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HWRS 482

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The Challenge

**1.Compare the impact of pumping on the single layer model vs the multi-layer model. What physical explanation do you have for the differences?**

**2. the three-layer simulations putting the well in each layer (i.e. once in the bottom once in the middle and once in the top) provide plots and discussions comparing and contrasting your simulations. Provide at least one plot where you have all your runs in the same figure.**

**3.Change the properties of your three-layer model so that it matches the 1 layer model (but still has 3 layers) put the pump in the bottom layer and compare and contrast with your one layer solution. How does your answer to this challenge compare with your answer to the first?**

**4.Modify the topography of your domain so that it is no longer sloping left to right (you can make it a valley or have it sloping the other way, whatever you want). Re-run you 1 and 3 layer solutions and explain any differences you do or don't see**.

Glossary Questions

**Layers: Why do we want multiple layers in our groundwater models? Compare and contrast the different approaches to vertical discretization (briefly describe different approaches and discuss their strengths and weaknesses).**

The reason we want multiple layers in our groundwater models as this is much more relative to what happens in the subsurface. We use the layers to identify areas that have the same subsurface characteristics, such as material content or conductivity.

**Discretization: What are the pros and cons of adding more layers to a model? Are there considerations for vertical discretization that are different from horizontal discretization?**

**Stream Aquifer Exchange: How is water exchanged between a stream and an underlying aquifer? Include the following concepts: (dis)connected streams; streambed hydraulic conductivity; boundary condition type; and coupled models.**