

Title: Boolean Raster Well Exercise

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Context: This is a simple paper-and-pencil exercise for students to understand the process that the GIS software uses with raster data models. It should be used to reinforce concepts presented during lecture. Basic knowledge of what an aquifer and a well are should be all that is needed outside of the GIS course.

1. As a GIS analyst for a consultant company you have been asked to determine the best locations for a well to supply water to a small village. You have been given the three Boolean raster grids below. Notice that you cannot drill a well in the stream and that your well can only extract water from the shallow aquifer or the deep aquifer, but not from both. Show all intermediate layers and the Boolean operators used to obtain the final layer.

Stream Location (STR)					Shallow Aquifer Layer(SAL)					Deep Aquifer Layer (DAL)				
0	1	0	0	0	0	1	0	0	0	0	0	0	1	1
0	1	0	0	0	1	1	0	0	0	0	0	0	0	0
0	1	1	0	0	1	1	1	0	0	0	0	0	0	0
0	0	0	1	1	0	0	1	1	1	1	1	0	0	0
0	0	0	0	1	0	1	1	1	1	1	1	0	0	0