HW#12

Assigned: Thursday, November 5, 2009

Due: Thursday, December 3, 2009

Write the finite difference formulation for the 1-D problem. For the pressure equation, collect terms for δP_i, δP_{i+1}, and δP_{i-1}, with all other terms on the right-hand side (R_P). For the saturation equation, assume $P_o^{[n+1]}$ is known. Collect terms for $\delta S_{w,i}$, $\delta S_{w,i+\frac{1}{2}}$, $\delta S_{w,i+1}$, $\delta S_{w,i-\frac{1}{2}}$, and $\delta S_{w,i-1}$, with all other terms on the right hand side (R_S). Please note that you will need the 2-D formulation for the term project.

- a) Write the 1-D formulation for the fully implicit sequential algorithm (project option 3).
- b) Write the 1-D formulation for the fully implicit coupled algorithm (project option 4).