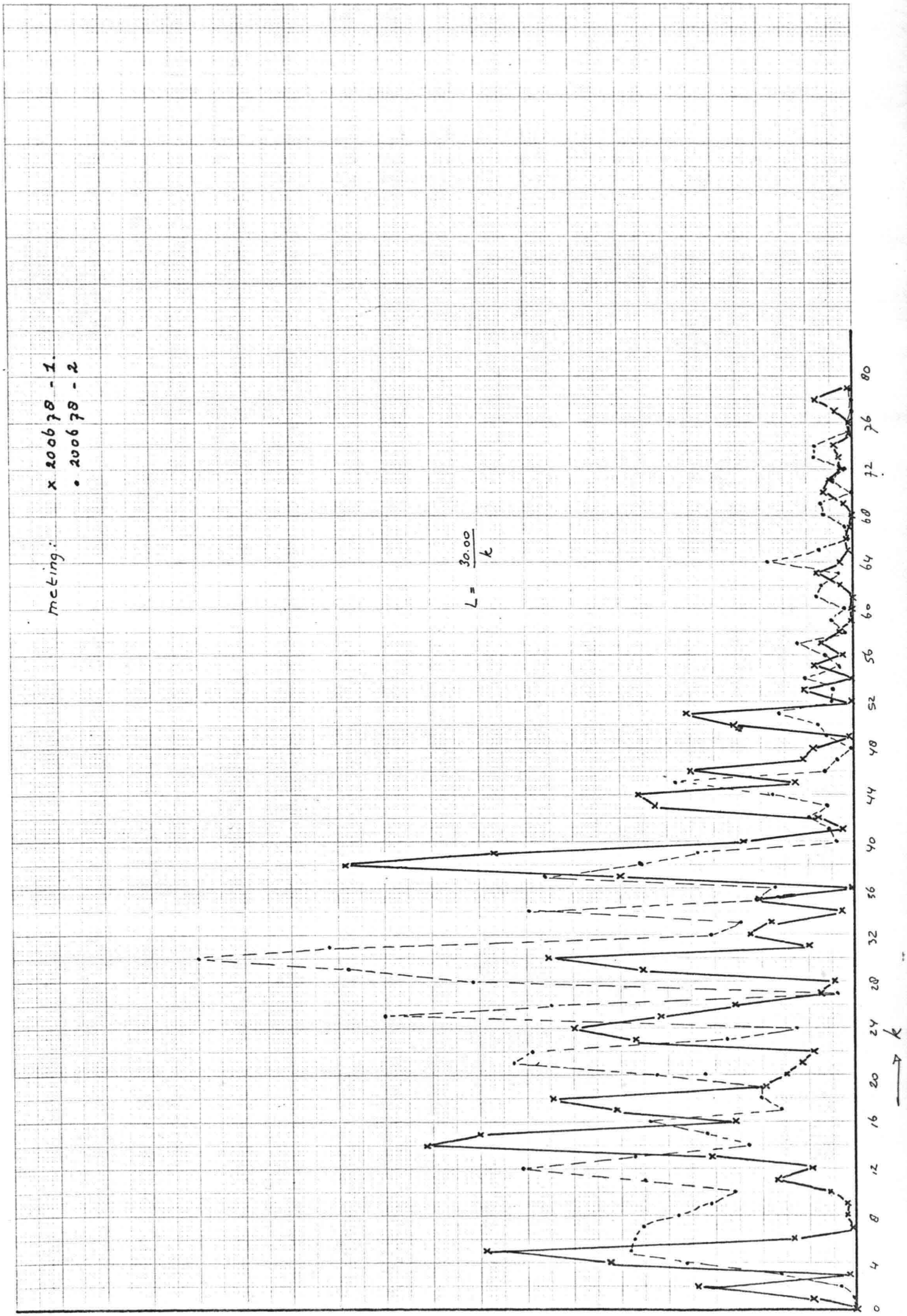

profiel 2
(na 3-punts voortschrijdend gemiddelde)
□ gootbreedte : 0.30 m
▲ goottbreedte : 0.50 m
Histogram -
klasse breedte : 0.25 cm
k.d.f: 0.24
%
0.20
0.16
0.12
0.08
0.04
5
4
3
2
1
0
H(cm) t.o.v helling

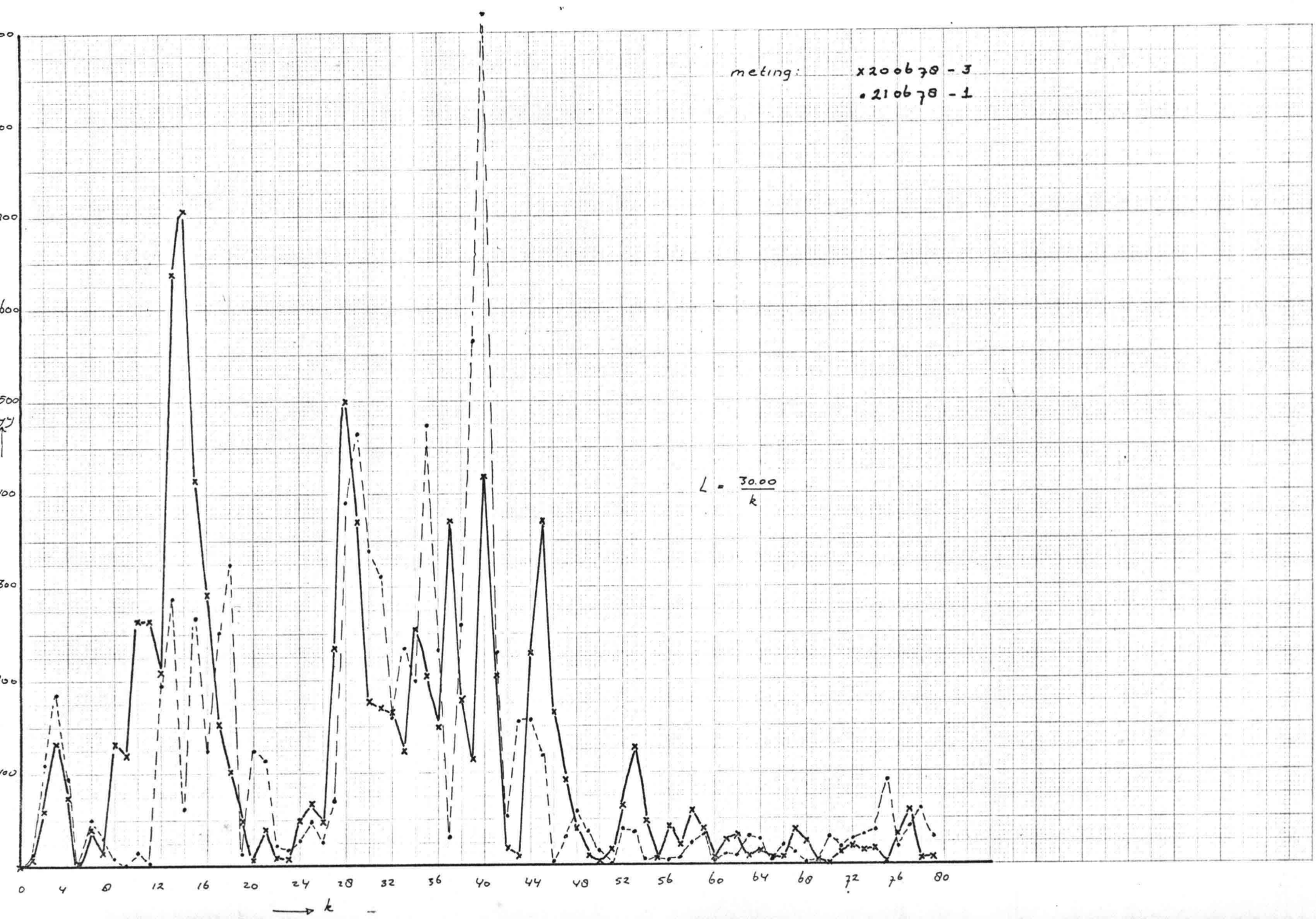

melting x 120678 -3
• 130638 -1
L - 30.00/k
k
(L = 30.00)


meting : x 130678 - 2
• 140678 - 1
$L = \frac{30.00}{k}$
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

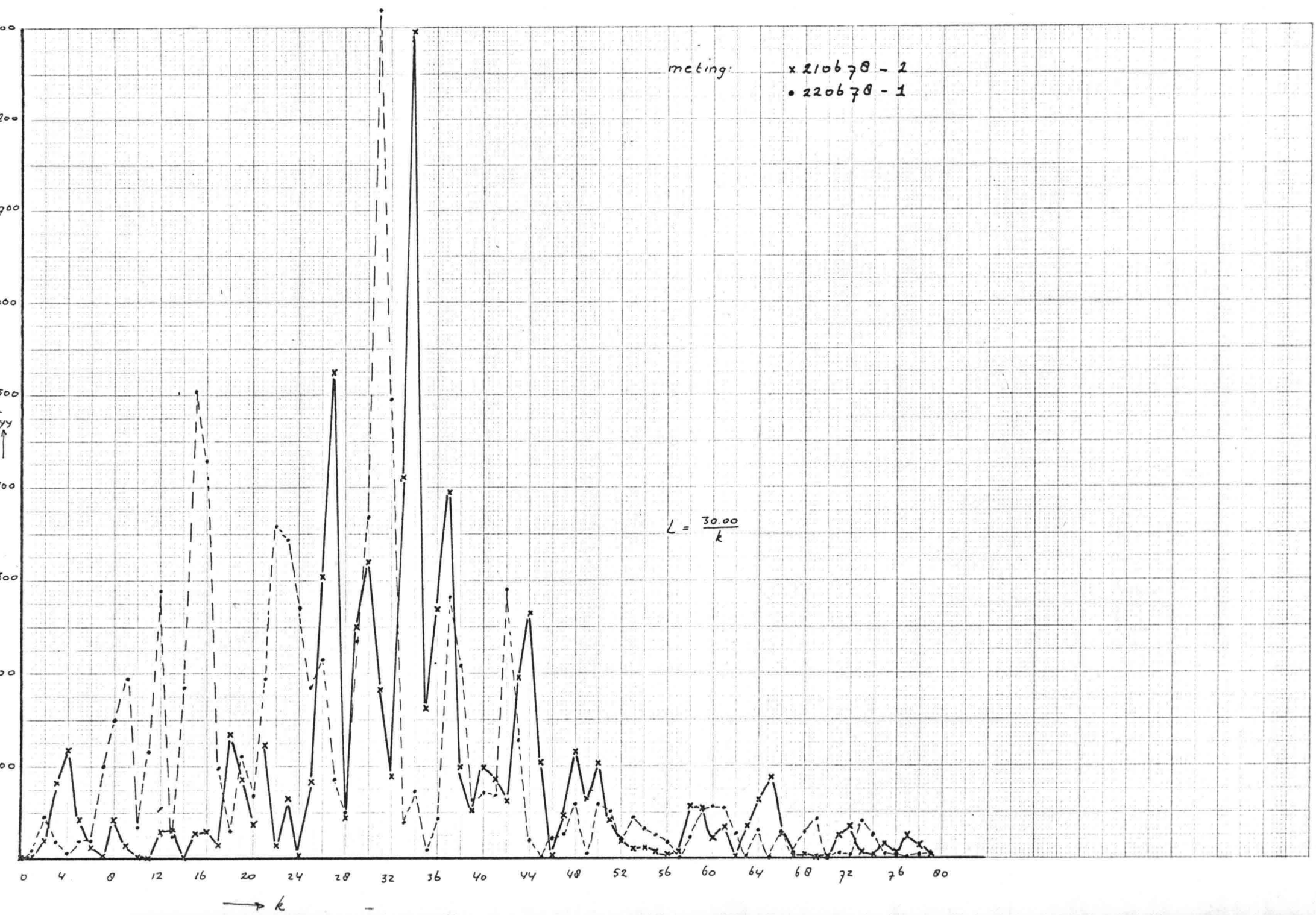
3.63 B


melting:
x 140678-2
• 140678-3
$L = \frac{30.00}{K}$
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
K

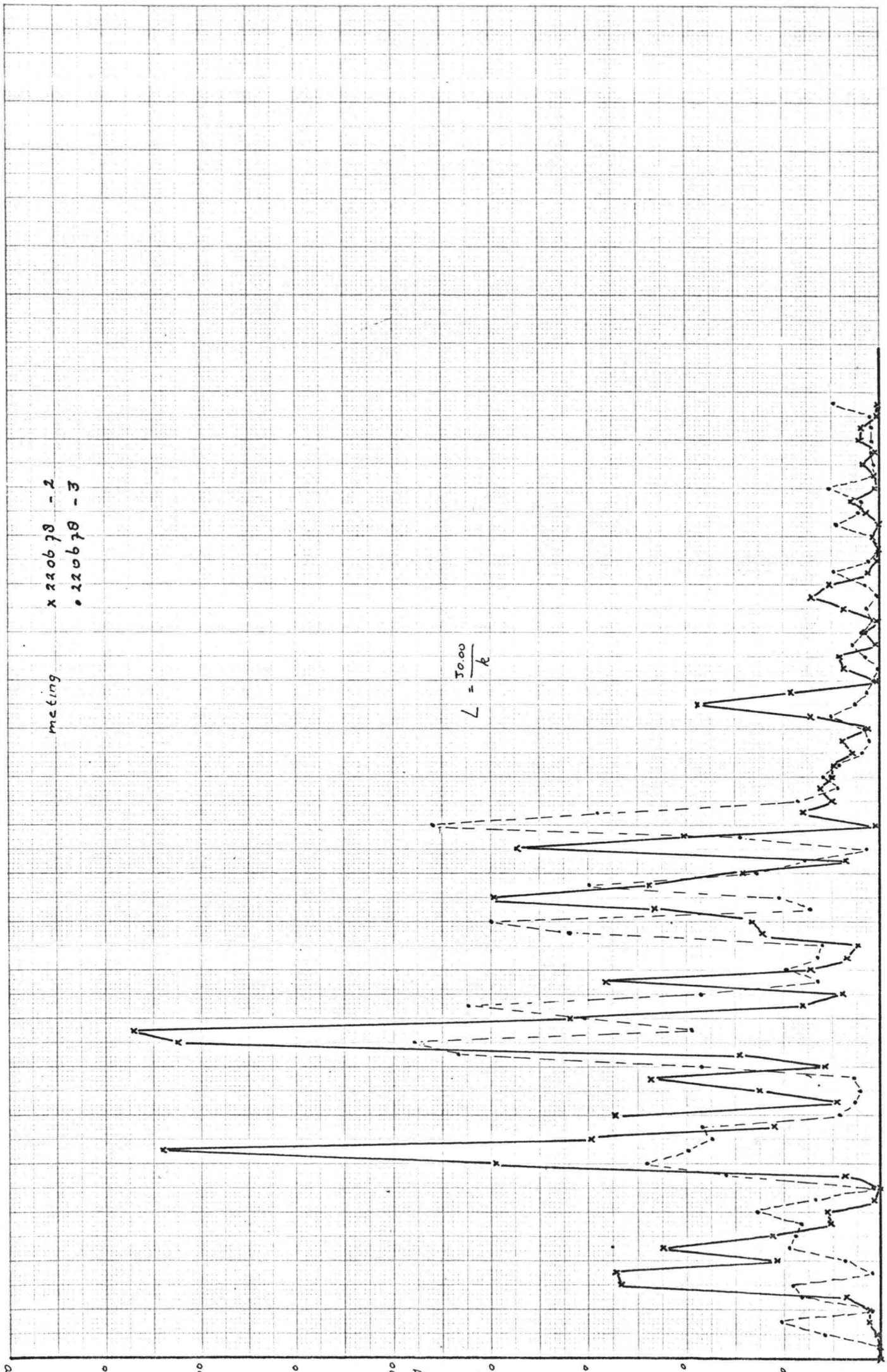

meting: x 200678 - 1.
• 200678 - 2
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k

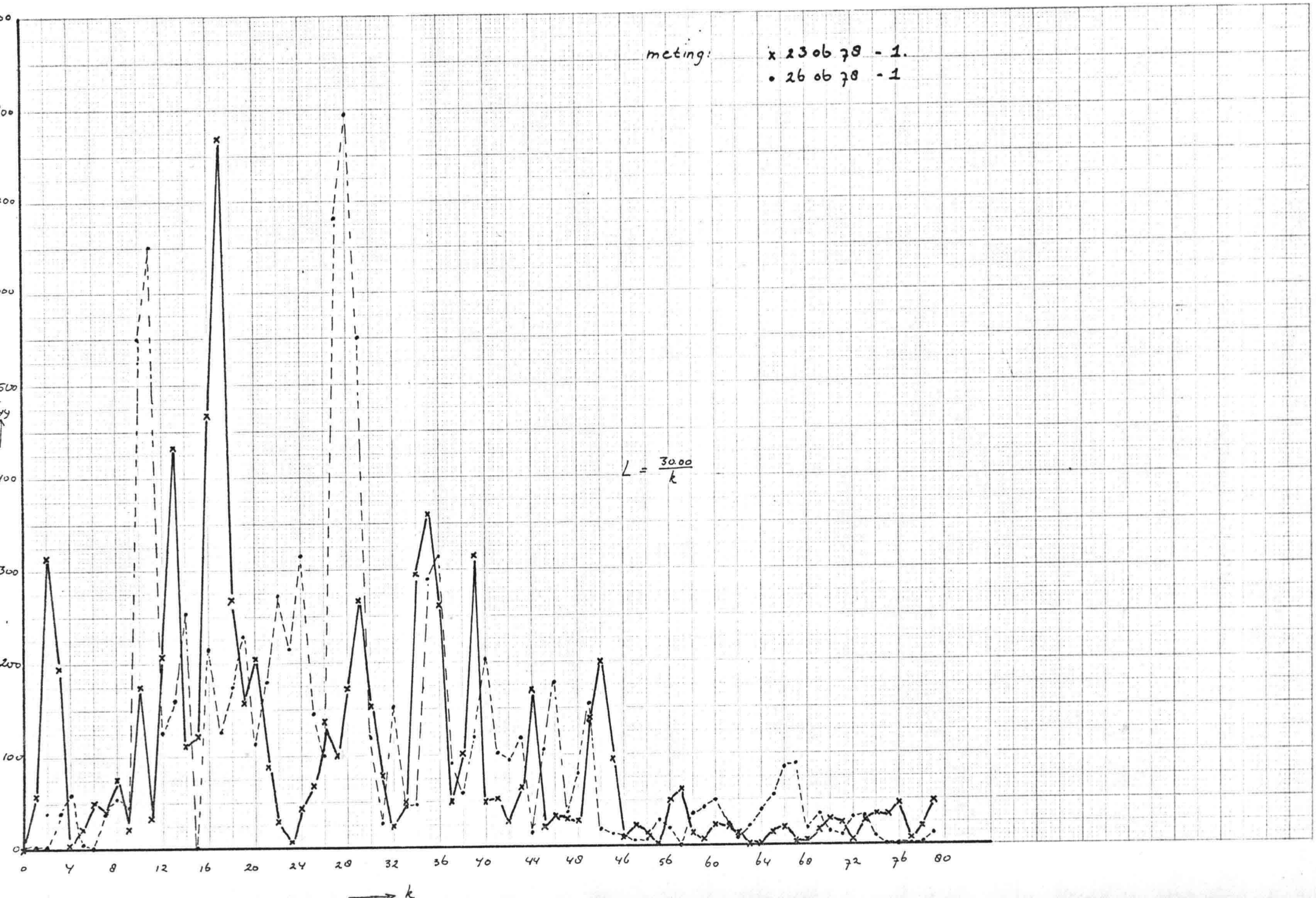

meting: x200678 - 3
• 210678 - 1
L = 30.00 / k
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

3.63 E

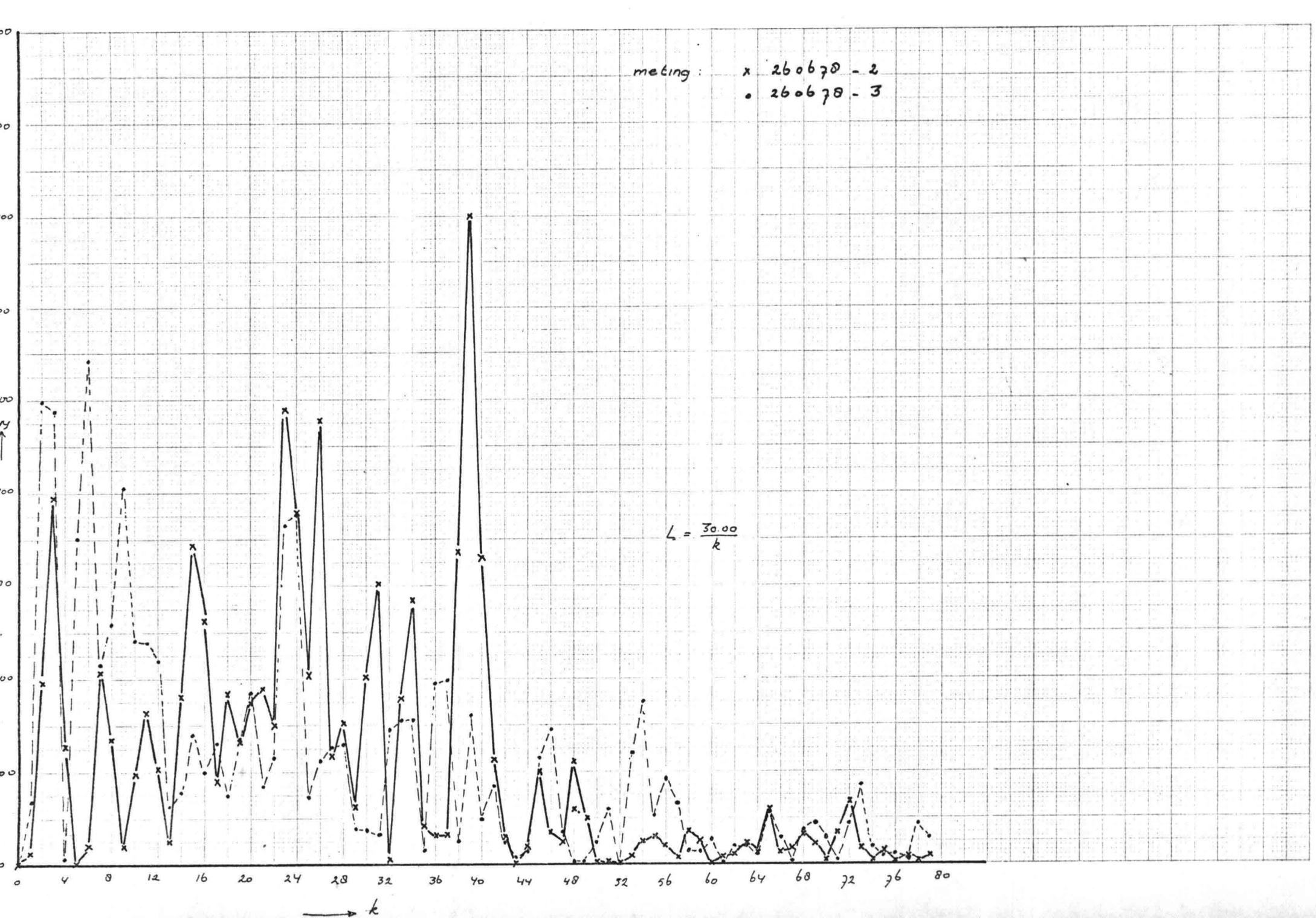

meting: x 210678 - 2
• 220678 - 1
L = 30.00 / k
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

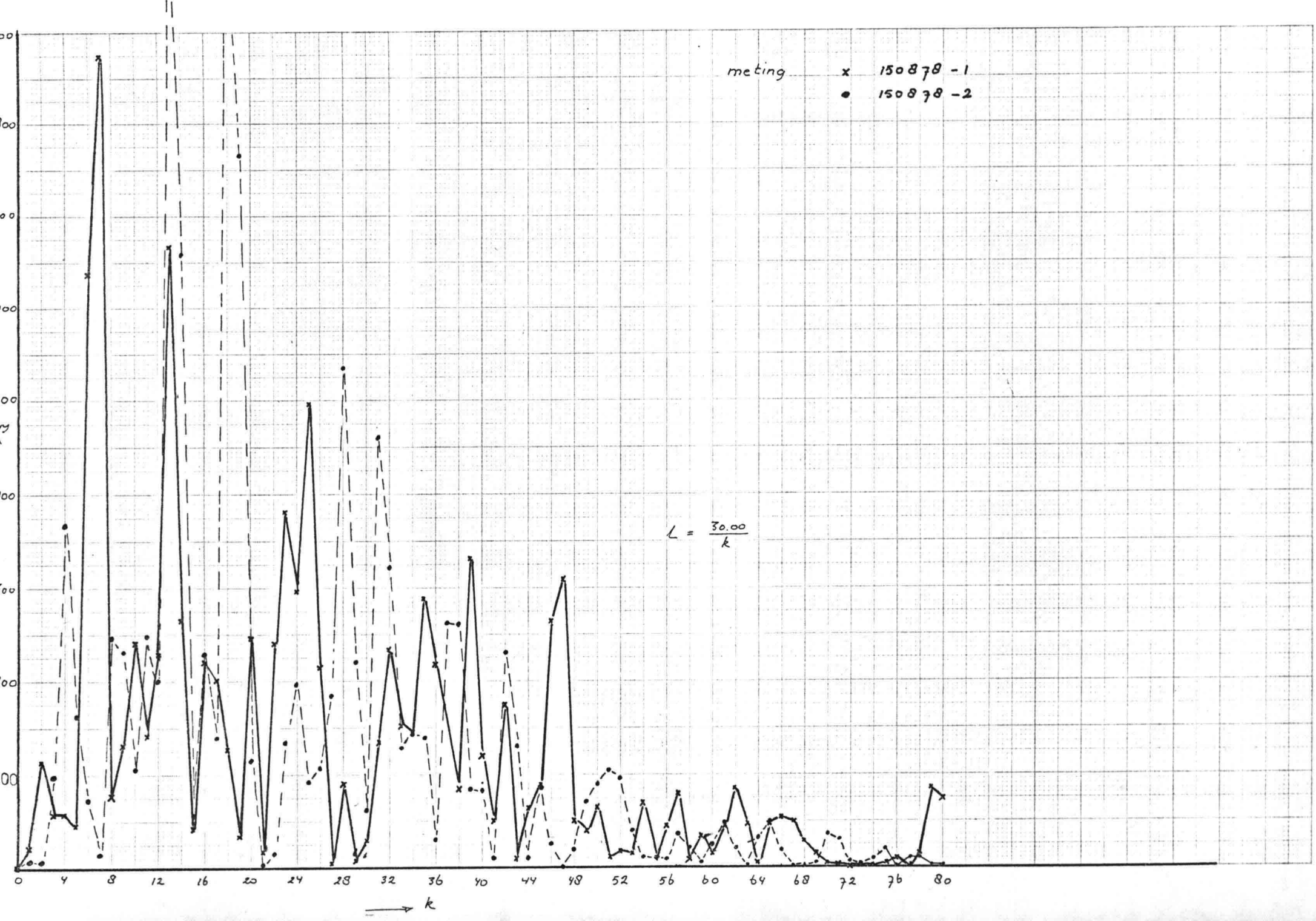
3.63 F


melting
x 220678 - 2
• 220678 - 3
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80

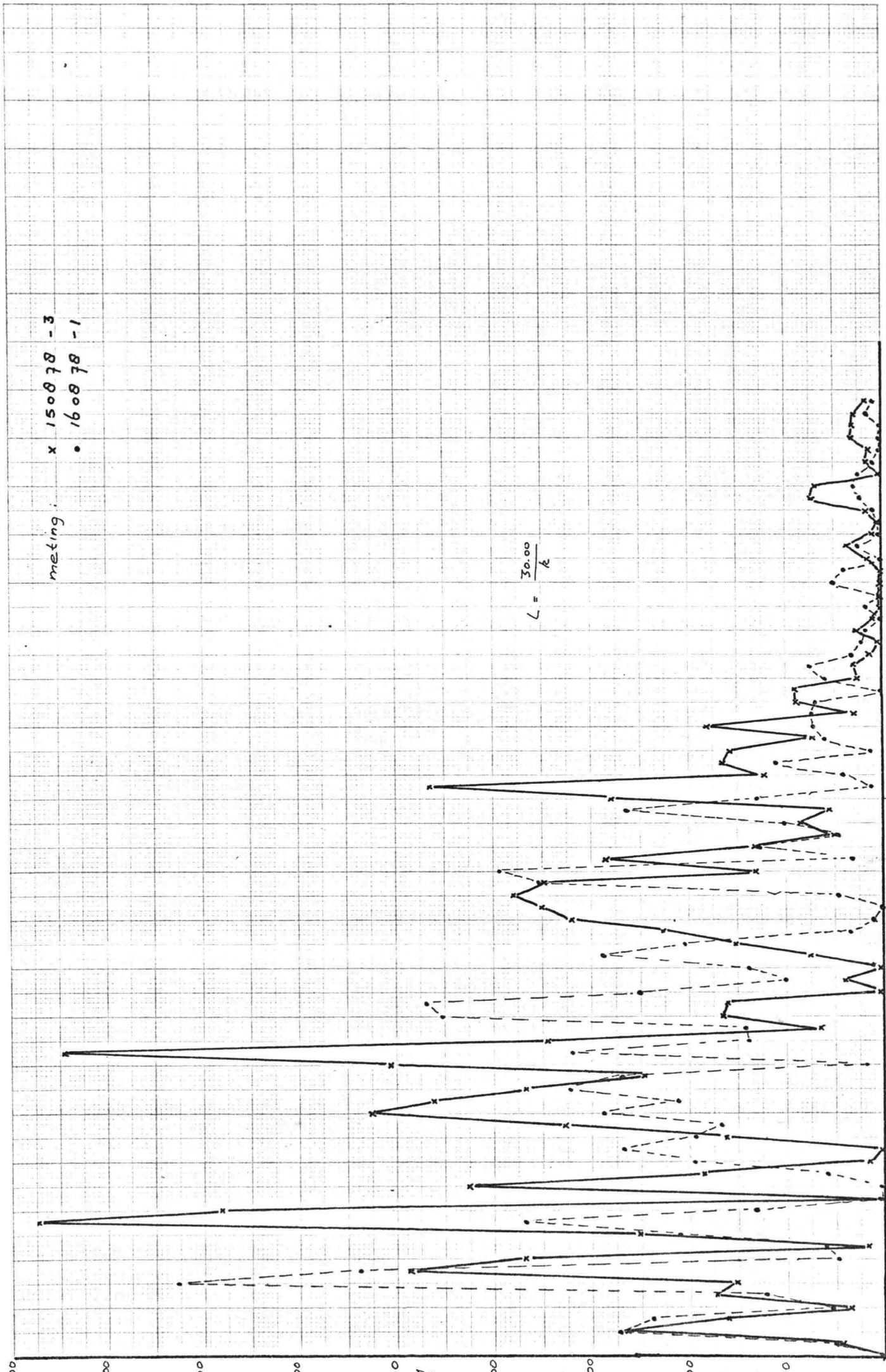

meting:
x 23 06 78 - 1.
• 26 06 78 - 1
L = 3000/k
0
100
200
300
400
500
0 4 8 12 16 20 24 28 32 36 40 44 48 46 56 60 64 68 72 76 80
k

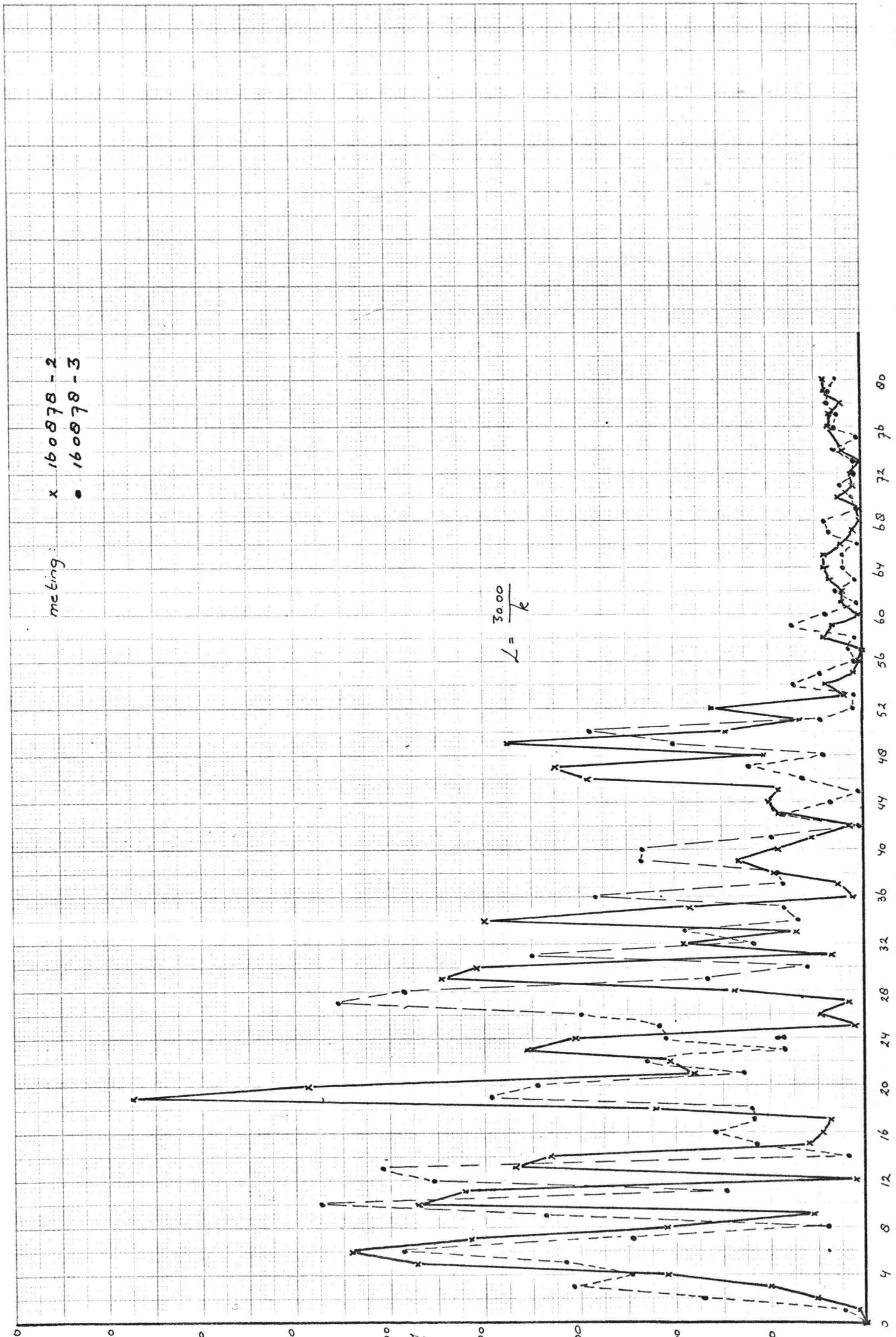
3.63 H

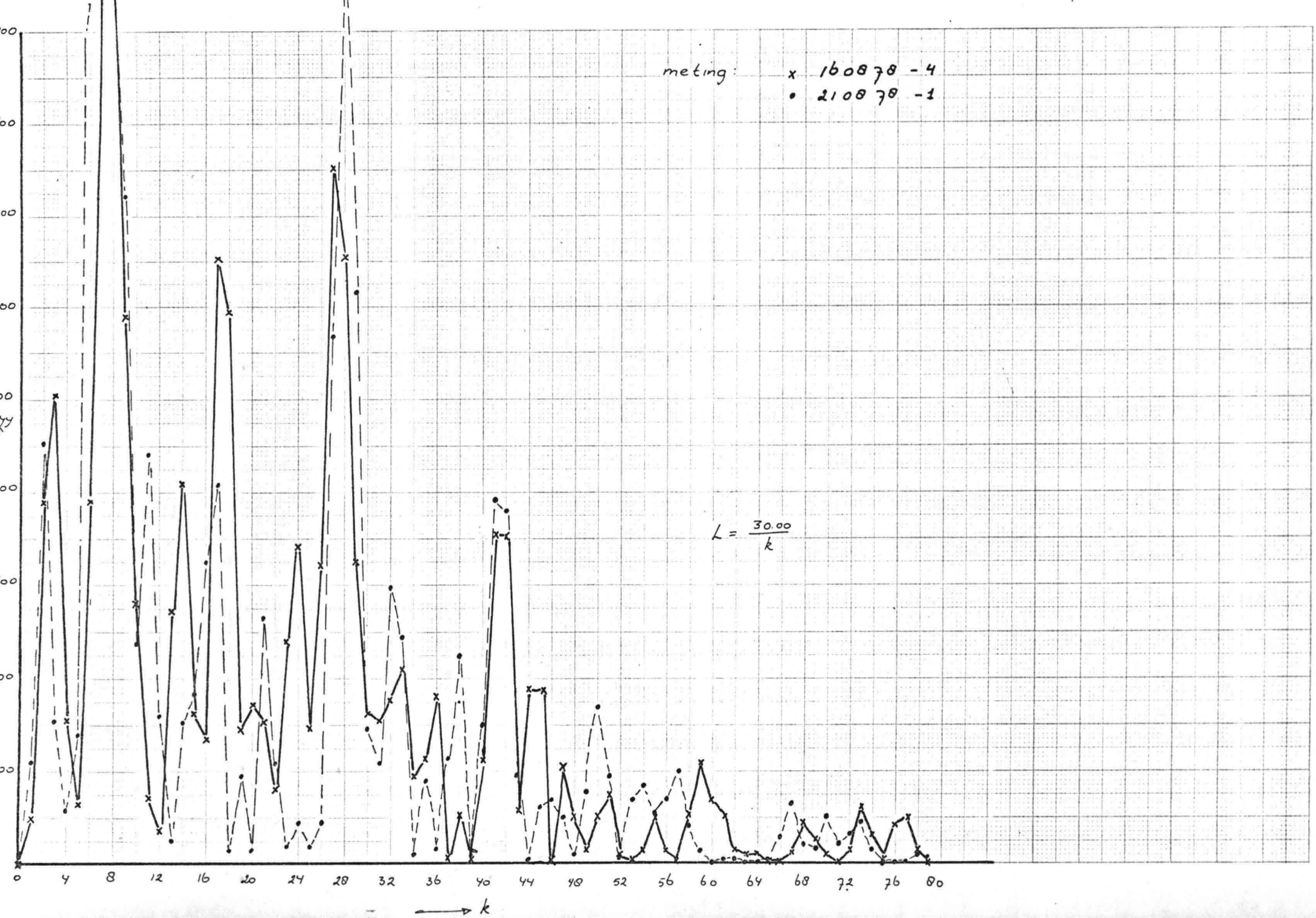

meting: x 260678 - 2
• 260678 - 3
$L = \frac{30.00}{k}$
3.63 K
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k

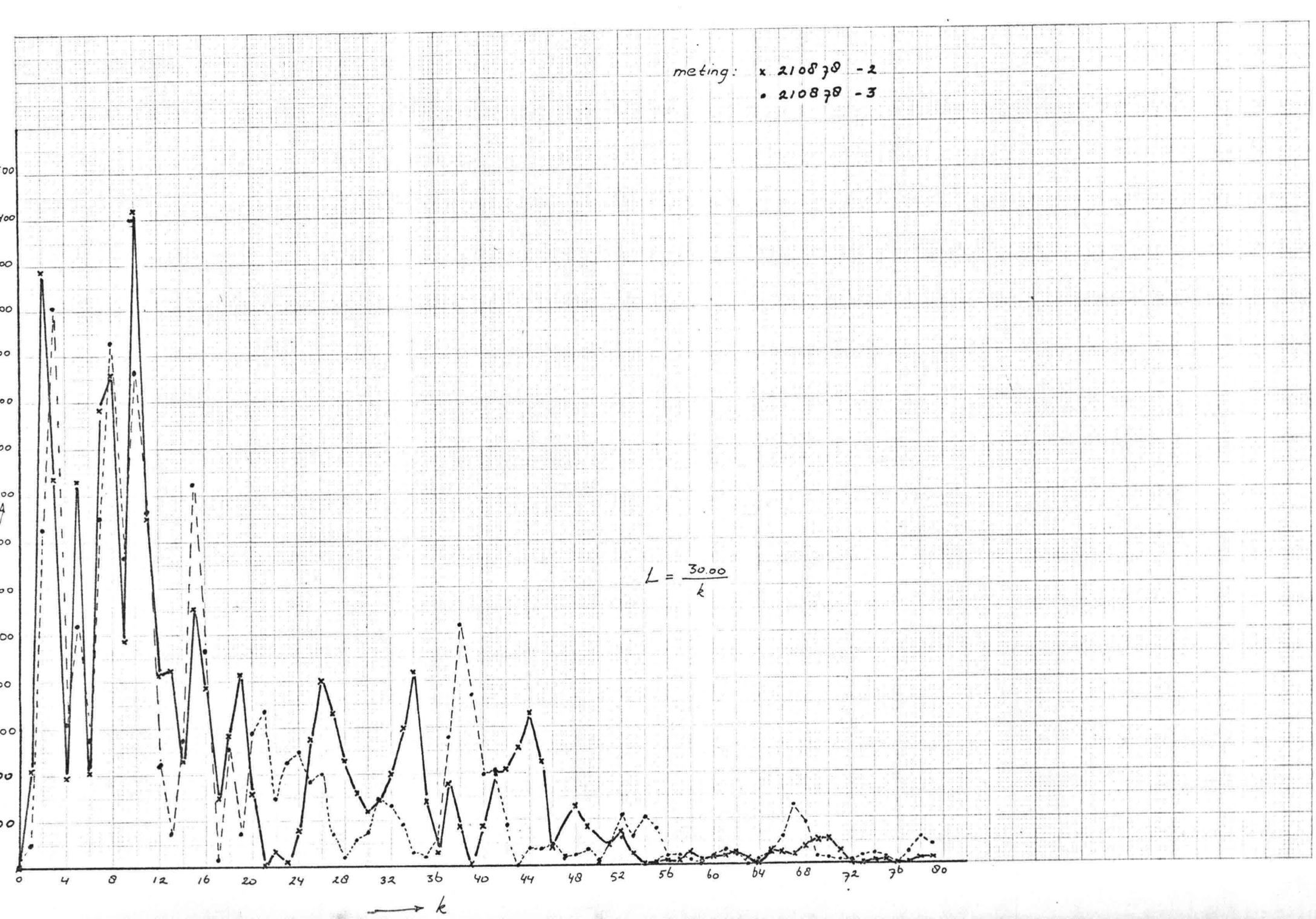

meting
× 150878 -1
• 150878 -2
L = 30.00 / k
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

3.64 A

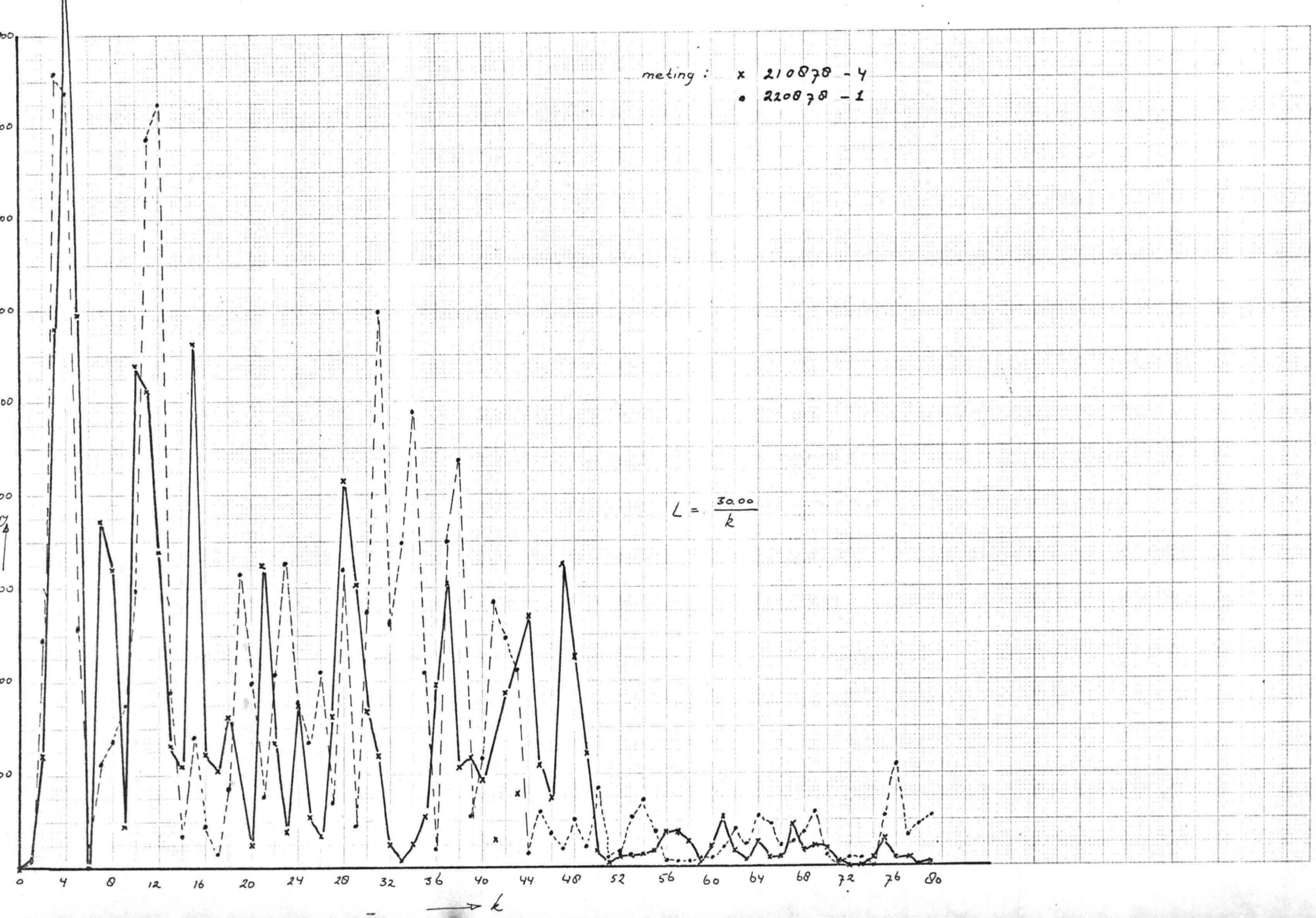

meting: x 150878 -3
• 160878 -1
$L = \frac{30.00}{k}$
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k


meting: x 160878-2
• 160878-3
L = 3000/k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k

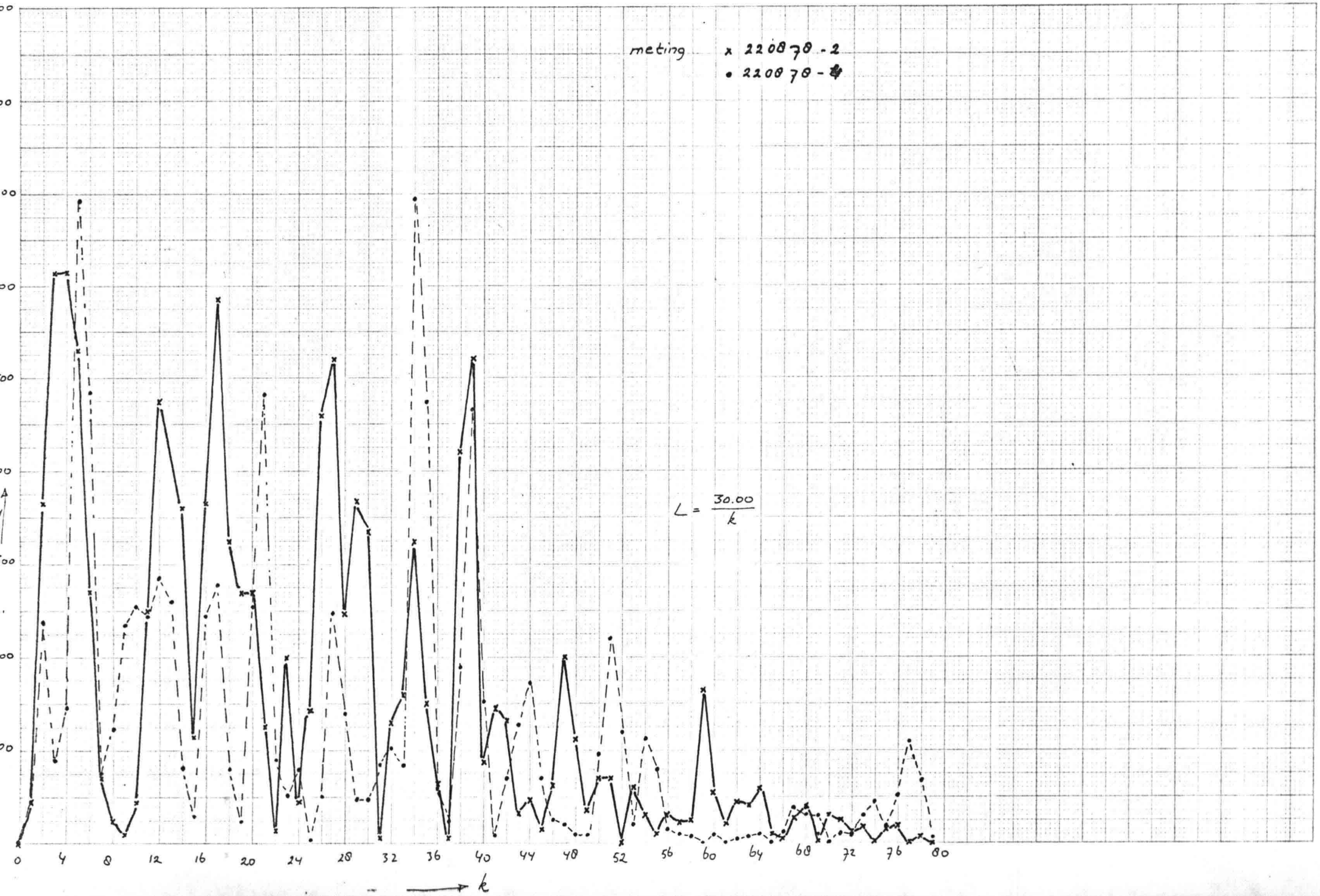

meting:
x 160878 - 4
• 210878 - 1
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k


meting: x 210878 -2
• 210878 -3
$L = \frac{30.00}{k}$
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

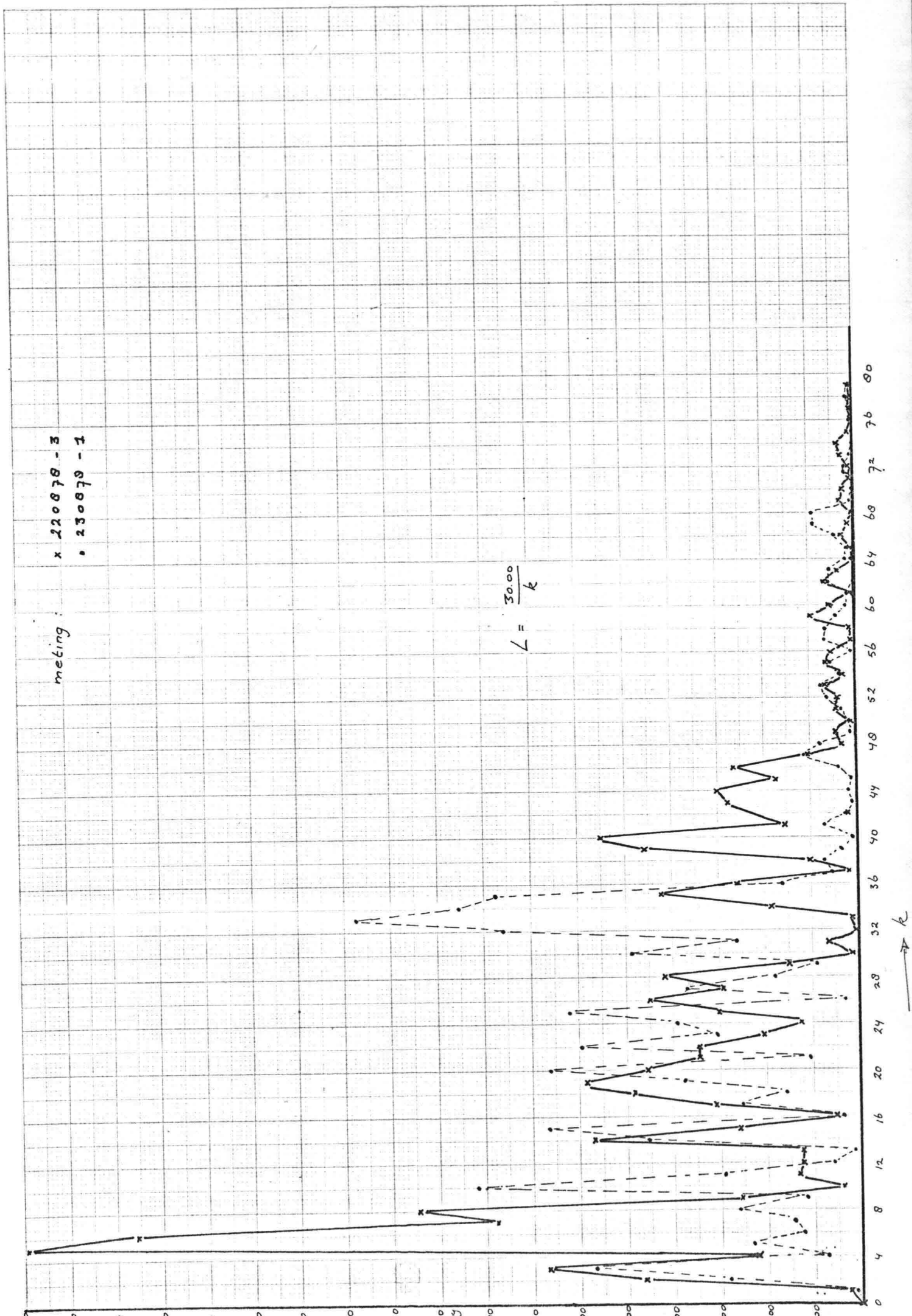
3.64 E


meting : x 210878 - 4
• 220878 - 1
L = 30.00 / k
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

3.64 F


meting
x 220870-2
• 220870-4
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k

3.64 G


meting :
x 220878 - 3
• 230879 - 1
$\lambda = \frac{30.00}{k}$
k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
100
200
300
400
500
600
700
800
900
1000
1100
1200
1300
1400
1500
1600
1700
1800
1900
2000
2100
2200
2300
2400
2500
2600
2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700
3800
3900
4000
4100
4200
4300
4400
4500
4600
4700
4800
4900
5000
5100
5200
5300
5400
5500
5600
5700
5800
5900
6000
6100
6200
6300
6400
6500
6600
6700
6800
6900
7000
7100
7200
7300
7400
7500
7600
7700
7800
7900
8000
8100
8200
8300
8400
8500
8600
8700
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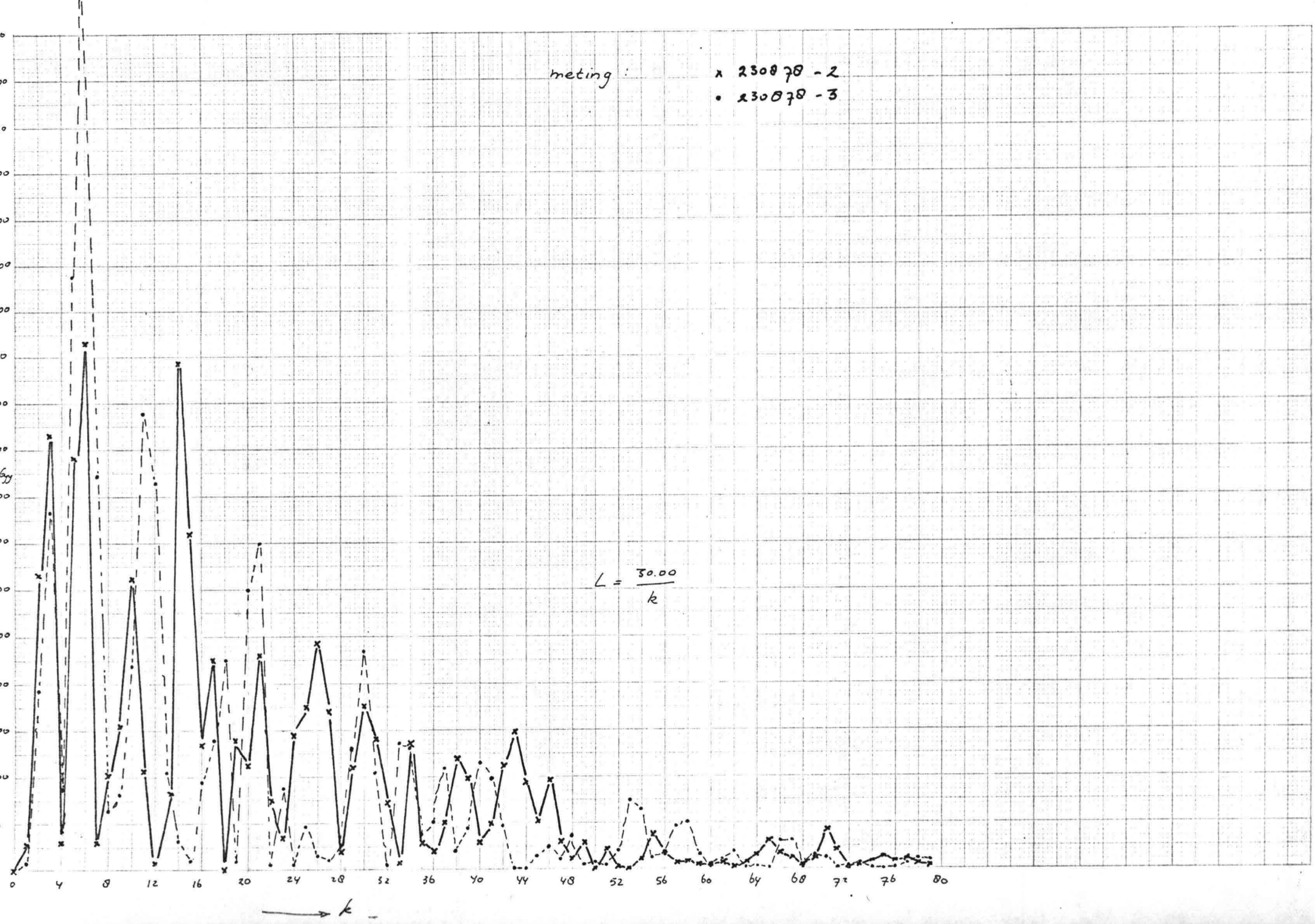
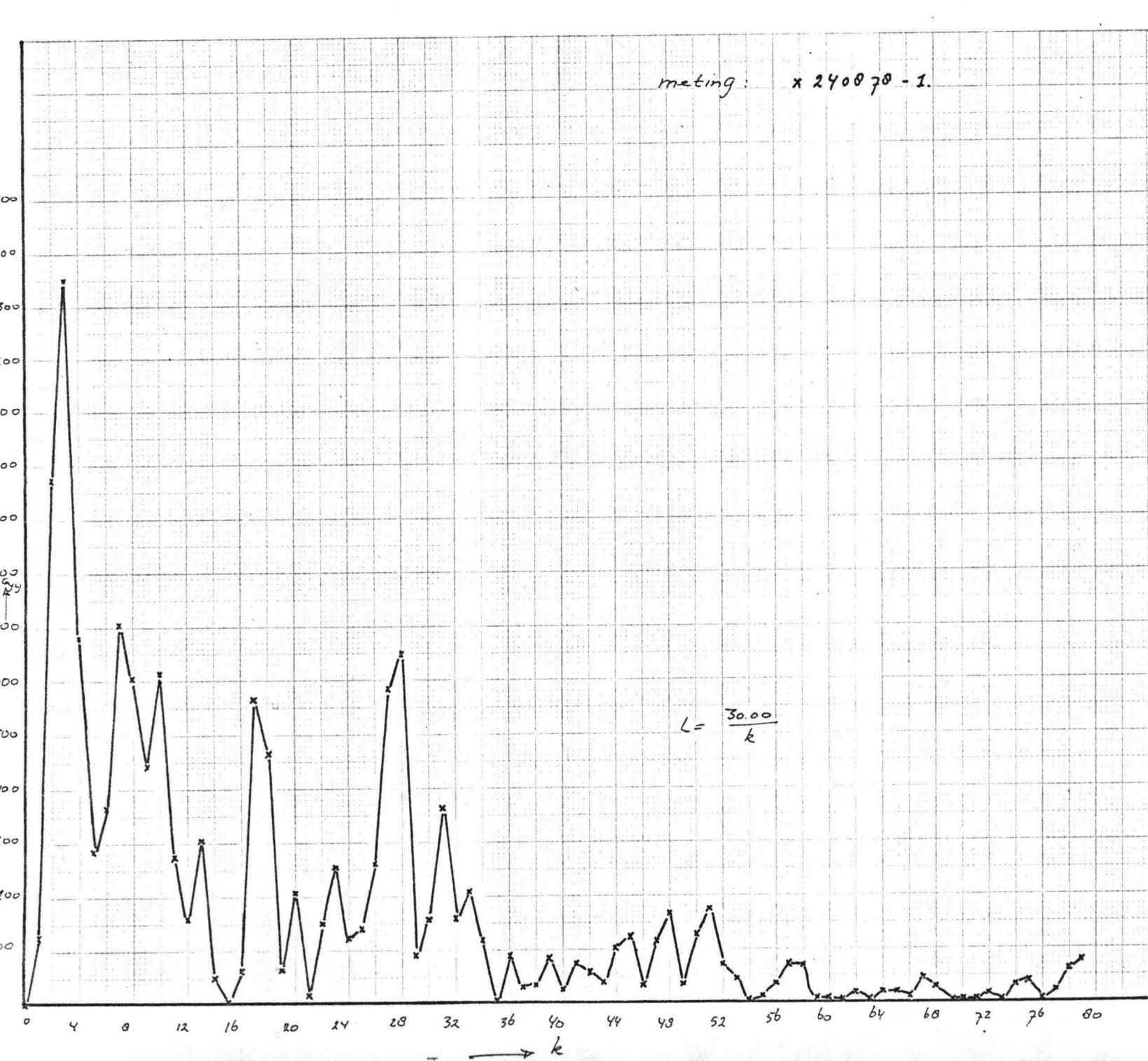
8900
9000
9100
9200
9300
9400
9500
9600
9700
9800
9900
10000


meting :
x 230878 - 2
• 230878 - 3
$L = \frac{30.00}{k}$
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

3.64 K

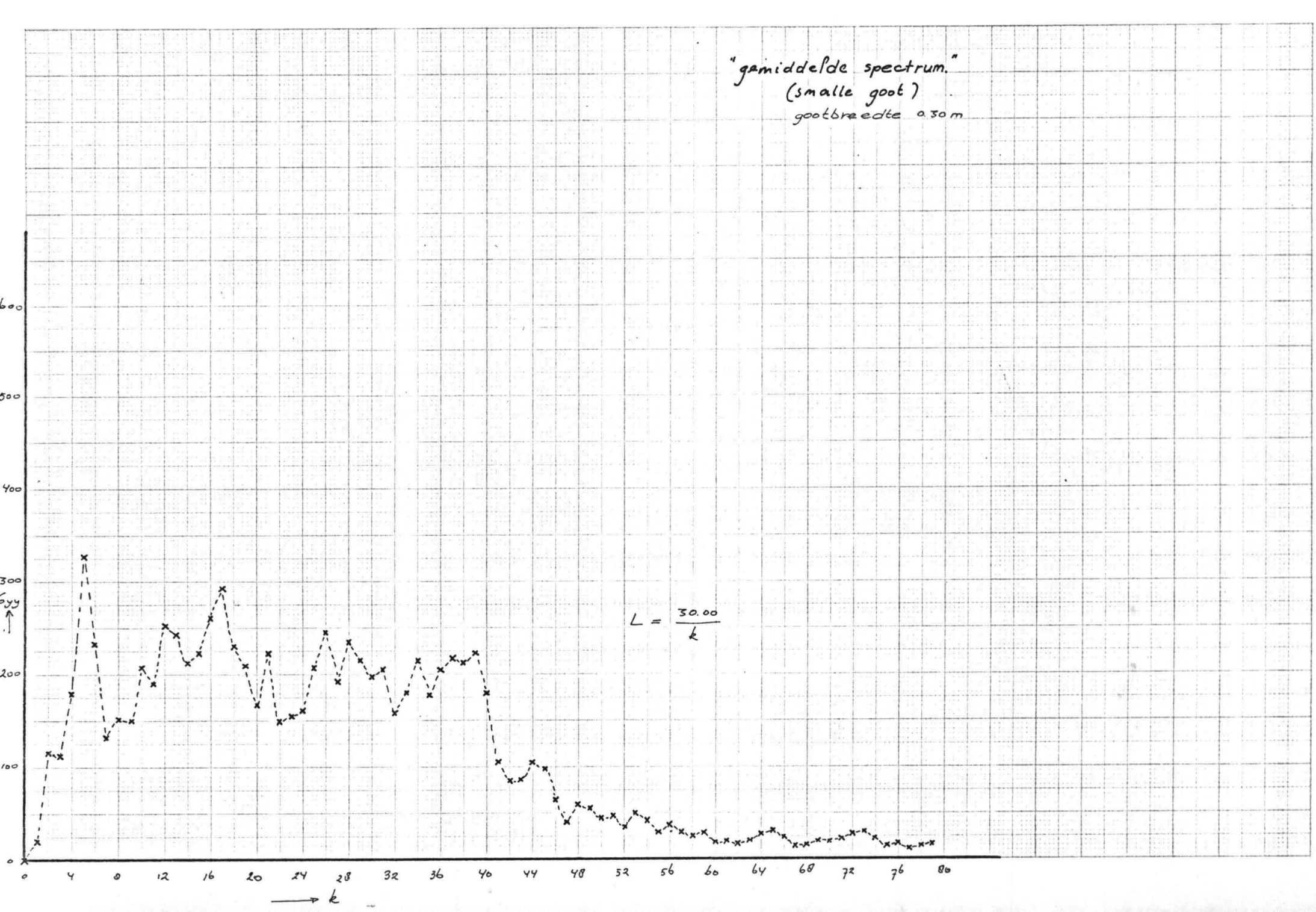
meting: x 240878 - 1.

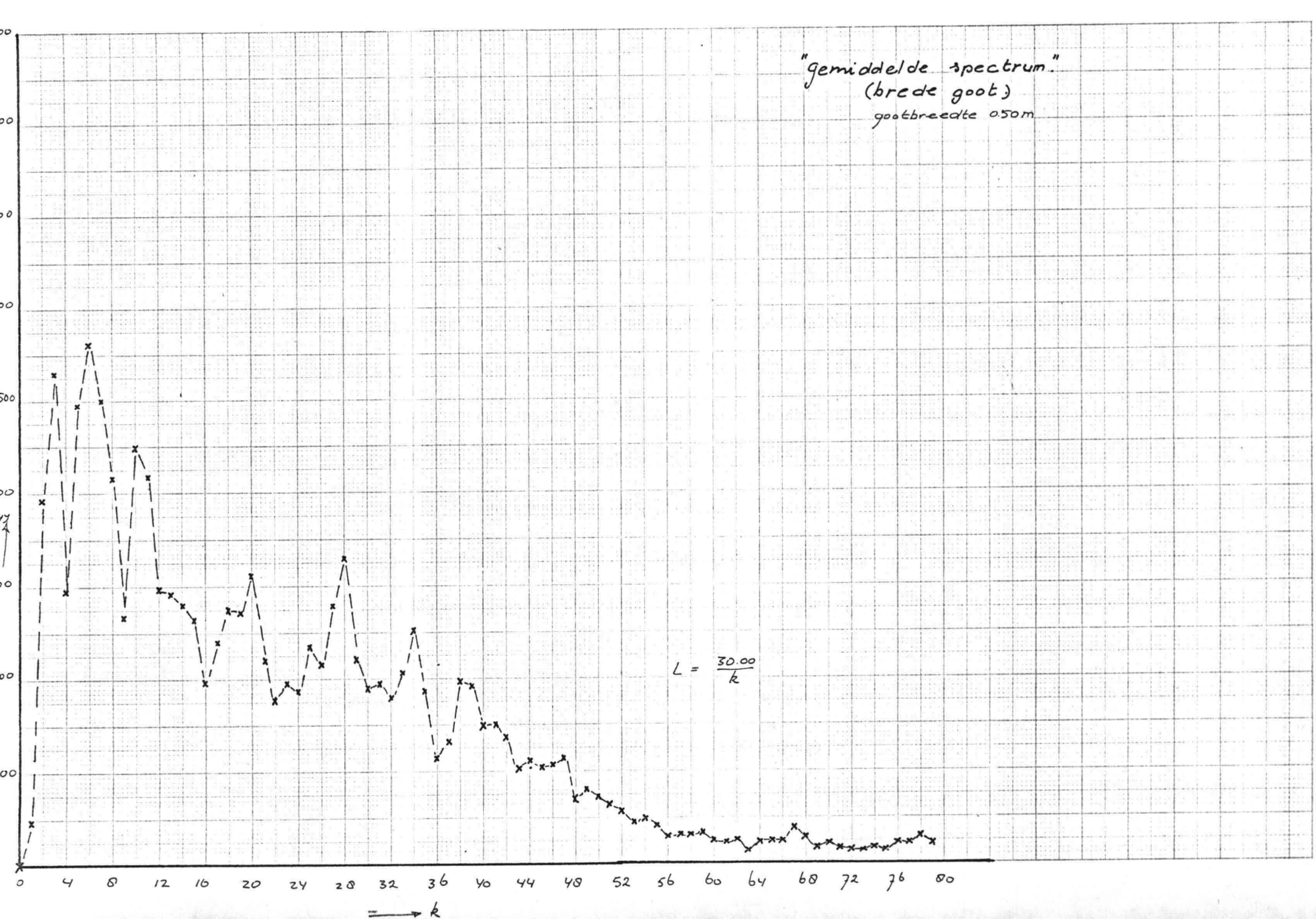
$L = \frac{30.00}{k}$

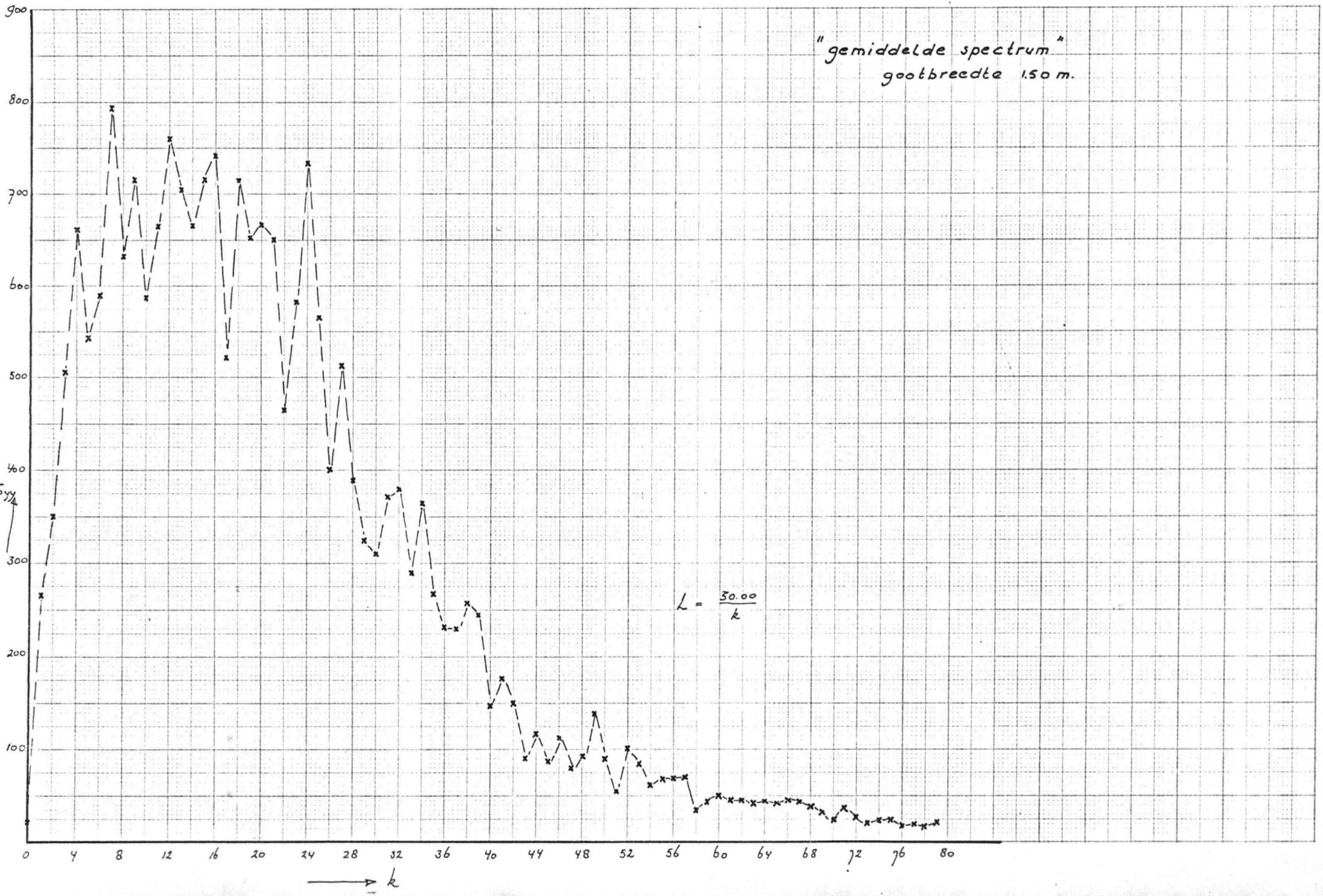


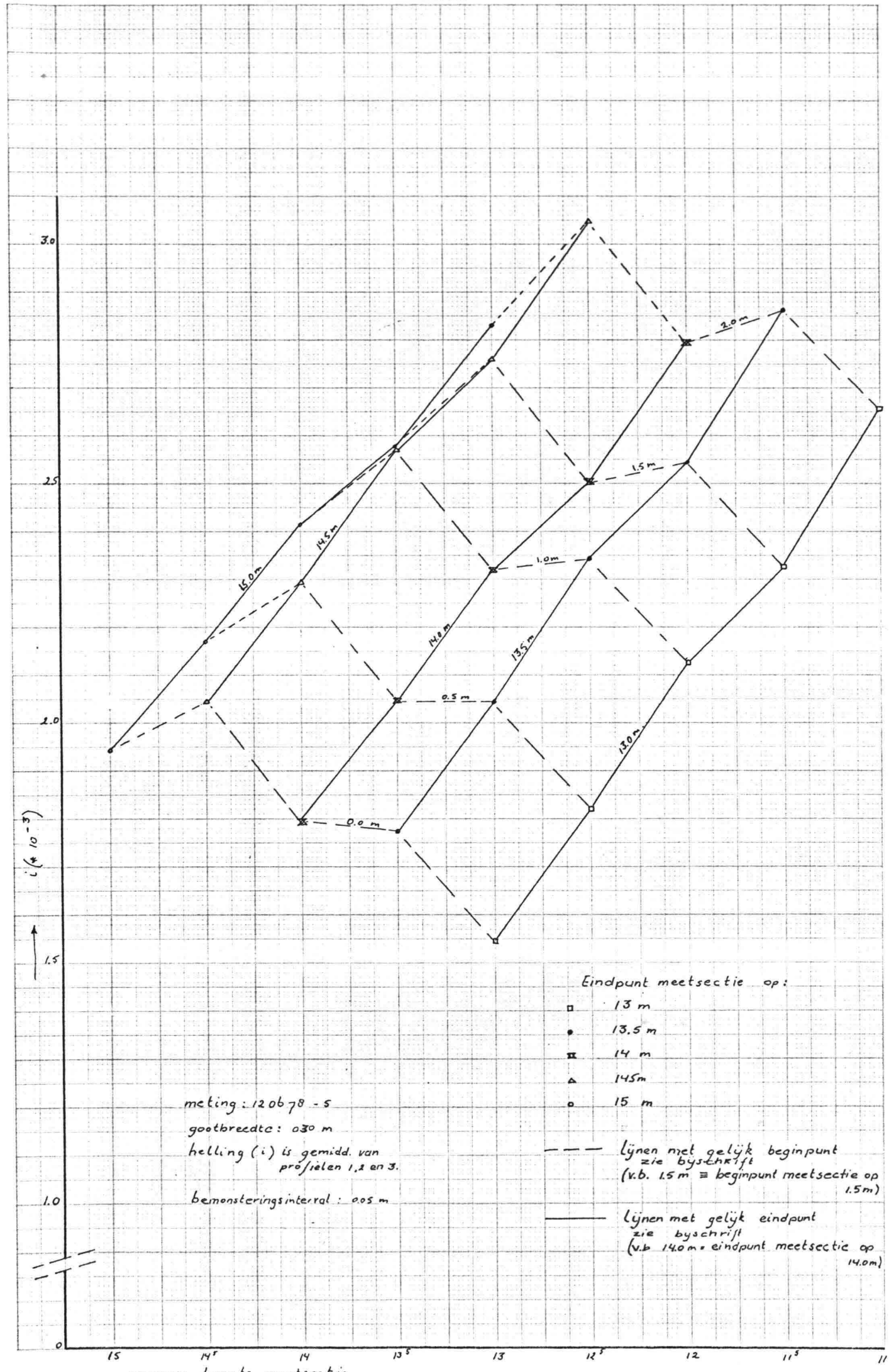
3.64 L

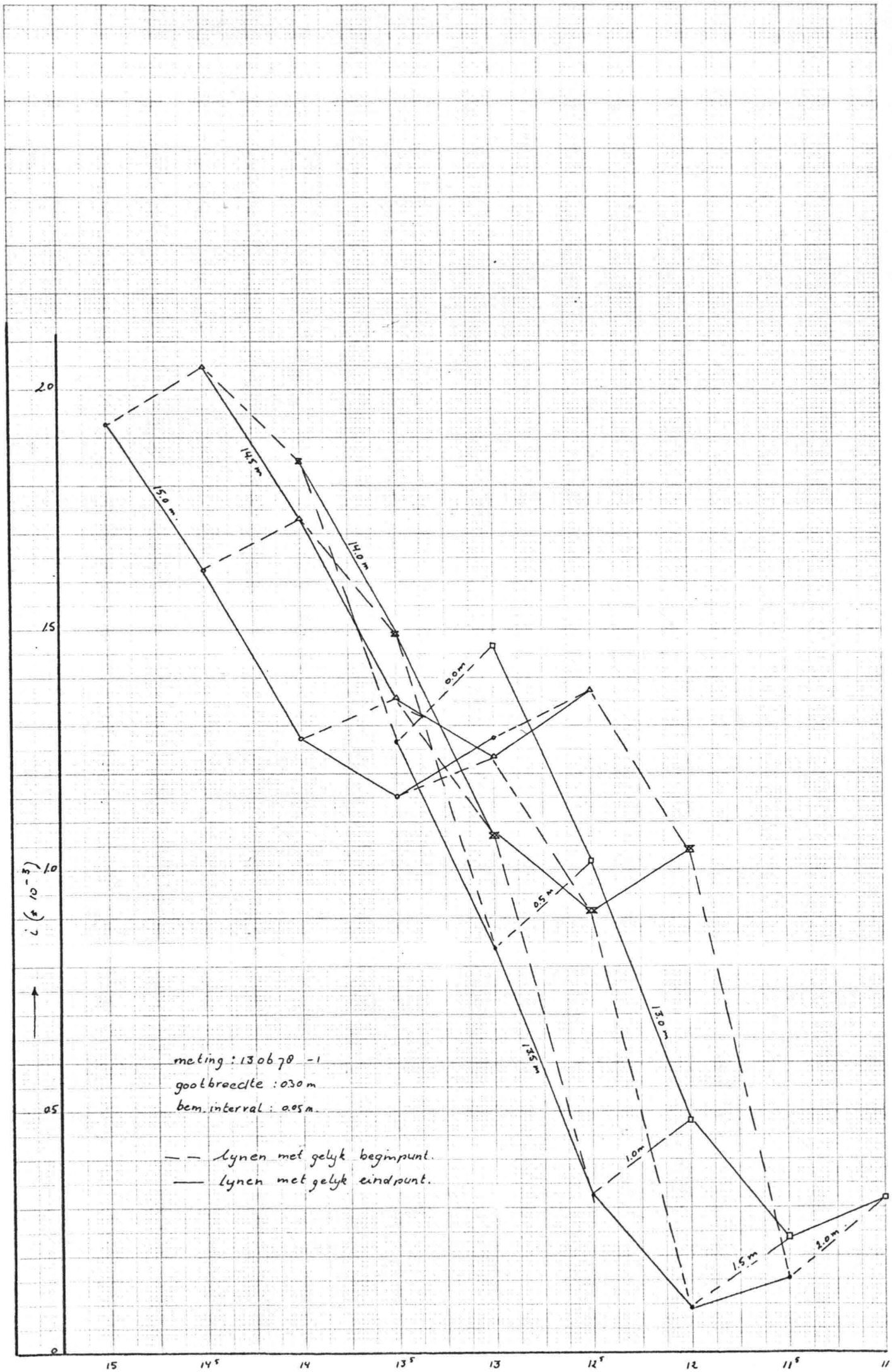
"gemiddelde spectrum."
(smalle goot)
gootbreedte 0.30 m

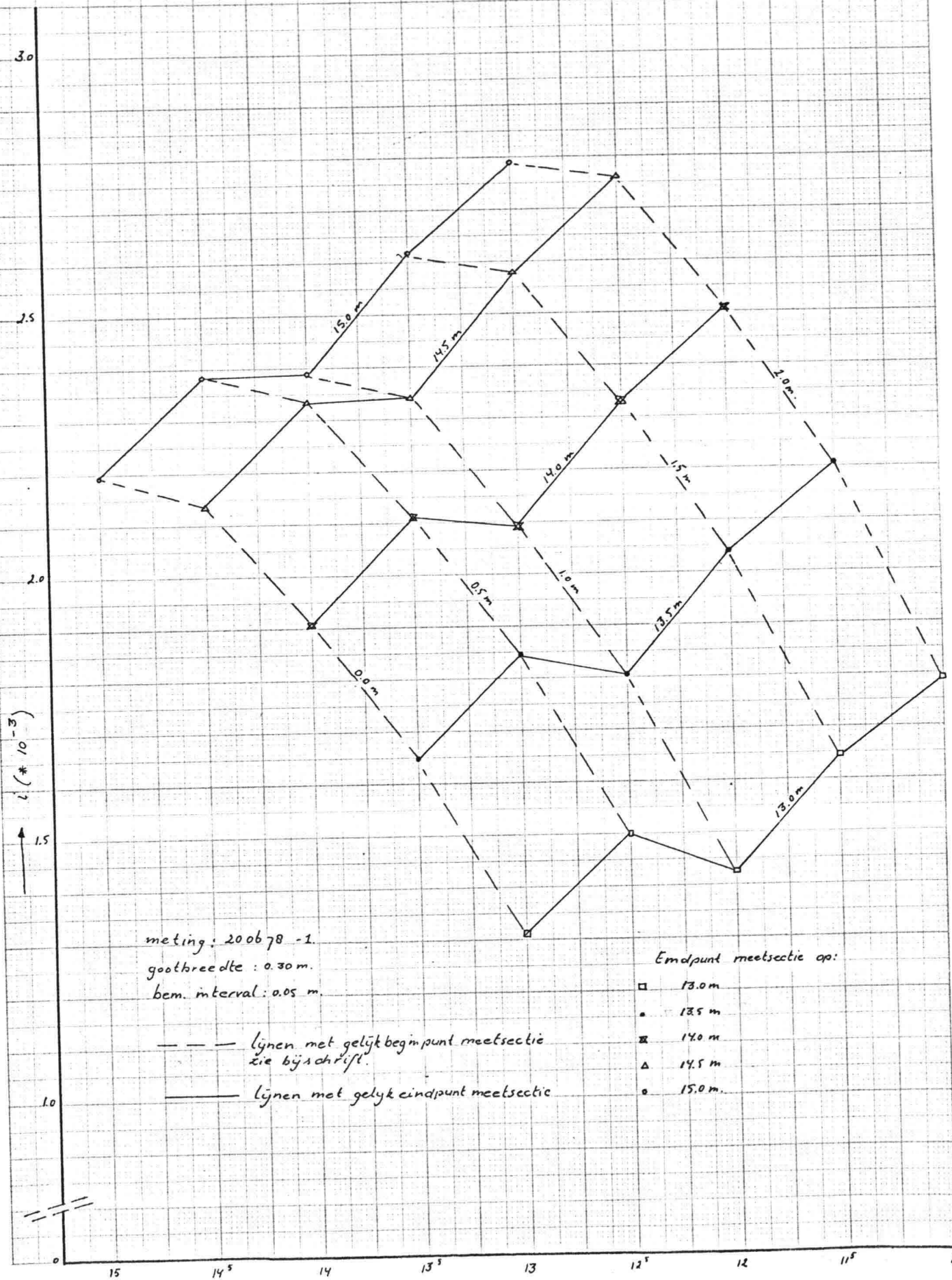


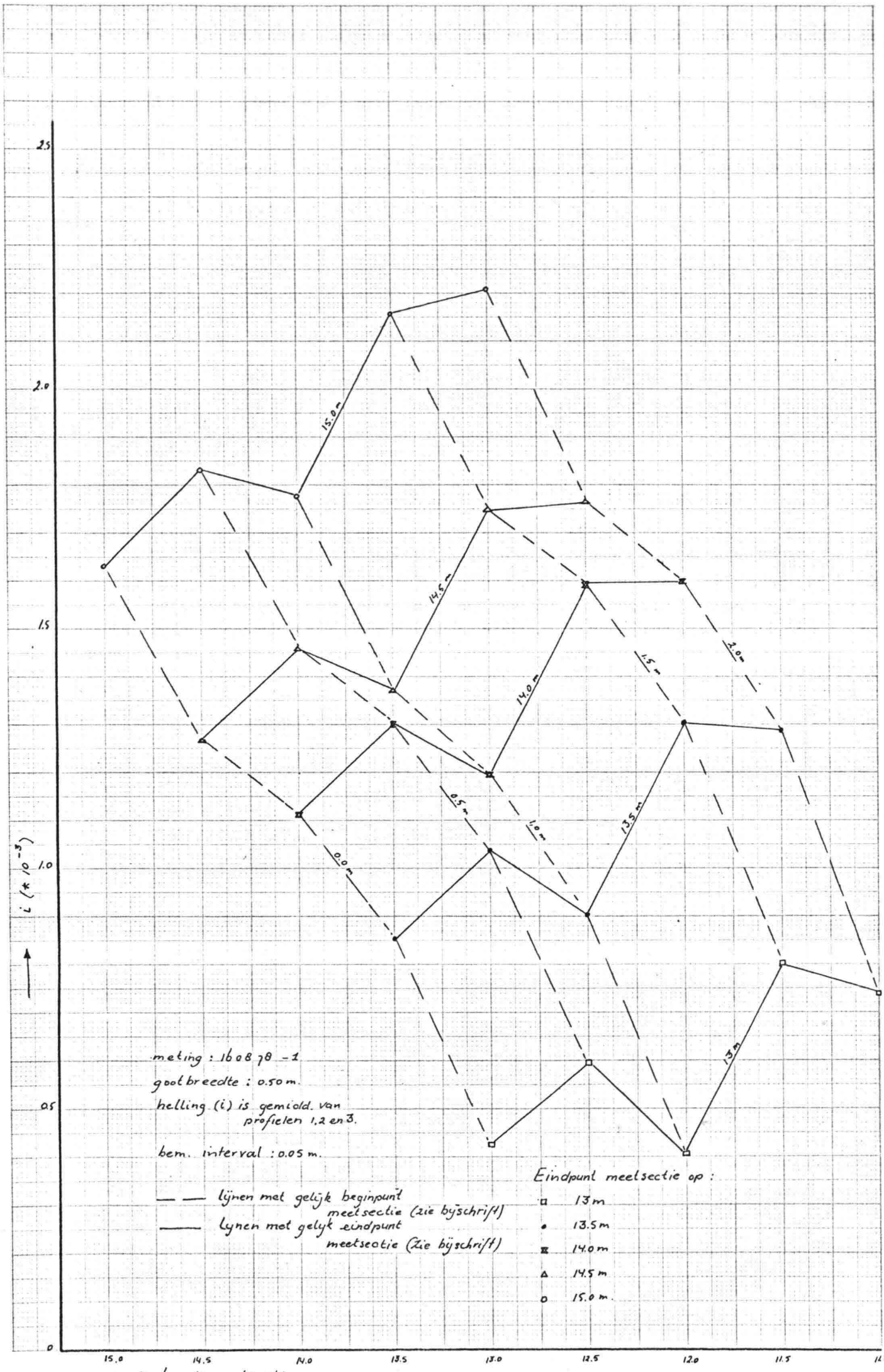

"gemiddelde spectrum"
(brede goot)
gootbreedte 0.50m
L = 30.00 / k
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64 68 72 76 80
k

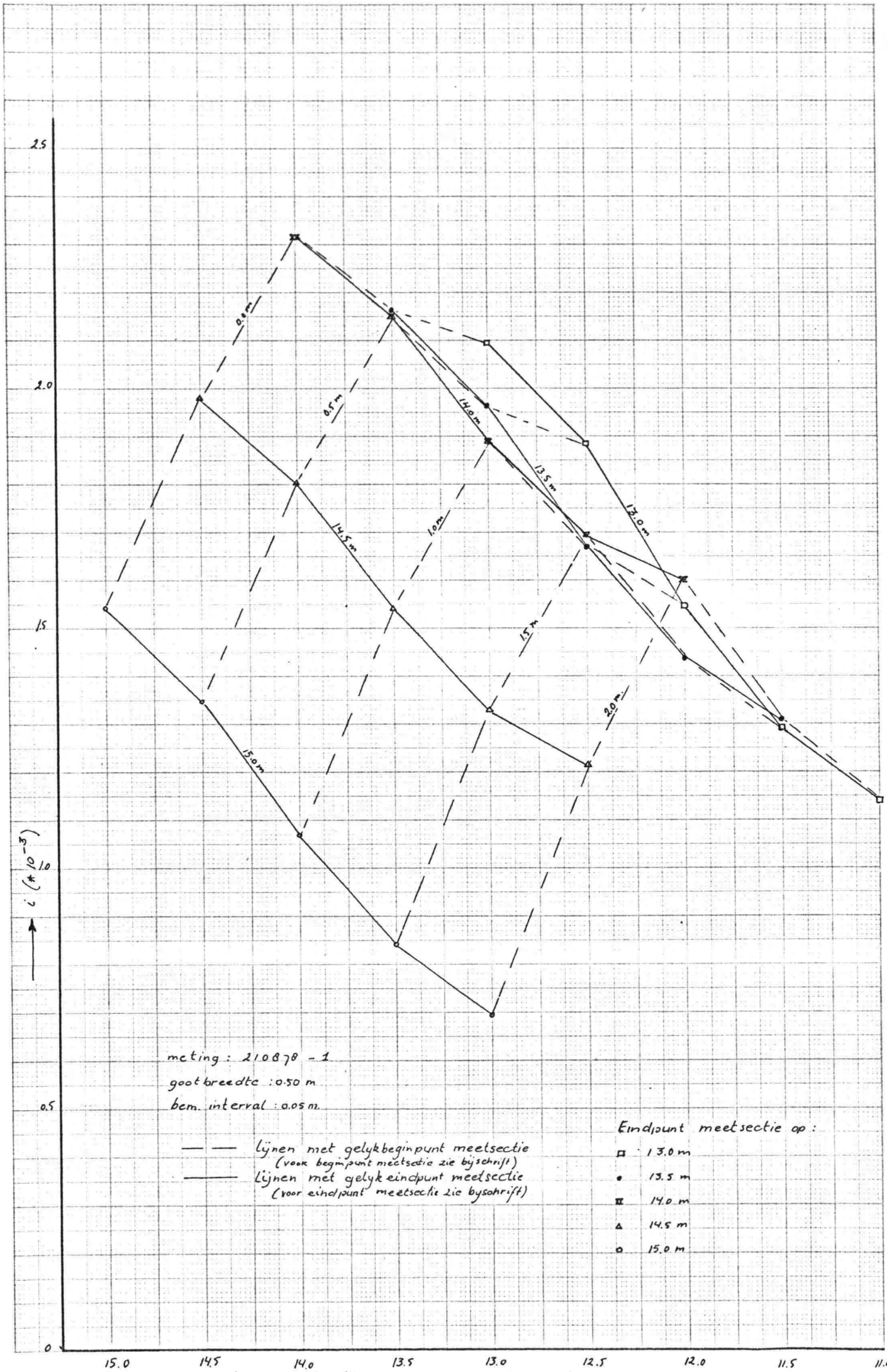

"gemiddelde spectrum"
gootbreedte 1.50 m.
L = 30.00 / k
900
800
700
600
500
400
300
200
100
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
76
80
k

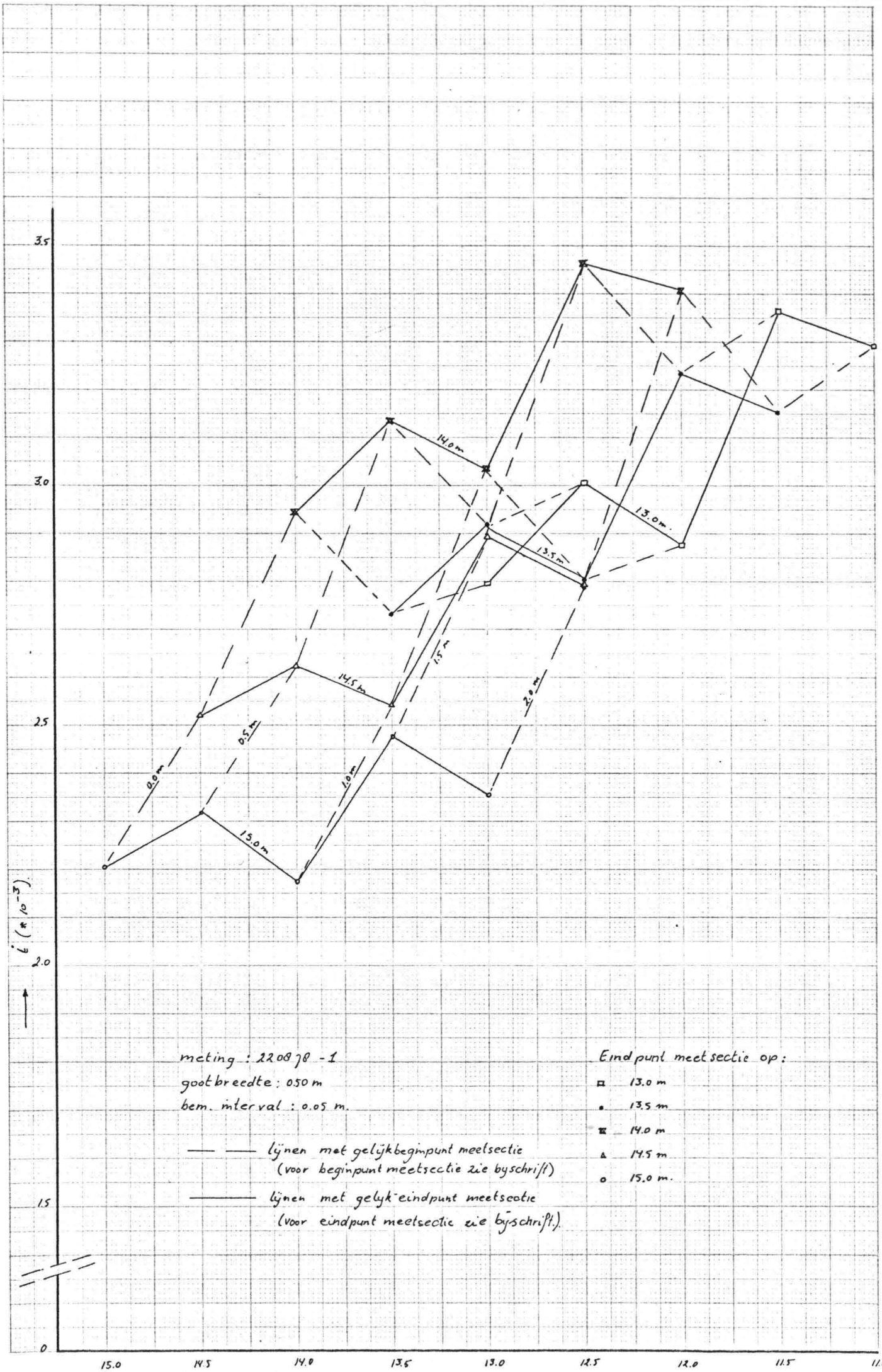

3.0
2.5
2.0
1.5
1.0
0
i (* 10⁻³)
15
14.5
14
13.5
13
12.5
12
11.5
11
lengte meetsectie
15.0 m
14.5 m
14.0 m
13.5 m
13.0 m
2.0 m
1.5 m
1.0 m
0.5 m
0.0 m
Eindpunt meetsectie op:
13 m
13.5 m
14 m
14.5 m
15 m
lijnen met gelijk beginpunt zie bysthrift (v.b. 1.5 m ≡ beginpunt meetsectie op 1.5m)
lijnen met gelijk eindpunt zie bysthrift (v.b 14.0 m = eindpunt meetsectie op 14.0m)
meting: 120678 - 5
gootbreedte: 0.30 m
helling (i) is gemidd. van profielen 1, 2 en 3.
bemonsteringsinterval: 0.05 m

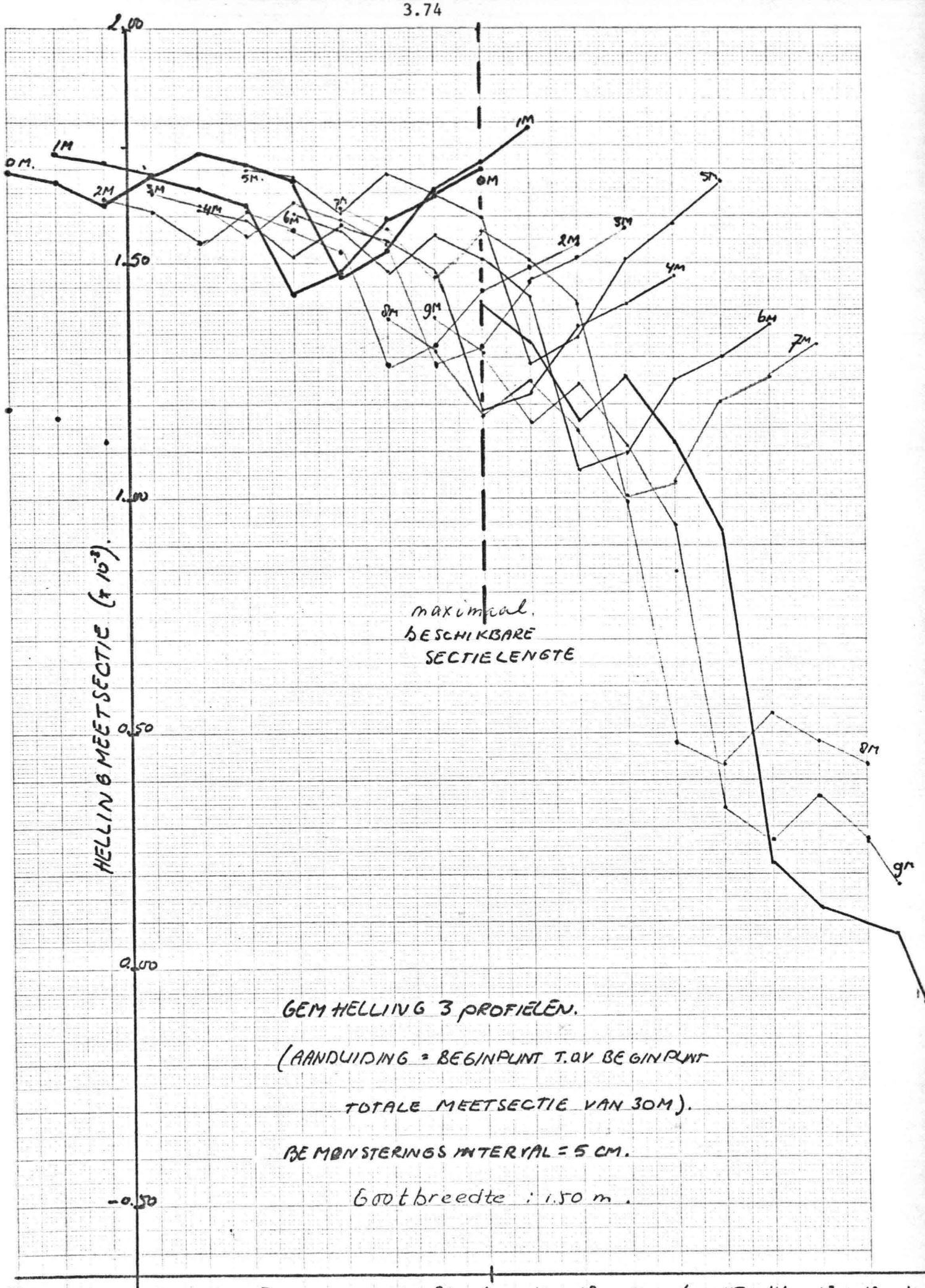

2.0
1.5
1.0
0.5
0
i (* 10⁻³)
15
14.5
14
13.5
13
12.5
12
11.5
11
15.0 m.
14.5 m
14.0 m
0.0 m
0.5 m
13.5 m
13.0 m
1.0 m
1.5 m
2.0 m
meting : 13 06 78 -1
goot breedte : 0.30 m
bem. interval : 0.05 m.
— — lynen met gelyk begimpunt.
—— lynen met gelyk eindpunt.


3.0
2.5
2.0
1.5
1.0
0
i' (* 10 -3)
15
14.5
14
13.5
13
12.5
12
11.5
11
15.0 m
14.5 m
14.0 m
13.5 m
13.0 m
2.0 m
1.5 m
1.0 m
0.5 m
0.0 m
meting: 20 06 78 -1.
goothreedte : 0.30 m.
bem. interval: 0.05 m.
— — — lijnen met gelijk begin punt meetsectie zie bijschrift.
——— lijnen met gelijk eindpunt meetsectie
Eindpunt meetsectie op:
13.0 m
13.5 m
14.0 m
14.5 m
15.0 m.


2.5
2.0
1.5
1.0
0.5
0
i (* 10⁻³)
15.0 m
14.5 m
14.0 m
13.5 m
13.0 m
12.5 m
12.0 m
11.5 m
11.0 m
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
meting : 160878 - 1
goot breedte : 0.50 m.
helling (i) is gemiold. van profielen 1,2 en 3.
bem. interval : 0.05 m.
lijnen met gelijk beginpunt meetsectie (zie bijschrift)
lijnen met gelijk eindpunt meetsectie (zie bijschrift)
Eindpunt meetsectie op :
13 m
13.5 m
14.0 m
14.5 m
15.0 m.


2.5
2.0
1.5
1.0
0.5
0
i (*10⁻³)
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
0.0 m
0.5 m
1.0 m
1.5 m
2.0 m
14.0 m
13.5 m
12.0 m
14.5 m
15.0 m
meting : 210878 - 1
goot breedte : 0.50 m
bem. interval : 0.05 m.
lijnen met gelyk beginpunt meetsectie
(voor begimpunt meetsectie zie bijschrift)
lijnen met gelyk eindpunt meetsectie
(voor eindpunt meetsectie zie bysohrift)
Eindpunt meetsectie op :
13.0 m
13.5 m
14.0 m
14.5 m
15.0 m


3.5
3.0
2.5
2.0
1.5
0
i (*10⁻³)
15.0
14.5
14.0
13.5
13.0
12.5
12.0
11.5
11.0
→ (grote meetsectie
14.0 m
13.0 m
13.5 m
14.5 m
15.0 m
0.5 m
1.0 m
1.5 m
2.0 m
meting : 220878 - 1
goot breedte : 0.50 m
bem. interval : 0.05 m.
—— —— lijnen met gelijk beginpunt meetsectie
(voor beginpunt meetsectie zie byschrift)
——— lijnen met gelyk-eindpunt meetsectie
(voor eindpunt meetsectie zie byschrift.)
Eindpunt meetsectie op:
13.0 m
13.5 m
14.0 m
14.5 m
15.0 m.

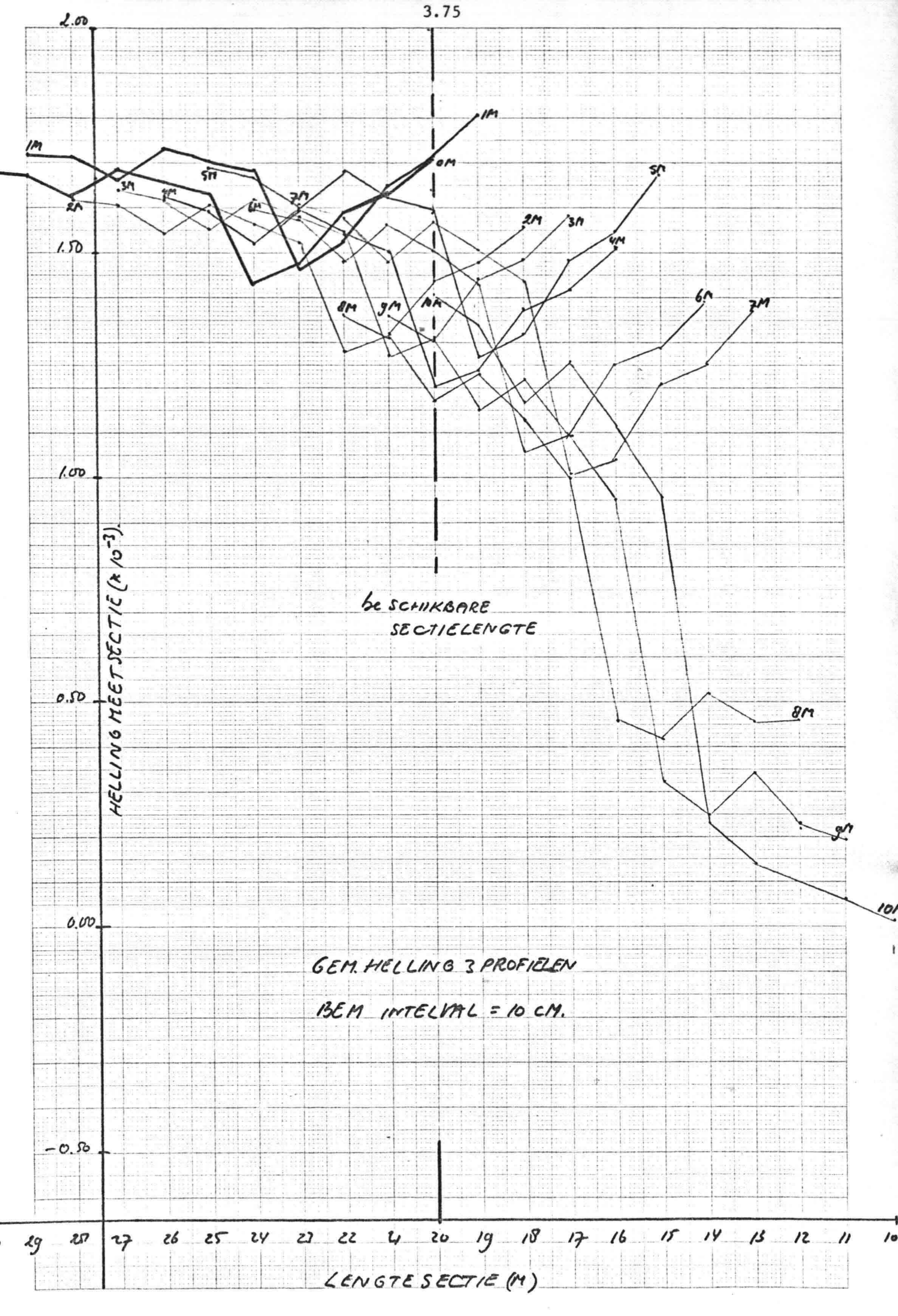


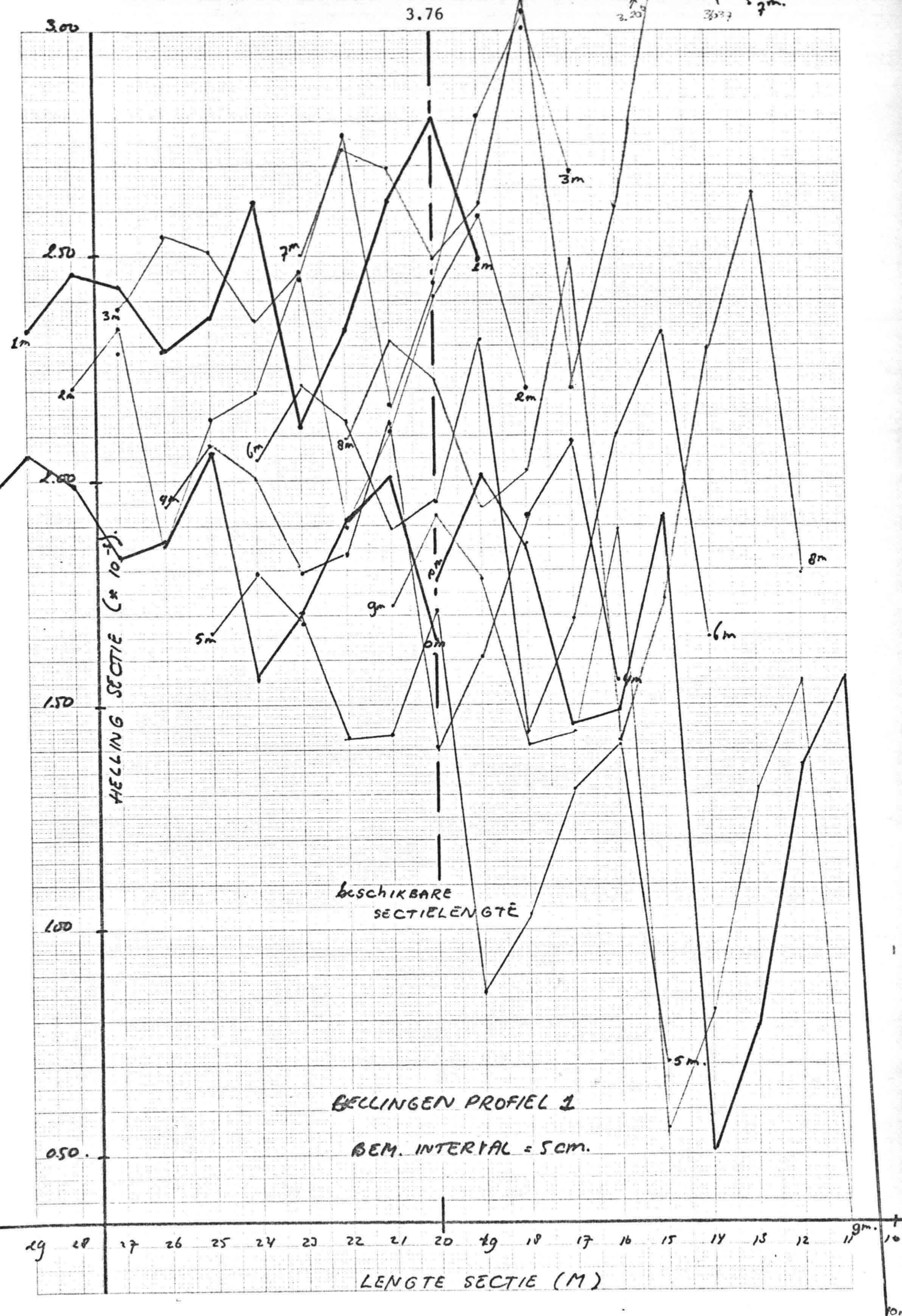
GEM HELLING 3 PROFIELEN.

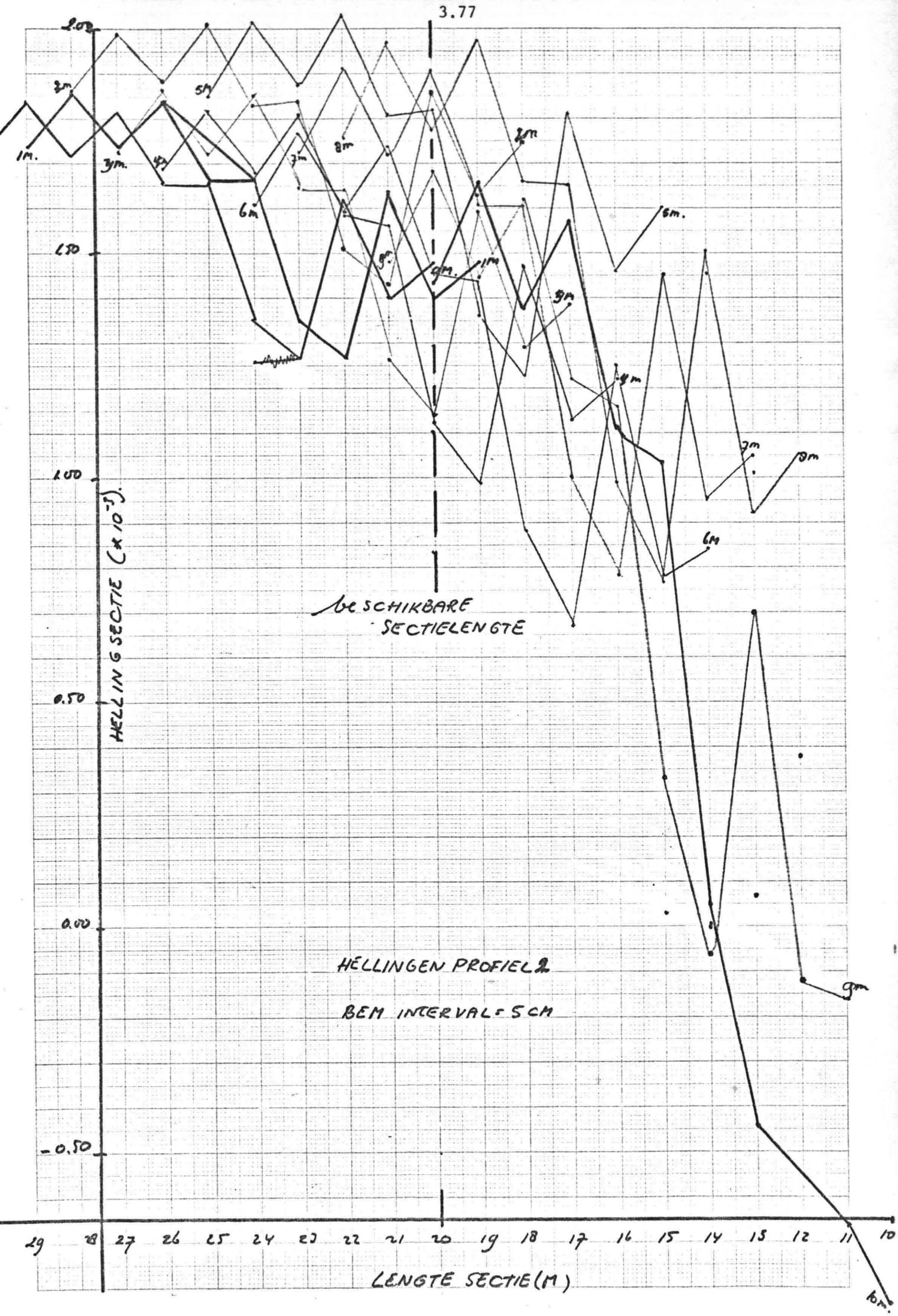
(AANDUIDING = BEGINPUNT T.OV BEGINPUNT TOTALE MEETSECTIE VAN 30M).

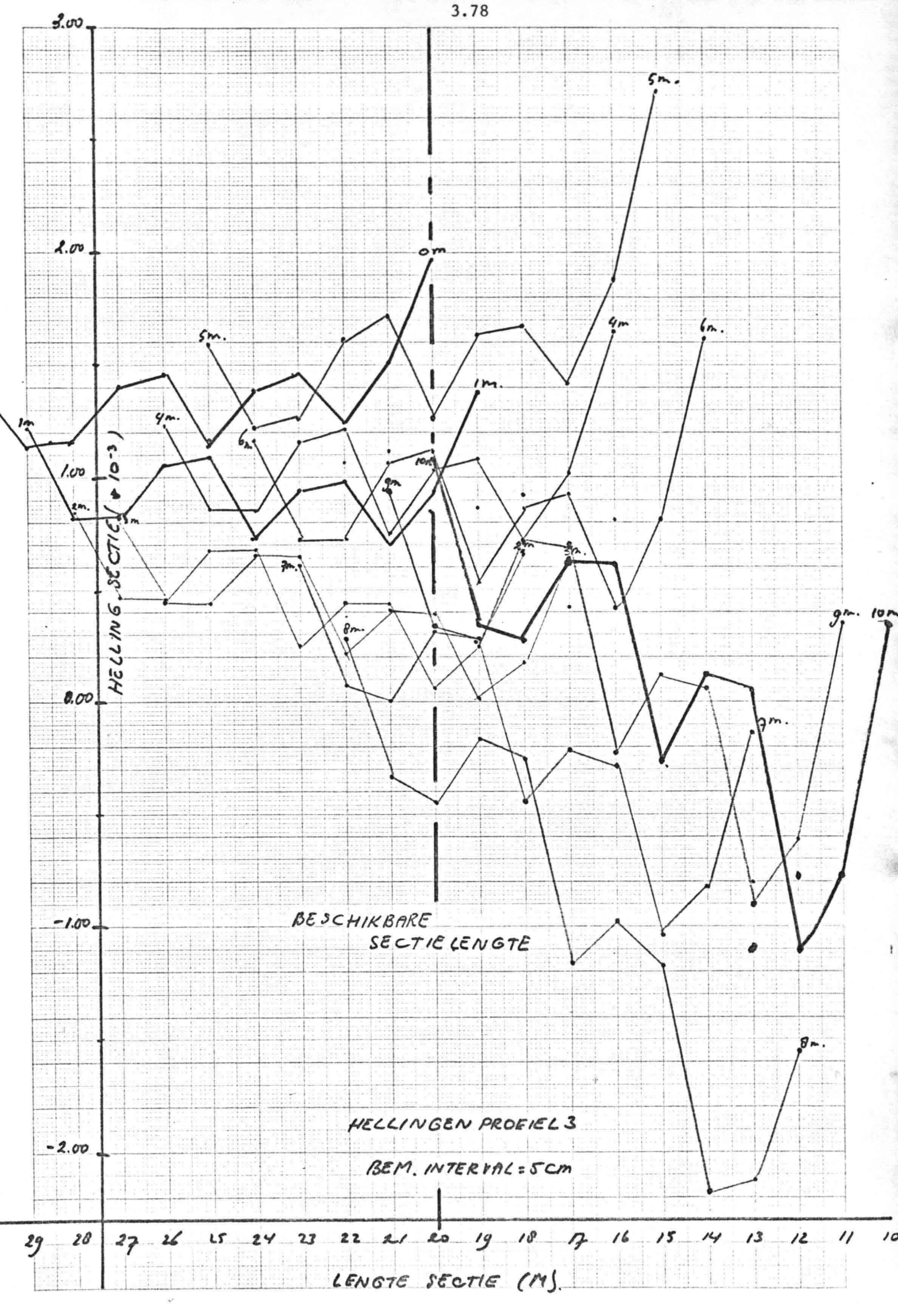
BEMONSTERINGS INTERVAL = 5 CM.

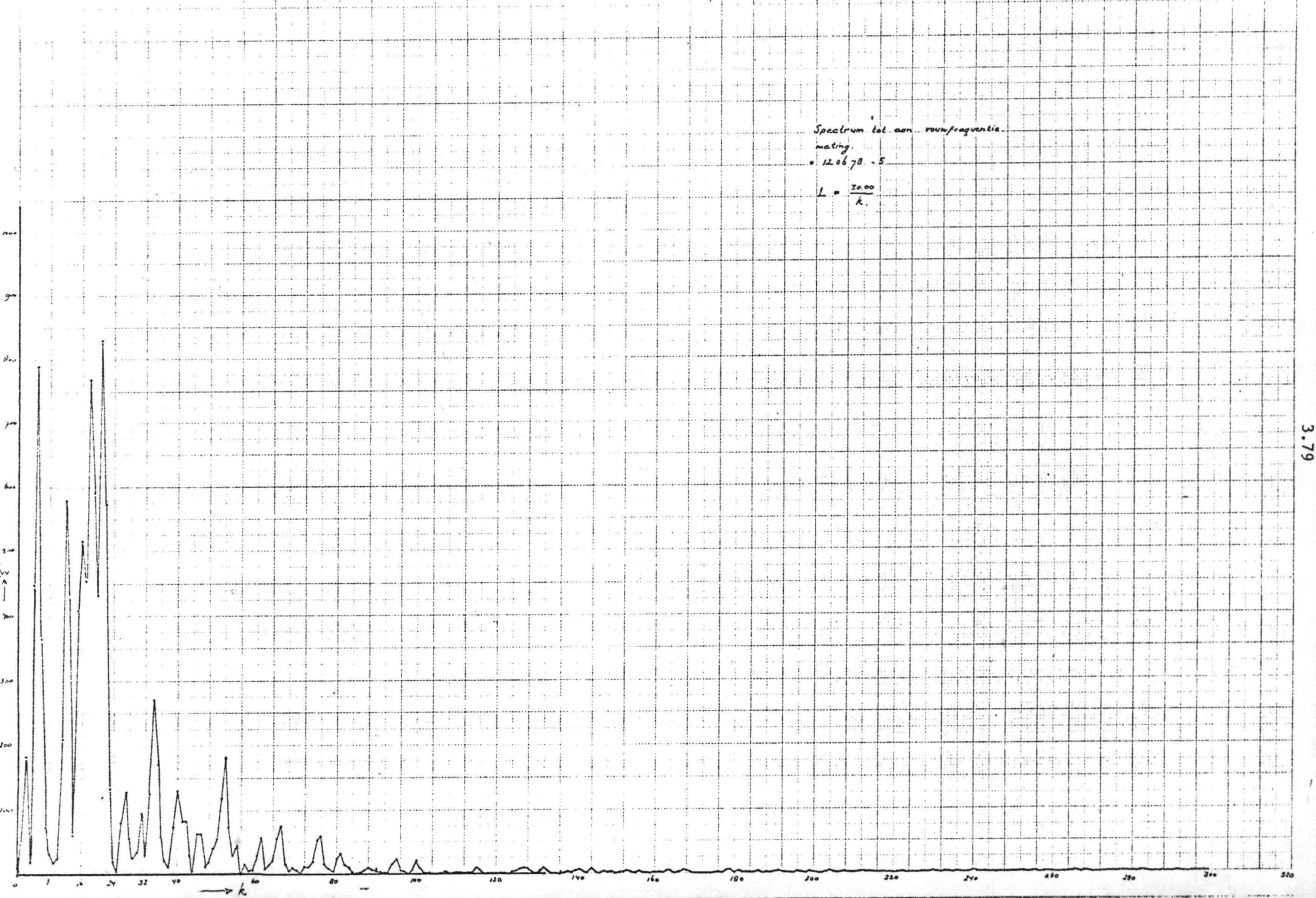
Bootbreedte : 1.50 m.


2.00
1.50
1.00
0.50
0.00
-0.50
HELLING MEETSECTIE (x 10⁻³)
1M
2M
3M
4M
5M
6M
7M
8M
9M
10M
be SCHIKBARE SECTIELENGTE
GEM. HELLING 3 PROFIELEN
BEM INTELVAL = 10 CM.
29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10
LENGTE SECTIE (M)


3.76
3.00
2.50
2.000
1.50
1.00
050.
HELLING SECTIE (* 10⁻⁴)
beschikbare SECTIELENGTE
BELLINGEN PROFIEL 1
BEM. INTERVAL = 5cm.
LENGTE SECTIE (M)
29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10
9m.
1m
2m
3m
4m
5m
6m
7m
8m


1.00
0.50
0.00
-0.50
HELLINGSECTIE (x 10⁻³).
1m.
2m
3m.
4m
5m
6m
7m
8m
9m.
10m
beSCHIKBARE SECTIELENGTE
HELLINGEN PROFIEL 2
BEM INTERVAL = 5CM
29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10
LENGTE SECTIE (M)


3.00
2.00
1.00
0.00
-1.00
-2.00
HELLING SECTIE (x 10⁻³)
0m
1m.
2m.
3m.
4m.
5m.
6m.
7m.
8m.
9m.
10m.
BESCHIKBARE
SECTIELENGTE
HELLINGEN PROFIEL 3
BEM. INTERVAL = 5CM
29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10
LENGTE SECTIE (M).

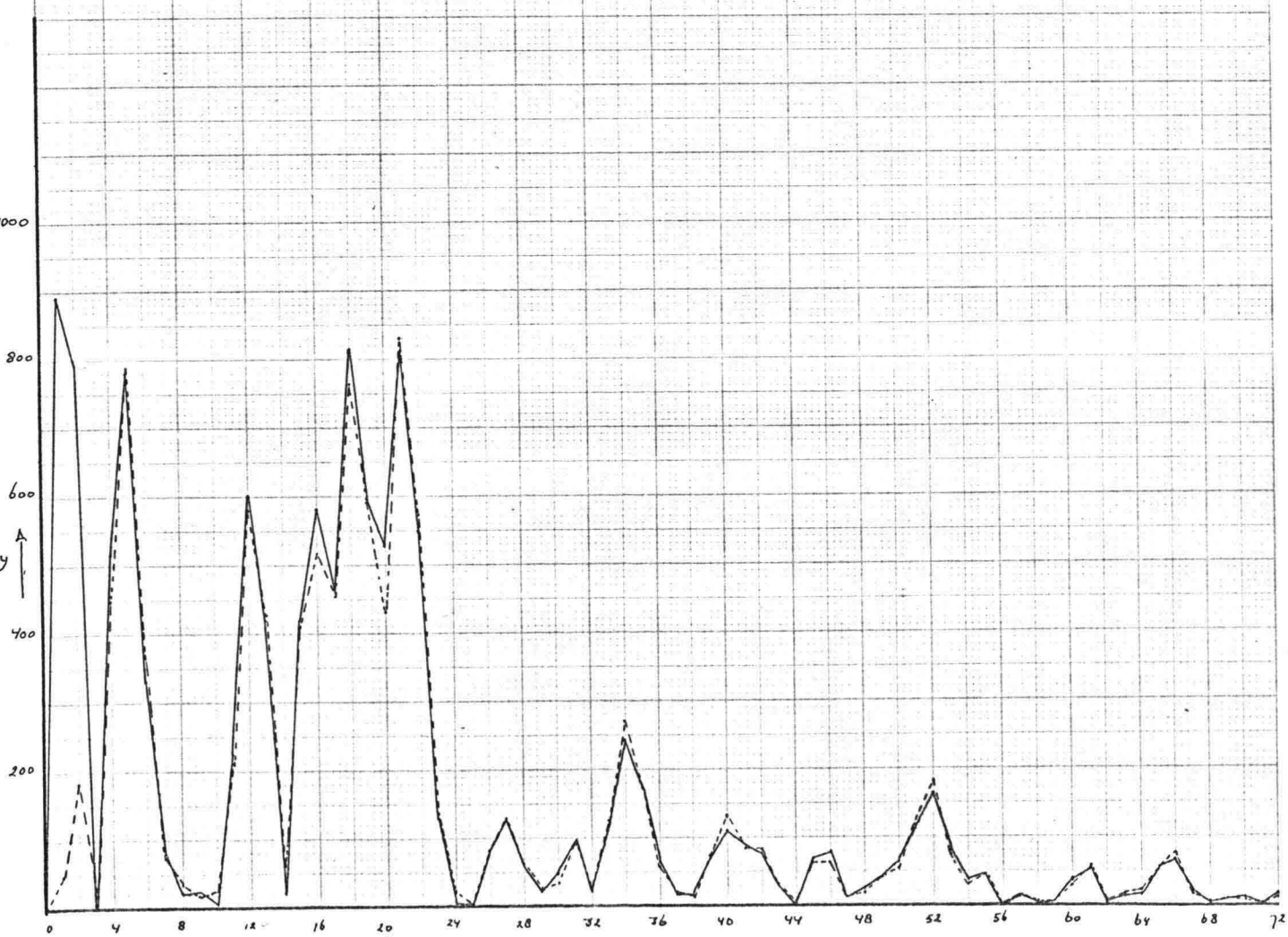

Spectrum tot aan... rouwfrequentie...
meting.
• 120678 - 5
L = 30.00 / k.
k
0
1
16
24
32
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320

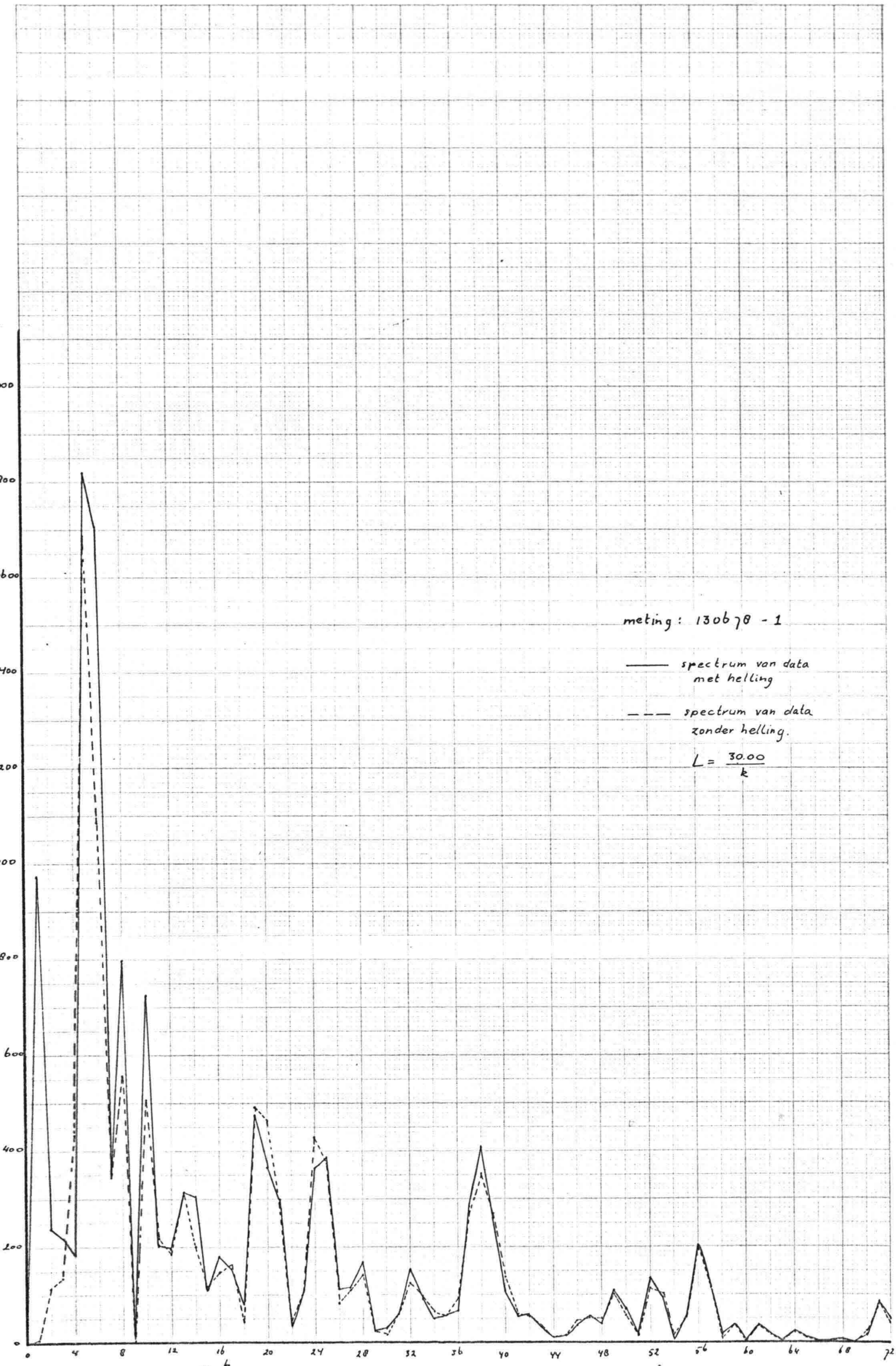
meting: 120678 - 5

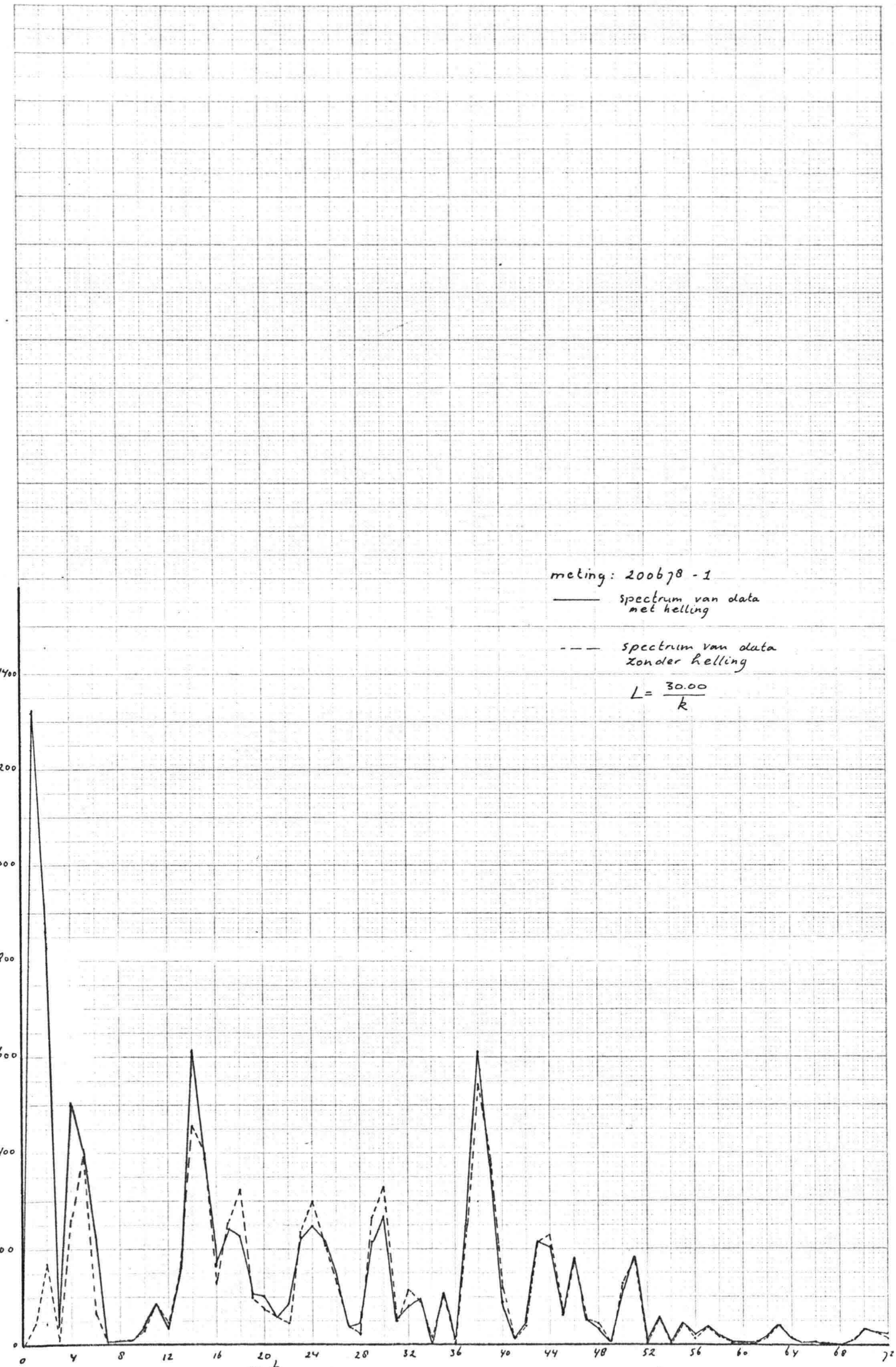
—— spectrum van data met helling

--- spectrum van data zonder helling

$L = \frac{30.00}{k}$




meting: 130678 - 1
spectrum van data met helling
spectrum van data zonder helling.
$L = \frac{30.00}{k}$
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
k

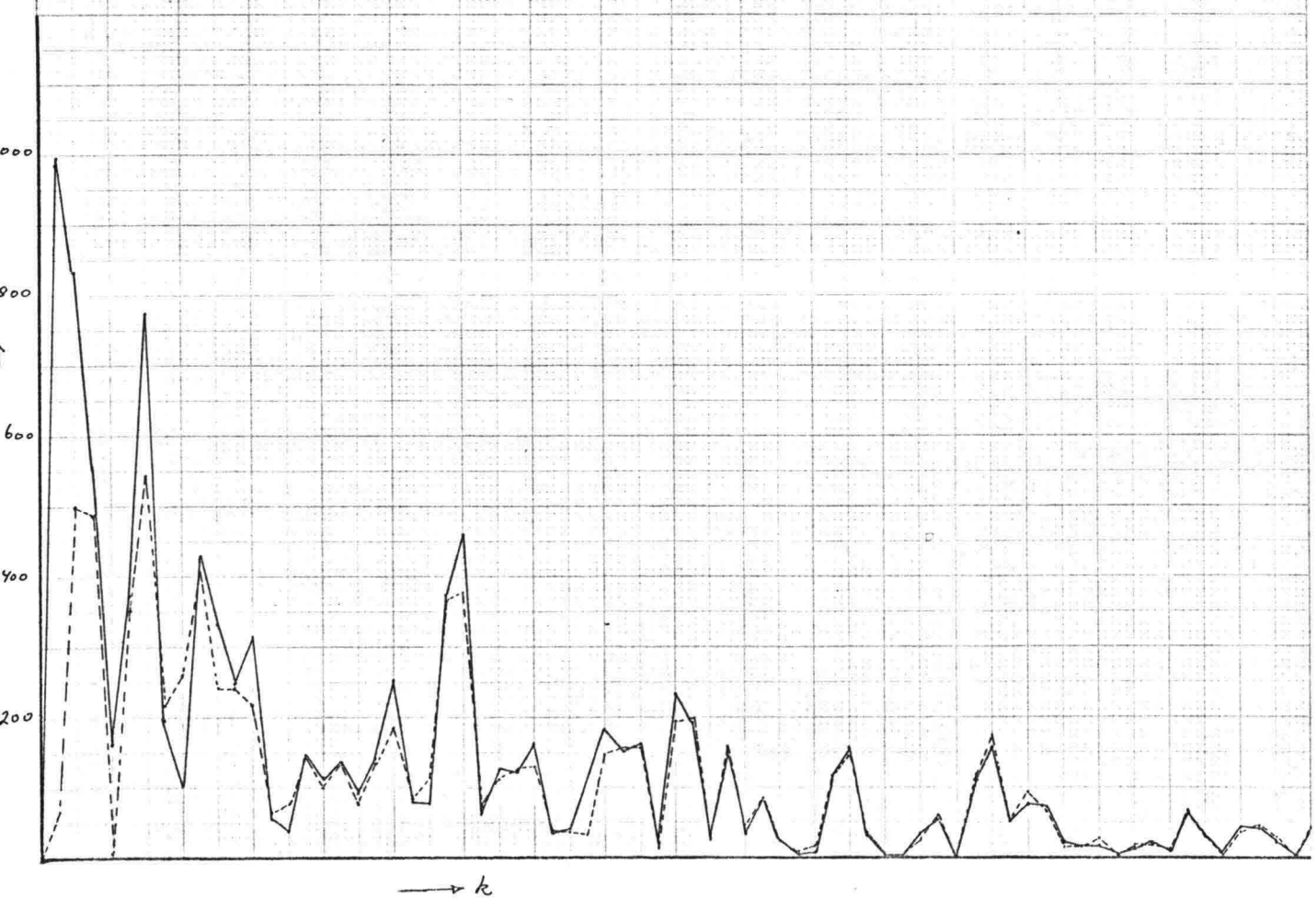

meting: 200678 - 1
spectrum van data met helling
spectrum van data zonder helling
$L = \frac{30.00}{k}$
4400
3200
2000
1200
800
400
0
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
k

meting: 260678 - 5

—— spectrum van data met helling

– – – – spectrum van data zonder helling

$L = \frac{30.00}{k}$

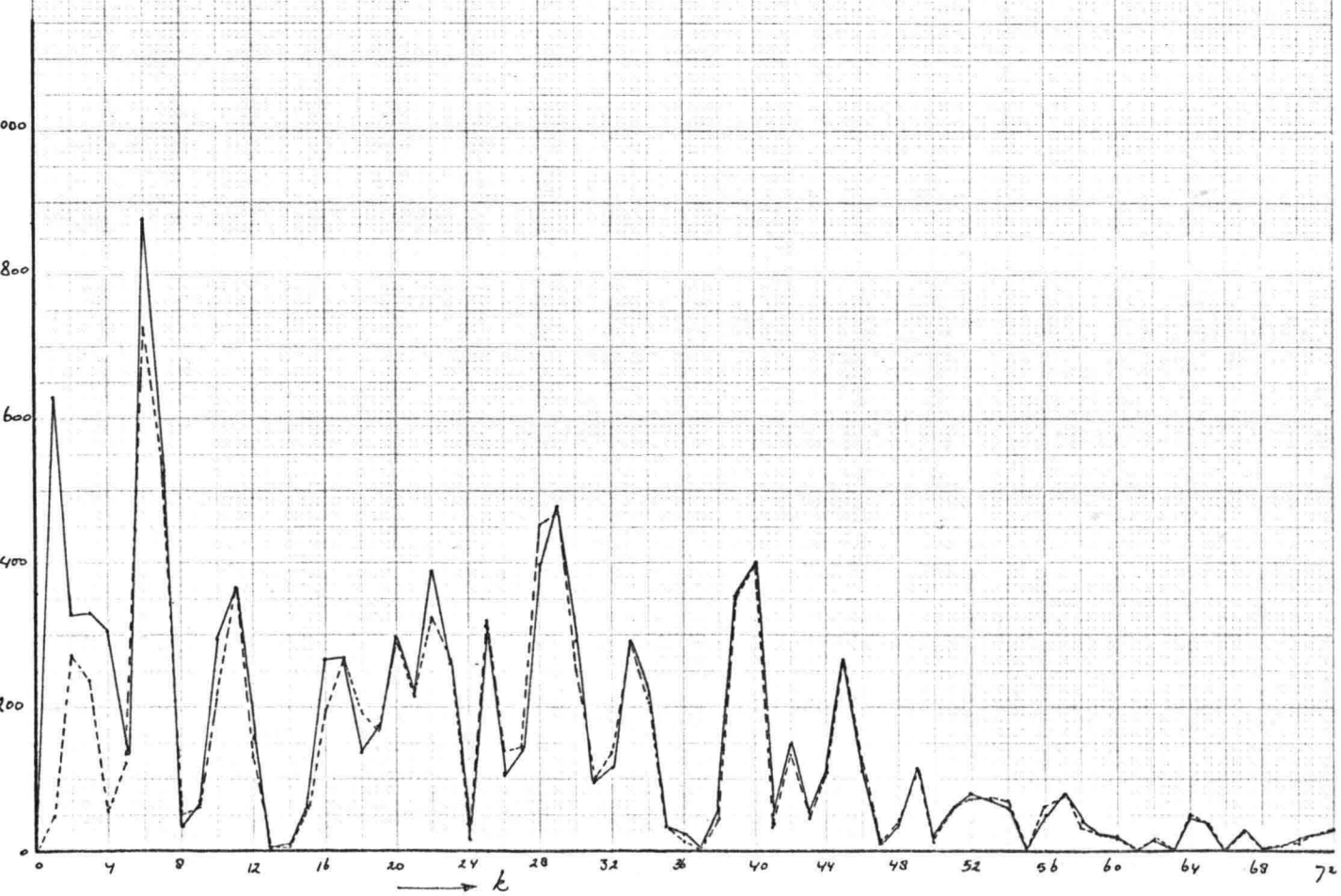


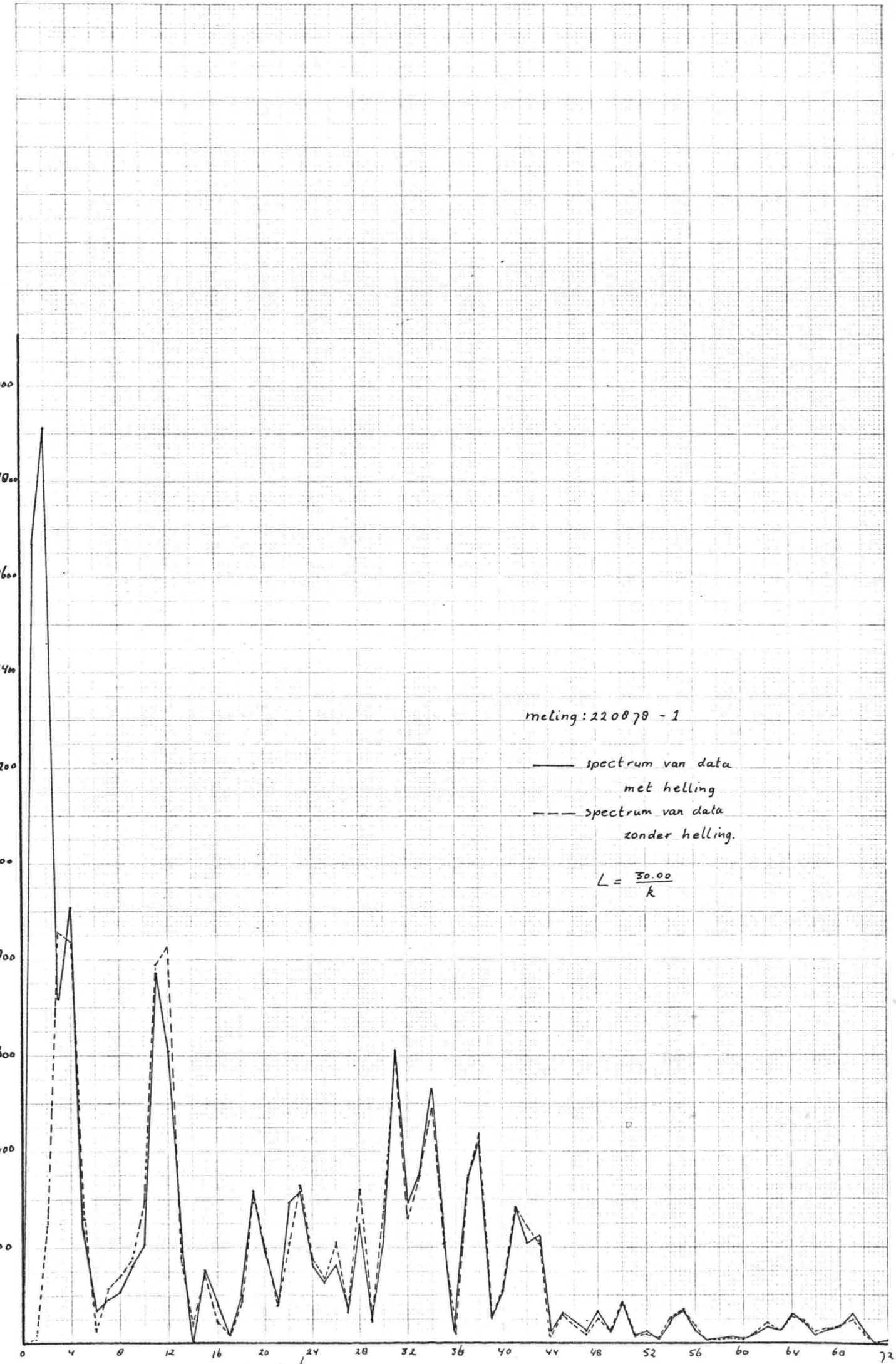
meting : 160878 - 1

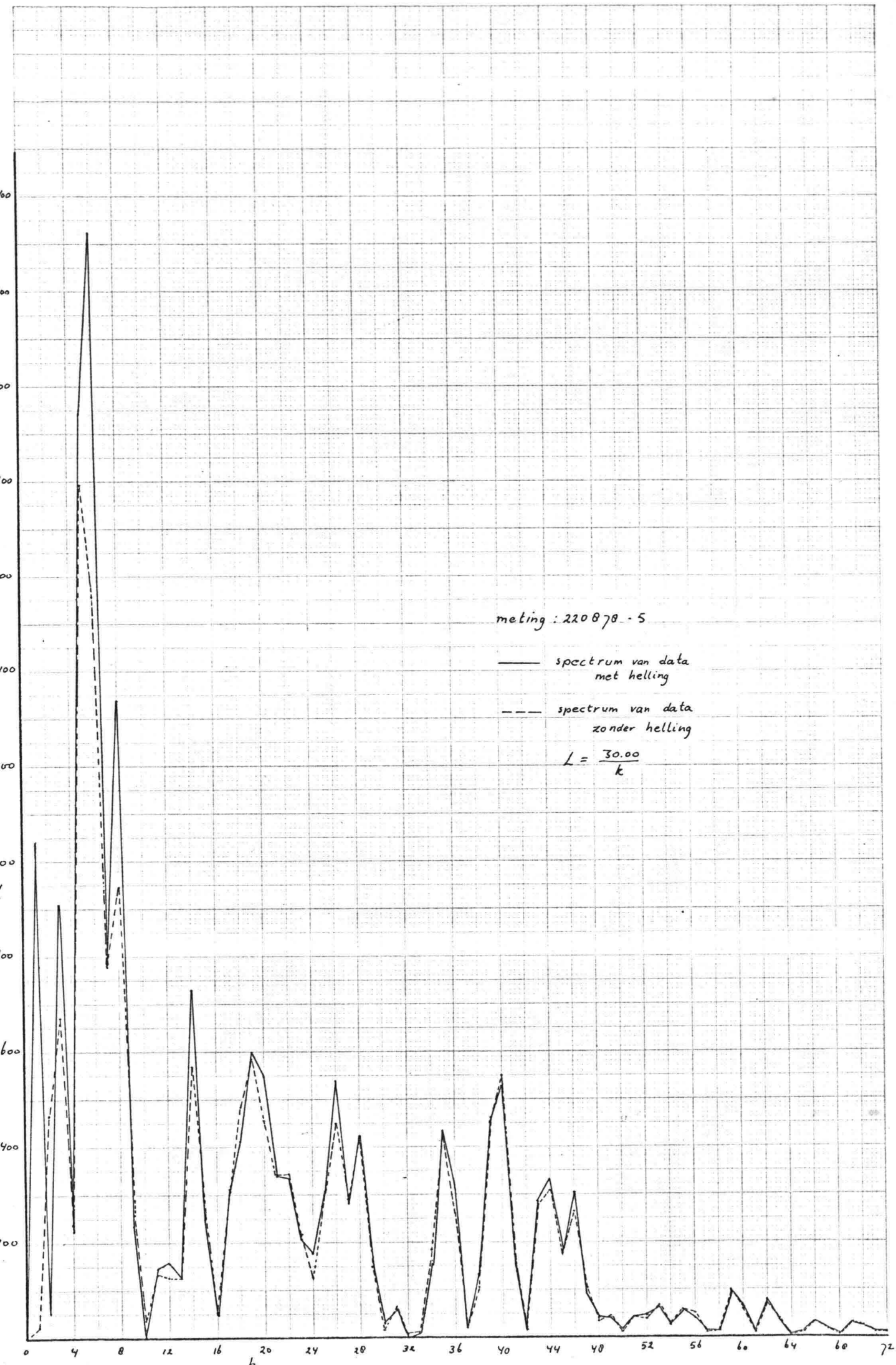
—— spectrum van data met helling

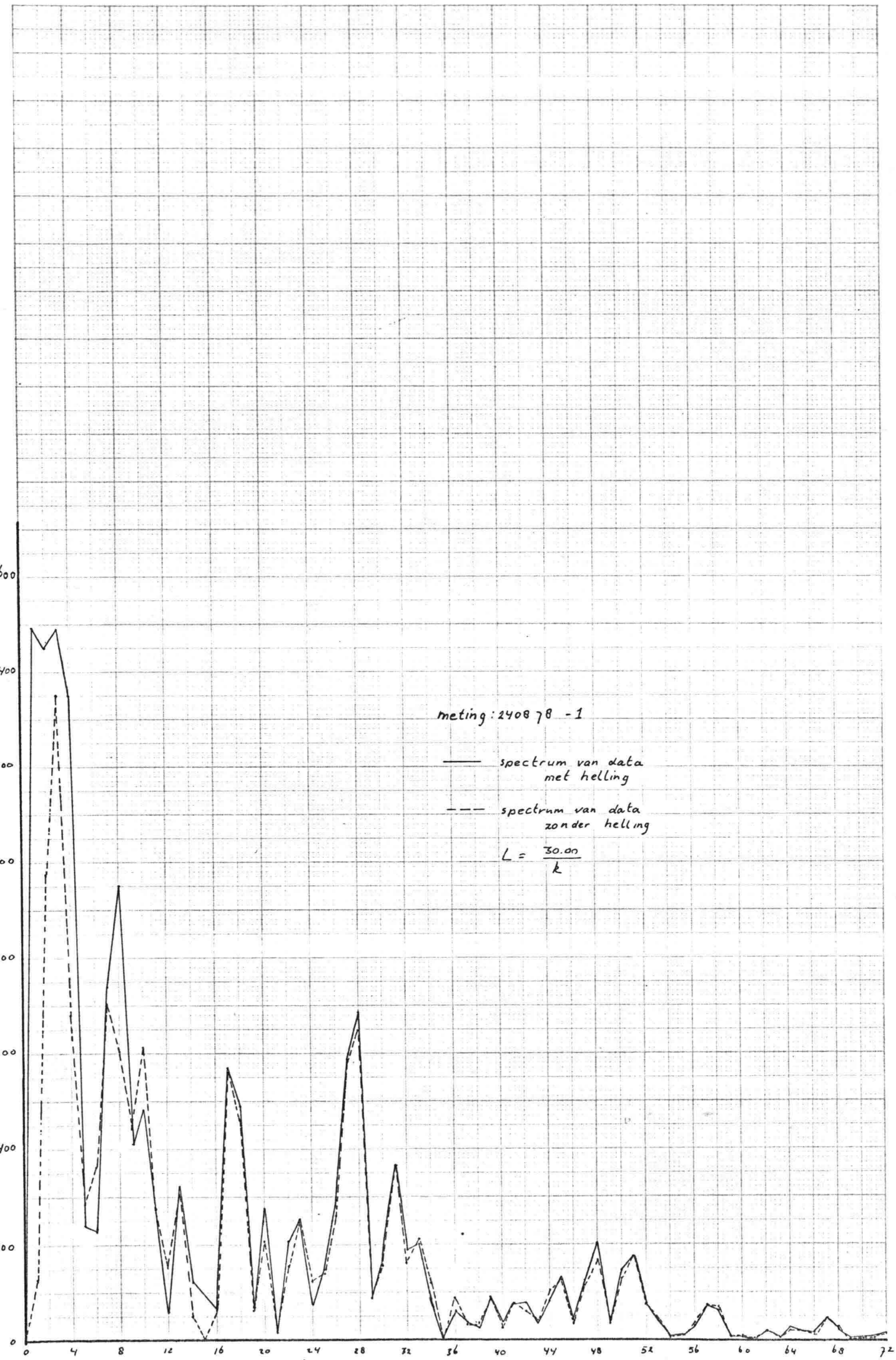
– – – spectrum van data zonder helling.

$L = \frac{30.00}{k}$




meting: 220878 - 1
spectrum van data met helling
spectrum van data zonder helling.
$L = \frac{30.00}{k}$
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
k


meting : 220878 - 5
spectrum van data met helling
spectrum van data zonder helling
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
k

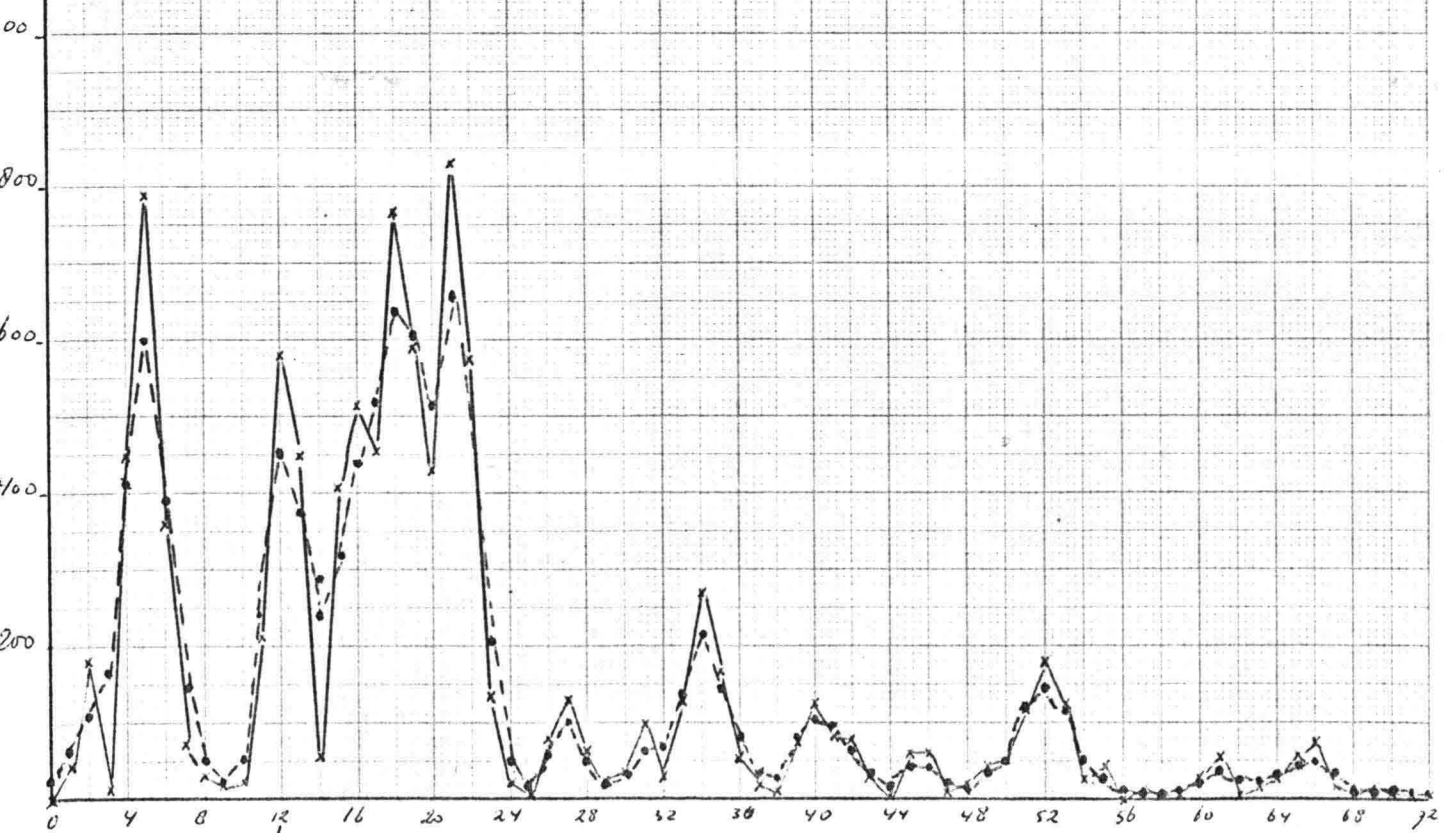

meting: 240878 - 1
spectrum van data met helling
spectrum van data zonder helling
L = 30.00 / k
0
4
8
12
16
20
24
28
32
36
40
44
48
52
56
60
64
68
72
k

T 100. meting: 120678 - 3
gootbreedte : 0.30 m.

spectrum : x——x zonder Hanning-window

o - - - o met Hanning-window.

$k = \frac{30.00}{L}$

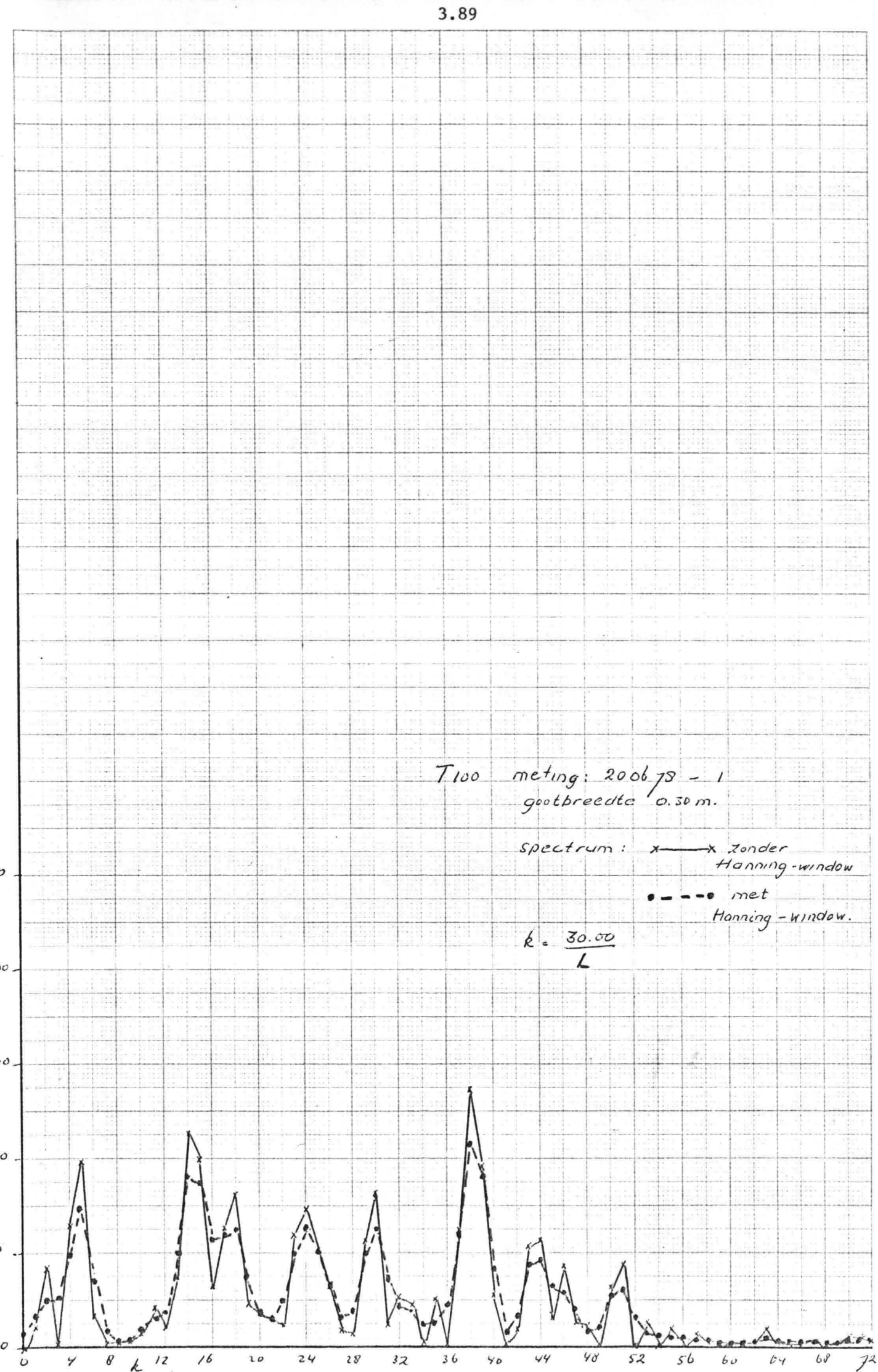


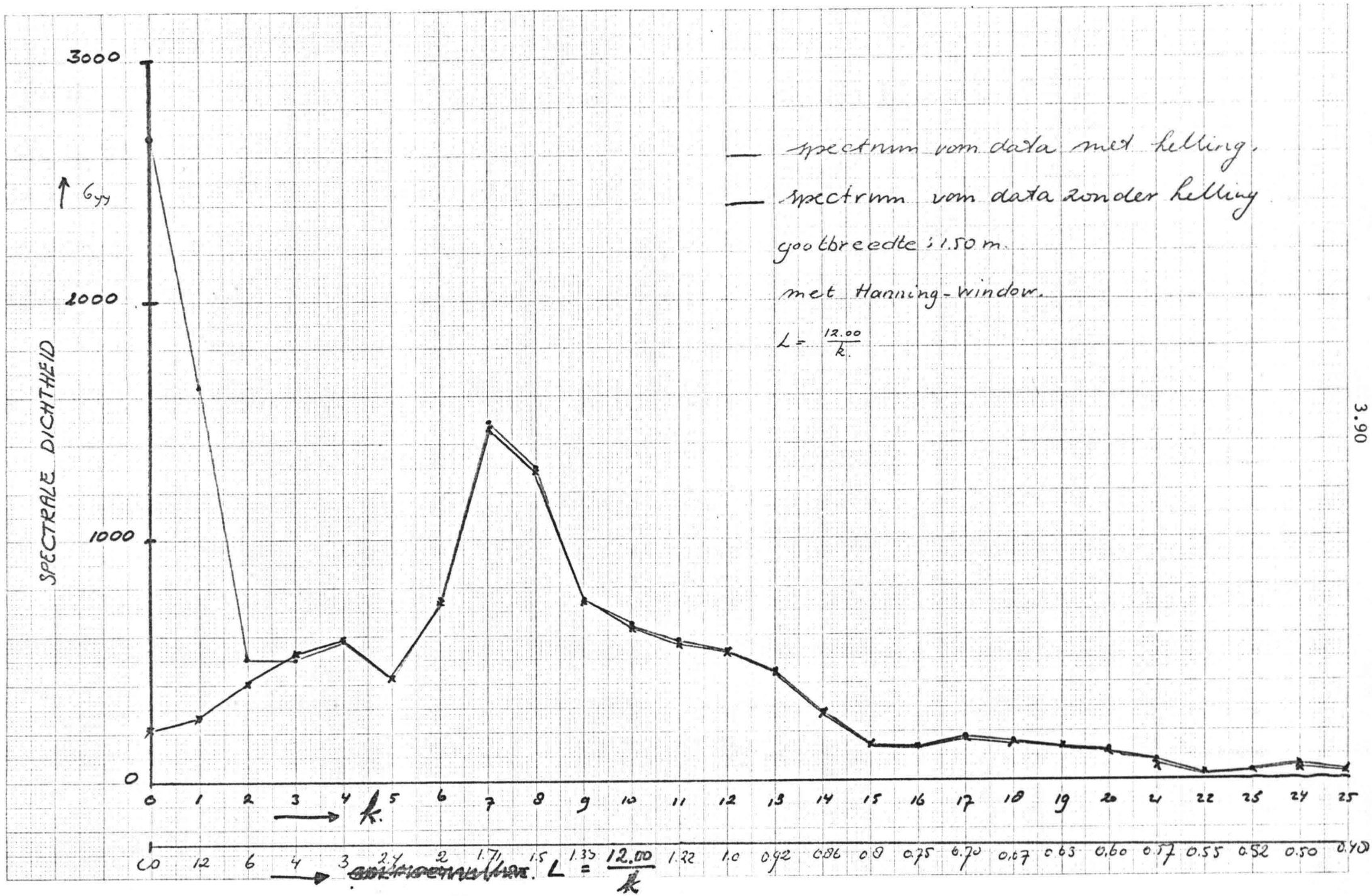
T100 meting: 2006 78 - 1
gootbreedte 0.30 m.

spectrum: x——x zonder Hanning-window

•– – –• met Hanning-window.

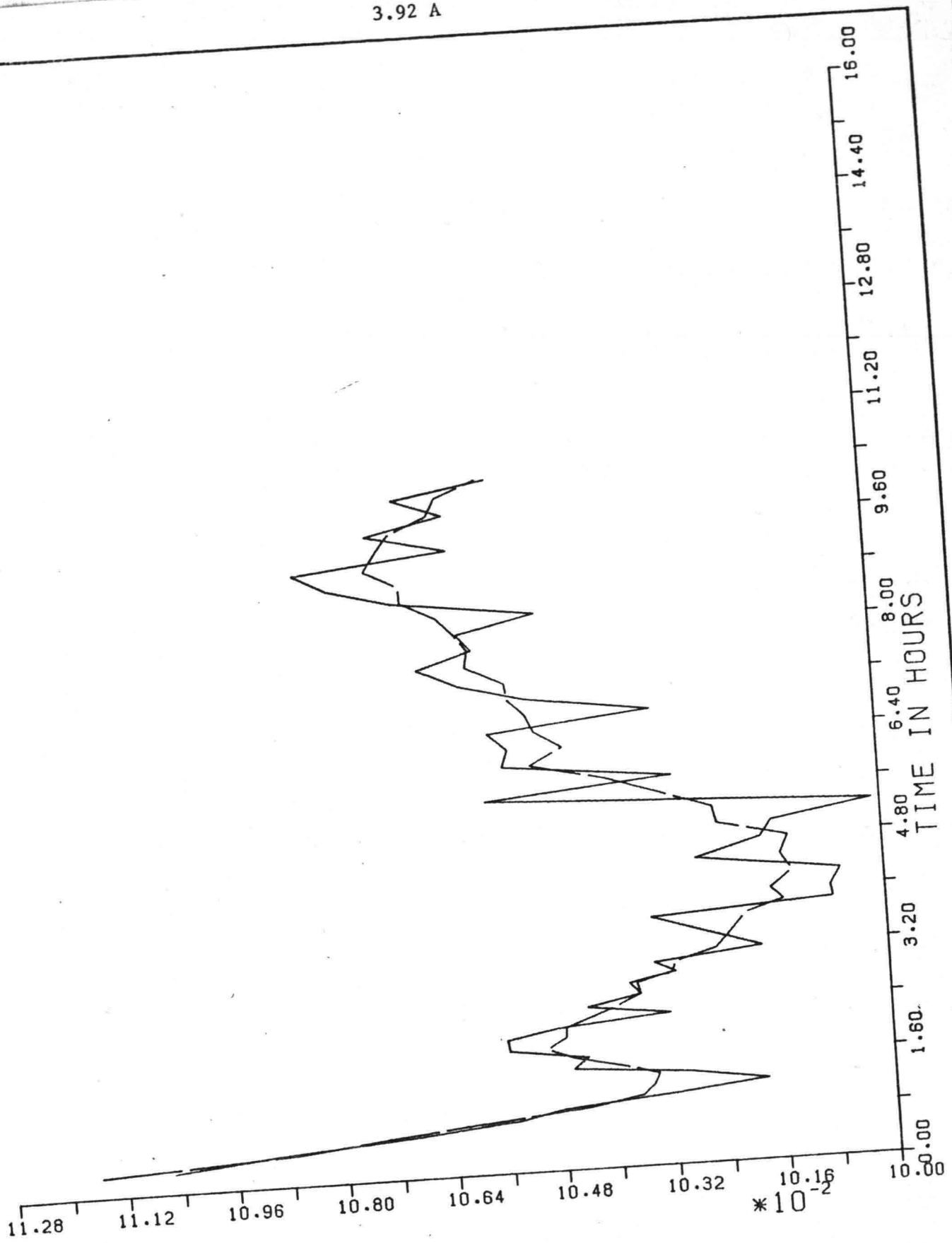
$k = \frac{30.00}{L}$




3000
2000
1000
0
SPECTRALE DICHTHEID
G_{yy}
— spectrum van data met helling.
— spectrum van data zonder helling
goot breedte : 1.50 m.
met Hanning-window.
$L = \frac{12.00}{k}$
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
k.
∞ 12 6 4 3 2.7 2 1.7 1.5 1.33 1.22 1.0 0.92 0.86 0.8 0.75 0.70 0.67 0.63 0.60 0.57 0.55 0.52 0.50 0.48
golflengte. $L = \frac{12.00}{k}$

3.90

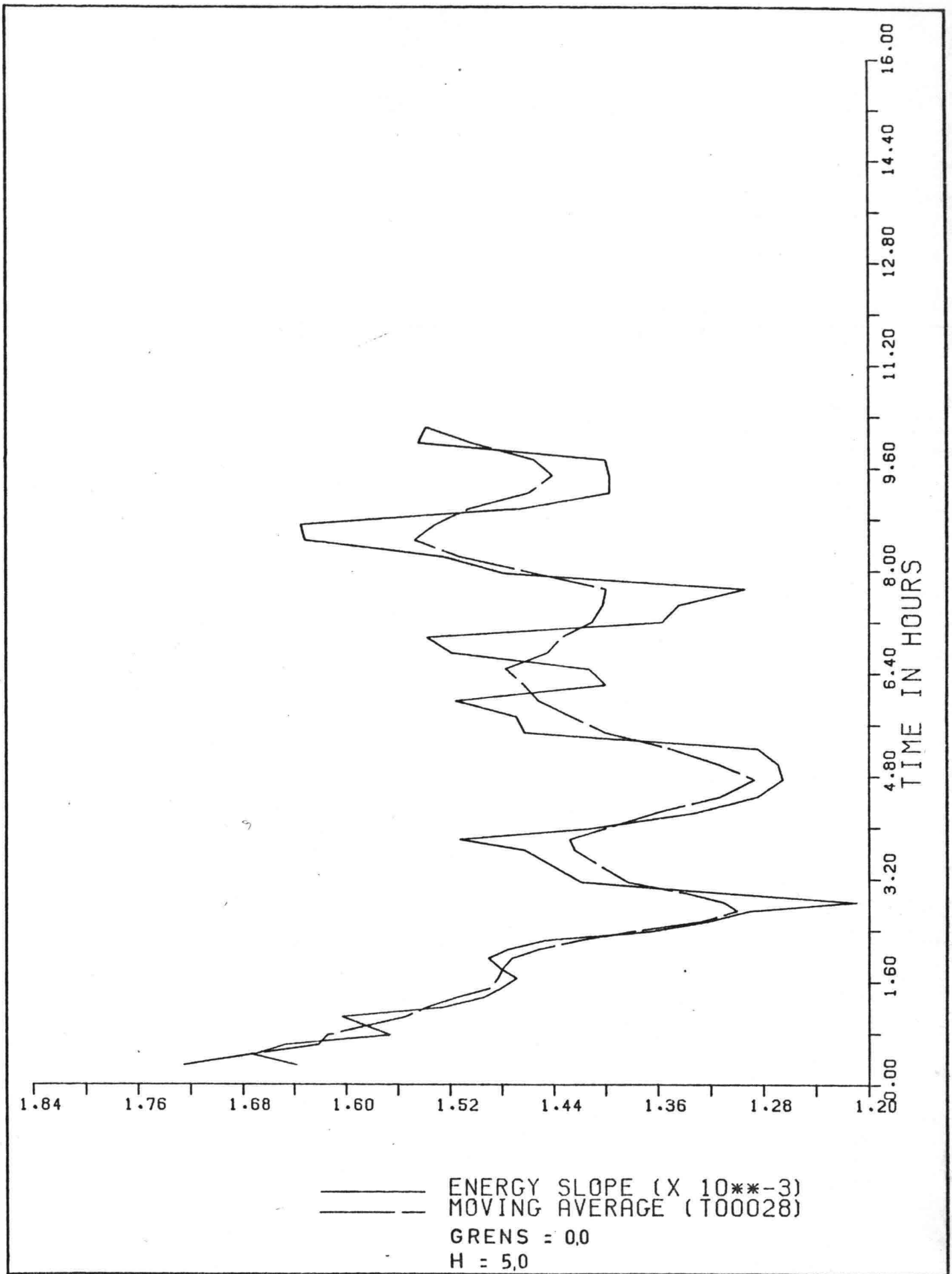
Goothreedlc 0.30 m.				Goothreedlc 0.50 m			
datum		max corr.	verschuiving [m]	datum		max corr.	verschuiving [m]
1e meting	2e meting			1e meting	2e meting		
120678-6	130678-2	.3341	3.65	150878-2	150878-4	.1760	4.77
130678-2	130678-4	.2569	3.10	150878-4	150878-6	.1657	0.78
130678-4	140678-2	.3695	3.24	150878-6	160878-2	.1894	3.50
140678-2	140678-4	.1734	3.92	160878-2	160878-4	.3126	3.13
140678-4	140678-6	.2098	0.01	160878-4	160878-6	.2911	2.55
140678-6	200678-2	.1745	2.02	160878-6	160878-8	.1443	1.93
200678-2	200678-4	.2637	3.49	160878-8	210078-2	.3928	1.91
200678-4	200678-6	.2220	1.77	210878-2	210878-4	.3090	1.60
200678-6	210678-2	.2582	1.66	210878-4	210878-6	.2790	2.16
210678-2	210678-4	.2227	2.77	210878-6	210878-8	.1490	1.06
210678-4	220678-2	.1380	0.50	210878-8	220878-2	.0992	4.14
220678-2	220678-4	.2362	4.66	220878-2	220878-4	.1545	4.09
220678-4	220678-6	.1920	1.89	220878-4	220878-6	.1523	2.58
220678-6	230678-2	.2625	4.57	220878-6	220878-8	.1879	4.43
230678-2	260678-2	.2892	4.04	220878-8	230878-2	.2672	1.60
260678-2	260678-4	.1617	2.64	230878-2	230878-4	.4597	0.75
260678-4	260678-6	.1915	0.67	230878-4	230878-6	.1630	4.02
				230878-6	240878-2	.1210	0.79
	gem :	.2317	2.62 m			.2149	2.47 m



OVERGANG T 28 , TH - DELFT
191078

DELFT HYDRAULICS LABORATORY

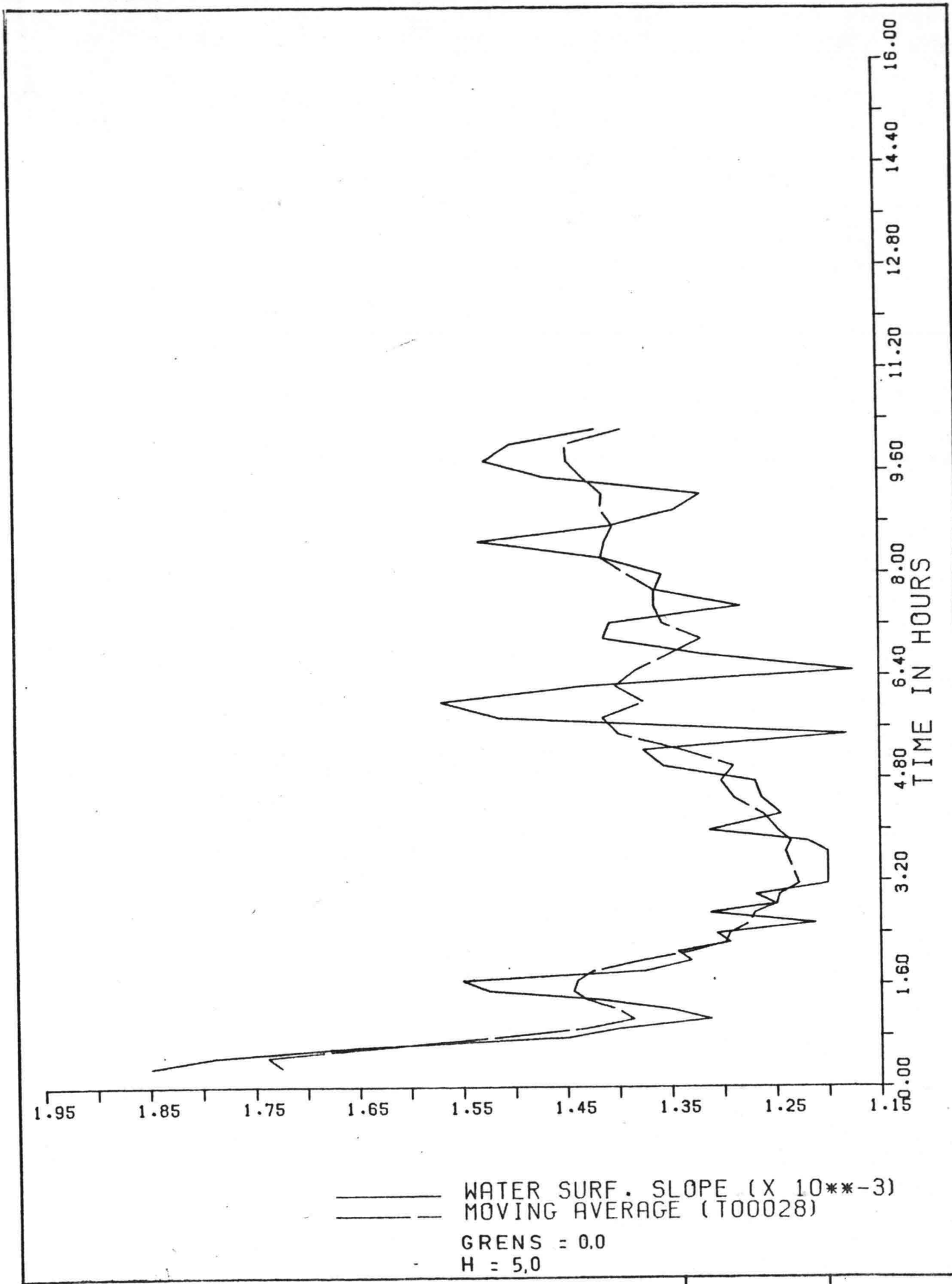
FIG.1



OVERGANG T28 , TH - DELFT
191078

DELFT HYDRAULICS LABORATORY

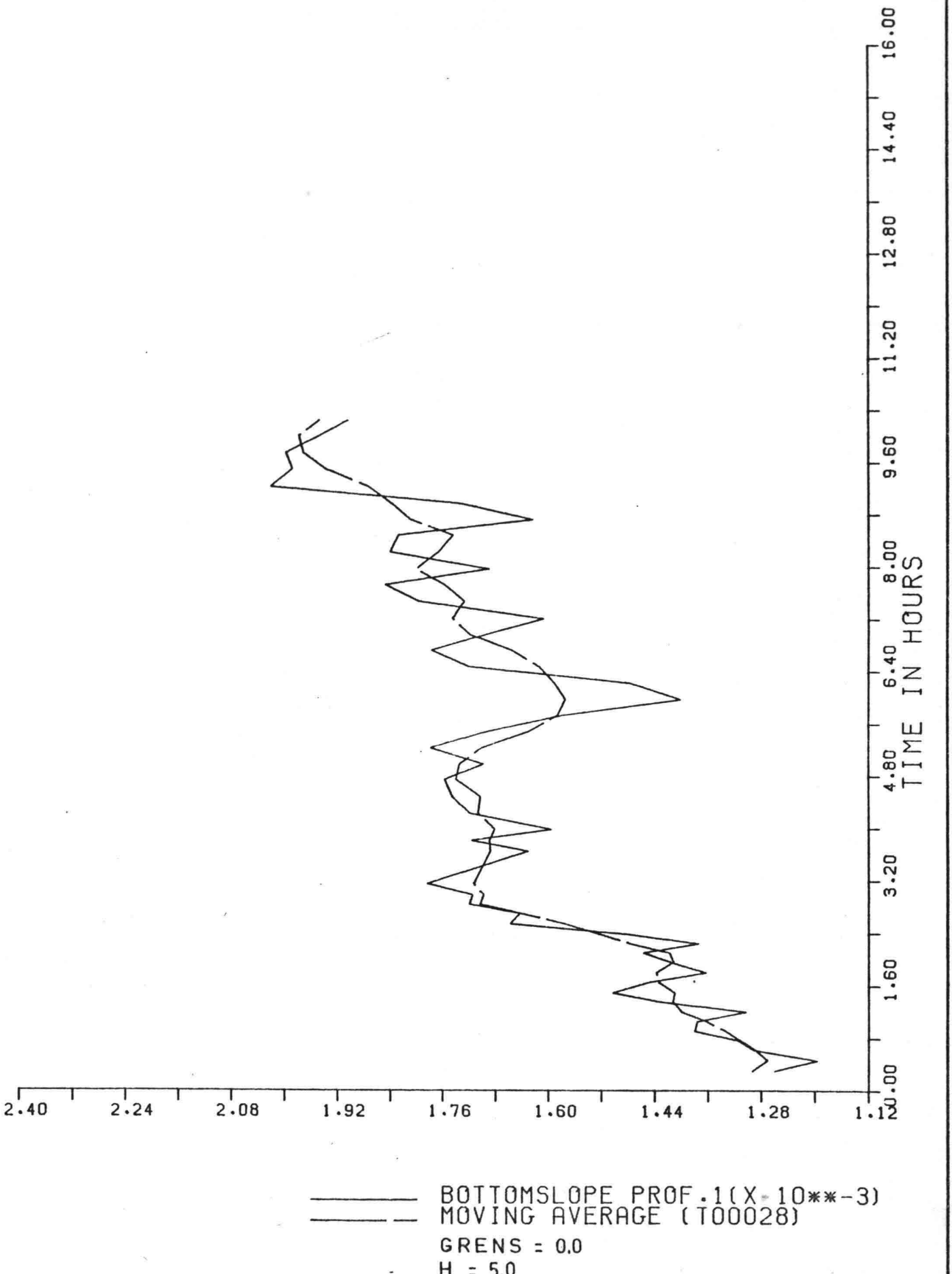
FIG.2



OVERGANG T28 , TH - DELFT
191078

DELFT HYDRAULICS LABORATORY

FIG.3

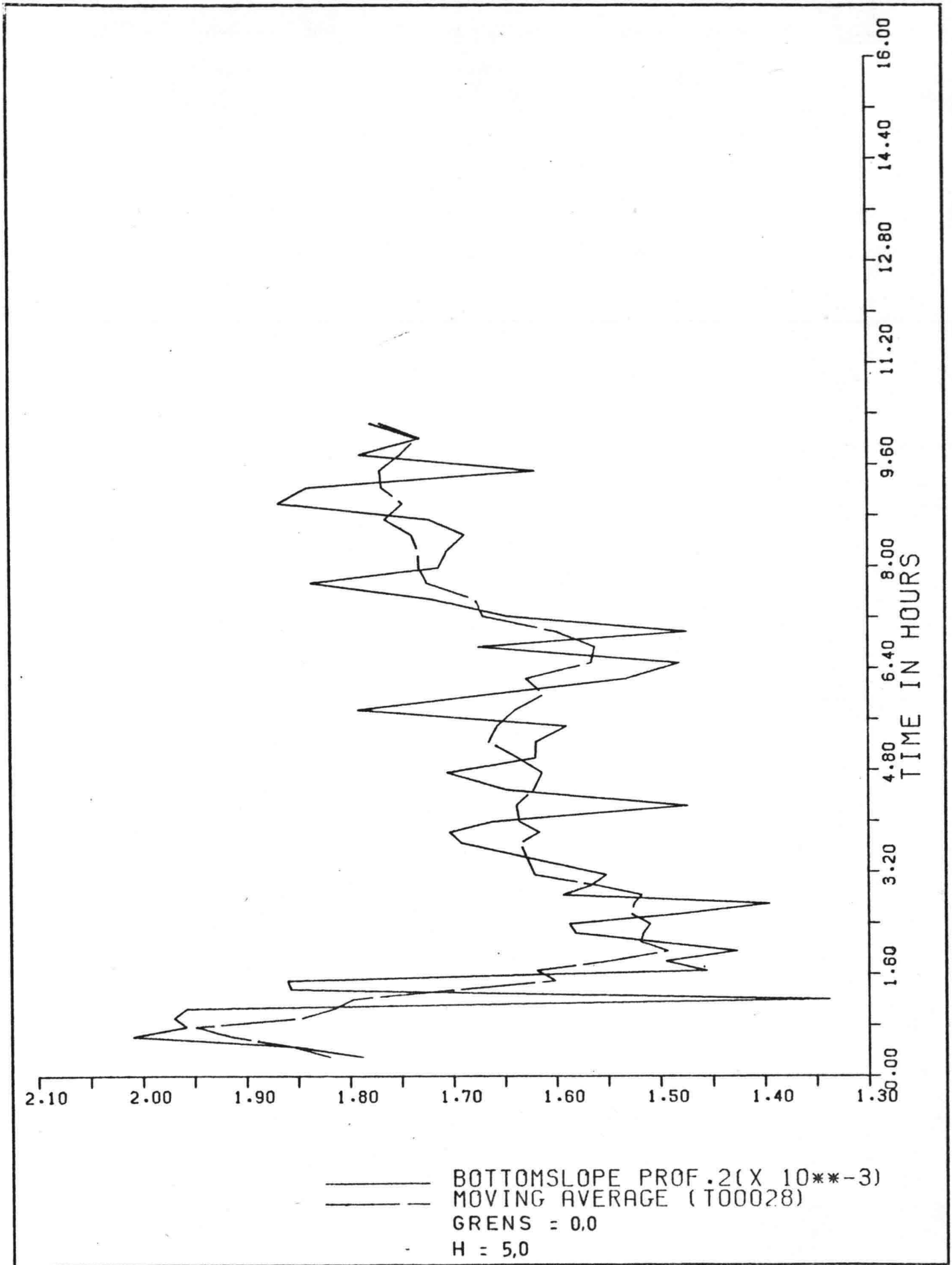


OVERGANG T28 , TH-DELFT

191078

DELFT HYDRAULICS LABORATORY

FIG.4



OVERGANG T 28 , TH-DELFT
191078

DELFT HYDRAULICS LABORATORY

FIG.5

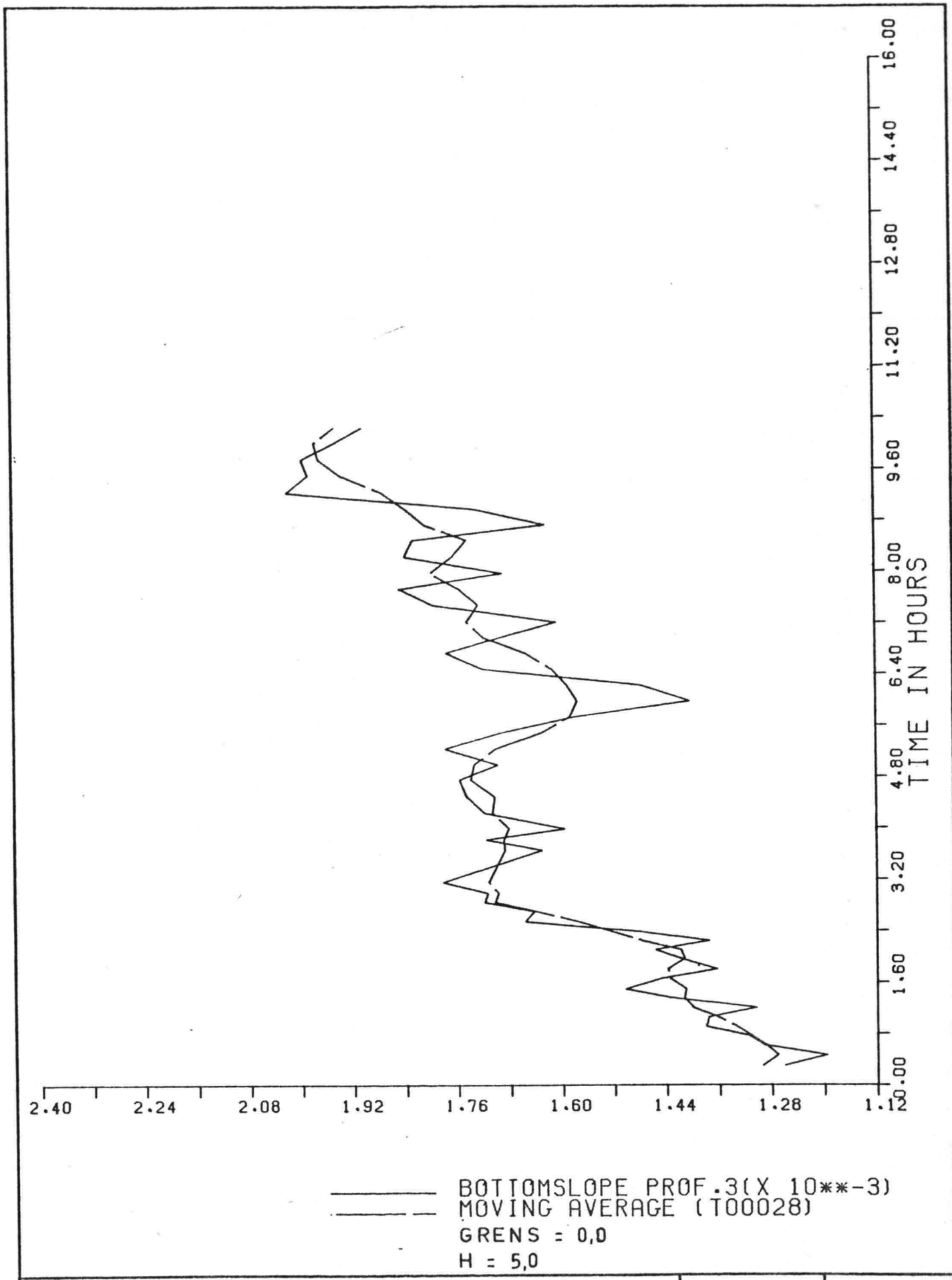


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FIG.6

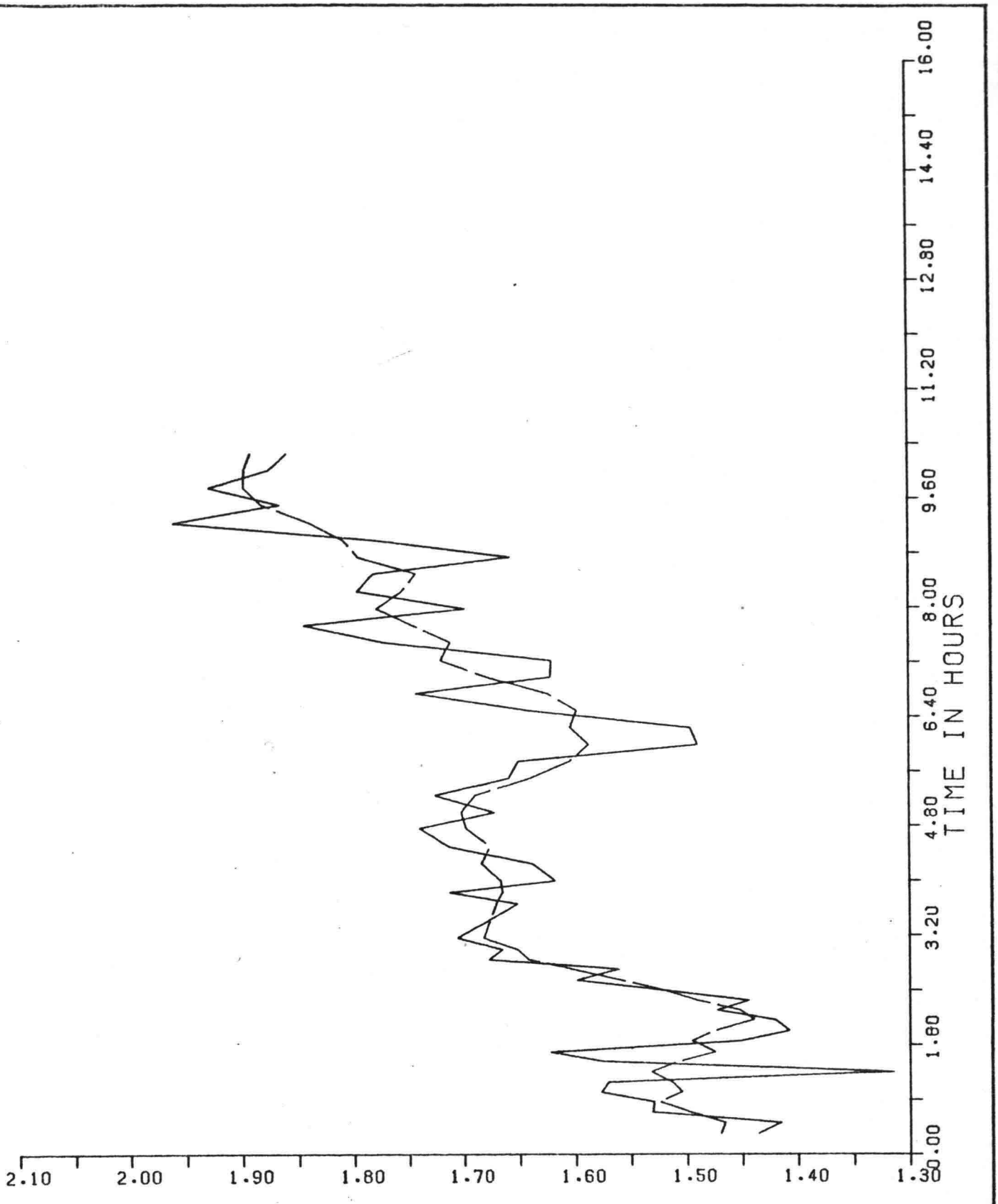

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FIG.7

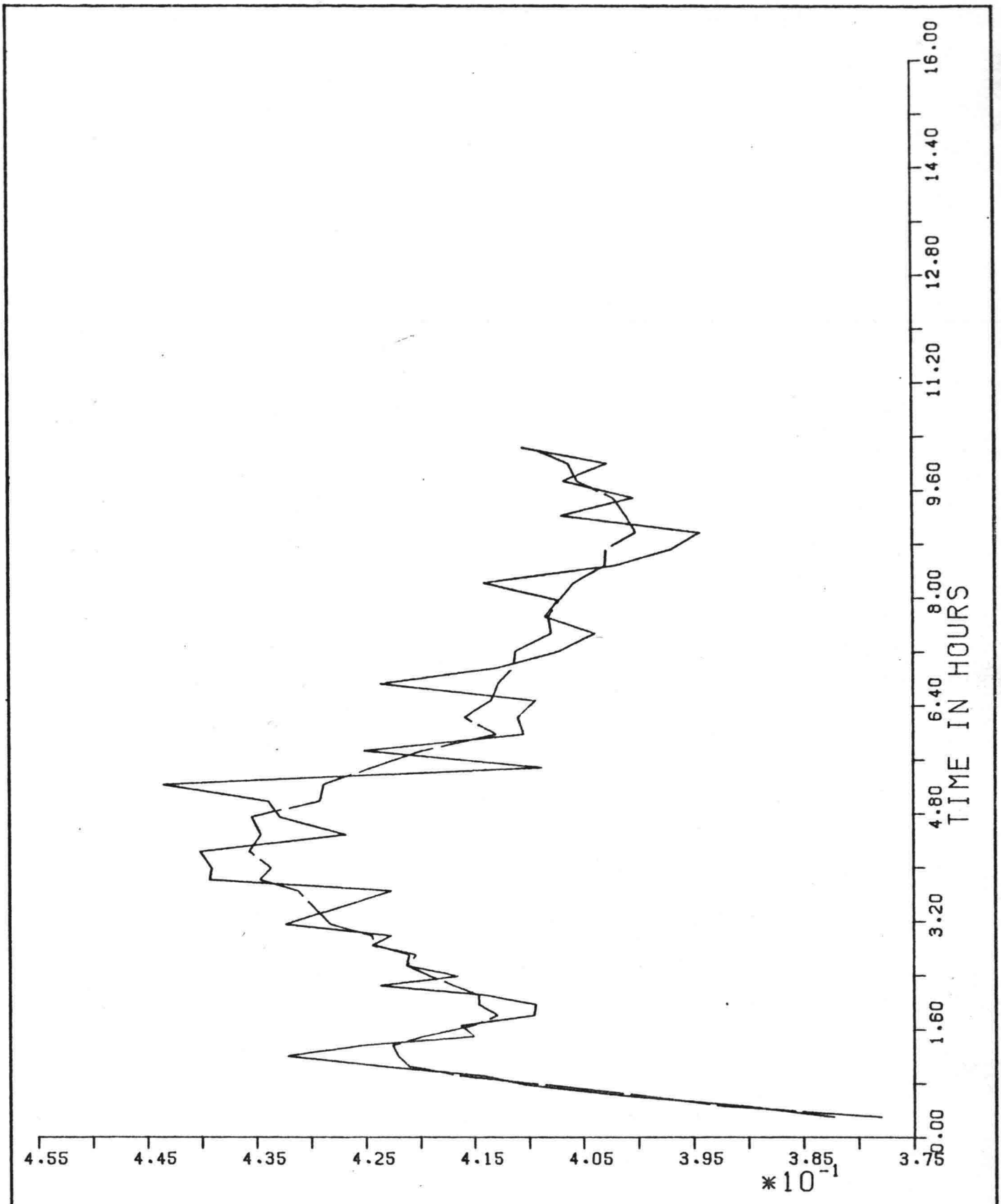

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FIG. 9

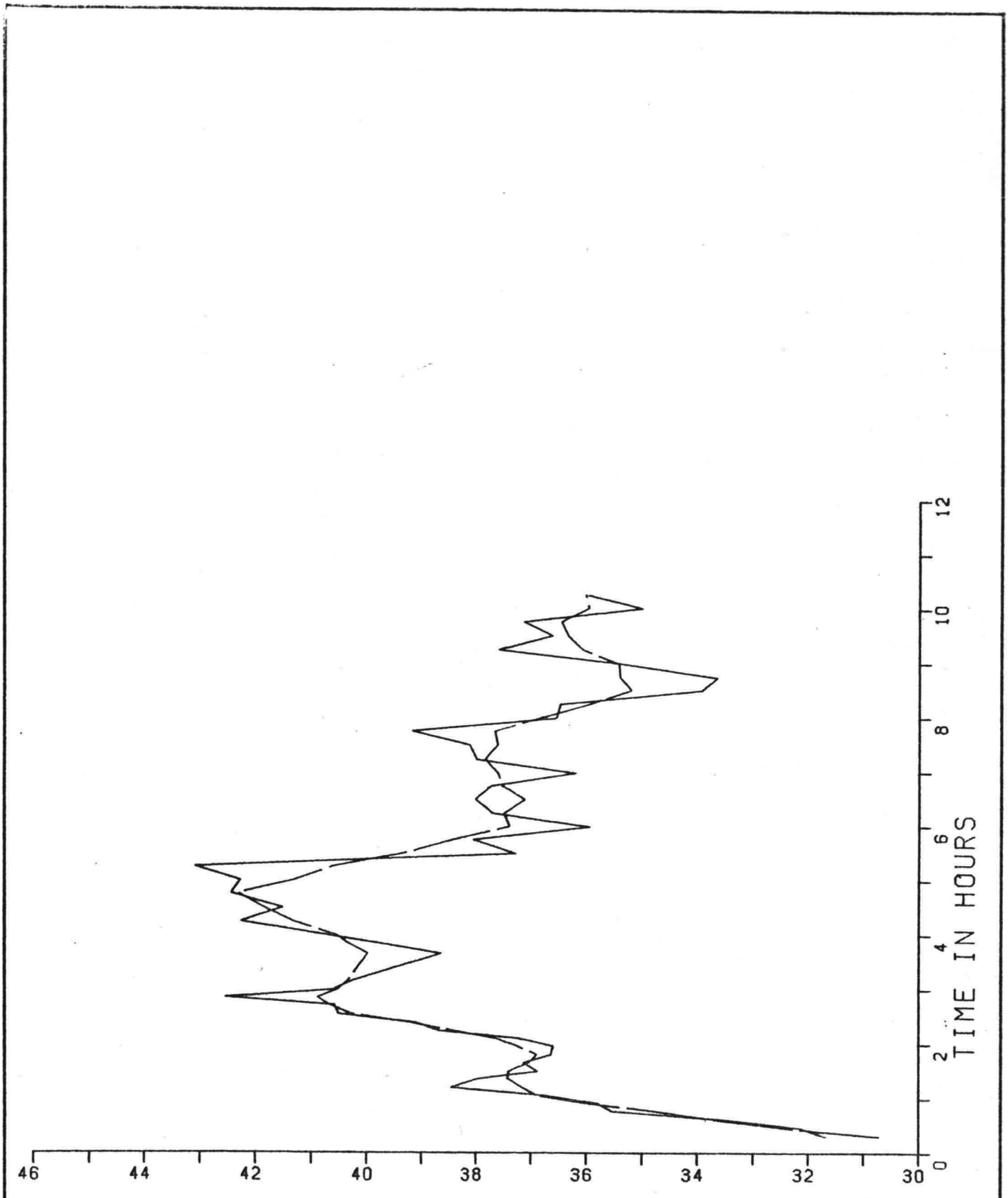

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FIG.9

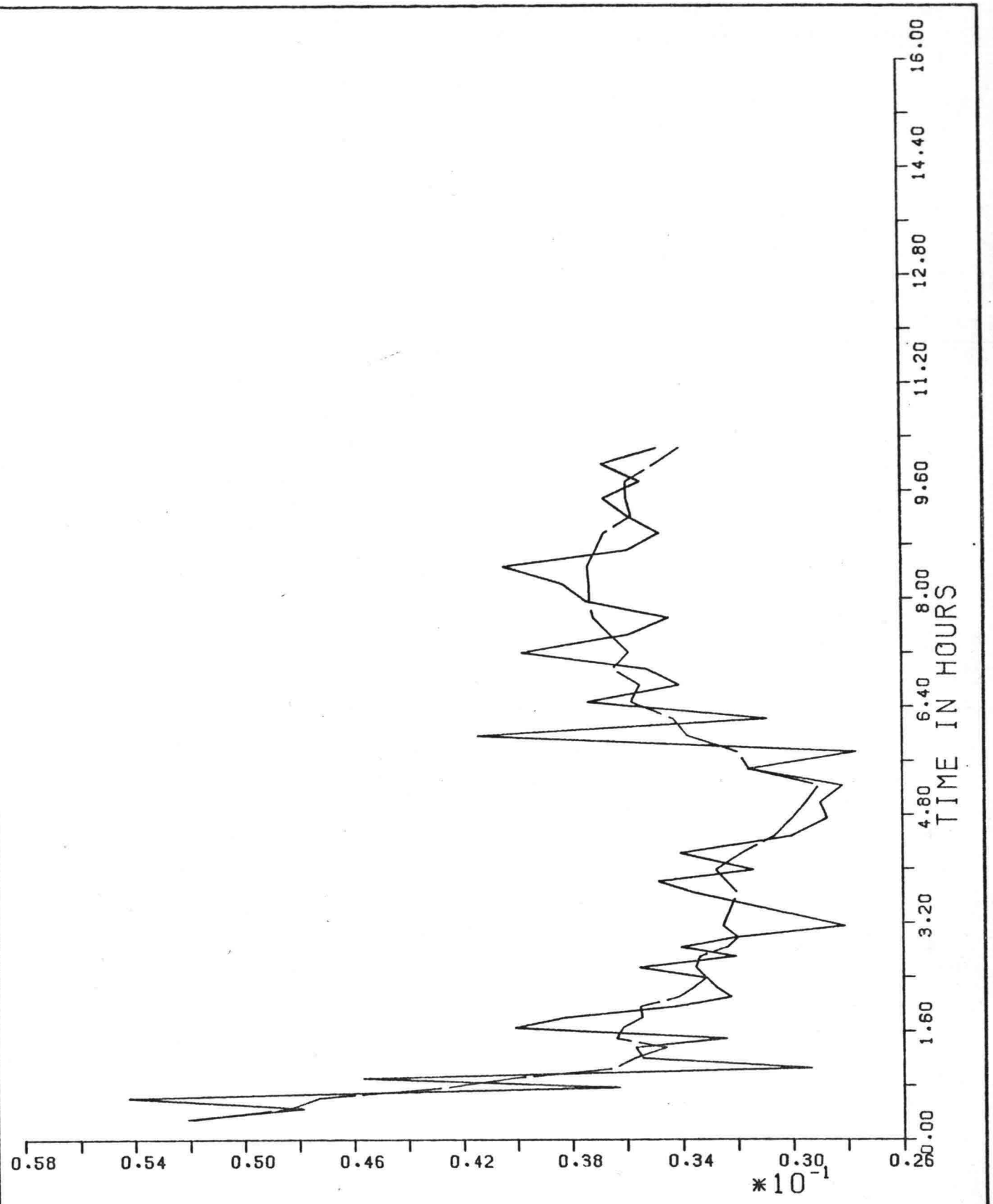

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FIG.10

3.92 M

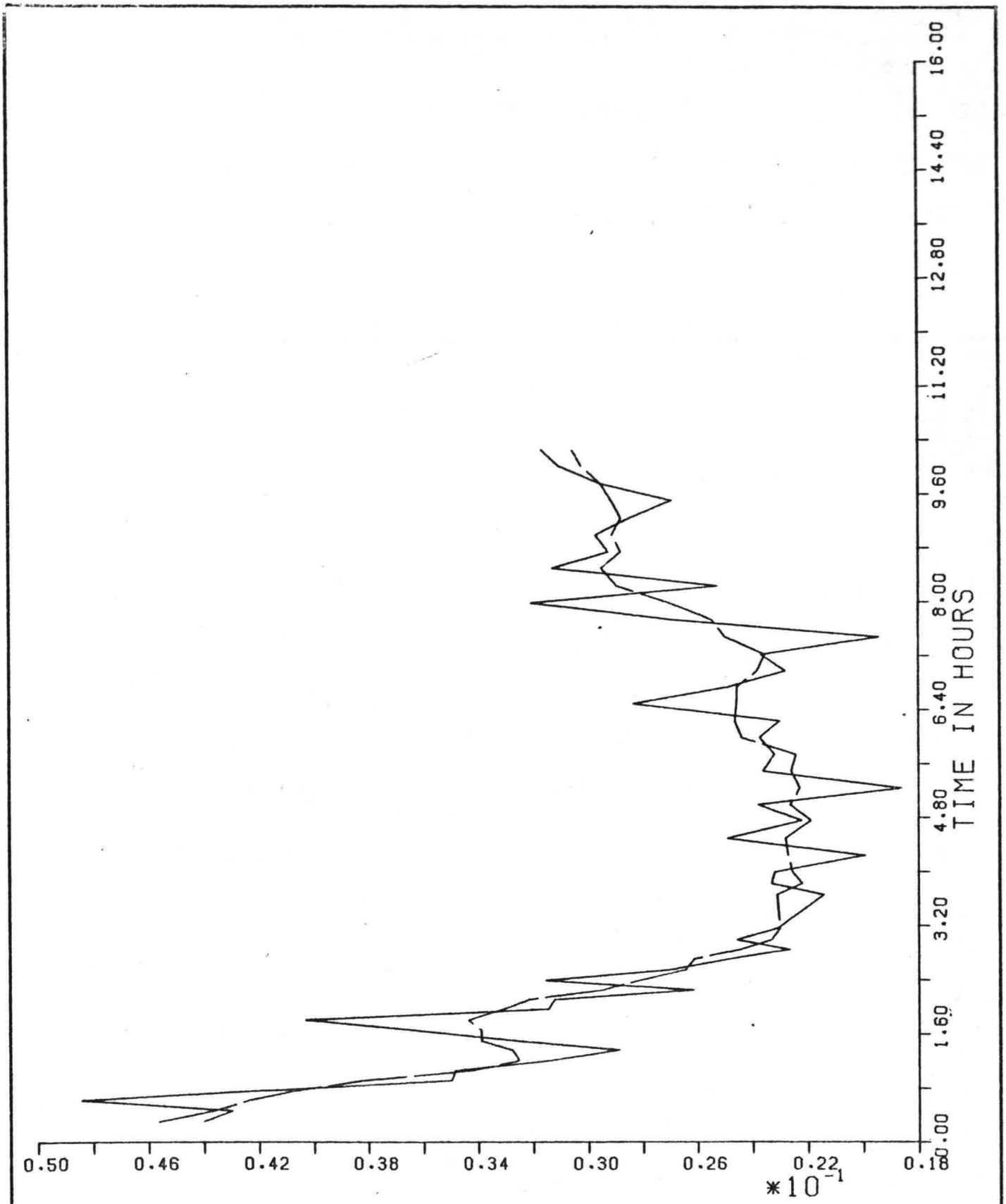

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FIG.11

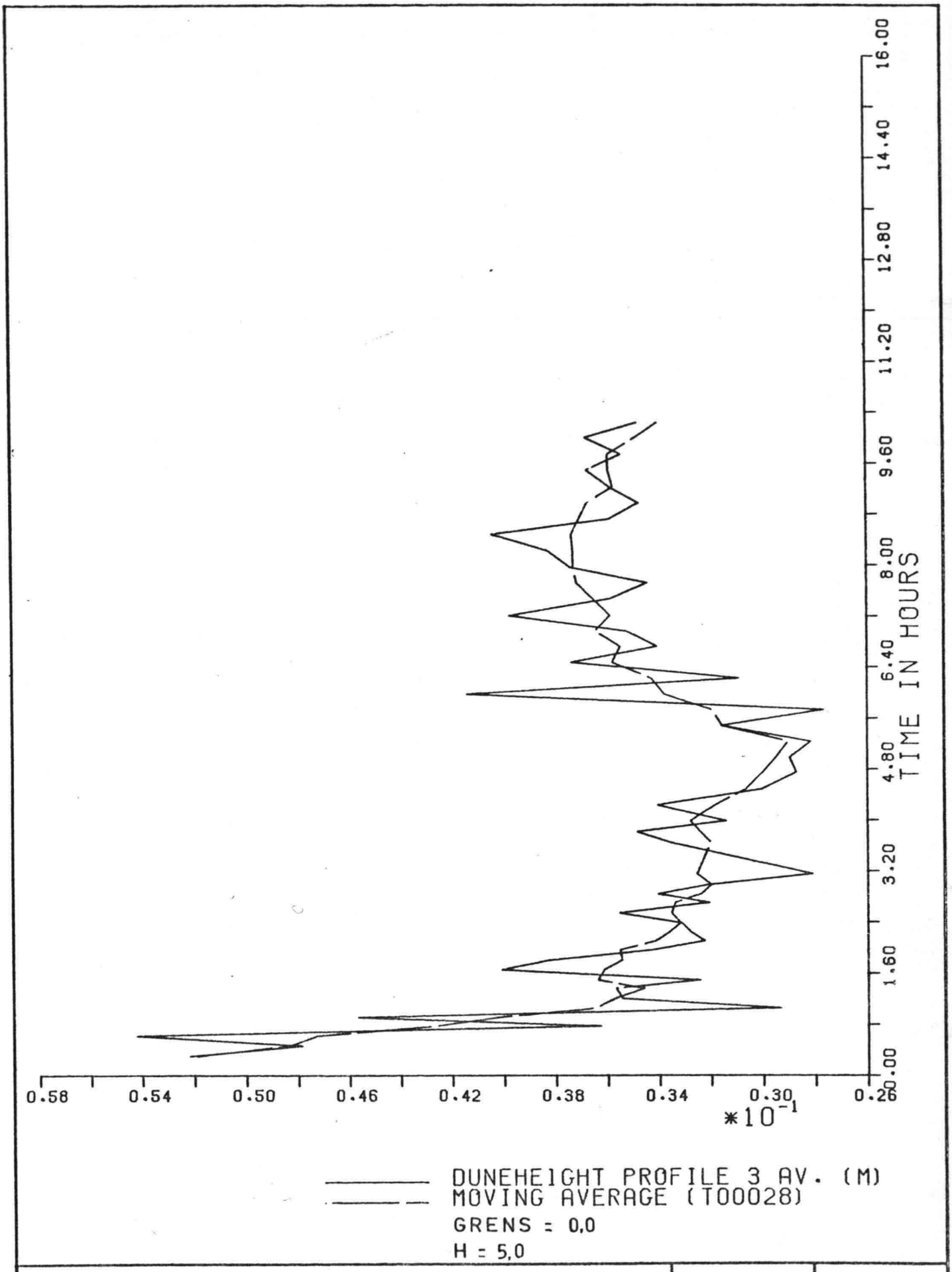

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FIG.12

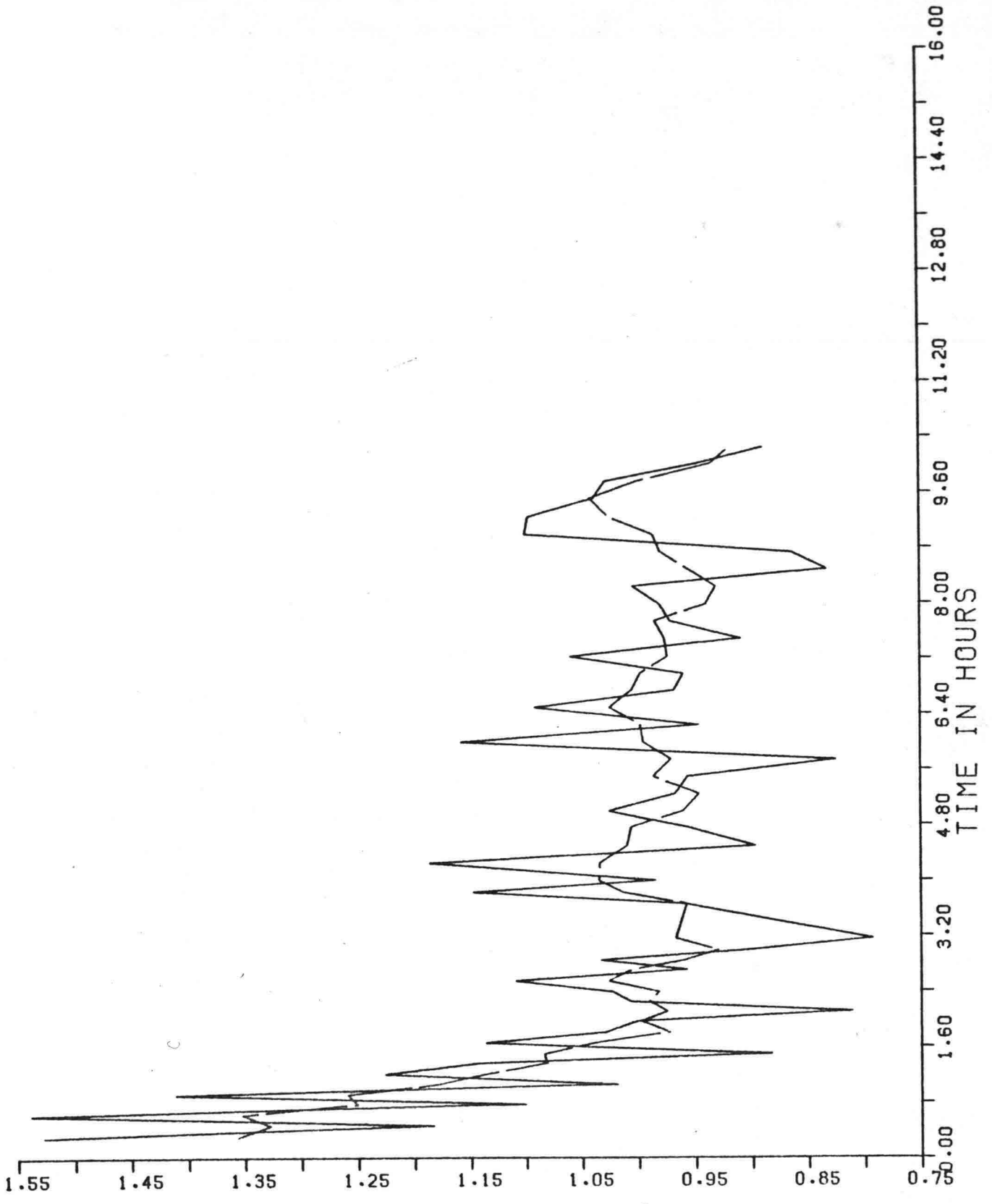

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FIG.13

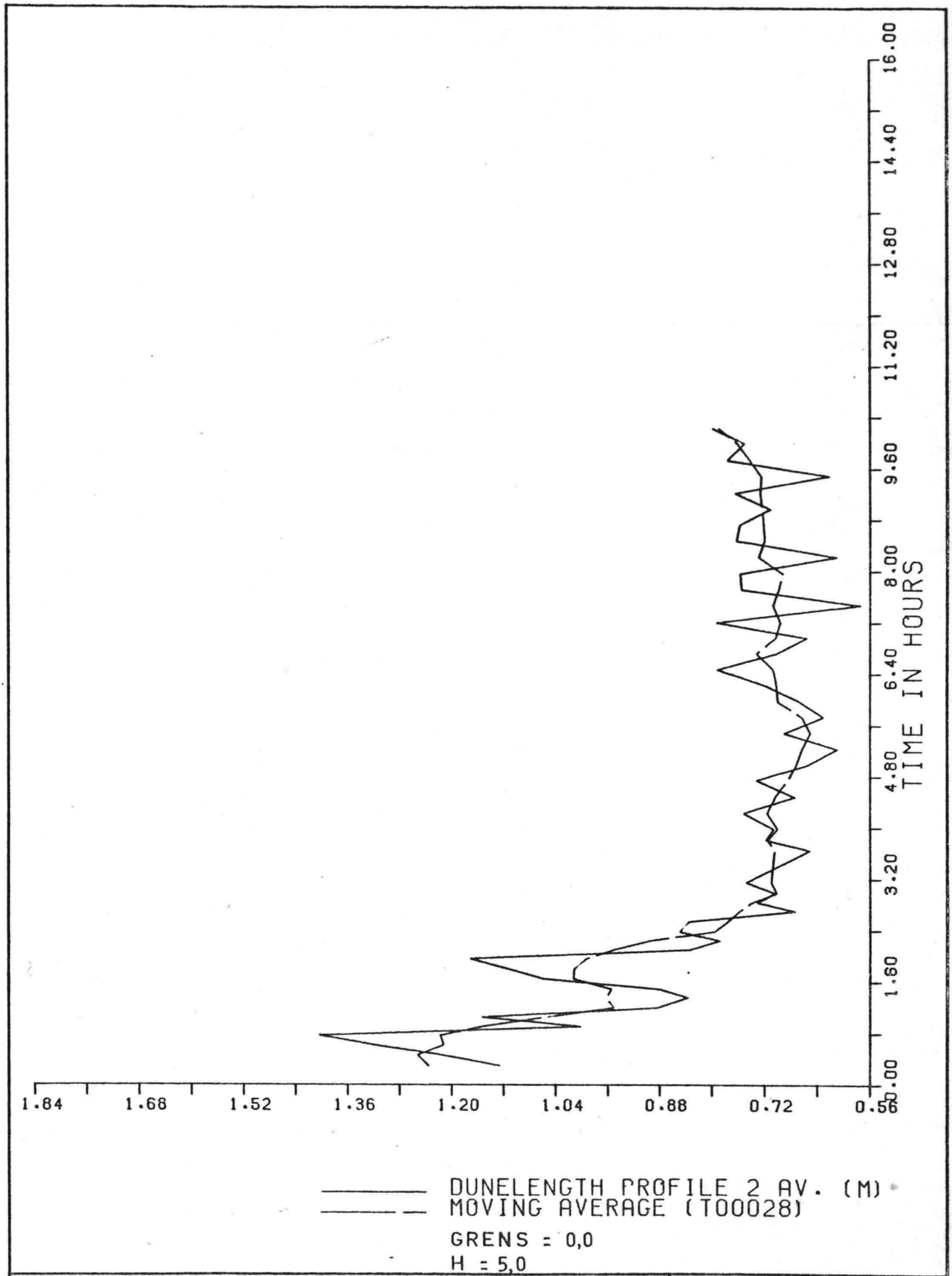

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FIG. 14

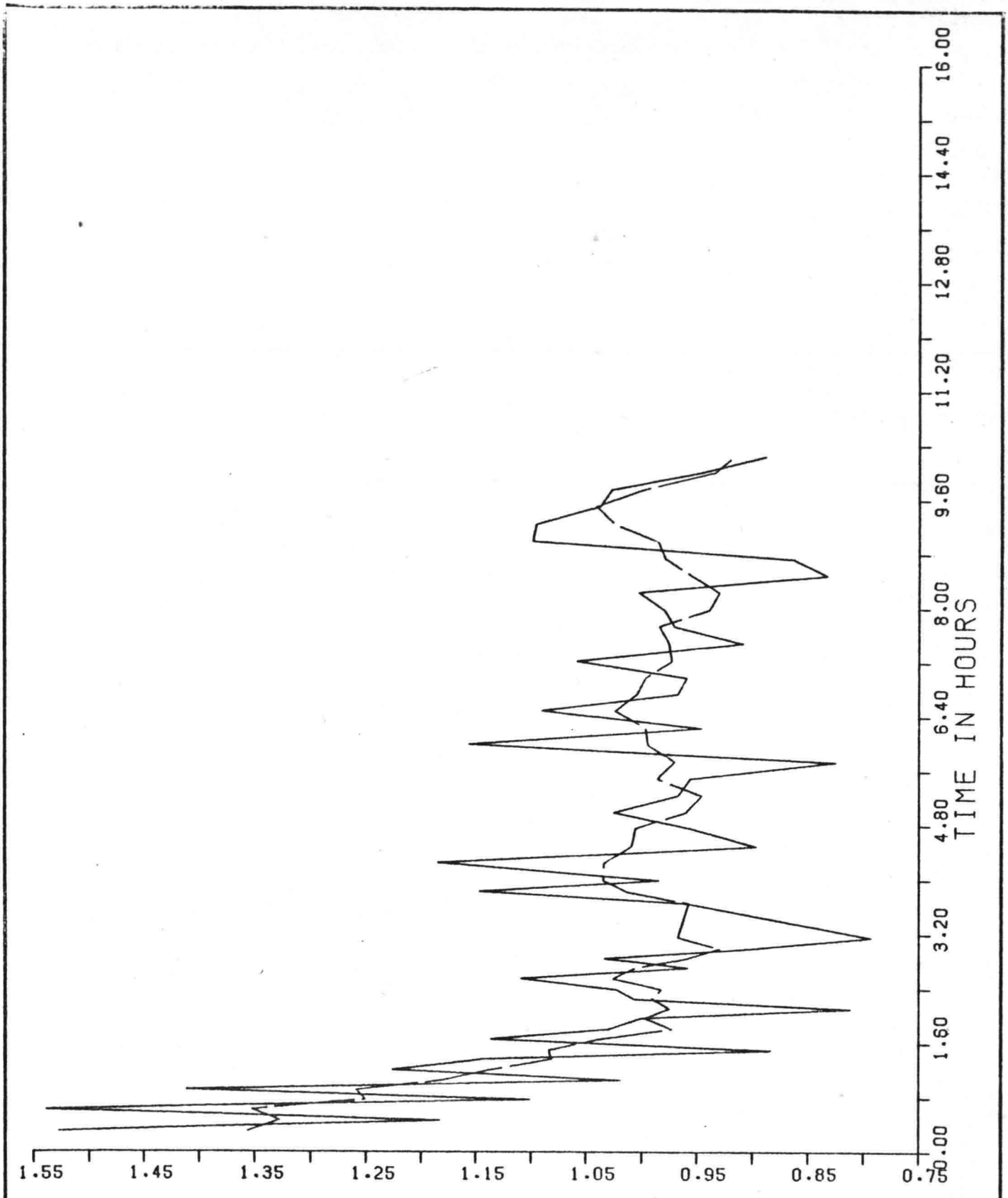

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FIG.15

3.92 S

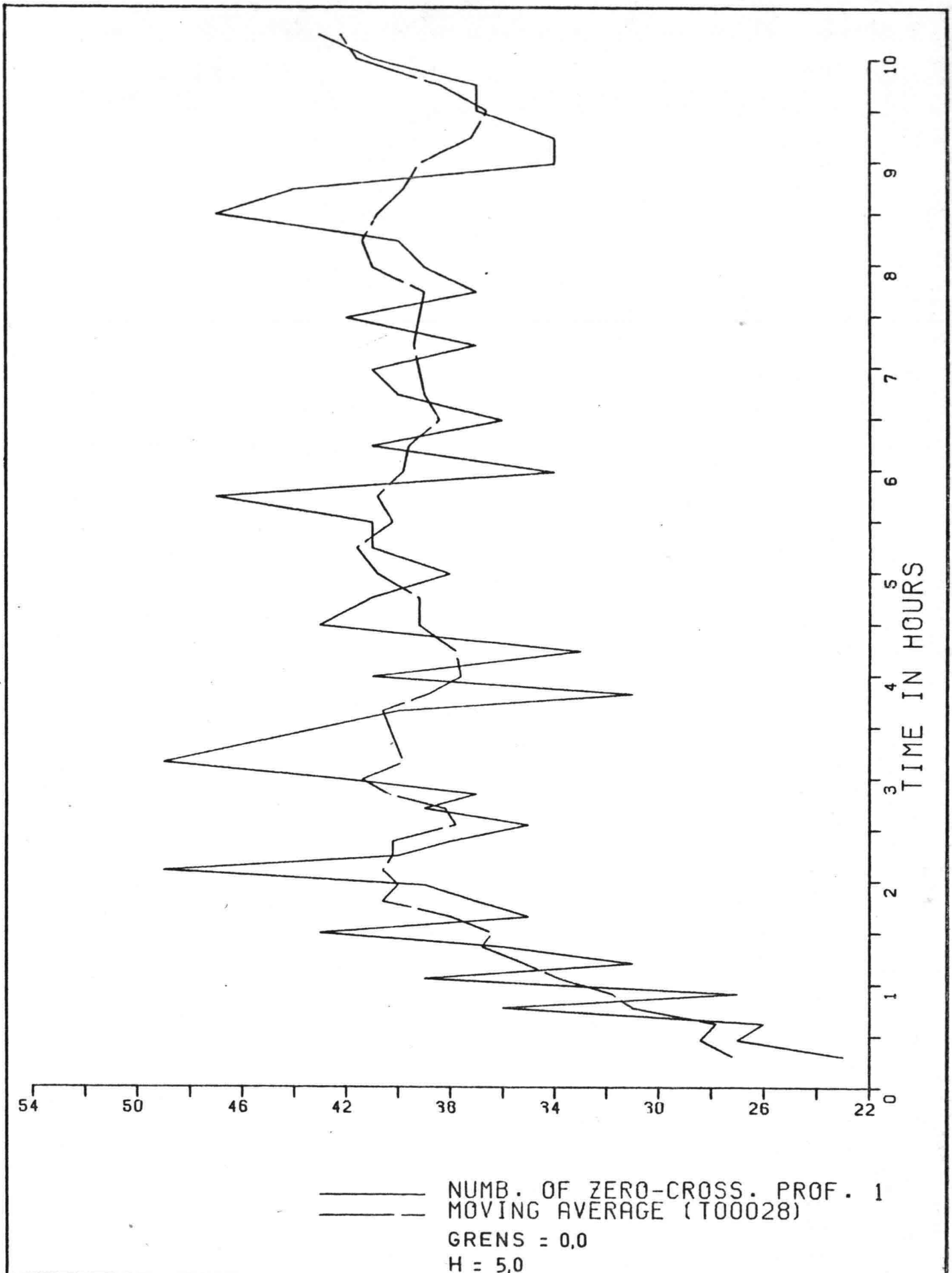

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FIG. 18

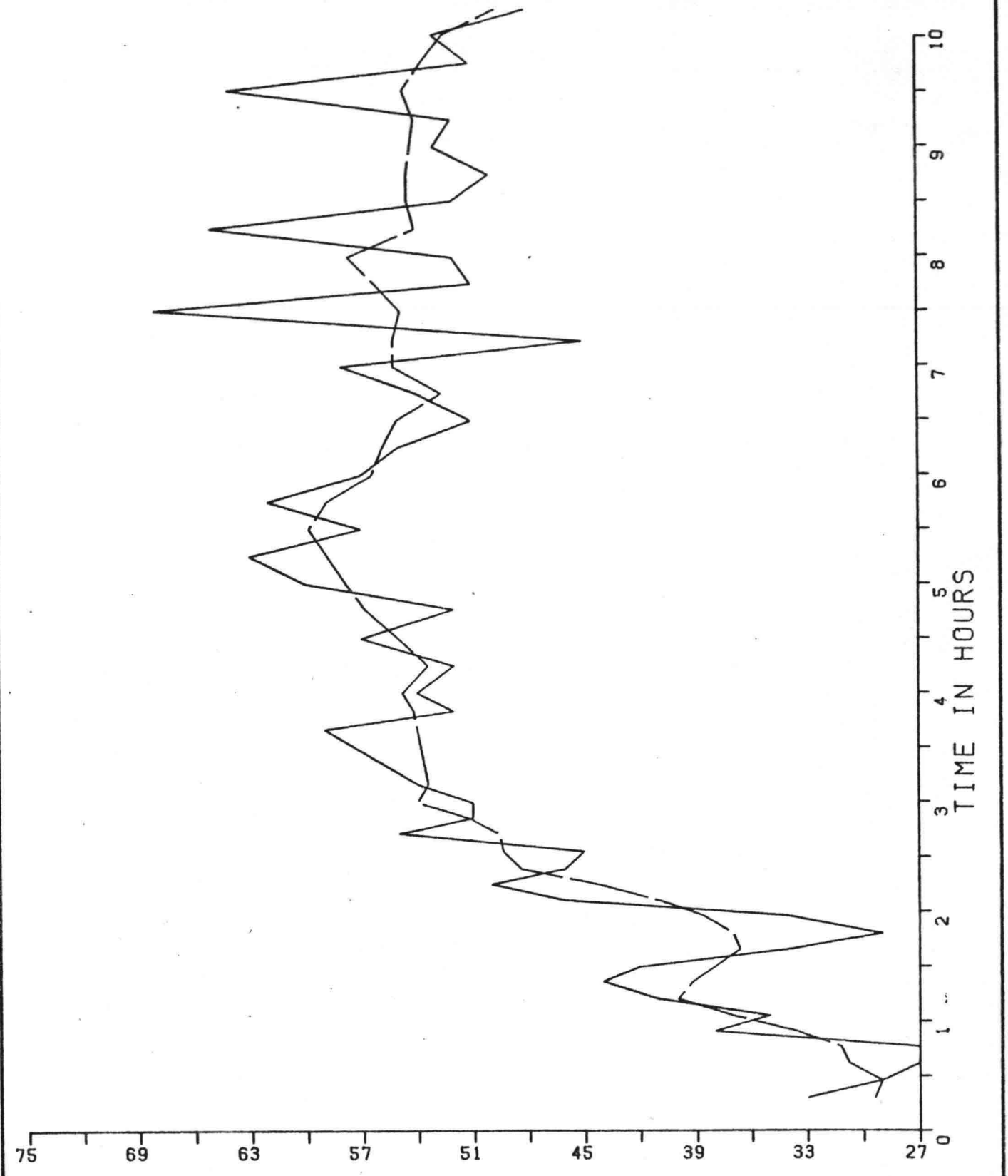

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FIG.17

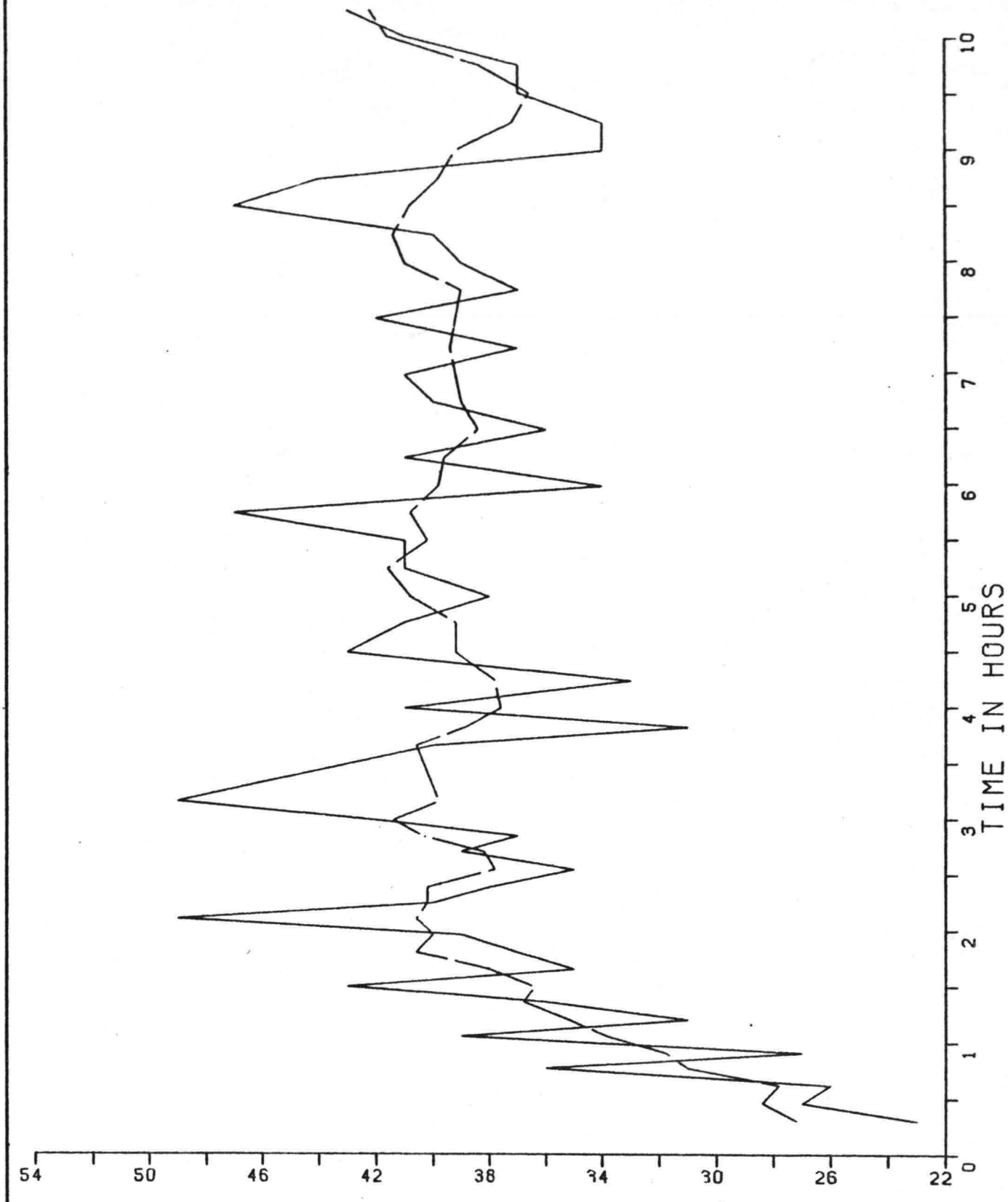

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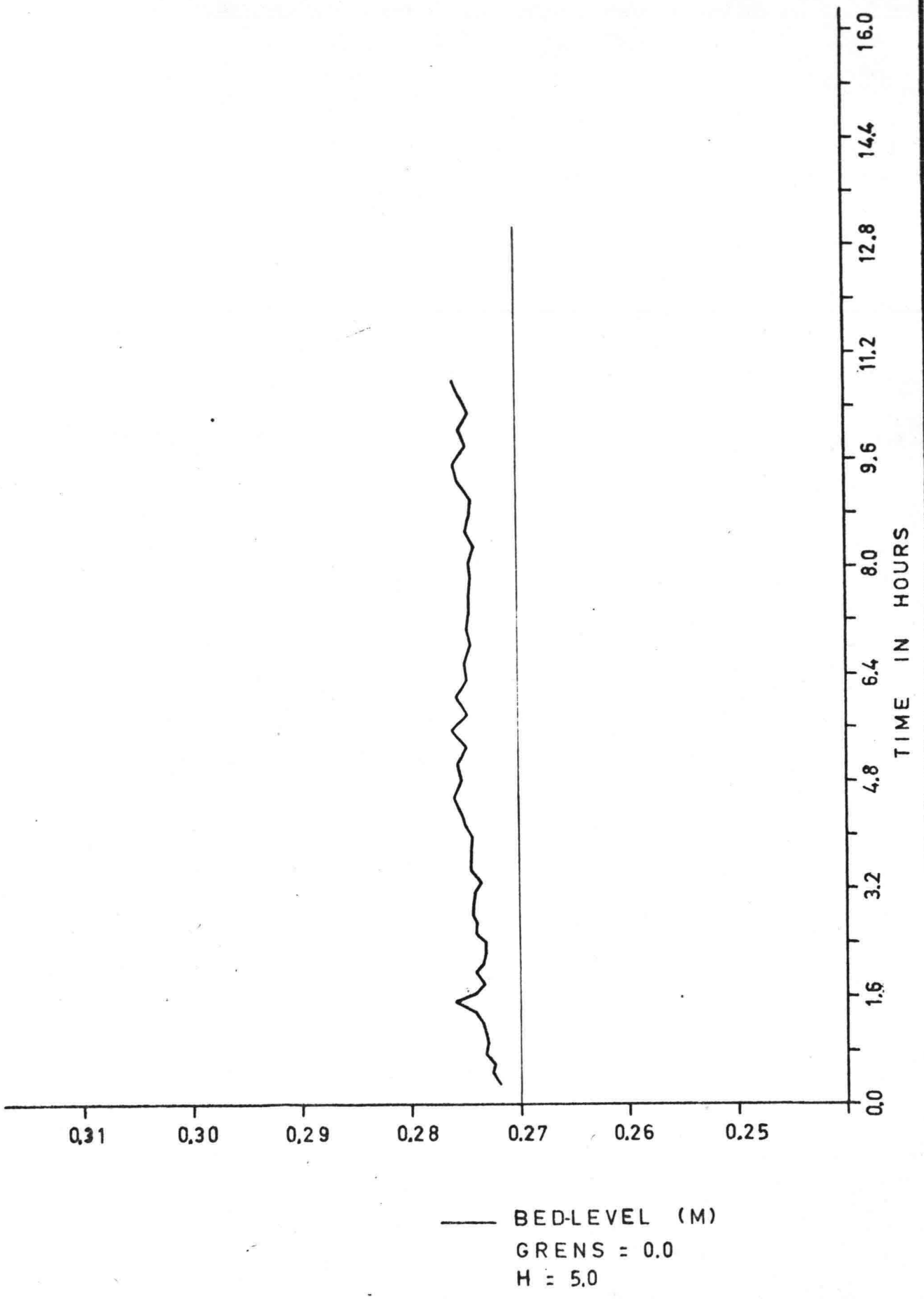
FIG. 18



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WATERLOOPKUNDIG LABORATORIUM | M | FIG. 19

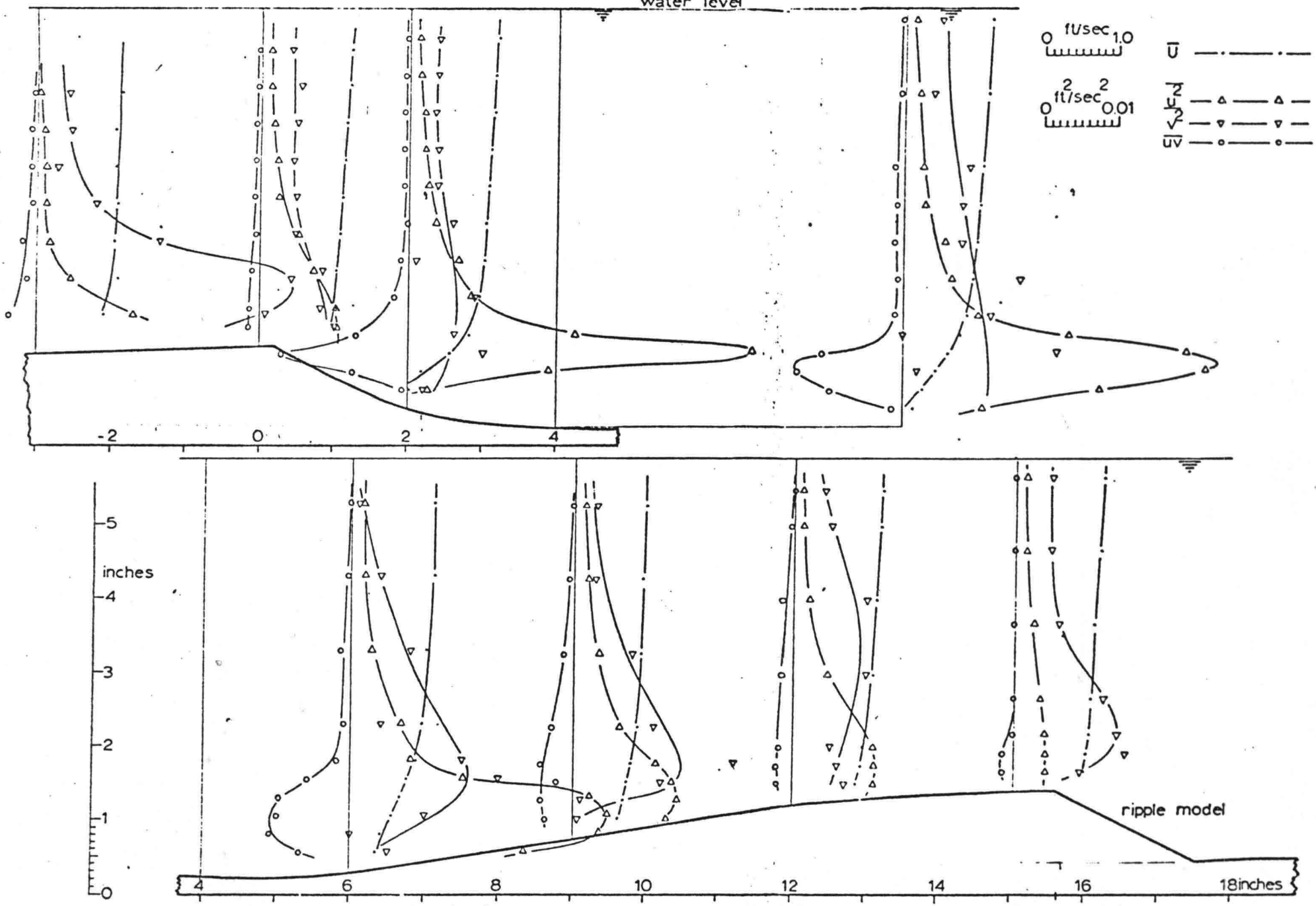
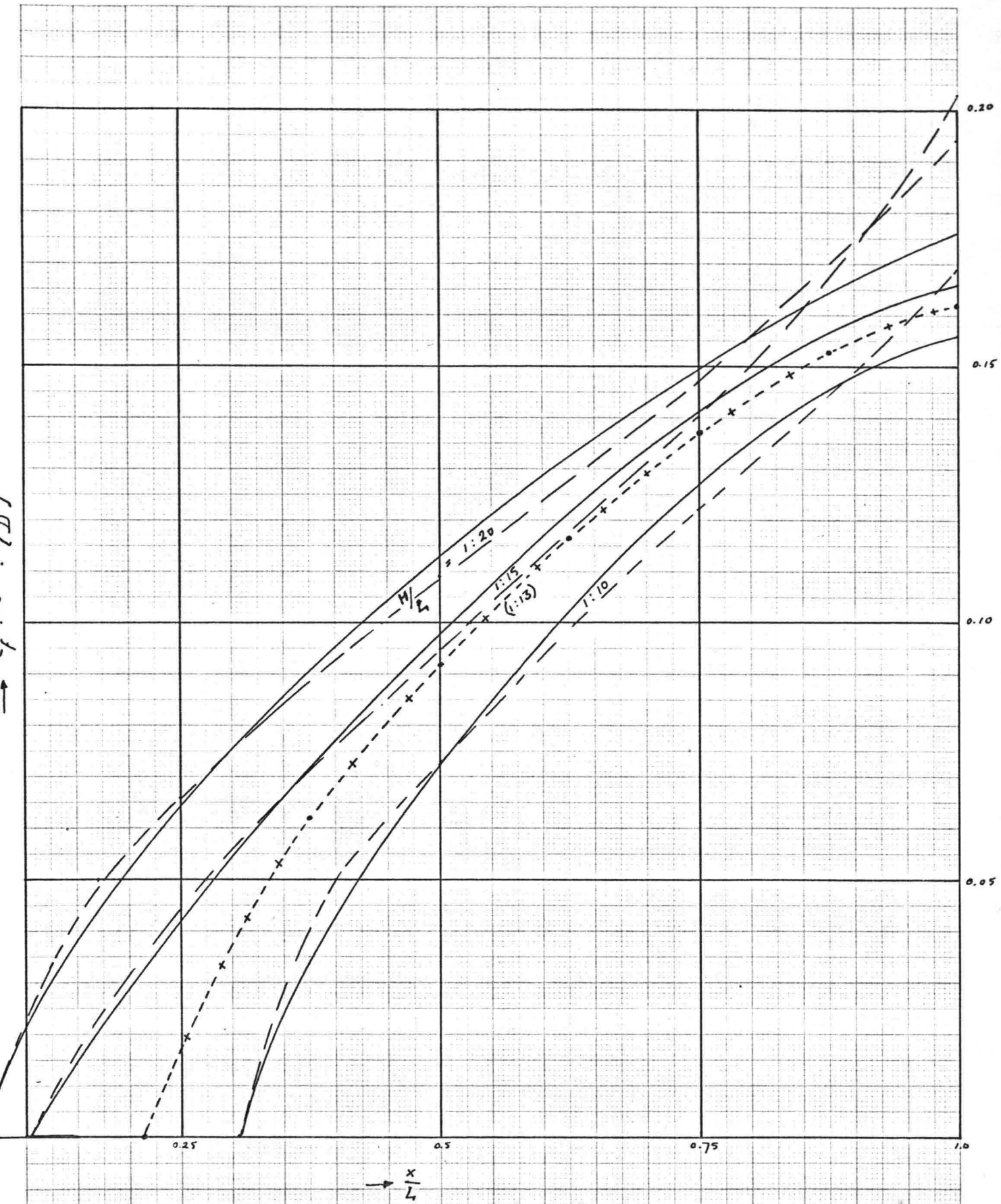


FIG. 6: Profiles of Mean Velocity, Longitudinal and Transverse Fluctuations, and Turbulent Shear: Ripple Model.



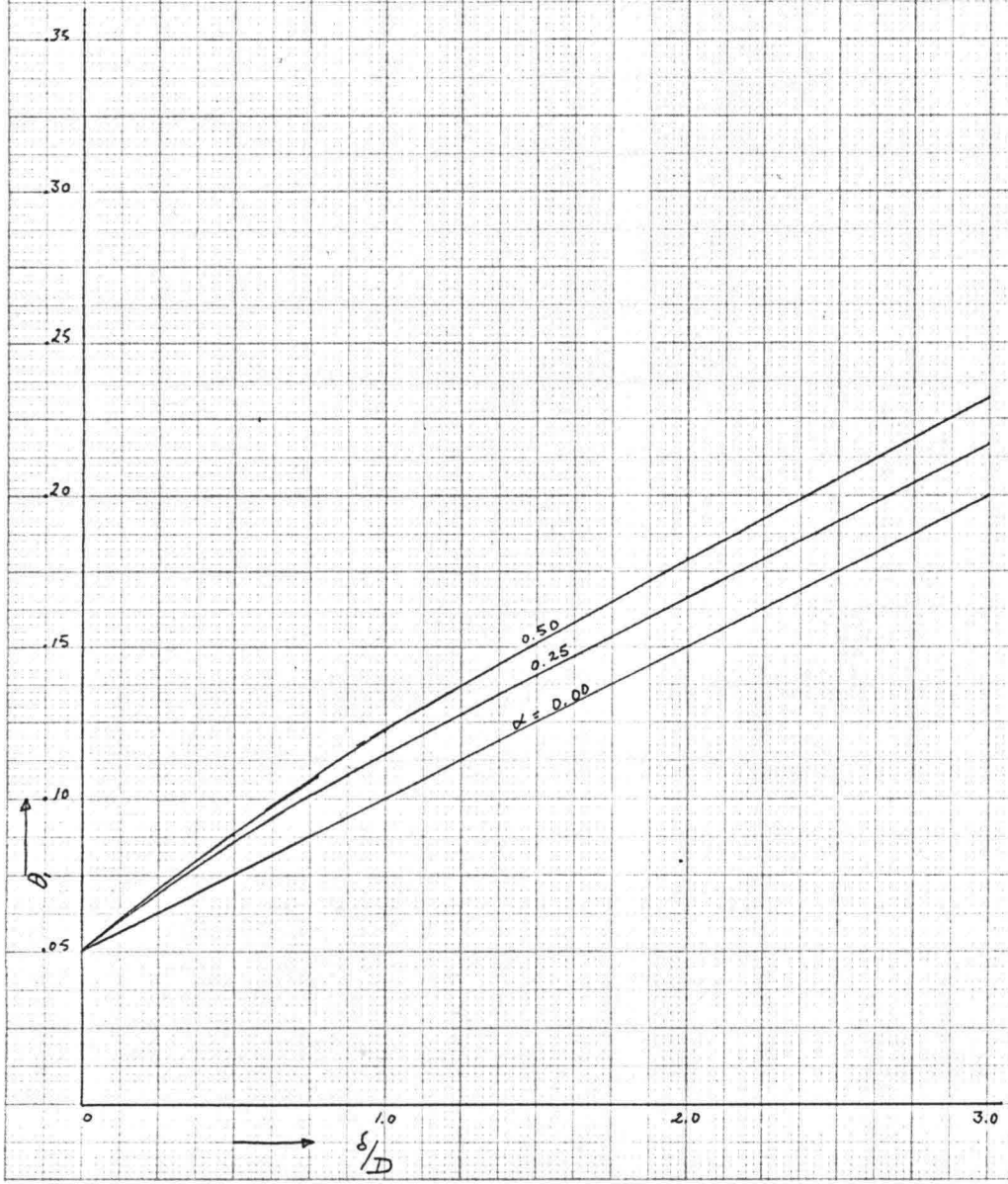
L = (duin)lengte van stijgende deel
H = duinhoogte

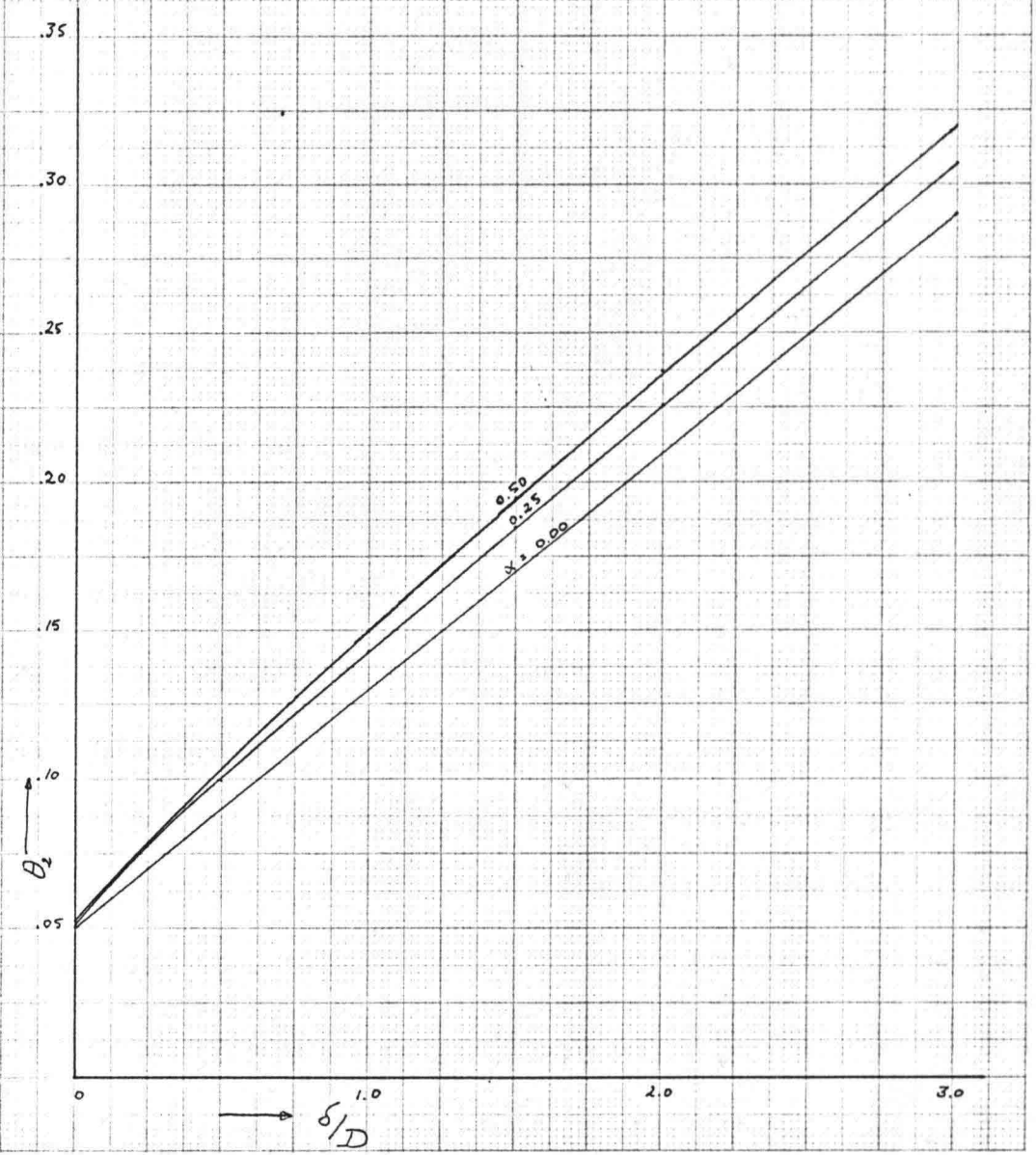
——— metingen VITTAL, driehoekige duinen.

——— aangenomen verdeling bij natuurlyke duinen.

-●--+-- meting SHEEN & RAUDKIVI, natuurlyke duinvorm.

de relaties $\theta_1 = f_1(\alpha, \frac{\delta}{D})$ en $\theta_2 = f_2(\alpha, \frac{\delta}{D})$.





Vermaas meting	q (m^2/s)	$\bar{a}$ (m)	R_b (m)	H (m)	L (m)	H/Leff (-)	τ_{top} (N/m^2)	θ_{top} (-)	u_k (m/s)
d = 750 um									
B = 0.30 m	0.1	0.182	0.144	0.046	0.959	1:18.8	1.57	0.1292	0.192
B = 0.50 m	0.1	0.185	0.152	0.054	1.080	1:18.0	1.49	0.1227	0.182
WL meting									
d = 750 um									
B = 1.50 m									
T 1	0.1	0.198	0.183	0.0601	1.095	1:16.25	1.318	0.1086	0.174
T 2	0.1	0.198	0.184	0.0590	1.005	1:15.0	1.296	0.1068	0.171
T 3	0.15	0.284	0.258	0.0751	1.267	1:14.85	1.254	0.1033	0.165
T 4	0.05	0.111	0.106	0.0451	0.903	1:18.0	1.311	0.1080	0.173
T 5	0.05	0.110	0.105	0.0463	0.933	1:18.15	1.339	0.1103	0.177
T 6	0.2	0.363	0.320	0.0762	1.325	1:15.4	1.286	0.1059	0.170
T 7	0.227	0.397	0.344	0.0745	1.327	1:15.8	1.318	0.1086	0.174
T 8	0.287	0.490	0.411	0.0777	1.361	1:15.5	1.310	0.1079	0.173
Ribberink meting									
d = 1000 um									
B = 0.50 m	0.09	0.184	0.157 (geschat)	0.045	1.200 (geschat)	1:24	1.45	0.090	0.163
Vermaas meting				(geschat)					
150878-1	0.1	0.1786	0.144	variabel	var.	var.	var.	var.	var.

Vermaas meting $\bar{D}$ = 750 um	$S_{top} * 10^6$ (m^2/s)	$\bar{s}$ (l/hm)	$\bar{s}_{werk}$ (l/hm)	afw (%)	$\bar{s}_{mpm}$ (l/hm)	afw (%)
B = 0.30 m	28.4	56.8	44.0	+ 29.1	45.0	+ 2.3
B = 0.50 m	24.0	48.0	44.0	+ 9.1	27.4	- 38.3
WL meting $\bar{D}$ = 750 um B = 1.50 m						
T 1	21.16	42.3	44.2	- 4.3	20.8	- 53.0
T 2	20.02	40.0	44.5	- 10.1	21.6	- 51.5
T 3	17.88	35.8	44.3	- 19.2	21.6	- 51.3
T 4	20.78	41.6	43.7	- 4.8	15.7	- 64.1
T 5	22.25	44.5	41.3	+ 7.7	15.3	- 63.0
T 6	19.45	38.9	44.0	- 11.6	21.2	- 51.8
T 7	21.16	42.3	45.2	- 6.4	23.4	- 48.3
T 8	20.72	41.4	45.8	- 9.6	24.5	- 46.5
Ribberink meting $\bar{D}$ = 1000 um B = 0.50 m	16.3	32.6	34.0	- 4.2	--	--
Vermaas meting 150878-1	variabel	75.2	44	+ 70.9	23.1	- 47.3

WL meting D_{50} = 770 um B = 1.50 m	q m^2/s	$\bar{a}$ (m)	R_b (m)	H (m)	L (m)	H/Leff (-)	τ_{top} (N/m^2)	θ_{top} (-)	u_k (m/s)
T 9	0.367	0.592	0.473	0.0825	1.2710	1:13.4	1.283	0.106	0.170
T 10	0.116	0.278	0.246	0.0762	1.6512	1:19.7	0.868	0.072	0.106
T 11	0.18	0.301	0.274	0.0835	1.2630	1:13.1	1.486	0.122	0.196
T 12	0.06	0.115	0.110	0.0488	0.8969	1:16.4	1.636	0.135	0.216
T 13	0.317	0.488	0.421	0.0901	1.4321	1:13.9	1.512	0.125	0.200
T 14	0.042	0.105	0.098	0.0424	1.1911	1:26.1	1.156	0.095	0.151
T 15	0.203	0.451	0.369	0.0831	1.9583	1:21.6	0.882	0.073	0.109
T 16	0.207	0.263	0.245	0.0991	1.5727	1:13.9	2.572	0.212	0.318
T 17	0.227	0.405	0.352	0.0858	1.4136	1:14.5	1.224	0.101	0.161

WL meting D_{50} = 770 um B = 1.50 m	$S_{top} * 10^6$ (m^2/s)	$\bar{s}$ (ℓ/hm)	$\bar{s}_{werk}$ (ℓ/hm)	afw (%)	$\bar{s}_{mpm}$ (ℓ/hm)	afw (%)
T 9	19.6	39.1	46.1	-15.2	26.2	- 43.2
T 10	3.2	6.4	8.6	-25.6	0.0	-100.0
T 11	30.4	60.8	82.1	-25.9	43.8	- 46.7
T 12	40.5	81.0	84.7	- 4.4	40.0	- 52.7
T 13	32.5	65.0	84.5	-23.1	47.4	- 43.9
T 14	13.2	26.2	9.1	+187.9	0.06	- 99.3
T 15	3.6	7.2	9.8	-26.5	0.0	-100.0
T 16	120.8	241.6	382.5	-36.8	198.0	- 48.2
T 17	16.5	33.0	45.8	-27.9	18.4	- 59.8