

70B

CONCENTRATIE- EN DIFFUSIECOEFFICIENTEN-  
VERDELING ONDER ONREGELMATIGE EN BREKENDE  
GOLVEN

Een onderzoek naar aanleiding van metingen  
in de Deltagoot

Deel 2: Bijlagen

S.L. Ras  
J.A. Amesz  
maart 1989

TECHNISCHE UNIVERSITEIT DELFT  
FACULTEIT DER CIVIELE TECHNIEK  
VAKGROEP WATERBOUWKUNDE

E.W.B.

Uw kenmerk en datum	Ons kenmerk	Doorkiesnummer	Datum
—	3170/1185	(015) 78 4846	2 mei 1989
Onderwerp		Onderdeel	
Afstudeervoordracht		Vakgroep Waterbouwkunde/ Sectie Waterbouwkunde	

L.S.,

Gaarne nodigen wij U uit tot het bijwonen van de afstudeervoordracht:

"Concentratie- en diffusiecoëfficiëntenverdeling  
onder onregelmatige en brekende golven"

welke door Saskia Ras en Jack Amesz op maandag 22 mei a.s. om 16.00 uur wordt gehouden in zaal G van het gebouw voor Civiele Techniek.

Samenvatting afstudeerwerk:

Een belangrijk aspect van het gecompliceerde proces van sedimenttransport aan zandige kusten is de concentratieverdeling van sediment over de waterdiepte onder golfwerking. Voor de beschrijving van de concentratieverdeling is een diffusie- of mengingsmodel gebruikt.

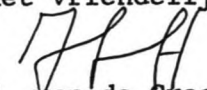
Bij proeven op grote schaal, met onregelmatige en brekende golven en een natuurlijke zandige bodem, is - uit gemeten concentratieverdelingen - met de fit procedure van Van de Graaff een continue concentratieverdeling bepaald. Onder de genoemde omstandigheden geeft de fit procedure goede resultaten. Uit de continue concentratieverdeling is de bijbehorende diffusie-of mengingscoëfficiëntenverdeling berekend.

Vervolgens is nagegaan of er een afhankelijkheid bestaat tussen waarden van de diffusiecoëfficiënt en bepaalde randvoorwaarden voor de waterbeweging. De resultaten zijn bemoedigend en bieden goede aanknopingspunten voor nader onderzoek.

Voor dit onderzoek is gebruik gemaakt van meetresultaten uit de Deltagoot van het Waterloopkundig Laboratorium "de Voorst".

Na afloop van de voordracht is er gelegenheid tot discussie.  
Uw aanwezigheid wordt door ons zeer op prijs gesteld.

Met vriendelijke groeten,



J. Van de Graaff

Vertellen met middelen essentiele zaken

(bij voorkeur E<sub>1</sub> en E<sub>2</sub>) b<sub>1</sub>

$$wC + 2 \frac{dw}{dt} = 0$$

en monotonie -

Quaestie grondslagen voor het

onderzoek

11.10.56. h. g. v. 1947

It's not best met  $\frac{dw}{dt} = 0$

or not even strip of  $\frac{dw}{dt} = 0$

The unit  $\frac{dw}{dt}$  is

best met  $\frac{dw}{dt} = 0$

CONCENTRATIE- EN DIFFUSIECOEFFICIENTEN-  
VERDELING ONDER ONREGELMATIGE EN BREKENDE  
GOLVEN.

Een onderzoek naar aanleiding van metingen  
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Afstudeerverslag van Saskia Ras en Jack Amesz.

Deel 2: Bijlagen

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## INHOUDSOPGAVE BIJLAGEN

### Deel A : Figuren

- 2.1 Gemiddelde en standaardafwijking van 99 verschillende concentratiemetingen (Bosman 1986)
- 2.2 Invloed coëfficiënten in fitmethode.
- 3.1 Deltagoot.
- 3.2 Afzuigkam concentratiemeter.
- 3.3 a. Langsdoorsnede van de Deltagoot met locaties meetapparatuur (meetserie I).  
b. Detail brekerzone (meetserie I).
- 3.4 a. Uitgangsprofiel in Deltagoot (meetserie II).  
b. Detail profiel met verdediging (meetserie II).
- 3.5 Waterstands- en golfhoogteverloop in proef T4 (meetserie II).
- 3.6 Overzicht profielontwikkeling, a. Proef 1 (meetserie II)  
b. Proef 2
- 3.7 Overzicht profielontwikkeling, a. Proef 3 (meetserie II)  
b. Proef 5
- 3.8 Vergelijking profielen, a. na 0:36 uur (meetserie II)  
b. na 3:30 uur
- 3.9 Vergelijking profielen, a. na 9:30 uur (meetserie II)  
b. na 16:00 uur
- 3.10 Golfhoogteverloop, vergelijking metingen en berekende waarden (meetserie II).
- 3.11 Verschillende typen energiedichtheidsspectra (meetserie II).
- 4.1 Proeven door Dette & Uliczka (Van de Graaff, 1988)
  
- 4.2 Concentratie fits, test 1A t/m 5A.
- 4.3 idem, test 5B t/m 8B.
- 4.4 idem, test 9B t/m 9I.
- 4.5 idem, test 9J t/m 9L.
- 4.6 idem, test T1A t/m T1F3.
- 4.7 idem, test T1G1 t/m T1H5.
- 4.8 idem, test T2A t/m T2F3.
- 4.9 idem, test T2G1 t/m T2I1.
- 4.10 idem, test T2I2 t/m T2I6.
- 4.11 idem, test T3A t/m T3F3.
- 4.12 idem, test T3G1 t/m T3I1.
- 4.13 idem, test T3I2 t/m T3I6.
- 4.14 idem, test T4C1 t/m T4C6.
- 4.15 idem, test T5B1 t/m T5D3.

- 4.16 C en  $\epsilon$  verdeling over de diepte, test 9B, 9C, 9D.  
4.17 idem, test 2A, 2B, 4B, 6A, 6B, 8B.  
4.18 idem, test 3A, 3B, 5A, 5B, 9I.  
4.19 idem, test 9F, 9J.  
4.20 idem, test 9G, 9H, 9K, 9L.  
4.21 idem, test T2I6, T3I6.  
4.22 idem, test T1E1, T2E1, T3E1.  
4.23 idem, test T1E2, T2E2, T2I5, T3I5.  
4.24 idem, test T1H3, T3H4, T3I3.  
4.25 idem, test T2H3, T2I4, T3H5.  
4.26 idem, test T2F1, T2G4, T3H3, T3I4.  
4.27 idem, test T1C, T1F1.  
4.28 idem, test T3G4.  
4.29 idem, test T3F1, T3G3, T5D2.  
4.30 idem, test T2C, T3E2, T3I2.  
4.31 idem, test T3F2, T5D3.  
4.32 idem, test T1G4, T1H4, T2H4, T2I3.
- 4.33  $\epsilon$  verdelingen in langsprofiel Deltagoot (meetserie I).  
4.34 idem, (meetserie II, proef T1).  
4.35 idem, (meetserie II, proef T2).  
4.36 idem, (meetserie II, proef T2).  
4.37 idem, (meetserie II, proef T3).  
4.38 idem, (meetserie II, proef T3).
- 4.39 Afhankelijkheid  $\epsilon$  waarden,  $U_{sig}$  -  $\epsilon$ ;  $z=0.2$ .  
 $U_{sig}T_p/2\pi$  -  $\epsilon$ ;  $z=0.2$ .  
4.40 Afhankelijkheid  $\epsilon$  waarden,  $H_{sig}/h_{gem}$  -  $\epsilon$ ;  $z=0.2$ .  
 $H_{sig}/h_{gem}$  -  $\epsilon$ ;  $z=0.025$ .  
4.41 Afhankelijkheid  $\epsilon$  waarden,  $U_{sig}T_p/h_{gem}$  -  $\epsilon$ ;  $z=0.2$ .  
4.42 Afhankelijkheid delta  $\epsilon$  waarden,  $U_{sig}$  - delta  $\epsilon$ .  
 $U_{sig}T_p/2\pi$  - delta  $\epsilon$ .  
4.43 Afhankelijkheid delta  $\epsilon$  waarden,  $U_{sig}T_p/h_{gem}$  - delta  $\epsilon$ .  
 $H_{sig}/h_{gem}$  - delta  $\epsilon$ .
- 4.44 Afhankelijkheid  $\epsilon$  waarden  $U_{sig}$  -  $\epsilon$ ;  $z=h_{gem}/10$ .  
 $U_{sig}T_p/2\pi$  -  $\epsilon$ ;  $z=h_{gem}/10$ .  
4.45 Afhankelijkheid  $\epsilon$  waarden  $H_{sig}/h_{gem}$  -  $\epsilon$ ;  $z=h_{gem}/10$ .  
4.46 Afhankelijkheid  $\epsilon$  waarden  $U_{sig}$  -  $\epsilon$ ;  $z=0.2$ .  
(met metingen Dette & Uliczka).  
Afhankelijkheid  $\epsilon$  waarden  $U_{sig}$  -  $\epsilon$ ;  $z=h_{gem}/20$ .  
(met metingen Dette & Uliczka en Van de Graaff).
- 4.47 Controle D50 suspensiemateriaal.  
4.48 Gezeefde D10-D50-D90 verdelingen en gemeten D50 waarden bodemmateriaal (meetserie I)

- 4.49 C en  $\epsilon$  verdeling, gevoeligheidsanalyse, I2.25, II2.25, III2.25
- 4.50 idem, I2.25, I1.5, I1.0.
- 4.51 idem, II2.25, III1.5, III1.0.
- 4.52 idem, III2.25, III1.5, III1.0.
- 4.53 a.  $\epsilon$  verdelingen, gevoeligheidsanalyse, I2.25 en I2.25(D1, D2, D3, D4).  
b. idem, I2.25 en II2.25 en I2.25(D1) bij 10°C en 18°C.
- 4.54 a. D50 verdelingen over de waterdiepte, gevoeligheidsanalyse, I2.25, II2.25, III2.25  
b. idem, I2.25, I1.5, I1.0.
- 4.55 idem, I2.25 en I2.25(D1, D2, D3, D4).

#### Deel B : tabellen

- 3.1 Overzicht meetgegevens van meetserie I.
- 3.2 Gemeten concentraties (meetserie I).
- 3.3 Overzicht meetgegevens van meetserie II.
- 3.4 Gemeten concentraties (meetserie II).
- 3.5 Overzicht D50 zandmonsters (meetserie II).
- 3.6 Overzicht w50 suspensie monsters (meetserie II).
- 4.1 Indeling metingen, en procentuele fouten.
- 4.2 Berekende lognormale diameter verdelingen.
- 4.3 Overzicht van de coëfficiënten van de fit procedure.
- 4.4 Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=0.2m$  en  $z=0.025m$ .
- 4.5 Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=h_{gem}/10$ .

#### Deel C : Uitvoer computerprogramma

Per test staan achtereenvolgens vermeld:

- berekende bodemconcentratie.
- som van de kwadraten van de afwijkingen tussen gemeten en berekende concentraties.
- gemiddelde procentuele fout per punt.
- gemeten en berekende concentratie en procentuele fout op de hoogten van de meetpunten.
- berekende  $\epsilon$  verdeling, uitgaande van uniform materiaal (D50)
- berekende  $\epsilon$  verdeling, uitgaande van D10-D50-D90.
- D10-D50-D90 verdeling over de waterdiepte.

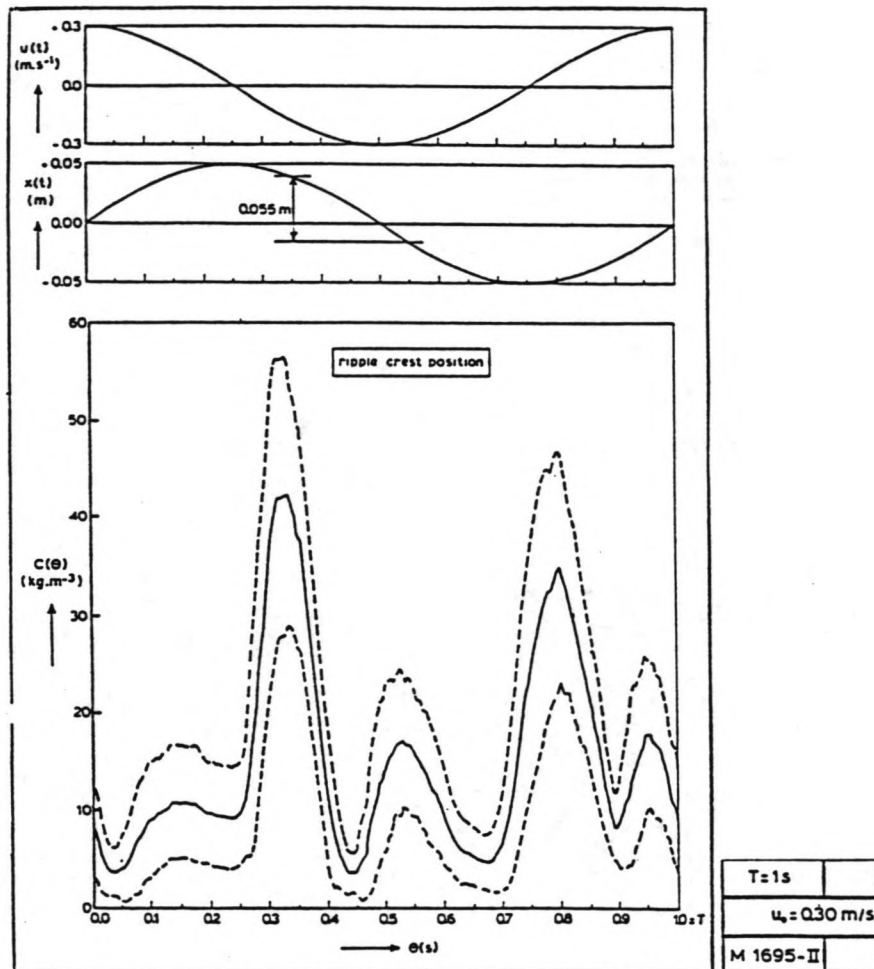
#### Deel D : Appendices

App. 1 : Brekertypen.

App. 2 : Vergelijking  $\epsilon$  waarden met model Van Rijn en Meijer.

BIJLAGE A: FIGUREN



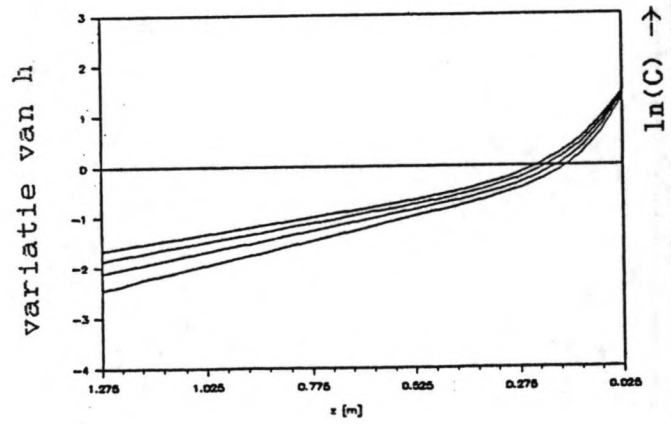
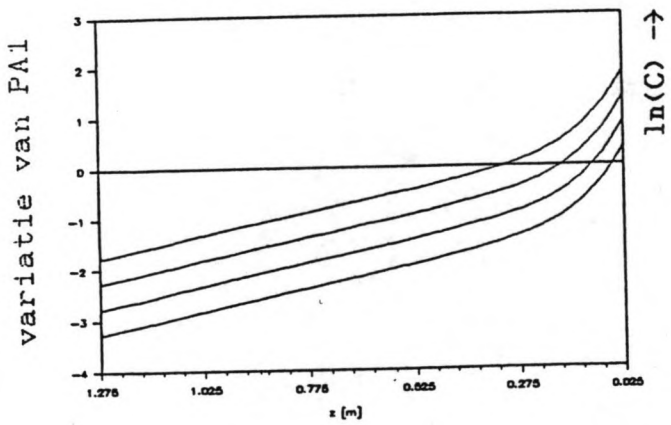
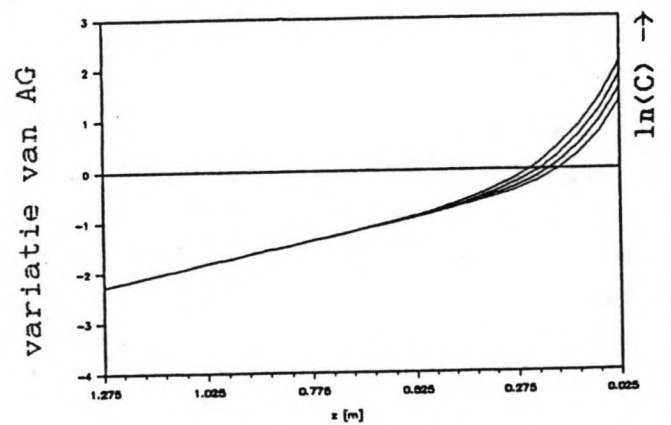
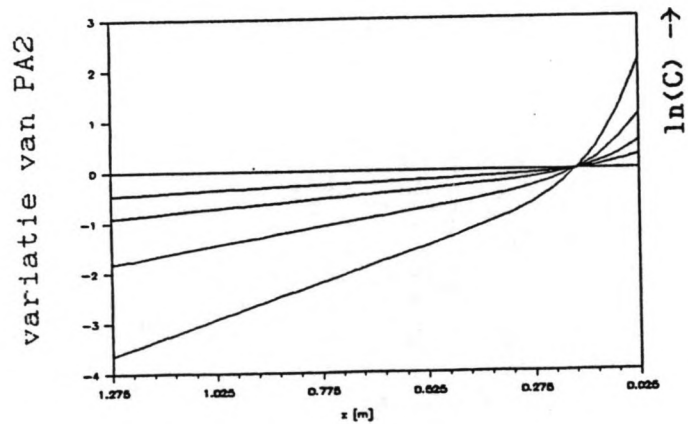
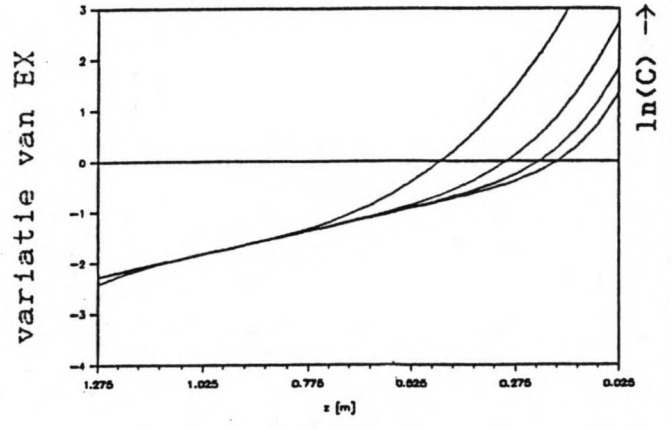
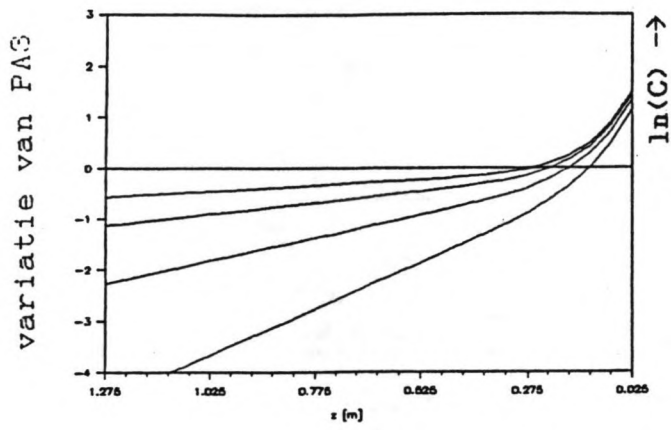


Gemiddelde en standaardafwijking van 99 verschillende concentratiemetingen onder regelmatige golven, gedurende 1 golfperiode en op een vaste hoogte boven de bodem.

GEMIDDELDE EN STANDAARDAFWIJKING VAN 99  
 VERSCHILLENDE CONCENTRATIEMETINGEN  
 (BOSMAN 1986)

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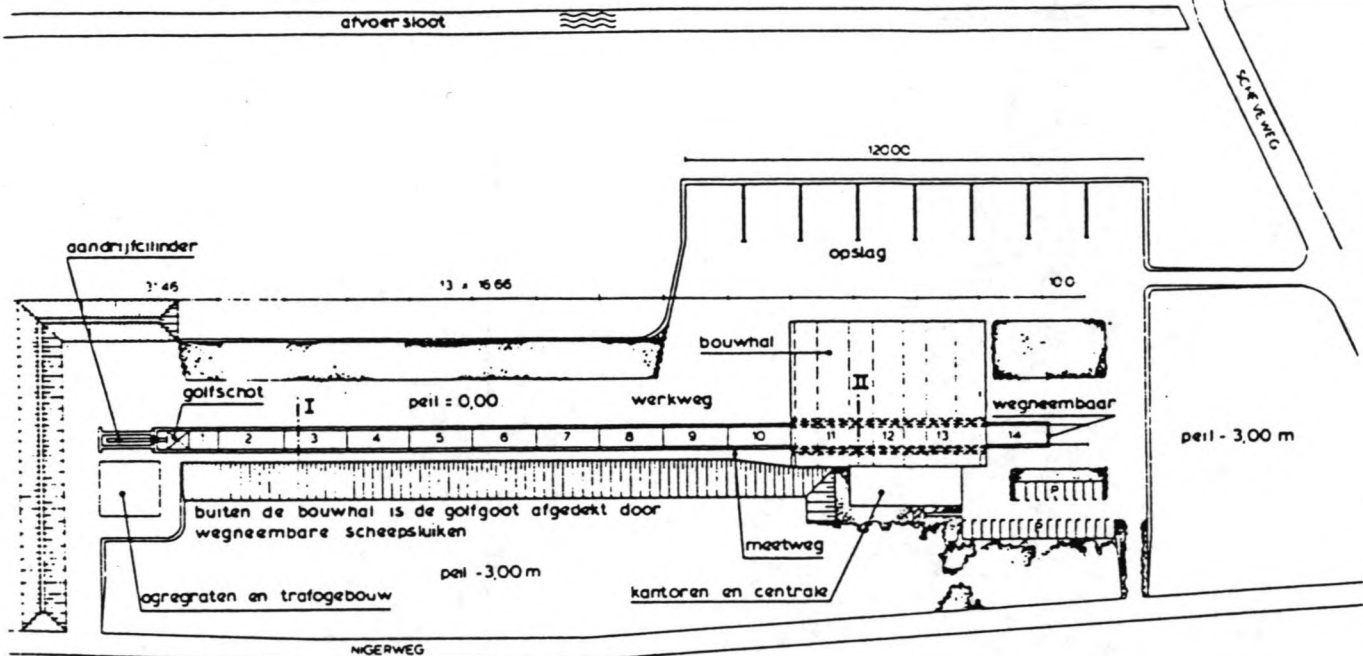
FIG: 2.1



INVLOED COEFFICIENTEN IN FITMETHODE

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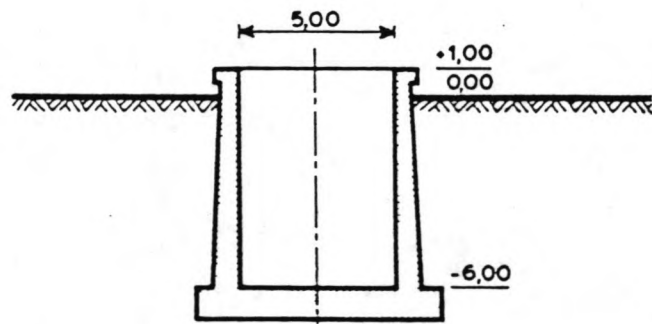
FIG: 2.2



**BOVENAANZICHT DELTAGOOT**

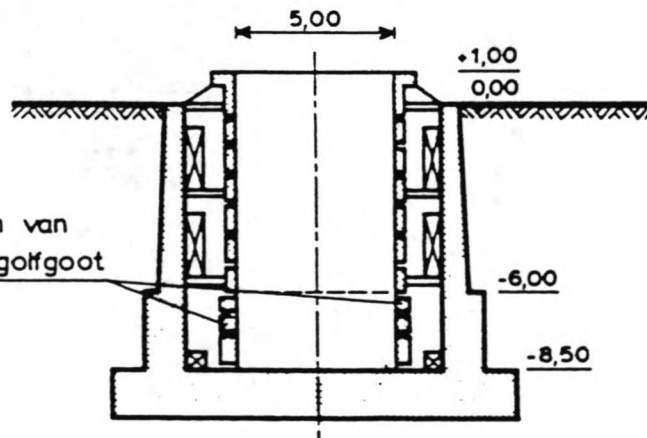
golftank : lengte 223 m  
 (1...14) breedte 5 m  
 diepte 7 m

diepte sekties : lengte 50 m  
 (11,12,13) breedte 5 m  
 diepte 9,5 m



**DWARSDOORSNEDE I (sektie 1...10,14)**

mogelijkheden voor het aanbrengen van meetinstrumenten en ramen in de golfgoot



**DWARSDOORSNEDE II (sektie 11,12,13)**

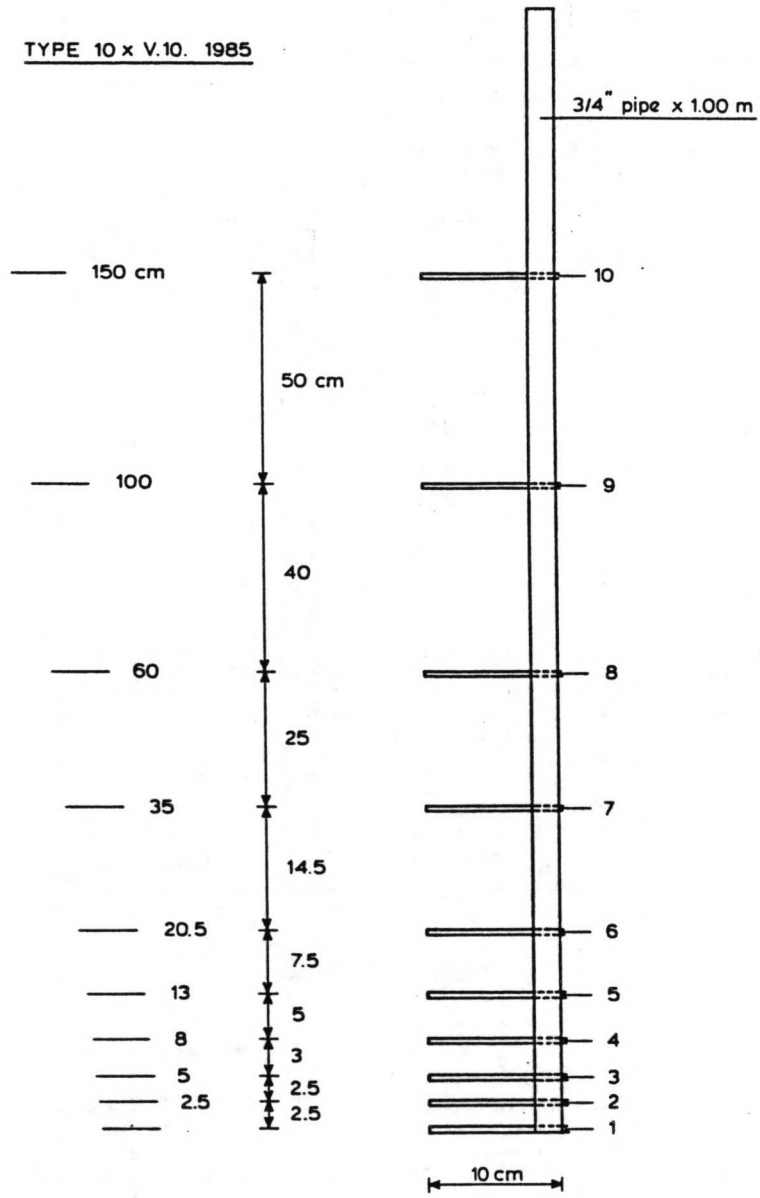
**DWARSDOORSNEDEN**

DELTAGOOT

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FIG: 3.1

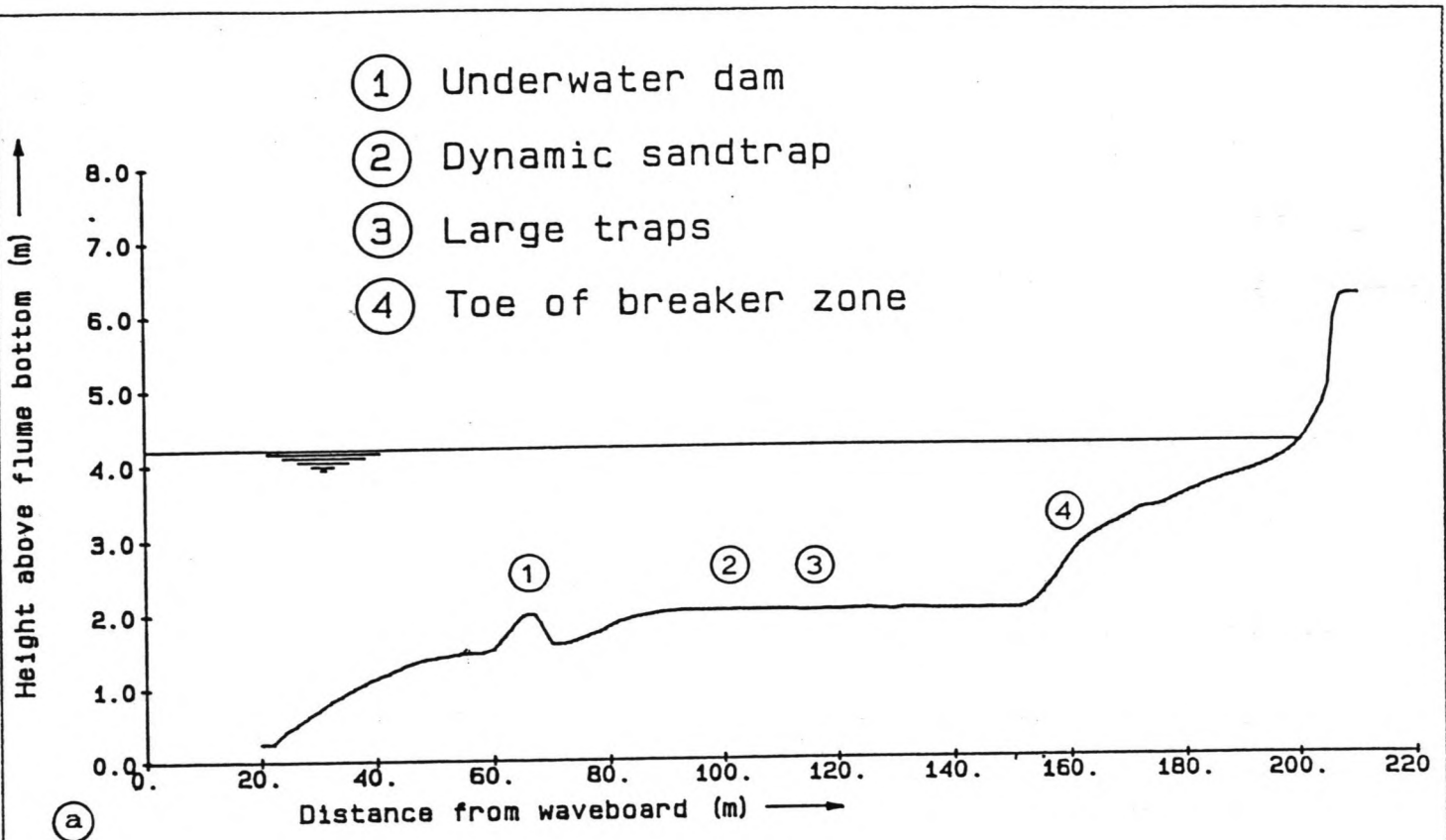
TYPE 10 x V.10. 1985



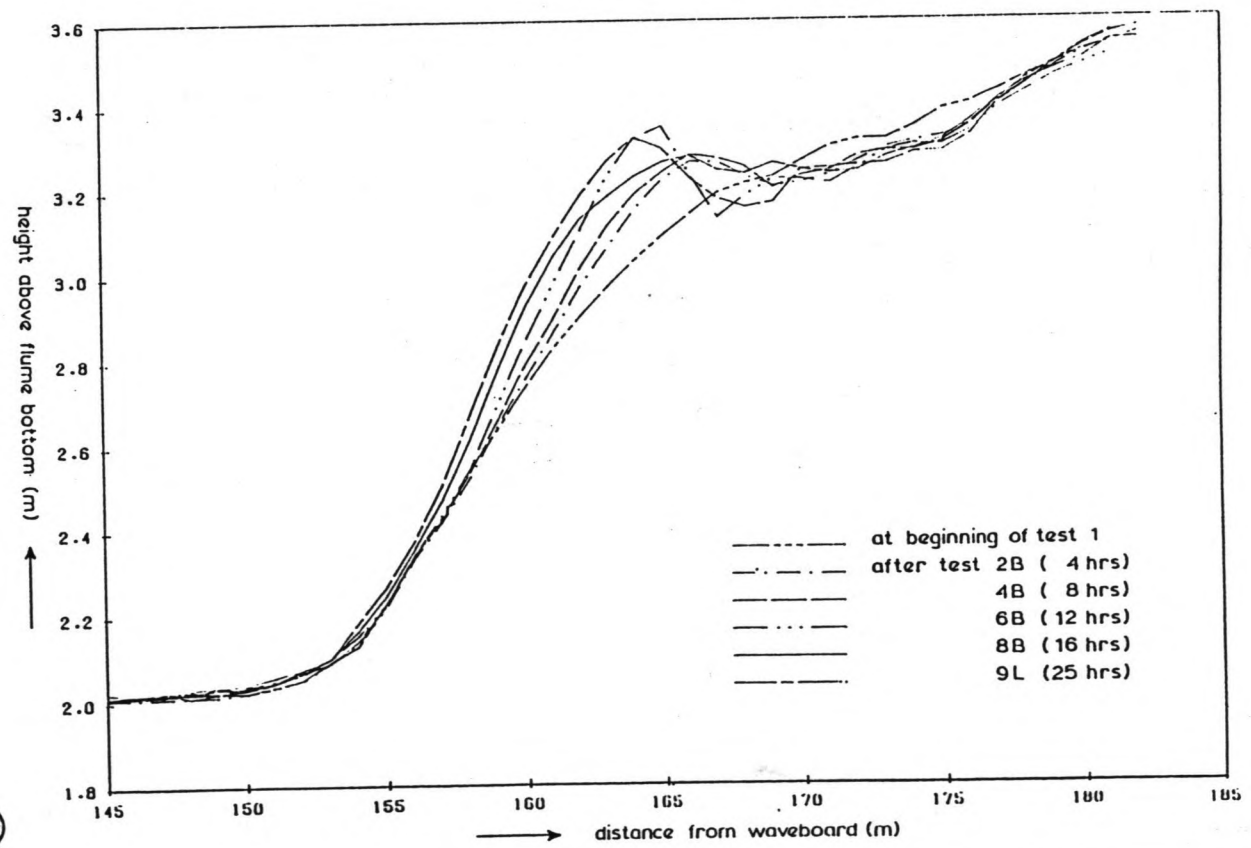
AFZUIGKAM CONCENTRATIEMETER

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FIG: 3.2

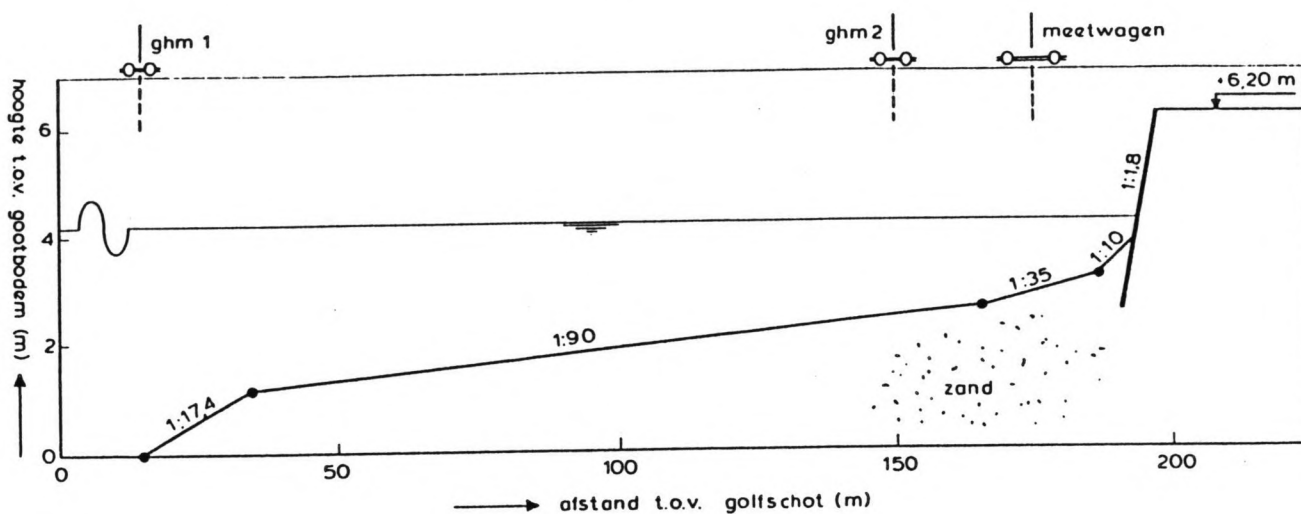


(a)

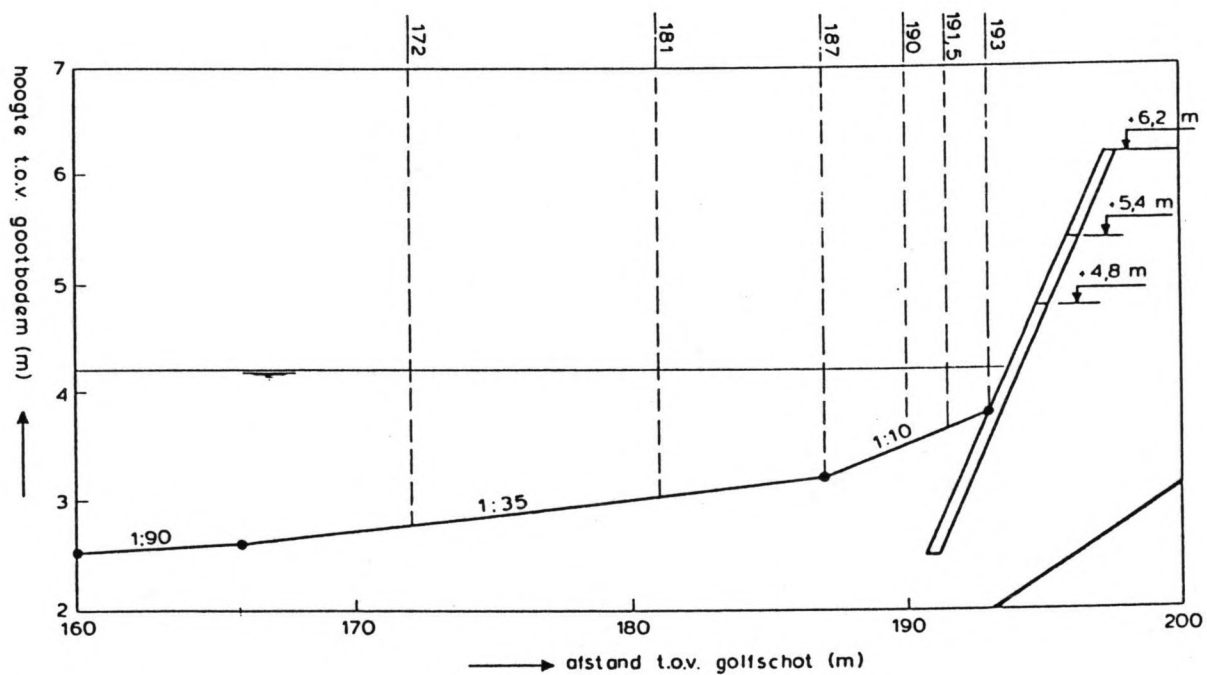


(b)

LANGSDOORSNEDE VAN DE DELTAGOOT MET LOCATIES MEETAPPARATUUR DETAIL BREKERZONE	MEETSERIE I	
TECHNISCHE UNIVERSITEIT DELFT VAKGROEP WATERBOUWKUNDE		FIG: 3.3



a.



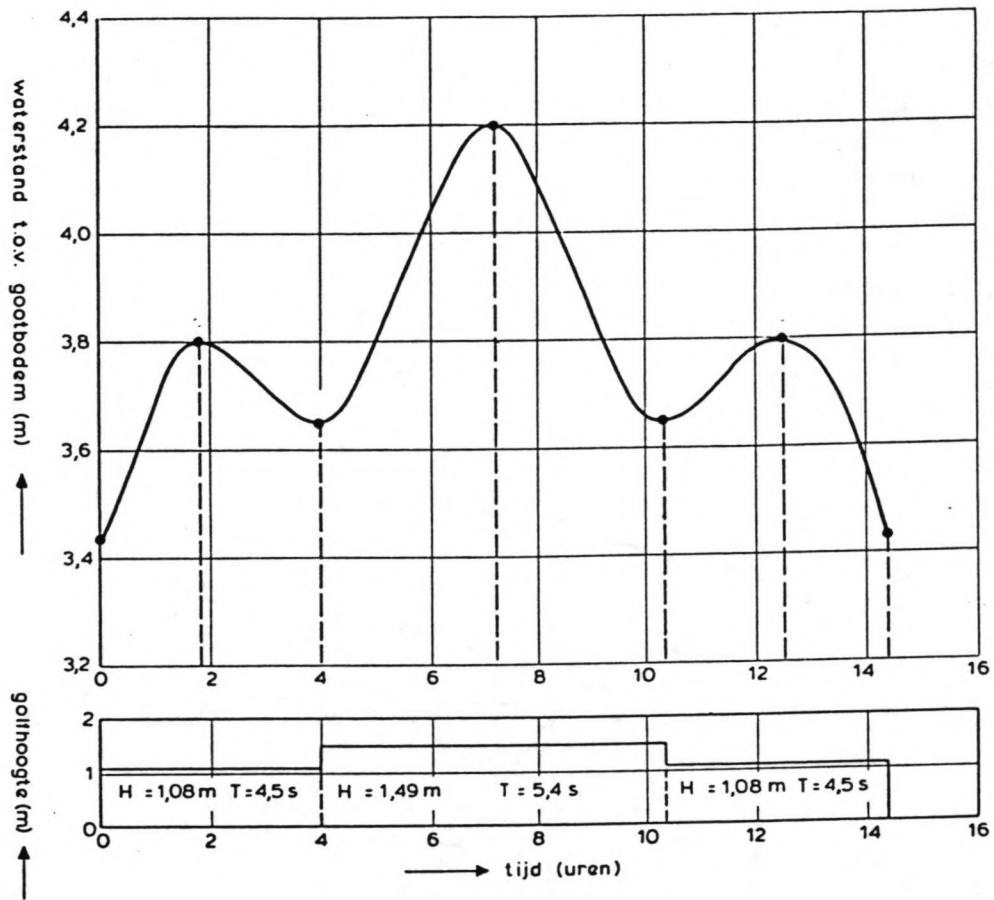
b.

a. UITGANGSPROFIEL IN DELTAGOOT  
 b. DETAIL PROFIEL MET VERDEDIGING

MEETSERIE II

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FIG: 3.4



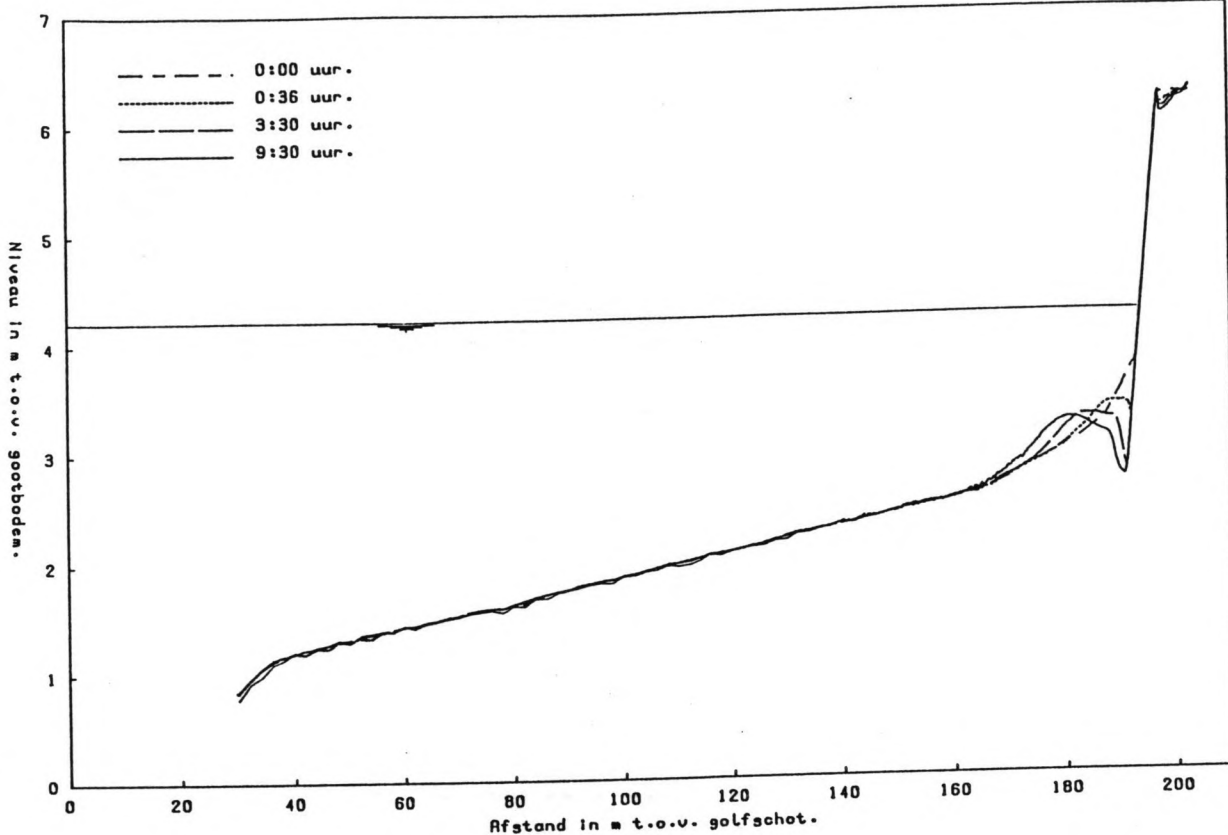
De testen T4C1 t/m T4C6 zijn gedaan bij stijgende waterstand, tussen 4:00 en 7:10 uur.

WATERSTANDS- EN GOLFHOOGTEVERLOOP IN PROEF T4

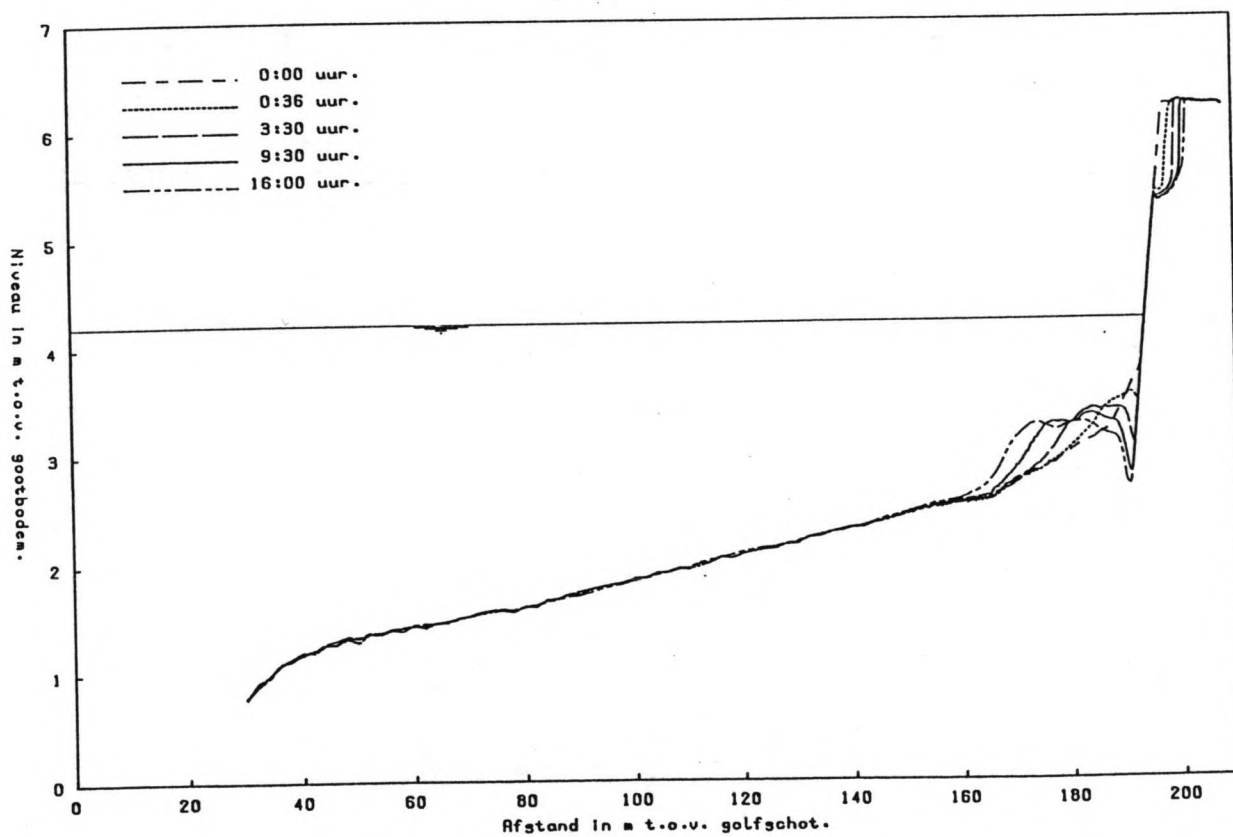
MEETSERIE 11

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FIG: 3.5



(a)



(b)

OVERZICHT PROFIELONTWIKKELING

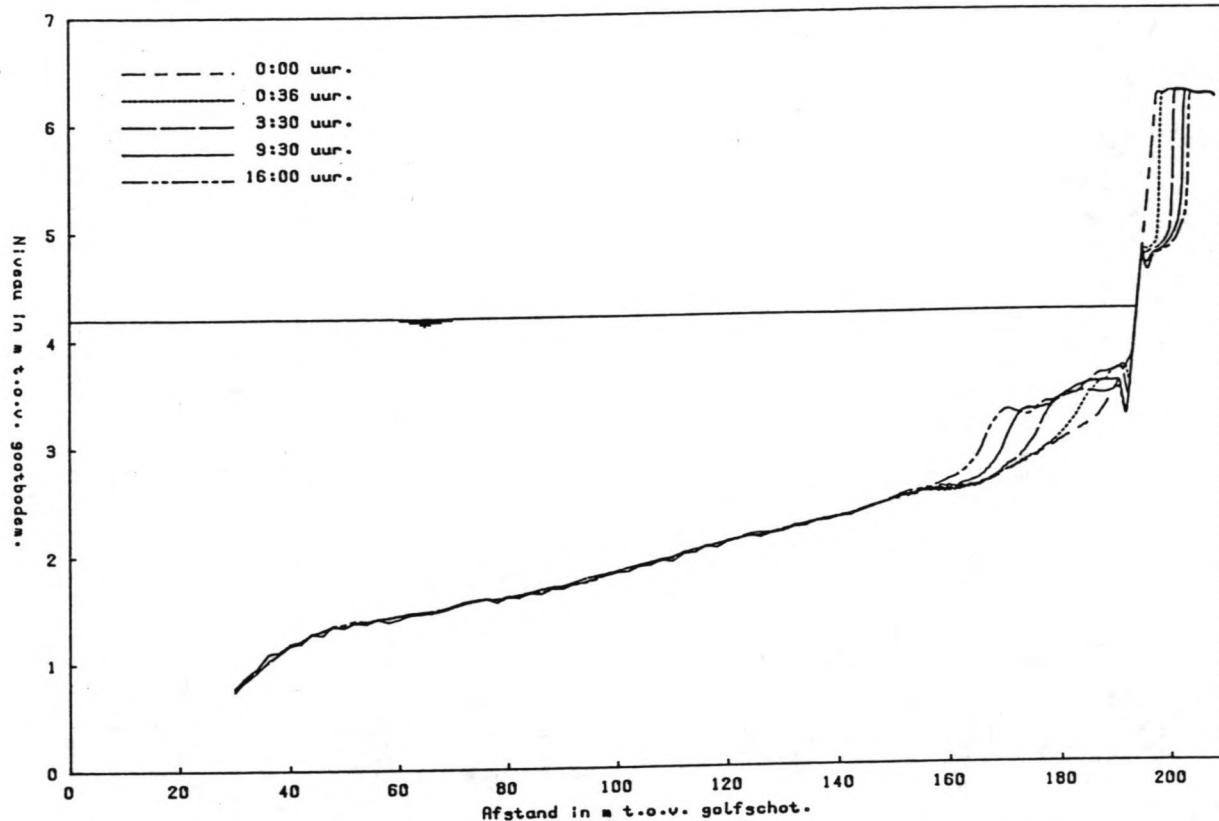
a. PROEF 1  
b. PROEF 2

MEETSERIE II

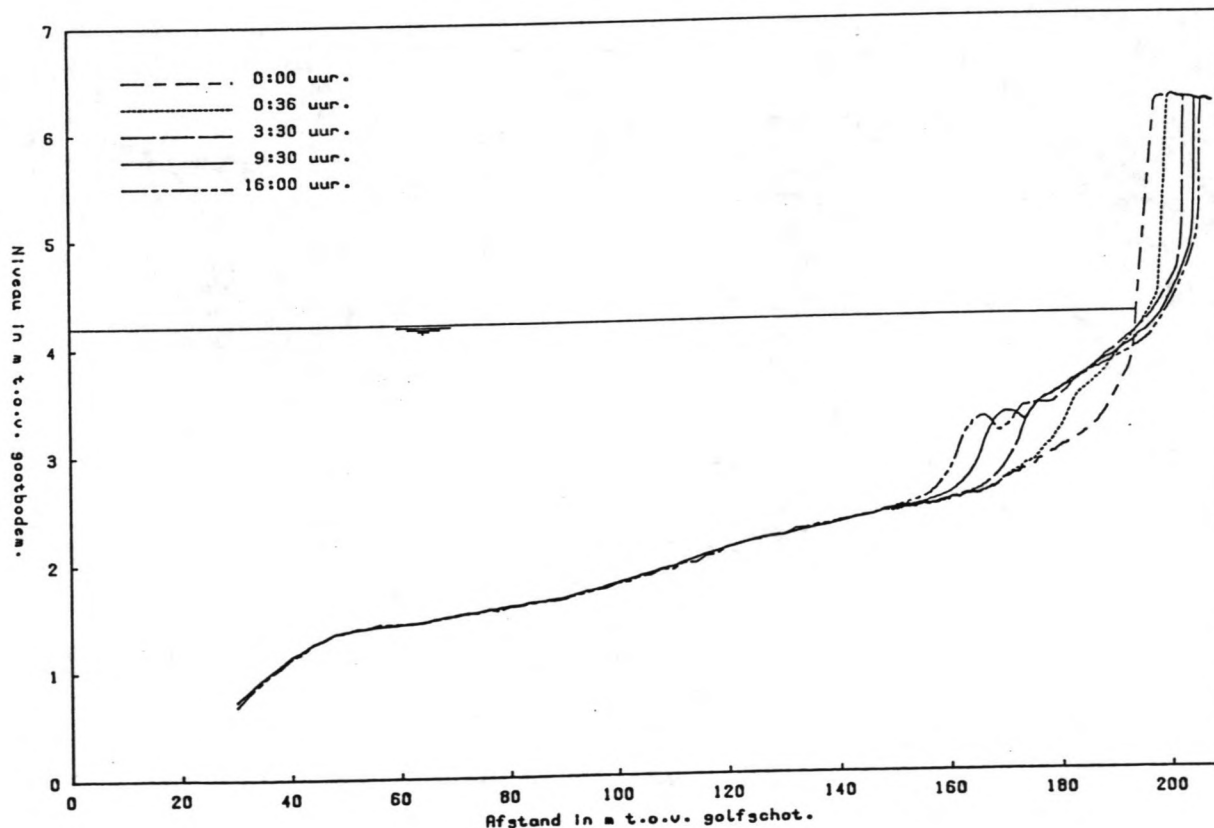
TECHNISCHE UNIVERSITEIT DELFT  
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FIG: 3.6





(a)



(b)

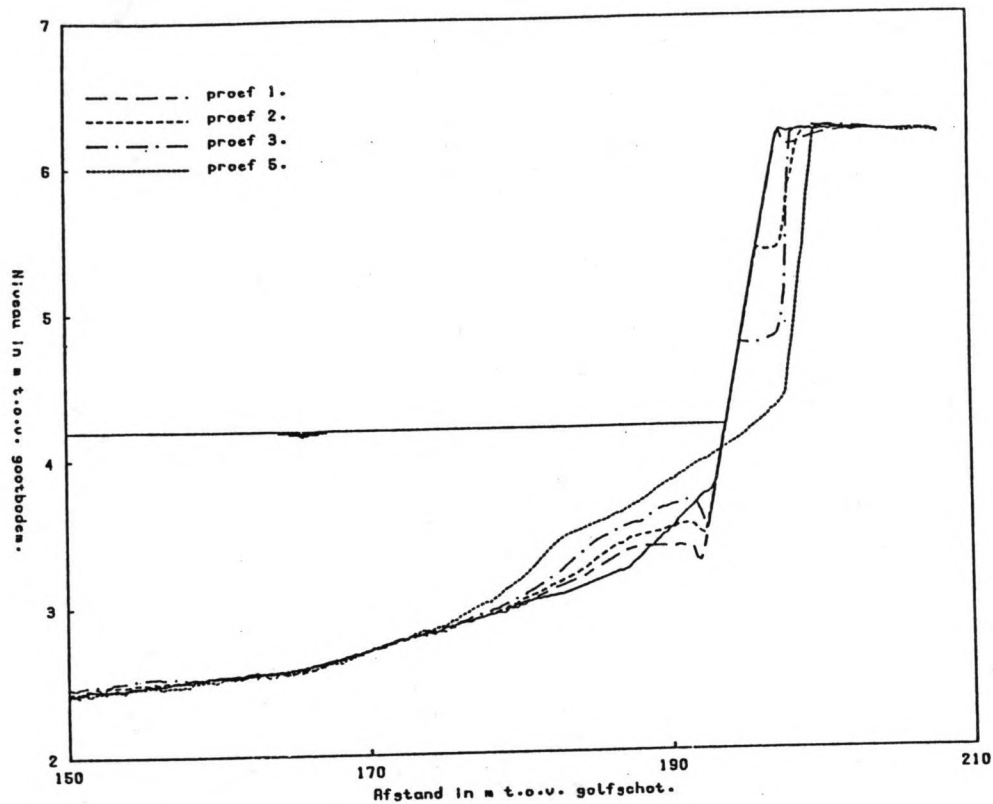
OVERZICHT PROFIELONTWIKKELING

a. PROEF 3  
b. PROEF 5

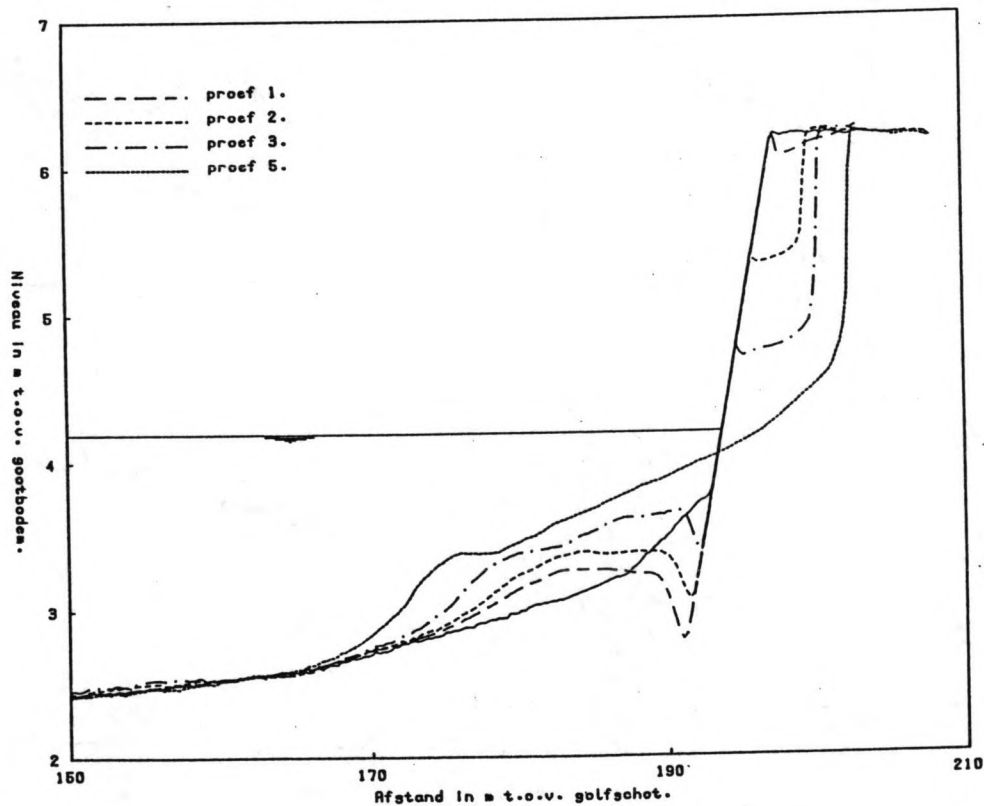
MEETSERIE II

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FIG: 3.7



(a.)



(b.)

VERGELIJKING PROFIELEN

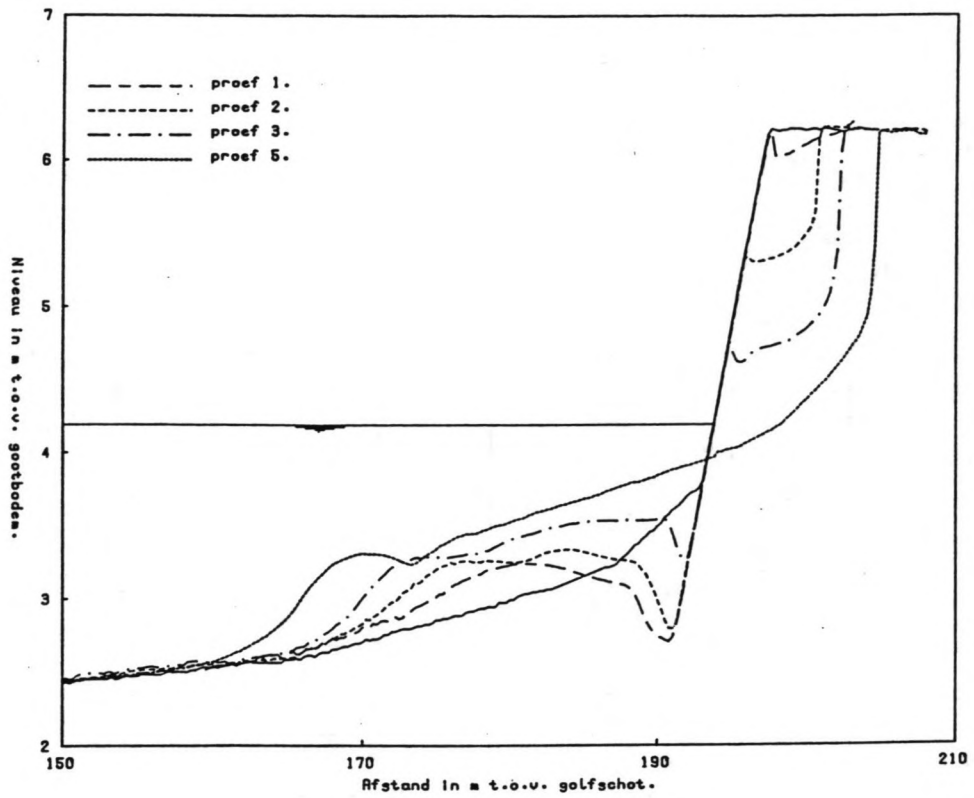
a. 0:36 uur  
b. 3:30 uur

MEETSERIE II

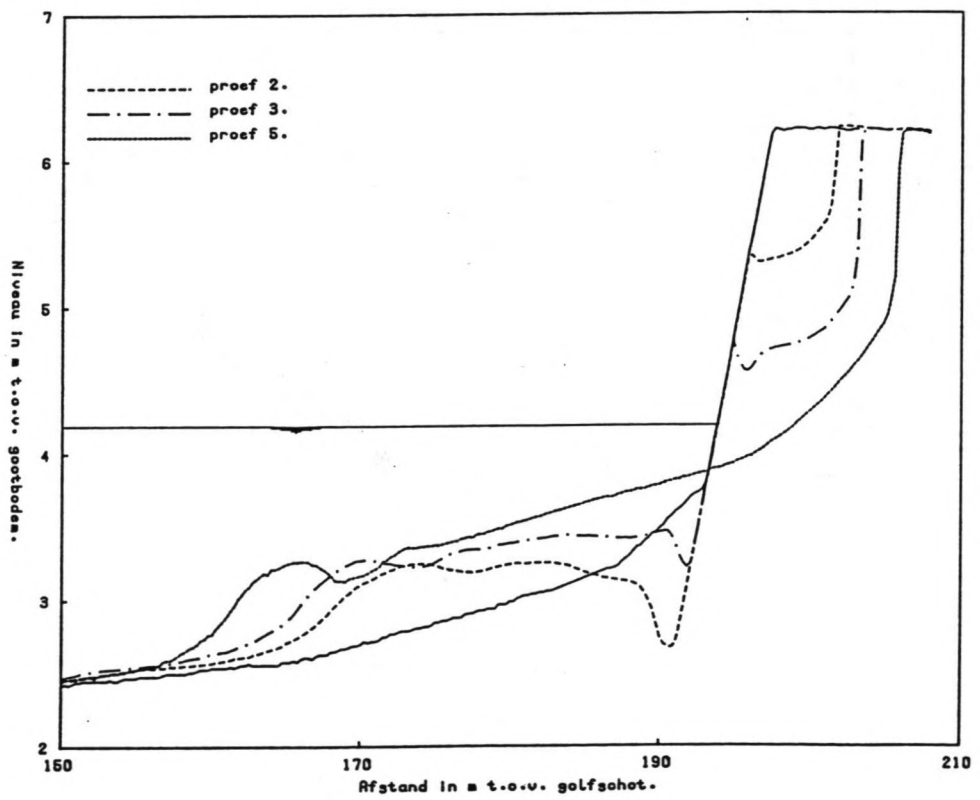
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FIG: 3.8

(a.)



(b.)



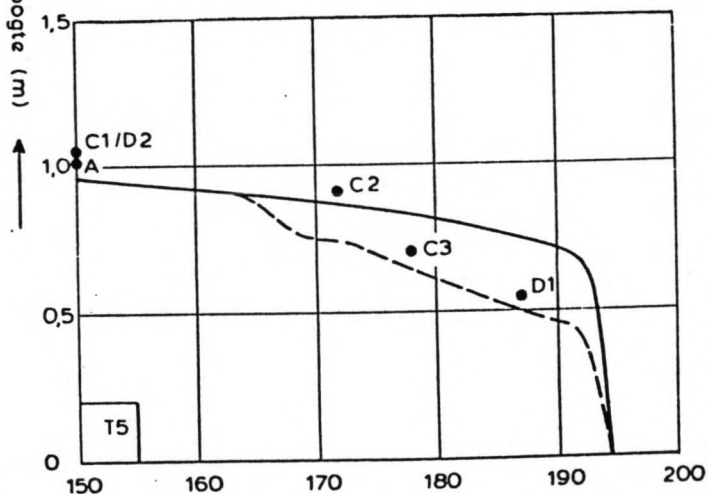
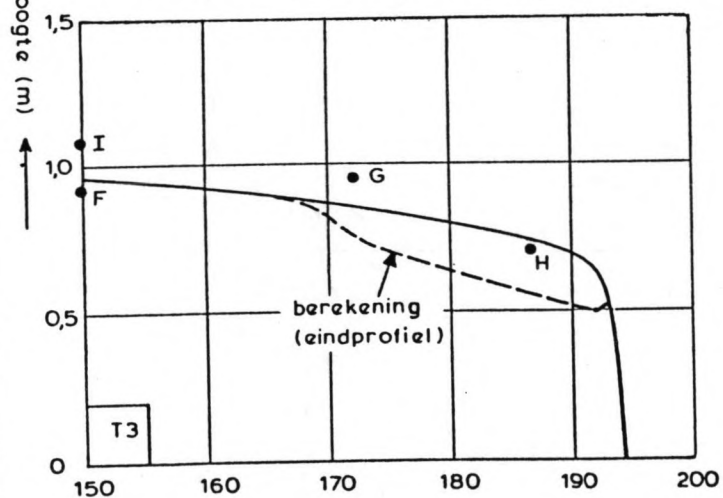
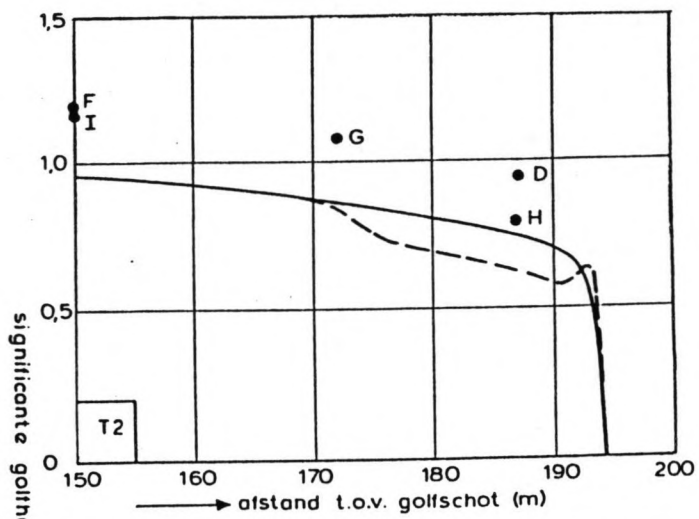
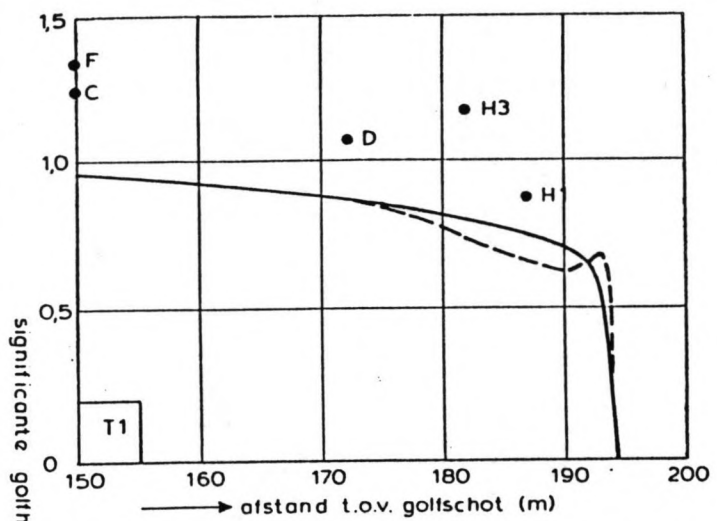
VERGELIJKING PROFIELEN

a. 9:30 uur  
b. 16:00 uur

MEETSERIE II

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VAKGROEP WATERBOUWKUNDE

FIG: 3.9

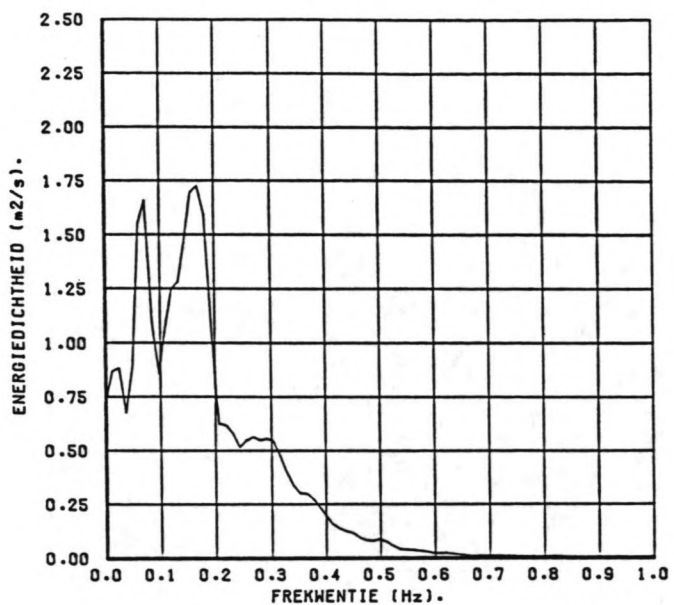


GOLFHOOGTEVERLOOP  
VERGELIJKING METINGEN EN BEREKENINGEN

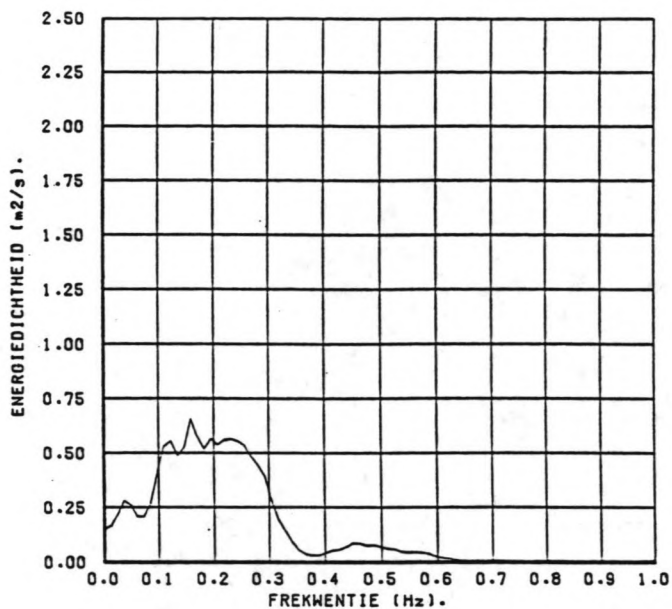
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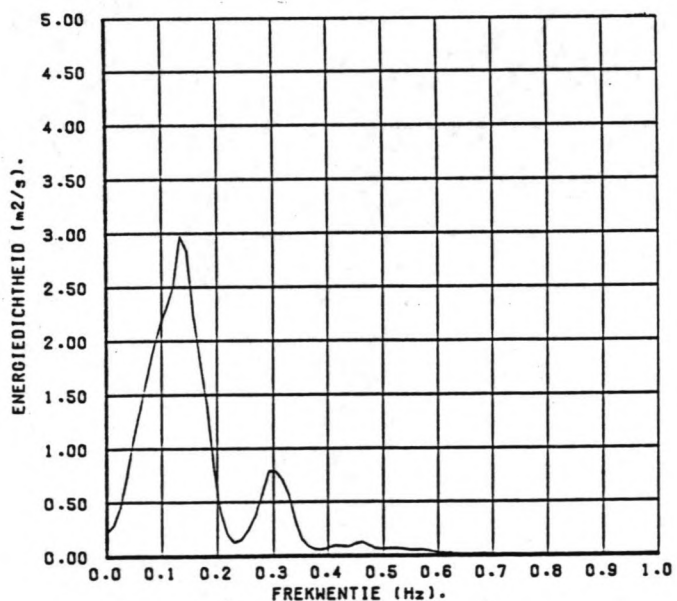
FIG: 3.10



(a)



(b)



(c)

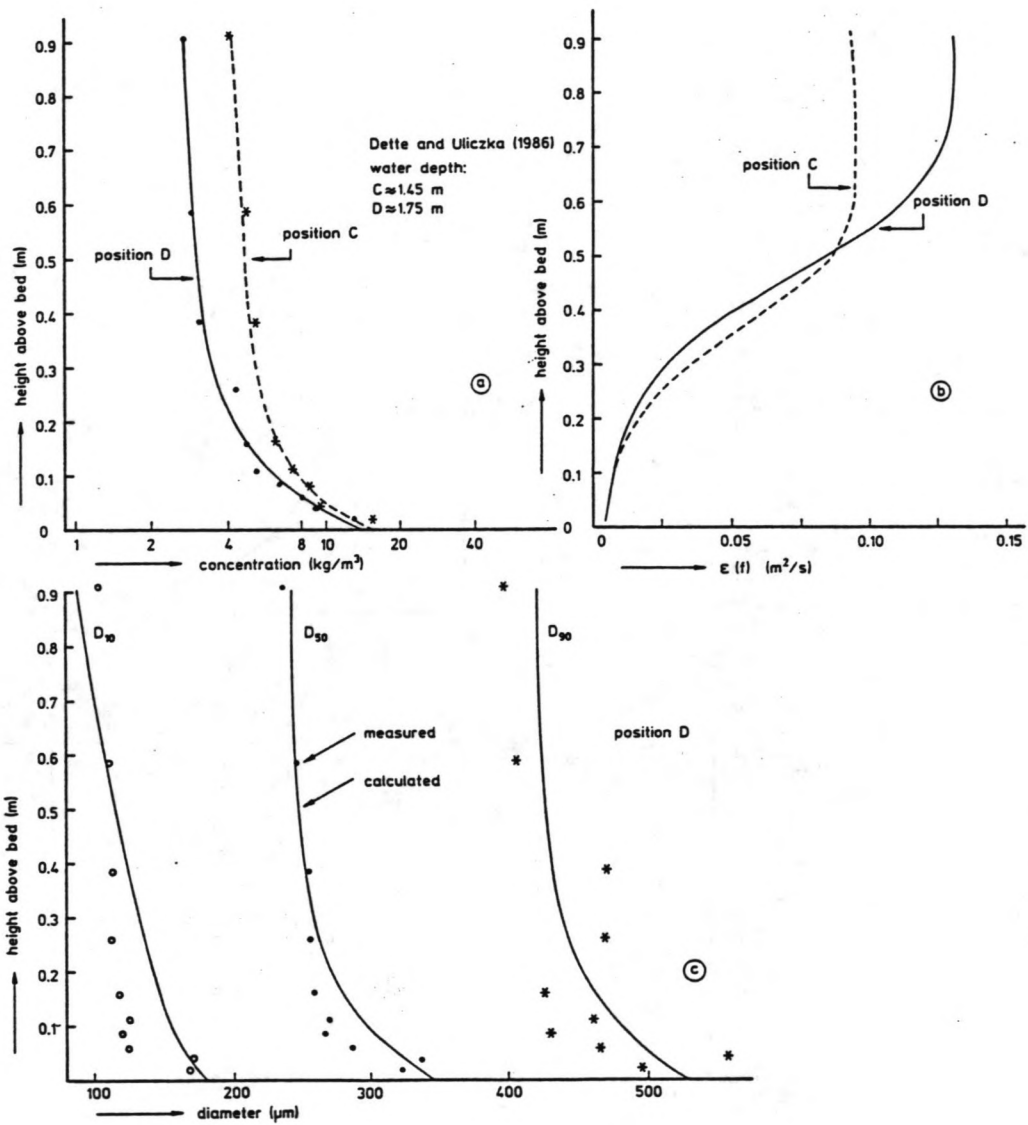
VERSCHILLENDE TYPEN  
ENERGIEDICHTHEIDSSPECTRA

a. T216  
b. T211  
c. T213

MEETSERIE II

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FIG: 3.11



PROEVEN DOOR DETTE & ULICZKA:  
 CONCENTRATIE,  $\epsilon$  EN DIAMETER VERDELINGEN

V. D. GRAAFF (1988)

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FIG: 4.1

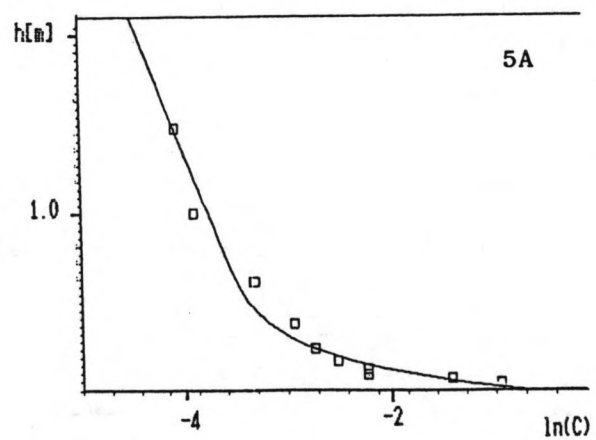
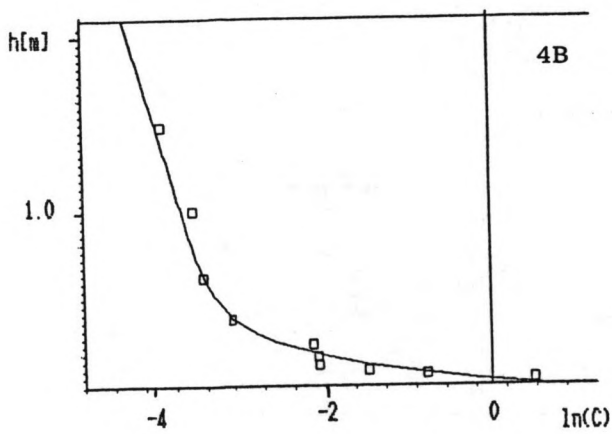
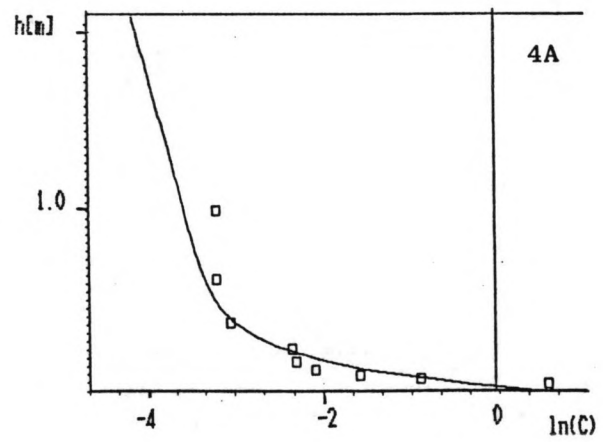
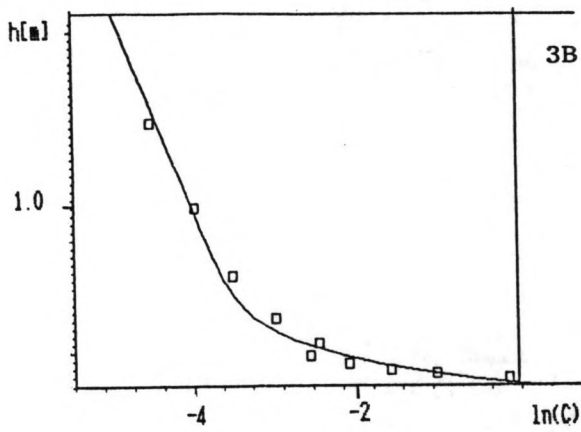
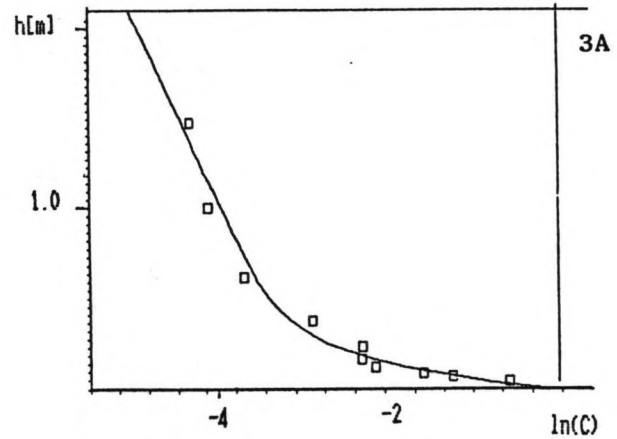
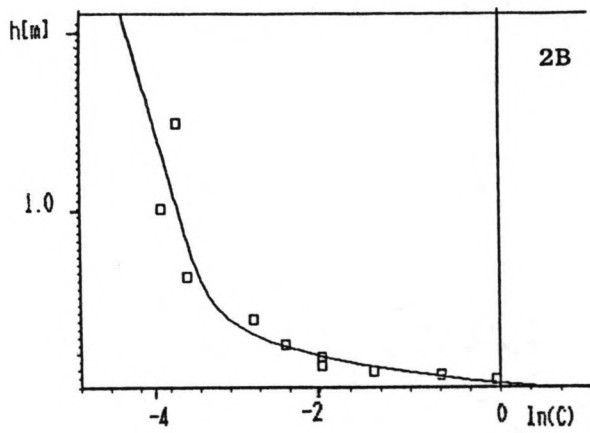
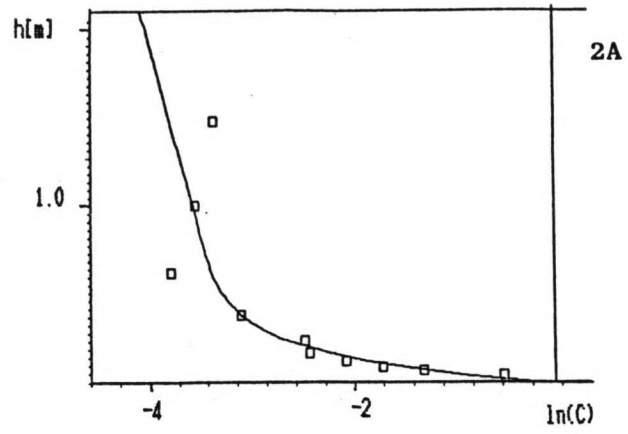
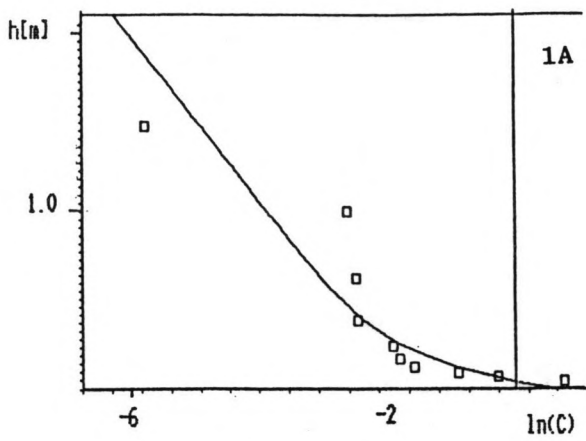


Fig. 4.2 : Concentratie fits, test 1A t/m 5A.

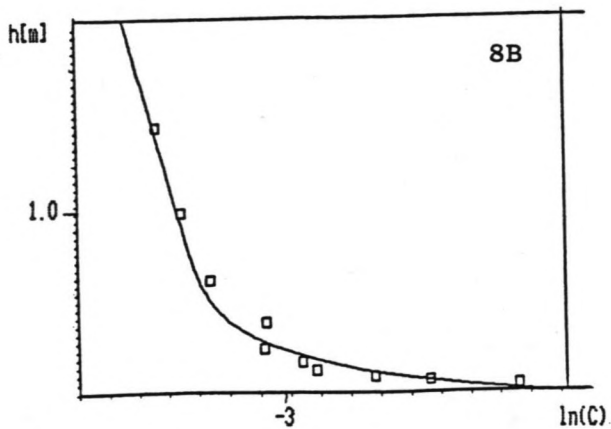
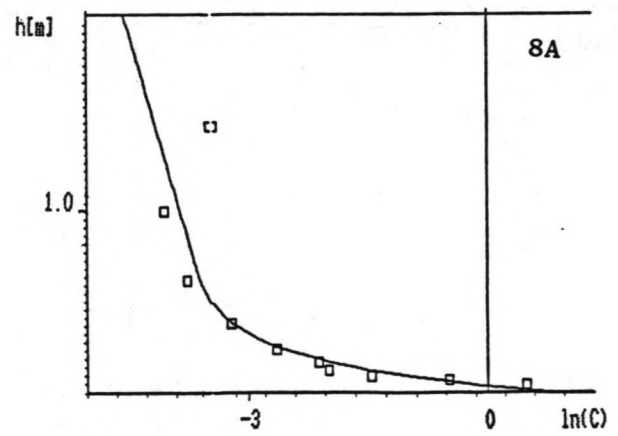
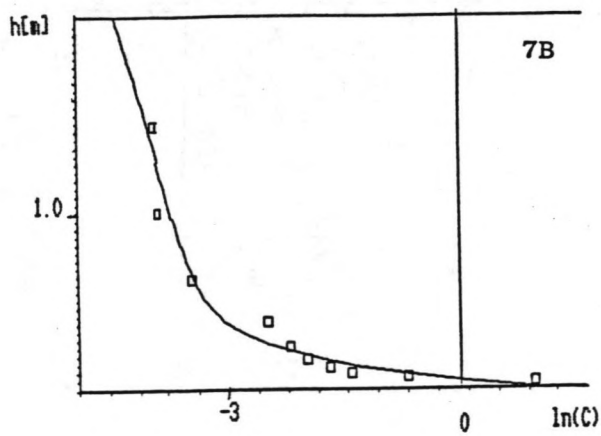
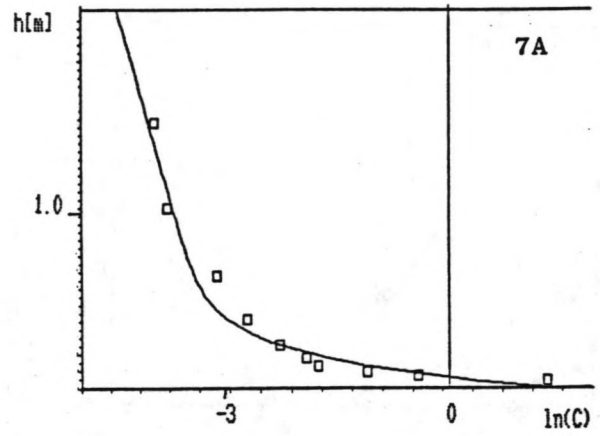
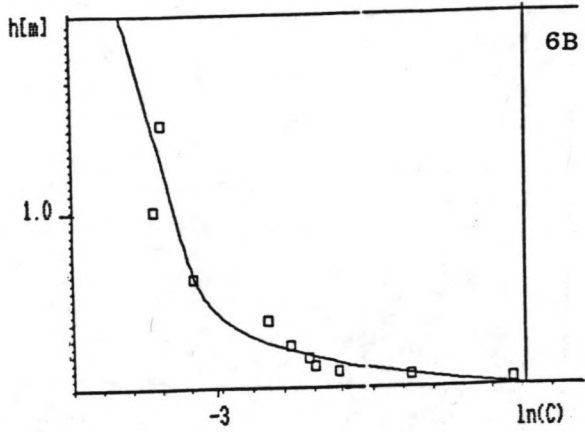
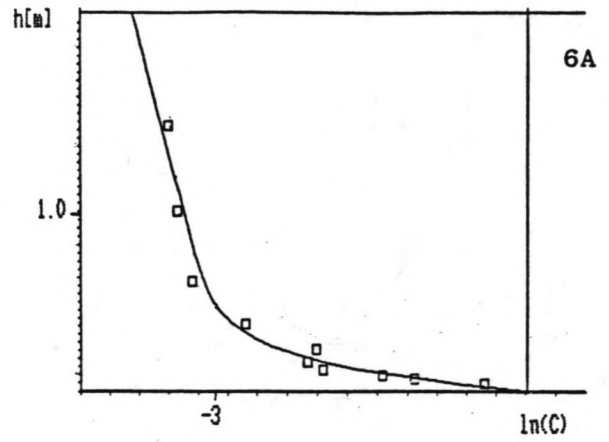
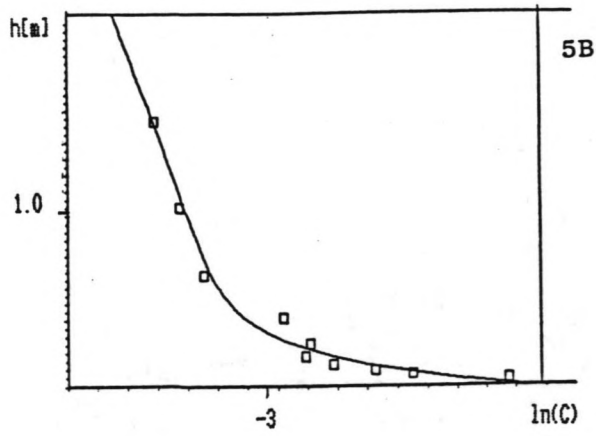


Fig. 4.3 : Concentratie fits, test 5B t/m 8B.



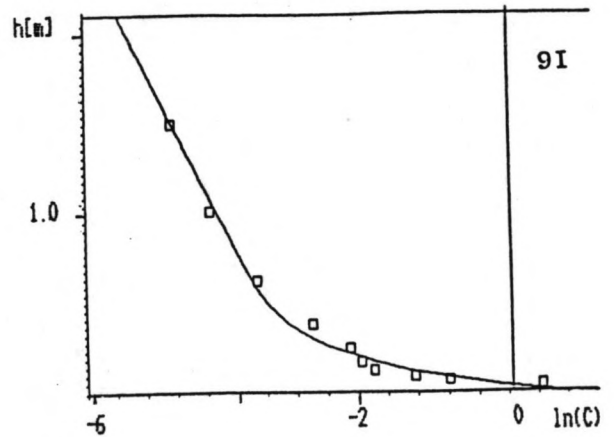
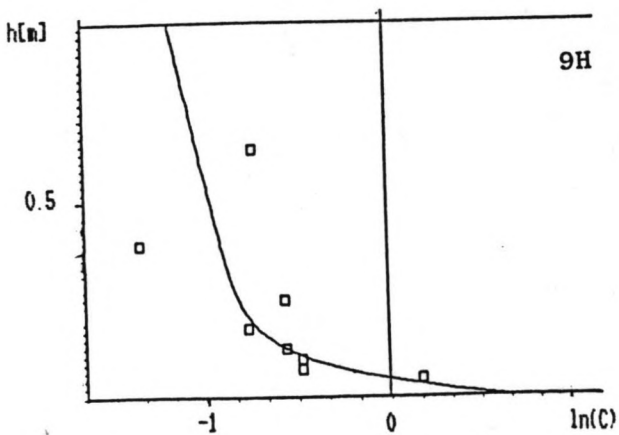
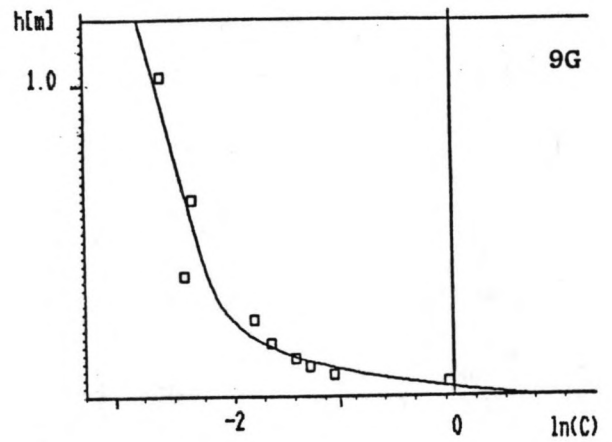
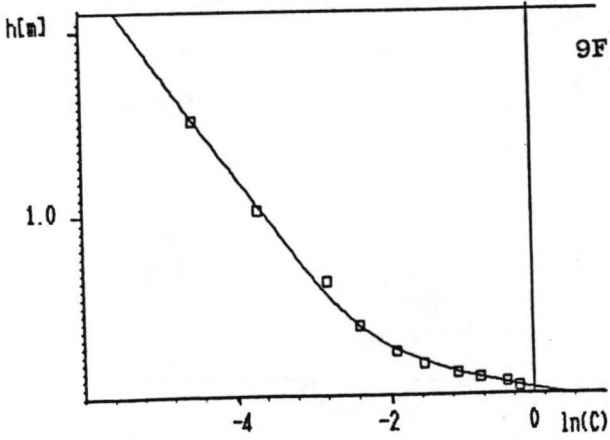
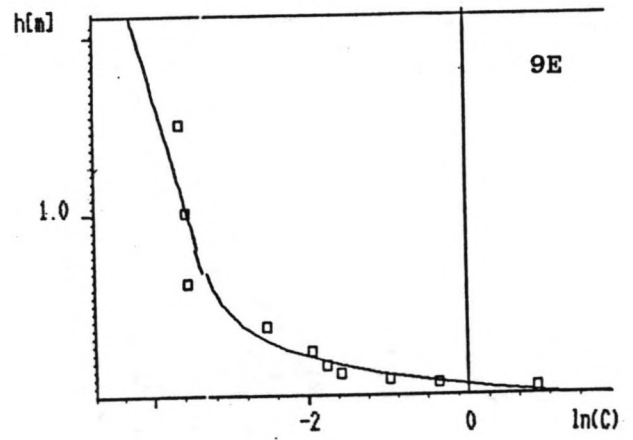
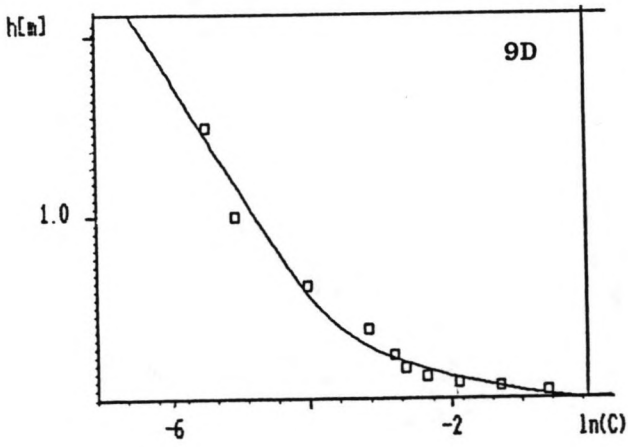
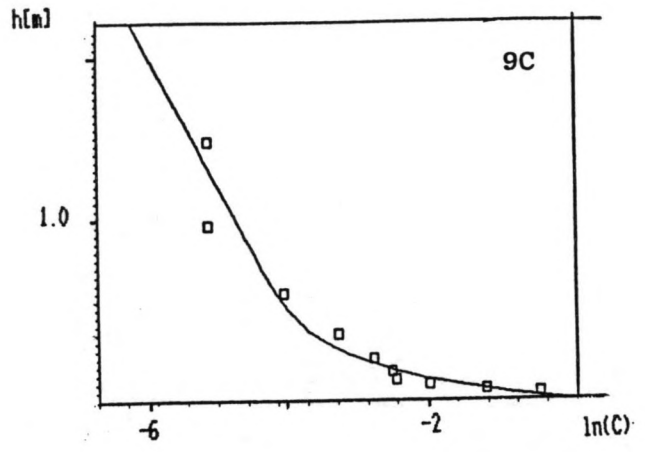
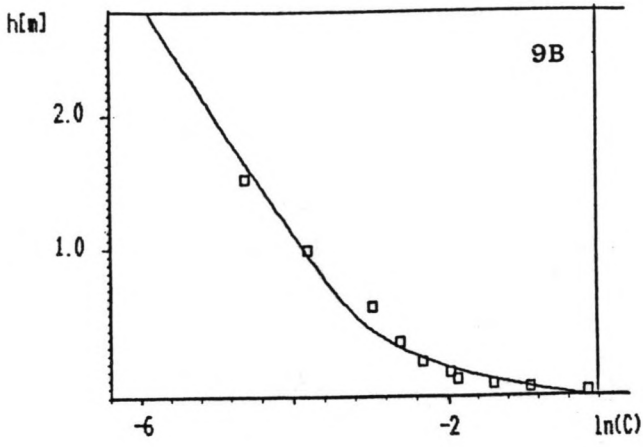


Fig. 4.4 : Concentratie fits, test 9B t/m 9I.

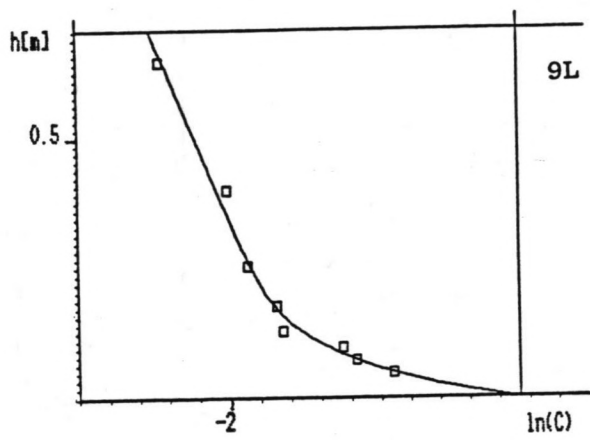
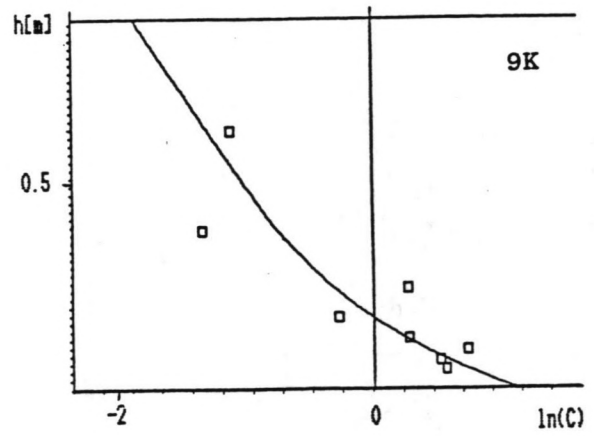
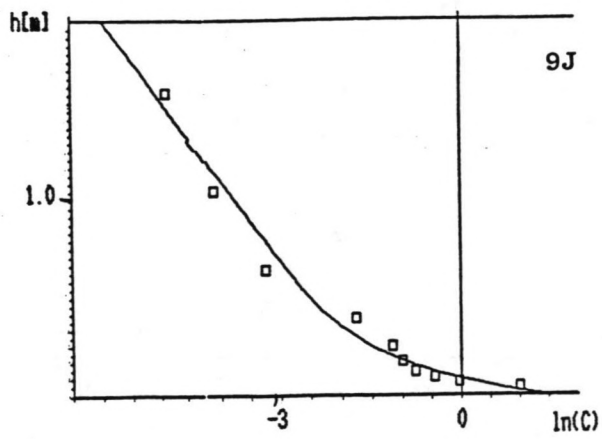


Fig. 4.5 : Concentratie fits, test 9J t/m 9L.

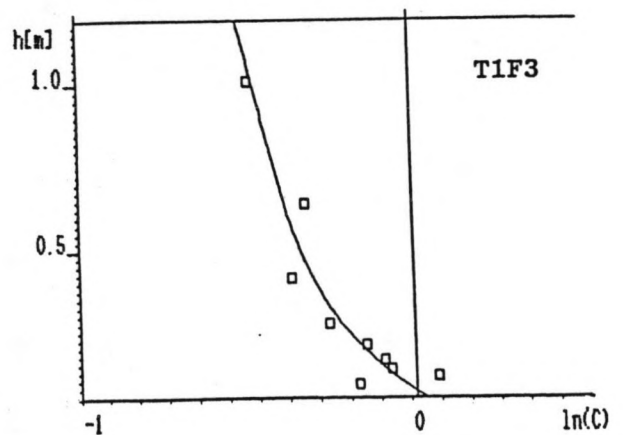
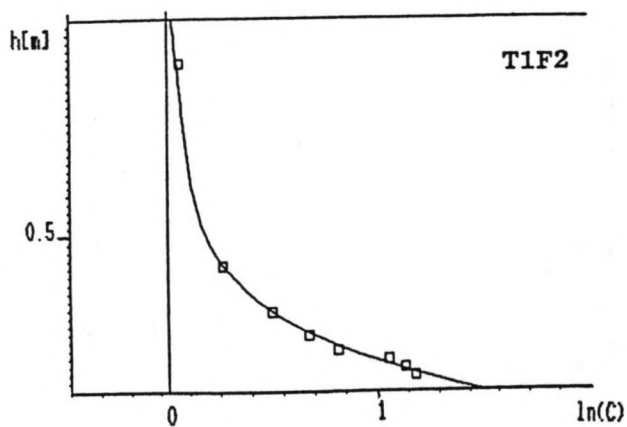
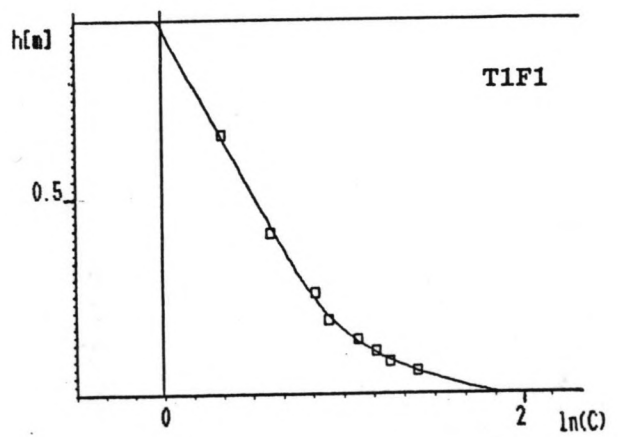
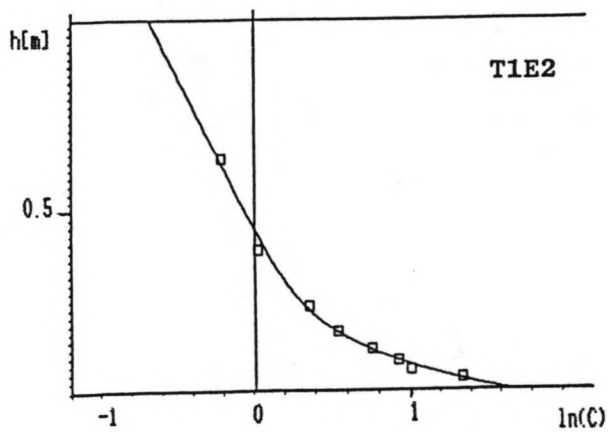
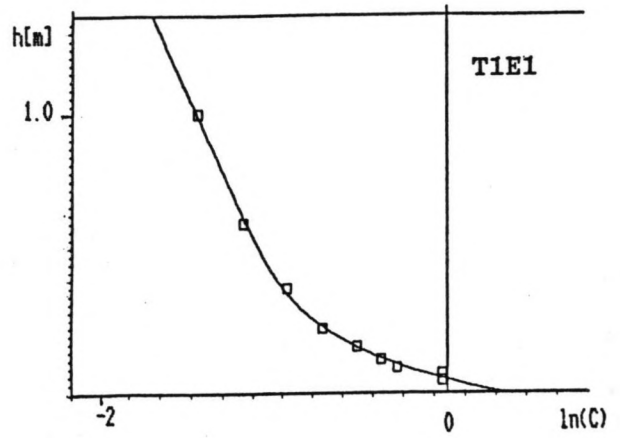
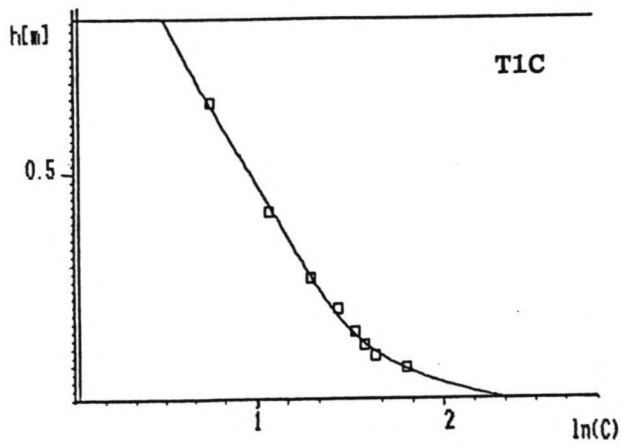
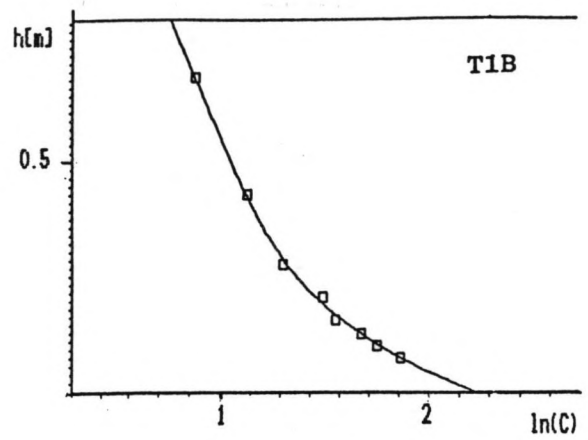
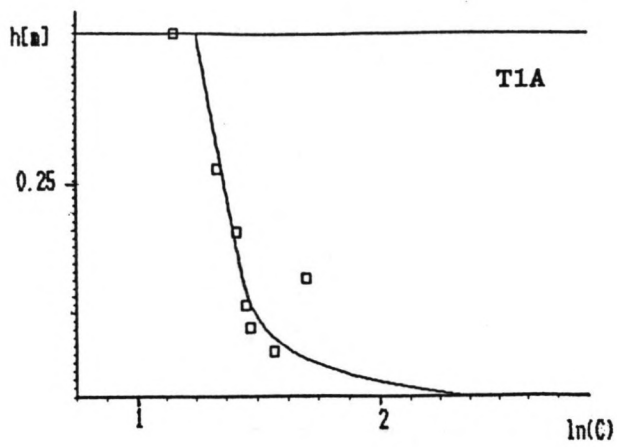


Fig. 4.6 : Concentratie fits, test T1A t/m T1F3.

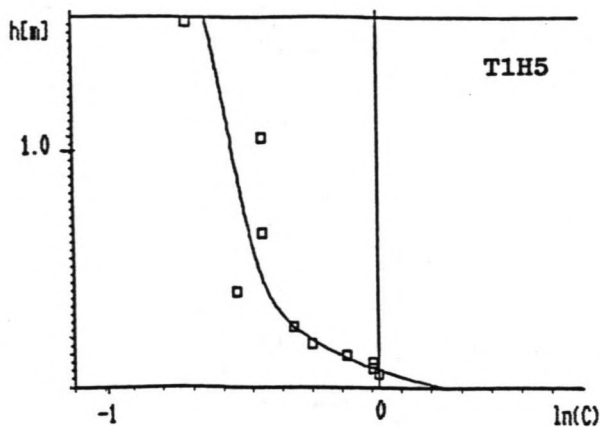
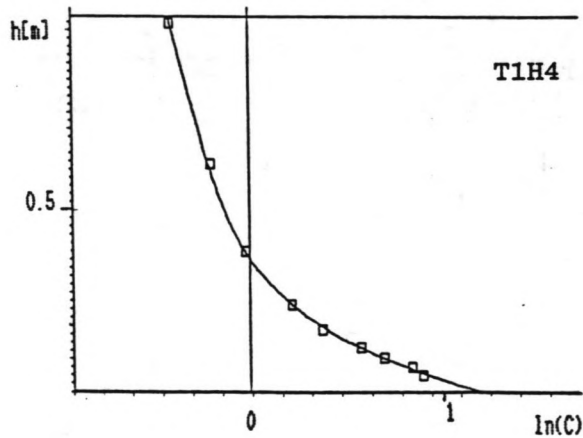
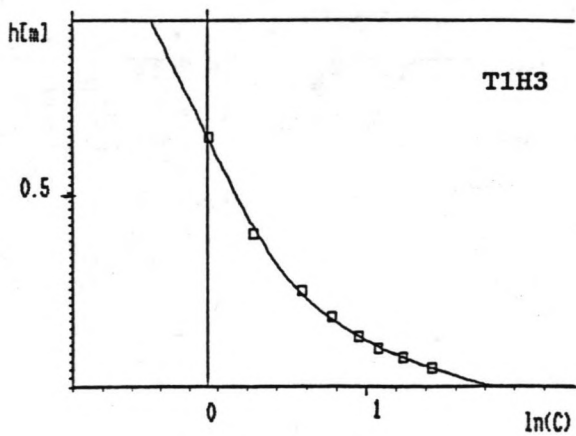
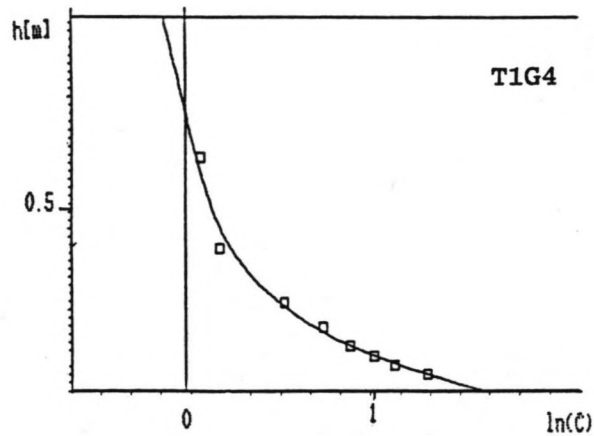
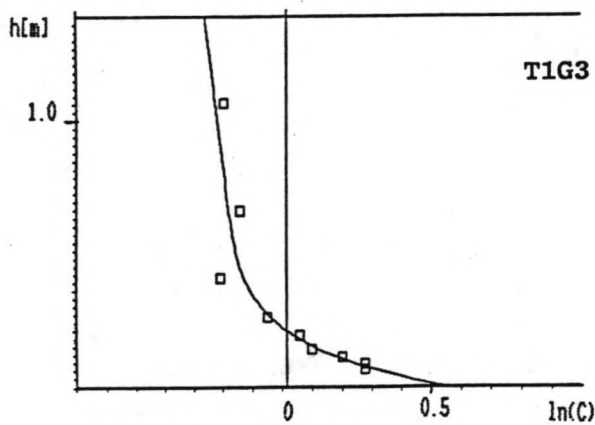
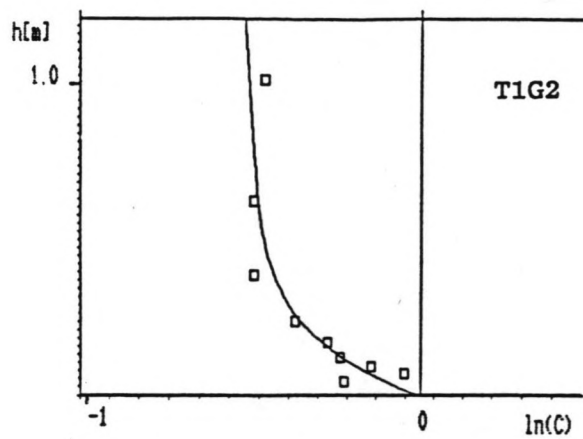
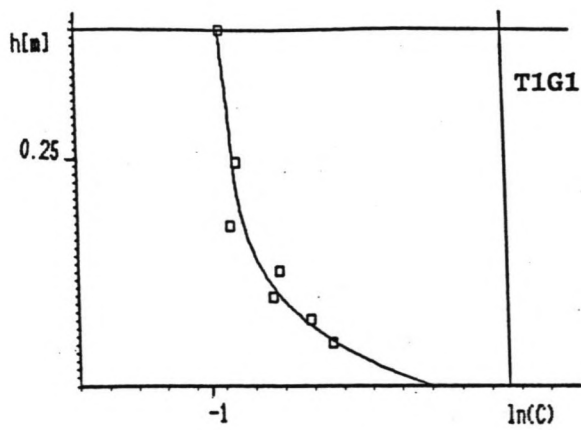


Fig. 4.7 : Concentratie fits, test T1G1 t/m T1H5.

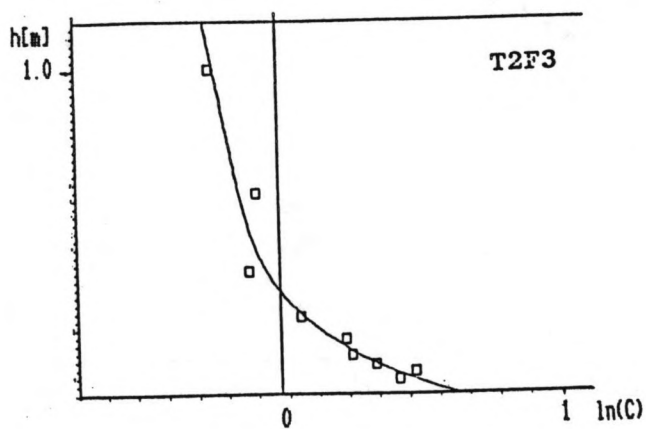
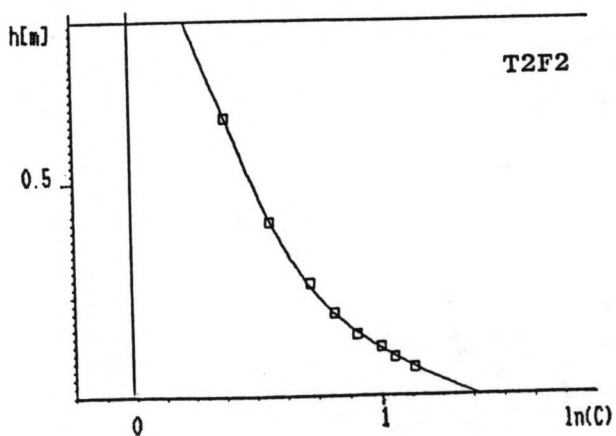
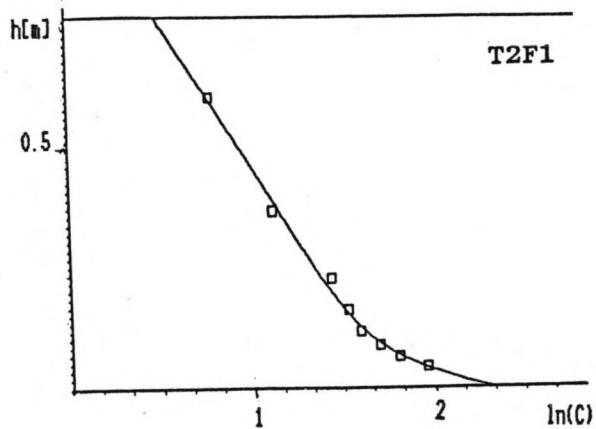
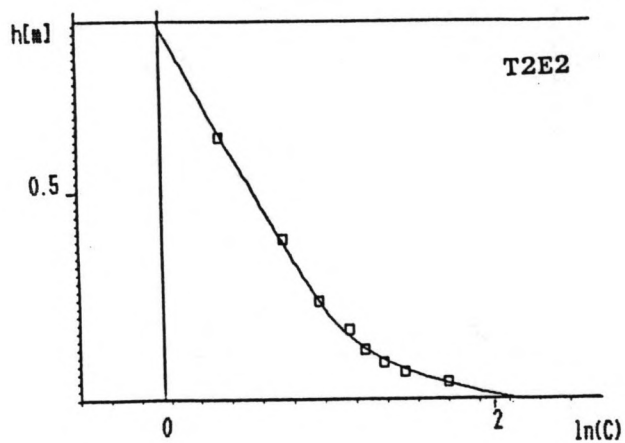
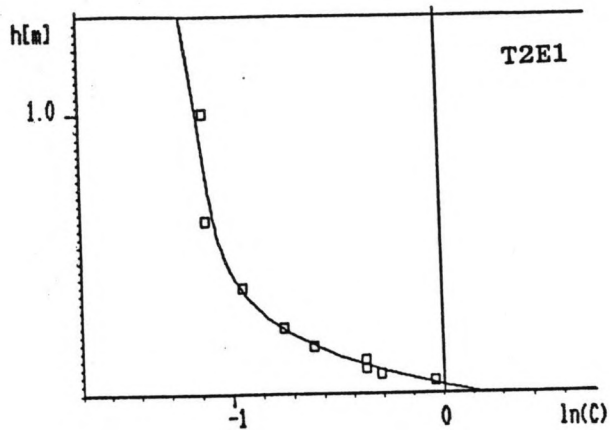
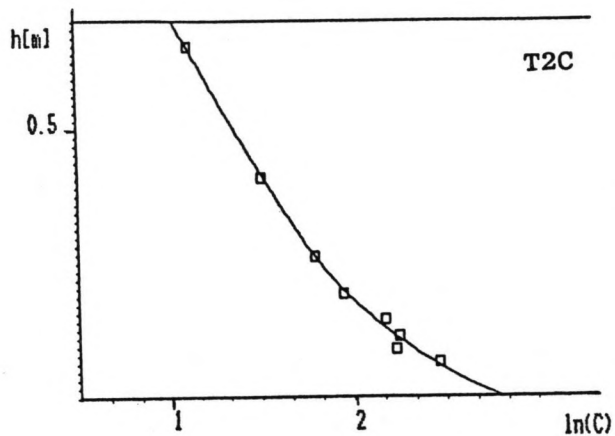
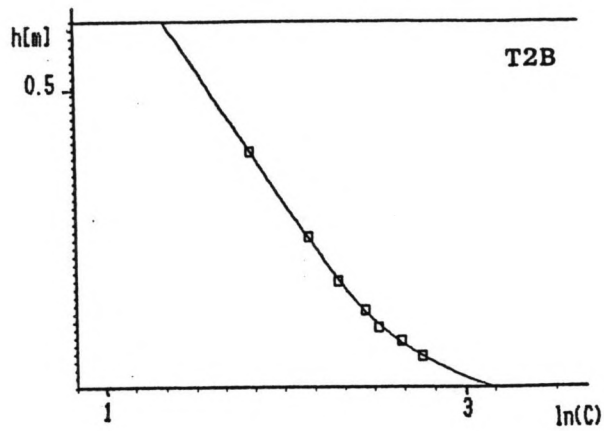
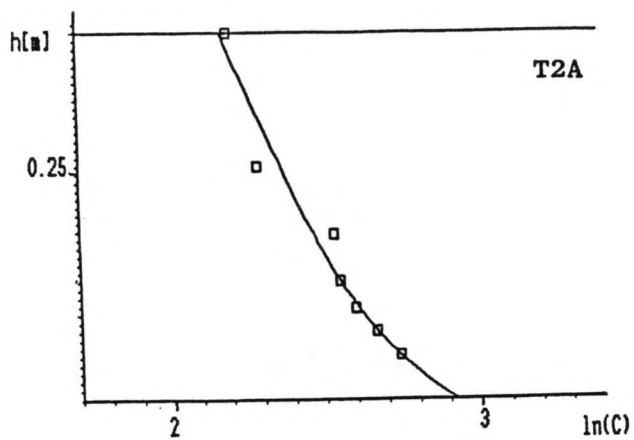


Fig. 4.8 : Concentratie fits, test T2A t/m T2F3.

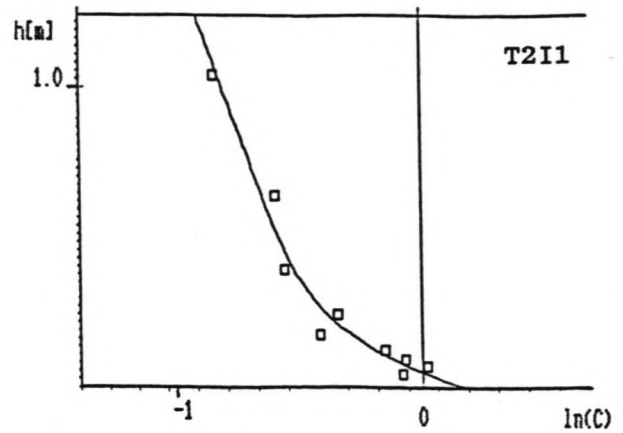
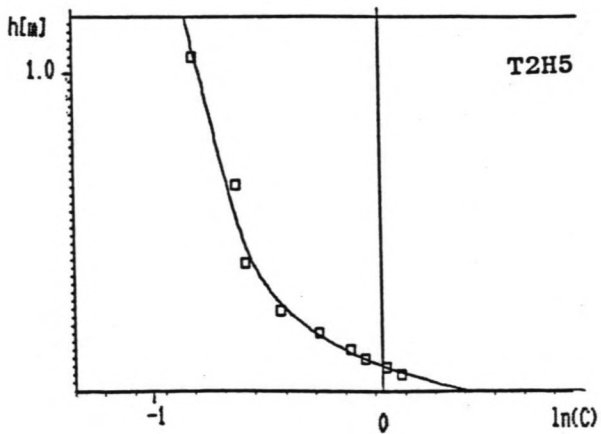
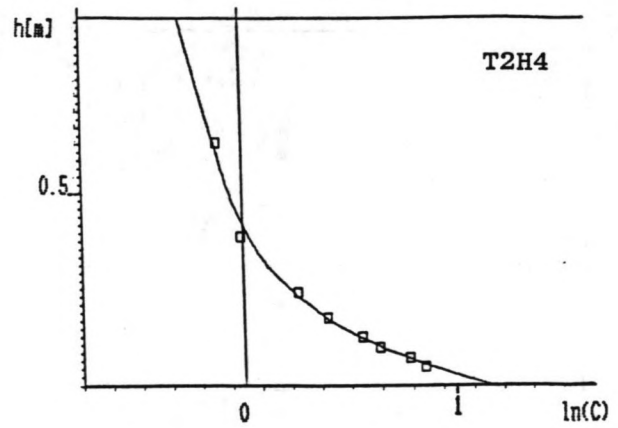
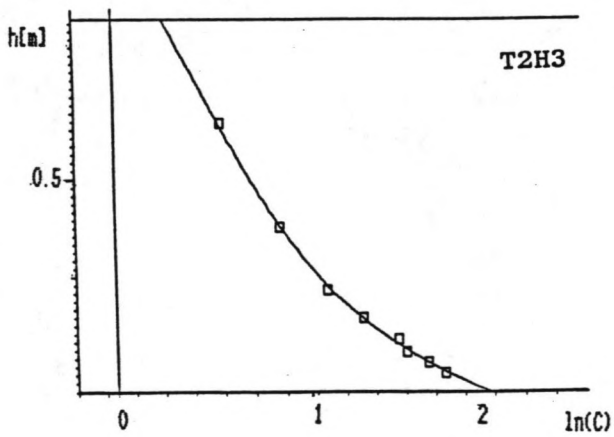
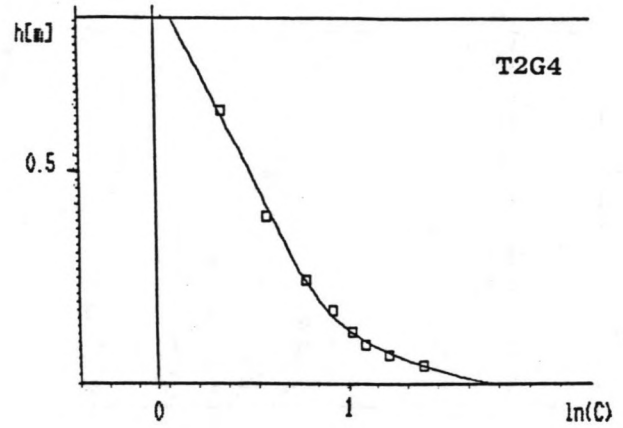
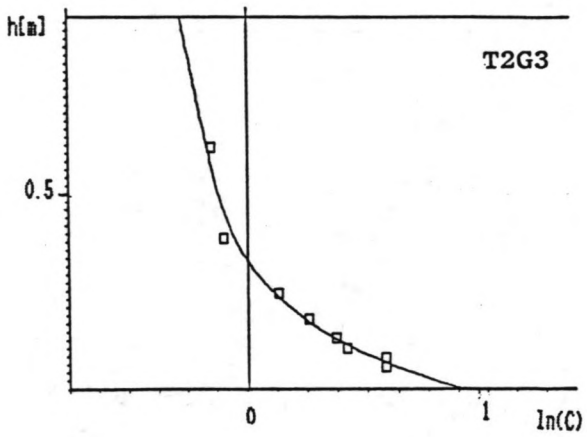
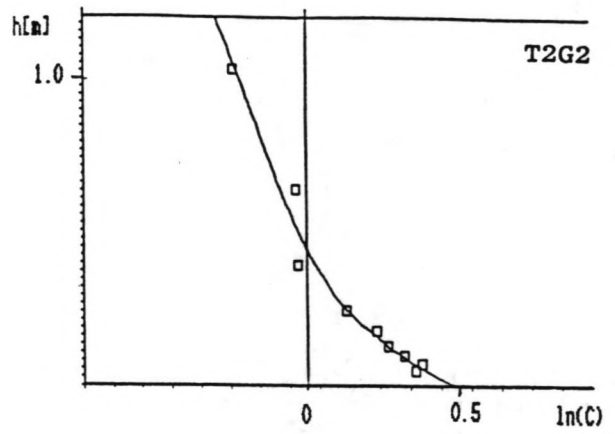
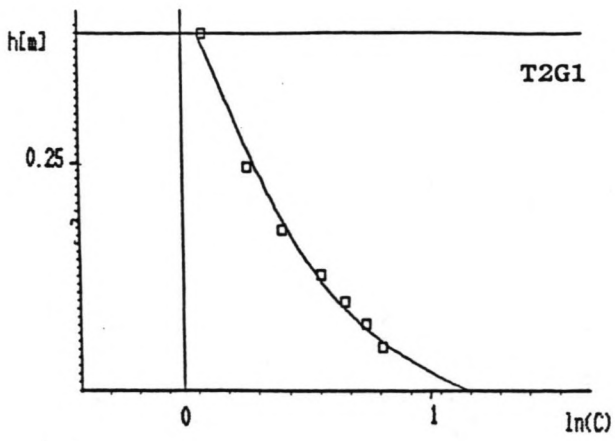


Fig. 4.9 : Concentratie fits, test T2G1 t/m T2I1.

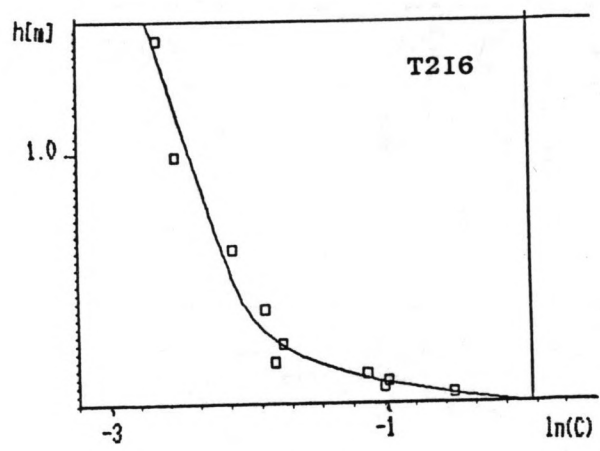
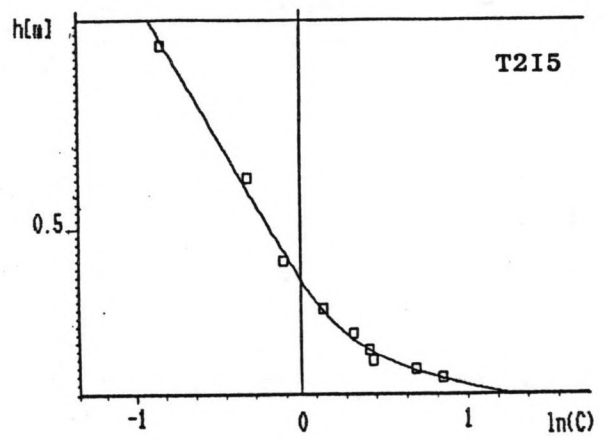
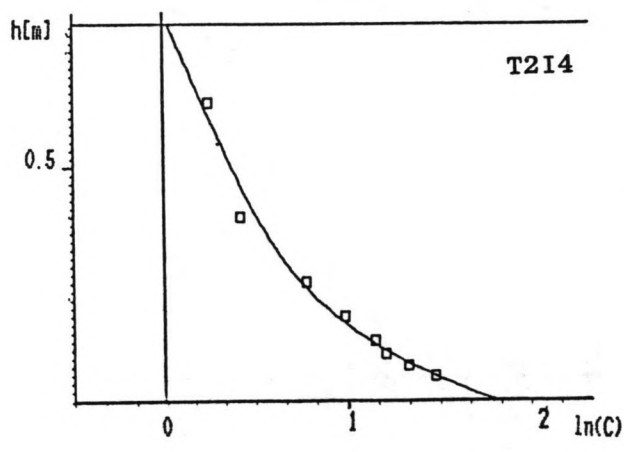
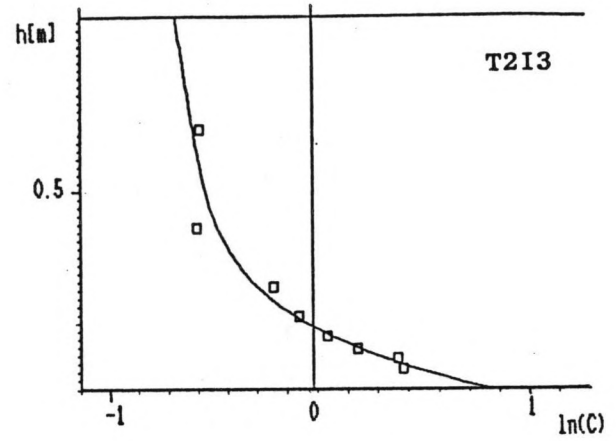
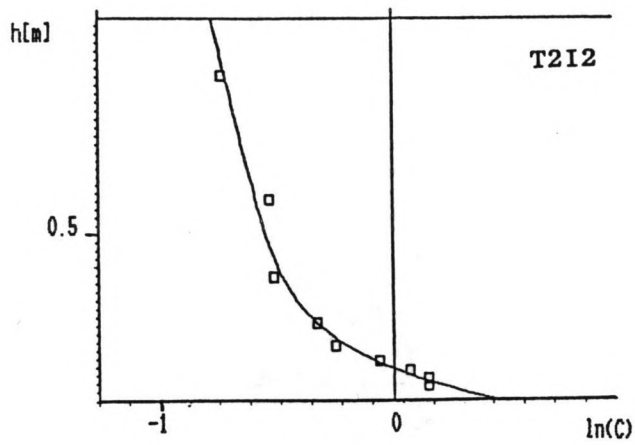


Fig. 4.10 : Concentratie fits, test T2I2 t/m T2I6.

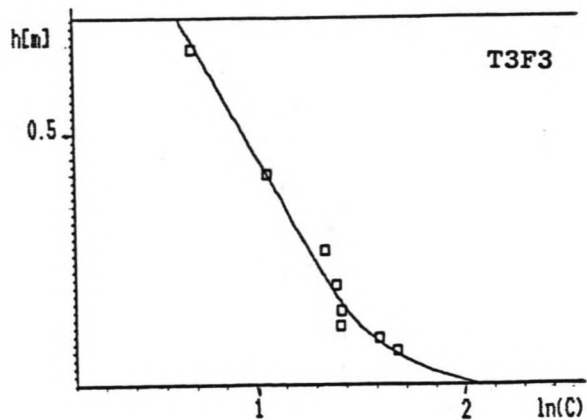
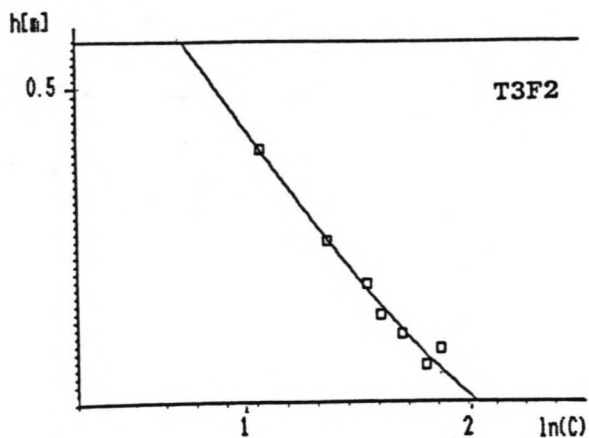
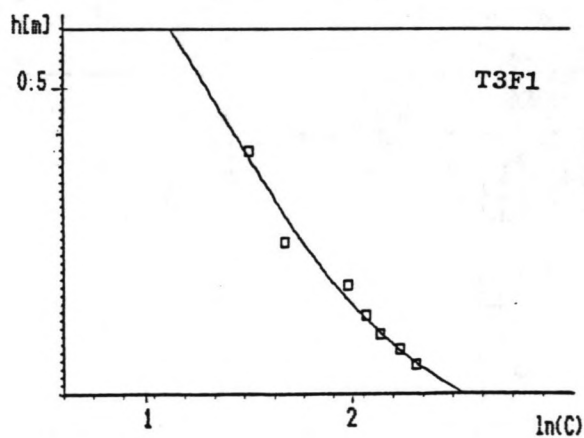
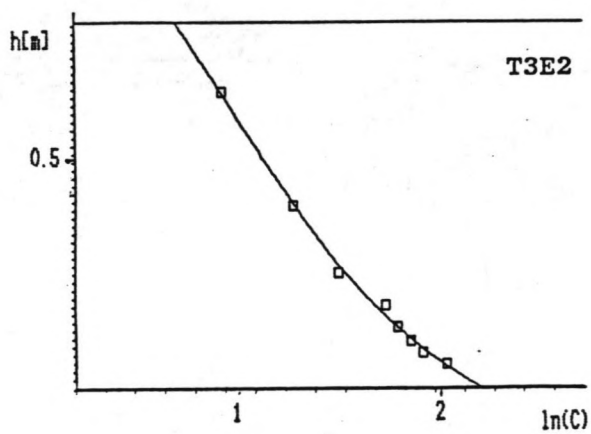
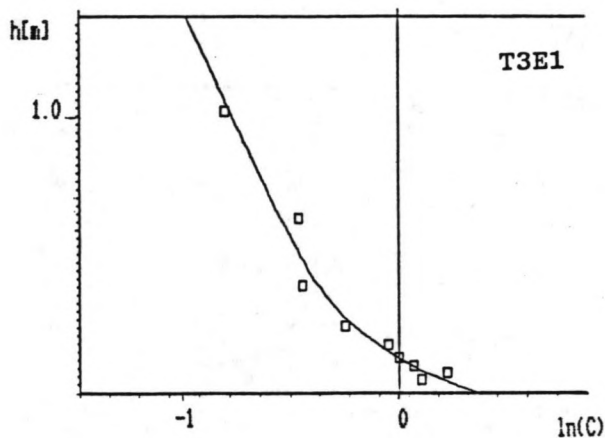
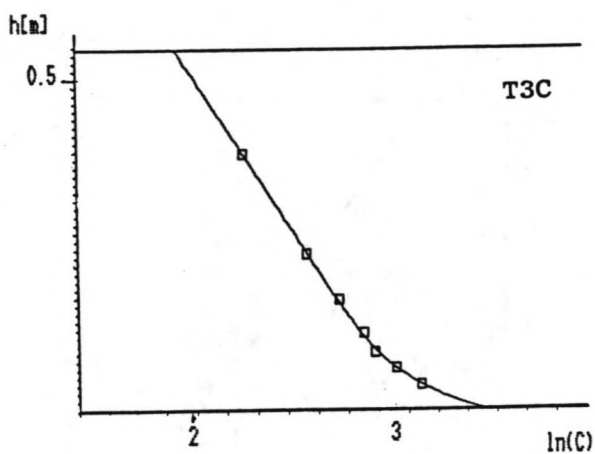
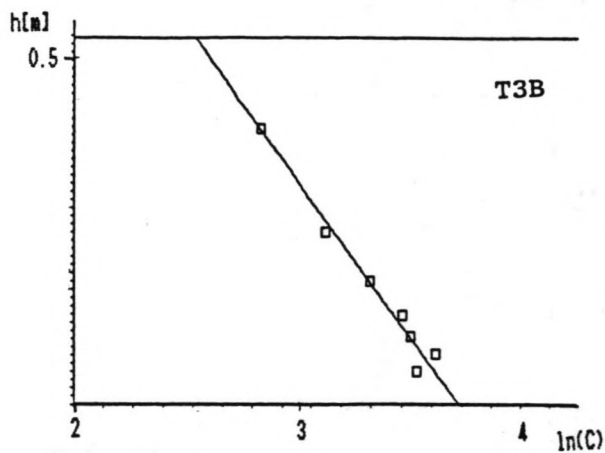
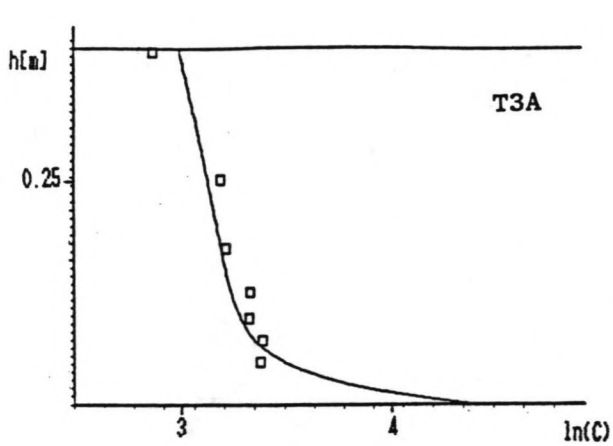


Fig. 4.11 : Concentratie fits, test T3A t/m T3F3.



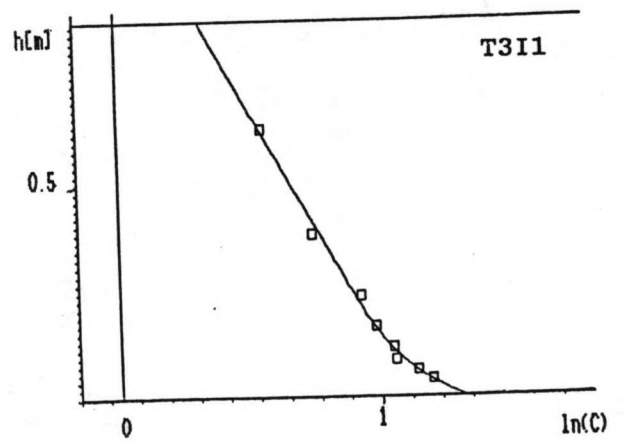
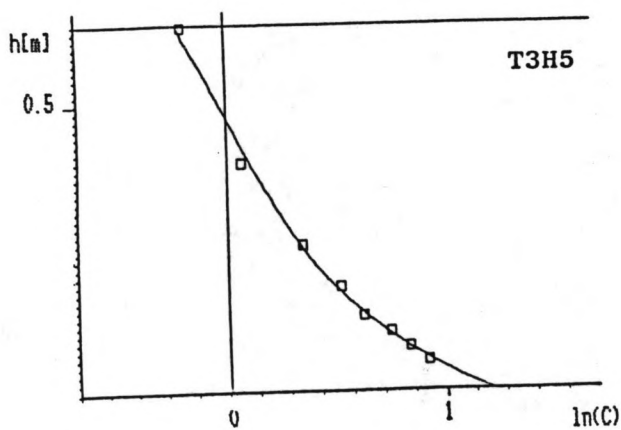
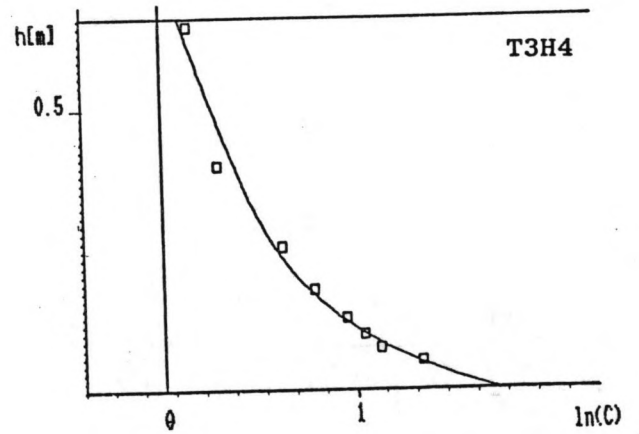
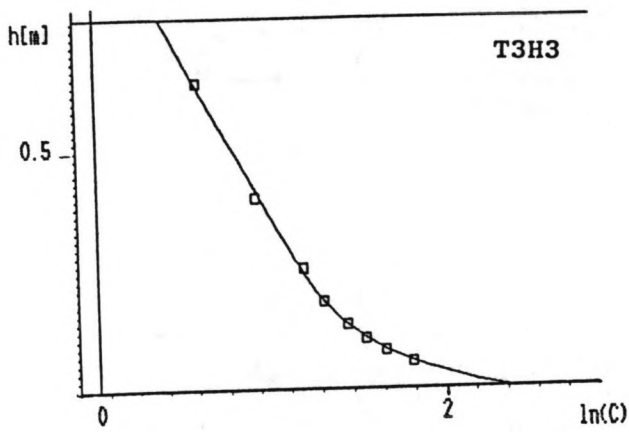
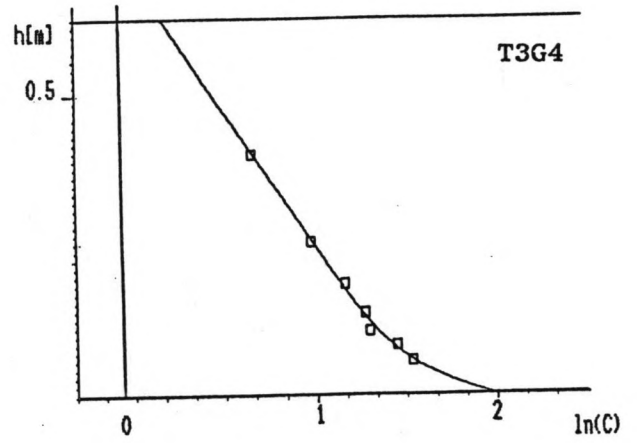
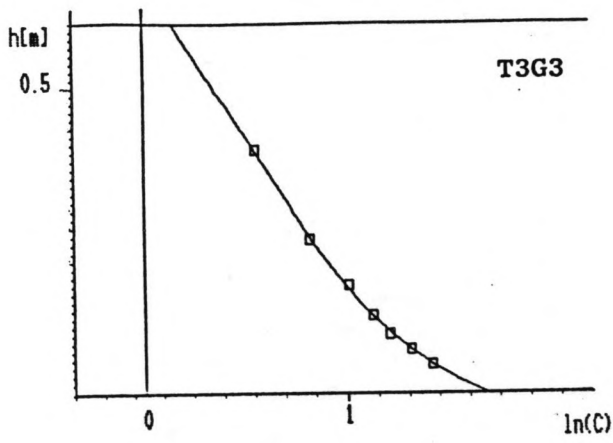
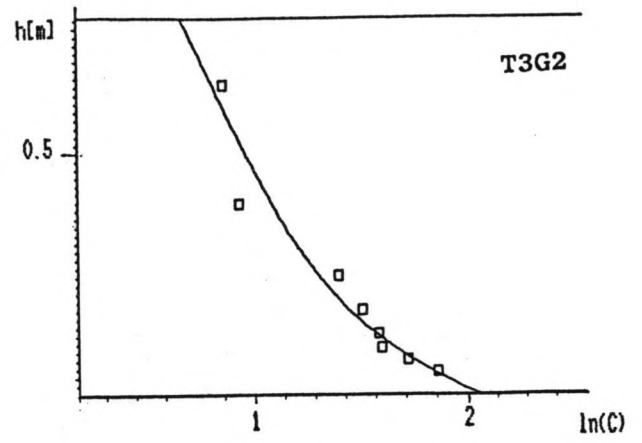
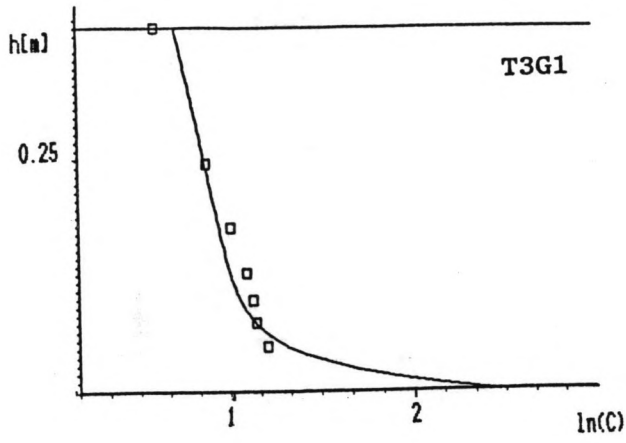


Fig. 4.12 : Concentratie fits, test T3G1 t/m T3I1.

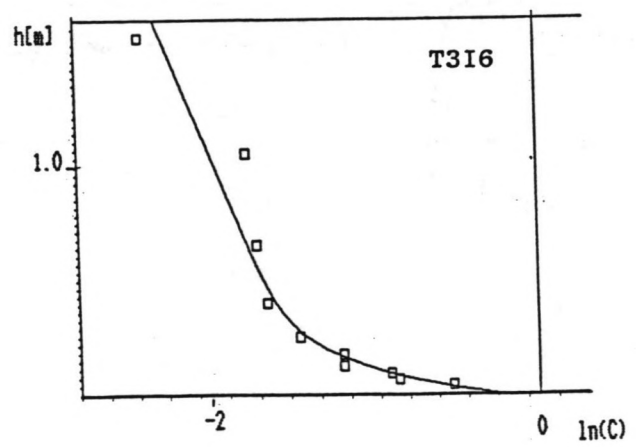
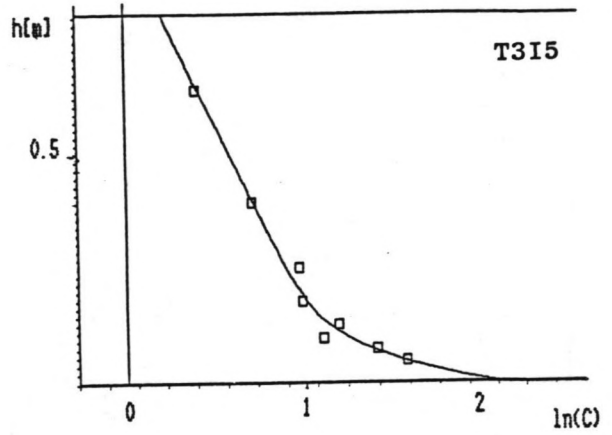
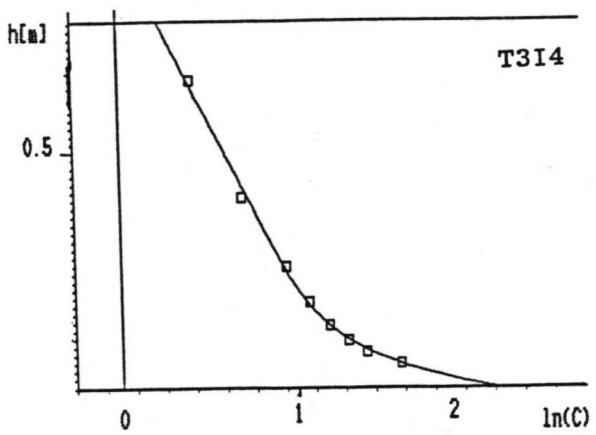
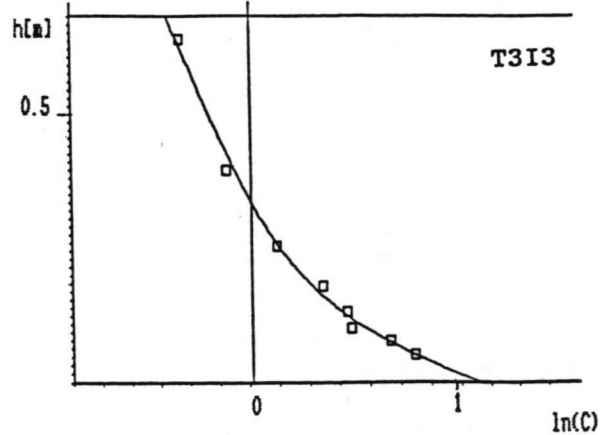
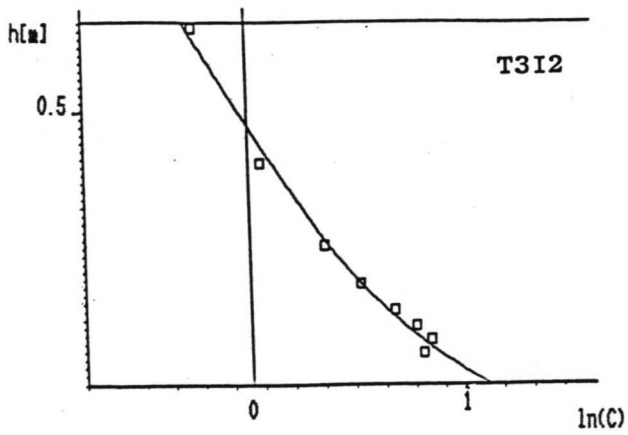


Fig. 4.13 : Concentratie fits, test T3I2 t/m T3I6.

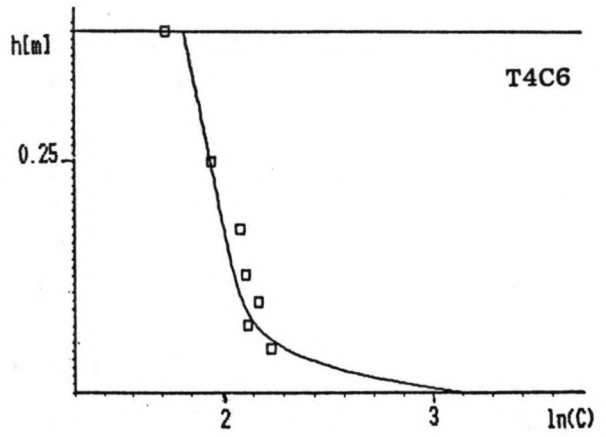
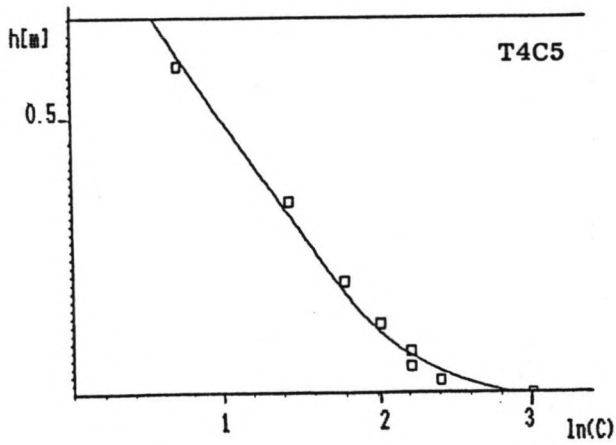
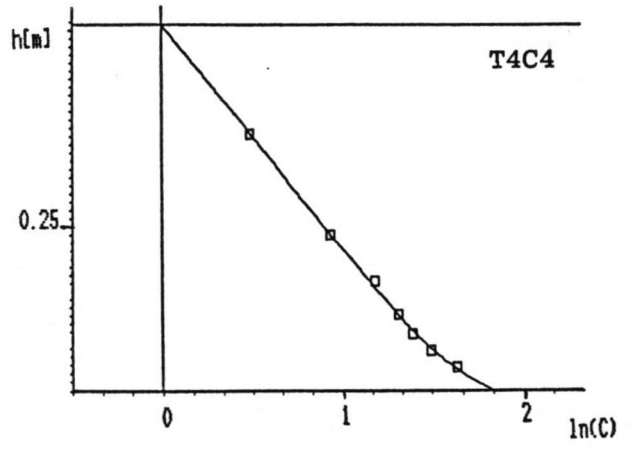
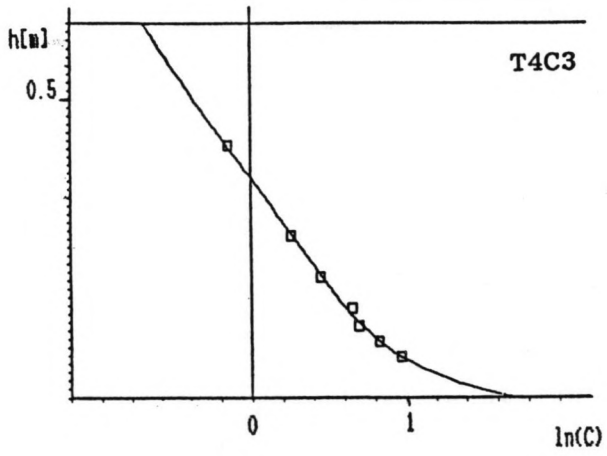
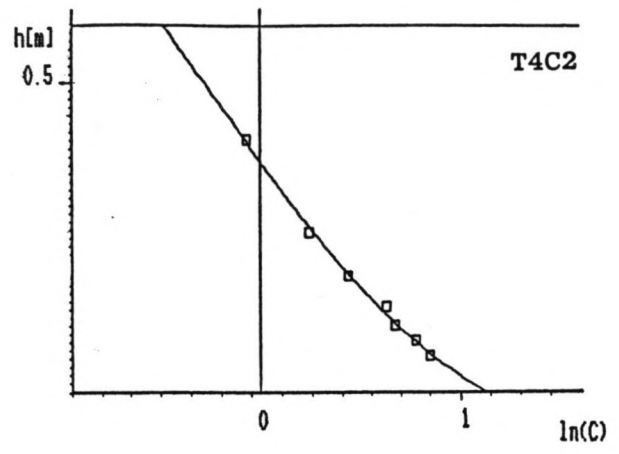
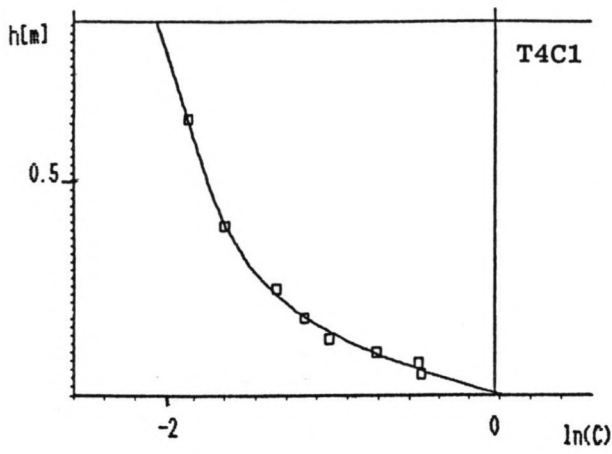


Fig. 4.14 : Concentratie fits, test T4C1 t/m T4C6.

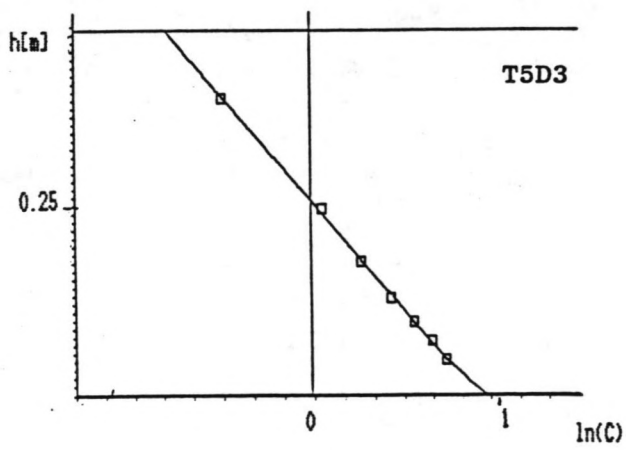
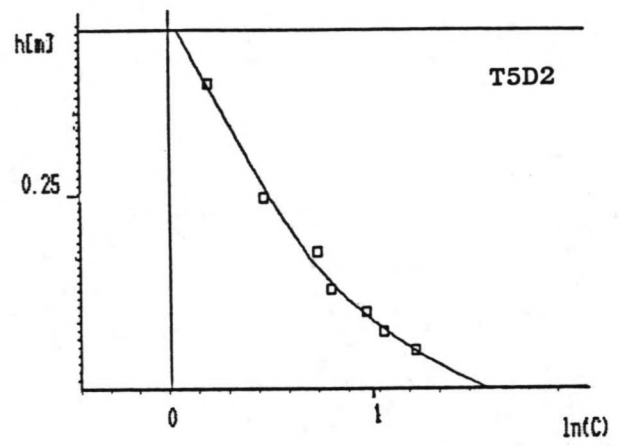
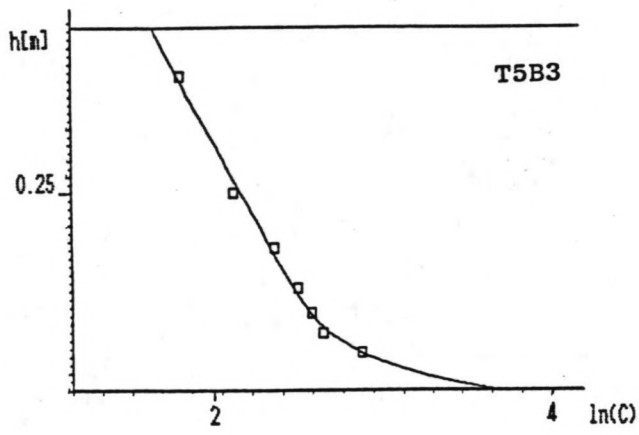
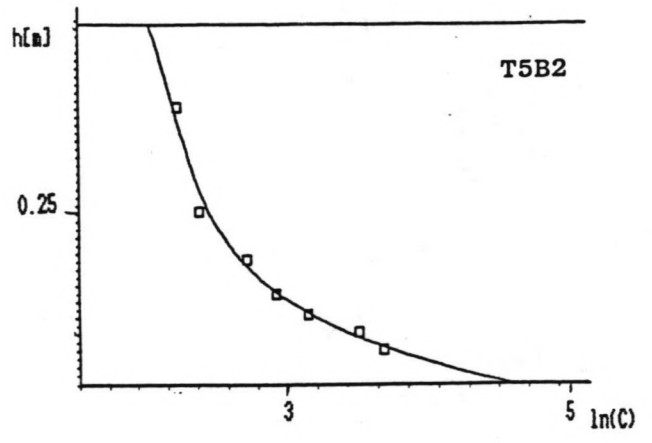
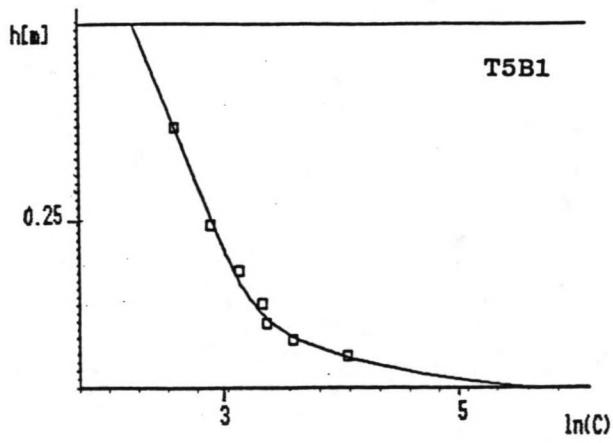
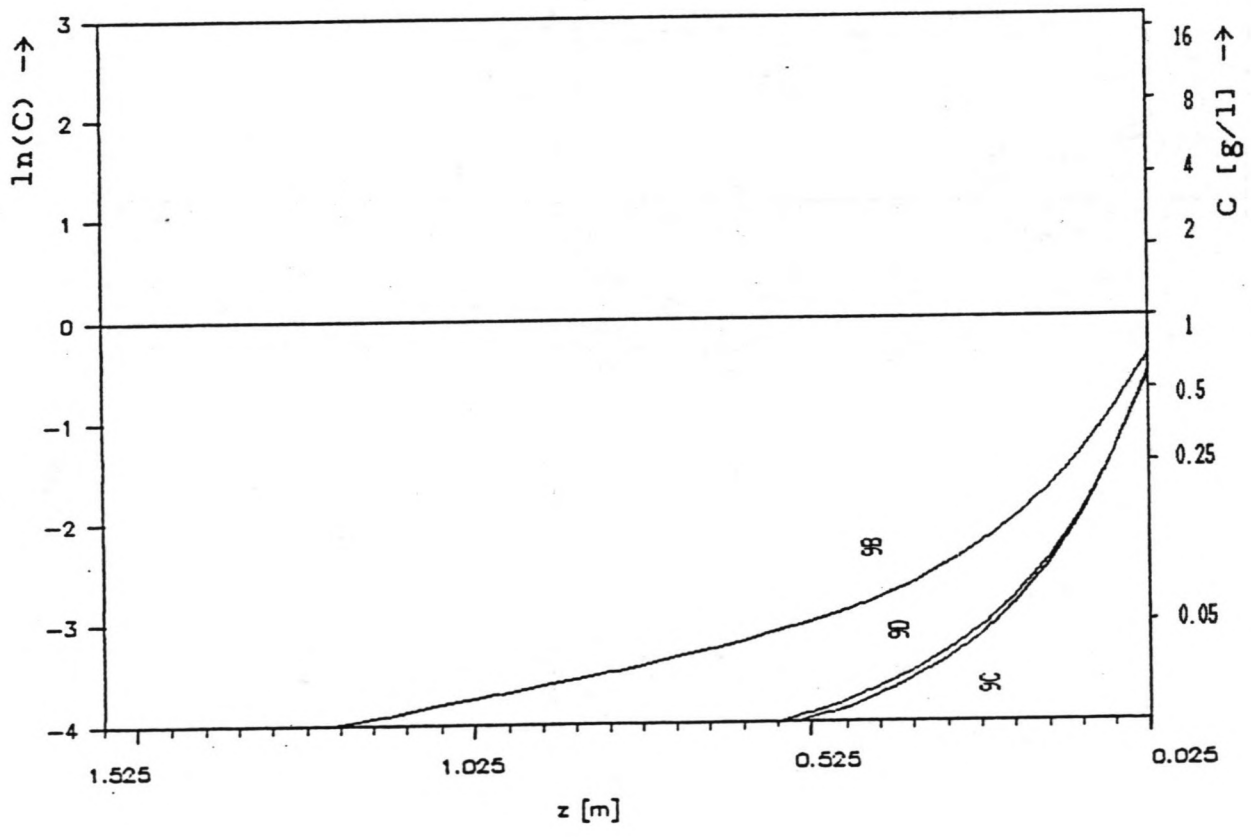
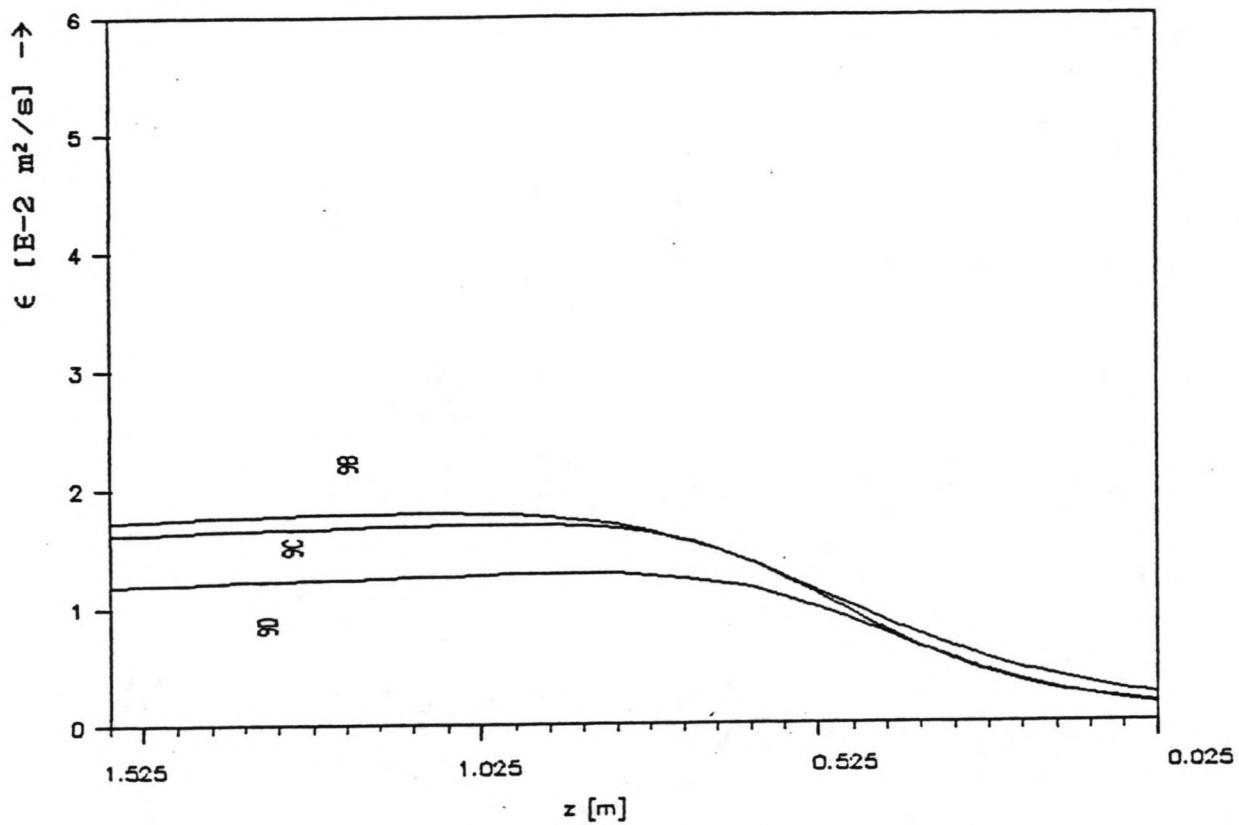


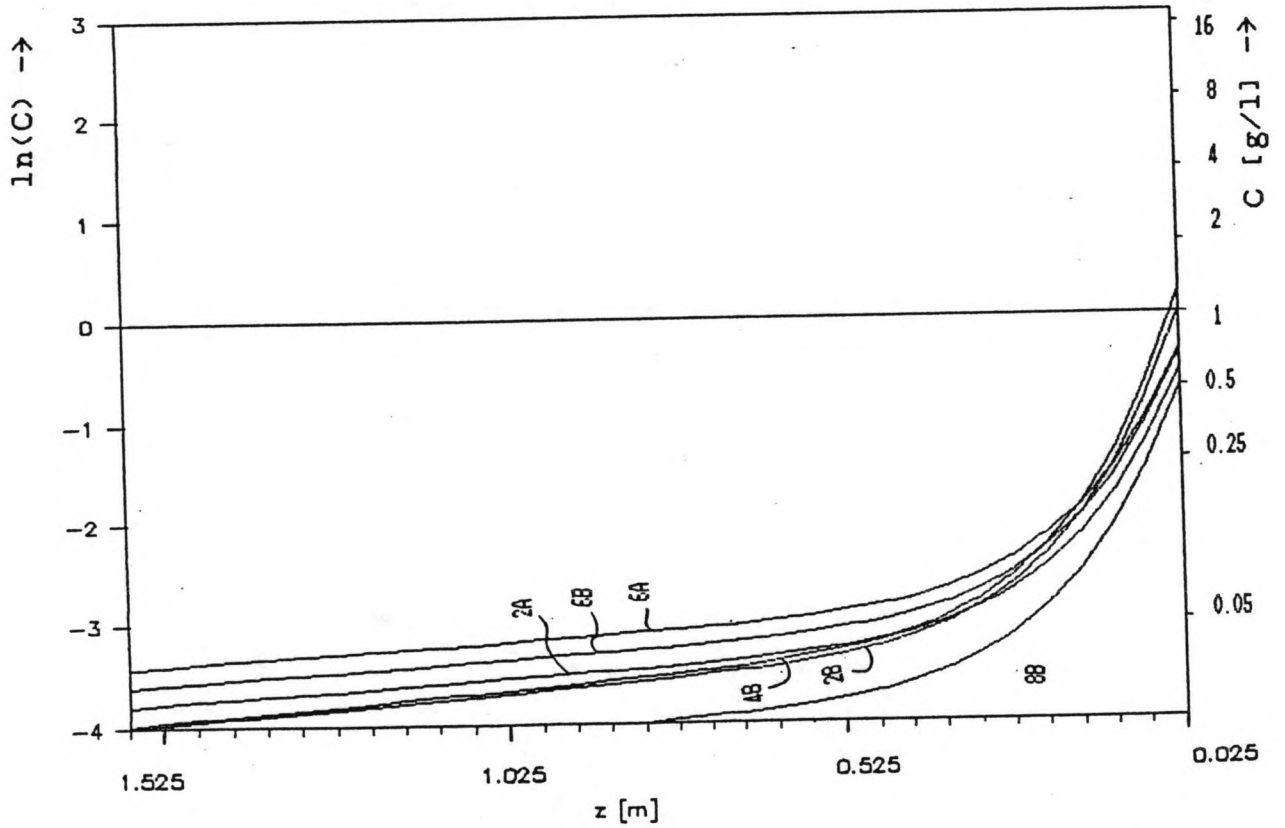
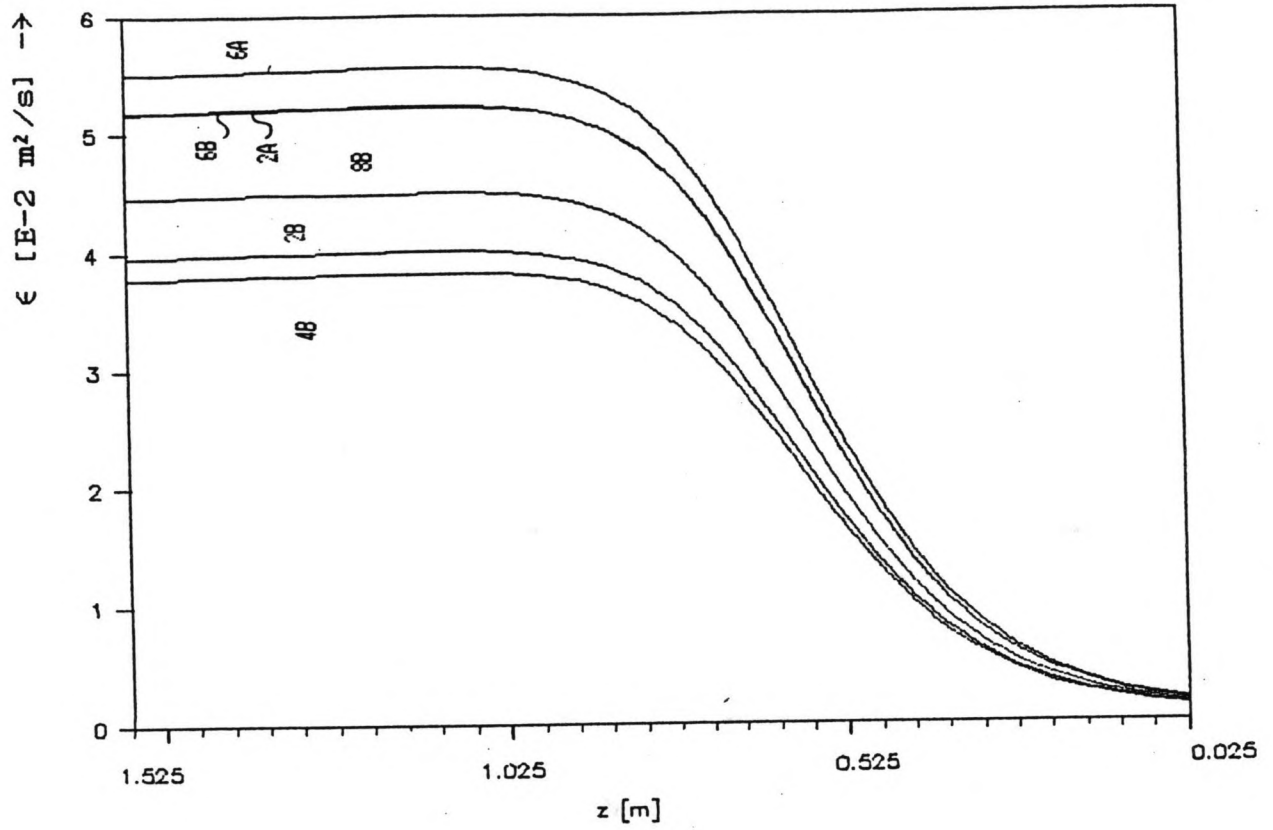
Fig. 4.15 : Concentratie fits, test T5B1 t/m T5D3.

9D 9C 9B



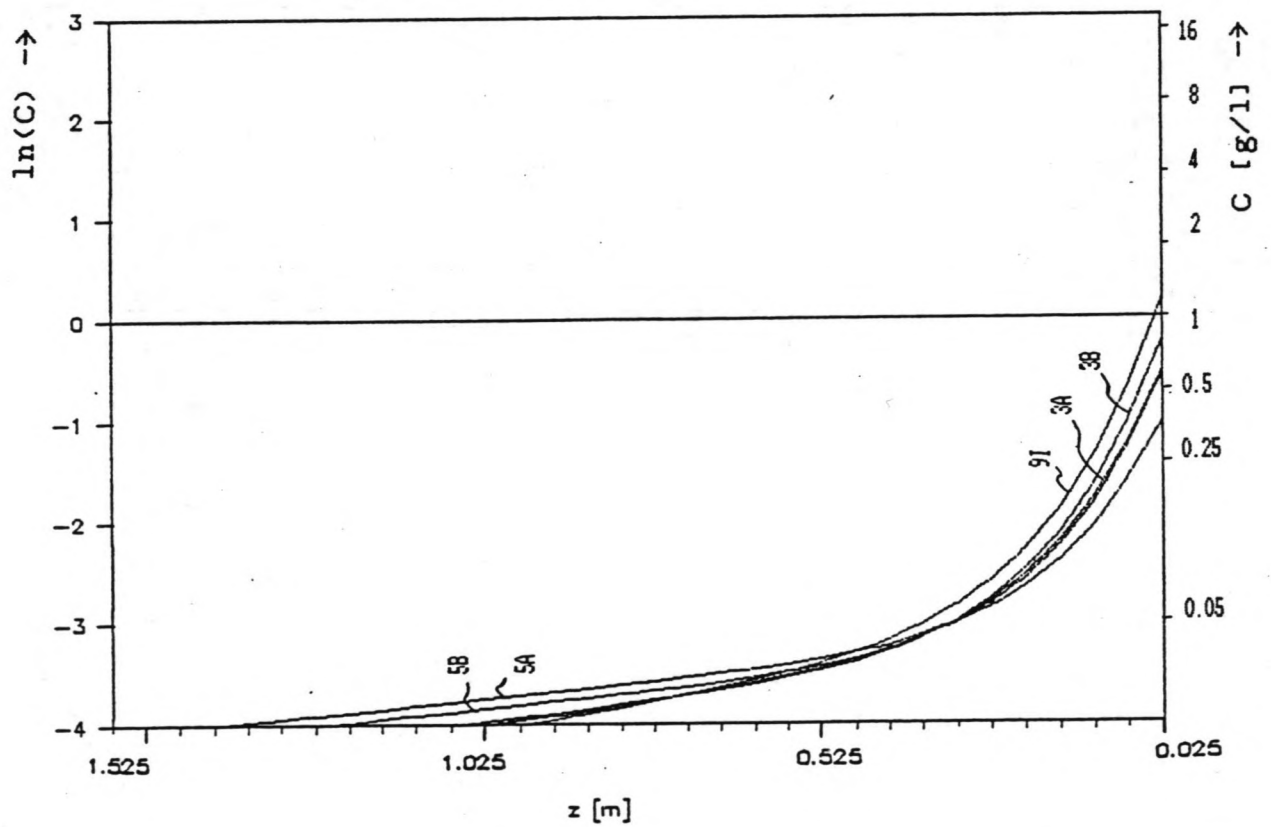
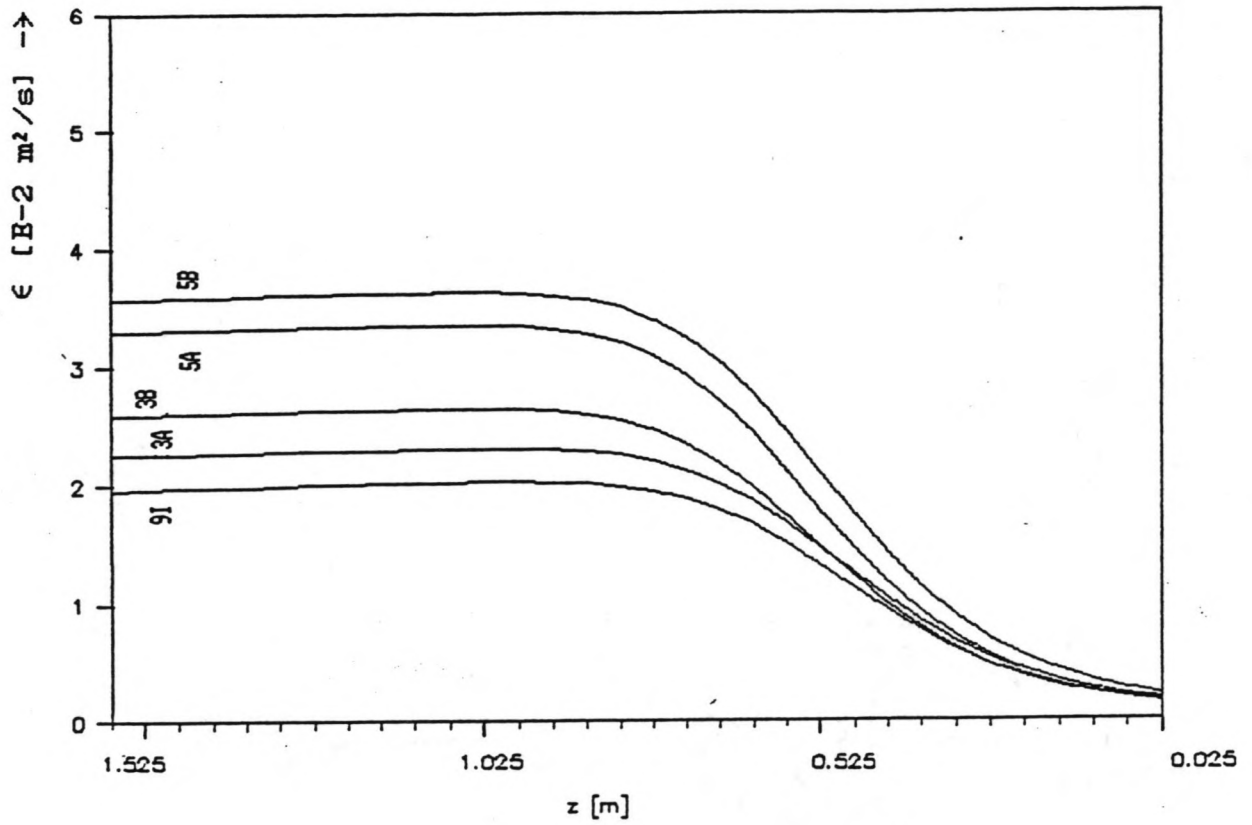
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

4B 2B 8B 2A 6B 6A



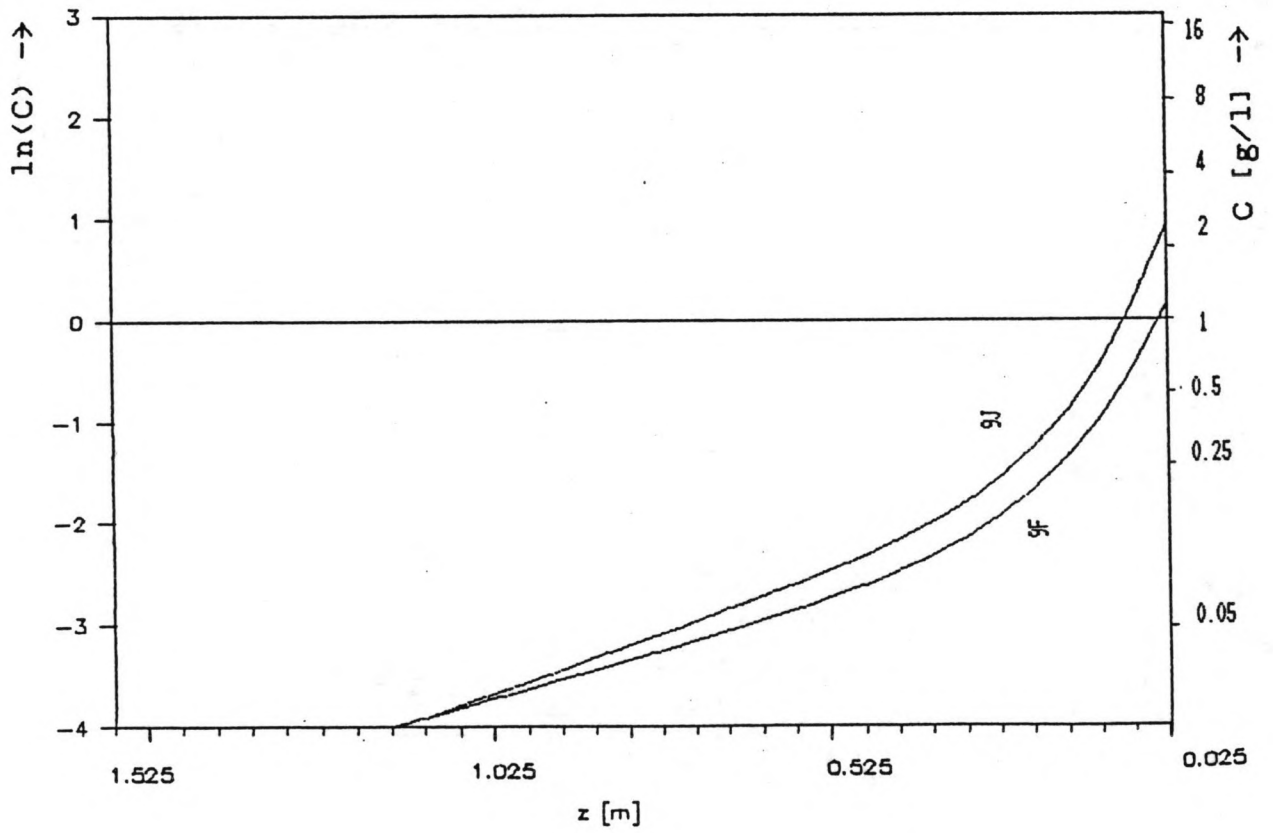
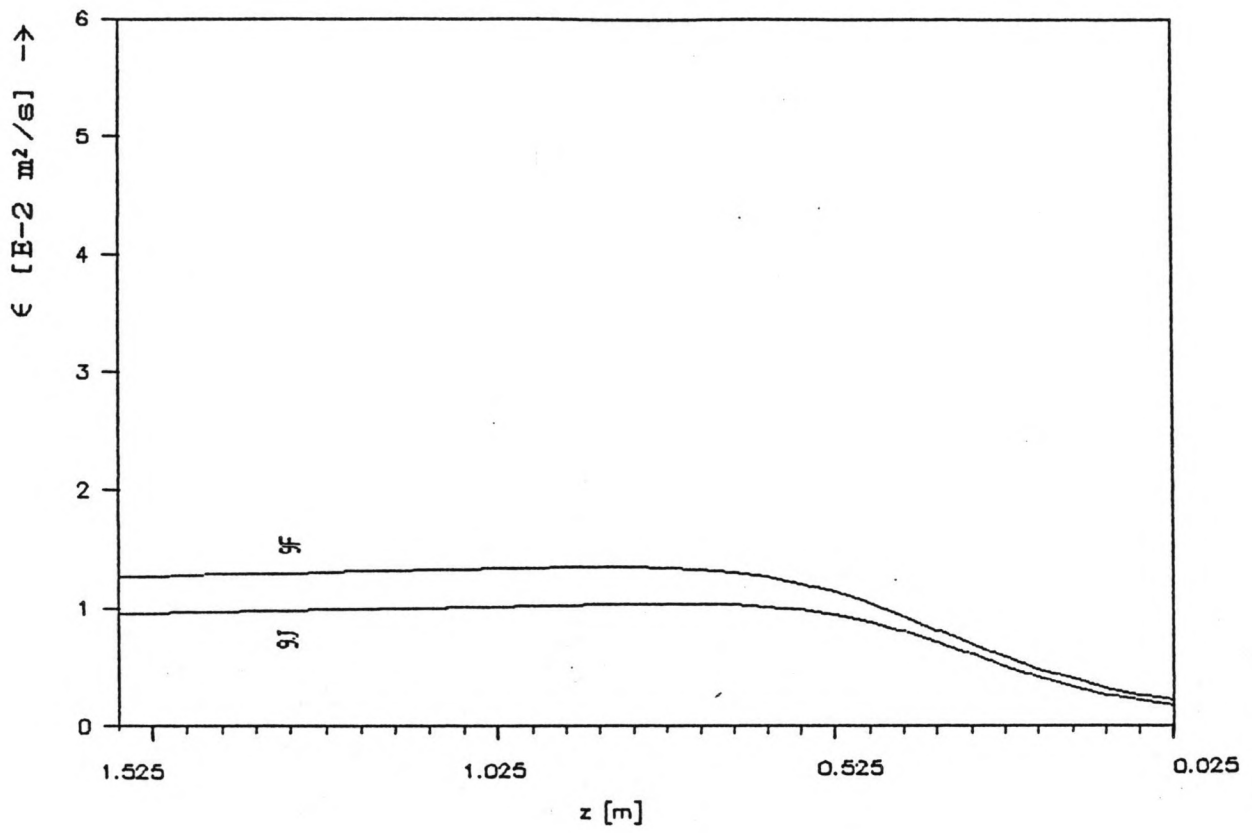
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

9I 3A 3B 5B 5A



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

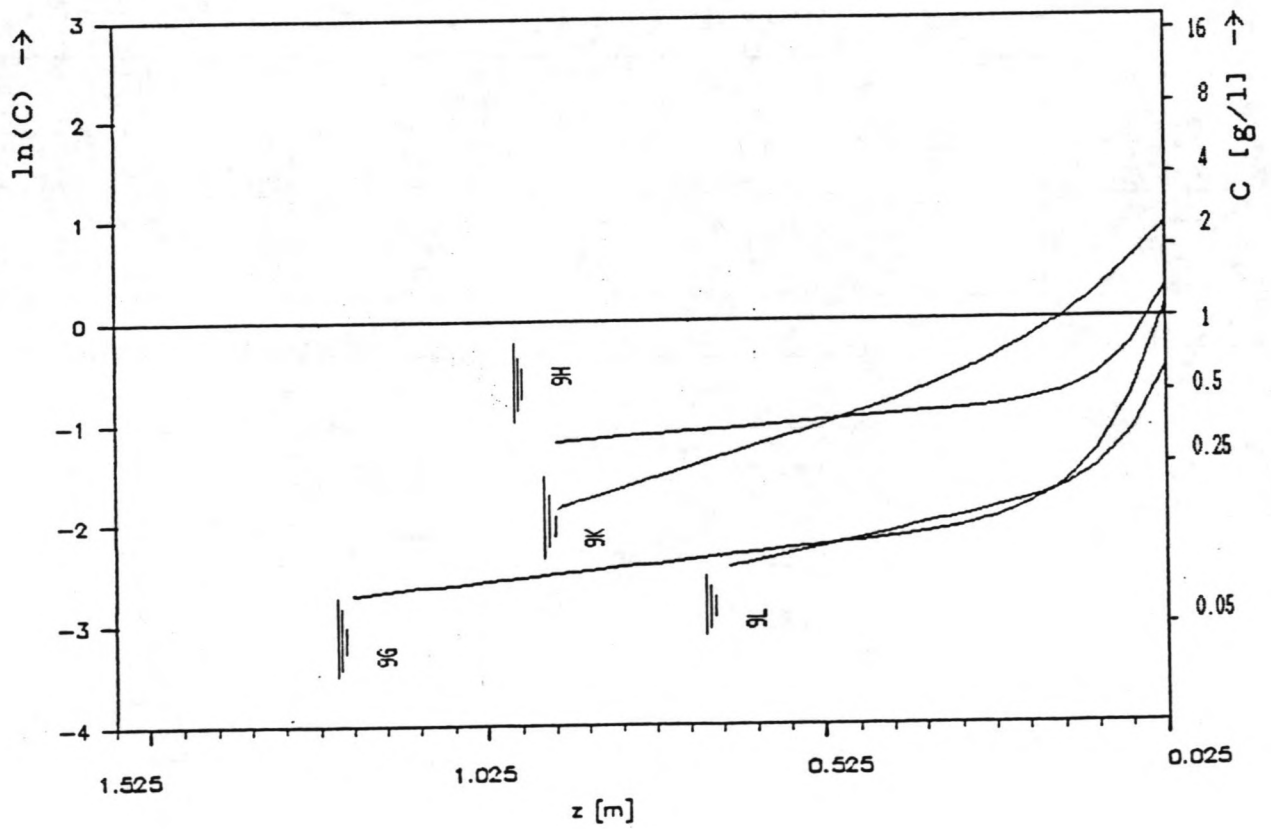
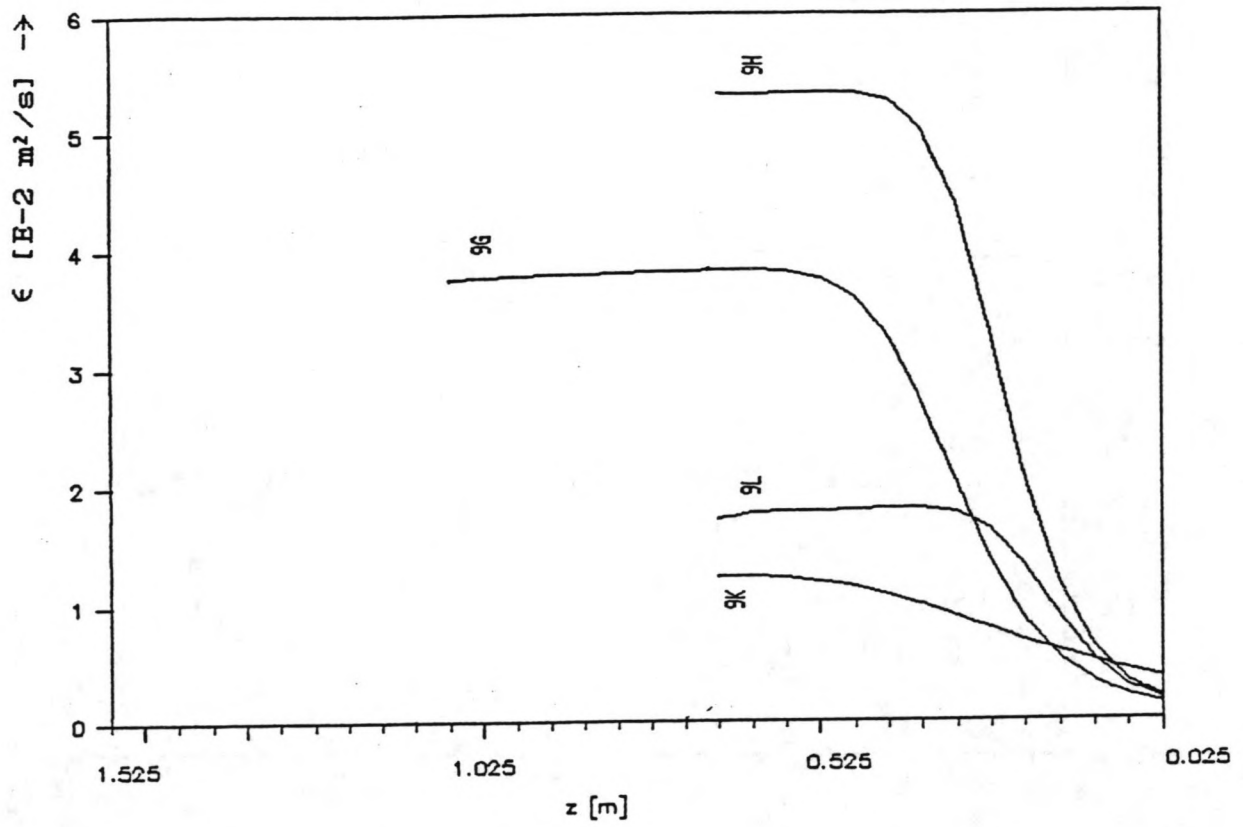
9J 9F



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

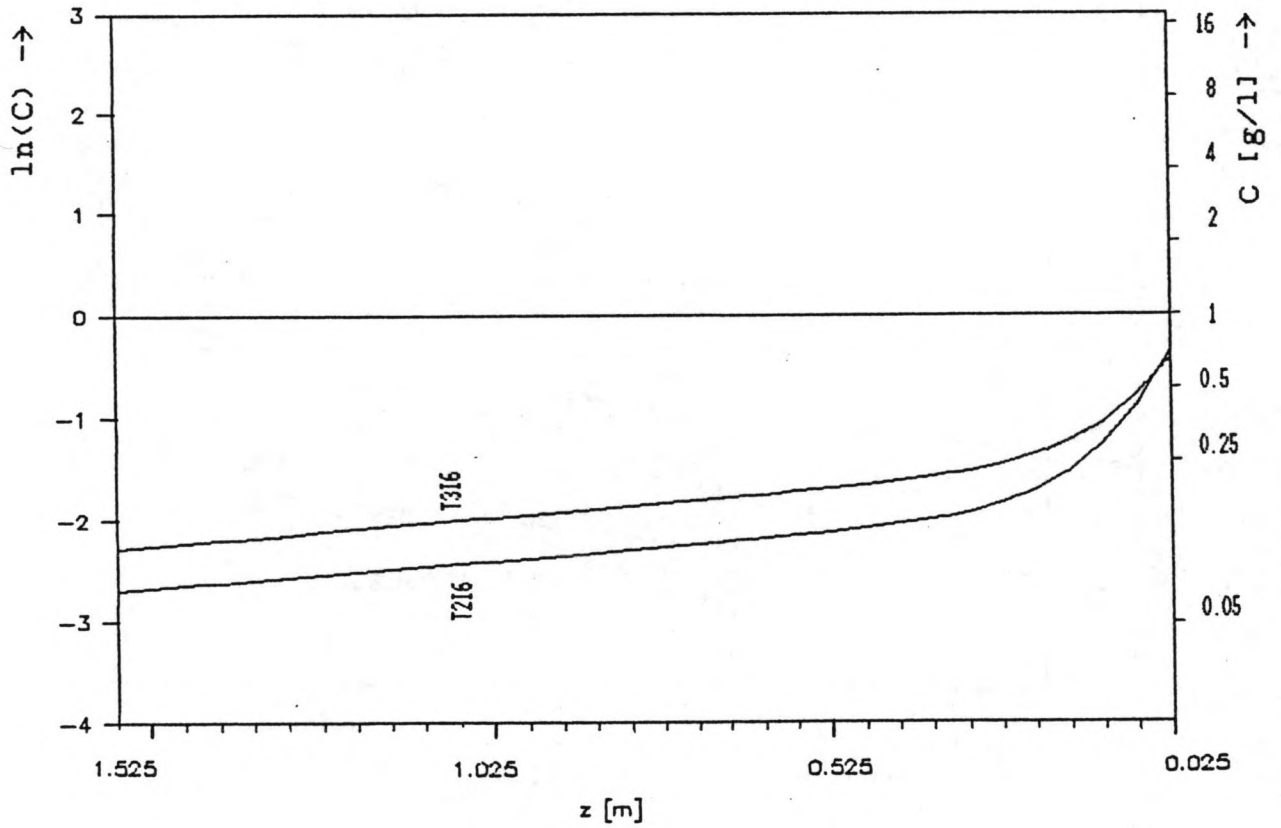
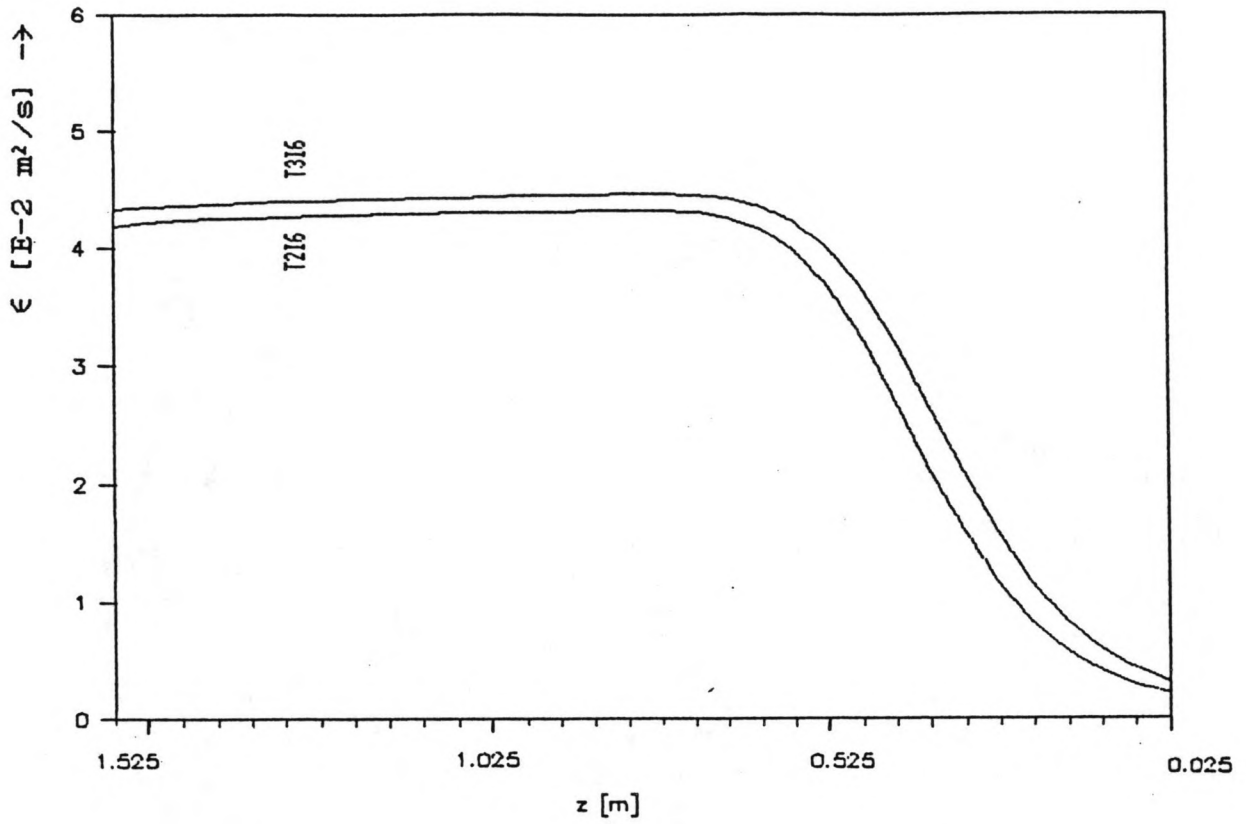


9K 9L 9G 9H



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

T216 T316

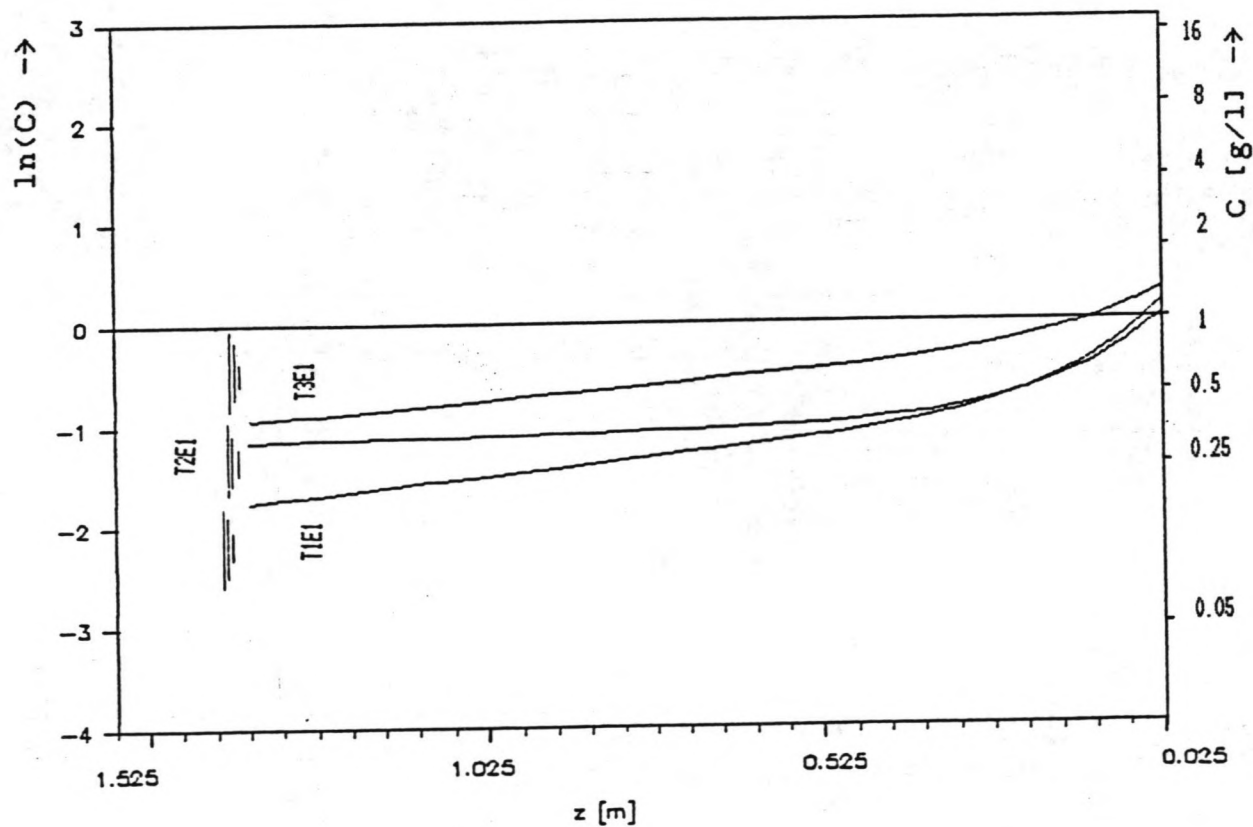
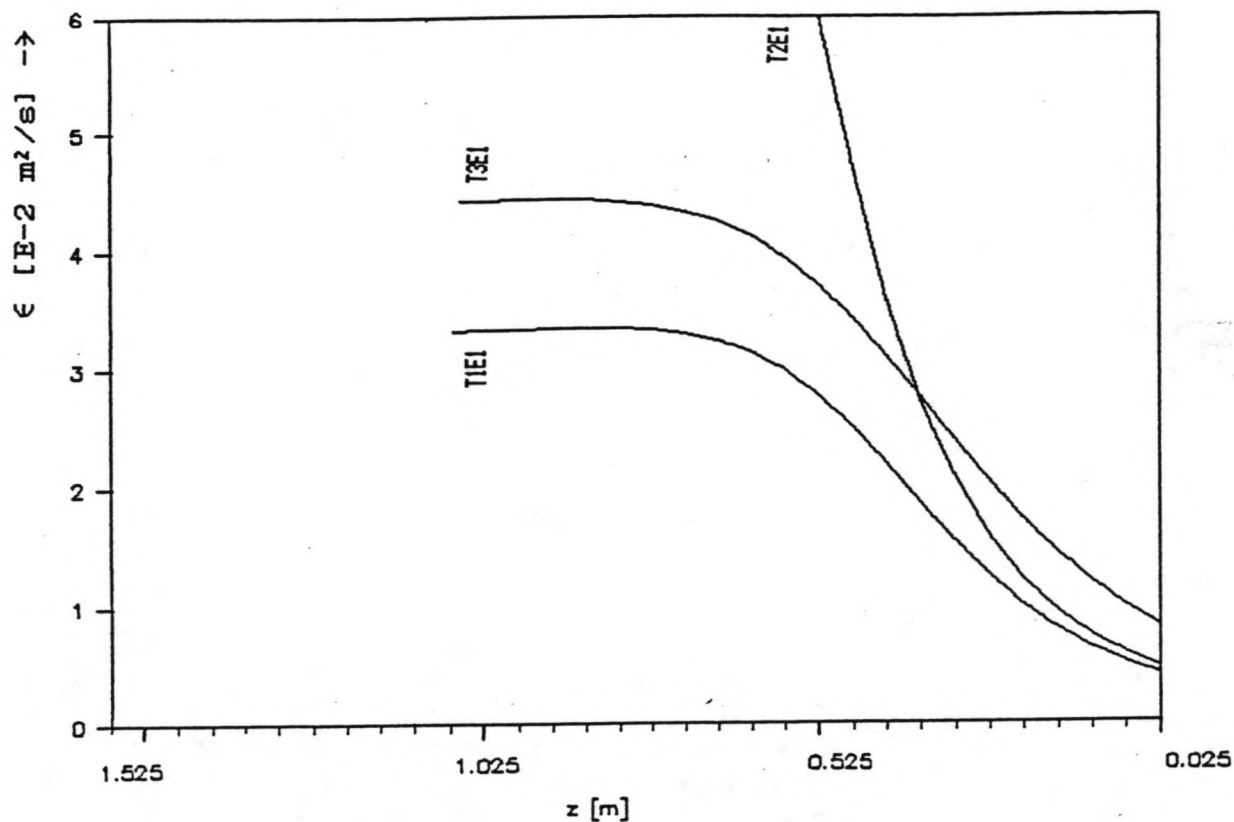


C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

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FIG: 4.21

T1E1 T3E1 T2E1

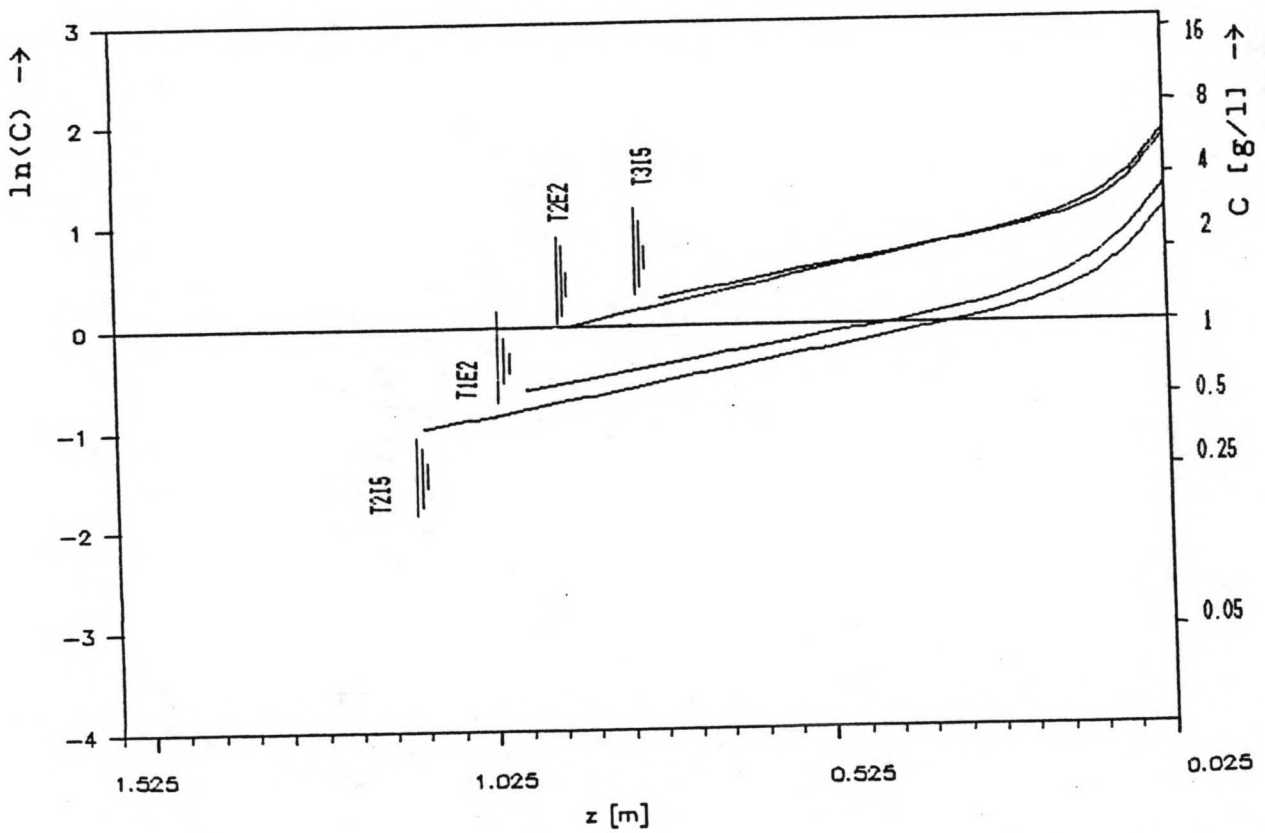
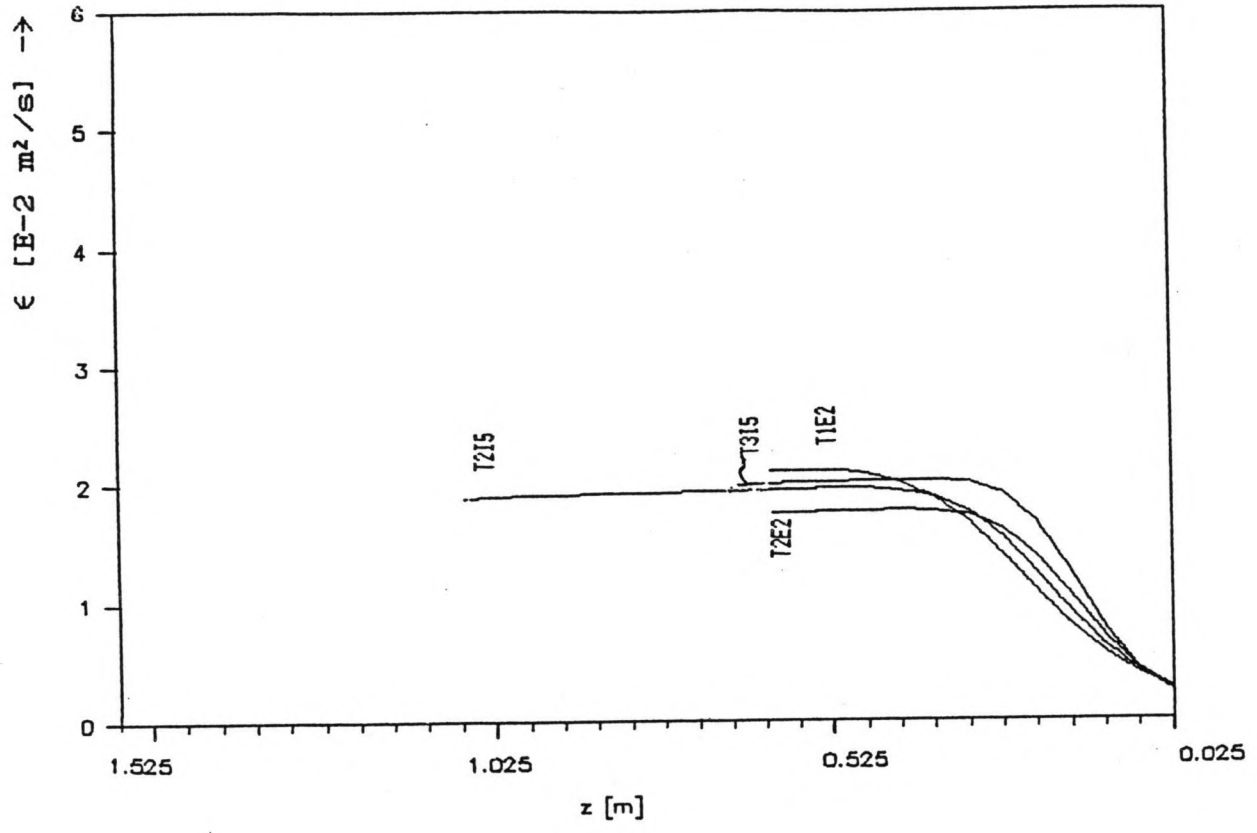


C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

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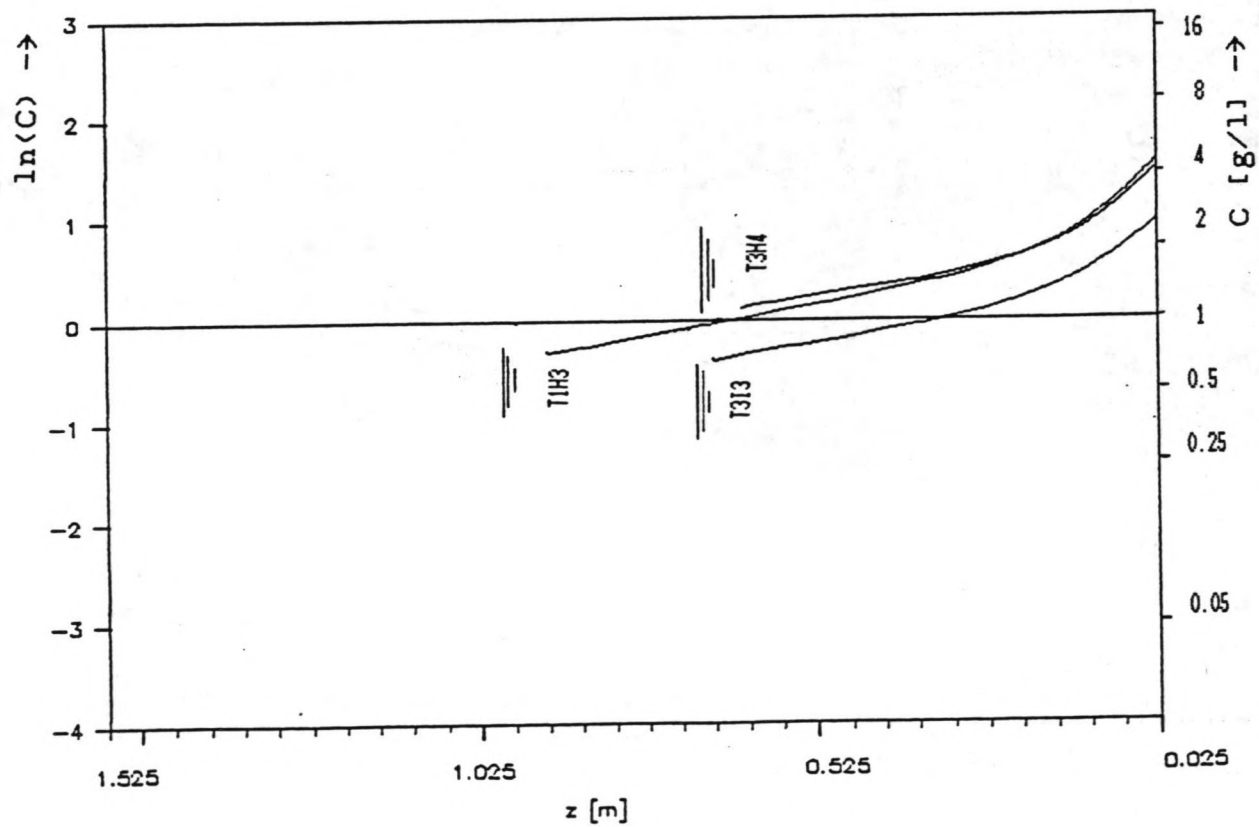
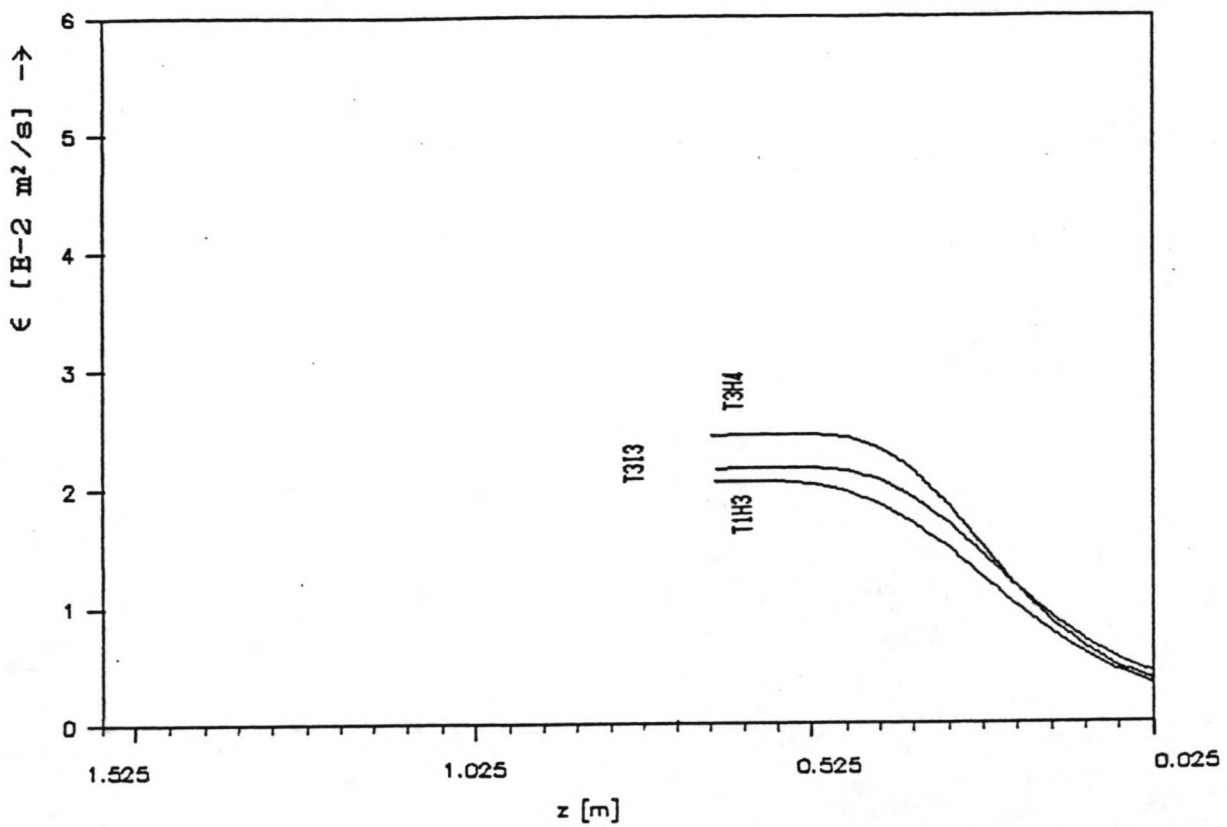
FIG: 4.22

T2E2 T2I5 T3I5 T1E2



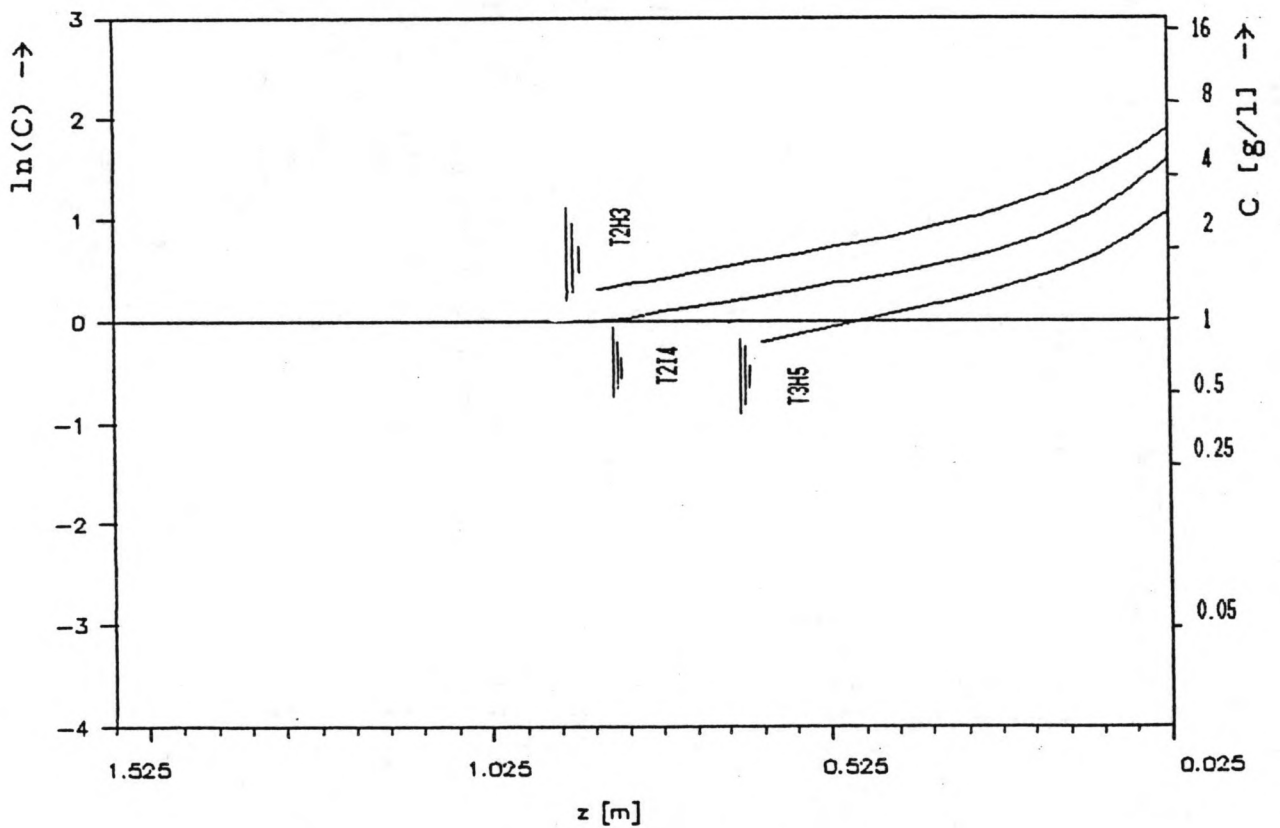
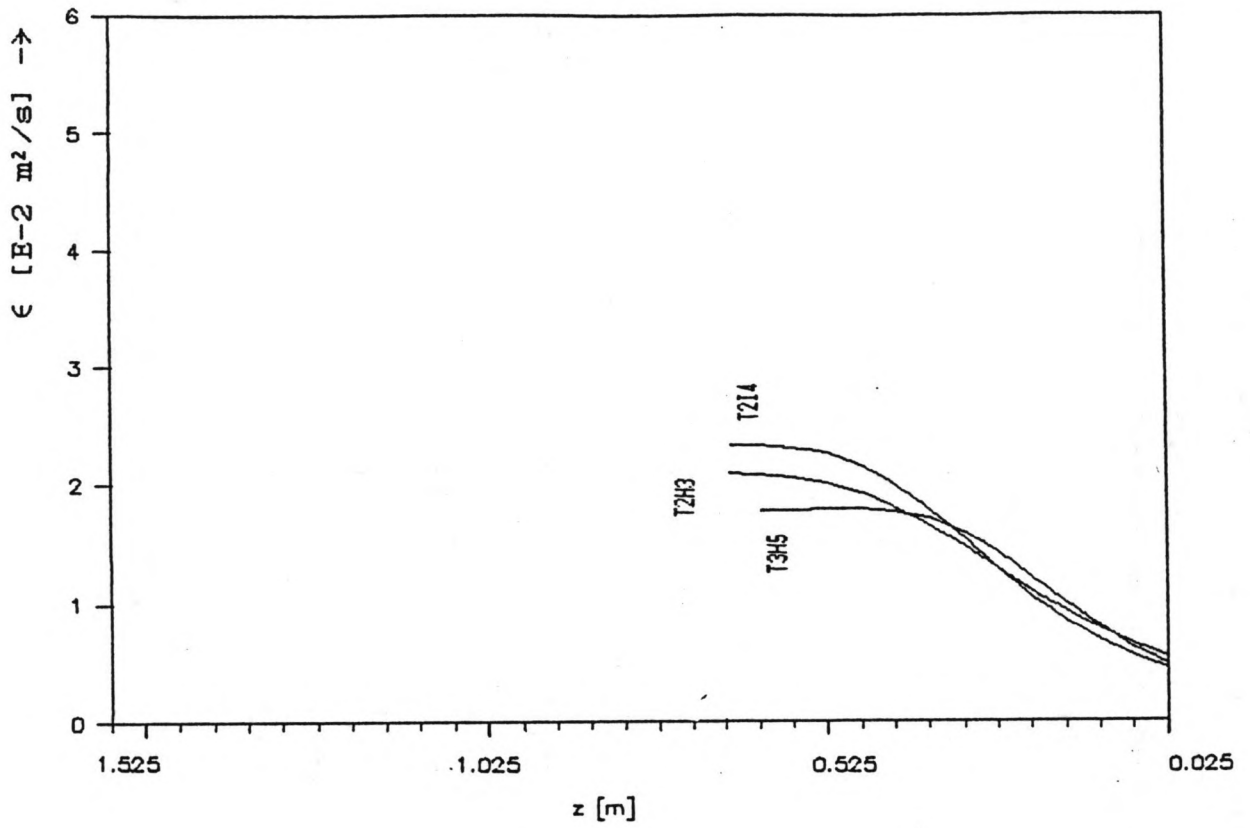
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

T1H3 T3I3 T3H4



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

T3H5 T2H3 T2I4

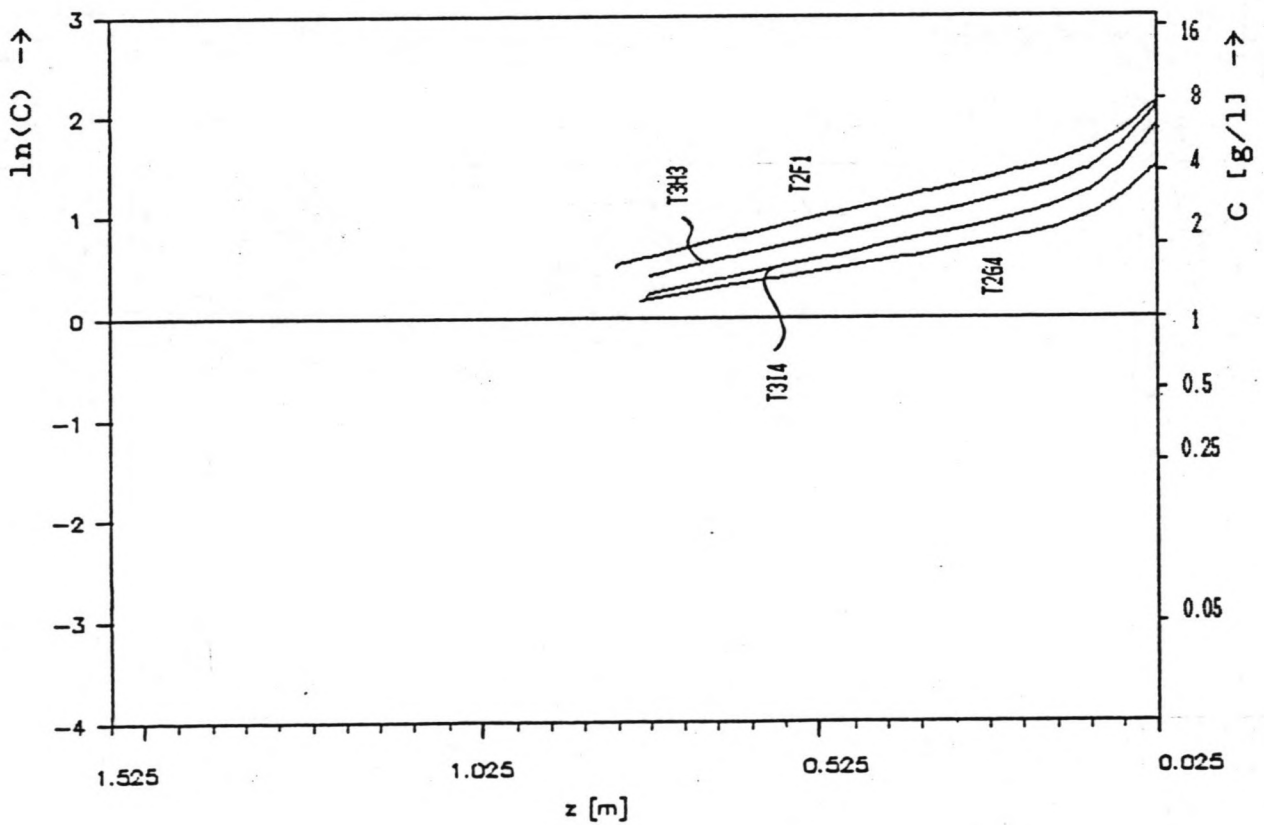
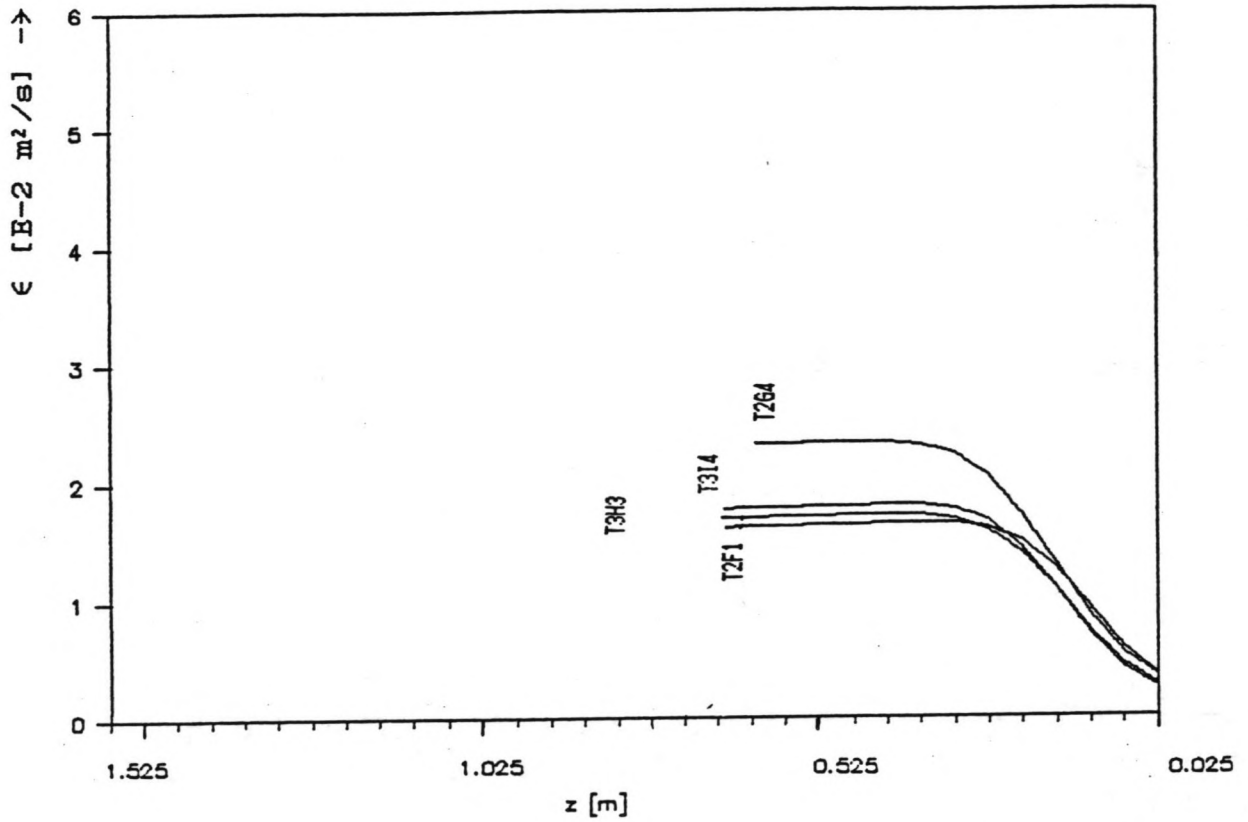


C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

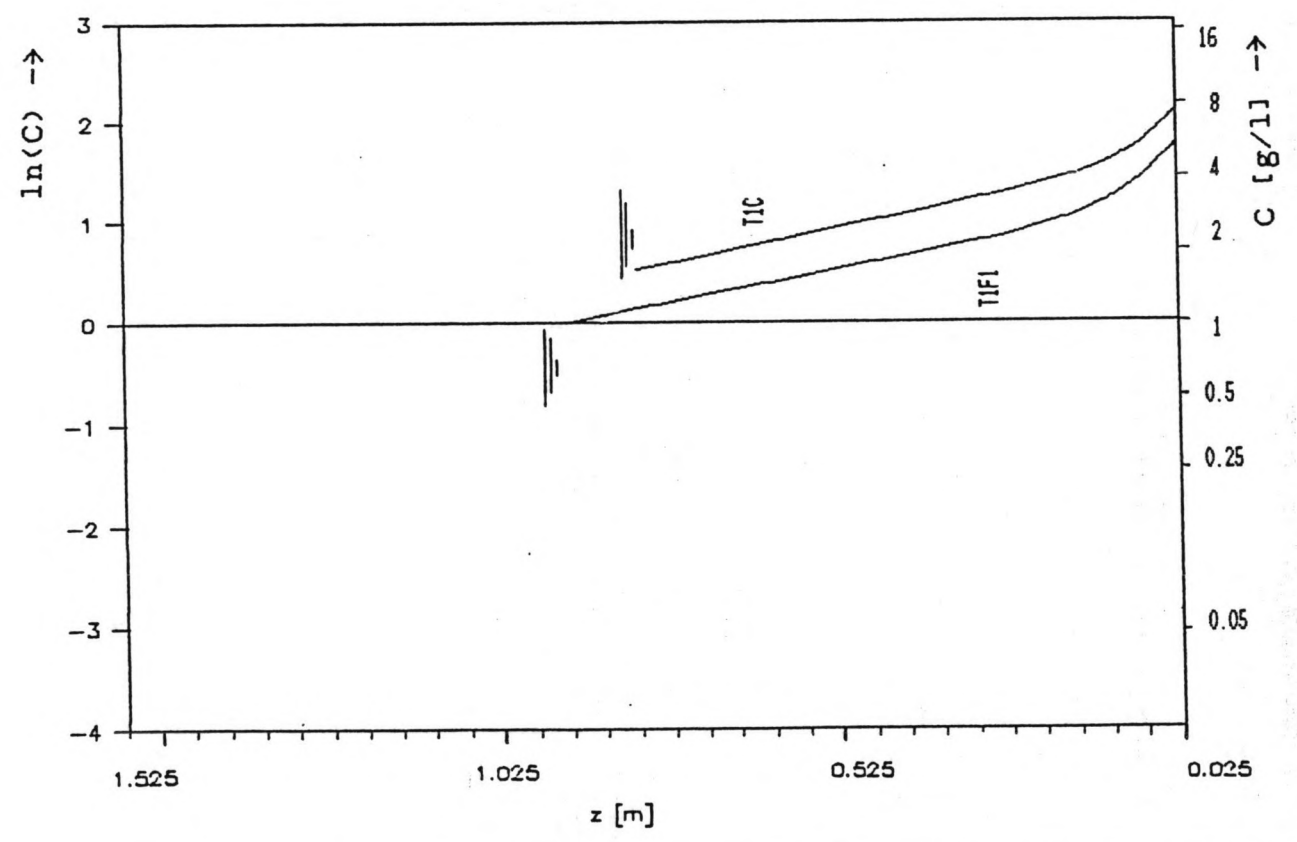
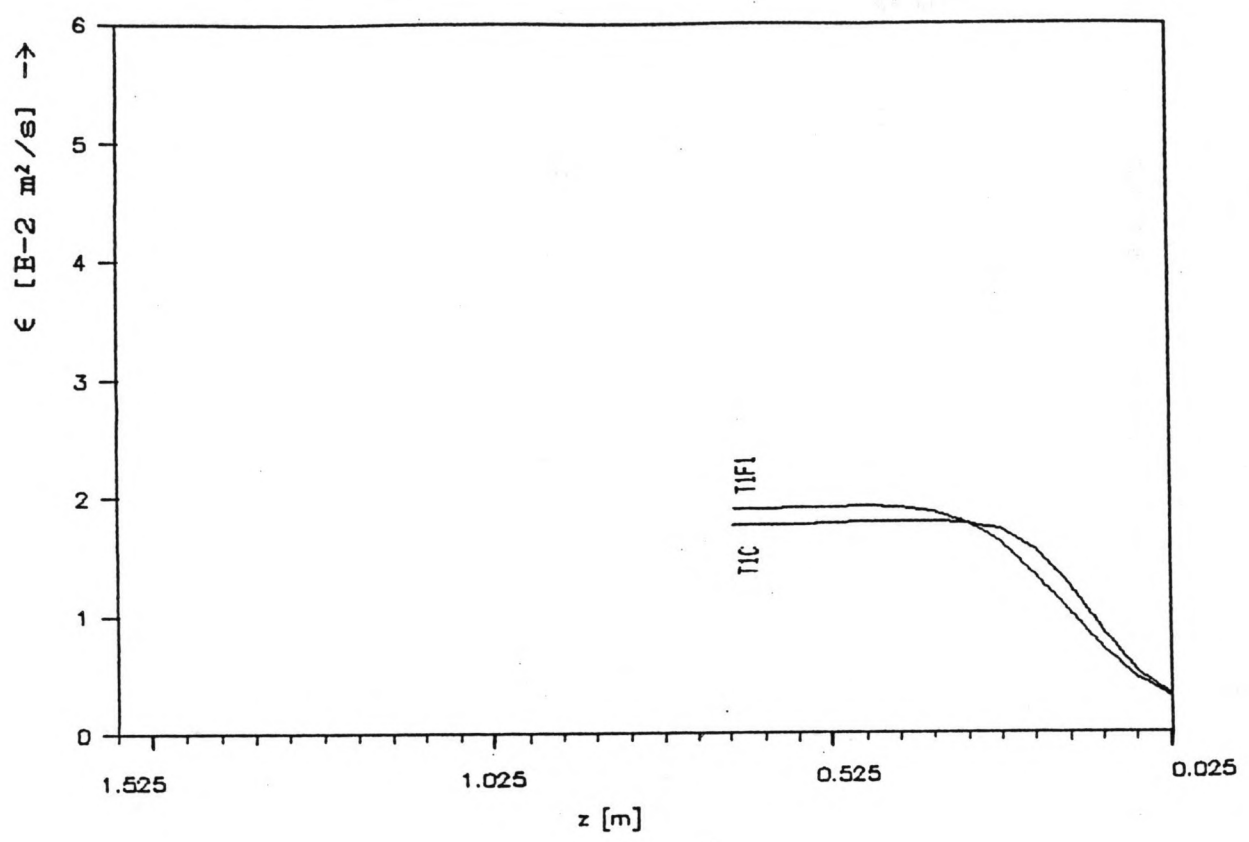
FIG: 4.25

T2F1 T3H3 T314 T2G4



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

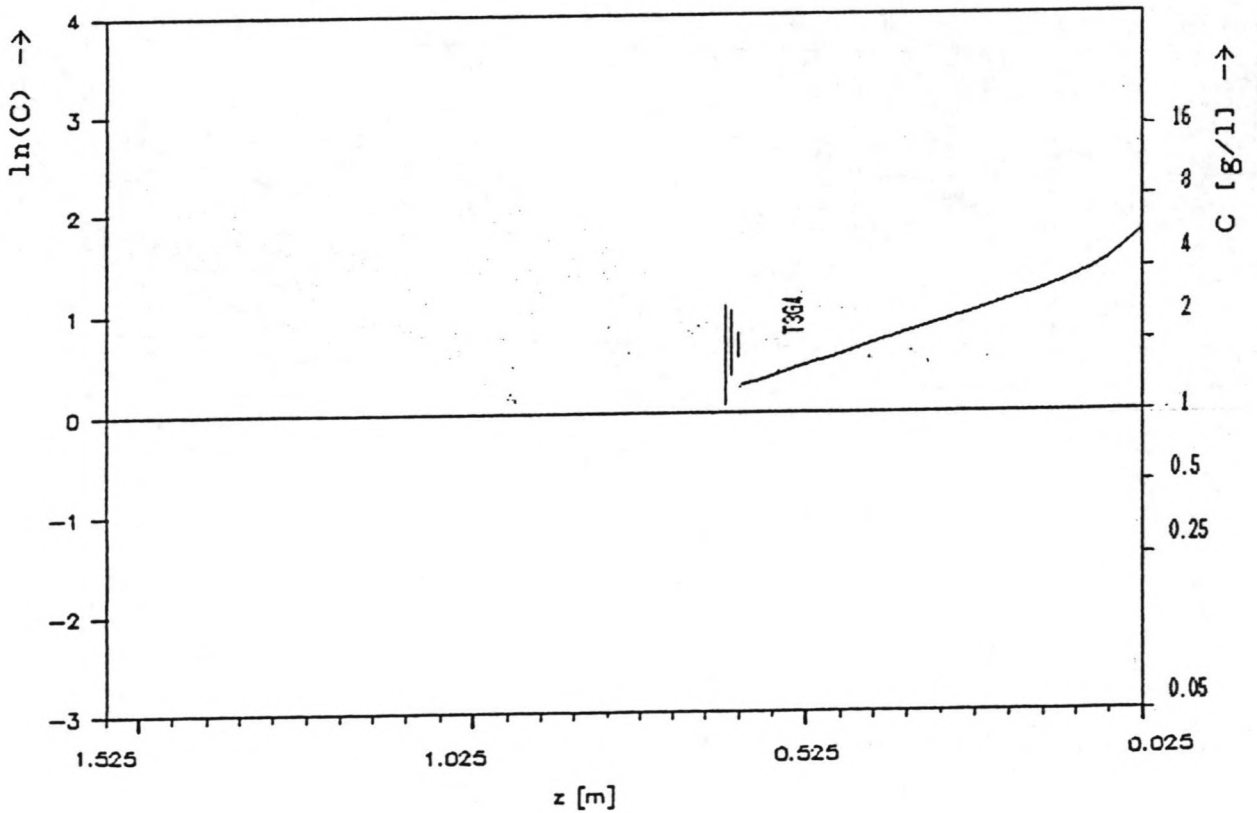
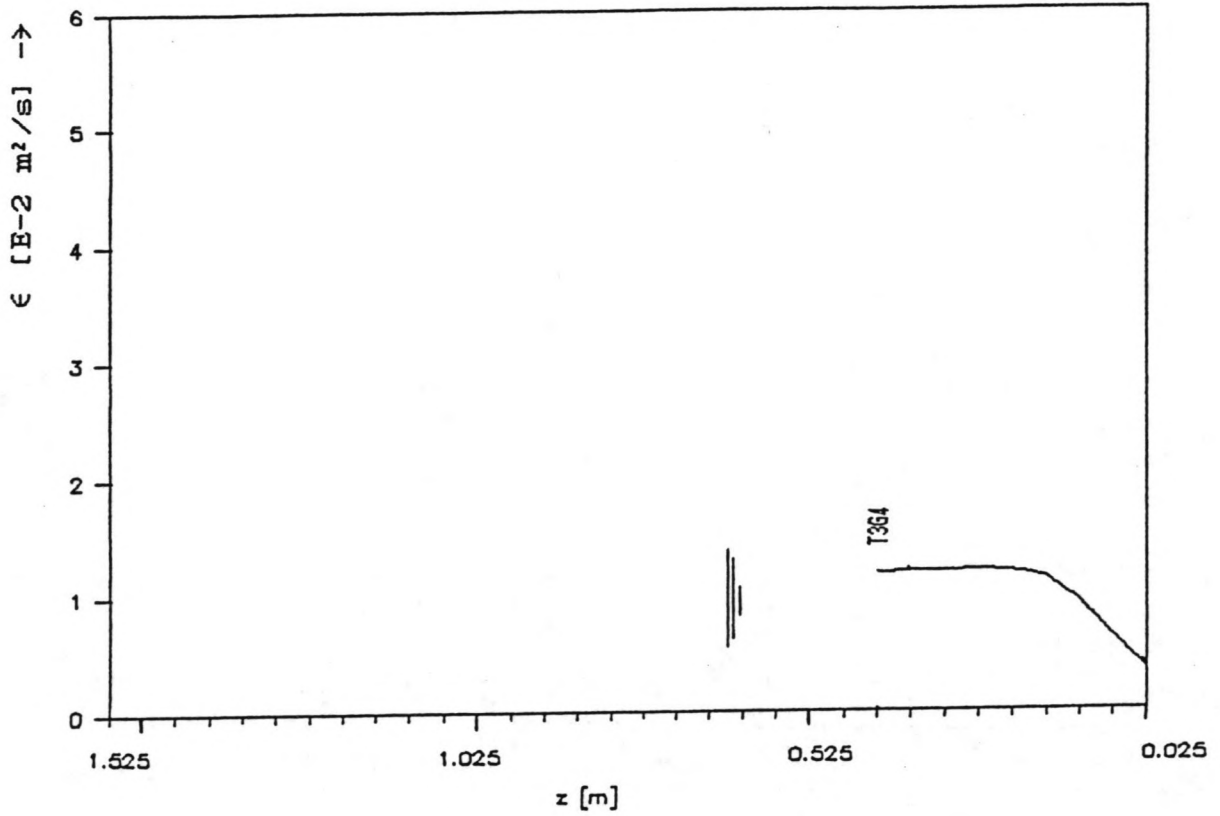
T1C T1F1



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE



T3G4

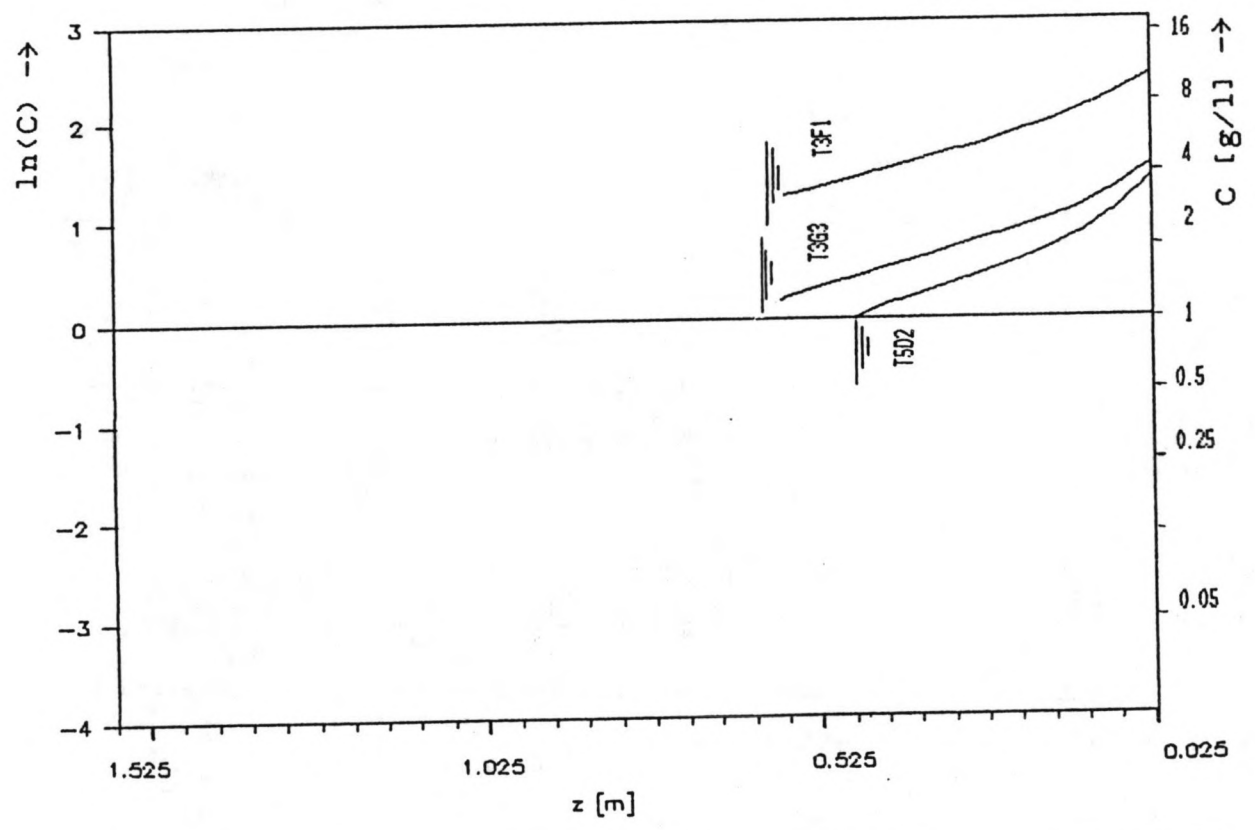
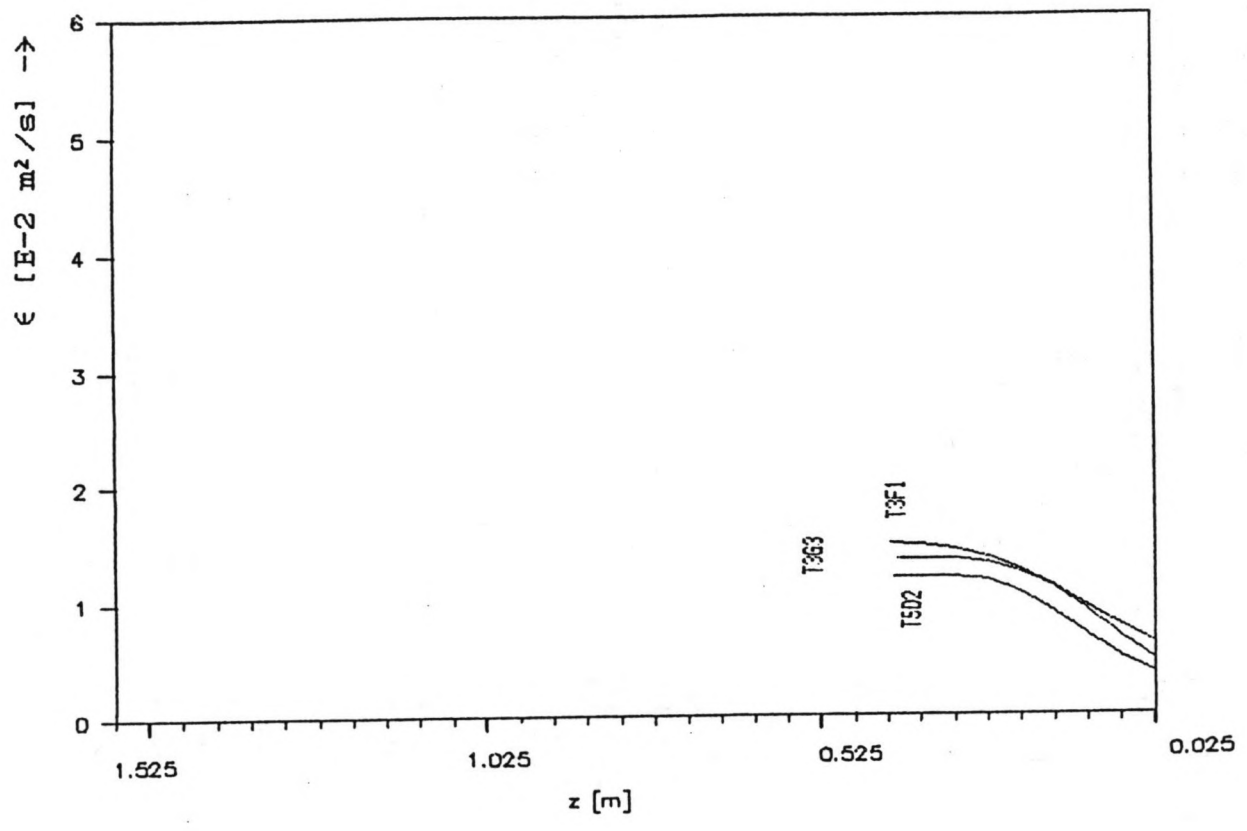


C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

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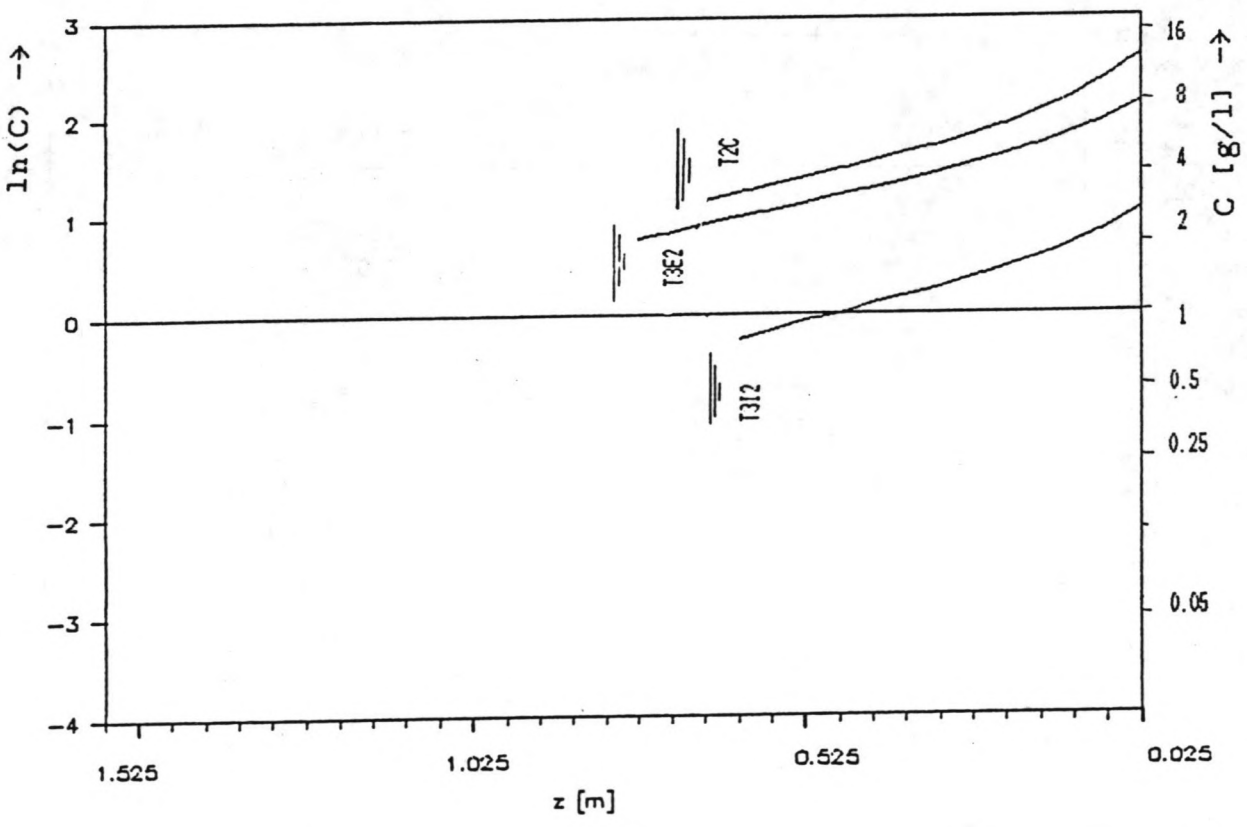
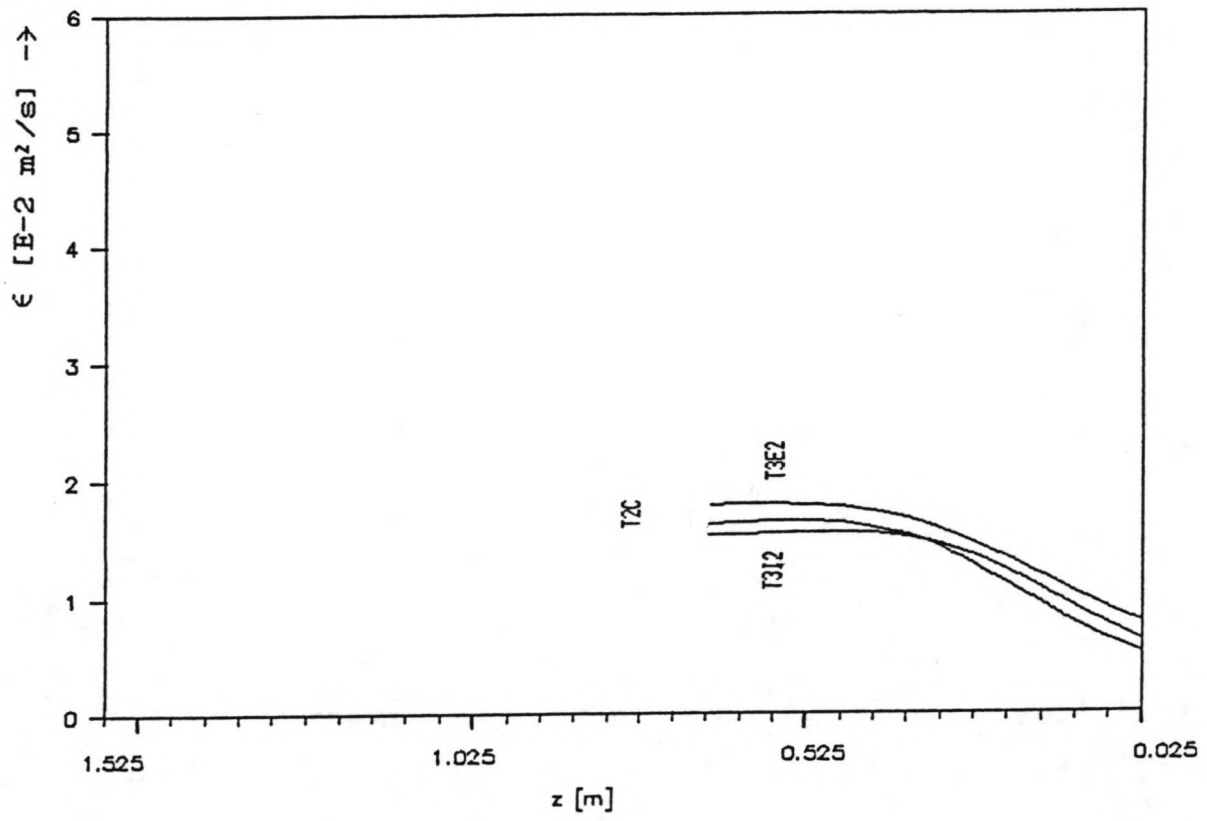
FIG: 4.28

T5D2 T3G3 T3F1



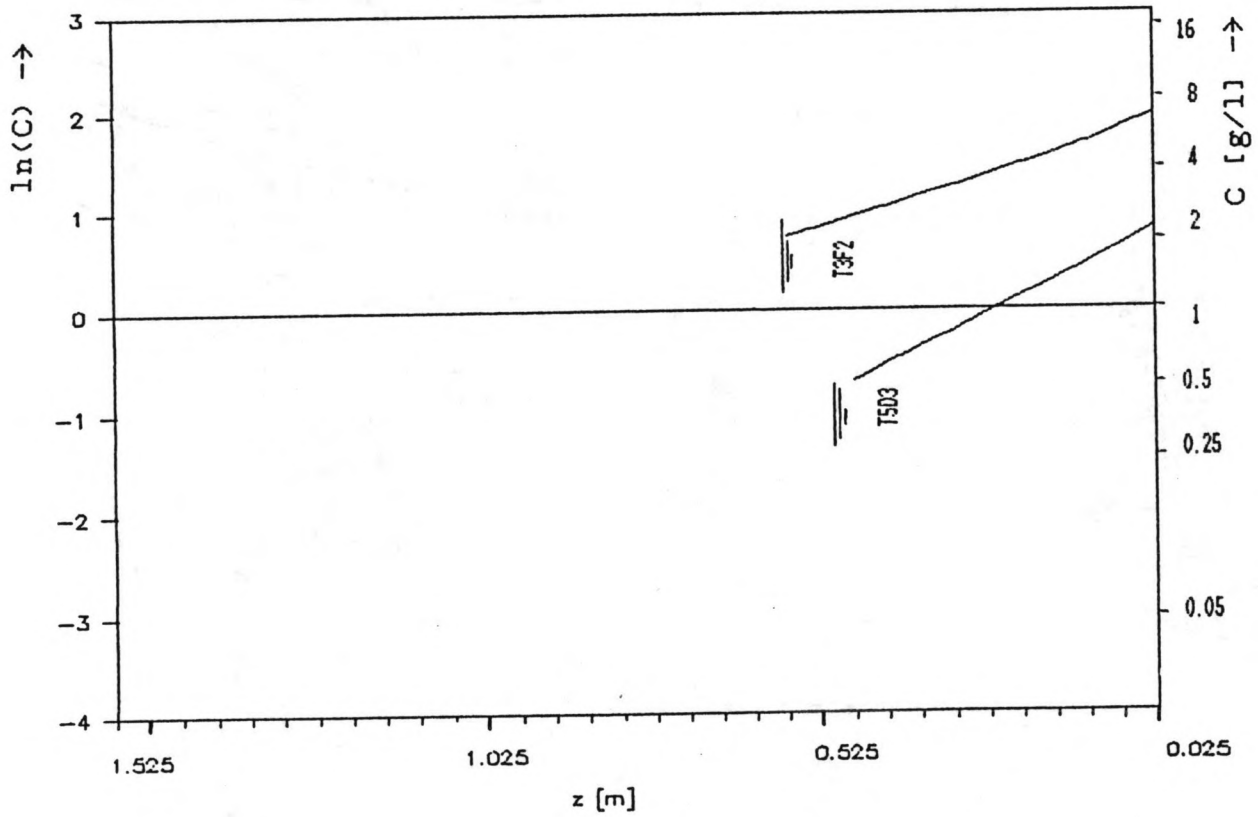
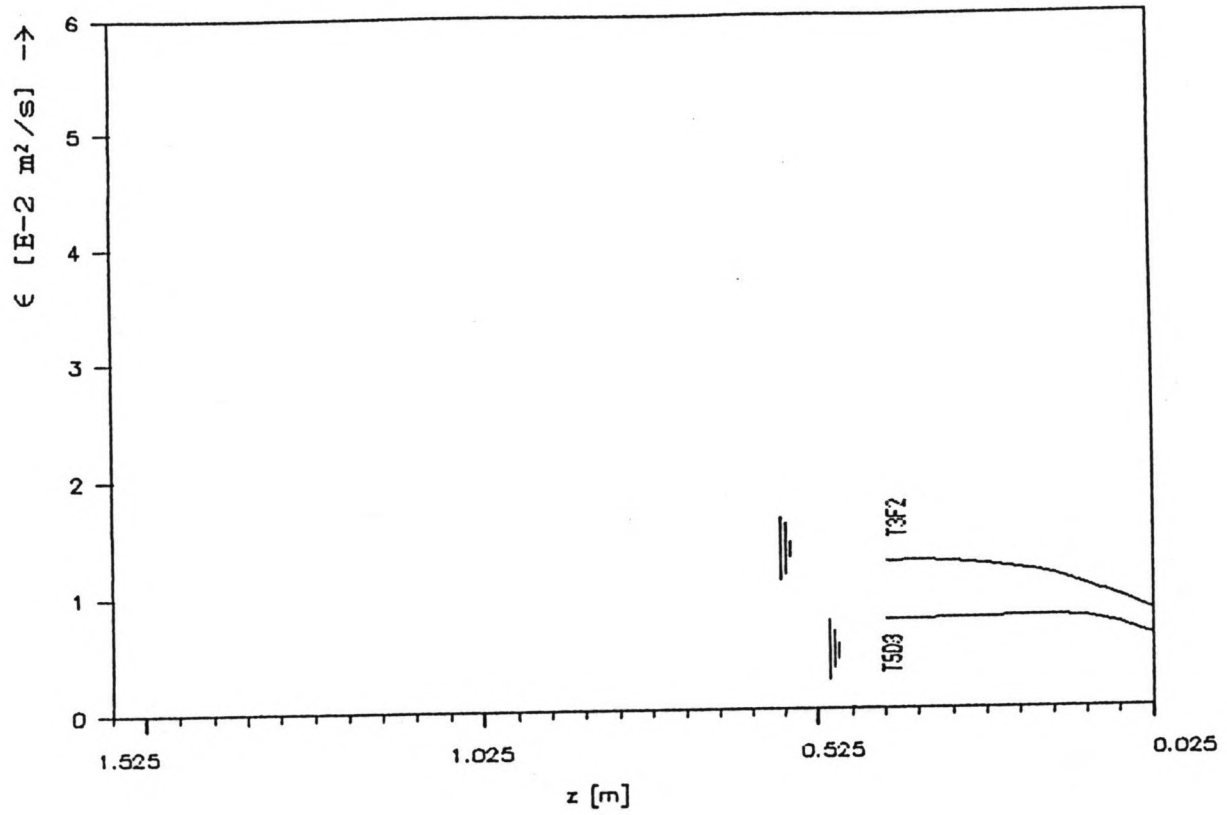
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

T312 T2C T3E2



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

T5D3 T3F2

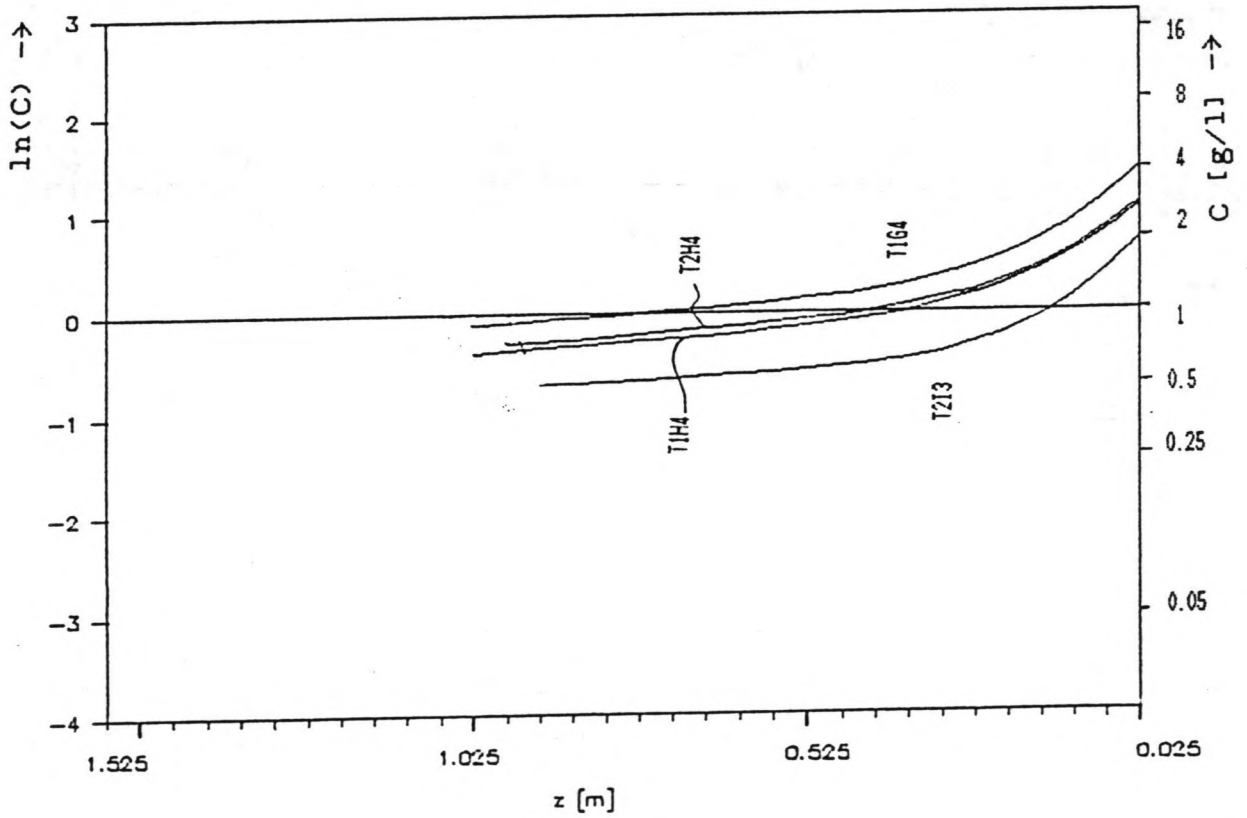
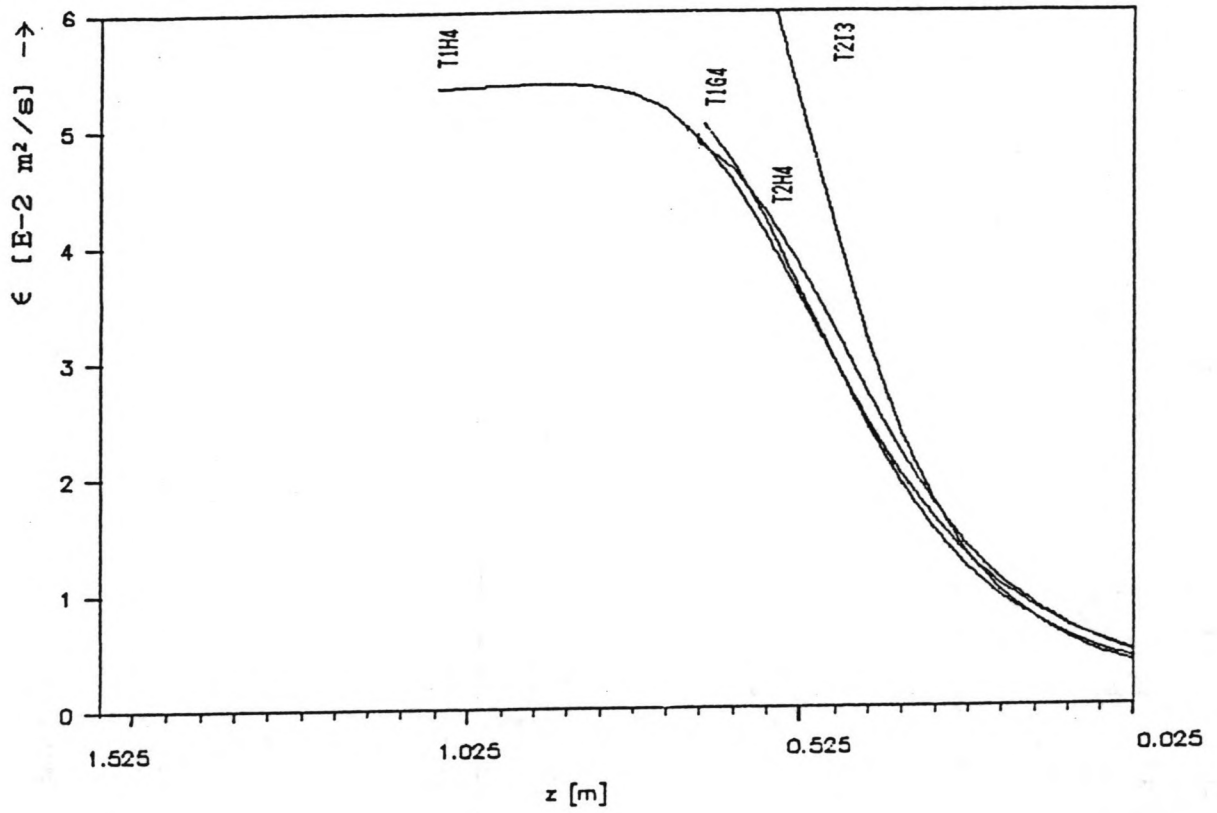


C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

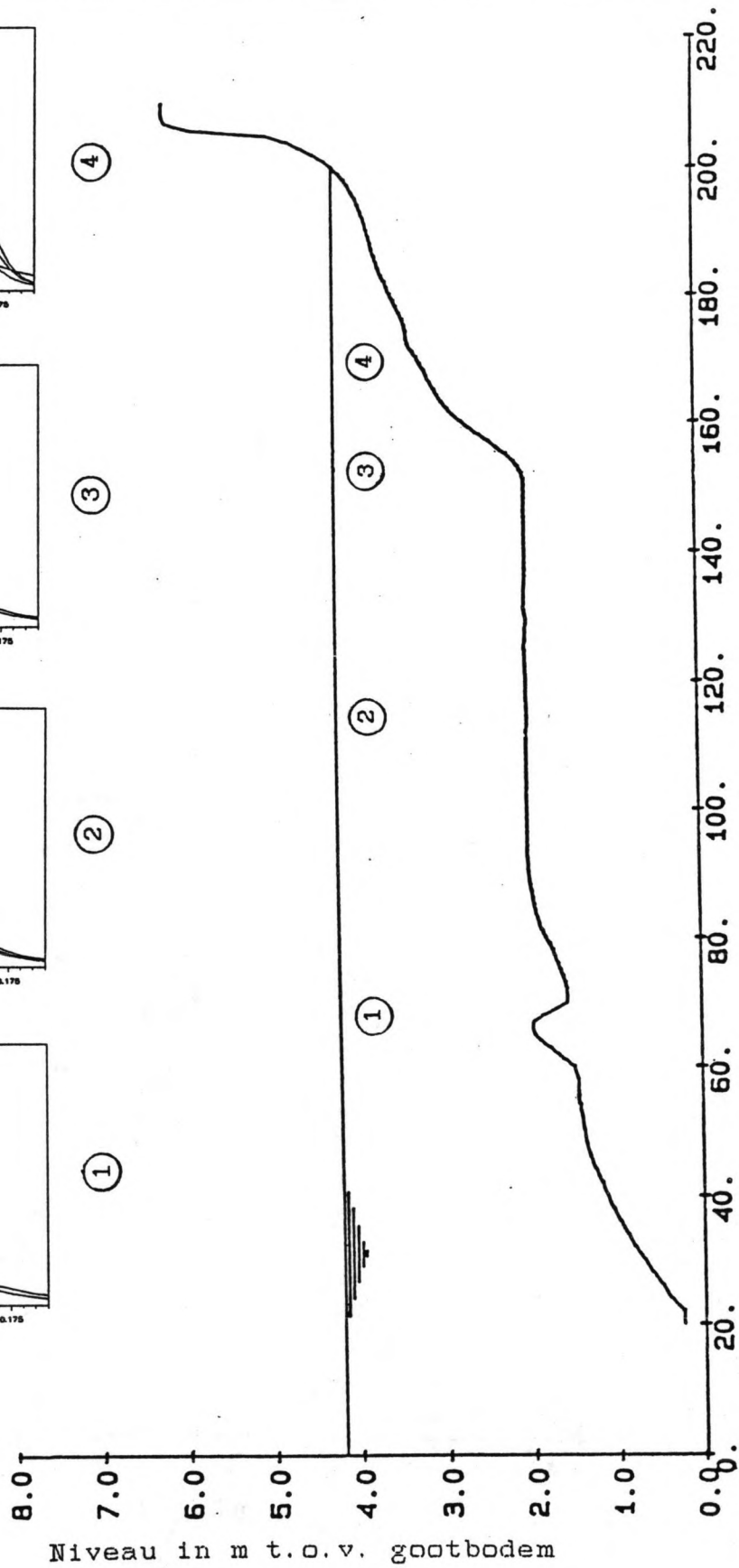
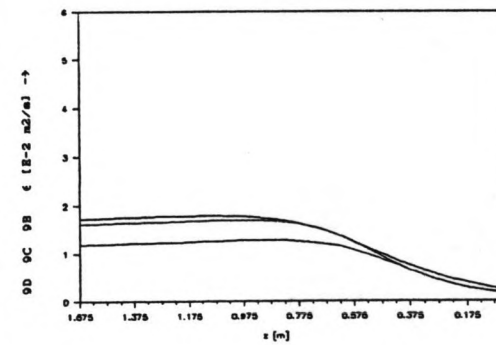
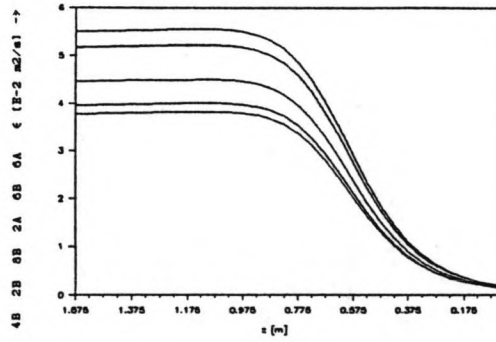
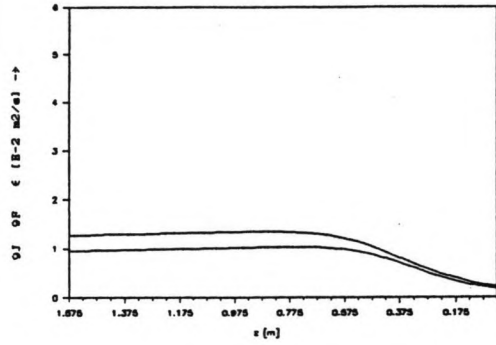
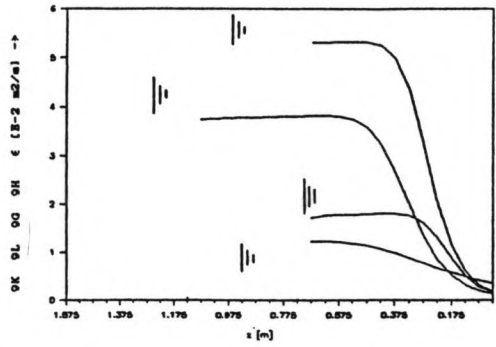
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FIG: 4.31

T2H4 T1H4 T1G4 T2I3



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE



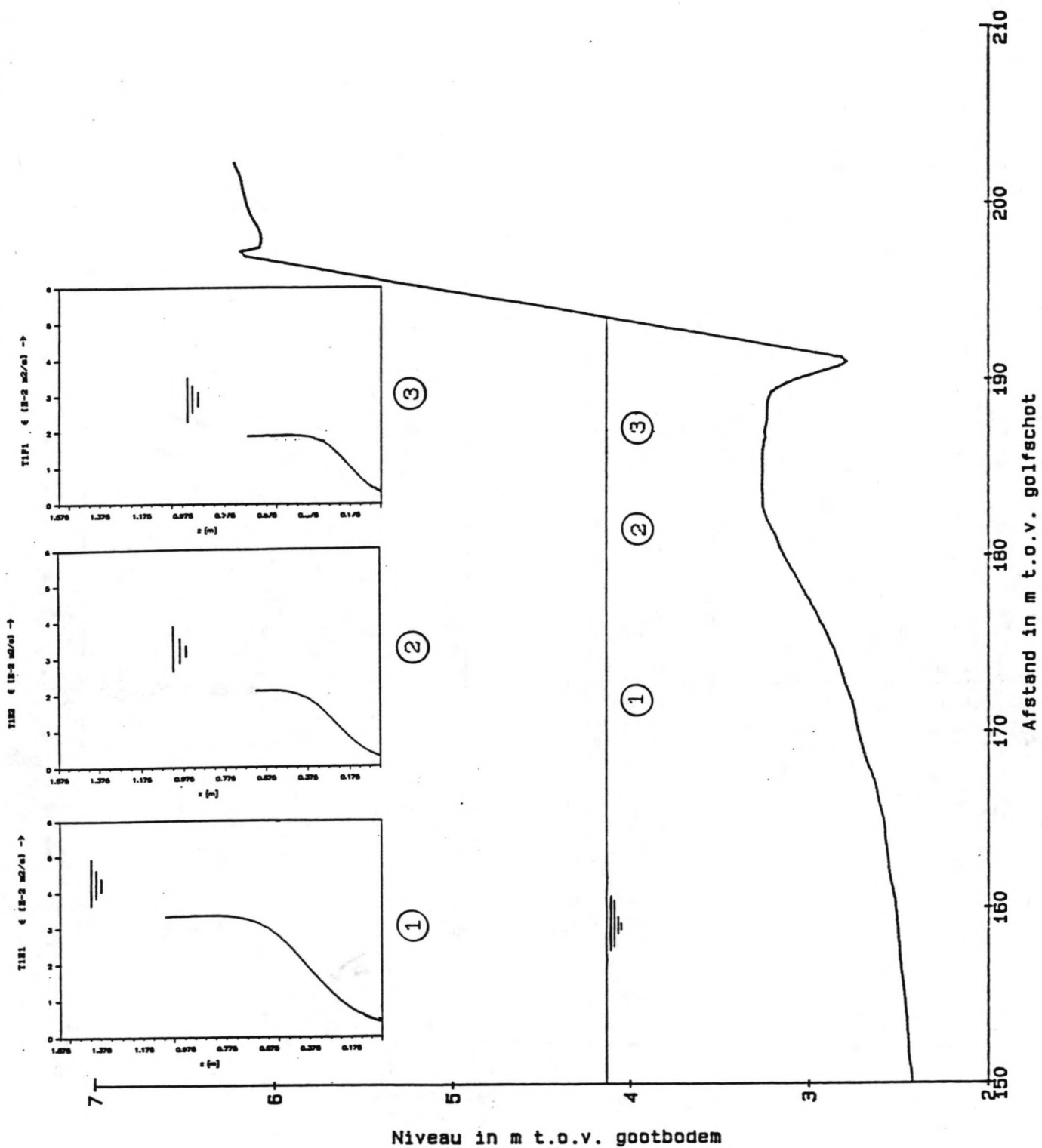
Afstand in m t.o.v. golfschot

ε VERDELINGEN IN LANGSPROFIEL DELTAGOOT

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FIG: 4.33

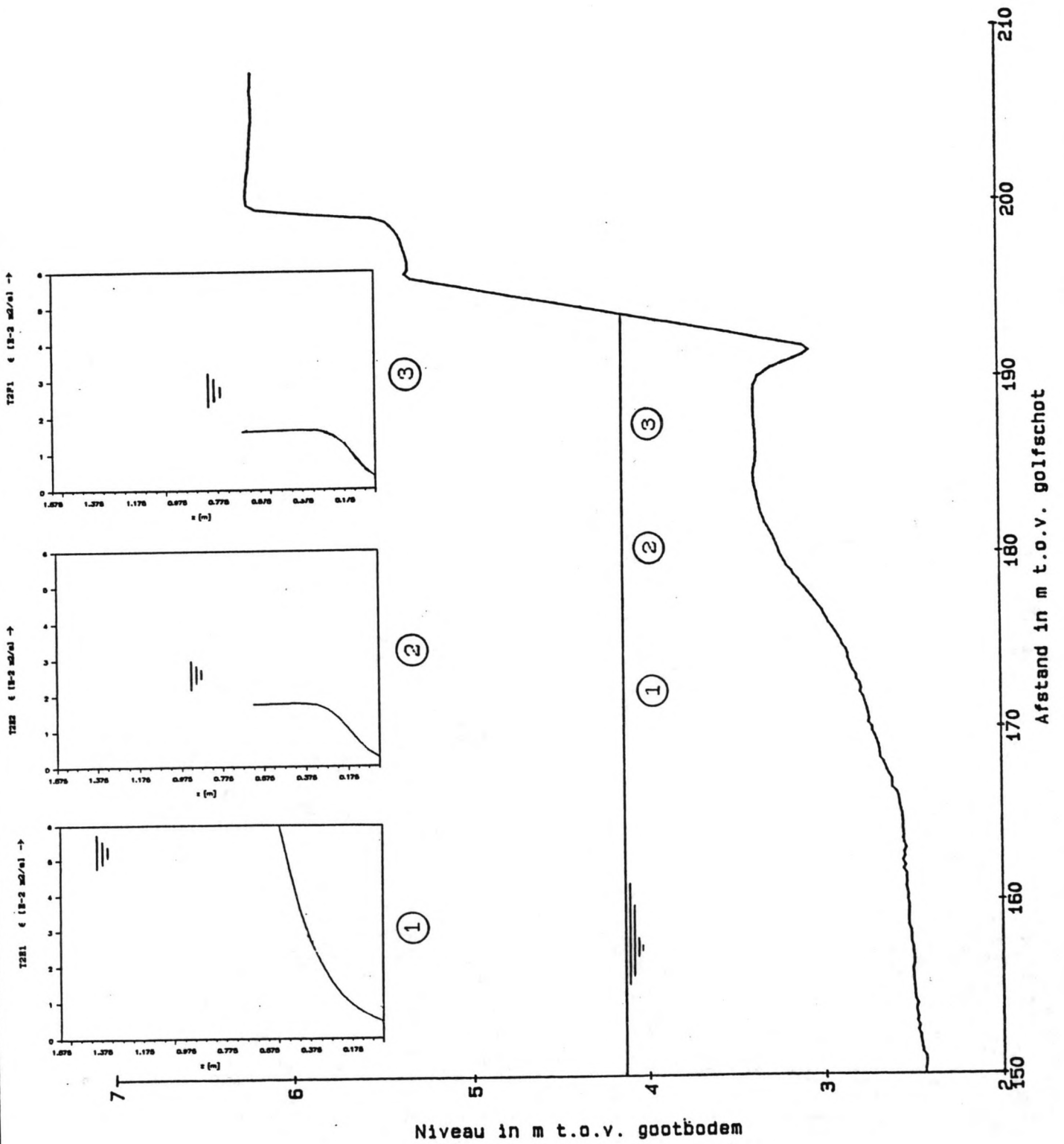


€ VERDELINGEN IN LANGSPROFIEL DELTAGOOT

MEETSERIE II PROEF T1

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FIG: 4.34



€ VERDELINGEN IN LANGSPROFIEL DELTAGOOT

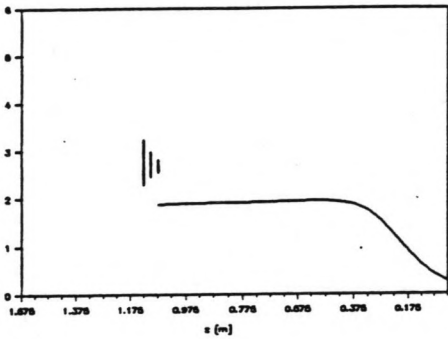
MEETSERIE II PROEF T2

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FIG: 4.35

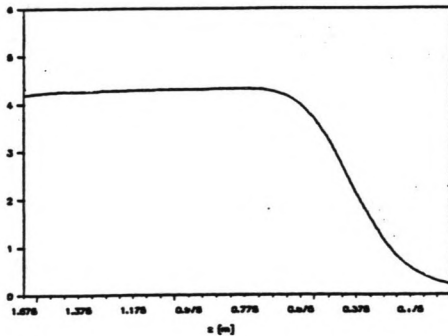


T215  $\epsilon$  (E-2 m/m)  $\rightarrow$

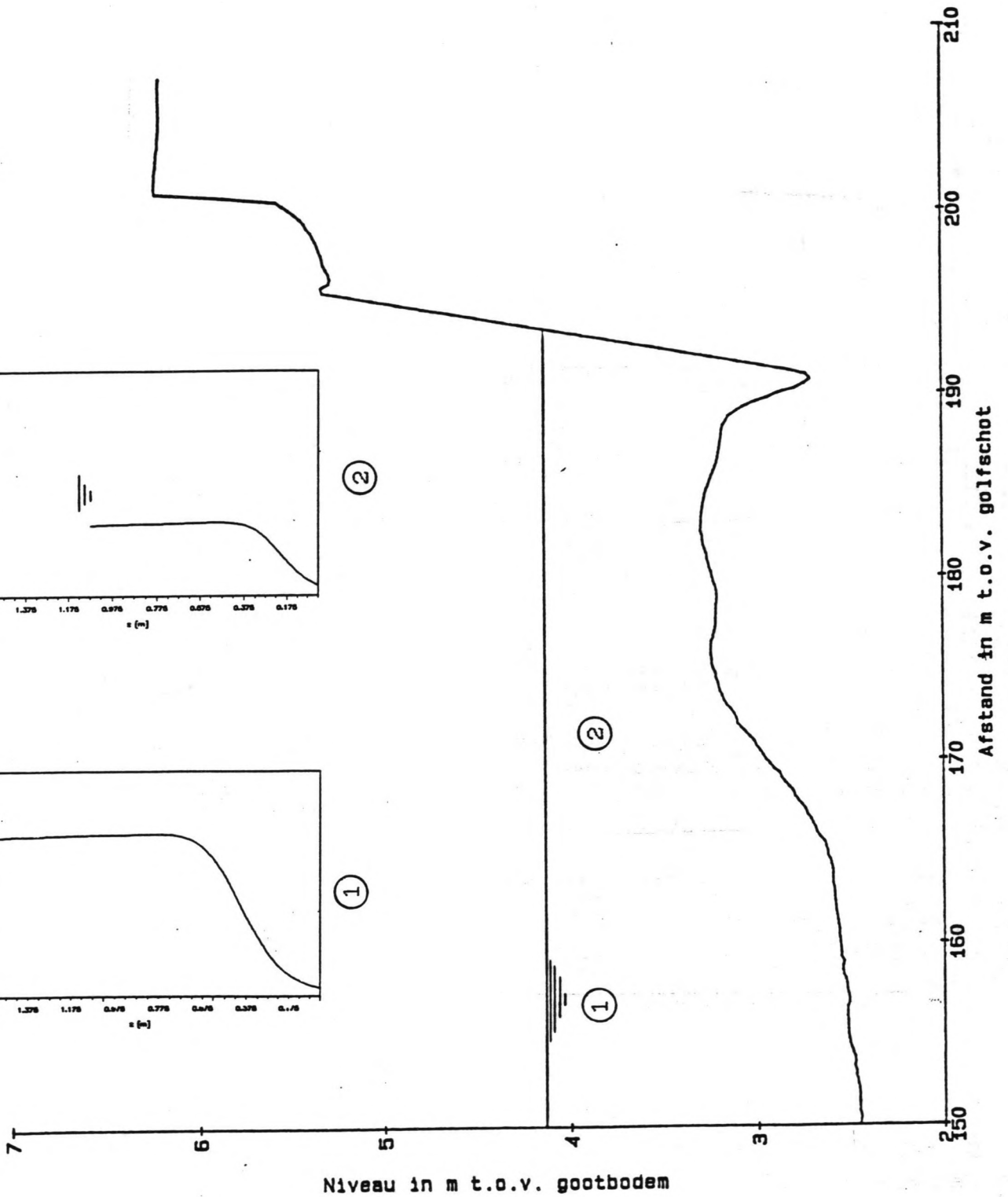


②

T216  $\epsilon$  (E-2 m/m)  $\rightarrow$



①

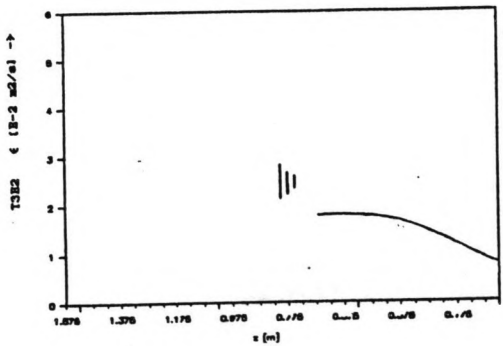


$\epsilon$  VERDELINGEN IN LANGSPROFIEL DELTAGOOT

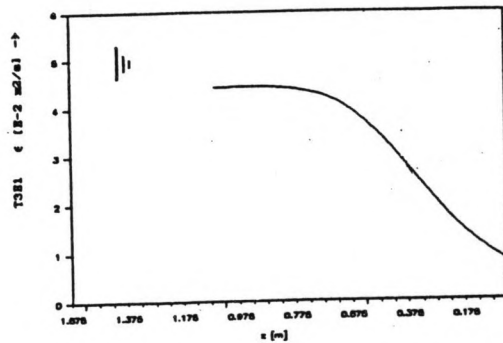
MEETSERIE II PROEF T2

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

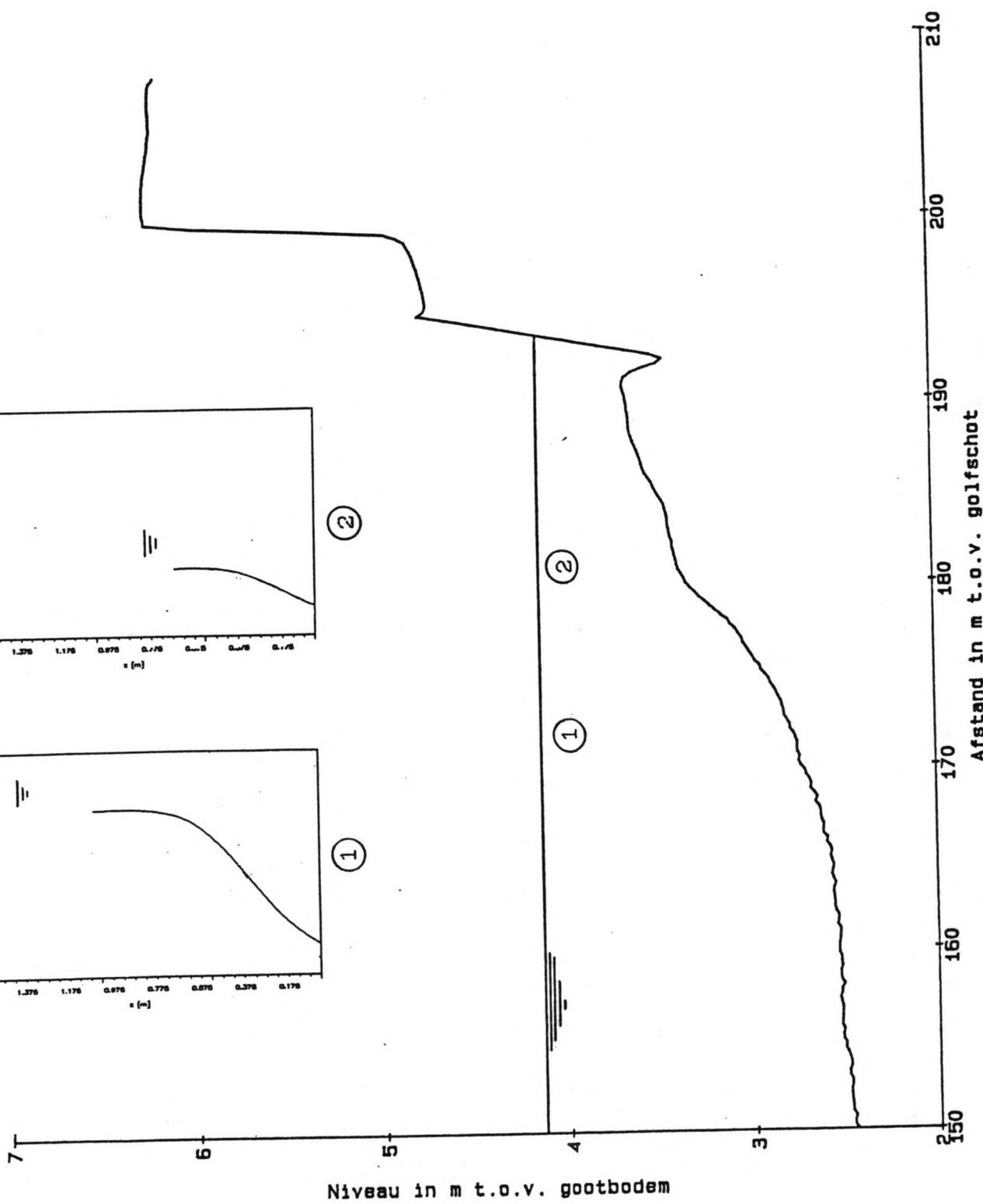
FIG: 4.36



②



①

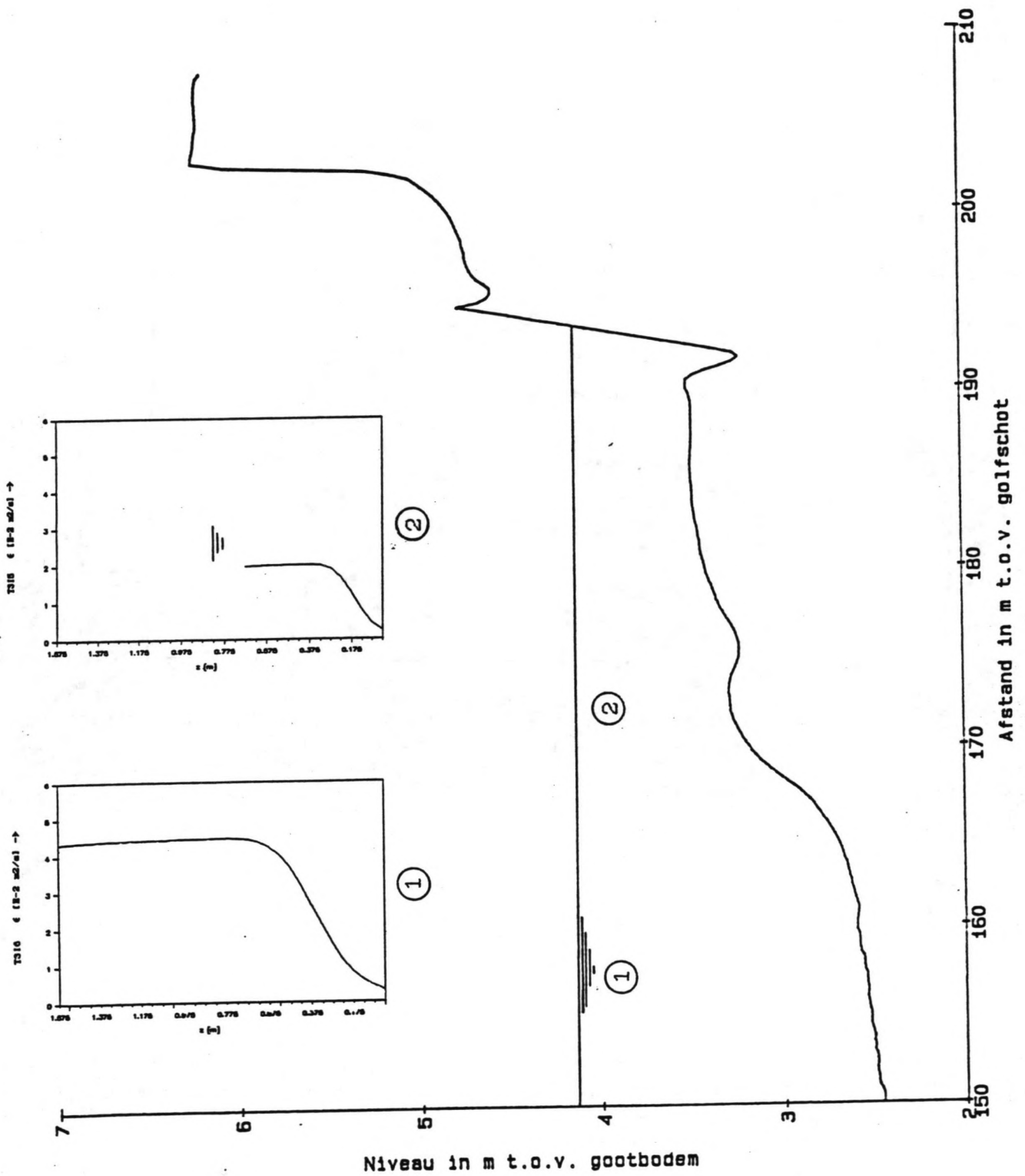


ε VERDELINGEN IN LANGSPROFIEL DELTAGOOT

MEETSERIE II PROEF T3

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.37



€ VERDELINGEN IN LANGSPROFIEL DELTAGOOT

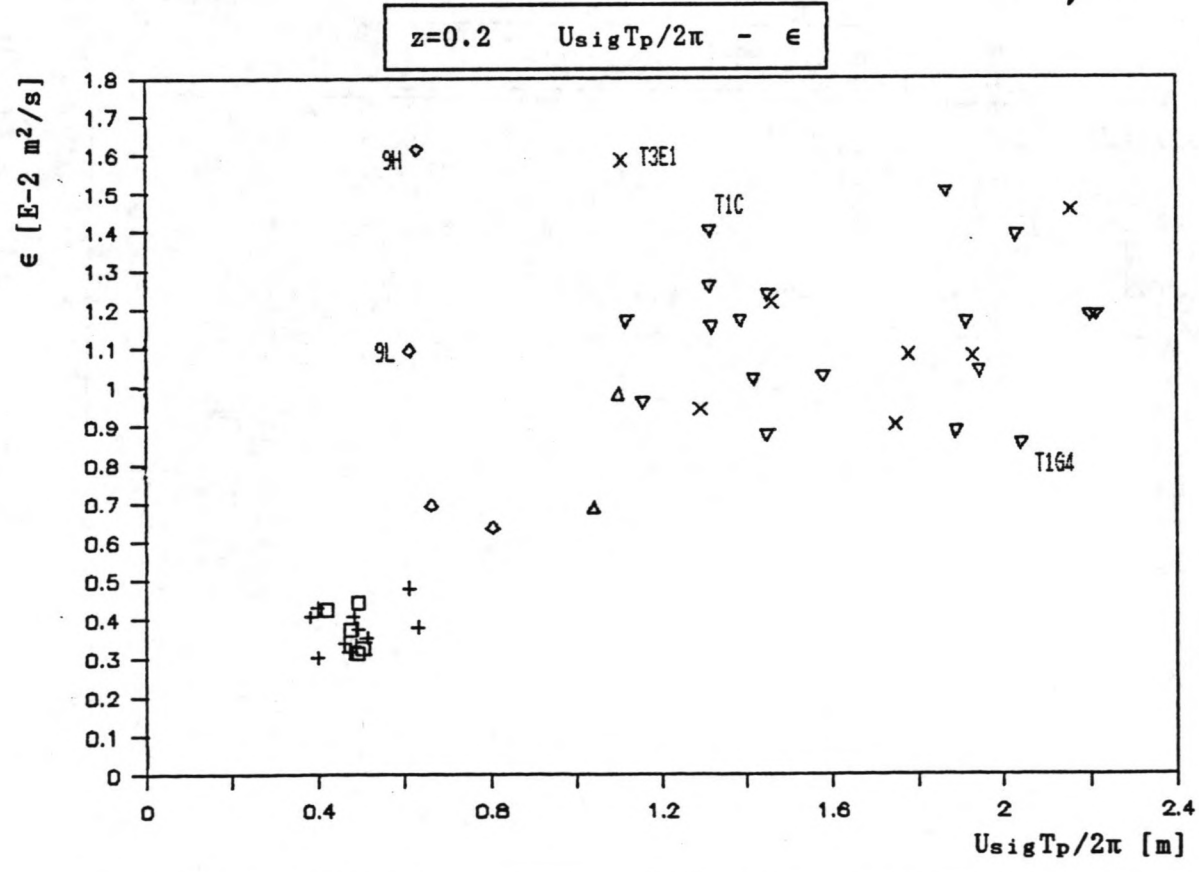
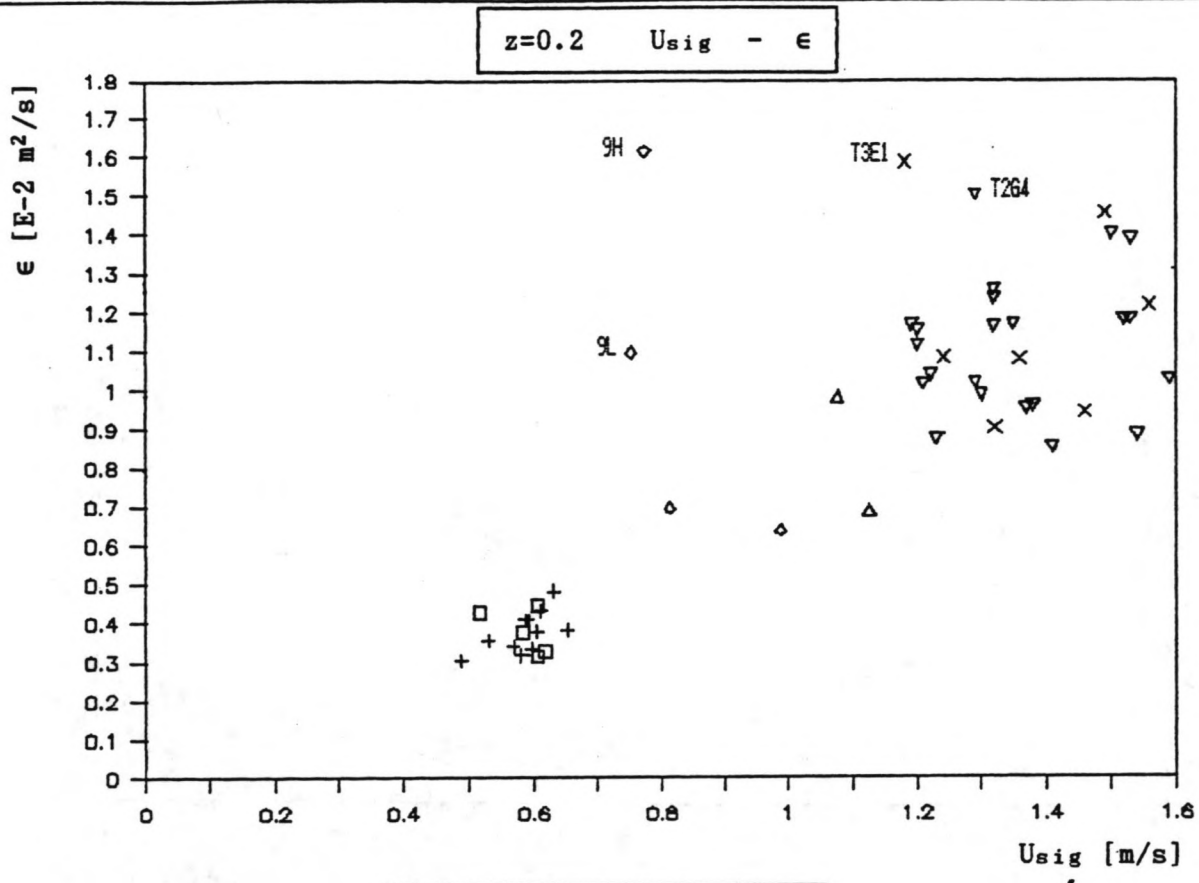
MEETSERIE II PROEF T3

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FIG: 4.38

+	geen breken, geen bodemhelling
□	geen breken, met bodemhelling
◇	brekerzone
△	vooroever
X	talud zandbank
▽	zandbank

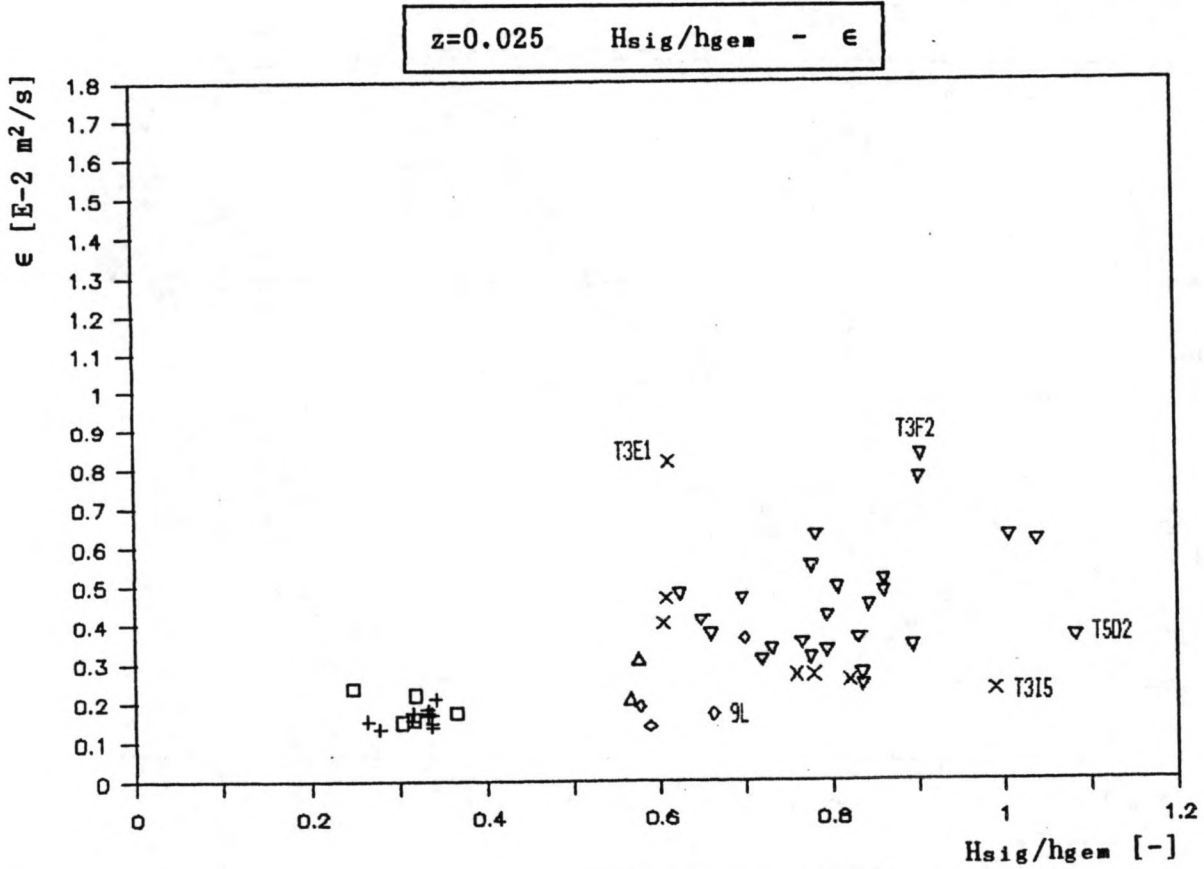
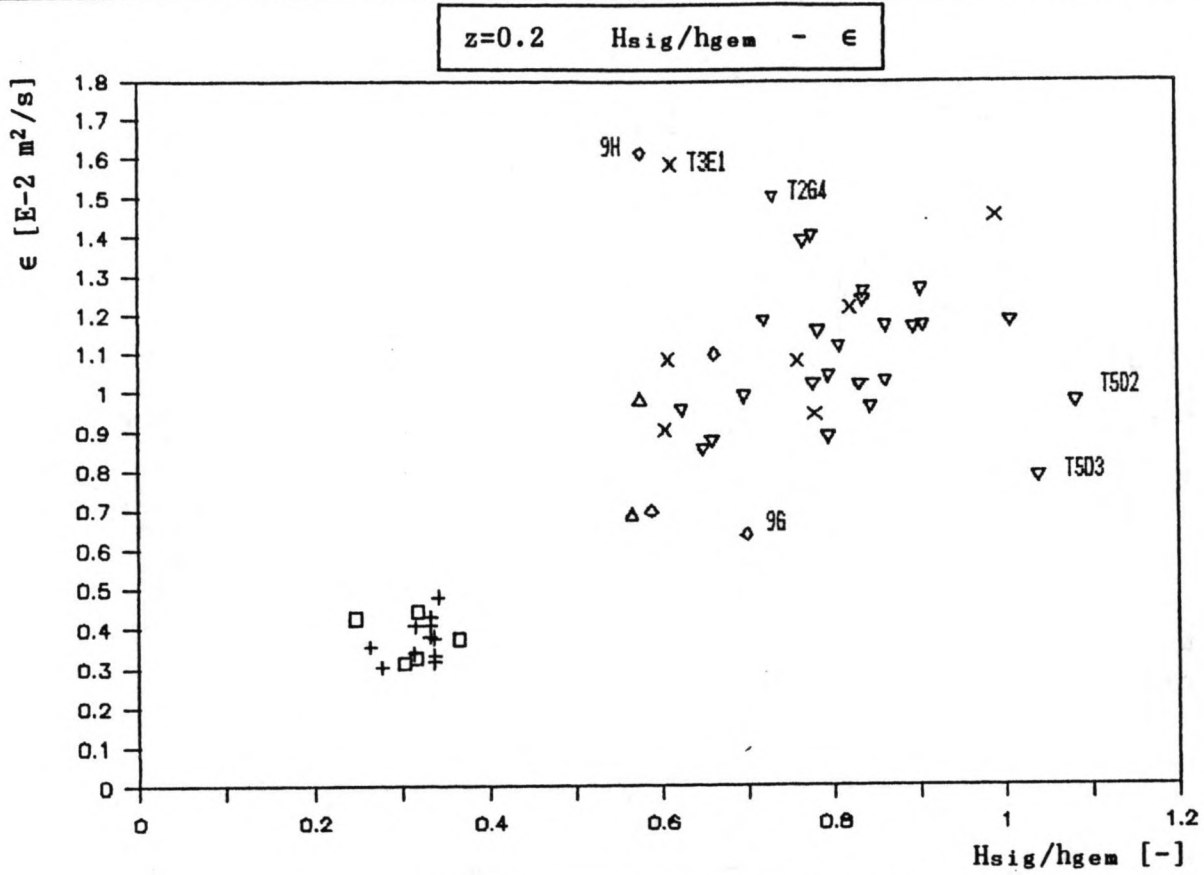
Legenda behorende bij de figuren  
4.39 t/m 4.45 en 4.47.



AFHANKELIJKHEID  $\epsilon$  WAARDEN

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FIG: 4.39

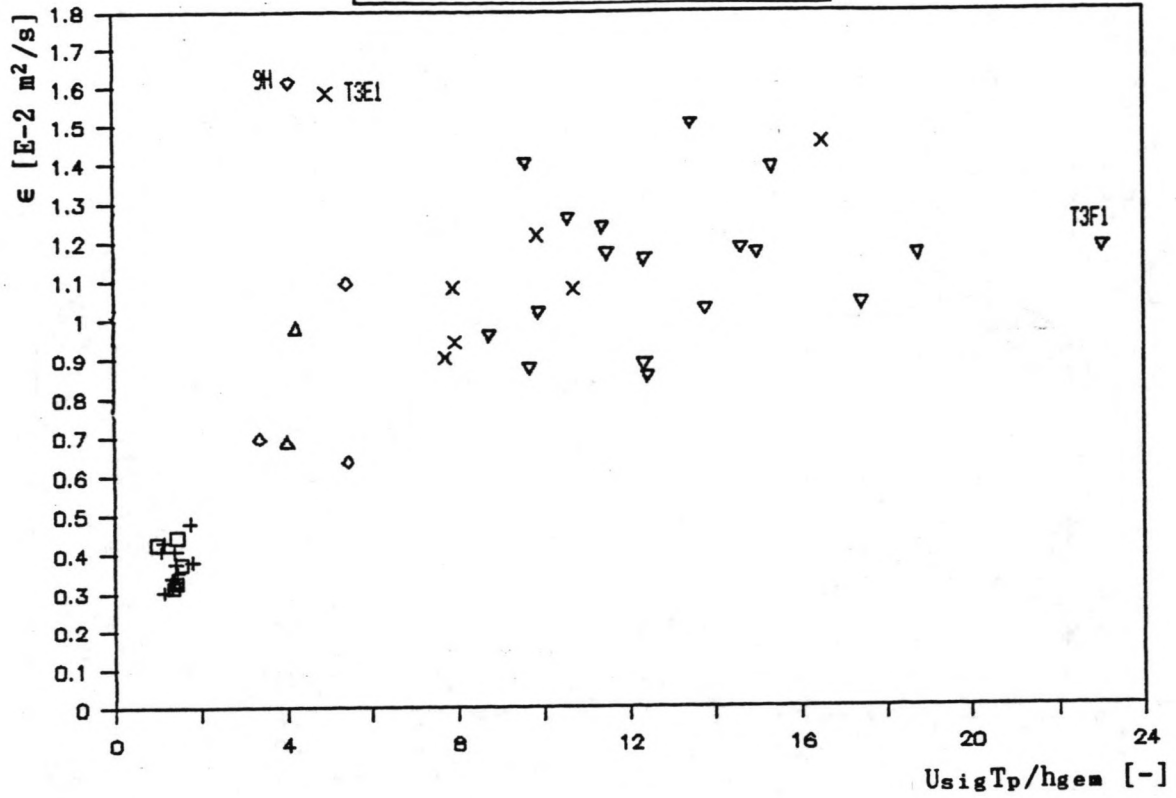


AFHANKELIJKHEID  $\epsilon$  WAARDEN

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FIG: 4.40

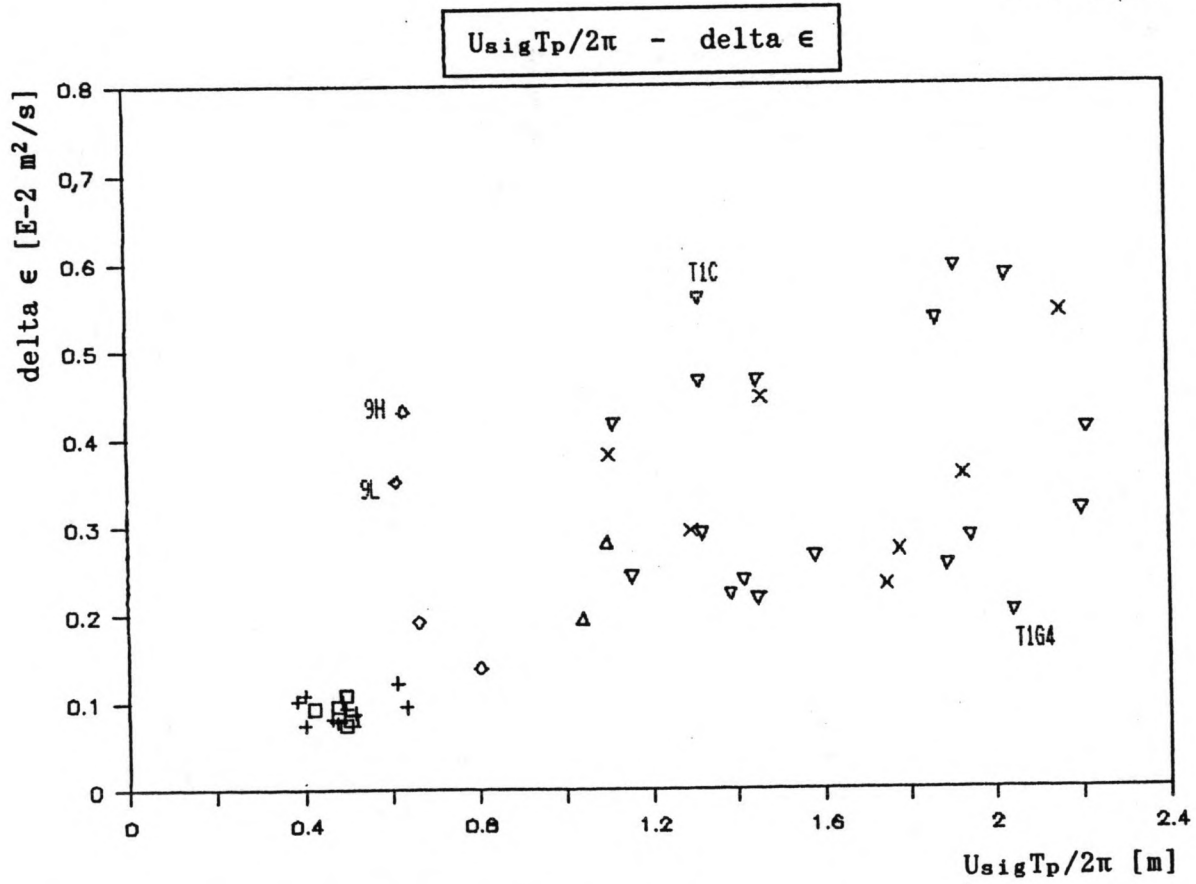
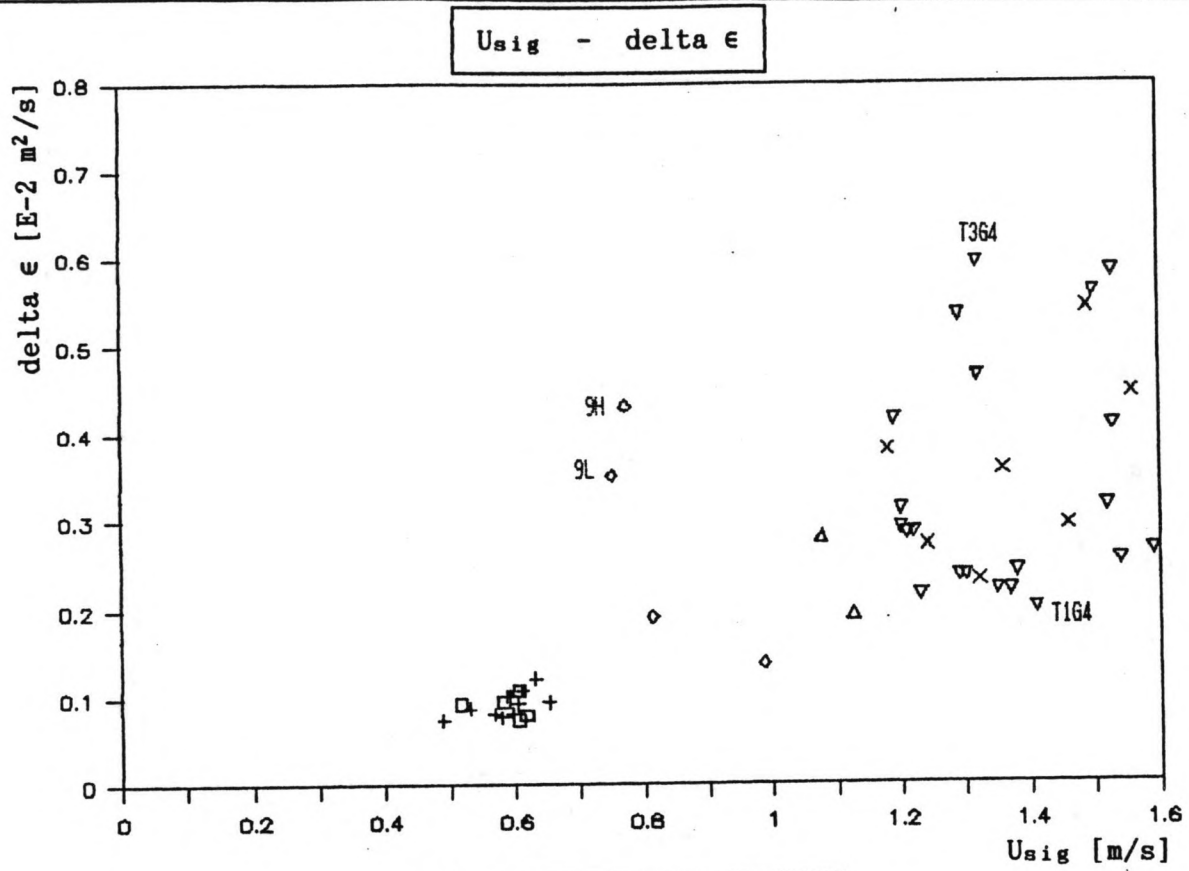
$z=0.2$   $U_{sigTp}/h_{gem} - \epsilon$



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FIG: 4.41

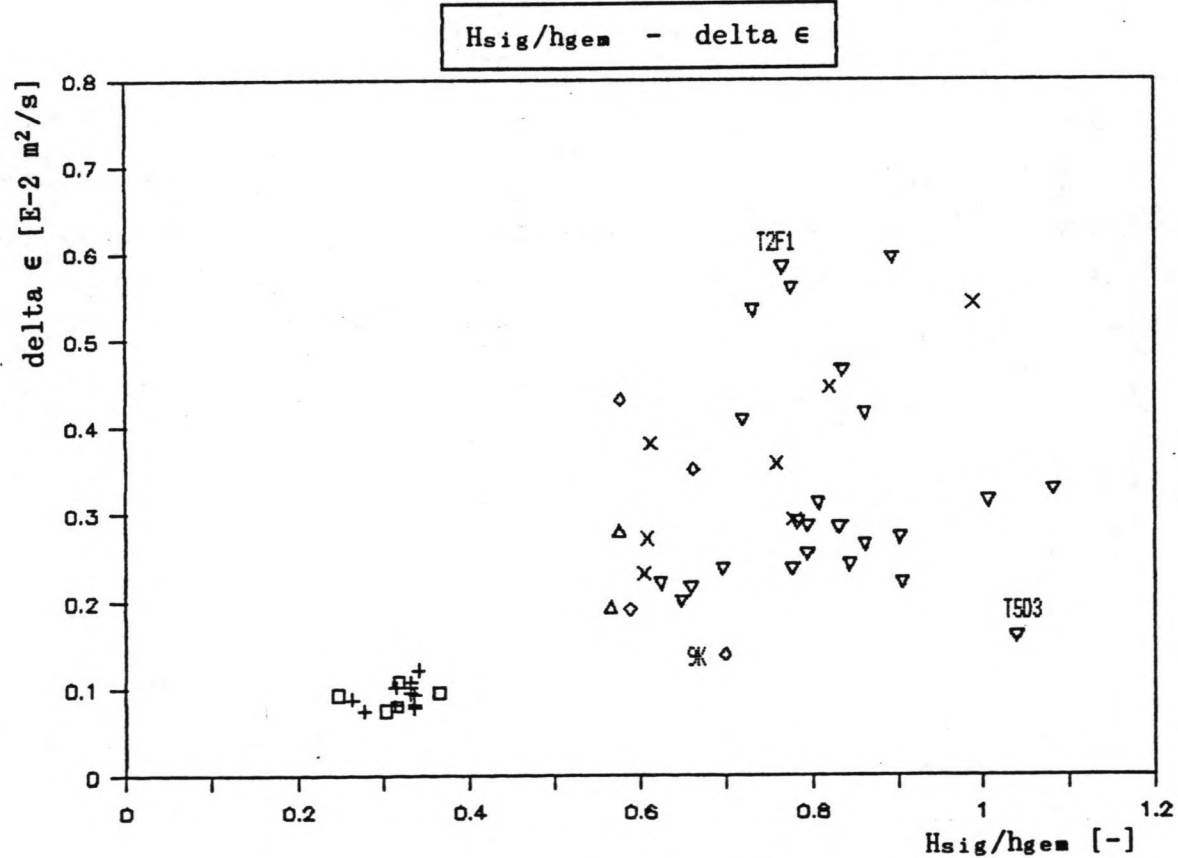
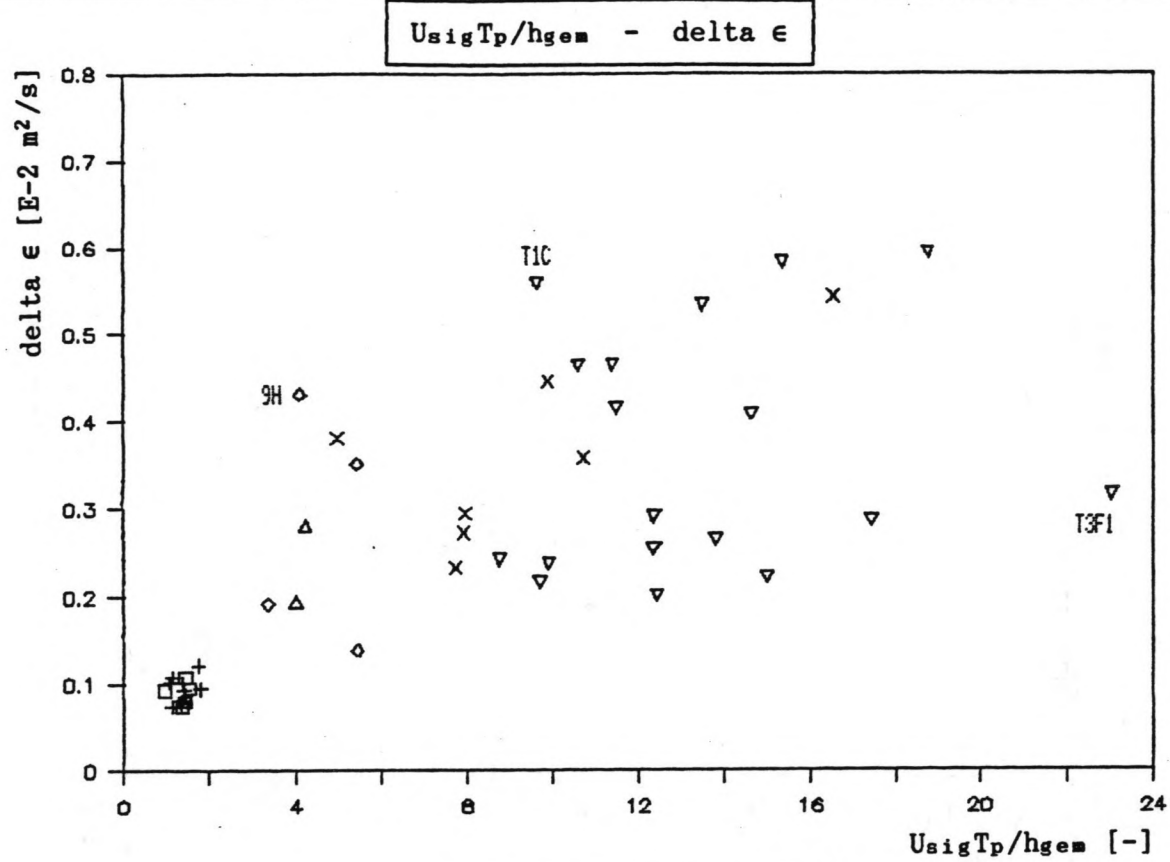


AFHANKELIJKHEID DELTA ε WAARDEN

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FIG: 4.42



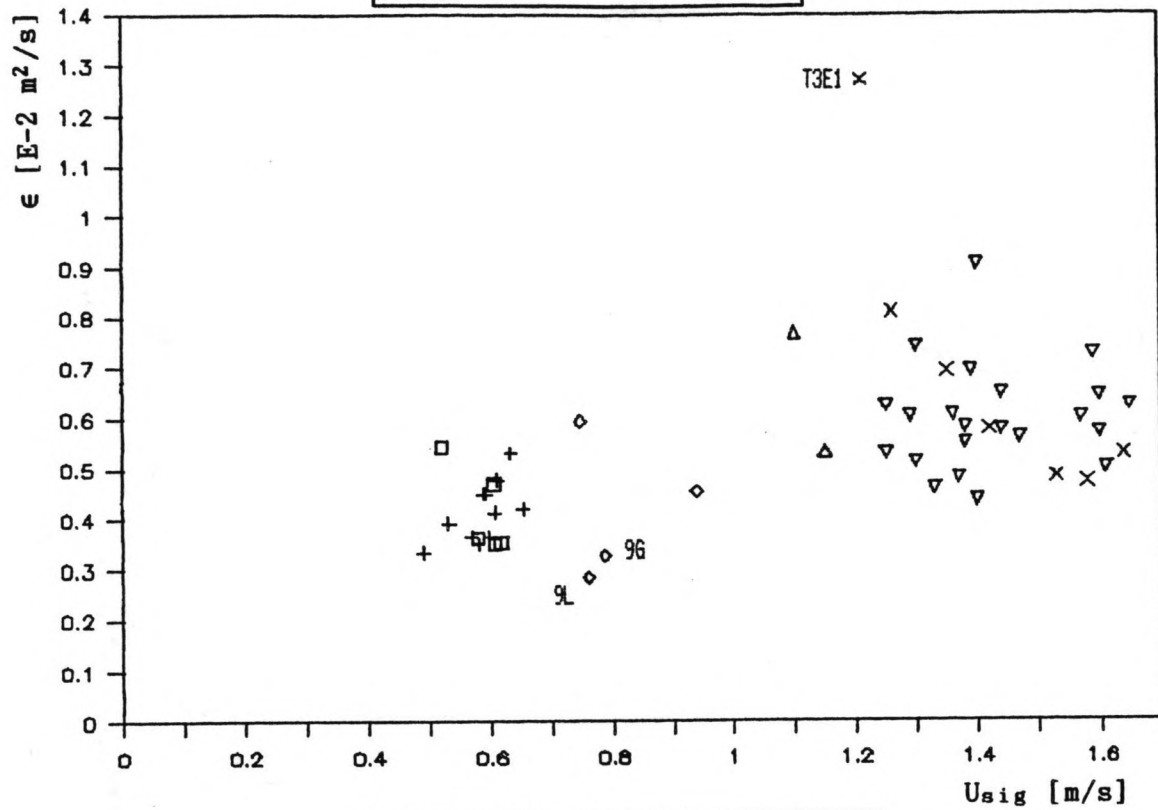


AFHANKELIJKHEID DELTA ε WAARDEN

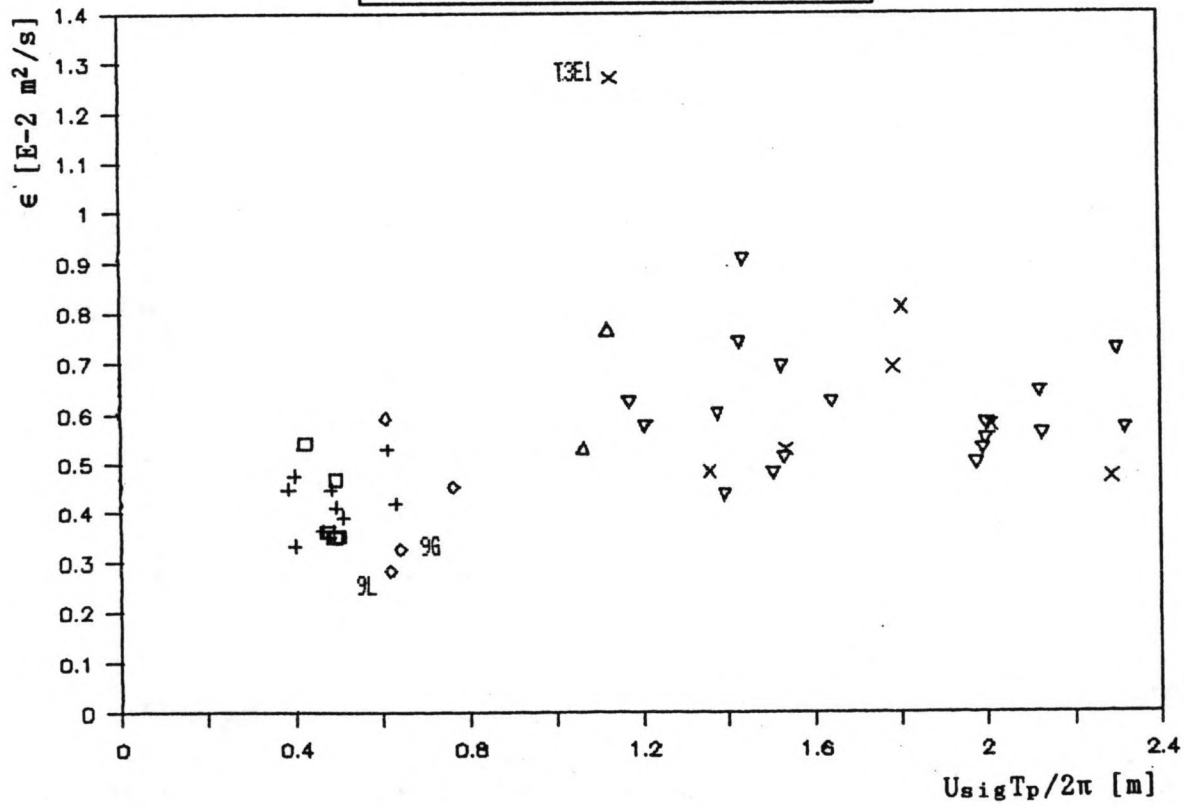
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FIG: 4.43

$$z=h_{gem}/10 \quad U_{sig} - \epsilon$$



$$z=h_{gem}/10 \quad U_{sig}T_p/2\pi - \epsilon$$

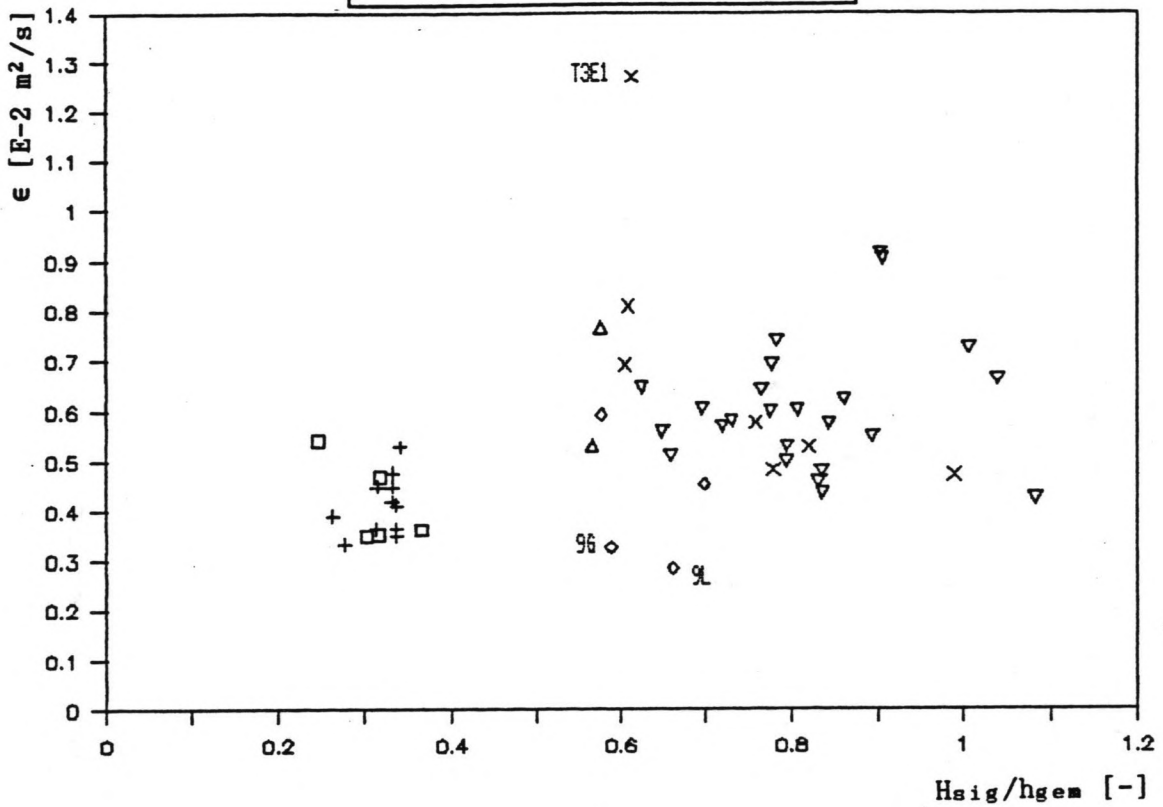


AFHANKELIJKHEID  $\epsilon$  WAARDEN

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FIG: 4.44

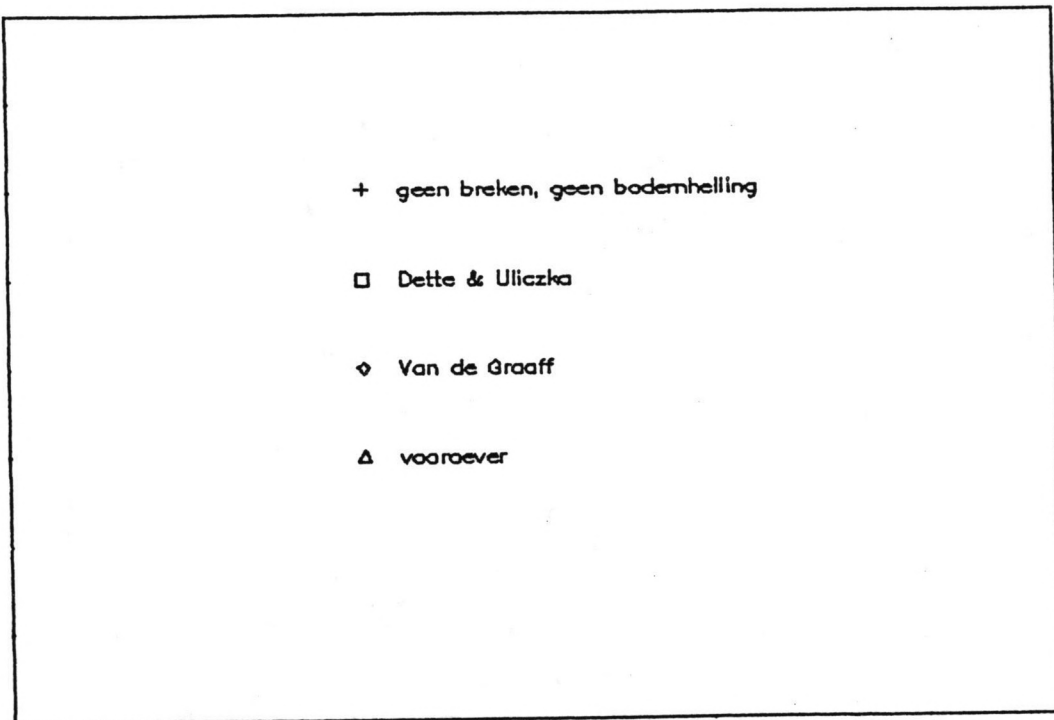
$$z = h_{gen}/10 \quad H_{sig}/h_{gen} - \epsilon$$



AFHANKELIJKHEID  $\epsilon$  WAARDEN

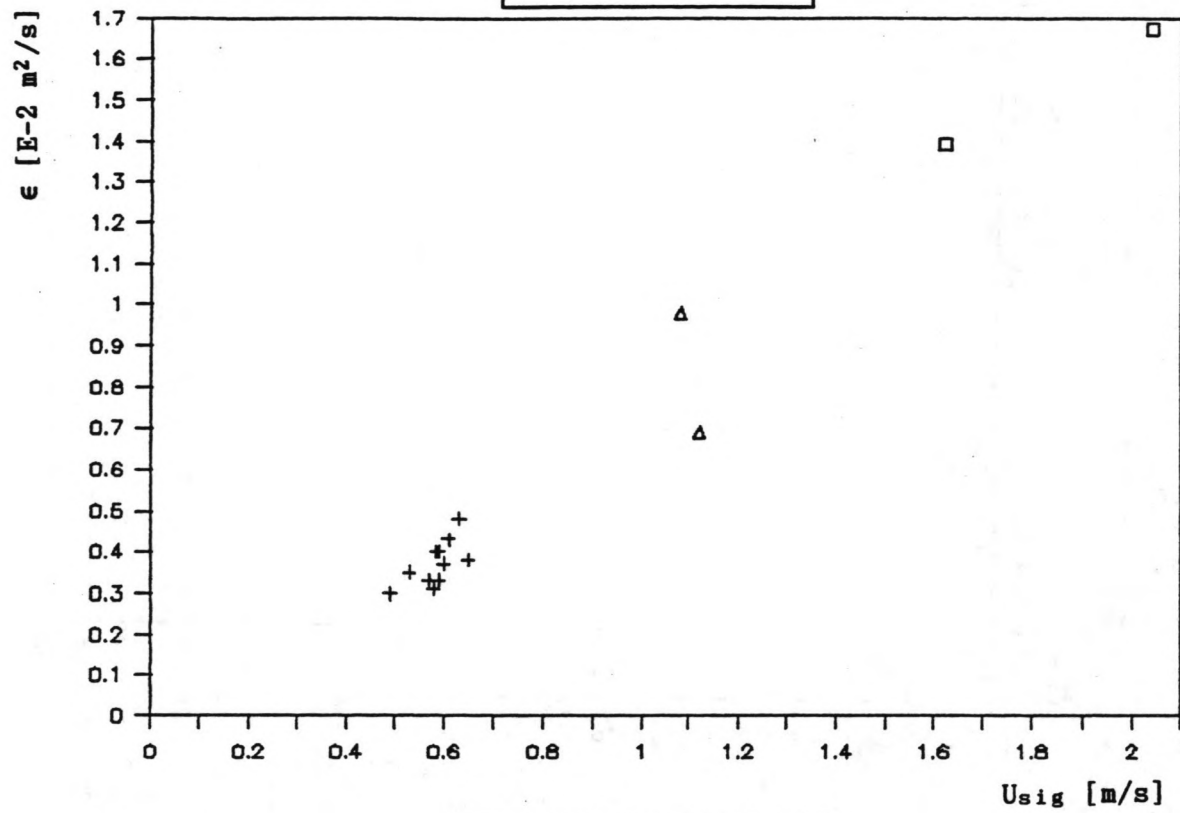
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FIG: 4.45

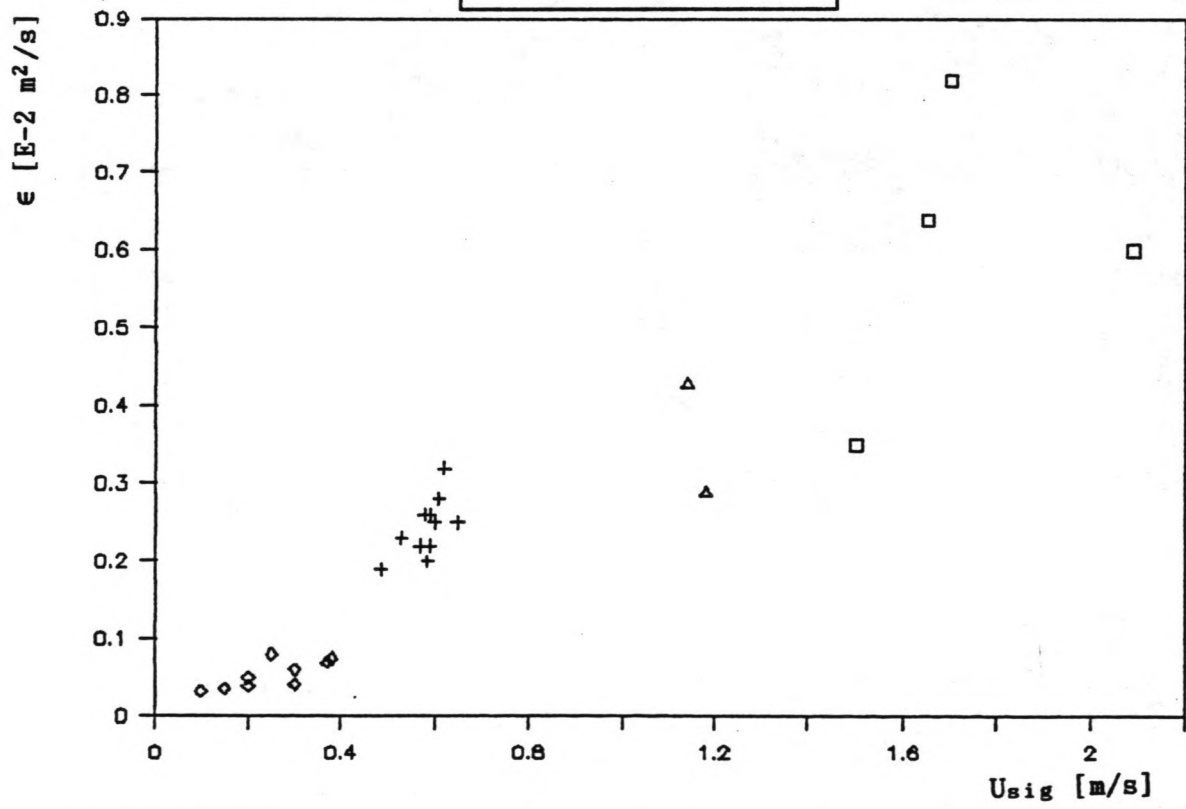


Legenda behorende bij figuur 4.46.

$z=0.2 \quad U_{sig} - \epsilon$



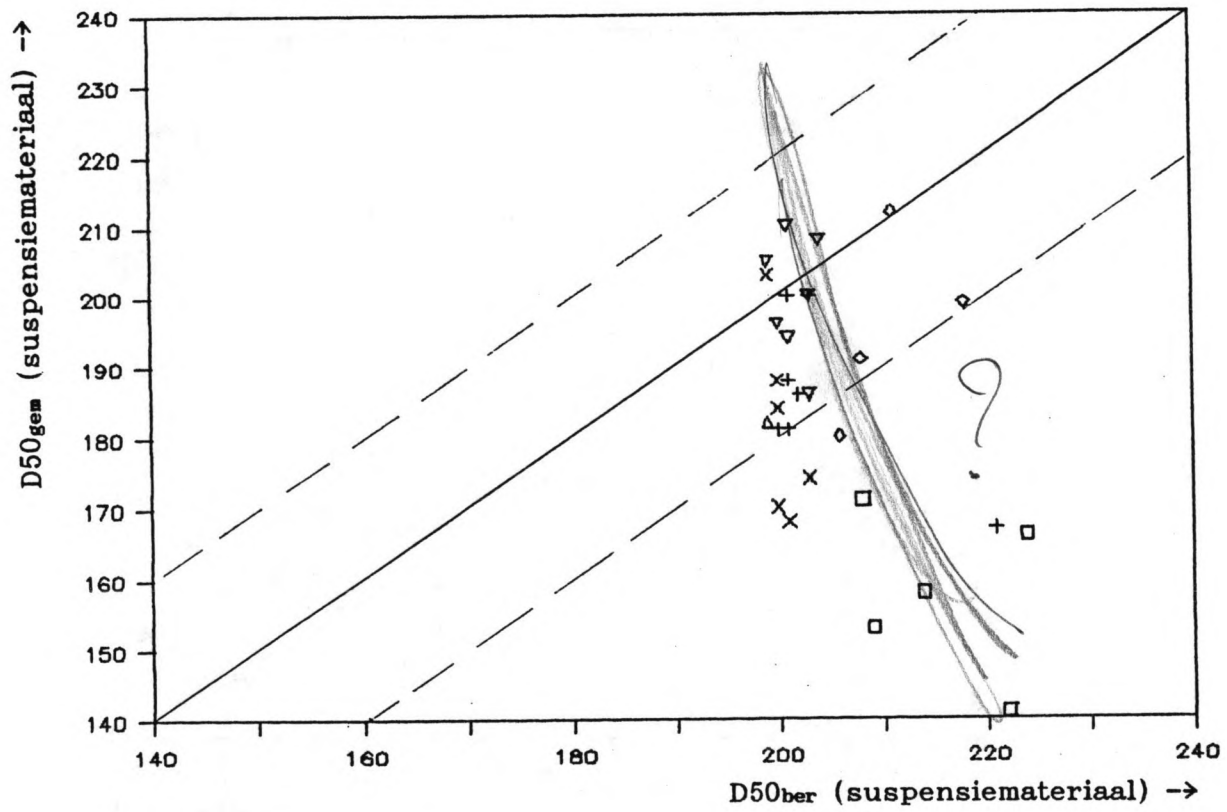
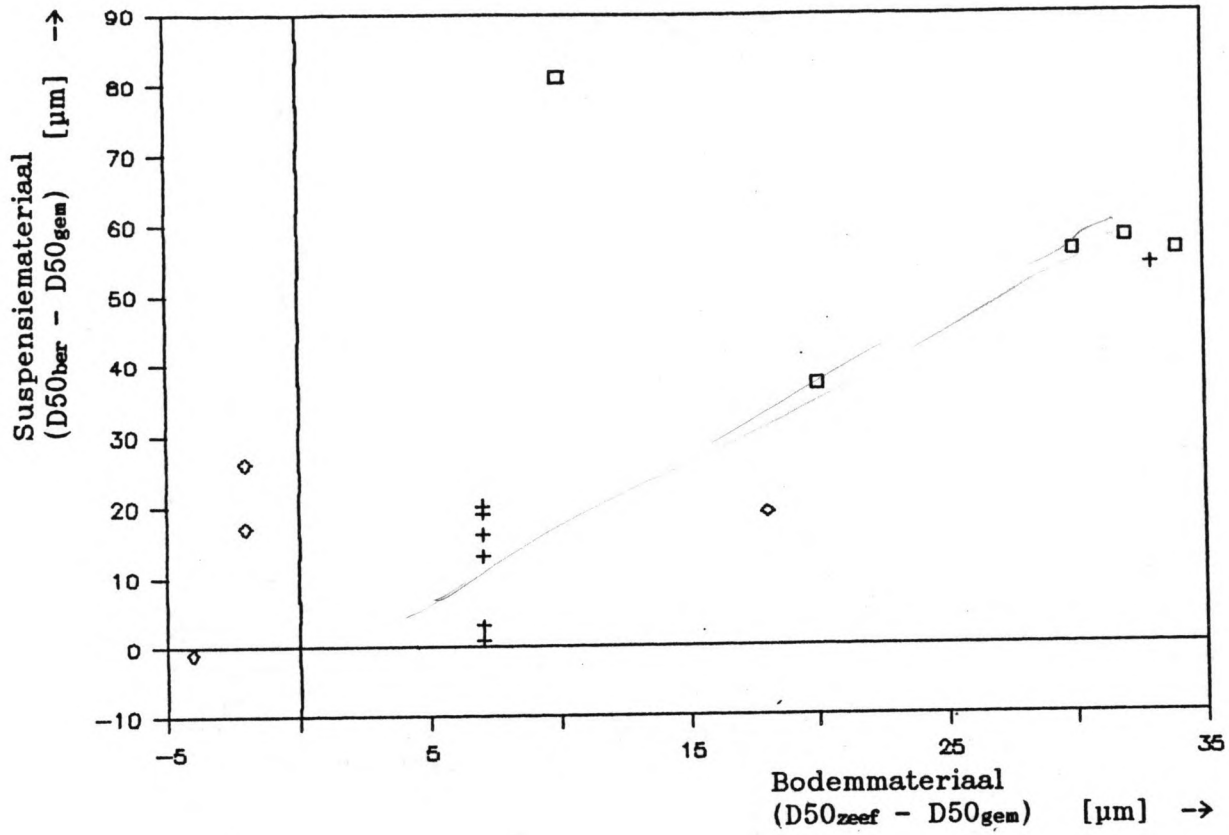
$z=h_{gem}/20 \quad U_{sig} - \epsilon$



AFHANKELIJKHEID  $\epsilon$  WAARDEN

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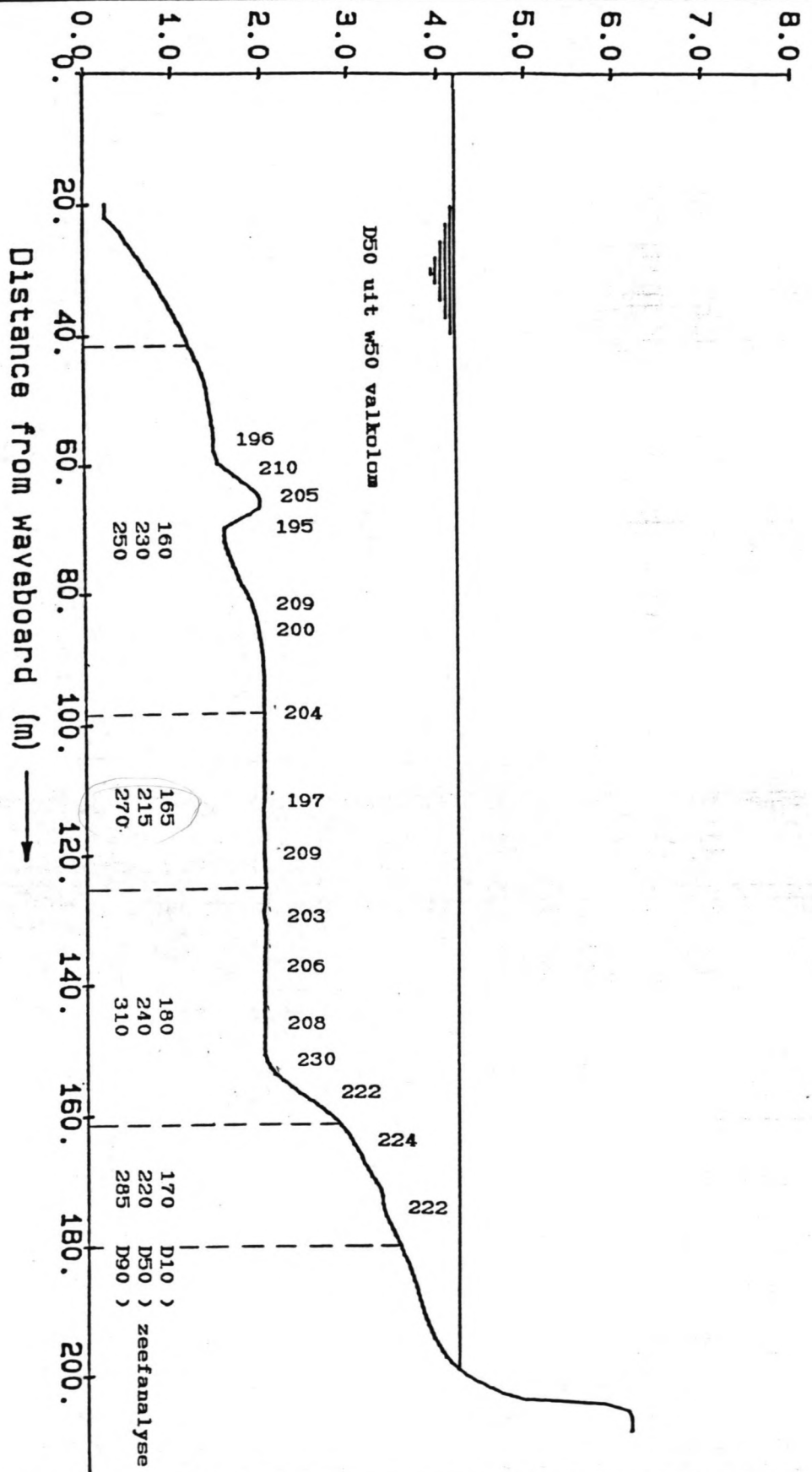
FIG: 4.46



CONTROLE D50 SUSPENSIE MATERIAAL

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FIG: 4.47



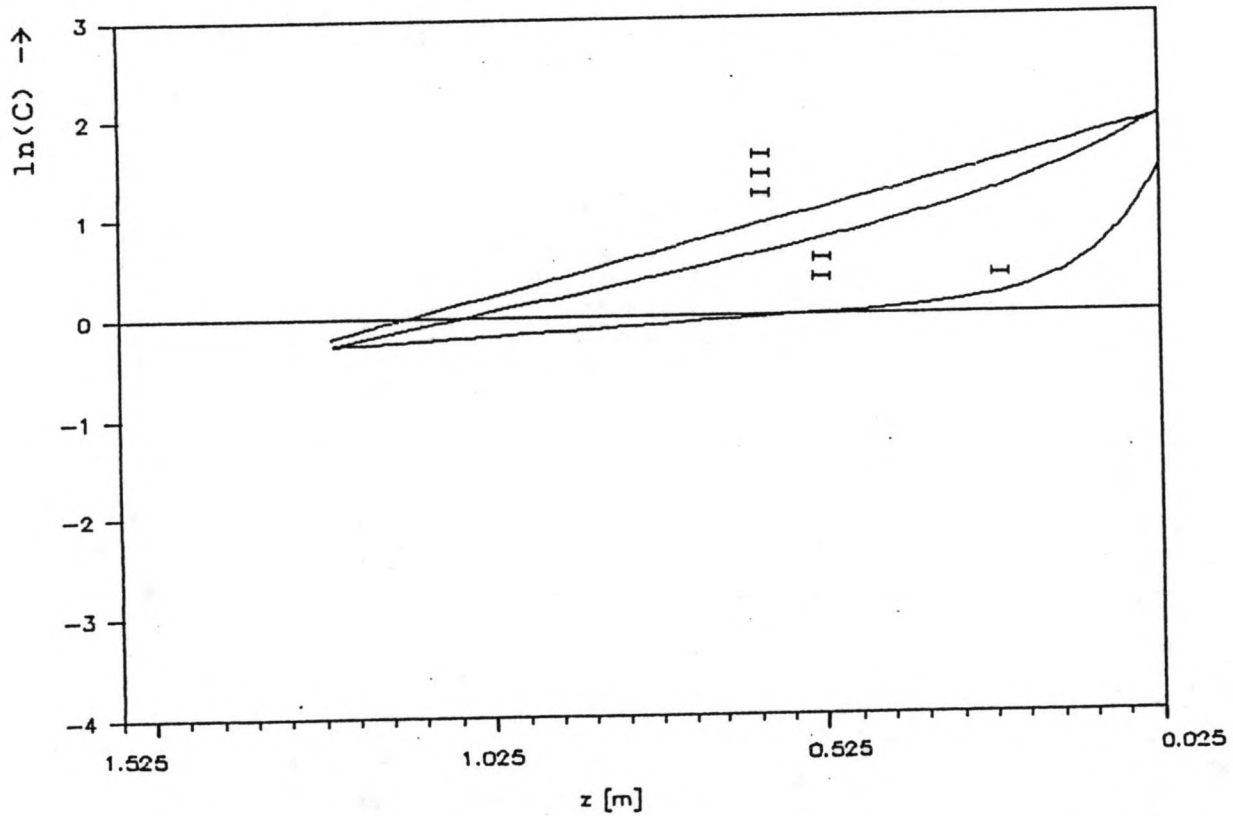
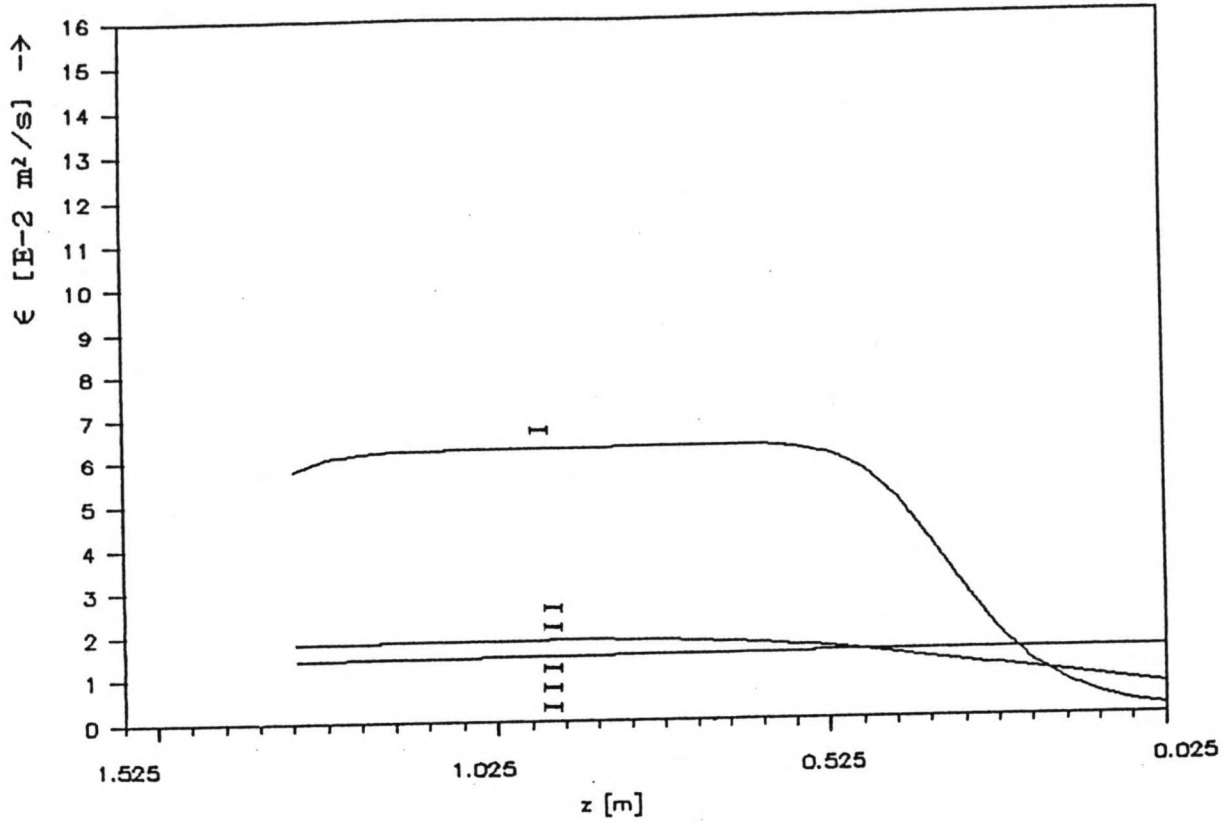
GEZEEFDE D10-D50-D90 VERDELINGEN EN  
GEMETEN D50 WAARDEN BODEMMATERIAAL

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FIG: 4.48

I 2.25 II 2.25 III 2.25



C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

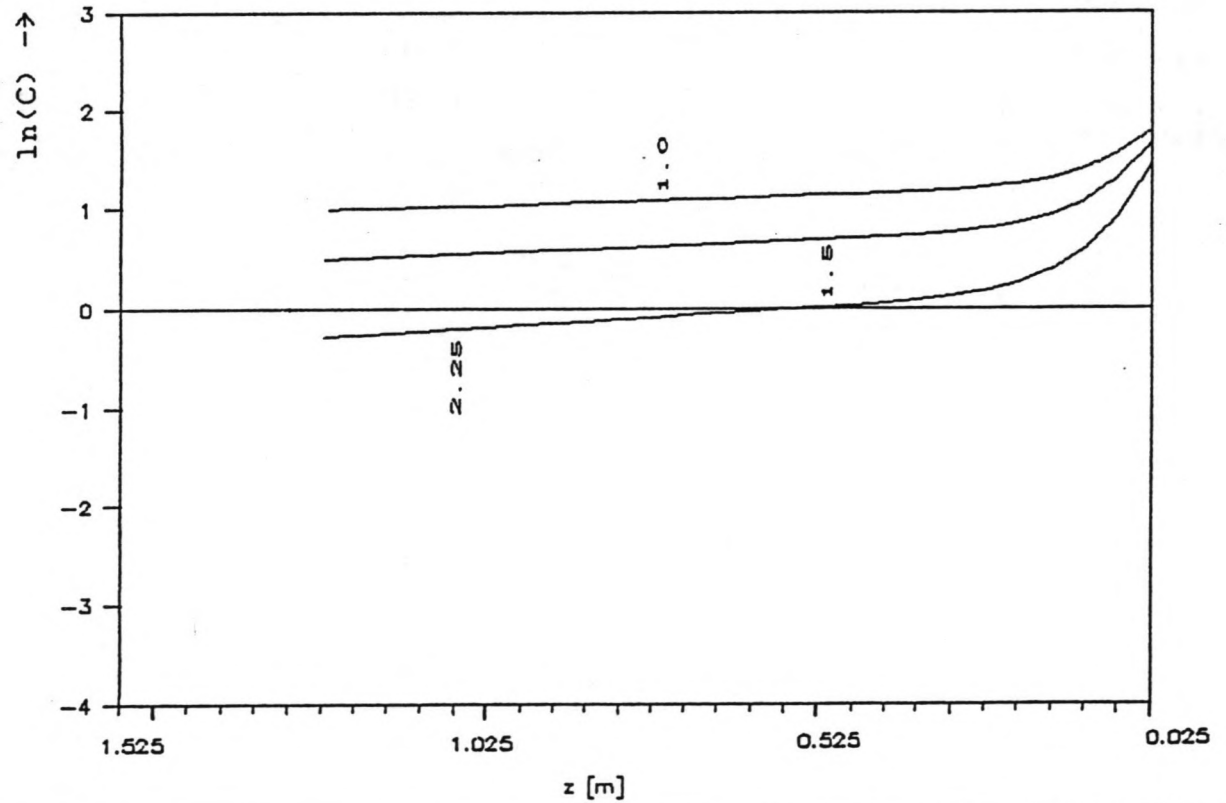
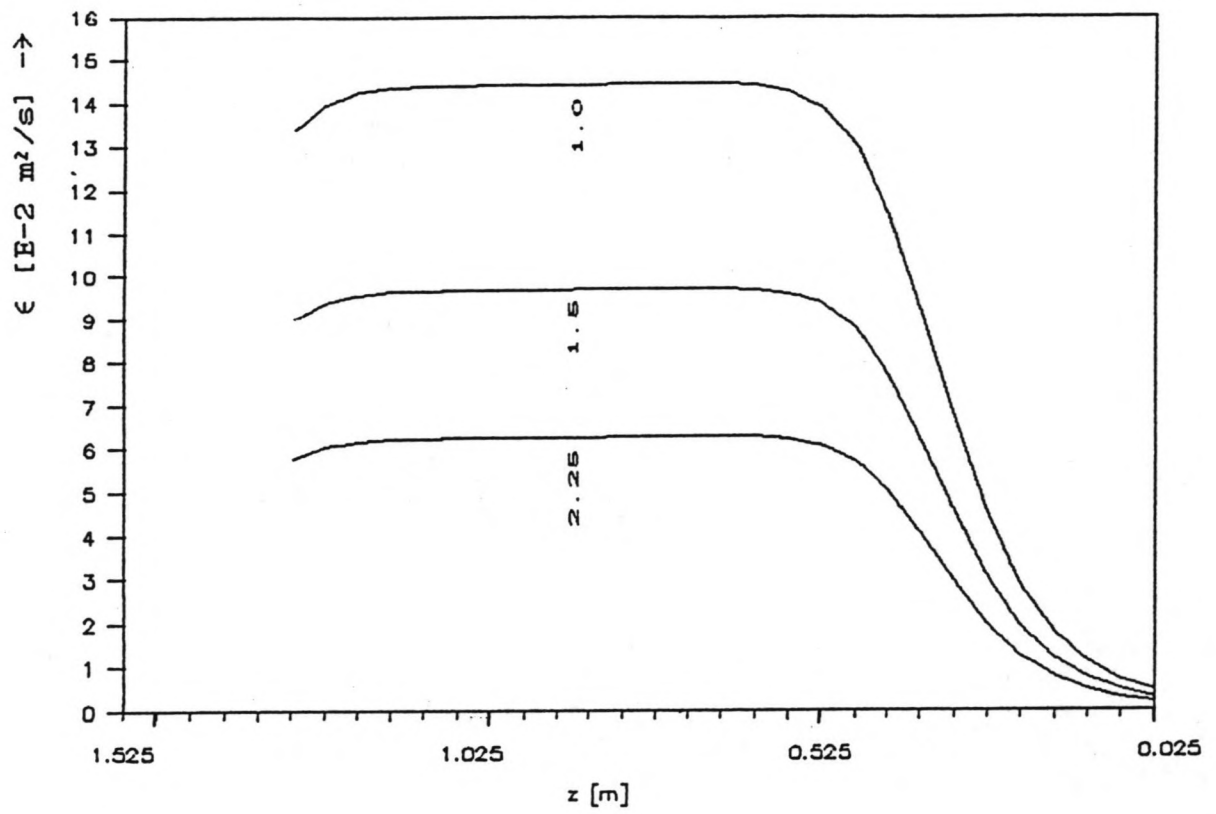
GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.49



I 2.25 I 1.5 I 1.0



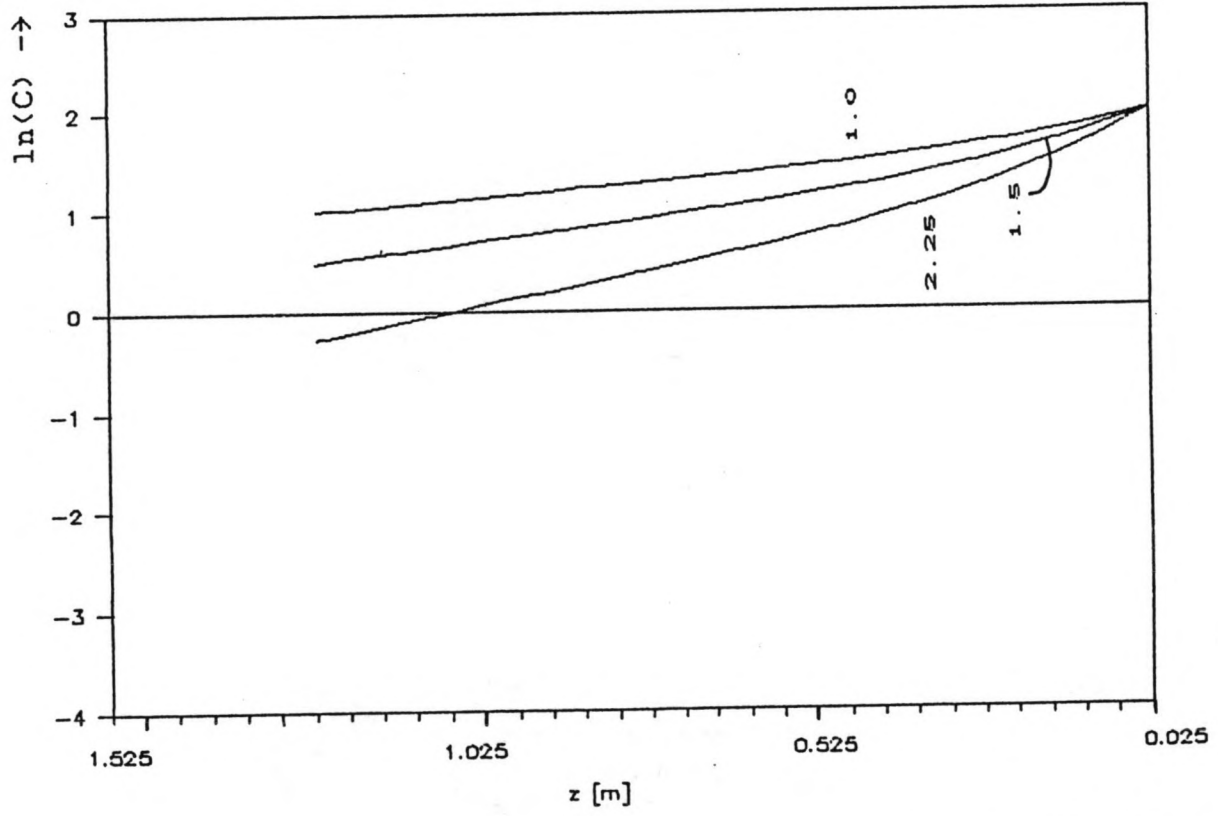
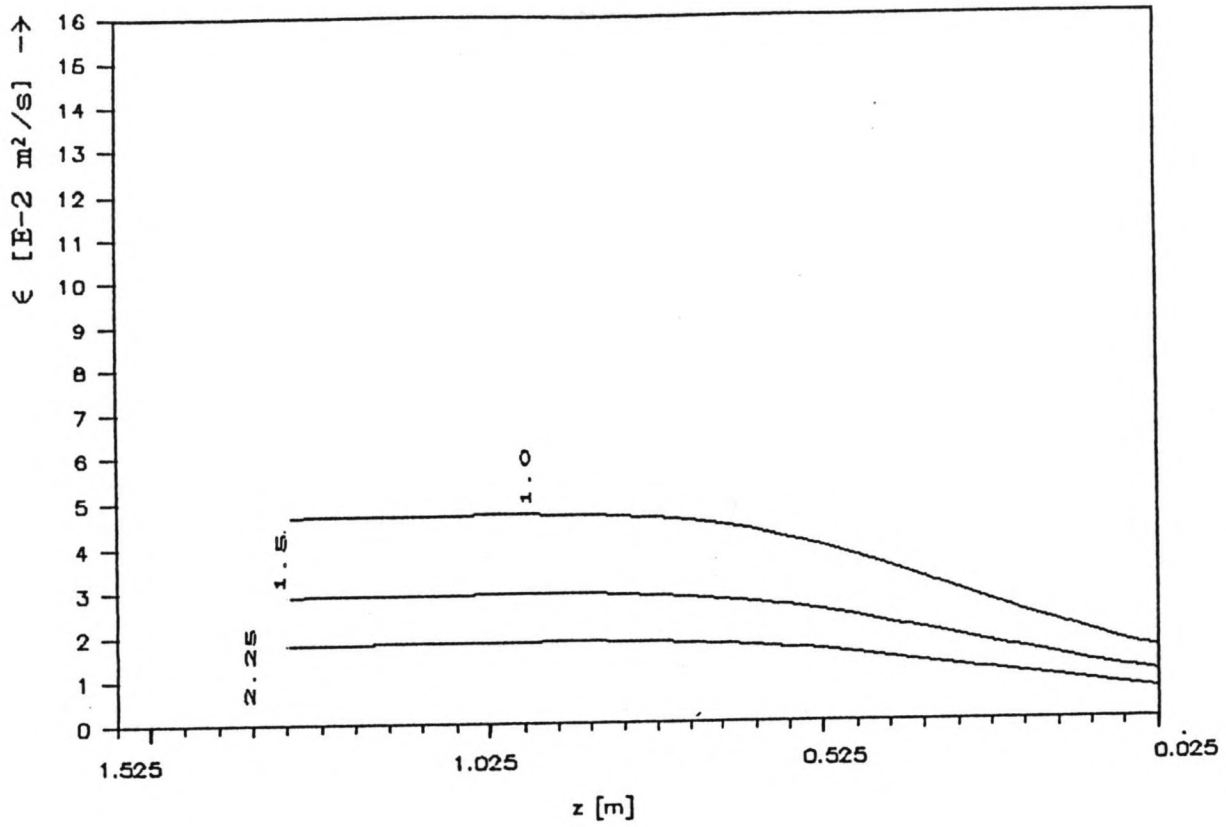
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.50

II 2.25 II 1.5 II 1.0



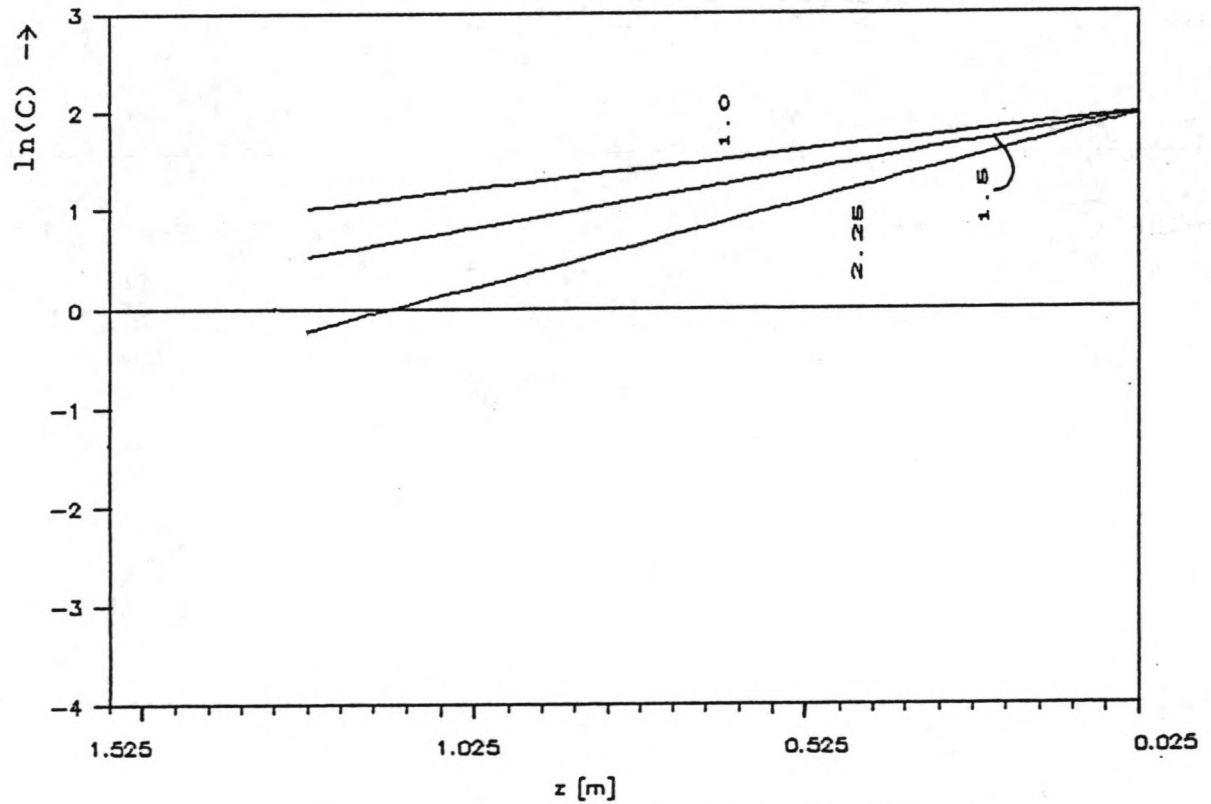
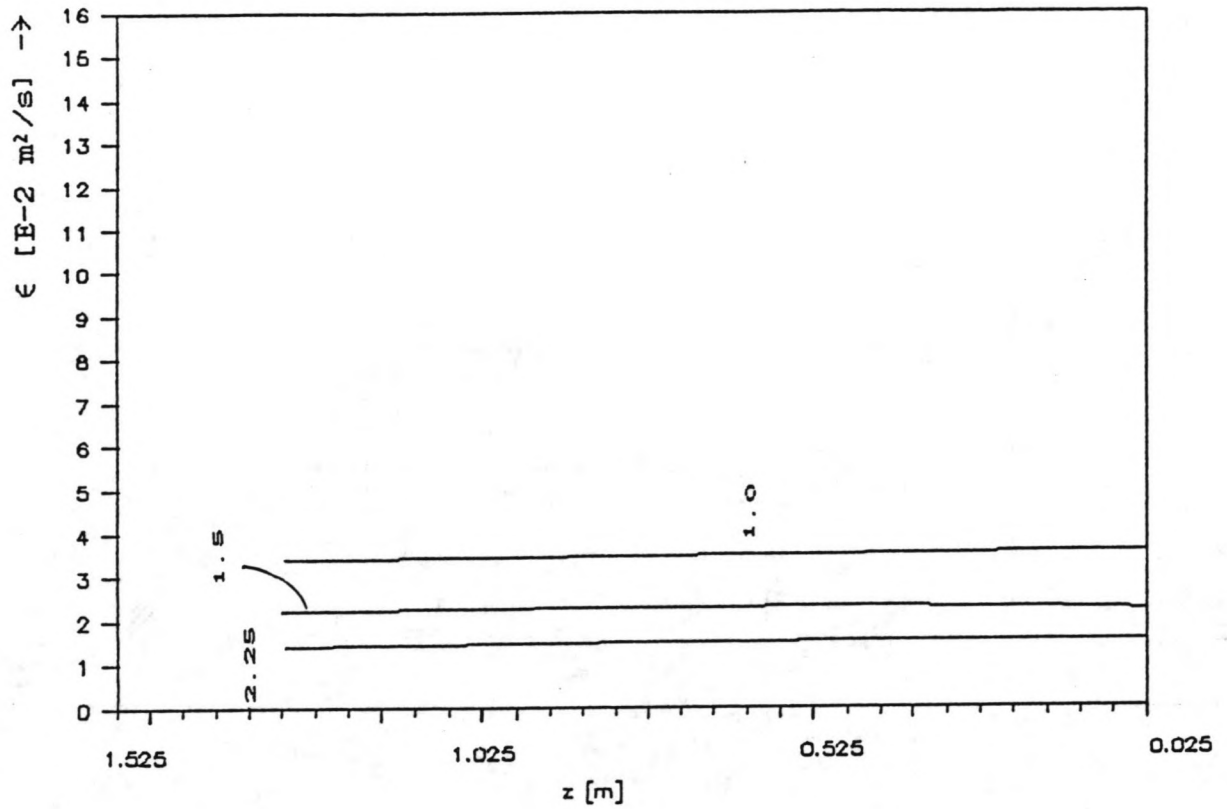
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.51

III<sub>2.25</sub> III<sub>1.5</sub> III<sub>1.0</sub>



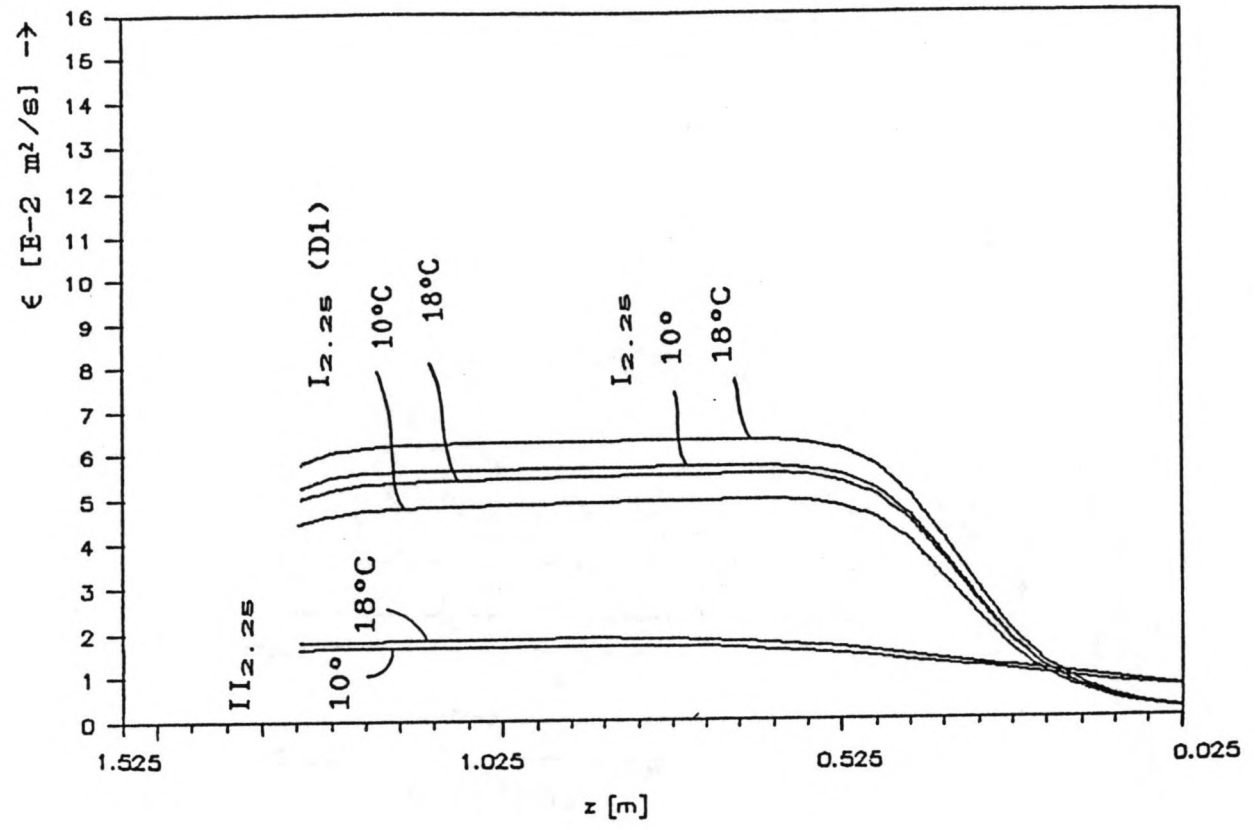
C VERDELING EN  $\epsilon$  VERDELING OVER DE DIEPTE

GEVOELIGHEIDSANALYSE

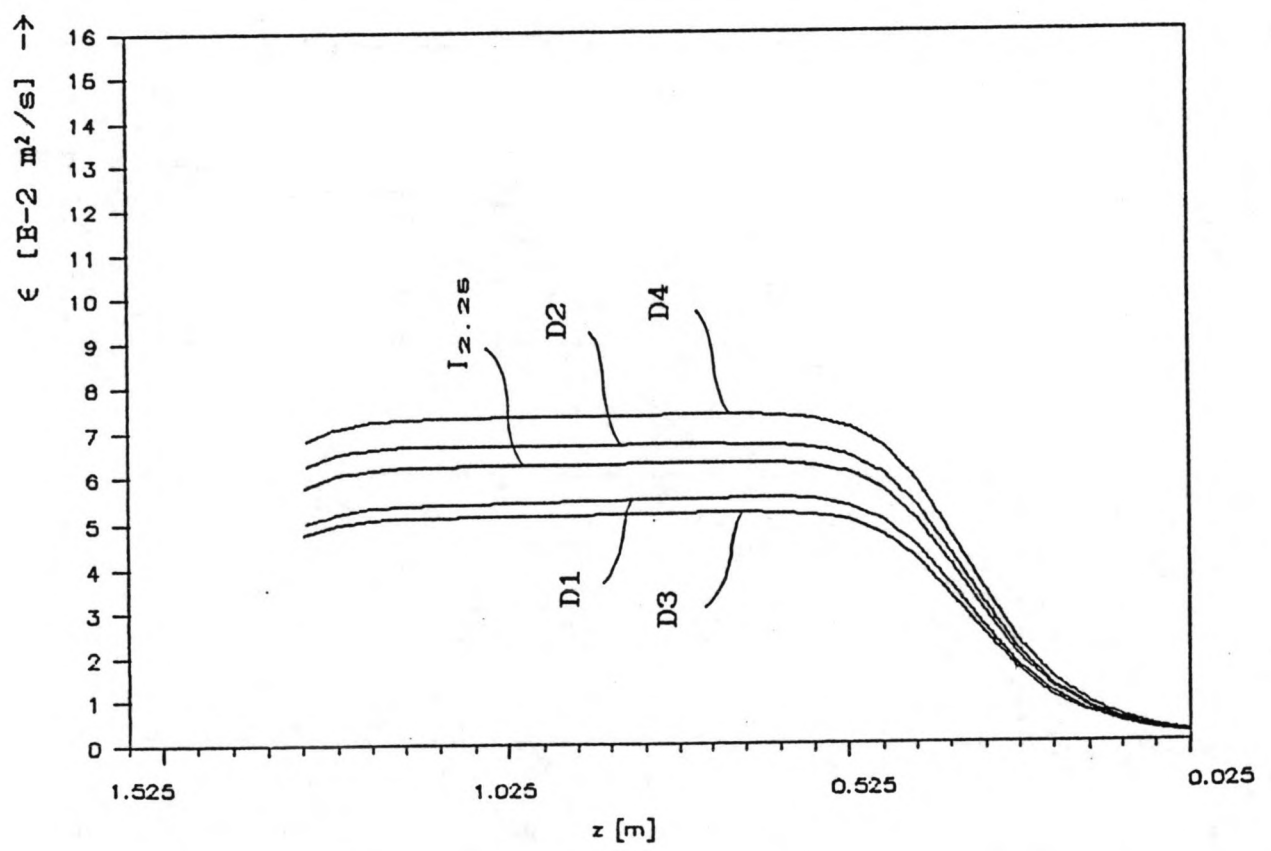
TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.52

I 2.25 I 12.25 I 2.25 (D1)  
 bij 10°C en 18°C



I 2.25 I 2.25 (D1, D2, D3, D4)

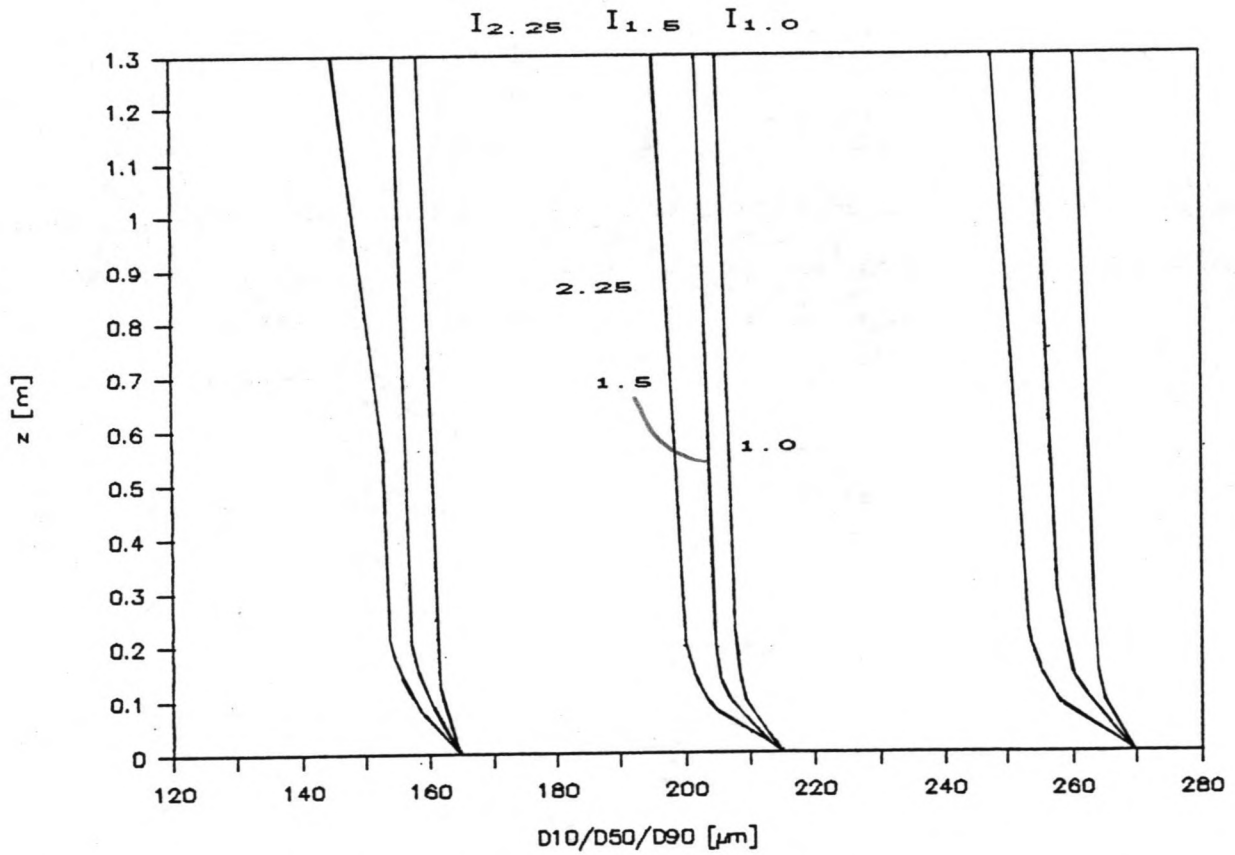
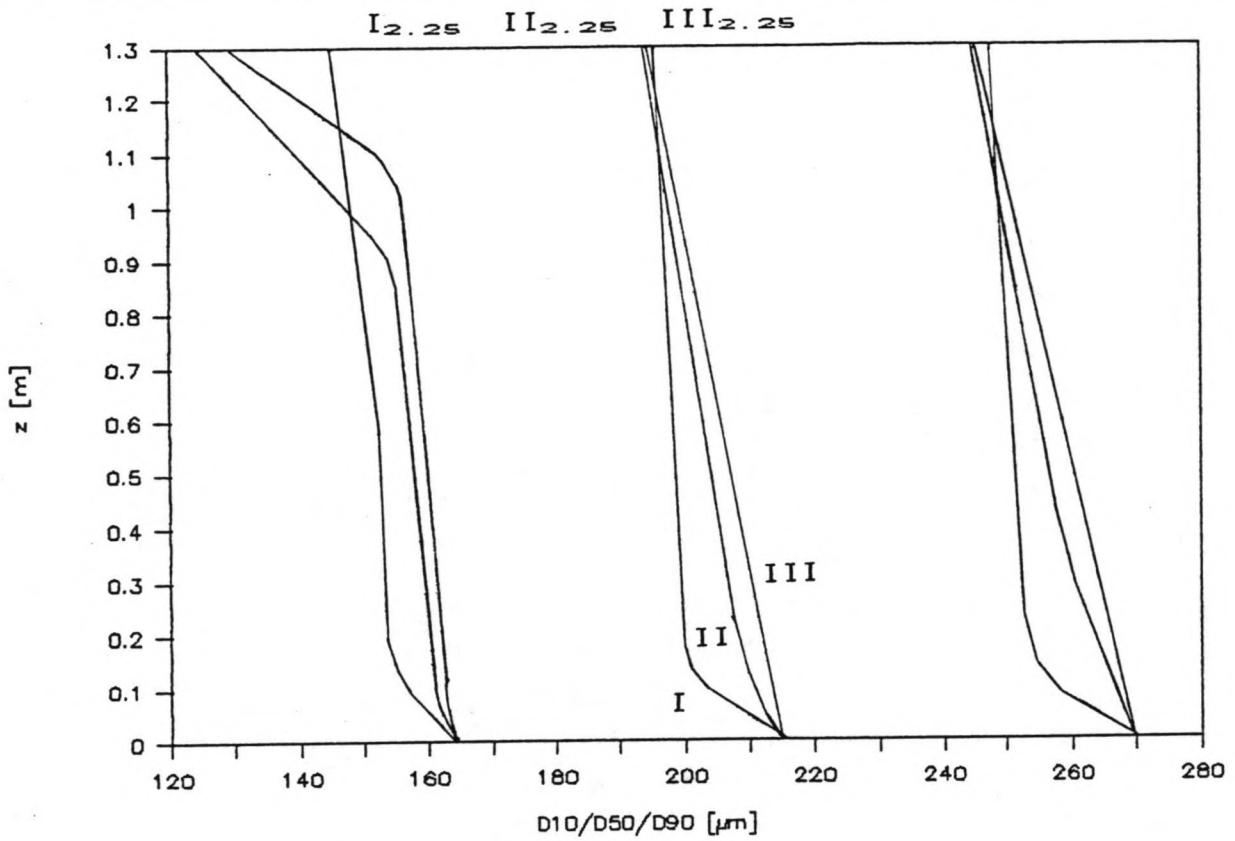


$\epsilon$  VERDELING OVER DE DIEPTE

GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
 VAKGROEP WATERBOUWKUNDE

FIG: 4.53



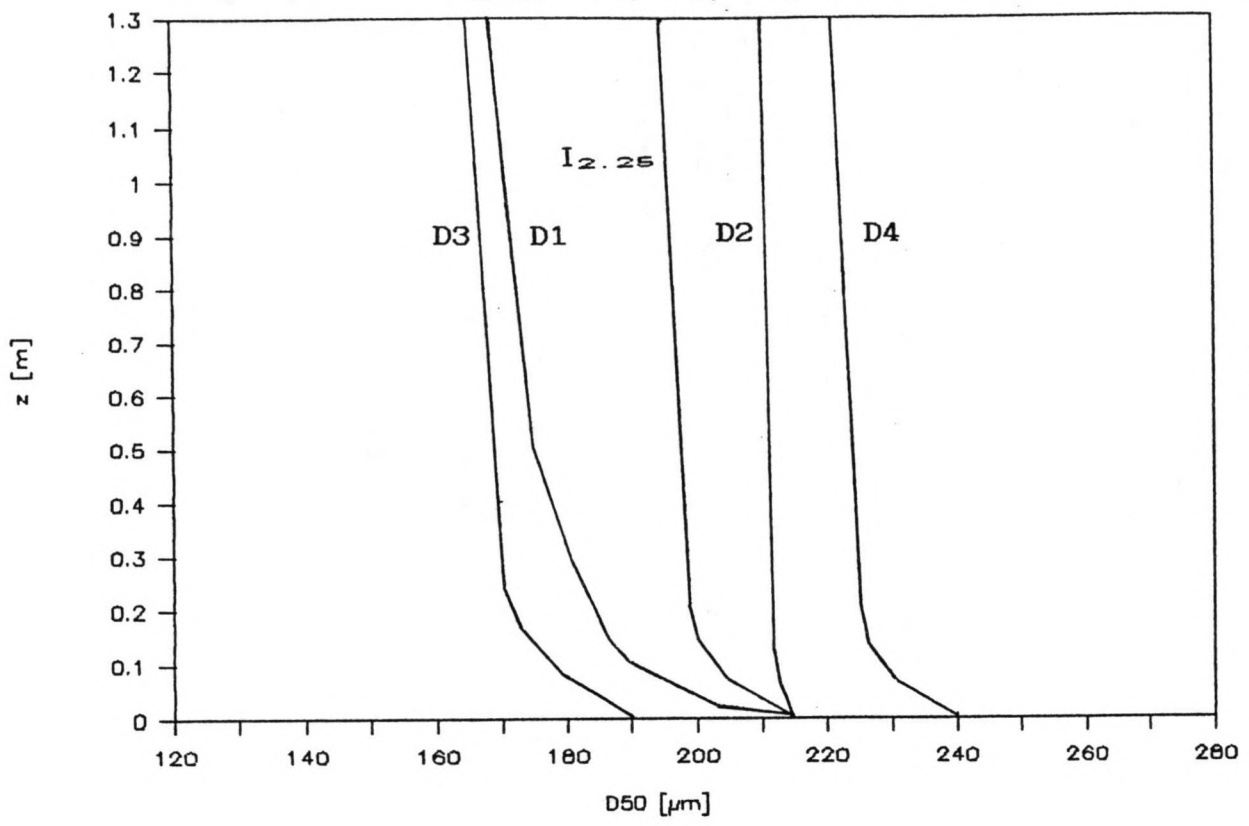
D10/D50/D90 VERDELING

GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.54

I<sub>2.25</sub> (D1, D2, D3, D4)



D50 VERDELING

GEVOELIGHEIDSANALYSE

TECHNISCHE UNIVERSITEIT DELFT  
VAKGROEP WATERBOUWKUNDE

FIG: 4.55

BIJLAGE B: TABELLEN

test	positie (m)	hgen (m)	Hs (m)	Tp (s)	D10 ( $\mu\text{m}$ )	D50 bodem materiaal ( $\mu\text{m}$ )	D90 ( $\mu\text{m}$ )	W50 bodem materiaal (m/s)	ibodem	z (m)	MO ( $\text{m}^2/\text{s}^2$ )	Usig (m/s)	Ugen (m/s)
2A	115	2.20	0.69	5.12	165	215	270	0.0241		0.2	0.088	0.592	
										0.4	0.087	0.589	
2B	115	2.20	0.74	5.12	165	215	270	0.0241		0.2	0.084	0.580	
										0.4	0.082	0.572	
3A	115	2.20	0.74	5.12	165	215	270	0.0241		0.2	0.092	0.606	
										0.4	0.093	0.610	
3B	115	2.20	0.74	5.12	165	215	270	0.0241		0.2	0.089	0.597	
										0.4	0.094	0.614	
4B	115	2.20	0.61	5.12	165	215	270	0.0241		0.2	0.060	0.489	
										0.4	0.063	0.501	
5A	115	2.20	0.75	6.08	165	215	270	0.0241		0.2	0.100	0.631	
										0.4	0.107	0.654	
5B	115	2.20	0.73	6.08	165	215	270	0.0241		0.2	0.106	0.652	
										0.4	0.110	0.663	
6A	115	2.20	0.73	4.1	165	215	270	0.0241		0.2	0.093	0.611	
										0.4	0.093	0.610	
6B	115	2.20	0.73	4.1	165	215	270	0.0241		0.2	0.086	0.586	
										0.4	0.092	0.605	
8B	115	2.20	0.58	6.07	165	215	270	0.0241		0.2	0.070	0.531	
										0.4	0.071	0.533	
9B	55	2.72	0.67	5.12	160	230	250	0.0223		0.2	0.067	0.518	0.001
										0.4	0.069	0.526	-0.010
9C	66	2.28	0.69	5.12	160	230	250	0.0245		0.2	0.092	0.607	0.014
										0.4	0.094	0.613	0.005
9D	90	2.19	0.69	5.12	160	230	250	0.0230	1: 30	0.2	0.095	0.618	-0.002
										0.4	0.095	0.617	-0.015
9F	150	2.14	0.68	5.12	180	240	310	0.0241		0.2	0.092	0.606	-0.006
										0.4	0.090	0.601	-0.012
9G	160	1.24	0.73	5.12	180	240	310	0.0262	1: 8	0.2	0.166	0.814	-0.030
										0.4	0.195	0.884	-0.038
9H	170	0.97	0.56	5.12	170	220	285	0.0263		0.2	0.149	0.773	-0.123
										0.4	0.168	0.821	-0.139
9I	140	2.17	0.68	5.12	180	240	310	0.0239	1:250	0.2	0.081	0.569	-0.003
										0.4	0.080	0.567	-0.009
9J	155	1.92	0.70	5.12	180	240	310	0.0275	1: 10	0.2	0.085	0.583	0.009
										0.4	0.106	0.651	0.002
9K	165	0.93	0.65	5.12	170	220	285	0.0266		0.2	0.244	0.988	-0.043
										0.4	0.293	1.082	-0.101
9L	180	0.71	0.47	5.12	170	220	285	0.0263		0.2	0.141	0.752	-0.093
										0.4	0.152	0.781	-0.089

Tabel 3.1 : Overzicht meetgegevens van meetserie I.



test	positie (n)	C01 (g/l)	C02	C03	C04	C05	C06	C07	C08	C09	C10	hgem (n)	dzc(1) (n)
1A	115	2.170	.742	.403	.203	.162	.147	.085	.082	.072	.003	2.20	
2A	115	.603	.278	.186	.129	.090	.086	.046	.023	.029	.035	2.20	
2B	115	.960	.510	.232	.129	.128	.085	.059	.027	.020	.024	2.20	
3A	115	.557	.278	.196	.111	.093	.095	.052	.023	.015	.012	2.20	
3B	115	.887	.361	.207	.123	.077	.086	.051	.030	.019	.011	2.20	
4A	115	1.810	.424	.215	.130	.104	.100	.050	.043	.043		2.20	
4B	115	1.670	.464	.232	.129	.128	.121	.046	.032	.029	.020	2.20	
5A	115	.371	.232	.104	.104	.078	.063	.052	.036	.020	.017	2.20	
5B	115	.704	.244	.164	.104	.077	.081	.061	.026	.020	.015	2.20	
6A	115	.668	.347	.256	.149	.128	.139	.072	.044	.038	.035	2.20	
6B	115	.881	.325	.166	.128	.121	.101	.082	.041	.028	.030	2.20	
7A	115	3.710	.650	.333	.174	.147	.104	.068	.046	.024	.020	2.20	
7B	115	2.609	.510	.247	.186	.138	.111	.082	.031	.020	.019	2.20	
8A	115	1.670	.603	.222	.128	.112	.065	.036	.20	.015	.028	2.20	
8B	115	.603	.232	.129	.070	.060	.040	.041	.023	.017	.013	2.20	
9B	55	.881	.418	.259	.162	.147	.104	.077	.055	.024	.011	2.72	
9C	66	.603	.278	.129	.081	.077	.059	.036	.017	.006	.006	2.28	
9D	90	.557	.278	.148	.093	.069	.059	.041	.017	.006	.004	2.19	
9E	115	2.460	.696	.370	.197	.164	.137	.077	.029	.028	.026	2.17	
9F	150	.824	.696	.481	.348	.216	.150	.091	.058	.022	.009	2.14	
9G	160	.956	.353	.287	.255	.206	.178	.097	.104	.080		1.24	
9H	170	1.206	.615	.616	.565	.457	.562	.248	.473			.97	
9I	140	1.530	.418	.259	.146	.121	.104	.063	.029	.015	.009	2.17	
9J	155	2.600	.956	.647	.464	.378	.326	.181	.044	.019	.009	1.92	
9K	165	1.753	1.670	2.079	1.310	.767	1.305	.265	.329			.93	
9L	180	.418	.325	.296	.197	.190	.157	.137	.087			.71	

Tabel 3.2 : Gemeten concentraties (meetserie I).

test	tijd positie		hgem (m)	Hs (m)	Tp (s)	ibodem	z (m)	M0 (m <sup>2</sup> /s <sup>2</sup> )	Usig (m/s)	Ugem (m/s)
	(uren)	(m)								
T1C	0.208	190	0.86	0.67	5.5		0.075	0.620	1.575	-0.141
							0.275	0.530	1.456	-0.087
T1E1	2.540	172	1.42	0.86	8.3	1:35	0.05	0.496	1.409	-0.125
							0.25	0.406	1.274	-0.129
T1E2	3.167	181	1.02	0.80	5.6		0.05	0.617	1.571	-0.135
							0.25	0.507	1.424	-0.134
T1F1	3.750	187	0.95	0.68	9.1		0.07	0.656	1.620	-0.145
							0.27	0.547	1.479	-0.128
T1G4	6.750	187	1.03	0.67	9.1		0.06	0.559	1.495	-0.197
							0.26	0.467	1.367	-0.188
T1H3	8.250	181	0.96	0.76	7.7		0.05	0.676	1.644	-0.172
							0.25	0.560	1.497	-0.156
T1H4	8.750	187	1.07	0.67	0.0		0.07	0.532	1.459	-0.214
							0.27	0.439	1.325	-0.168
T2C	0.925	190	0.72	0.62	6.3		0.075	0.657	1.621	-0.152
							0.275	0.614	1.567	-0.075
T2E1	2.540	172	1.41	0.86	9.0	1:35	0.06	0.446	1.336	-0.123
							0.26	0.359	1.198	-0.133
T2E2	3.167	181	0.93	0.76	5.9		0.055	0.696	1.669	-0.172
							0.255	0.576	1.518	-0.141
T2F1	3.750	187	0.83	0.64	8.3		0.05	0.658	1.622	-0.166
							0.25	0.557	1.493	-0.237
T2G4	6.750	187	0.87	0.64	9.1		0.035	0.505	1.421	-0.219
							0.235	0.422	1.299	-0.223
T2H3	8.250	181	0.90	0.70	6.9		0.05	0.506	1.423	-0.140
							0.25	0.431	1.313	-0.258
T2H4	8.750	187	0.89	0.62	0.0		0.06	0.471	1.373	-0.183
							0.26	0.397	1.260	-0.266
T2I3	10.750	187	0.94	0.62	7.4		0.06	0.420	1.296	-0.239
							0.26	0.362	1.203	-0.197
T2I4	11.250	181	0.83	0.70	5.3		0.06	0.528	1.453	-0.220
							0.26	0.455	1.349	-0.183
T2I5	11.750	172	1.13	0.86	8.9		0.055	0.529	1.455	-0.115
							0.255	0.450	1.342	-0.135
T2I6	12.250	157	1.63	0.92	5.8	1:90	0.06	0.358	1.197	-0.072
							0.26	0.300	1.095	-0.113
T3E1	2.540	172	1.40	0.86	5.9		0.06	0.396	1.259	-0.187
							0.26	0.321	1.133	-0.174
T3E2	3.167	181	0.81	0.73	0.0		0.06	0.337	1.161	-0.158
							0.26	0.216	0.930	-0.170
T3F1	3.750	187	0.60	0.60	9.1		0.05	0.632	1.590	-0.260
							0.25	0.558	1.494	-0.179
T3F2	4.250	190	0.58	0.53	6.5		0.068	0.485	1.393	-0.203
							0.268	0.443	1.331	-0.120

Tabel 3.3 : Overzicht meetgegevens van meetserie II.

test	tijd positie		hgem	Hs	Tp	ibodem	z	M0	Usig	Ugen
	(uren)	(m)								
T3G3	6.250	191.5	0.61	0.53	5.9		0.05	0.391	1.251	-0.214
							0.25	0.341	1.168	-0.108
T3G4	6.750	187	0.64	0.57	9.1		0.055	0.483	1.390	-0.260
							0.255	0.422	1.299	-0.149
T3H3	8.250	181	0.80	0.67	6.9		0.055	0.478	1.383	-0.264
							0.255	0.418	1.293	-0.199
T3H4	8.750	187	0.67	0.56	0.0		0.06	0.443	1.331	-0.210
							0.26	0.380	1.233	-0.127
T3H5	9.250	190	0.65	0.53	0.0		0.055	0.419	1.295	-0.186
							0.255	0.341	1.168	-0.075
T3I2	10.250	190	0.67	0.53	6.9		0.07	0.419	1.295	-0.232
							0.27	0.335	1.158	-0.136
T3I3	10.750	187	0.70	0.56	10.0		0.065	0.414	1.287	-0.250
							0.265	0.353	1.188	-0.171
T3I4	11.250	181	0.78	0.65	6.3		0.065	0.492	1.403	-0.273
							0.265	0.419	1.295	-0.212
T3I5	11.750	172	0.82	0.81	9.1		0.055	0.644	1.605	-0.217
							0.255	0.519	1.441	-0.228
T3I6	12.250	157	1.63	0.94	6.4	1:90	0.05	0.332	1.152	-0.093
							0.25	0.276	1.051	-0.121
T5D2	11.000	187	0.47	0.51	0.0					
T5D3	14.000	187	0.49	0.51	0.0					

Vervolg tabel 3.3 : Overzicht meetgegevens van meetserie II.

test	tijd (uren)	positie (m)	C01	C02	C03	C04	C05	C06	C07	C08	C09	C10	hgen (m)	dzc(l) (m)
			.000 (kg/m3)	.025	.050	.080	.130	.205	.350	.600	1.000	1.500		
T1A	.208	193.00	5.23	4.75	4.68	(5.97)	4.50	4.16	3.48	2.67	.00	.00	.40	.050
T1B	.467	191.50	7.00	6.22	5.76	5.06	4.74	3.90	3.26	2.52	2.14	.00	.80	.075
T1C	.925	190.00	6.03	5.10	4.82	4.58	4.18	3.62	2.88	2.09	1.59	.00	.86	.075
T1E1	2.540	172.00	.97	.97	.74	.67	.58	.47	.38	.29	.22	(.08)	1.42	.050
T1E2	3.167	181.00	3.62	2.60	2.41	2.05	1.67	1.41	1.02	.81	.52	.00	1.02	.035
T1F1	3.750	187.00	4.58	3.90	3.57	3.22	2.71	2.51	1.92	1.43	1.21	.00	.95	.060
T1F2	4.250	190.00	3.16	3.01	2.79	2.21	1.93	1.63	1.30	(.63)	1.06	.00	1.20	.055
T1F3	4.750	191.50	.84	1.07	.93	.91	.86	.77	.69	.72	.61	.00	1.25	.050
T1G1	5.250	193.00	.55	.51	.45	.46	.39	.40	.38	.34	.00	.00	.40	.050
T1G2	5.750	191.50	.79	.95	.86	.78	.75	.68	.60	.60	.62	(.78)	1.25	.050
T1G3	6.250	190.00	1.34	1.34	1.23	1.10	1.05	.93	.78	.84	.79	.53	1.40	.070
T1G4	6.750	187.00	3.62	3.03	2.73	2.40	2.08	1.69	1.20	1.08	.90	.00	1.03	.050
T1H3	8.250	181.00	4.02	3.36	2.89	2.55	2.16	1.80	1.33	1.01	.77	.00	.96	.050
T1H4	8.750	187.00	2.41	2.28	1.98	1.76	1.45	1.24	.98	.82	.67	.00	1.07	.050
T1H5	9.250	190.00	1.00	.98	.98	.89	.78	.73	.59	.65	.65	.49	1.58	.060
T2A	.208	193.00	16.08	14.90	13.90	13.20	13.00	10.06	9.15	4.23	2.23	.00	.40	.050
T2B	.467	191.50	15.88	14.24	12.57	11.71	10.10	8.61	6.25	4.74	3.35	.00	.63	.055
T2C	.925	190.00	11.20	9.02	9.14	8.56	6.96	6.03	4.62	3.19	2.34	.00	.72	.070
T2E1	2.540	172.00	.96	.75	.70	.70	.55	.48	.40	.34	(.34)	.16	1.41	.050
T2E2	3.167	181.00	5.60	4.30	3.80	3.40	3.10	2.60	2.10	1.45	.82	.00	.93	.045
T2F1	3.750	187.00	7.27	6.26	5.63	5.07	4.73	4.34	3.14	2.24	1.61	.00	.83	.050
T2F2	4.250	190.00	3.38	3.11	2.93	2.65	2.41	2.18	1.84	1.52	1.13	.00	.90	.070
T2F3	4.750	191.50	1.57	1.67	1.44	1.31	1.28	1.08	.89	.92	.77	.74	1.20	.050
T2G1	5.250	193.00	2.26	2.11	1.94	1.76	1.50	1.31	1.09	.83	.00	.00	.40	.050
T2G2	5.750	191.50	1.48	1.51	1.42	1.34	1.29	1.16	.97	.96	.76	.61	1.23	.050
T2G3	6.250	190.00	1.81	1.81	1.53	1.46	1.30	1.14	.90	.85	.76	.00	1.02	.065
T2G4	6.750	187.00	3.98	3.34	2.97	2.77	2.51	2.18	1.77	1.41	1.25	.00	.87	.045
T2H3	8.250	181.00	5.84	5.35	4.75	4.55	3.77	3.11	2.42	1.78	.81	.28	.90	.050
T2H4	8.750	187.00	2.44	2.26	1.96	1.80	1.52	1.31	.99	.88	.80	.00	.89	.055
T2H5	9.250	190.00	1.09	1.02	.93	.87	.76	.64	.55	.53	.44	.41	1.18	.055
T2I1	9.750	191.50	.92	1.02	.93	.86	.66	.71	.57	.55	.43	(.19)	1.25	.050
T2I2	10.250	190.00	1.16	1.16	1.07	.94	.78	.72	.60	.59	.48	.38	1.23	.050
T2I3	10.750	187.00	1.57	1.53	1.25	1.07	.93	.82	.55	.56	.50	.00	.94	.055
T2I4	11.250	181.00	4.16	3.62	3.21	3.05	2.61	2.14	1.51	1.28	.87	.00	.83	.055
T2I5	11.750	172.00	2.53	2.13	1.61	1.57	1.41	1.16	.89	.71	.40	.19	1.13	.050
T2I6	12.250	157.00	.57	.35	.36	.31	.16	.17	.15	.12	.08	.07	1.63	.050
T3A	.208	193.00	29.40	29.60	27.90	28.10	25.10	24.50	17.90	10.90	.00	.00	.40	.050
T3B	.467	191.50	32.60	35.20	31.80	30.80	27.00	22.50	17.20	11.00	5.95	.00	.53	.050
T3C	.925	190.00	22.80	20.10	18.20	17.20	15.30	13.10	9.72	6.77	5.70	.00	.55	.040
T3E1	2.540	172.00	1.11	(1.25)	1.07	1.00	.95	.78	.64	.63	.45	.20	1.40	.050
T3E2	3.167	181.00	7.60	6.77	6.37	5.98	5.66	4.50	3.62	2.56	1.28	.00	.81	.055
T3F1	3.750	187.00	10.05	9.32	8.50	8.00	7.34	5.50	4.66	3.48	2.76	.00	.60	.050
T3F2	4.250	190.00	6.12	6.54	5.47	4.99	4.69	3.93	2.92	2.20	.00	.00	.58	.060
T3F3	4.750	191.50	5.31	4.87	4.08	4.10	3.99	3.80	2.88	2.03	1.74	.00	.73	.070
T3G1	5.250	193.00	3.38	3.21	3.16	3.06	2.84	2.52	1.94	1.81	.00	.00	.40	.050
T3G2	5.750	191.50	6.65	5.79	5.14	5.05	4.69	4.19	(2.65)	2.46	1.64	.00	.79	.050
T3G3	6.250	190.00	4.02	3.62	3.26	3.02	2.69	2.24	1.72	1.18	1.06	.00	.61	.050
T3G4	6.750	187.00	4.83	4.45	3.80	3.73	3.34	2.79	2.05	1.45	1.16	.00	.64	.060
T3H3	8.250	181.00	6.03	5.17	4.63	4.19	3.69	3.29	2.53	1.82	1.52	.00	.80	.060
T3H4	8.750	187.00	3.67	2.97	2.74	2.50	2.13	1.82	1.32	1.15	1.04	.00	.67	.055
T3H5	9.250	190.00	2.53	2.32	2.13	1.87	1.69	1.42	1.07	.81	.73	.00	.65	.055
T3I1	9.750	191.50	3.38	3.20	2.94	2.92	2.73	2.58	2.14	1.77	.77	.00	.90	.045
T3I2	10.250	190.00	2.28	2.37	2.21	1.98	1.69	1.43	1.06	.77	.58	.00	.67	.060
T3I3	10.750	187.00	2.24	1.99	1.64	1.61	1.43	1.13	.88	.70	.52	.00	.70	.055
T3I4	11.250	181.00	5.16	4.22	3.78	3.40	3.02	2.64	2.04	1.52	1.05	.00	.78	.055
T3I5	11.750	172.00	4.90	4.16	3.09	3.36	2.73	2.69	2.07	1.51	.78	.00	.82	.050
T3I6	12.250	157.00	.59	.42	.40	.30	.30	.23	.19	.18	.17	.09	1.63	.050
T4C1	4.250	172.00	.64	.63	.49	.37	.32	.27	.20	.16	.14	.00	.88	.050
T4C2	4.750	181.00	2.49	2.30	2.05	1.96	1.59	1.29	.93	.58	.00	.00	.59	.060
T4C3	5.250	187.00	2.73	2.37	2.06	1.97	1.60	1.31	.86	.64	.00	.00	.62	.070
T4C4	5.750	190.00	5.22	4.54	4.08	3.77	3.30	2.58	1.64	1.25	.93	.00	.55	.035
T4C5	6.250	191.50	(21.10)	12.10	10.10	10.10	8.42	6.83	4.89	2.47	.96	.00	.69	.000
T4C6	6.750	193.00	9.81	8.89	9.32	8.81	8.61	7.65	6.28	3.78	1.35	.00	.38	.050
T5B1	.750	187.00	61.90	38.25	30.55	29.30	24.20	18.90	13.70	8.35	5.03	.00	.56	.030
T5B2	1.250	187.00	42.10	35.70	25.40	20.60	17.00	12.38	10.67	6.86	6.09	.00	.52	.010
T5B3	2.250	187.00	18.60	14.80	13.90	12.80	11.10	8.75	6.42	4.56	.00	.00	.46	.040
T5D2	11.000	187.00	3.38	2.88	2.64	2.22	2.08	1.59	1.21	1.03	.00	.00	.47	.050
T5D3	14.000	187.00	2.05	1.90	1.72	1.52	1.30	1.06	.63	.41	.00	.00	.49	.050

Tabel 3.4 : Gemeten concentraties (meetserie II).

positie (m)	gemiddelde korreldiameter ( $\mu\text{m}$ )				
	T 1	T 2	T 3	T 5	gem.
150,00	210	200	219		210
160,00	202	211	198		204
170,00	206	202	233		214
180,00	218	219	223		220
185,00	209	204	159		191
188,00	216	149	191		185
190,00	220	217			219
191,00			220		220
196,00			230		230
200,00			220		220
204,00			210		210
gemiddeld					212

Tabel 3.5 : Overzicht D50 zandmonsters (meetserie II).

positie (m)	gemiddelde valsnelheid (m/s)				
	T 1	T 2	T 3	T 5	gem.
172,00 (E1)	0,0183	0,0180	0,0189		0,0184
181,00 (E2)	0,0205	0,0211	0,0220		0,0212
187,00 (F1)	0,0222	0,0219	0,0230		0,0224
190,00 (F2)	0,0217	0,0194	0,0241		0,0217
191,50 (F3)	0,0203	0,0196	0,0232		0,0210
191,50 (I1)			0,0230		
190,00 (I2)			0,0208		
187,00 (I3)			0,0244		
181,00 (I4)			0,0237		
172,00 (I5)			0,0233		
157,00 (I6)			0,0201		
gemiddeld					0,0209

Tabel 3.6 : Overzicht w50 suspensiemonsters (meetserie II).

	omstandigheden	test	% fout
Meetserie I	Procentuele fout groter dan 30%	1A	65.22
		4A	39.82
		7A	39.30
		7B	38.92
		8A	37.04
		9E	31.05
Meetserie II	Ontgrondingskuil of betonnen talud	T1A	7.97
		T1B	1.42
		T1F2	2.86
		T1F3	5.75
		T1G1	2.55
		T1G2	4.84
		T1G3	3.44
		T1H5	5.20
		T2A	2.68
		T2B	0.73
		T2F2	0.49
		T2F3	4.28
		T2G1	2.51
		T2G2	2.64
		T2G3	3.02
		T2H5	2.34
		T2I1	6.17
		T2I2	3.71
		T3A	6.81
		T3B	3.01
		T3F3	3.56
		T3G1	5.83
		T3G2	5.85
		T3I1	1.47
		T4C5	8.14
		T4C6	5.19
		Vroeg in proef of variërende waterstand	T3C
T4C1	4.28		
T4C2	1.88		
T4C3	1.34		
T4C4	1.22		
T5B1	4.35		
T5B2	4.26		
T5B3	2.42		

Niet meegenomen

Geselecteerde metingen

	omstandigheden	test	% fout	C <sub>0</sub>
Meetserie I	Geen breken, geen bodenhelling	2A	21.73	0.87
		2B	23.29	1.73
		3A	20.46	0.90
		3B	23.09	1.31
		4B	28.66	2.12
		5A	17.89	0.51
		5B	26.07	0.89
		6A	16.72	1.05
		6B	26.32	1.04
	Geen breken, met bodenhelling	8B	24.70	0.79
		9I	28.32	2.04
		9J	27.95	4.15
	Brekerzone	9B	22.76	0.92
		9C	26.91	0.93
		9D	23.59	0.88
		9F	5.99	1.70
	Vooroever	9G	27.95	4.15
		9E	15.72	2.11
9H		19.70	2.05	
9K		28.33	3.12	
Meetserie II	Talud zandbank	9L	4.70	0.98
		T2I6	10.67	0.98
		T3I6	8.92	0.82
	Zandbank	T1E1	3.09	1.41
		T1E2	3.24	5.00
		T2E1	3.76	1.21
		T2E2	2.36	8.68
		T2I5	3.82	4.03
		T3E1	5.20	1.45
		T3I5	4.59	8.49
		T1C	1.88	10.49
		T1F1	1.62	7.52
		T1G4	2.44	4.97
		T1H3	1.38	5.95
		T1H4	1.30	3.28
T2C	2.75	15.39		
T2F1	2.27	10.55		
T2G4	1.76	5.66		
T2H3	1.44	7.56		
T2H4	1.90	3.41		
T2I3	4.99	2.45		
T2I4	3.34	5.77		
T3E2	1.98	9.04		
T3F1	2.89	12.61		
T3F2	3.22	7.75		
T3G3	0.65	5.30		
T3G4	1.72	7.57		
T3H3	0.76	10.59		
T3H4	3.50	5.38		
T3H5	1.79	3.45		
T3I2	4.02	3.18		
T3I3	3.04	3.15		
T3I4	1.53	9.20		
T5D2	2.51	4.85		
T5D3	1.04	2.57		

Tabel 4.1 : Indeling metingen, en procentuele fouten.

	1	2	3	4	5
D[ 2.5]	141	132	143	148	155
D[ 5.0]	150	144	153	158	166
D[ 7.5]	156	153	160	165	174
D[10.0]	161	160	165	170	180
D[12.5]	165	166	170	175	185
D[15.0]	169	171	174	179	190
D[17.5]	173	177	177	182	195
D[20.0]	176	181	181	186	199
D[22.5]	179	186	184	189	203
D[25.0]	182	190	187	192	206
D[27.5]	185	194	190	195	210
D[30.0]	187	198	193	198	213
D[32.5]	190	202	196	201	217
D[35.0]	193	206	199	204	220
D[37.5]	195	210	201	206	223
D[40.0]	198	214	204	209	227
D[42.5]	200	218	207	212	230
D[45.0]	203	222	209	215	233
D[47.5]	205	226	212	217	237
D[50.0]	208	230	215	220	240
D[52.5]	210	231	217	223	243
D[55.0]	213	232	220	226	246
D[57.5]	216	233	222	229	249
D[60.0]	218	234	225	232	252
D[62.5]	221	235	228	235	256
D[65.0]	224	236	230	238	259
D[67.5]	227	237	233	241	263
D[70.0]	230	238	236	245	266
D[72.5]	233	239	239	248	270
D[75.0]	236	240	242	252	275
D[77.5]	240	242	246	256	279
D[80.0]	244	243	250	261	284
D[82.5]	248	244	254	266	289
D[85.0]	253	246	258	271	295
D[87.5]	259	248	264	278	302
D[90.0]	265	250	270	285	310
D[92.5]	273	253	278	294	320
D[95.0]	284	256	288	307	333
D[97.5]	301	261	305	327	355

Tabel 4.2 : Berekende lognormale diameter verdelingen.

test	hgen	EX	AG	PA1	PA2	PA3
Geen breken, geen bodenhelling:						
9I	2.17	8	0.7	0.059	-48.464	0.053
3A	2.20	8	0.7	0.076	-39.555	0.054
3B	2.20	8	0.7	0.069	-45.337	0.041
5B	2.20	8	0.7	0.078	-40.421	0.037
5A	2.20	8	0.7	0.096	-32.297	0.044
4B	2.20	8	0.7	0.061	-50.495	0.025
2B	2.20	8	0.7	0.065	-48.557	0.025
8B	2.20	8	0.7	0.081	-44.099	0.025
2A	2.20	8	0.7	0.079	-38.980	0.025
6B	2.20	8	0.7	0.075	-38.925	0.025
6A	2.20	8	0.7	0.075	-37.004	0.025
Geen breken, met bodenhelling:						
9D	2.19	8	0.7	0.074	-42.178	0.083
9C	2.28	8	0.7	0.075	-45.872	0.060
9B	2.72	8	0.7	0.073	-34.407	0.096
9J	1.92	8	0.7	0.033	-39.142	0.115
9F	2.14	8	0.7	0.053	-34.103	0.117
Brekerzone:						
9K	0.93	4	0.9	-0.004	-8.039	0.235
9L	0.71	6	0.7	0.095	-15.633	0.065
9G	1.24	8	0.7	0.054	-34.341	0.025
9H	0.97	8	0.7	0.038	-19.150	0.025

test	hgen	EX	AG	PA1	PA2	PA3
Vooroever:						
T2I6	1.63	8	0.7	0.076	-24.211	0.037
T3I6	1.63	8	0.7	0.086	-16.463	0.054
Talud zandbank:						
T1E1	1.42	6	0.8	0.071	-10.592	0.098
T3E1	1.40	6	0.9	0.034	-5.066	0.157
T2E1	1.41	6	0.9	0.104	-9.030	0.025
T2E2	0.93	8	0.7	-0.102	-12.587	0.103
T2I5	1.13	8	0.7	-0.031	-13.879	0.102
T3I5	0.82	8	0.7	-0.096	-12.753	0.079
T1E2	1.02	8	0.9	-0.041	-12.214	0.096
Zandbank:						
T1H3	0.96	6	0.9	-0.085	-9.016	0.126
T3I3	0.70	4	0.9	-0.073	-5.094	0.157
T3H4	0.67	4	0.9	-0.134	-5.742	0.118
T3H5	0.65	4	0.9	-0.168	-4.033	0.227
T2H3	0.90	4	0.9	-0.277	-4.845	0.221
T2I4	0.83	4	0.9	-0.164	-5.555	0.159
T2F1	0.83	8	0.7	-0.211	-8.490	0.150
T3H3	0.80	8	0.8	-0.150	-10.328	0.112
T3I4	0.78	8	0.8	-0.115	-11.369	0.094
T2G4	0.87	8	0.8	-0.115	-8.905	0.105
T1C	0.86	8	0.7	-0.169	-9.890	0.122
T1F1	0.95	8	0.8	-0.117	-10.337	0.120
T3G4	0.64	8	0.7	-0.224	-7.054	0.191
T5D2	0.47	4	0.9	-0.246	-4.121	0.237
T3G3	0.61	6	0.9	-0.316	-4.078	0.280
T3F1	0.60	4	0.9	-0.758	-2.899	0.352
T3I2	0.67	4	0.9	-0.244	-3.185	0.341
T2C	0.72	4	0.9	-0.515	-4.216	0.259
T3E2	0.81	4	0.9	-0.605	-3.065	0.371
T5D3	0.49	6	0.7	-0.354	-2.435	0.663
T3F2	0.58	4	0.9	-0.937	-2.021	0.578
T2H4	0.89	4	0.9	-0.028	-6.311	0.077
T1H4	1.07	4	0.9	-0.013	-6.608	0.075
T1G4	1.03	4	0.9	-0.047	-7.441	0.062
T2I3	0.94	4	0.9	0.054	-7.541	0.039

Tabel 4.3 : Overzicht van de coëfficiënten van de fit procedure.



test	positie	h <sub>gem</sub>	e.025 [E-2]	delta e (0.05)	e.2 [E-2]	enax [E-2]	U <sub>sig</sub>	T <sub>p</sub>	H <sub>s</sub>	U <sub>sig</sub> T <sub>p</sub> /2πi	H <sub>s</sub> /h <sub>gem</sub>	U <sub>sig</sub> T <sub>p</sub> /h <sub>gem</sub>
	(n)	(m)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m/s)	(s)	(m)	(m)	(-)	(-)
Geen breken, geen bodenhelling:												
9I	140	2.17	0.156	0.081	0.338	2.02	0.569	5.12	0.68	0.463	0.313	1.341
3A	115	2.20	0.170	0.093	0.377	2.30	0.606	5.12	0.74	0.494	0.336	1.409
3B	115	2.20	0.149	0.082	0.332	2.63	0.597	5.12	0.74	0.487	0.336	1.390
5B	115	2.20	0.167	0.095	0.381	3.35	0.652	6.08	0.73	0.632	0.332	1.803
5A	115	2.20	0.210	0.122	0.482	3.63	0.631	6.08	0.75	0.611	0.341	1.744
4B	115	2.20	0.133	0.074	0.304	3.82	0.490	5.12	0.61	0.399	0.277	1.139
2B	115	2.20	0.139	0.078	0.317	4.01	0.580	5.12	0.74	0.473	0.336	1.350
8B	115	2.20	0.153	0.088	0.354	4.50	0.531	6.07	0.58	0.513	0.264	1.464
2A	115	2.20	0.174	0.102	0.407	5.22	0.592	5.12	0.69	0.482	0.314	1.377
6B	115	2.20	0.174	0.102	0.407	5.22	0.586	4.10	0.73	0.383	0.332	1.092
6A	115	2.20	0.183	0.109	0.431	5.55	0.611	4.10	0.73	0.399	0.332	1.138
Geen breken, met bodenhelling:												
9D	90	2.19	0.157	0.080	0.327	1.27	0.618	5.12	0.69	0.504	0.315	1.444
9C	66	2.28	0.150	0.075	0.312	1.69	0.607	5.12	0.69	0.495	0.303	1.362
9B	55	2.72	0.235	0.094	0.426	1.79	0.518	5.12	0.67	0.422	0.246	0.974
9J	155	1.92	0.173	0.095	0.375	1.04	0.583	5.12	0.70	0.475	0.365	1.555
9F	150	2.14	0.219	0.108	0.445	1.34	0.606	5.12	0.68	0.494	0.318	1.449
Brekerzone:												
9K	165	0.93	0.362	0.139	0.636	1.23	0.988	5.12	0.65	0.805	0.699	5.437
9L	180	0.71	0.169	0.352	1.095	1.80	0.752	5.12	0.47	0.613	0.662	5.421
9G	160	1.24	0.138	0.192	0.696	3.83	0.814	5.12	0.73	0.664	0.589	3.361
9H	170	0.97	0.190	0.431	1.615	5.33	0.773	5.12	0.56	0.630	0.577	4.079
Vooroever:												
T2I6	157	1.63	0.210	0.194	0.690	4.17	1.126	5.80	0.92	1.040	0.566	4.007
T3I6	157	1.63	0.309	0.282	0.983	4.28	1.077	6.40	0.94	1.098	0.575	4.229
Talud zandbank:												
T1E1	172	1.42	0.401	0.232	0.903	3.33	1.322	8.30	0.86	1.747	0.605	7.727
T3E1	172	1.40	0.815	0.381	1.586	4.34	1.180	5.88	0.86	1.105	0.614	4.956
T2E1	172	1.41	0.467	0.273	1.082	15.60	1.241	9.00	0.86	1.779	0.609	7.921
T2E2	181	0.93	0.255	0.446	1.218	1.67	1.560	5.88	0.76	1.461	0.820	9.863
T2I5	172	1.13	0.269	0.359	1.078	1.88	1.360	8.90	0.86	1.927	0.760	10.712
T3I5	172	0.82	0.231	0.543	1.454	1.97	1.490	9.09	0.81	2.157	0.989	16.517
T1E2	181	1.02	0.268	0.295	0.943	2.11	1.460	5.56	0.80	1.293	0.779	7.958

Tabel 4.4 : Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=0.2m$  en  $z=0.025m$ .

test	positie	hgen	e.025 [E-2]	delta e (0.05)	e.2 [E-2]	enax [E-2]	Usig	Tp	Hs	UsigTp/2pi	Hs/hgen	UsigTp/hgen
	(m)	(m)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m/s)	(s)	(m)	(m)	(-)	(-)
Zandbank:												
T1H3	181	0.96	0.328	0.254	0.883	2.06	1.540	7.70	0.76	1.888	0.795	12.352
T3I3	187	0.70	0.418	0.286	1.037	2.17	1.220	10.00	0.56	1.943	0.796	17.429
T3H4	187	0.67	0.359	0.285	1.015	2.45	1.210	0.00	0.56	0.000	0.831	0.000
T3H5	190	0.65	0.489	0.313	1.114	1.76	1.200	0.00	0.53	0.000	0.808	0.000
T2H3	181	0.90	0.545	0.237	1.017	2.04	1.290	6.90	0.70	1.417	0.778	9.890
T2I4	181	0.83	0.445	0.242	0.958	2.32	1.380	5.26	0.70	1.156	0.843	8.746
T2F1	187	0.83	0.347	0.583	1.386	1.54	1.530	8.33	0.64	2.029	0.766	15.355
T3H3	181	0.80	0.267	0.454	1.235	1.68	1.320	6.90	0.67	1.450	0.835	11.385
T3I4	181	0.78	0.240	0.463	1.257	1.73	1.320	6.25	0.65	1.314	0.836	10.577
T264	187	0.87	0.332	0.533	1.502	2.26	1.290	9.09	0.64	1.857	0.731	13.478
T1C	190	0.86	0.308	0.559	1.400	1.75	1.500	5.50	0.67	1.314	0.777	9.593
T1F1	187	0.95	0.305	0.408	1.181	1.88	1.530	9.09	0.68	2.215	0.720	14.640
T364	187	0.64	0.336	0.593	1.161	1.16	1.320	9.09	0.57	1.911	0.894	18.748
T5D2	187	0.47	0.361	0.328	0.973	1.20	0.000	0.00	0.51	0.000	1.083	0.000
T3G3	190	0.61	0.480	0.416	1.166	1.33	1.190	5.88	0.53	1.114	0.861	11.471
T3F1	187	0.60	0.620	0.316	1.178	1.50	1.520	9.09	0.60	2.200	1.007	23.028
T3I2	190	0.67	0.625	0.290	1.150	1.52	1.200	6.90	0.53	1.318	0.784	12.358
T2C	190	0.72	0.509	0.265	1.026	1.60	1.590	6.25	0.62	1.582	0.861	13.802
T3E2	181	0.81	0.768	0.272	1.261	1.79	0.000	0.00	0.73	0.000	0.902	0.000
T5D3	187	0.49	0.608	0.159	0.781	0.78	0.000	0.00	0.51	0.000	1.039	0.000
T3F2	190	0.58	0.828	0.221	1.167	1.25	1.350	6.45	0.53	1.387	0.905	15.013
T2H4	187	0.89	0.463	0.237	0.985	4.88	1.300	0.00	0.62	0.000	0.697	0.000
T1H4	187	1.07	0.475	0.220	0.951	5.28	1.370	0.00	0.67	0.000	0.624	0.000
T164	187	1.03	0.408	0.201	0.852	5.15	1.410	9.09	0.67	2.041	0.649	12.444
T2I3	187	0.94	0.371	0.216	0.873	7.56	1.230	7.40	0.62	1.449	0.660	9.683

Vervolg tabel 4.4 : Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=0.2m$  en  $z=0.025m$ .

test	positie	h <sub>gem</sub>	e	e <sub>max</sub>	U <sub>sig</sub>	T <sub>p</sub>	H <sub>s</sub>	U <sub>sig</sub> T <sub>p</sub> /2πi	H <sub>s</sub> /h <sub>gem</sub>
	(n)	(m)	[E-2]	[E-2]	(m/s)	(s)	(m)	(m)	(-)
Geen breken, geen bodenhelling:									
9I	140	2.17	0.364	2.02	0.569	5.12	0.68	0.464	0.313
3A	115	2.20	0.412	2.30	0.607	5.12	0.74	0.495	0.336
3B	115	2.20	0.365	2.63	0.598	5.12	0.74	0.488	0.336
5B	115	2.20	0.419	3.35	0.653	6.08	0.73	0.632	0.332
5A	115	2.20	0.529	3.63	0.633	6.08	0.75	0.613	0.341
4B	115	2.20	0.334	3.82	0.490	5.12	0.61	0.399	0.277
2B	115	2.20	0.350	4.01	0.580	5.12	0.74	0.473	0.336
8B	115	2.20	0.390	4.50	0.530	6.07	0.58	0.512	0.264
2A	115	2.20	0.449	5.22	0.592	5.12	0.69	0.483	0.314
6B	115	2.20	0.450	5.22	0.588	4.10	0.73	0.384	0.332
6A	115	2.20	0.476	5.55	0.611	4.10	0.73	0.399	0.332
Geen breken, met bodenhelling:									
9D	90	2.19	0.353	1.27	0.616	5.12	0.69	0.502	0.315
9C	66	2.28	0.350	1.69	0.607	5.12	0.69	0.495	0.303
9B	55	2.72	0.540	1.79	0.520	5.12	0.67	0.424	0.246
9J	155	1.92	0.362	1.04	0.580	5.12	0.70	0.473	0.365
9F	150	2.14	0.470	1.34	0.605	5.12	0.68	0.493	0.318
Brekerzone:									
9K	165	0.93	0.453	1.23	0.937	5.12	0.65	0.764	0.699
9L	180	0.71	0.284	1.80	0.760	5.12	0.47	0.620	0.662
9G	160	1.24	0.327	3.83	0.787	5.12	0.73	0.642	0.589
9H	170	0.97	0.593	5.33	0.747	5.12	0.56	0.609	0.577
Vooroever:									
T2I6	157	1.63	0.530	4.17	1.150	5.80	0.92	1.062	0.566
T3I6	157	1.63	0.768	4.28	1.100	6.40	0.94	1.121	0.575
Talud zandbank:									
T1E1	172	1.42	0.690	3.33	1.350	8.30	0.86	1.784	0.605
T3E1	172	1.40	1.271	4.34	1.210	5.88	0.86	1.133	0.614
T2E1	172	1.41	0.809	15.60	1.260	9.00	0.86	1.806	0.609
T2E2	181	0.93	0.527	1.67	1.640	5.88	0.76	1.536	0.820
T2I5	172	1.13	0.576	1.88	1.420	8.90	0.86	2.012	0.760
T3I5	172	0.82	0.471	1.97	1.580	9.09	0.81	2.287	0.989
T1E2	181	1.02	0.483	2.11	1.530	5.56	0.80	1.355	0.779

Tabel 4.5 : Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=h_{gem}/10$ .

test	positie	h <sub>gem</sub>	e [E-2]	e <sub>max</sub> [E-2]	U <sub>sig</sub>	T <sub>p</sub>	H <sub>s</sub>	U <sub>sig</sub> T <sub>p</sub> /2πH <sub>s</sub> /h <sub>gem</sub>	H <sub>s</sub> /h <sub>gem</sub>
	(m)	(m)	(m <sup>2</sup> /s)	(m <sup>2</sup> /s)	(m/s)	(s)	(m)	(m)	(-)
Zandbank:									
T1H3	181	0.96	0.498	2.06	1.610	7.70	0.76	1.974	0.795
T3I3	187	0.70	0.528	2.17	1.250	10.00	0.56	1.990	0.796
T3H4	187	0.67	0.459	2.45	1.330	0.00	0.56	0.000	0.831
T3H5	190	0.65	0.600	1.76	1.290	0.00	0.53	0.000	0.808
T2H3	181	0.90	0.692	2.04	1.390	6.90	0.70	1.527	0.778
T2I4	181	0.83	0.573	2.32	1.440	5.26	0.70	1.206	0.843
T2F1	187	0.83	0.642	1.54	1.600	8.33	0.64	2.122	0.766
T3H3	181	0.80	0.479	1.68	1.370	6.90	0.67	1.505	0.835
T3I4	181	0.78	0.434	1.73	1.400	6.25	0.65	1.393	0.836
T2G4	187	0.87	0.580	2.26	1.380	9.09	0.64	1.997	0.731
T1C	190	0.86	0.598	1.75	1.570	5.50	0.67	1.375	0.777
T1F1	187	0.95	0.568	1.88	1.600	9.10	0.68	2.318	0.720
T3G4	187	0.64	0.548	1.16	1.380	9.09	0.57	1.997	0.894
T5D2	187	0.47	0.423	1.20	0.000	0.00	0.51	0.000	1.083
T3G3	190	0.61	0.621	1.33	1.250	5.88	0.53	1.170	0.861
T3F1	187	0.60	0.725	1.50	1.590	9.09	0.60	2.301	1.007
T3I2	190	0.67	0.740	1.52	1.300	6.90	0.53	1.428	0.784
T2C	190	0.72	0.623	1.60	1.650	6.25	0.62	1.642	0.861
T3E2	181	0.81	0.915	1.79	0.000	0.00	0.73	0.000	0.902
T5D3	187	0.49	0.662	0.78	0.000	0.00	0.51	0.000	1.039
T3F2	190	0.58	0.904	1.25	1.400	6.45	0.53	1.438	0.905
T2H4	187	0.89	0.604	4.88	1.360	0.00	0.62	0.000	0.697
T1H4	187	1.07	0.646	5.28	1.440	0.00	0.67	0.000	0.624
T1G4	187	1.03	0.558	5.15	1.470	9.09	0.67	2.128	0.649
T2I3	187	0.94	0.511	7.56	1.300	7.40	0.62	1.532	0.660

Vervolg tabel 4.5 : Overzicht  $\epsilon$  waarden en randvoorwaarden op  $z=h_{gem}/10$ .

#### BIJLAGE C: UITVOER COMPUTERPROGRAMMA

Per test staan achtereenvolgens vermeld:

- berekende bodemconcentratie.
- som van de kwadraten van de afwijkingen tussen gemeten en berekende concentraties.
- gemiddelde procentuele fout per punt.
- gemeten en berekende concentratie en procentuele fout op de hoogten van de meetpunten.
- berekende  $\epsilon$  verdeling, uitgaande van uniform materiaal (D50).
- berekende  $\epsilon$  verdeling, uitgaande van D10-D50-D90.
- D10-D50-D90 verdeling over de waterdiepte.

idemconcentratie : 0.8700 gram/liter  
 cm van de kwadraten van de afwijkingen : 0.675821  
 gemiddelde procentuale fout per punt : 21.73229 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	0.6030	0.3981	51.48
2	0.075	0.2780	0.2887	-3.70
3	0.100	0.1860	0.2178	-14.60
4	0.130	0.1290	0.1626	-20.67
5	0.180	0.0900	0.1098	-18.02
6	0.255	0.0860	0.0722	19.15
7	0.400	0.0460	0.0462	-0.39
8	0.650	0.0230	0.0347	-33.65
9	1.050	0.0290	0.0284	2.01
10	1.550	0.0350	0.0228	53.65

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.575	0.062260	0.051711			
1.550			84	182	231
1.525	0.062260	0.051770			
1.500			85	182	231
1.475	0.062260	0.051829			
1.450			85	182	231
1.425	0.062260	0.051888			
1.400			86	182	231
1.375	0.062260	0.051946			
1.350			86	182	232
1.325	0.062260	0.052005			
1.300			87	182	232
1.275	0.062258	0.052063			
1.250			87	183	232
1.225	0.062253	0.052118			
1.200			88	183	232
1.175	0.062236	0.052163			
1.150			89	183	233
1.125	0.062193	0.052191			
1.100			89	183	233
1.075	0.062093	0.052159			
1.050			90	183	233
1.025	0.061883	0.052039			
1.000			90	183	233

0.975	0.061473	0.051749	91	184	234
0.950					
0.925	0.060728	0.051174	92	184	234
0.900					
0.875	0.059457	0.050151	92	184	234
0.850					
0.825	0.057425	0.048482	93	184	234
0.800					
0.775	0.054394	0.045965	94	184	234
0.750					
0.725	0.050211	0.042469	94	185	235
0.700					
0.675	0.044908	0.038027	95	185	235
0.650					
0.625	0.038774	0.032872	96	185	235
0.600					
0.575	0.032308	0.027436	98	186	236
0.550					
0.525	0.026064	0.022183	99	186	236
0.500					
0.475	0.020478	0.017481	101	187	237
0.450					
0.425	0.015782	0.013526	104	187	238
0.400					
0.375	0.012012	0.010350	108	188	239
0.350					
0.325	0.009083	0.007882	114	190	241
0.300					
0.275	0.006854	0.006004	121	191	243
0.250					
0.225	0.005178	0.004594	133	194	246
0.200					
0.175	0.003926	0.003541	150	197	249
0.150					
0.125	0.002991	0.002757	155	201	255
0.100					
0.075	0.002293	0.002173	159	207	262
0.050					
0.025	0.001768	0.001737	165	215	270
0.000					
0.000	0.001557				

Bodemconcentratie : 1.7306 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.723437  
 Gemiddelde procentuele fout per punt : 23.29171 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.050	0.9600	0.6535	46.91
2	0.075	0.5100	0.4379	16.46
3	0.100	0.2320	0.3083	-24.75
4	0.130	0.1290	0.2143	-39.79
5	0.180	0.1280	0.1313	-2.53
6	0.255	0.0850	0.0779	9.13
7	0.400	0.0590	0.0447	32.11
8	0.650	0.0270	0.0312	-13.58
9	1.050	0.0200	0.0244	-18.04
10	1.550	0.0240	0.0185	29.61

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.575	0.049981	0.039693			
1.550			66	175	222
1.525	0.049981	0.039746			
1.500			66	175	222
1.475	0.049981	0.039800			
1.450			67	175	223
1.425	0.049981	0.039853			
1.400			67	175	223
1.375	0.049981	0.039907			
1.350			68	176	223
1.325	0.049980	0.039961			
1.300			68	176	223
1.275	0.049979	0.040014			
1.250			69	176	224
1.225	0.049975	0.040064			
1.200			69	176	224
1.175	0.049961	0.040111			
1.150			70	176	224
1.125	0.049927	0.040133			
1.100			70	177	224
1.075	0.049846	0.040122			
1.050			71	177	225
1.025	0.049678	0.040039			
1.000			71	177	225

0.975	0.049349	0.039825	72	177	225
0.950					
0.925	0.048751	0.039391	72	177	226
0.900					
0.875	0.047730	0.038613	73	178	226
0.850					
0.825	0.046099	0.037337	74	178	226
0.800					
0.775	0.043666	0.035408	74	178	226
0.750					
0.725	0.040308	0.032724	75	178	227
0.700					
0.675	0.036051	0.029310	76	179	227
0.650					
0.625	0.031127	0.025346	77	179	228
0.600					
0.575	0.025936	0.021163	78	179	228
0.550					
0.525	0.020923	0.017120	79	180	229
0.500					
0.475	0.016439	0.013500	81	181	230
0.450					
0.425	0.012669	0.010455	84	181	231
0.400					
0.375	0.009643	0.008009	87	183	232
0.350					
0.325	0.007291	0.006109	92	184	234
0.300					
0.275	0.005502	0.004663	100	186	237
0.250					
0.225	0.004157	0.003578	111	189	240
0.200					
0.175	0.003152	0.002769	128	193	245
0.150					
0.125	0.002401	0.002167	153	198	251
0.100					
0.075	0.001840	0.001720	158	205	259
0.050					
0.025	0.001419	0.001387	165	215	270
0.000					
0.000	0.001250				

Bodemconcentratie : 0.9049 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.507869  
 Gemiddelde procentuele fout per punt : 20.46116 %

nummer	hoogte m	concentratie g/l		fout %	D-10	D-50	D-90
		gemeten	berekend				
1	0.050	0.5570	0.4080	36.52			
2	0.075	0.2780	0.2934	-8.24			
3	0.100	0.1960	0.2193	-10.64			
4	0.130	0.1110	0.1619	-31.43			
5	0.180	0.0930	0.1070	-13.11			
6	0.255	0.0950	0.0680	39.67			
7	0.400	0.0520	0.0405	28.34			
8	0.650	0.0230	0.0267	-13.80			
9	1.050	0.0150	0.0177	-15.13			
10	1.550	0.0120	0.0108	10.72			

DIFFUSIE-COEFFICIENTEN VERDELING									
hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90				
1.575	0.028206	0.022512							
1.550			68	176	223				
1.525	0.028206	0.022566							
1.500			69	176	224				
1.475	0.028206	0.022621							
1.450			69	176	224				
1.425	0.028206	0.022676							
1.400			70	177	225				
1.375	0.028206	0.022730							
1.350			71	177	225				
1.325	0.028206	0.022785							
1.300			72	177	225				
1.275	0.028206	0.022840							
1.250			73	178	226				
1.225	0.028205	0.022895							
1.200			74	178	226				
1.175	0.028201	0.022948							
1.150			75	178	227				
1.125	0.028193	0.022997							
1.100			76	179	227				
1.075	0.028172	0.023037							
1.050			77	179	228				
1.025	0.028130	0.023058							
1.000			78	180	228				



ademconcentratie : 1.3089 gram/liter  
 om van de kwadraten van de afwijkingen : 0.769987  
 gemiddelde procentuele fout per punt : 23.09026 %

nummer	hoogte m	concentratie q/l		fout %	D-10	D-50	D-90	nummer
		gemeten	berekend					
1	0.050	0.8770	0.5262	66.67				72
2	0.075	0.3610	0.3613	-0.08				177
3	0.100	0.2070	0.2596	-20.25				225
4	0.130	0.1230	0.1840	-33.14				178
5	0.180	0.0770	0.1154	-33.28				226
6	0.255	0.0860	0.0697	23.46				178
7	0.400	0.0510	0.0398	28.08				226
8	0.650	0.0300	0.0264	13.69				178
9	1.050	0.0190	0.0184	3.22				227
10	1.550	0.0110	0.0121	-9.05				179
		0.725	0.023407					227
		0.700	0.023407					179
		0.675	0.021777					228
		0.650	0.021777					179
		0.625	0.019713					228
		0.600	0.024048					180
		0.575	0.017308					229
		0.550	0.021057					180
		0.525	0.017865					229
		0.500	0.014733					181
		0.475	0.014717					230
		0.450	0.012187					182
		0.425	0.009842					231
		0.400	0.011823					183
		0.375	0.007808					232
		0.350	0.009317					184
		0.325	0.007244					234
		0.300	0.006124					185
		0.275	0.005586					236
		0.250	0.004777					188
		0.225	0.004291					238
		0.200	0.003726					190
		0.175	0.002917					242
		0.150	0.003295					194
		0.125	0.002534					246
		0.100	0.002302					199
		0.075	0.001956					252
		0.050	0.001837					206
		0.025	0.001517					260
		0.000	0.001485					215
		0.000	0.001338					270

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.575	0.032839	0.025887	63	174	221
1.550	0.032839	0.025939	64	174	221
1.525	0.032839	0.025992	65	174	222
1.475	0.032839	0.026045	65	175	222
1.450	0.032839	0.026098	66	175	222
1.425	0.032839	0.026151	67	175	223
1.400	0.032839	0.026204	68	176	223
1.375	0.032839	0.026257	68	176	224
1.350	0.032839	0.026306	69	176	224
1.325	0.032839	0.026349	70	176	224
1.300	0.032839	0.026378	71	177	225
1.275	0.032839	0.026378	71	177	225
1.250	0.032839	0.026378	71	177	225
1.225	0.032839	0.026378	71	177	225
1.200	0.032839	0.026378	71	177	225
1.175	0.032839	0.026378	71	177	225
1.150	0.032839	0.026378	71	177	225
1.125	0.032839	0.026378	71	177	225
1.100	0.032839	0.026378	71	177	225
1.075	0.032839	0.026378	71	177	225
1.050	0.032839	0.026378	71	177	225
1.025	0.032839	0.026378	71	177	225
1.000	0.032839	0.026378	71	177	225

Bodemconcentratie : 2.1248 gram/liter  
 Som van de kwadraten van de afwijkingen : 1.345628  
 Gemiddelde procentuele fout per punt : 28.66483 %

nummer	hoogte m	concentratie g/l		fout %	D-10	D-50	D-90	hoogte [m]	eps [m <sup>2</sup> /s] (050)	eps [m <sup>2</sup> /s] (010-050-090)	fout %	D-10	D-50	D-90	0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
		gemeten	berekend																																																			
1	0.050	1.6700	0.7718	116.39											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
2	0.075	0.4640	0.5090	-8.84											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
3	0.100	0.2320	0.3534	-34.34											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
4	0.130	0.1290	0.2420	-46.70											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
5	0.180	0.1280	0.1455	-12.01											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
6	0.255	0.1210	0.0845	43.19											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
7	0.400	0.0460	0.0474	-2.93											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
8	0.650	0.0320	0.0327	-2.09											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
9	1.050	0.0290	0.0253	14.73											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000
10	1.550	0.0200	0.0190	5.43											0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000

#### DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (050)	eps [m <sup>2</sup> /s] (010-050-090)	D-10	D-50	D-90
1.575	0.048063	0.037837	63	173	220
1.550	0.048063	0.037889	63	174	221
1.500	0.048063	0.037942	64	174	221
1.475	0.048063	0.037994	64	174	221
1.450	0.048063	0.038047	65	174	221
1.425	0.048062	0.038099	65	174	222
1.400	0.048061	0.038151	66	175	222
1.375	0.048057	0.038201	66	175	222
1.350	0.048044	0.038243	67	175	223
1.325	0.048011	0.038273	67	175	223
1.300	0.047934	0.038260	68	176	223
1.275	0.047771	0.038182	68	176	223
1.250					
1.225					
1.200					
1.175					
1.150					
1.125					
1.100					
1.075					
1.050					
1.025					
1.000					

ademconcentratie : 0.5055 gram/liter  
 mm van de kwadraten van de afwijkingen : 0.468860  
 gemiddelde procentuele fout per punt : 17.88799 %

nummer	hoogte m	concentratie g/l		fout %	DIFFUSIE-COEFFICIENTEN VERDELING									
		gemeten	berekend		hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90				
1	0.050	0.3710	0.2641	40.50	1.075	0.042508	0.036334	100	186	236				
2	0.075	0.2320	0.2019	14.89	1.050	0.042428	0.036326	101	186	237				
3	0.100	0.1040	0.1595	-34.79	1.025	0.042272	0.036252	102	187	237				
4	0.130	0.1040	0.1247	-16.60	1.000	0.041984	0.036063	103	187	238				
5	0.180	0.0780	0.0893	-12.68	0.975	0.041486	0.035693	104	187	238				
6	0.255	0.0630	0.0622	1.31	0.825	0.040670	0.035046	105	187	238				
7	0.400	0.0520	0.0415	25.31	0.800	0.039407	0.034012	106	188	239				
8	0.650	0.0360	0.0306	17.69	0.775	0.037565	0.032473	107	188	239				
9	1.050	0.0200	0.0232	-13.81	0.750	0.035050	0.030349	109	188	239				
10	1.550	0.0170	0.0168	1.29	0.650	0.031855	0.027632	110	189	240				
					0.625	0.028102	0.024428	112	189	240				
					0.575	0.024034	0.020943	114	190	241				
					0.550	0.019956	0.017443	117	190	242				
					0.525	0.016152	0.014173	120	191	242				
					0.500	0.012810	0.011297	125	192	244				
					0.475	0.010012	0.008887	130	193	245				
					0.450	0.007754	0.006941	139	195	247				
					0.425	0.005977	0.005409	150	197	250				
					0.400	0.004601	0.004223	154	200	253				
					0.375	0.003546	0.003315	157	204	257				
					0.350	0.002741	0.002623	160	209	263				
					0.325	0.002128	0.002098	165	215	270				
					0.300	0.001879								
					0.275									
					0.250									
					0.225									
					0.200									
					0.175									
					0.150									
					0.125									
					0.100									
					0.075									
					0.050									
					0.025									
					0.000									



ademconcentratie : 1.0451 gram/liter  
 om van de kwadraten van de afwijkingen : 0.395183  
 gemiddelde procentuele fout per punt : 16.71841 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	0.6680	0.4976	34.26
2	0.075	0.3470	0.3667	-5.38
3	0.100	0.2560	0.2807	-8.79
4	0.130	0.1490	0.2127	-29.95
5	0.180	0.1280	0.1465	-12.61
6	0.255	0.1390	0.0984	41.30
7	0.400	0.0720	0.0644	11.83
8	0.650	0.0440	0.0490	-10.28
9	1.050	0.0380	0.0406	-6.46
10	1.550	0.0350	0.0329	6.33

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10		D-50		D-90	
			eps	verdeling	eps	verdeling	eps	verdeling
1.575	0.065586	0.054994						
1.550			89	183	233			
1.525	0.065586	0.055054						
1.500			89	183	233			
1.475	0.065586	0.055113						
1.450			90	183	233			
1.425	0.065586	0.055173						
1.400			90	184	233			
1.375	0.065586	0.055233						
1.350			91	184	234			
1.325	0.065586	0.055293						
1.300			92	184	234			
1.275	0.065584	0.055352						
1.250			92	184	234			
1.225	0.065578	0.055407						
1.200			93	184	234			
1.175	0.065561	0.055452						
1.150			93	184	234			
1.125	0.065515	0.055473						
1.100			94	185	235			
1.075	0.065410	0.055442						
1.050			95	185	235			
1.025	0.065188	0.055318						
1.000			95	185	235			



Bodemconcentratie : 0.7884 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.943551  
 Gemiddelde procentuele fout per punt : 24.70059 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	0.6030	0.3256	85.22
2	0.075	0.2320	0.2263	2.50
3	0.100	0.1290	0.1646	-21.61
4	0.130	0.0700	0.1182	-40.80
5	0.180	0.0600	0.0758	-20.86
6	0.255	0.0400	0.0472	-15.21
7	0.400	0.0410	0.0285	44.04
8	0.650	0.0230	0.0206	11.77
9	1.050	0.0170	0.0164	3.40
10	1.550	0.0130	0.0128	1.59

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.575	0.055034	0.044615	73	178	226
1.550	0.055034	0.044671	74	178	226
1.475	0.055034	0.044727	74	178	227
1.450	0.055034	0.044783	75	178	227
1.400	0.055034	0.044839	76	179	227
1.375	0.055034	0.044895	76	179	227
1.350	0.055033	0.044955	77	179	228
1.325	0.055028	0.045003	77	179	228
1.300	0.055013	0.045047	78	179	228
1.275	0.054975	0.045072	78	180	228
1.250	0.054886	0.045055	79	180	229
1.225	0.054701	0.044957	79	180	229
1.200					
1.175					
1.150					
1.125					
1.100					
1.075					
1.050					
1.025					
1.000					

DIFFUSIE-COEFFICIENTEN VERDELING	0.975	0.950	0.925	0.900	0.875	0.850	0.825	0.800	0.775	0.750	0.725	0.700	0.675	0.650	0.625	0.600	0.575	0.550	0.525	0.500	0.475	0.450	0.425	0.400	0.375	0.350	0.325	0.300	0.275	0.250	0.225	0.200	0.175	0.150	0.125	0.100	0.075	0.050	0.025	0.000											
	0.054339	0.053680	0.052556	0.050760	0.048081	0.044383	0.039696	0.034274	0.028558	0.023039	0.018102	0.013950	0.010618	0.008029	0.006058	0.004577	0.003470	0.002644	0.002026	0.001563	0.001376	0.0011715	0.000970	0.000837	0.0006837	0.0005214	0.0003995	0.003086	0.002410	0.001907	0.001531	0.001376	0.0011715	0.000970	0.000837	0.0006837	0.0005214	0.0003995	0.003086	0.002410	0.001907	0.001531	0.001376								
	80	81	81	82	82	83	84	85	86	88	90	93	96	102	109	121	138	154	158	165	180	181	182	183	184	185	187	189	191	195	200	206	215	229	230	230	230	231	231	232	232	233	234	235	237	240	243	247	253	260	270











Bodemconcentratie : 2.1082 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.313414  
 Gemiddelde procentuele fout per punt : 15.72303 %

nummer	hoogte m	concentratie g/l		fout %	D-10	D-50	D-90
		gemeten	berekend				
1	0.050	0.9560	0.6934	37.88			
2	0.075	0.3530	0.4697	-24.85			
3	0.100	0.2870	0.3457	-16.99			
4	0.130	0.2550	0.2609	-2.25			
5	0.180	0.2060	0.1899	8.49			
6	0.255	0.1780	0.1464	21.55			
7	0.400	0.0970	0.1194	-18.76			
8	0.650	0.1040	0.0994	4.60			
9	1.050	0.0800	0.0754	6.14			

DIFFUSIE-COEFFICIENTEN VERDELING							
hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90		
1.075	0.045422	0.037698	95	201	261		
1.050							
1.025	0.045438	0.037788	97	201	262		
1.000							
0.975	0.045440	0.037865	98	202	262		
0.950							
0.925	0.045440	0.037941	99	202	263		
0.900							
0.875	0.045440	0.038016	100	202	263		
0.850							
0.825	0.045440	0.038092	101	203	264		
0.800							
0.775	0.045440	0.038171	102	203	264		
0.750							
0.725	0.045439	0.038243	103	204	265		
0.700							
0.675	0.045430	0.038310	104	204	265		
0.650							
0.625	0.045373	0.038336	105	204	265		
0.600							
0.575	0.045143	0.038207	107	205	266		
0.550							
0.525	0.044410	0.037637	108	205	266		
0.500							
0.475	0.042512	0.036057	109	205	267		
0.450							

0.425	0.038524	0.032680	111	206	267
0.400					
0.375	0.031947	0.027102	112	206	268
0.350					
0.325	0.023732	0.020155	115	207	269
0.300					
0.275	0.015940	0.013586	119	208	271
0.250					
0.225	0.010016	0.008600	126	210	273
0.200					
0.175	0.006109	0.005312	137	213	276
0.150					
0.125	0.003712	0.003297	160	218	283
0.100					
0.075	0.002280	0.002095	170	226	293
0.050					
0.025	0.001426	0.001382	180	240	310
0.000					
0.000	0.001136				

Bodemconcentratie : 2.0544 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.478353  
 Gemiddelde procentuele fout per punt : 19.69644 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	1.2060	0.9731	23.94
2	0.075	0.6150	0.7689	-20.02
3	0.100	0.6160	0.6470	-4.80
4	0.130	0.5650	0.5589	1.10
5	0.180	0.4570	0.4818	-5.15
6	0.255	0.5620	0.4330	29.80
7	0.400	0.2480	0.3949	-37.20
8	0.650	0.4730	0.3489	35.57

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.057463	0.053137			
0.650			158	203	260
0.625	0.057463	0.053209			
0.600			158	203	260
0.575	0.057462	0.053279			
0.550			158	203	261
0.525	0.057447	0.053334			
0.500			159	203	261
0.475	0.057315	0.053266			
0.450			159	203	261
0.425	0.056616	0.052641			
0.400			159	204	262
0.375	0.054059	0.050207			
0.350			159	204	262
0.325	0.047378	0.043874			
0.300			159	204	263
0.275	0.035634	0.032889			
0.250			159	205	263
0.225	0.022465	0.020717			
0.200			160	205	264
0.175	0.012509	0.011585			
0.150			160	206	266
0.125	0.006636	0.006209			
0.100			162	208	269
0.075	0.003528	0.003364			
0.050			164	212	275
0.025	0.001923	0.001896			
0.000			170	220	285
0.000	0.001437				

Soedemconcentratie : 2.0430 gram/liter  
 Som van de kwadraten van de afwijkingen : 1.090284  
 Gemiddelde procentuele fout per punt : 28.31783 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	1.5300	0.7609	101.07
2	0.075	0.4180	0.5061	-17.42
3	0.100	0.2590	0.3535	-26.74
4	0.130	0.1460	0.2432	-39.98
5	0.180	0.1210	0.1464	-17.34
6	0.255	0.1040	0.0842	23.56
7	0.400	0.0630	0.0450	40.15
8	0.650	0.0290	0.0272	6.59
9	1.050	0.0150	0.0165	-9.16
10	1.550	0.0090	0.0091	-1.17

DIFFUSIE-COEFFICIENTEN VERDELING										
hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90					
1.575	0.026436	0.019625								
1.550			54	183	235					
1.525	0.026436	0.019681								
1.500			55	183	236					
1.475	0.026436	0.019739								
1.450			56	184	236					
1.425	0.026436	0.019797								
1.400			57	184	237					
1.375	0.026436	0.019855								
1.350			58	184	238					
1.325	0.026436	0.019914								
1.300			58	185	239					
1.275	0.026436	0.019973								
1.250			59	185	239					
1.225	0.026435	0.020033								
1.200			60	186	240					
1.175	0.026433	0.020092								
1.150			61	186	241					
1.125	0.026426	0.020148								
1.100			62	187	242					
1.075	0.026411	0.020197								
1.050			63	187	242					
1.025	0.026377	0.020233								
1.000			64	188	243					

0.975	0.026310	0.020243	65	188	244
0.950					
0.925	0.026182	0.020207	66	189	245
0.900					
0.875	0.025955	0.020093	67	189	245
0.850					
0.825	0.025573	0.019859	68	190	246
0.800					
0.775	0.024967	0.019448	69	190	247
0.750					
0.725	0.024054	0.018797	70	191	248
0.700					
0.675	0.022762	0.017846	72	192	248
0.650					
0.625	0.021052	0.016564	73	192	249
0.600					
0.575	0.018947	0.014966	75	193	250
0.550					
0.525	0.016550	0.013132	77	194	252
0.500					
0.475	0.014027	0.011191	79	195	253
0.450					
0.425	0.011564	0.009287	82	196	255
0.400					
0.375	0.009312	0.007541	87	198	257
0.350					
0.325	0.007365	0.006029	93	200	260
0.300					
0.275	0.005753	0.004775	101	203	264
0.250					
0.225	0.004460	0.003770	113	206	268
0.200					
0.175	0.003445	0.002982	132	211	275
0.150					
0.125	0.002660	0.002375	164	218	283
0.100					
0.075	0.002057	0.001912	171	227	295
0.050					
0.025	0.001597	0.001561	180	240	310
0.000					
0.000	0.001409				



Bodemconcentratie : 3.1240 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.913545  
 Gemiddelde procentuele fout per punt : 28.33287 %

Bodemconcentratie : 0.9796 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.034158  
 Gemiddelde procentuele fout per punt : 4.70130 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	1.7530	2.1046	-16.71
2	0.075	1.6700	1.7719	-5.75
3	0.100	2.0790	1.5142	37.30
4	0.130	1.3100	1.2763	2.64
5	0.180	0.7670	0.9962	-23.01
6	0.255	1.3050	0.7362	77.27
7	0.400	0.2650	0.4779	-44.55
8	0.650	0.3290	0.2755	19.44

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	0.4180	0.4240	-1.42
2	0.075	0.3250	0.3248	0.06
3	0.100	0.2960	0.2666	11.03
4	0.130	0.1970	0.2246	-12.30
5	0.180	0.1900	0.1869	1.65
6	0.255	0.1570	0.1592	-1.37
7	0.400	0.1370	0.1281	6.92
8	0.650	0.0870	0.0896	-2.87

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.013873	0.012356	128	197	251
0.650	0.013752	0.012314	133	198	253
0.600	0.013515	0.012166	138	199	254
0.550	0.013114	0.011871	143	200	256
0.475	0.012514	0.011393	148	201	257
0.425	0.011705	0.010722	155	202	259
0.400	0.010708	0.009875	158	203	260
0.350	0.009580	0.008901	159	204	263
0.300	0.008395	0.007867	160	206	265
0.275	0.007228	0.006841	161	208	268
0.225	0.006137	0.005878	163	210	271
0.175	0.005161	0.005012	164	213	275
0.150	0.004314	0.004260	167	216	280
0.125	0.003595	0.003622	170	220	285
0.100	0.003281				

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.019235	0.017131	130	197	252
0.650	0.019736	0.017683	133	198	253
0.600	0.019815	0.017834	136	198	254
0.575	0.019819	0.017909	140	199	255
0.550	0.019819	0.017978	143	200	256
0.475	0.019817	0.018043	147	200	257
0.425	0.019757	0.018048	150	201	258
0.400	0.019341	0.017704	154	202	259
0.375	0.017787	0.016285	158	202	260
0.350	0.014294	0.013082	159	203	261
0.325	0.009602	0.008816	159	205	263
0.300	0.005615	0.005209	161	207	267
0.275	0.003101	0.002939	164	212	273
0.250	0.001715	0.001688	170	220	285
0.225					
0.200					
0.175					
0.150					
0.125					
0.100					
0.075					
0.050					
0.025					
0.000					



TIC

Bodemconcentratie : 10.4942 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.003608  
 Gemiddelde procentuele fout per punt : 1.88058 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.075	6.0300	5.8953	2.28
2	0.100	5.1000	5.2954	-3.69
3	0.125	4.8200	4.8706	-1.04
4	0.155	4.5800	4.5011	1.75
5	0.205	4.1800	4.0705	2.69
6	0.275	3.6200	3.6415	-0.59
7	0.425	2.8800	2.9422	-2.11
8	0.675	2.0900	2.0717	0.88

DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.018872	0.017546	151	193	246
0.650	0.018872	0.017612	151	194	247
0.600	0.018872	0.017679	152	195	248
0.575	0.018872	0.017745	152	195	249
0.550	0.018872	0.017812	152	196	249
0.525	0.018865	0.017871	153	196	250
0.500	0.018817	0.017889	153	197	251
0.475	0.018603	0.017740	153	198	252
0.450	0.017896	0.017103	154	198	253
0.425	0.016127	0.015428	154	199	254
0.400	0.012917	0.012368	155	200	255
0.375	0.008910	0.008561	156	202	257
0.350	0.005420	0.005256	158	204	260
0.325	0.003081	0.003044	161	208	265
0.300	0.002303				

TIE2

Bodemconcentratie : 4.9973 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.012791  
 Gemiddelde procentuele fout per punt : 3.24253 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.035	3.6200	3.4650	4.47
2	0.060	2.6000	2.8198	-7.80
3	0.085	2.4100	2.3809	1.22
4	0.115	2.0500	2.0208	1.45
5	0.165	1.6700	1.6495	1.24
6	0.235	1.4100	1.3652	3.28
7	0.385	1.0200	1.0721	-4.86
8	0.635	0.8100	0.7971	1.62

DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.625	0.022951	0.021107	150	192	243
0.600	0.022893	0.021116	150	192	244
0.575	0.022733	0.021030	150	193	245
0.550	0.022357	0.020739	151	193	246
0.525	0.021573	0.020063	151	194	246
0.500	0.020141	0.018777	151	194	247
0.475	0.017884	0.016715	152	195	248
0.450	0.014880	0.013951	152	196	249
0.425	0.011543	0.010871	153	197	250
0.400	0.008419	0.007982	154	198	252
0.375	0.005874	0.005626	155	200	255
0.350	0.003997	0.003887	157	203	259
0.325	0.002694	0.002679	161	208	265
0.300	0.002211				

TIEI

Bodemconcentratie : 1.4057 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.015268  
 Gemiddelde procentuele fout per punt : 3.08519 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	0.9700	1.0090	-3.86
2	0.075	0.9700	0.8788	10.38
3	0.100	0.7400	0.7776	-4.84
4	0.130	0.6700	0.6839	-2.03
5	0.180	0.5800	0.5733	1.17
6	0.250	0.4700	0.4761	-1.27
7	0.400	0.3800	0.3712	2.37
8	0.650	0.2900	0.2944	-1.49
9	1.050	0.2200	0.2192	0.35

DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.075	0.036292	0.033285	147	191	243
1.050	0.036292	0.033350	149	191	243
1.000	0.036289	0.033412	150	192	244
0.975	0.036278	0.033467	150	192	244
0.950	0.036243	0.033499	150	192	244
0.875	0.036152	0.033478	150	193	245
0.825	0.035950	0.033354	151	193	245
0.800	0.035556	0.033049	151	193	246
0.775	0.034856	0.032457	151	194	246
0.750	0.033716	0.031454	151	194	247
0.725	0.032010	0.029916	151	194	247
0.675	0.029668	0.027781	151	194	247
0.650	0.026726	0.025081	152	195	248
0.625					
0.600					
0.575					
0.550					
0.525					
0.500					
0.475					

0.450	0.023348	0.021967	152	195	248
0.425	0.019794	0.018681	152	196	249
0.400	0.016341	0.015481	153	196	250
0.375	0.013206	0.012571	153	197	251
0.350	0.010510	0.010067	154	198	252
0.325	0.008286	0.007998	154	199	253
0.300	0.006501	0.006337	155	200	256
0.275	0.005096	0.005030	157	202	258
0.250	0.004001	0.004013	158	205	261
0.225	0.003550		161	208	265

T1F1

Bodemconcentratie : 7.5226 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.002751  
 Gemiddelde procentuele fout per punt : 1.62498 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.060	4.5800	4.5575	0.49
2	0.085	3.9000	3.9611	-1.54
3	0.110	3.5700	3.5392	0.87
4	0.140	3.2200	3.1780	1.32
5	0.190	2.7100	2.7801	-2.52
6	0.260	2.5100	2.4335	3.14
7	0.410	1.9200	1.9666	-2.37
8	0.660	1.4300	1.4195	0.74

T1G4

Bodemconcentratie : 4.9663 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.007291  
 Gemiddelde procentuele fout per punt : 2.43867 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	3.6200	3.5827	1.04
2	0.075	3.0300	3.1166	-2.78
3	0.100	2.7300	2.7499	-0.72
4	0.130	2.4000	2.4059	-0.29
5	0.180	2.0800	1.9990	4.05
6	0.250	1.6900	1.6412	2.97
7	0.400	1.2000	1.2737	-5.79
8	0.650	1.0800	1.0601	1.87

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.020355	0.018859	150	193	245
0.650	0.020355	0.018925	151	193	246
0.600	0.020353	0.018989	151	194	247
0.575	0.020343	0.019045	151	194	248
0.525	0.020297	0.019066	152	195	248
0.475	0.020144	0.018982	152	196	249
0.425	0.019725	0.018642	153	196	250
0.350	0.018764	0.017778	153	197	251
0.300	0.016927	0.016073	153	198	252
0.275	0.014096	0.013419	154	198	253
0.250	0.010671	0.010200	155	200	254
0.175	0.007404	0.007128	156	201	257
0.125	0.004838	0.004714	158	204	260
0.075	0.003068	0.003047	161	208	265
0.025	0.002434				
0.000					

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.054640	0.050907	151	194	247
0.650	0.050539	0.047122	151	194	247
0.600	0.044996	0.041999	151	194	247
0.575	0.038529	0.036018	151	195	248
0.500	0.031879	0.029856	152	195	248
0.450	0.025699	0.024130	152	195	249
0.400	0.020376	0.019194	152	196	250
0.375	0.016021	0.015155	153	197	250
0.325	0.012574	0.011957	153	198	252
0.300	0.009895	0.009472	154	199	253
0.275	0.007829	0.007557	155	200	255
0.250	0.006239	0.006086	157	202	258
0.150	0.005012	0.004952	158	205	261
0.125	0.004060	0.004076	161	208	265
0.075	0.003666				
0.025					
0.000					

Bodemconcentratie : 5.9507 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.001925  
 Gemiddelde procentuele fout per punt : 1.37759 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	4.0200	3.9698	1.26
2	0.075	3.3600	3.3812	-0.63
3	0.100	2.8900	2.9458	-1.90
4	0.130	2.5500	2.5605	-0.41
5	0.180	2.1600	2.1277	1.52
6	0.250	1.8000	1.7641	2.04
7	0.400	1.3300	1.3645	-2.53
8	0.650	1.0100	1.0026	0.74

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.022407	0.020622	150	192	244
0.650					
0.625	0.022355	0.020637	150	192	244
0.600					
0.575	0.022208	0.020563	150	193	245
0.550					
0.525	0.021870	0.020309	151	193	246
0.500					
0.475	0.021197	0.019740	151	194	247
0.450					
0.425	0.020028	0.018705	151	194	247
0.400					
0.375	0.018253	0.017099	152	195	248
0.350					
0.325	0.015906	0.014952	152	196	249
0.300					
0.275	0.013207	0.012470	153	197	250
0.250					
0.225	0.010489	0.009961	153	198	252
0.200					
0.175	0.008043	0.007697	154	199	254
0.150					
0.125	0.006024	0.005825	156	201	257
0.100					
0.075	0.004456	0.004370	158	204	261
0.050					
0.025	0.003283	0.003281	161	208	265
0.000					
0.000	0.002820				



Bodemconcentratie : 15.3904 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.011455  
 Gemiddelde procentuele fout per punt : 2.74501 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.070	11.2000	10.8355	3.36
2	0.095	9.0200	9.7958	-7.92
3	0.120	9.1400	8.9487	2.14
4	0.150	8.5600	8.1240	5.37
5	0.200	6.9600	7.0789	-1.68
6	0.270	6.0300	6.0509	-0.34
7	0.420	4.6200	4.6550	-0.75
8	0.670	3.1900	3.1775	0.39

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.017475	0.016279	151	194	247
0.650					
0.625	0.017475	0.016345	151	194	247
0.600					
0.575	0.017467	0.016403	152	195	248
0.550					
0.525	0.017410	0.016414	152	196	249
0.500					
0.475	0.017225	0.016301	153	196	250
0.450					
0.425	0.016800	0.015960	153	197	251
0.400					
0.375	0.016029	0.015287	154	198	252
0.350					
0.325	0.014850	0.014222	154	199	253
0.300					
0.275	0.013295	0.012794	155	200	254
0.250					
0.225	0.011497	0.011125	155	201	256
0.200					
0.175	0.009639	0.009389	156	202	258
0.150					
0.125	0.007889	0.007747	157	204	260
0.100					
0.075	0.006353	0.006302	159	206	262
0.050					
0.025	0.005070	0.005094	161	208	265
0.000					
0.000	0.004523				

Bodemconcentratie : 8.6844 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.006311  
 Gemiddelde procentuele fout per punt : 2.35703 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.045	5.6000	5.3735	4.22
2	0.070	4.3000	4.4867	-4.16
3	0.095	3.8000	3.9082	-2.77
4	0.125	3.4000	3.4476	-1.38
5	0.175	3.1000	2.9782	4.09
6	0.245	2.6000	2.5947	0.21
7	0.395	2.1000	2.0776	1.08
8	0.645	1.4500	1.4641	-0.96

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.625	0.018924	0.017472	150	192	244
0.600					
0.575	0.018924	0.017537	151	193	245
0.550					
0.525	0.018924	0.017603	151	193	246
0.500					
0.475	0.018919	0.017664	151	194	247
0.450					
0.425	0.018889	0.017700	152	195	248
0.400					
0.375	0.018754	0.017631	152	195	249
0.350					
0.325	0.018296	0.017248	152	196	250
0.300					
0.275	0.017089	0.016139	153	197	250
0.250					
0.225	0.014652	0.013855	153	197	251
0.200					
0.175	0.011076	0.010499	154	199	253
0.150					
0.125	0.007348	0.007007	155	200	255
0.100					
0.075	0.004445	0.004291	157	203	259
0.050					
0.025	0.002578	0.002546	161	208	265
0.000					
0.000	0.001957				

## T2E1

Bodemconcentratie : 1.2107 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.018109  
 Gemiddelde procentuele fout per punt : 3.75659 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.050	0.9600 0.9099	5.50
2	0.075	0.7500 0.8075	-7.13
3	0.100	0.7000 0.7265	-3.65
4	0.130	0.7000 0.6503	7.64
5	0.180	0.5500 0.5590	-1.61
6	0.250	0.4800 0.4785	0.31
7	0.400	0.4000 0.3966	0.86
8	0.650	0.3400 0.3544	-4.06
9	1.050	0.3400 0.3300	3.04

## DIFFUSIE-COEFFICIENTIEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.075	0.165317	0.156345	152	196	249
1.050					
1.025	0.165074	0.156172	152	196	250
1.000					
0.975	0.164408	0.155590	152	196	250
0.950					
0.925	0.162879	0.154180	152	196	250
0.900					
0.875	0.159816	0.151304	152	196	250
0.850					
0.825	0.154356	0.146142	153	196	250
0.800					
0.775	0.145634	0.137880	153	196	250
0.750					
0.725	0.133168	0.126102	153	196	250
0.700					
0.675	0.117287	0.111065	153	197	250
0.650					
0.625	0.099267	0.094006	153	197	250
0.600					
0.575	0.080943	0.076702	153	197	251
0.550					
0.525	0.064011	0.060709	153	197	251
0.500					
0.475	0.049521	0.047022	153	197	251
0.450					

0.425	0.037801	0.035959	153	198	252
0.400					
0.375	0.028676	0.027342	154	198	252
0.350					
0.325	0.021738	0.020790	154	199	253
0.300					
0.275	0.016527	0.015870	154	199	254
0.250					
0.225	0.012634	0.012195	155	200	255
0.200					
0.175	0.009724	0.009448	156	201	257
0.150					
0.125	0.007541	0.007390	157	203	259
0.100					
0.075	0.005895	0.005840	159	205	262
0.050					
0.025	0.004645	0.004665	161	208	265
0.000					
0.000	0.004135				

Bodemconcentratie : 10.5479 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.005914  
 Gemiddelde procentuele fout per punt : 2.27030 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.050	7.2700 7.1542	1.62
2	0.075	6.2600 6.3058	-0.73
3	0.100	5.6300 5.7198	-1.57
4	0.130	5.0700 5.2220	-2.91
5	0.180	4.7300 4.6593	1.52
6	0.250	4.3400 4.1178	5.40
7	0.400	3.1400 3.2615	-3.73
8	0.650	2.2400 2.2245	0.70

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.017301	0.016109	151	194	246
0.650	0.017301	0.016176	151	194	247
0.625	0.017301	0.016242	152	195	248
0.575	0.017301	0.016309	152	196	249
0.550	0.017301	0.016376	153	196	250
0.450	0.017299	0.016441	153	197	251
0.425	0.017277	0.016485	153	198	252
0.375	0.017163	0.016436	154	198	253
0.325	0.016738	0.016075	154	199	254
0.275	0.015546	0.014957	155	200	255
0.225	0.013076	0.012594	156	201	256
0.175	0.009515	0.009188	156	202	258
0.125	0.006005	0.005843	158	204	261
0.075	0.003462	0.003423	161	208	265
0.000	0.002589				

Bodemconcentratie : 5.6607 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.003186  
 Gemiddelde procentuele fout per punt : 1.76167 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.045	3.9800 3.9155	1.65
2	0.070	3.3400 3.3966	-1.67
3	0.095	2.9700 3.0408	-2.33
4	0.125	2.7700 2.7458	0.88
5	0.175	2.5100 2.4336	3.14
6	0.245	2.1800 2.1731	0.32
7	0.395	1.7700 1.8242	-2.97
8	0.645	1.4100 1.3941	1.14

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.625	0.024653	0.023221	152	195	249
0.600	0.024653	0.023288	152	196	249
0.575	0.024650	0.023353	153	196	250
0.550	0.024631	0.023400	153	197	251
0.450	0.024543	0.023377	153	197	251
0.425	0.024230	0.023133	154	198	252
0.400	0.023355	0.022336	154	198	252
0.375	0.021384	0.020473	154	199	253
0.350	0.017927	0.017179	155	200	254
0.325	0.013392	0.012859	155	201	256
0.300	0.008964	0.008651	156	202	258
0.275	0.005570	0.005431	158	204	261
0.250	0.003347	0.003321	161	208	265
0.225	0.002587				



## T2H3

Bodemconcentratie : 7.5593 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.002820  
 Gemiddelde procentuele fout per punt : -1.43570 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.050	5.8400 5.9179	-1.32
2	0.075	5.3500 5.3238	0.49
3	0.100	4.7500 4.8359	-1.78
4	0.130	4.5500 4.3587	4.39
5	0.180	3.7700 3.7541	0.42
6	0.250	3.1100 3.1697	-1.88
7	0.400	2.4200 2.4370	-0.70
8	0.650	1.7800 1.7710	0.51

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.022243	0.020833	152	195	248
0.650					
0.625	0.022091	0.020754	152	195	248
0.600					
0.575	0.021758	0.020504	152	196	249
0.550					
0.525	0.021157	0.019999	152	196	250
0.500					
0.475	0.020213	0.019168	153	197	251
0.450					
0.425	0.018895	0.017979	153	197	251
0.400					
0.375	0.017237	0.016463	154	198	252
0.350					
0.325	0.015337	0.014710	154	199	253
0.300					
0.275	0.013335	0.012853	155	200	255
0.250					
0.225	0.011371	0.011023	156	201	256
0.200					
0.175	0.009553	0.009325	156	202	258
0.150					
0.125	0.007944	0.007818	158	204	260
0.100					
0.075	0.006568	0.006528	159	206	262
0.050					
0.025	0.005417	0.005449	161	208	265
0.000					
0.000	0.004919				

## T2H4

Bodemconcentratie : 3.4114 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.003679  
 Gemiddelde procentuele fout per punt : 1.89570 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.055	2.4400 2.4938	-2.16
2	0.080	2.2600 2.2124	2.15
3	0.105	1.9600 1.9874	-1.38
4	0.135	1.8000 1.7736	1.49
5	0.185	1.5200 1.5142	0.39
6	0.255	1.3100 1.2806	2.29
7	0.405	0.9900 1.0308	-3.96
8	0.655	0.8800 0.8682	1.35

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.051901	0.048838	152	195	249
0.650					
0.625	0.049361	0.046490	152	196	249
0.600					
0.575	0.045449	0.042851	152	196	249
0.550					
0.525	0.040313	0.038057	152	196	250
0.500					
0.475	0.034445	0.032574	153	196	250
0.450					
0.425	0.028495	0.027005	153	197	251
0.400					
0.375	0.023010	0.021868	153	197	251
0.350					
0.325	0.018298	0.017453	154	198	252
0.300					
0.275	0.014442	0.013838	154	199	253
0.250					
0.225	0.011381	0.010969	155	200	255
0.200					
0.175	0.008994	0.008731	156	201	257
0.150					
0.125	0.007145	0.007000	157	203	259
0.100					
0.075	0.005716	0.005664	159	205	262
0.050					
0.025	0.004608	0.004630	161	208	265
0.000					
0.000	0.004150				

T214

Bodemconcentratie : 5.7721 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.013245  
 Gemiddelde procentuele fout per punt : 3.33819 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.055	4.1600	4.1674	-0.18
2	0.080	3.6200	3.6851	-1.77
3	0.105	3.2100	3.3026	-2.80
4	0.135	3.0500	2.9415	3.69
5	0.185	2.6100	2.5044	4.22
6	0.260	2.1400	2.0849	2.65
7	0.405	1.5100	1.6463	-8.28
8	0.655	1.2800	1.2412	3.13

T213

Bodemconcentratie : 2.4470 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.029108  
 Gemiddelde procentuele fout per punt : 4.98728 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.055	1.5700	1.6575	-5.28
2	0.080	1.5300	1.4322	6.83
3	0.105	1.2500	1.2586	-0.69
4	0.135	1.0700	1.0998	-2.71
5	0.185	0.9300	0.9161	1.52
6	0.260	0.8200	0.7535	8.82
7	0.405	0.5500	0.6149	-10.55
8	0.655	0.5600	0.5411	3.50

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.081034	0.075643	151	194	247
0.650	0.075699	0.070669	151	194	247
0.600	0.067026	0.062571	151	194	247
0.575	0.055903	0.052223	152	195	248
0.550	0.044208	0.041345	152	195	248
0.450	0.033663	0.031547	152	195	249
0.425	0.025113	0.023598	152	196	249
0.375	0.018614	0.017556	153	196	250
0.325	0.013838	0.013116	153	197	251
0.275	0.010377	0.009898	154	198	252
0.225	0.007871	0.007570	155	200	255
0.175	0.006045	0.005877	156	202	258
0.125	0.004702	0.004634	158	205	261
0.075	0.003703	0.003713	161	208	265
0.025	0.003301				
0.000					

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.024916	0.023242	151	194	247
0.650	0.024833	0.023227	151	194	247
0.600	0.024561	0.023031	152	195	248
0.550	0.023937	0.022504	152	195	249
0.500	0.022802	0.021493	152	196	249
0.475	0.021071	0.019918	153	196	250
0.400	0.018799	0.017827	153	197	251
0.350	0.016188	0.015411	153	198	252
0.300	0.013512	0.012924	154	199	253
0.250	0.011011	0.010594	155	200	254
0.225	0.008832	0.008561	156	201	256
0.175	0.007026	0.006873	157	203	259
0.125	0.005575	0.005517	159	205	262
0.075	0.004431	0.004449	161	208	265
0.025	0.003957				
0.000					

## T215

Bodemconcentratie : 4.0302 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.021082  
 Gemiddelde procentuele fout per punt : 3.81931 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	2.5300	2.4605	2.83
2	0.075	2.1300	2.0665	3.07
3	0.100	1.6100	1.7971	-10.41
4	0.130	1.5700	1.5745	-0.28
5	0.180	1.4100	1.3409	5.15
6	0.255	1.1600	1.1427	1.52
7	0.400	0.8900	0.9264	-3.93
8	0.650	0.7100	0.6753	5.13
9	1.050	0.4000	0.4084	-2.05

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
1.075	0.021006	0.018811	127	187	238
1.050					
1.025	0.021046	0.018912	130	188	239
1.000					
0.975	0.021056	0.018985	133	188	239
0.950					
0.925	0.021057	0.019050	135	189	240
0.900					
0.875	0.021057	0.019114	138	189	241
0.850					
0.825	0.021057	0.019178	141	190	242
0.800					
0.775	0.021057	0.019243	145	191	242
0.750					
0.725	0.021057	0.019308	148	191	243
0.700					
0.675	0.021057	0.019373	150	192	244
0.650					
0.625	0.021056	0.019438	150	192	244
0.600					
0.575	0.021051	0.019498	150	193	245
0.550					
0.525	0.021027	0.019540	151	193	246
0.500					
0.475	0.020938	0.019519	151	194	247
0.450					

0.425	0.020676	0.019332	151	194	247
0.400					
0.375	0.020029	0.018777	152	195	248
0.350					
0.325	0.018681	0.017553	152	196	249
0.300					
0.275	0.016355	0.015402	153	196	250
0.250					
0.225	0.013140	0.012411	153	197	251
0.200					
0.175	0.009633	0.009144	154	198	253
0.150					
0.125	0.006551	0.006271	155	200	255
0.100					
0.075	0.004253	0.004128	157	203	259
0.050					
0.025	0.002706	0.002685	161	208	265
0.000					
0.000	0.002156				





T3E2

Bodemconcentratie : 9.0389 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.005591  
 Gemiddelde procentuele fout per punt : 1.98303 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.055	7.6000	7.4763	1.65
2	0.080	6.7700	6.9329	-2.35
3	0.105	6.3700	6.4662	-1.49
4	0.135	5.9800	5.9875	-0.13
5	0.185	5.6600	5.3398	6.00
6	0.255	4.5000	4.6508	-3.24
7	0.405	3.6200	3.6414	-0.59
8	0.655	2.5600	2.5492	0.42

DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.018884	0.017869	153	196	250
0.650					
0.625	0.018872	0.017924	153	197	251
0.600					
0.575	0.018821	0.017942	153	198	252
0.550					
0.525	0.018690	0.017883	154	198	252
0.500					
0.475	0.018424	0.017692	154	199	253
0.450					
0.425	0.017962	0.017314	155	200	254
0.400					
0.375	0.017255	0.016696	155	200	255
0.350					
0.325	0.016277	0.015813	156	201	256
0.300					
0.275	0.015041	0.014677	156	202	257
0.250					
0.225	0.013605	0.013339	157	203	259
0.200					
0.175	0.012055	0.011884	158	204	260
0.150					
0.125	0.010488	0.010405	158	205	261
0.100					
0.075	0.008991	0.008984	160	206	263
0.050					
0.025	0.007622	0.007683	161	208	265
0.000					
0.000	0.006997				

T3F1

T3F2

Bodemconcentratie : 12.6126 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.011151  
 Gemiddelde procentuele fout per punt : 2.89097 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.050	10.0500	10.1709	-1.19
2	0.075	9.3200	9.2915	0.31
3	0.100	8.5000	8.5672	-0.78
4	0.130	8.0000	7.8524	1.88
5	0.180	7.3400	6.9245	6.00
6	0.250	5.5000	5.9697	-7.87
7	0.400	4.6600	4.5593	2.21

Bodemconcentratie : 7.7547 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.012630  
 Gemiddelde procentuele fout per punt : 3.21875 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.060	6.1200	6.4063	-4.47
2	0.085	6.5400	5.9696	9.56
3	0.110	5.4700	5.5857	-2.07
4	0.140	4.9900	5.1808	-3.68
5	0.190	4.6900	4.6089	1.76
6	0.260	3.9300	3.9586	-0.72
7	0.410	2.9200	2.9121	0.27

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.015530	0.014876	154	198	253
0.400	0.015342	0.014758	154	199	254
0.350	0.014898	0.014392	155	200	255
0.300	0.014082	0.013664	156	201	256
0.250	0.012845	0.012524	156	202	258
0.200	0.011255	0.011034	157	203	259
0.150	0.009485	0.009361	158	204	261
0.100	0.007739	0.007701	159	206	263
0.050	0.006171	0.006204	161	208	265
0.025	0.005480				
0.000					

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.013133	0.012617	154	199	253
0.400	0.013084	0.012637	155	200	255
0.350	0.012952	0.012576	156	201	256
0.300	0.012680	0.012377	156	202	257
0.225	0.012210	0.011983	157	203	259
0.175	0.011505	0.011355	158	204	260
0.125	0.010564	0.010491	159	205	262
0.100	0.009439	0.009438	160	206	263
0.075	0.008216	0.008280	161	208	265
0.025	0.007598				
0.000					

T364

Bodemconcentratie : 7.5727 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.003797  
 Gemiddelde procentuele fout per punt : 1.72044 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.060	4.8300	4.8364	-0.13
2	0.085	4.4500	4.3439	2.44
3	0.110	3.8000	3.9931	-4.84
4	0.140	3.7300	3.6752	1.49
5	0.190	3.3400	3.2687	2.18
6	0.260	2.7900	2.8135	-0.83
7	0.410	2.0500	2.0526	-0.13

T363

Bodemconcentratie : 5.2952 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.000478  
 Gemiddelde procentuele fout per punt : 0.65366 %

nummer	hoogte m	concentratie g/l gemeten	concentratie g/l berekend	fout %
1	0.050	4.0200	4.0114	0.21
2	0.075	3.6200	3.6106	0.26
3	0.100	3.2600	3.3018	-1.26
4	0.130	3.0200	3.0127	0.24
5	0.180	2.6900	2.6530	1.40
6	0.255	2.2400	2.2629	-1.01
7	0.400	1.7200	1.7168	0.19

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.012604	0.011899	152	196	250
0.400	0.012604	0.011966	153	197	251
0.375	0.012602	0.012032	154	198	252
0.350	0.012577	0.012072	154	199	253
0.325	0.012405	0.011957	155	200	255
0.300	0.011662	0.011263	156	201	256
0.275	0.009621	0.009286	156	202	258
0.250	0.006364	0.006155	158	204	261
0.225	0.003423	0.003355	161	208	265
0.200	0.002403				

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.014139	0.013466	153	197	251
0.400	0.014107	0.013501	154	198	252
0.375	0.013978	0.013439	154	199	254
0.350	0.013603	0.013135	155	200	255
0.325	0.012758	0.012369	156	201	256
0.300	0.011252	0.010956	156	202	258
0.275	0.009151	0.008959	157	203	260
0.250	0.006849	0.006760	159	205	262
0.225	0.004804	0.004800	161	208	265
0.200	0.003961				





T312

Bodemconcentratie : 3.1776 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.017155  
 Gemiddelde procentuele fout per punt : 4.02251 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.060	2.2800	2.4714	-7.75
2	0.085	2.3700	2.2644	4.66
3	0.110	2.2100	2.0919	5.65
4	0.140	1.9800	1.9199	3.13
5	0.190	1.6900	1.6944	-0.26
6	0.260	1.4300	1.4614	-2.15
7	0.410	1.0600	1.1218	-5.51
8	0.660	0.7700	0.7470	3.07

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.016326	0.015300	152	195	248
0.650			152	195	249
0.625	0.016332	0.015374	152	196	250
0.600			153	197	251
0.575	0.016332	0.015441	153	198	252
0.550			153	198	253
0.525	0.016323	0.015499	154	199	254
0.500			155	200	255
0.475	0.016268	0.015511	156	201	256
0.450			156	202	257
0.425	0.016096	0.015411	157	203	259
0.400			158	204	261
0.375	0.015712	0.015105	159	206	263
0.350			161	208	265
0.325	0.015021	0.014503			
0.300					
0.275	0.013970	0.013549			
0.250					
0.225	0.012580	0.012263			
0.200					
0.175	0.010959	0.010745			
0.150					
0.125	0.009266	0.009148			
0.100					
0.075	0.007648	0.007615			
0.050					
0.025	0.006209	0.006246			
0.000					
0.000	0.005571				

T3H5

Bodemconcentratie : 3.4547 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.003475  
 Gemiddelde procentuele fout per punt : 1.79197 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.055	2.5300	2.5693	-1.53
2	0.080	2.3200	2.3046	0.67
3	0.105	2.1300	2.0947	1.68
4	0.135	1.8700	1.8958	-1.36
5	0.185	1.6900	1.6521	2.29
6	0.260	1.4200	1.4084	0.83
7	0.405	1.0700	1.1168	-4.19
8	0.645	0.8100	0.7958	1.79

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.625	0.018838	0.017686	152	195	248
0.600			152	196	249
0.575	0.018840	0.017755	153	196	250
0.550			153	197	251
0.525	0.018833	0.017813	153	197	251
0.500			153	197	251
0.475	0.018760	0.017806	154	198	252
0.450			154	198	252
0.425	0.018486	0.017606	154	199	253
0.400			155	200	254
0.375	0.017829	0.017036	155	201	256
0.350			156	202	258
0.325	0.016625	0.015941	157	203	260
0.300			159	205	262
0.275	0.014843	0.014289	161	208	265
0.250					
0.225	0.012646	0.012233			
0.200					
0.175	0.010329	0.010053			
0.150					
0.125	0.008172	0.008015			
0.100					
0.075	0.006338	0.006279			
0.050					
0.025	0.004871	0.004890			
0.000					
0.000	0.004267				

T3I3

Bodemconcentratie : 3.1476 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.011525  
 Gemiddelde procentuele fout per punt : 3.03559 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.055	2.2400 2.2264	0.61
2	0.080	1.9900 1.9626	1.39
3	0.105	1.6400 1.7584	-6.73
4	0.135	1.6100 1.5698	2.56
5	0.185	1.4300 1.3476	6.11
6	0.260	1.1300 1.1397	-0.86
7	0.405	0.8800 0.9192	-4.27
8	0.655	0.7000 0.6879	1.75

T3I4

Bodemconcentratie : 9.2026 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.002610  
 Gemiddelde procentuele fout per punt : 1.52710 %

nummer	hoogte m	concentratie g/l gemeten berekend	fout %
1	0.055	5.1600 5.0917	1.34
2	0.080	4.2200 4.3086	-2.06
3	0.105	3.7800 3.7977	-0.47
4	0.135	3.4000 3.3904	0.28
5	0.185	3.0200 2.9713	1.64
6	0.260	2.6400 2.5978	1.62
7	0.405	2.0400 2.1144	-3.52
8	0.655	1.5200 1.5007	1.28

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.023197	0.021656	151	194	247
0.650	0.023200	0.021728	151	194	248
0.600	0.023193	0.021785	152	195	248
0.550	0.023104	0.021761	152	196	249
0.475	0.022752	0.021484	152	196	250
0.425	0.021881	0.020714	153	197	250
0.375	0.020275	0.019244	153	197	251
0.350	0.017911	0.017054	154	198	252
0.300	0.015046	0.014382	154	199	253
0.275	0.012095	0.011622	155	200	254
0.225	0.009421	0.009114	156	201	256
0.175	0.007206	0.007034	157	203	259
0.150	0.005475	0.005406	159	205	262
0.100	0.004164	0.004175	161	208	265
0.050	0.003639				

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.019314	0.017747	150	191	243
0.650	0.019314	0.017813	150	192	244
0.600	0.019314	0.017878	150	193	245
0.550	0.019314	0.017944	151	193	246
0.500	0.019312	0.018008	151	194	247
0.450	0.019294	0.018056	151	194	248
0.400	0.019195	0.018022	152	195	248
0.350	0.018811	0.017707	152	196	249
0.325	0.017683	0.016672	153	196	250
0.300	0.015218	0.014357	153	197	251
0.275	0.011414	0.010784	154	198	252
0.250	0.007398	0.007028	155	200	255
0.225	0.004333	0.004168	157	203	259
0.200	0.002431	0.002395	161	208	265
0.175	0.001817				

Bodemconcentratie : 8.4899 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.030143  
 Gemiddelde procentuele fout per punt : 4.59202 %

nummer	hoogte m	concentratie g/l		fout %
		gemeten	berekend	
1	0.050	4.9000	4.7881	2.34
2	0.075	4.1600	4.0236	3.39
3	0.100	3.0900	3.5448	-12.83
4	0.130	3.3600	3.1771	5.76
5	0.180	2.7300	2.8144	-3.00
6	0.255	2.6900	2.4995	7.62
7	0.400	2.0700	2.0811	-0.53
8	0.650	1.5100	1.5295	-1.27

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [ $m^2/s$ ] (D50)	eps [ $m^2/s$ ] (D10-D50-D90)	D-10	D-50	D-90
0.675	0.021498	0.019856	150	192	244
0.650					
0.625	0.021498	0.019922	150	193	245
0.600					
0.575	0.021498	0.019988	151	193	246
0.550					
0.525	0.021498	0.020054	151	194	247
0.500					
0.475	0.021498	0.020120	151	194	248
0.450					
0.425	0.021493	0.020181	152	195	248
0.400					
0.375	0.021446	0.020198	152	195	249
0.350					
0.325	0.021189	0.020003	152	196	250
0.300					
0.275	0.020224	0.019109	153	197	250
0.250					
0.225	0.017663	0.016675	153	197	251
0.200					
0.175	0.013159	0.012412	154	198	252
0.150					
0.125	0.008175	0.007738	155	200	254
0.100					
0.075	0.004486	0.004297	157	203	258
0.050					
0.025	0.002352	0.002309	161	208	265
0.000					
0.000	0.001703				

Bodemconcentratie : 0.8181 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.110222  
 Gemiddelde procentuele fout per punt : 8.92323 %

nummer	hoogte m	concentratie g/l		fout %	D-50	D-90
		gemeten	berekend			
1	0.050	0.5900	0.5326	10.79		
2	0.075	0.4200	0.4511	-6.89		
3	0.100	0.4000	0.3921	2.01		
4	0.130	0.3000	0.3412	-12.07		
5	0.180	0.3000	0.2859	4.74		
6	0.255	0.2300	0.2399	-4.14		
7	0.400	0.1900	0.2006	-5.28		
8	0.650	0.1800	0.1706	5.49		
9	1.050	0.1700	0.1369	24.20		
10	1.550	0.0900	0.1040	-13.43		

hoogte [m]	eps [m <sup>2</sup> /s]		D-10	D-50	D-90
	(D50)	(D10-D50-D90)			
1.575	0.047806	0.043368	137	189	241
1.550					
1.525	0.048033	0.043643	139	189	241
1.500					
1.475	0.048125	0.043794	140	190	241
1.450					
1.425	0.048158	0.043889	141	190	241
1.400					
1.375	0.048167	0.043963	143	190	242
1.350					
1.325	0.048170	0.044030	144	190	242
1.300					
1.275	0.048170	0.044095	145	191	242
1.250					
1.225	0.048170	0.044160	147	191	243
1.200					
1.175	0.048170	0.044225	148	191	243
1.150					
1.125	0.048170	0.044290	150	191	243
1.100					
1.075	0.048170	0.044356	150	192	244
1.050					
1.025	0.048170	0.044421	150	192	244
1.000					

0.975	0.048170	0.044486	150	192	244
0.950					
0.925	0.048169	0.044551	150	192	245
0.900					
0.875	0.048163	0.044611	150	193	245
0.850					
0.825	0.048141	0.044655	151	193	245
0.800					
0.775	0.048076	0.044659	151	193	246
0.750					
0.725	0.047910	0.044566	151	193	246
0.700					
0.675	0.047531	0.044272	151	194	246
0.650					
0.625	0.046749	0.043597	151	194	247
0.600					
0.575	0.045285	0.042278	151	194	247
0.550					
0.525	0.042803	0.040000	151	194	247
0.500					
0.475	0.039033	0.036512	152	195	248
0.450					
0.425	0.033977	0.031820	152	195	248
0.400					
0.375	0.028057	0.026315	152	195	249
0.350					
0.325	0.022007	0.020688	152	196	250
0.300					
0.275	0.016536	0.015598	153	197	250
0.250					
0.225	0.012050	0.011424	153	198	252
0.200					
0.175	0.008624	0.008235	154	199	253
0.150					
0.125	0.006123	0.005907	156	201	256
0.100					
0.075	0.004346	0.004252	158	204	260
0.050					
0.025	0.003097	0.003092	161	208	265
0.000					
0.000	0.002622				

## DIFFUSIE-COEFFICIENTEN VERDELING

T5D2

T5D3

Bodemconcentratie : 4.8543 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.006570  
 Gemiddelde procentuele fout per punt : 2.51395 %

Bodemconcentratie : 2.5682 gram/liter  
 Som van de kwadraten van de afwijkingen : 0.001006  
 Gemiddelde procentuele fout per punt : 1.03837 %

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.050	3.3800	3.3594	0.61
2	0.075	2.8800	2.9195	-1.35
3	0.100	2.6400	2.5938	1.78
4	0.130	2.2200	2.3028	-3.60
5	0.180	2.0800	1.9650	5.85
6	0.250	1.5900	1.6508	-3.68
7	0.400	1.2100	1.2014	0.72

nummer	hoogte m	concentratie g/l gemeten	berekend	fout %
1	0.050	2.0500	2.0621	-0.59
2	0.075	1.9000	1.8753	1.32
3	0.100	1.7200	1.7147	0.31
4	0.130	1.5200	1.5466	-1.72
5	0.180	1.3000	1.3087	-0.66
6	0.250	1.0600	1.0389	2.03
7	0.400	0.6300	0.6341	-0.64

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.012758	0.011973	152	195	248
0.400	0.012751	0.012030	152	196	250
0.375	0.012641	0.011982	153	197	251
0.350	0.012170	0.011586	154	198	252
0.325	0.011048	0.010565	154	199	253
0.300	0.009238	0.008886	155	200	255
0.275	0.007111	0.006896	156	202	258
0.250	0.005150	0.005055	158	204	261
0.225	0.003617	0.003612	161	208	265
0.200	0.003020				

## DIFFUSIE-COEFFICIENTEN VERDELING

hoogte [m]	eps [m <sup>2</sup> /s] (D50)	eps [m <sup>2</sup> /s] (D10-D50-D90)	D-10	D-50	D-90
0.425	0.008044	0.007535	152	195	248
0.400	0.008045	0.007604	153	196	250
0.375	0.008045	0.007671	154	198	252
0.350	0.008045	0.007739	155	199	254
0.325	0.008038	0.007800	156	201	256
0.300	0.007989	0.007816	157	203	258
0.275	0.007784	0.007674	158	204	261
0.250	0.007209	0.007158	159	206	263
0.225	0.006078	0.006082	161	208	265
0.200	0.005329				

BIJLAGE D: APPENDICES

Appendix 1 : Brekertypen  
(ontleend aan Massie (1986))

Spilling breaker

Spilling breakers are usually found along very flat beaches. Waves begin breaking at a relatively great distance from shore and break very gradually as they approach still shallower water. A foam line develops at the crest during breaking and leaves a thin layer of foam over a considerable distance. Kinsman (1965) shows this very impressively on page 50 of his book. A less spectacular example is shown in figure A1.1. The breaker height decreases rather uniformly as we approach the coast. There is very little reflection of momentum back toward the sea.

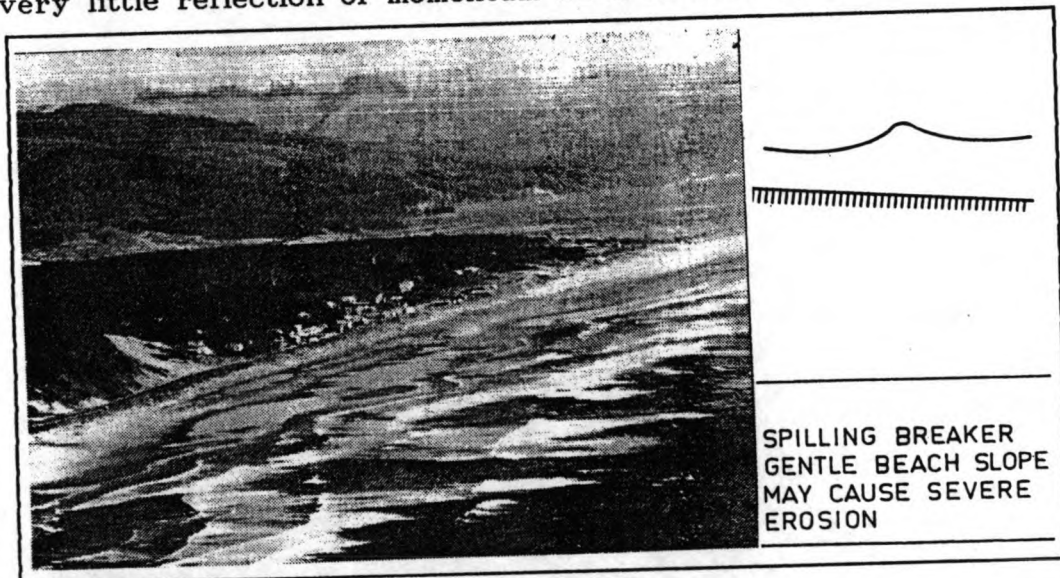


Fig. A1.1

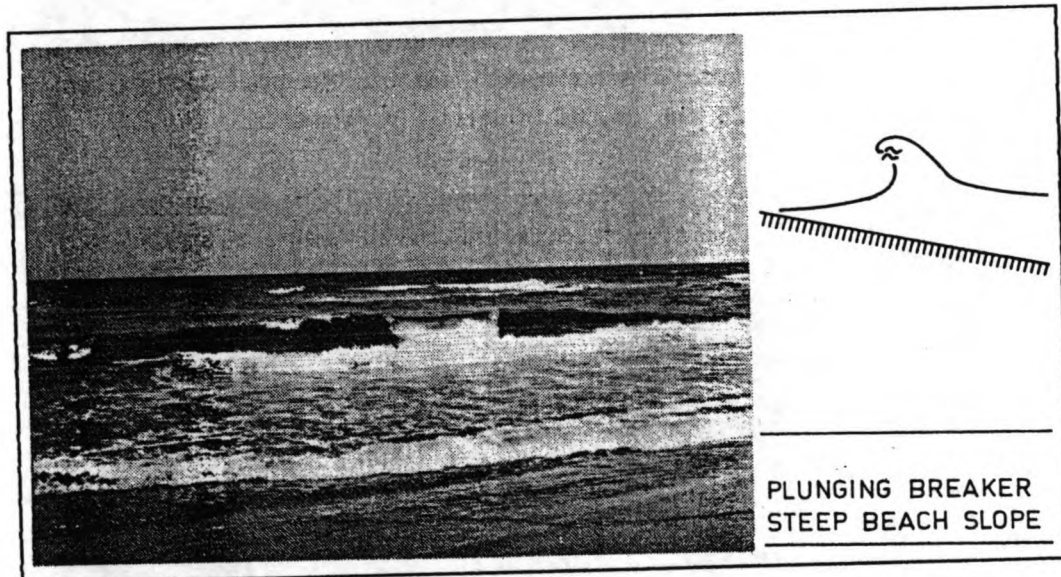


Fig. A1.2

Plunging breaker

This is type of breaker often found on the travel posters for the Pacific Islands; it is spectacular. The curling top is characteristic of these waves. When one breaks much energy is dissipated in turbulence; little is reflected back to sea, and not much of a new wave is generated in the shallower water. This last is in contrast to what happens with a spilling breaker. Figure A1.2 shows a plunging breaker.



## Appendix 2 : Vergelijking $\epsilon$ waarden met model Van Rijn en Meijer

In het in november 1986 verschenen W.L. rapport H461 geven L.C. van Rijn en K. Meijer een 3-dimensionaal model voor transport van sediment in suspensie bij stroming en golven.

Hierin is een schematisatie opgenomen voor de verdeling over de diepte van verticale mengingscoëfficiënten onder golven (fig. A2.1). (De horizontale menging wordt nul verondersteld.)

Op basis van een analyse van evenwichts concentratie profielen onder golven wordt gesteld:

$$\begin{aligned} \epsilon_s(z) &= \epsilon_{s,bed} && \text{voor } z \leq \delta \\ \epsilon_s(z) &= \epsilon_{s,max} && \text{voor } z \geq \frac{1}{2}h \\ \epsilon_s(z) &= \epsilon_{s,bed} + (\epsilon_{s,max} - \epsilon_{s,bed}) \frac{(z - \delta)}{(\frac{1}{2}h - \delta)} && \text{voor } \delta < z < \frac{1}{2}h \end{aligned}$$

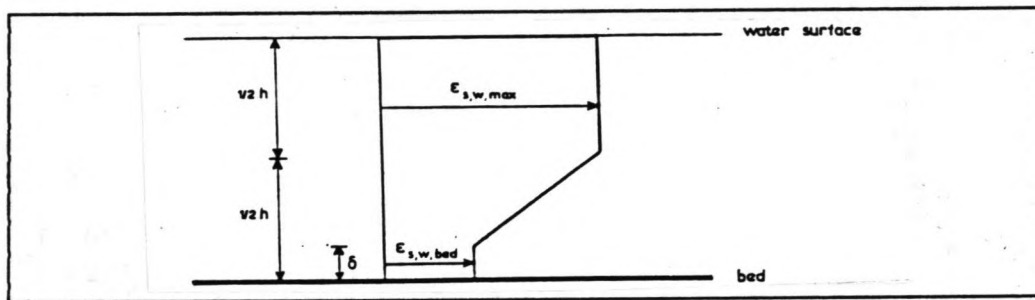


fig. A2.1 : Schematisatie  $\epsilon_s(z)$  van Van Rijn

$$\epsilon_{s,bed} = 0.00065 D_*^2 \cdot a_{br} \cdot \delta \cdot \hat{u}_{b,w}$$

$$\epsilon_{s,max} = 0.035 a_{br} \cdot \frac{h \cdot H_s}{T_s}$$

waarin	$\delta$	de dikte van de mengingslaag vlakbij de bodem ( $\approx 3 \cdot$ ribbelhoogte).
	$D_*$	deeltjesgrootte parameter: $d_{50} \cdot ((\Delta \cdot g) / \nu^2)^{1/3}$
	$\hat{u}_{b,w}$	piekwaarde van de orbitaalsnelheid
	$a_{br}$	brekingscoëfficiënt welke de invloed weergeeft van het effect van brekende golven op het sediment-mengingsproces. $a_{br} = 1$ als $H_s/h < 0.6$ (niet breken) $a_{br} = 5(H_s/h) - 2$ als $H_s/h \geq 0.6$ (breken)
	$H_s$	significante golfhoogte
	$T_s$	significante golfperiode
	$h$	waterdiepte
	$\Delta$	relatieve dichtheid $(\rho_s - \rho) / \rho$
	$g$	zwaartekrachtversnelling
	$\nu$	kinematische viscositeitscoëfficiënt

Voor een aantal testen uit meetserie I en II zijn met bovenstaande formules waarden van  $\epsilon_{s,bed}$  en  $\epsilon_{s,max}$  berekend en deze zijn vergeleken met de door ons gevonden  $\epsilon$  waarden ( $\epsilon$  vlakbij de bodem en de maximaal bereikte  $\epsilon$ ).

Voor  $\hat{u}_{b,w}$  is de waarde van  $u_{sig}$  op ca.  $z=0.2m$  genomen.  
Voor  $T_s$  is  $0.9 \cdot T_p$  genomen.

Bij de proeven van meetserie I werd in de gevallen met niet brekende golven een ribbelhoogte van  $0.02m$  waargenomen. Over ribbelhoogten in meetserie II is niets bekend. In de volgende berekeningen is voor  $\delta$  steeds  $3 \cdot 0.02m = 0.06m$  genomen. Aangezien  $\delta$  lineair in de formule voor  $\epsilon_{s,bed}$  voorkomt, is deze van grote invloed: bij aanname van een twee maal zo grote  $\delta$  wordt ook  $\epsilon_{s,bed}$  twee maal zo groot.

Test	$h_{gem}$ [m]	$H_s$ [m]	$T_s$ [s]	$a_{br}$	$u_{sig}$ [m/s]	$d_{50}$ [ $\mu m$ ]	$\delta$ [m]	$D\%$
4B	2.20	0.61	4.61	1	0.5	215	0.06	28.89
5A	2.20	0.75	5.47	1	0.65	215	0.06	28.89
T2I6	1.63	0.92	5.22	1	1.2	208	(0.06)	27.04
T3I6	1.63	0.94	5.76	1	1.1	208	(0.06)	27.04
9K	0.93	0.65	4.61	1.49	1.0	220	(0.06)	30.25
T2I5	1.13	0.86	8.01	1.81	1.4	208	(0.06)	27.04

Tabel A2.1 : Berekening  $\epsilon$  waarden.

Test	$\epsilon_{s,bed}$ $\cdot 10^{-2}$ (V.Rijn &Meijer)	$\epsilon_{.025}$ $\cdot 10^{-2}$	$\epsilon_{s,max}$ $\cdot 10^{-2}$ (V.Rijn &Meijer)	$\epsilon_{max}$ $\cdot 10^{-2}$
4B (geen breken, 5A geen bodemhelling)	0.056 0.073	0.133 0.210	1.02 1.06	3.82 3.63
T2I6 (vooroever) T3I6	0.127 0.116	0.210 0.309	1.00 0.93	4.17 4.28
9K (brekerzone)	0.176	0.362	0.69	1.23
T2I5 (talud zandbank)	0.267	0.269	0.77	1.88

Tabel A2.2 : Vergelijking  $\epsilon$  waarden.

Uit vergelijking van de verschillende gevonden  $\epsilon$  waarden (tabel A2.2) blijkt:

- berekening van  $\epsilon$  volgens de methode van Van Rijn geeft waarden van dezelfde orde van grootte als de in dit onderzoek gevonden  $\epsilon_{.025}$  en  $\epsilon_{max}$ .
- de waarden dichtbij de bodem ( $\epsilon_{s,bed}$  en  $\epsilon_{.025}$ ) verschillen een factor 2 à 3. Hierbij is de gekozen waarde voor  $\delta$  van grote invloed.
- de maximale  $\epsilon$  waarden vertonen slechte overeenkomst. Hierbij is de gebruikte  $T_s$  echter een onzekere factor.

