

Drought Trigger Levels in the Barton Springs Edwards Aquifer Conservation District: Project Update

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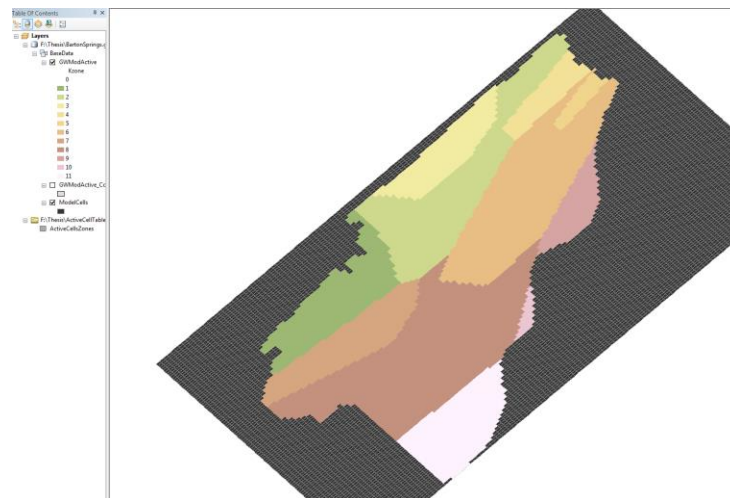
GIS in Water Resources, CE394 K.3

Data:

- Series of MODFLOW models based on the Groundwater Availability Model (GAM) already developed by the Barton Springs Edwards Aquifer Conservation District. Series includes a base case and several thousand model runs changing pumping parameters in eleven conductivity zones defined within the GAM. These files include the changes in pumping parameters in each zone, springflow, total pumping, and water levels, for each model run.
- Shapefile (vector) with the cells of the model and the active cells within the model
- Spreadsheet with zone information for each active cell, including elevation
- Aquifer shapefile with recharge zones

Progress:

- Joined active cell spreadsheet to active cell shapefile to delineate the eleven conductivity zones
- Determined top ten model runs to display, but would ideally like to use a list of about 80 runs. What I want to look at is how various pumping scenarios affect springflow at Barton Springs, water level within the Lovelady well, and overall storage.



Challenges/To Do:

- Extract the eleven zones to one layer so that I can then link my model runs to the zone layer
- I need a systematic way to import, transpose, and link my individual model runs into the extracted conductivity zone layer. My model-run file looks something like this:

alias	hashcode	VOLUME WELLS ALLCELLS ALLTII MIN DRAINS Barton Sprri Zone1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10	Zone 11	Total Pumping	A1 Medi	
STRING	STRING	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	FLOAT	
729	11cd530d8d49596e3a2ea76195cdc3c6.csv	2197419520.00	18.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	11.00		
1947	31b03c50f29cd91f42a83c1abc6a1a1b.csv	2197102848.00	18.00	1.90	1.50	2.00	1.90	2.00	1.10	1.80	0.60	1.80	1.90	18.40	
1141	1c3d8f8e02343b0b2012bcd58bada436.csv	2197081088.00	18.00	2.00	1.50	1.90	2.00	1.90	2.00	1.90	0.70	2.00	1.90	19.70	
8244	cc06ff3b06e5d2e7b08438e3c3db9e1.csv	2196764416.00	18.00	1.90	1.50	2.00	2.00	2.00	1.90	2.00	1.70	1.90	1.90	20.70	
9052	e1b3e562dbb061e25b38d0c79d96116f.csv	2196742656.00	18.00	2.00	1.50	1.90	2.00	2.00	1.60	1.80	0.80	2.00	1.50	19.10	
2112	3647ee030d07238d9a22eba6c77256a8.csv	2196404480.00	18.00	2.00	1.50	1.90	2.00	2.00	1.90	2.00	0.60	1.90	2.00	18.60	
9467	ebd8ff64507d504458b120396f1ae8f.csv	2196338944.00	18.00	1.90	1.50	2.00	1.90	1.90	2.00	2.00	1.30	2.00	1.90	20.70	
9208	e5383843620335cfd89a8f6b5848980c.csv	2196066048.00	18.00	1.90	1.50	2.00	2.00	1.30	2.00	1.90	0.70	2.00	1.90	19.10	
5179	81c6ba1acb9286a6dba28e515326059.csv	2196022272.00	18.01	2.00	1.90	1.90	2.00	1.90	1.40	2.00	0.60	2.00	2.00	19.60	
10127	fcd8e04f559b7b12b674b3f121aa123.csv	2195727616.00	18.00	1.90	1.90	2.00	2.00	2.00	2.00	1.90	0.90	1.90	1.90	20.20	
6040	9664a1e33a176de8c175938ccda0aa0.csv	2195389440.00	18.01	2.00	1.90	1.90	2.00	1.30	2.00	2.00	0.70	1.90	2.00	19.60	
1782	2cfe65c213584cf2866bae24dc9c91b09.csv	2195051008.00	18.01	1.90	1.80	1.90	2.00	1.90	1.90	2.00	0.60	1.90	0.90	2.00	18.80
1910	30aa8947c325d1ed67a9449f6715d1.csv	2194941952.00	18.01	2.00	1.70	1.90	1.90	2.00	2.00	2.00	0.70	1.90	2.00	1.90	20.00
9158	e41fac3b8192990871fc10141863b093.csv	2194712576.00	18.01	2.00	1.50	2.00	1.30	1.90	1.90	2.00	0.70	2.00	2.00	1.90	19.20
5440	88037d5e1b4ca3b59aa1fe51c5d8f66.csv	2194523904.00	18.01	1.00	1.00	1.00	1.00	2.00	1.00	2.00	1.00	1.20	1.00	2.00	14.20
2464	3eebf8e3cedc470c902f520199e203.csv	2194374144.00	18.01	1.90	1.40	1.50	1.90	2.00	1.80	2.00	0.80	2.00	2.00	1.90	19.20
3878	6191b42e206c8a80a68b1c9853141067.csv	2194207232.00	18.01	0.60	1.50	2.00	1.90	2.00	2.00	1.80	0.60	1.80	1.90	1.90	18.00
8644	d77f41e873163cb95dcd1dd116d3d2ea.csv	2194035968.00	18.01	1.90	1.40	1.90	1.90	2.00	1.80	2.00	0.80	2.00	2.00	1.90	19.60
182	04580f28864183b7870f8eab2fb8a2e.csv	2193861376.00	18.01	1.90	1.90	1.90	2.00	2.00	2.00	2.00	0.60	1.30	2.00	1.90	19.50
497	0bfc777379c0d4d0080eaa8a8f9733.csv	2193697536.00	18.01	1.90	1.90	1.90	2.00	1.30	1.00	1.90	0.90	2.00	1.90	1.80	18.50
6627	a512a031f24debe7548839f4f784e377.csv	2193443328.00	18.01	1.00	1.00	1.00	1.00	1.00	1.00	2.00	1.00	1.70	1.00	2.00	13.70
7626	bd371fe92443ae8dab6c4e40ef4d71b.csv	2193359104.00	18.01	1.10	1.90	2.00	1.90	1.90	2.00	2.00	0.80	2.00	2.00	1.70	19.30
2070	35103d64a512a619494b4d4d4f3e35945f.csv	2193020928.00	18.01	1.90	0.90	1.90	2.00	1.90	1.90	2.00	0.50	1.90	1.90	2.00	18.80
5900	92ff71c3f3e2f1b119d72eda144dcdf.csv	2192781056.00	18.01	2.00	1.50	1.90	2.00	2.00	2.00	1.90	0.60	1.30	1.90	2.00	19.10
7874	c3bcc815d7b28b0477e698052961374e.csv	2192682496.00	18.01	1.90	1.50	1.40	2.00	2.00	1.80	1.90	0.70	1.90	1.90	1.90	18.90
6688	a69b704885fc171431ca231f88ce8097.csv	2192344064.00	18.01	1.90	1.50	2.00	2.00	2.00	1.20	2.00	0.90	0.50	2.00	1.80	17.80
7010	aeafe78085fc733c58ceb38a17364f5.csv	2192157184.00	18.01	1.90	1.90	1.90	0.50	1.90	1.00	1.90	0.90	2.00	1.90	1.80	17.60
3777	5eabede2c63d1351a1b7f2d3b2bd1fa4.csv	2191945472.00	18.01	2.00	2.00	2.00	1.90	1.90	1.00	2.00	0.90	1.90	1.90	1.90	19.40
5856	91d4a1d0f934edfbd44c58a941ee6d6.csv	2191939328.00	18.02	1.90	1.90	2.00	2.00	1.90	1.50	2.00	0.80	2.00	2.00	2.00	20.00
7767	c0b34c4db9944a714e3fbd484cb8e8ab.csv	2191700480.00	18.02	2.00	1.90	2.00	2.00	2.00	1.90	1.90	0.70	1.90	1.90	0.70	18.90

If I only choose ten runs I could do this by hand, but if I choose more, it would be nice to create a program to do this for me.

- For the final display, I would like to show various scenarios (animated as if it were a time series) and effects on spring flow and water level (shown as graduated symbols).