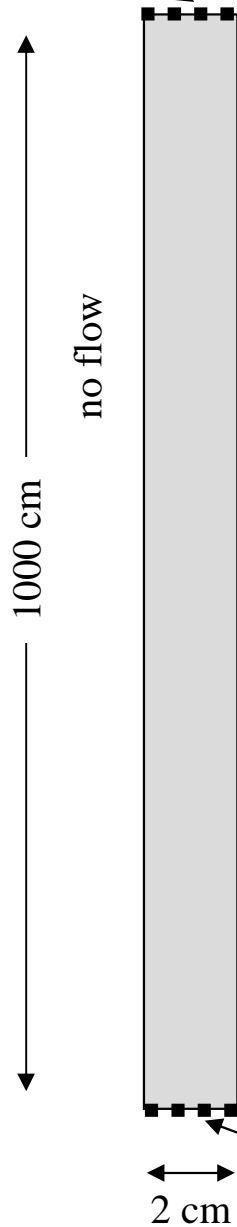


EXAMPLE – 1-D profiles: Water drainage (1D.xls)

Open to atmosphere $H_G = 0$



IC: $S_w = 1.0$

$k = 5.0 \text{ e} - 7 \text{ cm}^2$

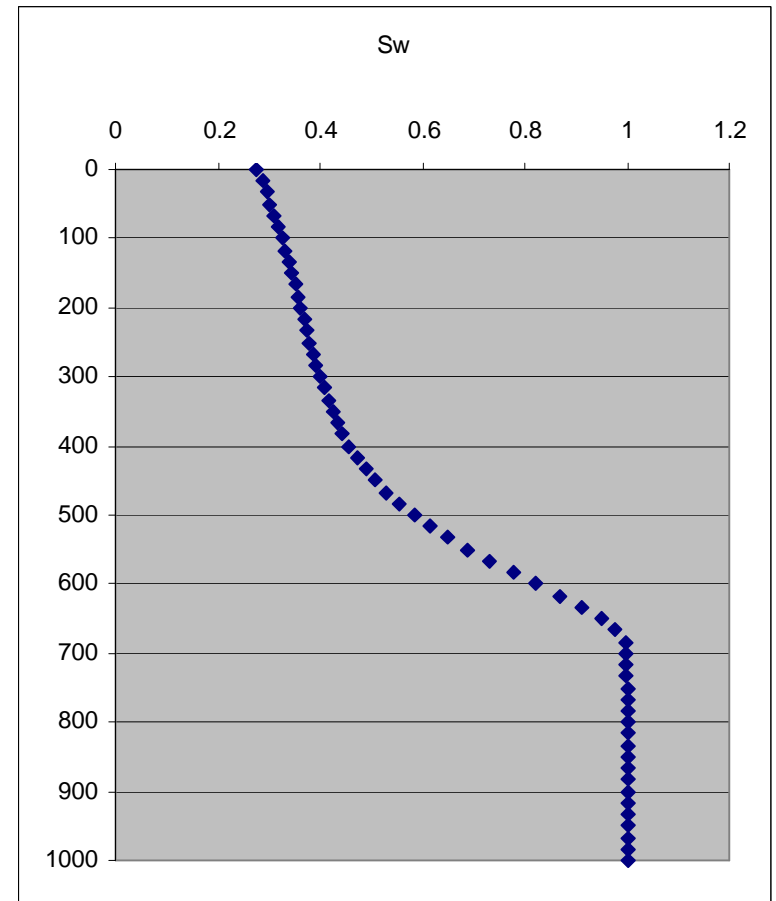
k-S-P model (van Genuchten)

$\alpha = 0.007 / \text{cm}$

$n = 2.1$

$S_{wr} = 0.02$

Solution at 50000s, grid spacing = 16.67 cm



EXAMPLE – 1-D profiles: DNAPL imbibition (1D_NAPL.xls)

k-S-P model (van Genuchten)

$\alpha_d = 0.1 / \text{cm}$, $\alpha_d = 0.2 / \text{cm}$

$n = 6$

$S_{Wr} = 0.2$, $S_{Nr} = 0.3$

Static water $H_w = 0$

DNAPL sources
 $0.02 \text{ cm}^3/\text{s}$

IC: $S_w = 1.0$
 $k = 5.0 \text{ e} - 7 \text{ cm}^2$

no flow

no flow

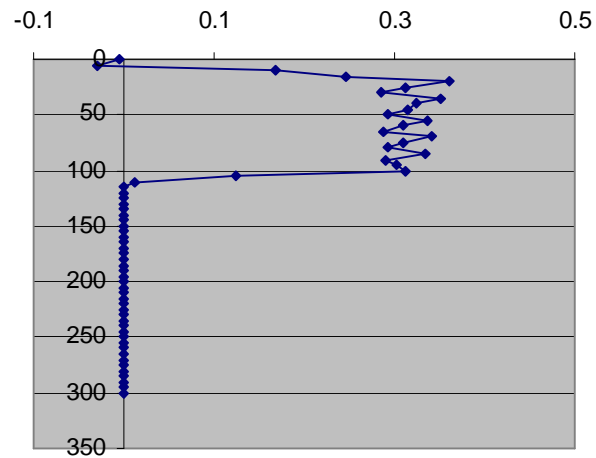
300 cm

$H_w = 30 \text{ cm}$

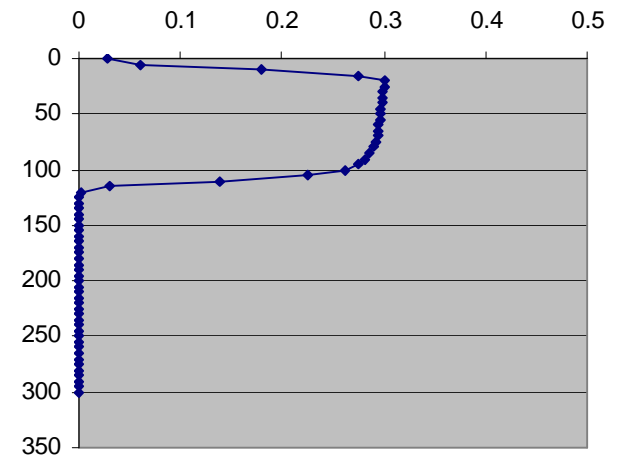
2 cm

$\Delta x = 5 \text{ cm}$

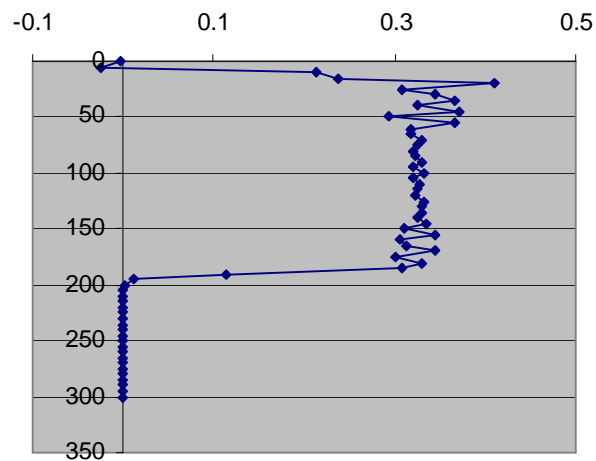
S_{Nr} solution at 500s, no constraint



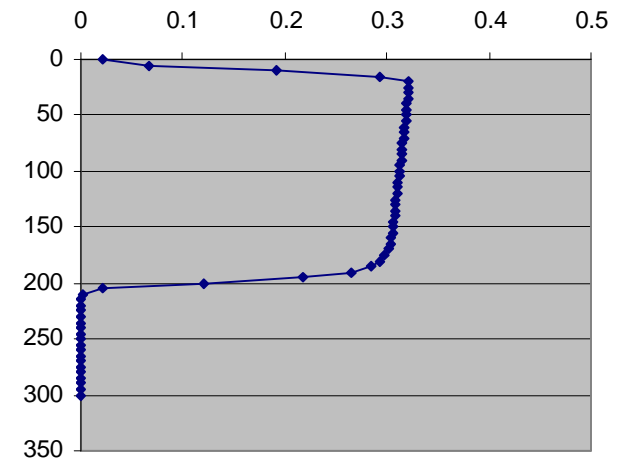
S_{Nr} solution at 500s, $Pe = 2$



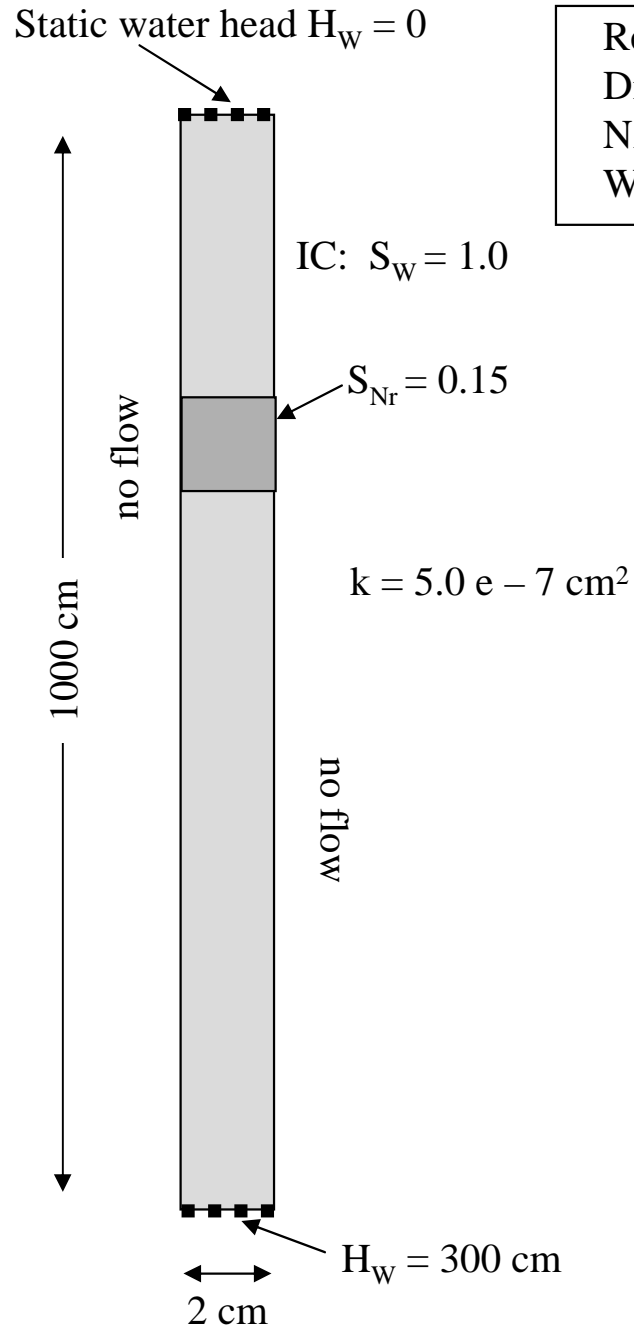
S_{Nr} solution at 1000s, no constraint



S_{Nr} solution at 1000s, $Pe = 2$

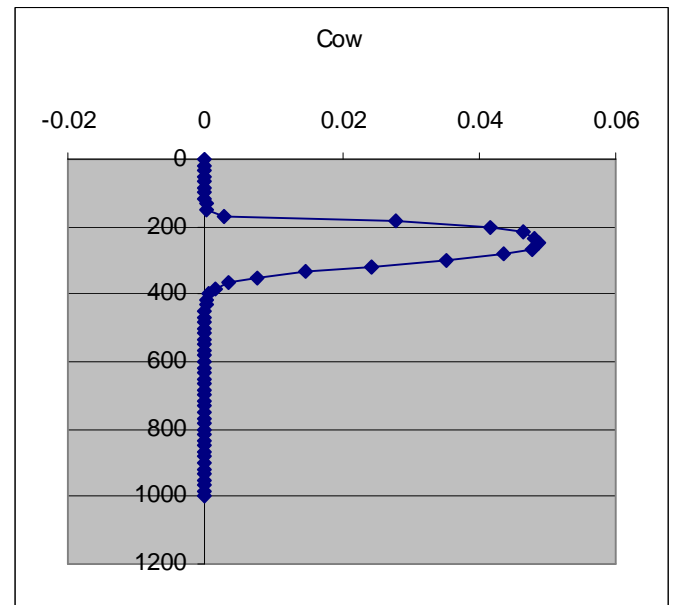
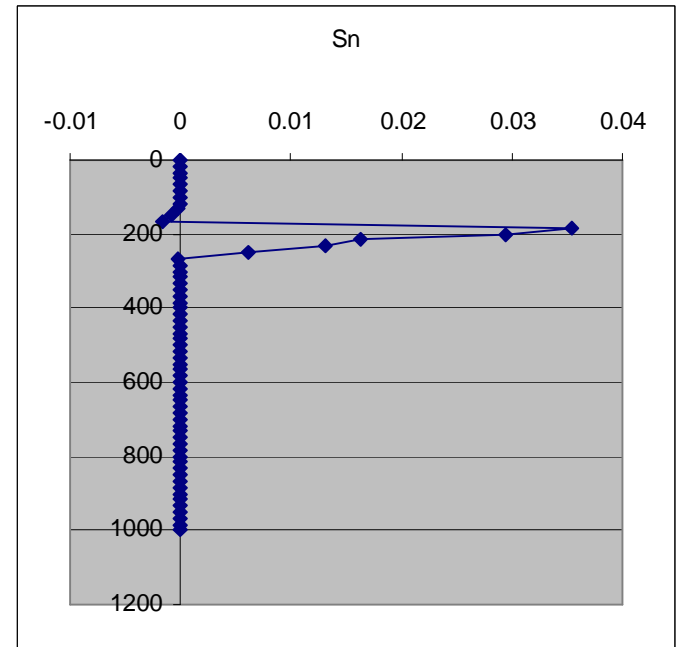


EXAMPLE – 1-D profiles: Residual NAPL in a water flood (1D_trans.xls)



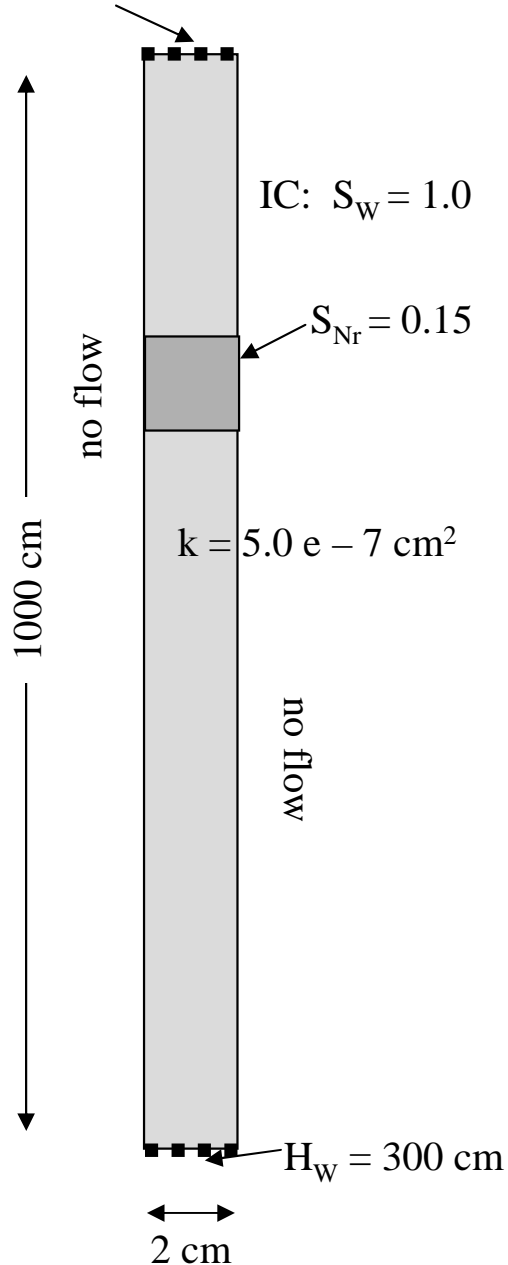
Residual NAPL saturation = 0.16
 Dissolution rate = 10/d
 NAPL solubility = 0.05 g/cm³
 Water velocity = 0.034 cm/s

Solution at 1000s



EXAMPLE – 1-D profiles: Residual NAPL in a water-gas flood (1D_WG_tran.xls)

Open to atmosphere $H_G = 0$
 Water and gas concentration = 0
 Water infiltration @ 2 in/d



Residual NAPL saturation = 0.16
 Dissolution rate = 10/d
 Vaporization rate = $1.16\text{e-}5/\text{d}$
 NAPL-water solubility = 0.001 mg/L
 NAPL-gas solubility = 0.00052 mg/L
 Solution at 10000 and 50000s

