

A transport model for your exploration:

http://inside.mines.edu/~epoeter/_GW/22ContamTrans/TransportModel/tdpf1.0web/pflow/pflow.html

Explore plume spreading as a function of heterogeneity as represented by K variation AND local heterogeneity as represented by the input dispersivity

HOMEWORK

Consider problem 22c from the Contaminant transport link (Nov 17 and 29)

Use the computer model to approximate that problem

Create grid. Make sure you understand the size of the system you are working with.

Run a homogeneous model and an equivalent heterogeneous model (by equivalent I mean same average velocity and dispersion). Explain why the properties you assigned make them equivalent

Calculate heads

Choose particle movement for flow (this is by random walk ... advecting based on Ks and gradient then randomly displacing each particle based on dispersivity)

Be aware of the number of particles you use given spacing, grid size and your drawn area

Use the same particles for the comparison of homogeneous and heterogeneous models

Choose # days per second such that you will get transport across your grid in a matter of a minute or so (make a rough estimate of travel time given gradient, K, porosity and distance)

Always choose to show center of mass, std deviation bars of particles and plot the variance of particle locations.

HOMEWORK

Submit solution to problem 22c from the Contaminant transport link (Nov 17 and 29)

[For both your homogeneous and heterogeneous models that are equivalent to 22c, run with and without local dispersion. When you use local dispersion make sure it is a reasonable value. Try varying the value.](#)

Provide:

[A clear description of your systems and their equivalence to problem 22c and each other](#)

[4 images of the same particles at the same time since contamination began in the 4 models](#)

Making screen shots: To make a copy of the active window, press ALT+PRINT SCREEN. To copy the entire screen as it appears on your monitor, press PRINT SCREEN. To paste the image into a document, click the Edit menu in the document window, and then click Paste.

[For all cases note the spatial variance of the particles. Explain the results.](#)