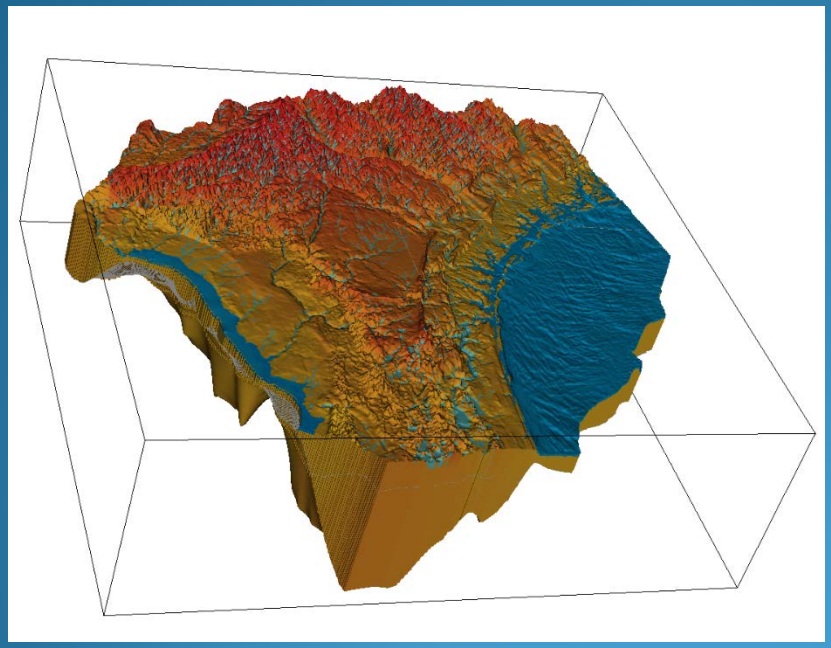


Dann Yobbi

Task D1 Meeting

4/18/2018

Model Improvements

Heads (ft)

Statistic	2001		2009	
	004b	007h	004b	007h
ME	-0.04	0.01	0.06	0.03
RMSE	7.12	6.6	8.82	8.4
MAE	4.59	4.4	4.72	4.4

Spring Discharge (cfs)

Statistic	2001		2009	
	004b	007h	004b	007h
ME	-1.74	-0.99	-1.84	-1.08
RMSE	15.46	10.77	15.91	20.52
MAE	2.98	2.44	3.36	2.77

Cumulative Baseflows (cfs)

Statistic	2001		2009	
	004b	007h	004b	007h
ME	118	94.3	-59.1	200
RMSE	283	177	168	283
MAE	132	124	127	255

Model Calibration

Heads (ft)

Statistic	2001 007h	2009 007h
ME	0.01	0.03
RMSE	6.6	8.4
MAE	4.4	4.4

Spring Discharge (cfs)

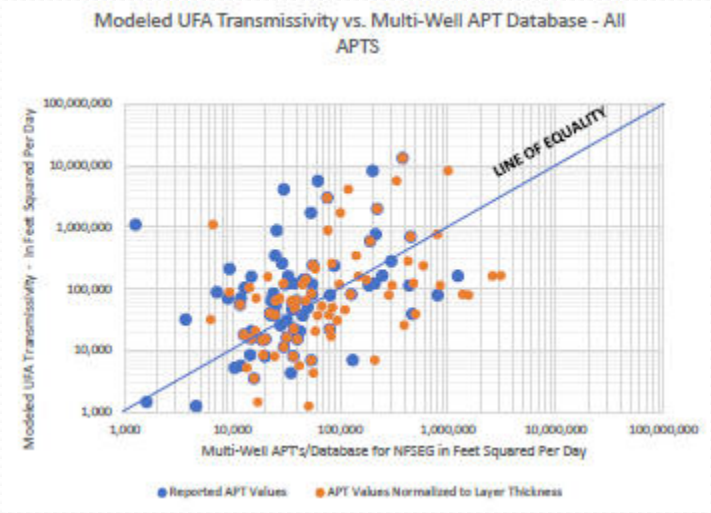
Statistic	2001 007h	2009 007h
ME	-0.99	-1.08
RMSE	10.77	20.52
MAE	2.44	2.77

Cumulative Baseflow (cfs)

Statistic	2001 007h	2009 007h
ME	94.3	200
RMSE	177	283
MAE	124	255

Model Calibration

Modeled UFA T vs Multi-Well APT T



Suitability of Models for Intended Applications

2010 Verification

Heads (ft)

Statistic	Layer 1		Layer 3		Layer 5	
	2009	2010	2009	2010	2009	2010
ME	1.82	1.31	-0.92	0.02	1	3.16
RMSE	11.24	7.41	4.58	5.96	5.24	5.7
MAE	5.05	4.74	3.39	4.12	4.25	5.47

Spring Discharge (cfs)

Statistic	2009	2010
ME	-1.08	-0.77
RMSE	20.52	16.7
MAE	2.77	4.9

Cumulative Baseflows (cfs)

Statistic	2009	2010
ME	200	-413
RMSE	283	620
MAE	255	417

Suitability of Models for Intended Applications

Zero pumping

- Heads are within acceptable ranges
- No widespread flooding in layer 1
- Simulated head distribution is comparable to USGS predevelopment potentiometric surface map

Preliminary Suggestions for Future Applications

- Convert MODFLOW-NWT to MODFLOW-USG
- Investigate other model applications of “pumps off” baseline conditions