

Automated environment controllable stress-controllable 7D soil column for measuring transient hydraulic properties



- ◆ /
- ◆
- ◆ SDPFs      SDSWCCs
- ◆ SDPFs      SDSWCCs
- ◆ ,  $K_0$       SDPF
- ◆
- ◆ SDSWCC
- ◆



Geo-Experts

IPM  
SDPF

$h_{z_i,t_j}$   
and D)

$t_j$  ( $j = 1, 2$ )

$z_i$  ( $i = A, B, C$

VWC

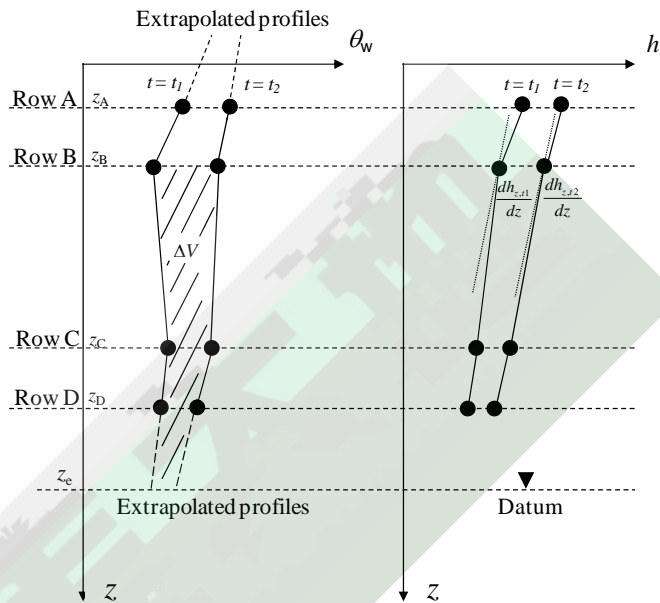
PWP

SDSWCC

PWP

VWC

LVDT



- IPM

$$k_{zB,tave} = - \frac{v_{zB,tave}}{i_{zB,tave}} \quad (3)$$

Geo-Experts

1  
h

$t_1$   $t_2$   
 $z_A, z_B, z_C, z_D$

$t_{ave} = (t_1 + t_2)/2$

$$v_{zB,tave} = - \frac{\Delta V}{t_2 - t_1} + v_{ze,tave} \quad (1)$$

$\Delta V$   $t = t_1$   $t_2$   $\theta_w(z, t)$

$v_{ze,tave} = v_{ze}$

$t_{ave} = (t_1 + t_2)/2$

(Mariotte's bottle.)

1  $v_{ze,tave}$

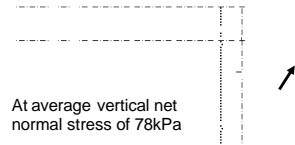
$i_{zB,tave}$

:\

$$i_{zB,tave} = \frac{1}{2} \left( \frac{dh_{zB,t1}}{dz} + \frac{dh_{zB,t2}}{dz} \right)$$

$$= \frac{1}{4} \left[ \left( \frac{h_{zA,t1} - h_{zB,t1}}{z_A - z_B} + \frac{h_{zB,t1} - h_{zC,t1}}{z_B - z_C} \right) + \left( \frac{h_{zA,t2} - h_{zB,t2}}{z_A - z_B} + \frac{h_{zB,t2} - h_{zC,t2}}{z_B - z_C} \right) \right] \quad (2)$$

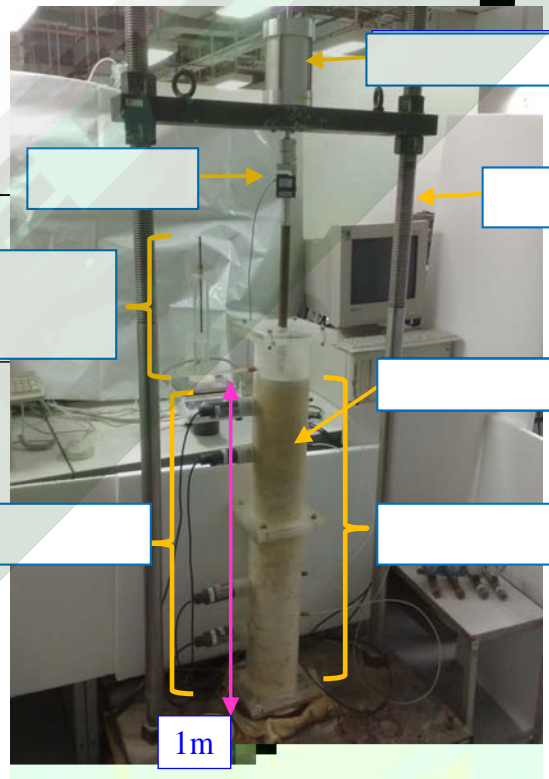
(c)



3. 80kPa

(a) 0kPa, (b) 40kPa and (c) 80kPa

Leung 2012)



中国总代理.



EARTH PRODUCTS CHINA LIMITED (EPC)

www.epc.com

威美大地 引领未来

http://www.epc.com.hk

http://www.epc.com

北京电话: (010)2342 2088 传真: (010)2342 2080

西安电话: (029)8833 7988 传真: (029)8833 7987

南京电话: (025)8319 0870 传真: (025)8319 7287

香港电话: (020)8336 1533 传真: (020)8336 2080

沈阳电话: (024)2324 2365 传真: (024)2324 2359

成都电话: (028)8675 8783 传真: (028)8674 3787

广州电话: (020)8336 1533 传真: (020)8336 2080

1	*		
			: 150 mm
			: 190 mm
			: 1000 mm
2	<b>VWC</b>		: 60 mm
3			: 5 mm
4	( )		
i	<i>k</i>		: 150 mm
			: 200 mm
ii			: 5 kg
			: 0.01 g
5			: 10 kN
			: 50 mm
			: 0 – 450 kPa
			: 0 – 1000 kPa
6	( )		
			: 2 MPa
			: 0.5 mV/V
			: 2 % RO
			: 1 channel, 4 dig

\* ) (

\*\* ) VWC PWC 6.

中国总代理.



EARTH PRODUCTS CHINA LIMITED (EPC)

<http://www.epc.com.cn>

<http://www.epc.com.cn>

北京电话: (010)8336 1533 传真: (010)8336 2080

西安电话: (029)8633 7888 传真: (029)8633 7887

南京电话: (025)8319 0870 传真: (025)8319 7287

香港电话: (020)8336 1533 传真: (020)8336 2080

沈阳电话: (024)2324 2365 传真: (024)2324 2359

成都电话: (028)8675 8783 传真: (028)8674 3787

广州电话: (020)8336 1533 传真: (020)8336 2080