CONNECTING WATER TO LIFE

To: Ms. Heather Sumpter, General Manager
Goliad County Groundwater Conservation District

From: Michael Keester, PG

Date: October 20, 2020

Project: GAM Recalibration Focusing on Goliad County

The purpose of this technical memorandum is to summarize the results of recalibration of the Groundwater Availability Model for the central portion of the Gulf Coast Aquifer System ("GAM"). Goliad County Groundwater Conservation District ("GCGCD") contracted LRE Water ("LRE") to recalibrate the GAM within Goliad County with a focus on the simulated groundwater elevations in the Evangeline Aquifer. While simulated water levels from the GAM would not be expected to perfectly match observed water levels, the adopted GAM provides a very poor match to the observed water levels and also the trend in water levels. The poor match with the trend is a particular problem as the joint planning effort with Groundwater Management Area ("GMA") 15 currently results in Desired Future Conditions ("DFCs") that are based on a change in water level over time. This recalibration effort resulted in a tool that better represents the observed water level changes in the Gulf Coast Aquifer System ("GCAS") in Goliad County and provides GCGCD an improved model to aid with groundwater management within the District.

Background

Chowdhury and others (2004) developed and calibrated the original GAM from pre-development (year 1910) through year 1999. Young (2016) utilized the GAM with a predictive dataset representing the year 2000 through 2070 to assist with the development of the current DFCs for GMA 15. During the current round of joint planning, the predictive period pumping from January 1, 2000 through December 31, 2016 was updated to better reflect the amount of actual pumping during that period (Keester, 2019).

Using the pumping updates through 2016, LRE modified the input files for the calibrated model from the end of 1999 through 2016. That is, we created input datasets using the original GAM input files representing conditions in year 1910 and extended the simulation time through 2016. We initially made no changes to the structure or parameters in these input files and performed an informal sensitivity analysis to identify parameters that would most affect the simulated water levels within the District. We then modified the model parameters to improve the match between simulated water levels and the water levels measured by District staff.

Calibration Observations

For the recalibration effort, we relied on measured water-level data provided by GCGCD. The dataset included 132 monitoring wells with the earliest water-level measurements being from 2002. As illustrated on Figure 1, many of the monitoring wells are located close to one another. For assessing the recalibration results, we limited the number of calibration target locations to wells with a longer period of available measurements. Using wells with a longer period of record allowed us to track the simulated versus measured water levels along with the trend in simulated and measured water levels in the aquifer. The calibration target locations are identified on Figure 1 along with the other monitoring well locations with available water level data.

Building upon the work conducted by Donnelly (2018) we utilized the hydrostratigraphy of the GCAS developed by Young and others (2010) along with the depth data for each of the monitoring wells to verify the hydrostratigraphic unit in which each well was likely completed. Of the 132 monitoring wells, 114 included depth data which allowed us to identify in which aquifer the bottom of the well was located. If the total depth of the well was more than 20 feet below the top of the aquifer, we assigned the well to the same aquifer where the bottom of the well was located. Otherwise, the well was assigned to the overlying aquifer. For wells without depth information, we assigned the well to the shallowest aquifer. This process resulted in 16 Chicot monitoring wells, 113 Evangeline monitoring wells, two Burkeville monitoring wells, and one Jasper monitoring well. Figure 2 depicts the distribution of GCGCD monitoring wells by aquifer and Figure 3 illustrates the number of monitoring wells by aquifer.

As noted by Donnelly (2018), monitoring wells completed in the Chicot Aquifer are only found along the southeastern county line. However, monitoring wells completed in the Evangeline Aquifer are located throughout the county. As such we focused our recalibration effort on layer 2 of the GAM which represents the Evangeline. Our final water level target dataset included 20 Evangeline Aquifer monitoring wells with a total of 322 water level measurements.

Existing Calibration Issues

As previously noted, water level monitoring in GCGCD has shown a significant discrepancy between measured water levels and results from the GAM. In general there are two issues with the GAM results that need to be addressed:

1. GCGCD monitoring shows regional groundwater declines in the Evangeline Aquifer while the GAM simulates a rising water level. Figure 4 is an example of the GAM simulated water levels (from a simulation with the pumping file adopted by GMA 15 to represent potential DFCs) and measured water levels at monitoring well 4. The measured water level in the well declines about 10 feet from 2003 to 2020, while the model simulates a rise of between 5 and 10 feet for the same time period.
2. The measured water levels are typically lower than the GAM simulated water levels. Figure 5 is a plot of observed versus GAM simulated water levels. As shown the figure, the model tends to simulate heads that are greater than observed.

Recalibration Approach

To improve the calibration of the GAM, we modified the recharge and the horizontal hydraulic conductivity of the Evangeline Aquifer. We limited, the calibration to these two parameters because they appeared to have the greatest effect on simulated water levels and there is available data to justify modifications while also constraining the calibration. We performed the model recalibration in two steps: (1) modifying the recharge package based on surface water balance surveys in the county and surrounding areas, followed by (2) calibrating the hydraulic conductivity of the Evangeline Aquifer using PEST++ (Welter and others, 2015) and pilot points.

We modified the GAM recharge based on the observed water levels, the EDYS ecological model of Goliad County (McLendon and others, 2016), and information from the Goliad County Recharge Evaluation (Rainwater and Coldren, 2019; Rainwater and Coldren, 2020). The fact that (1) the measured water levels are lower than GAM simulated water levels and (2) there is an observed declining water level trend compared to a GAM simulated rising water level trend indicates that the simulated recharge (or more generally, inflow) in the GAM is too high. The EDYS ecological model and the Landgrebe site data suggest that the net recharge in Goliad County is likely low or zero. The EDYS model indicates that there is more transpiration than recharge in the county as a whole and thus the net recharge is actually negative (McLendon and others, 2016). Also, data for the Landgrebe and Dohmann recharge evaluation sites indicates recent evapotranspiration is near or greater than rainfall suggesting little if any recharge potential at the site (Rainwater and Coldren, 2020).

Through our initial evaluations, we found that the current GAM structure and properties perform better with no simulated recharge. As such, we did not include the recharge package in the recalibration effort and subsequent calibration work focused on modifying the hydraulic conductivity values for the Evangeline with no recharge occuring within the model domain. However, we did not make modifications to the stream or river packages in the GAM and these packages continued to allow inflow to the simulated aquifers.

We performed the calibration of the hydraulic conductivity values for the Evangeline Aquifer using PEST++ (Welter and others, 2015) with pilot points. PEST++ is essentially interchangeable with PEST (Watermark Numerical Computing, 2020) which is a model impendent, widely used and industry accepted, code for model calibration and parameter estimation. Pilot points are a method for parameter estimation where parameter values are estimated at specific locations and the values for each model cell are interpolated from the point locations.

We used 65 pilot point locations for the estimation of the hydraulic conductivity of layer 2 of the GAM representing the Evangeline Aquifer. The location of each pilot point was determined based on triangulation of the 132 monitoring wells in the District. Modification of the hydraulic conductivity was limited to Goliad County and a zone extending approximately three to five miles beyond the county boundary. Figure 6 illustrates the extent of the recalibration area and the location of the pilot points.

We assigned the minimum and maximum hydraulic conductivity value for each pilot point to 1 foot per day (ft/d) and 15 ft/d respectively based on transmissivity estimates from specific capacity tests recorded in the TWDB Groundwater Database (TWDB, 2020). The hydraulic conductivity of layer 2 across Goliad County in the GAM is a constant value of 3.5 ft/d. The potential hydraulic conductivity range we assigned to the pilot points allowed PEST++ to slightly reduce the hydraulic conductivity or increase it by up to approximately four times.

Recalibration Results

To recalibrate the model, we began with a base recalibration and then moved to alternate recalibrations that drew upon information developed during the base recalibration.

Base Recalibration

The recalibration resulted in a variable hydraulic conductivity distribution across Goliad County. While the GAM has a constant value of 3.5 ft/d in the county and surrounding area, the re-calibration resulted in values ranging from 1.2 ft/d to 12.4 ft/d with most of the area falling within a range of 2.4 ft/d to 6.6 ft/d. Figure 7 illustrates the distribution of hydraulic conductivity values in layer 2 of the model representing the Evangeline Aquifer within the recalibration area. As shown on Figure 7, the recalibration suggest hydraulic conductivity values generally increase in the Evangeline Aquifer toward the Gulf Coast.

Figure 8 is the same cross plot as Figure 5 with the recalibration results added. While the GAM generally simulates water levels higher than the measured values, the recalibration resulted in a more even distribution of too high and too low values. Figure 9 illustrates how the trend in simulated water levels more closely matches the trend at GCGCD monitoring well #4.

To quantitatively assess the recalibration results we used the District measured water levels and corresponding modeled water levels from the recalibrated model to calculate statistics that indicate how well the model matches historical conditions. For each measured and modeled water level pair we calculated the residual by subtracting the modeled water level from the corresponding measured water level. Using the residuals, we then calculated the **mean error** (“ME”) or average of the residuals and the **mean absolute error** (“MAE”) or average of the absolute values of the residuals (Anderson and Woessner, 2002). An advantage of the MAE over the ME is that negative values do not skew the statistic toward zero with the MAE. For example, four residuals with values of -7, -6, 10, and -2 would have a ME of -1.75 which appears relatively small, but the MAE is 6.75 indicating that the average magnitude of the error is quite large. The negative value of the ME does illustrate one benefit in that it provides an indication of the average model bias which, for the example above, is that simulated values are biased toward being higher than measured values.

We also calculated the **root mean square error** (“RMSE”), **relative root mean square error** (“RRMSE”), and the **normalized root mean square error** (“NRMSE”). The RMSE is the square root of the average of the squared residuals. The RRMSE is the RMSE divided by the average of the measured water levels. The NRMSE is the RMSE divided by the difference between the maximum measured water level and the minimum measured water level. The RMSE is a measure of how concentrated the residuals are around the line of best fit (that is, a perfect match between measured and modeled water levels). With the RMSE, the residuals are squared before being averaged which gives a relatively high weight to large error values. The RRMSE provides an indication of the variance from the average water level. The NRMSE provides an indication of the variance between residuals with a lower NRMSE value indicating that errors are small compared to total change in water level across the area of interest.

One other statistic is the **Nash-Sutcliffe model efficiency** (“NSME”). The NSME is a calculation that expresses the ability of the model to reproduce the measured water levels (Gupta and others, 1998). For the ME, MAE, RMSE, RRMSE, and NRMSE a value of zero is ideal and for NSME good model results should yield a value close to one.

In addition to comparing the measured and modeled water levels, we calculated the linear trend of the water levels. That is, we calculated the rate that the water levels were increasing or decreasing over time. We also calculated the trend using the corresponding simulated water levels and compared the results to assess how well the model is simulating the trend in water levels.

Quantitatively, the recalibration statistics confirm our observation from Figure 8 that the recalibration provides an improved match between measured and modeled water levels. Table 1 provides the calibration statistics for the GAM and the recalibration. For each of the statistics, we observe that the recalibration is closer to the target value indicating an improved match between modeled and measured water levels.

Importantly for determining DFCs, the recalibration results also show an improved match between the trends in measured and simulated water levels. As shown in Table 2, the recalibration results provide a closer match between the simulated and the observed trends in water levels versus the GAM. Since the DFCs are currently based on drawdown, providing a good match between the trends in water levels may be more important for planning purposes. While the simulation of the actual water level may be off by a few feet, if the trend matches reasonably well then the predicted drawdown calculation (starting water level minus ending water level) may be more reasonable as well.

Alternate Recalibrations

Using the data files developed during the base recalibration effort, we then created 100 alternate recalibrations (that is, realizations) of the recalibrated model. For each realization we generated a random starting hydraulic conductivity value, within the minimum and maximum bounds, for each pilot point. We then used PEST++ to recalibrate the model using the new initial conditions. While not all of the realizations calibrated as well as the base calibration, these additional realizations allow us to explore the range of potential predictive results from the same pumping file.

Figure 10 illustrates how the various realizations relate to the recalibration results at GCGCD monitoring well #4. Most of the realizations results in a similar trend in simulated water levels during the calibration periods with the range in simulated water levels from the realizations being about 30 feet. While some of the realization results plot closer to the measured water levels for the well, it is important to remember that the calibration is based on a balancing of results at many locations across the county.

Predictive Simulation Results

As one primary purpose of the recalibration is to provide an improved tool for evaluating potential DFCs, we used the recalibration and the realizations to assess the predicted drawdown using the pumping file adopted by GMA 15. During a joint planning meeting on November 15, 2019, GMA 15 adopted the use of a pumping file designated as "GMA15_2019_001 version 1" to represent the predicted pumping conditions. The potential DFCs based on this pumping file would be stated as the amount of average drawdown that occurs between December 31, 1999 (January 1, 2000) and December 31, 2080. Also, unless dry cells occur during simulation of the DFCs by the TWDB using the pumping file, the predictive pumping amounts included in the file will become the modeled available groundwater.

To calculate the predicted drawdown in 2080, we used the simulated water level from the recalibration and realization simulations as the starting water level in the predictive simulation. We then performed the predictive simulation using a revised version of the adopted GMA 15 pumping file. The revisions to the pumping file only occurred within Goliad County and reflect changes to the predicted pumping amounts as directed by the GCGCD Board and staff. Table 3 summarizes the changes to the GMA 15 pumping file used for the simulations. The largest changes occur in the Evangeline Aquifer where predicted pumping decreases from 6,548 acre-feet in 2080 to 5,304 acre-feet. However, most of the pumping decrease in the Evangeline simply shifts to the deeper units with total predicted pumping only decreasing by a little more than 200 acre-feet in 2080. After running the model with the revised pumping file, we extracted the simulated water levels from the predictive simulation results and calculated the average drawdown for each of the four layers of the model and for the GCAS as a whole (all four layers combined).

Table 4 provides the calculated average drawdown from the recalibration and realizations for comparison to the results from the adopted GAM. As mentioned previously, the GAM generally show water levels rising in the aquifers which is reflected in the negative average drawdown values. However, the recalibration and realization results show greater average drawdown in all of the model layers. For the Evangeline layer, the average drawdown in the recalibrated model is about 50 feet more than in the GAM. Figure 11 illustrates the range of the predicted average drawdown values within GCGCD based on the recalibration and realizations.

Table 5 provides the predicted drawdown results at selected GCGCD monitoring wells through 2080 using the recalibrated model. These results suggest there is a relatively small range in the predicted drawdown at the monitoring locations, though the predicted drawdown is much greater than the that from the adopted GAM. The values presented in Table 5, provide a more reasonable estimate of the predicted drawdown for groundwater management purposes. To illustrate how the predicted water levels change with the adopted pumping file, attached are charts illustrating the predictive results at each of the GCGCD monitoring wells used for assessing the recalibration results along with the predicted water levels at each of the GCGCD monitoring wells. As expected, the greatest variation in results occurs at wells completed in the Evangeline Aquifer as this layer was the focus of the recalibration effort due to the reasons discussed in previous sections.

While there is always uncertainty in predictive simulation results from a model, the improvement in calibration suggests the predictive simulation results with the recalibrated model provide reasonable values for planning purposes. In particular, the improvement in matching the measured trend in water levels would provide GCGCD with predicted drawdown values that can be used to assess compliance with adopted desired future conditions. The recalibrated model can also be used to assess what a reasonable value for groundwater production may be under various water-level decline scenarios.

Conclusions and Limitations

The current GAM does not reasonably simulate the change in water level that GCGCD has observed in their monitoring wells. To address the poor match between measured and modeled water levels, we performed a recalibration of the current GAM within and near GCGCD. The recalibration focused on the Evangeline Aquifer where sufficient monitoring data were available.

The recalibration resulted in an improvement over the current GAM with respect to the simulation of the measured water levels and the trend in measured water levels. Rather than having water levels increasing (that is, recovering) in the simulated aquifers, the simulated water levels followed a generally declining trend similar to the measured water levels. Alternative recalibrations or realizations showed similar results and provided a range in the predicted results.

Predictive simulations performed using the pumping file adopted by GMA 15 resulted in average drawdown values being about 50 feet more in the Evangeline Aquifer than were simulated using the current GAM. These predictive results appear to better reflect the trend in measured water levels within Goliad County. Due to the identified issues with the calibration of the current GAM, the results from the recalibration effort provide GCGCD with reasonable results for use in groundwater management, joint planning, adopting proposed DFCs, and assessing compliance with the adopted DFCs.

Like any model there are limitations in its use and results. The limitations of the current GAM as discussed by Chowdhury and others (2004) remain applicable. In addition, by limiting the source of inflow to the simulated aquifers as coming from rivers and streams, we do not include more diffuse sources of recharge to the aquifer. However, as a regional model this limitation does not appear to significantly affect the results. Many of the limitations in the model will be addressed during the model update that is currently underway by the TWDB.

Geoscientist Seal

This report documents the work of the following licensed professional geoscientists with LRE Water, a licensed professional geoscientist firm in the State of Texas (License No. 50516).

STATE OF TEXAS
MICHAEL R. KEESTER
GEOLOGY
10331
LICENSED
PROFESSIONAL GEOSCIENTIST

10/20/2020

Michael R. Keester, P.G.
Senior Project Manager | Hydrogeologist

References

Anderson, M.P. and Woessner, W.W., 2002, Applied Groundwater Modeling: Simulation of Flow and Advective Transport: San Diego, Academic Press,

Chowdhury, A.H., Wade, S., Mace, R.E., and Ridgeway, C., 2004, Groundwater Availability Model of the Central Gulf Coast Aquifer System: Numerical Simulations through 1999: Model Report, 108 p.

Donnelly, A., 2018, Task One results: Technical Memorandum to Heather Sumpter, General Manager, Goliad County Groundwater Conservation District dated February 26, 2018, 31 p.

Gupta, H.V., Sorooshian, S., and Yapo, P.O., 1998, Toward improved calibration of hydrologic models: Multiple and noncommensurable measures of information: Water Resources Research, v. 34, no. 4, p. 751-763.

Keester, M., 2019, Status Summary of Third Round of Joint Planning: Memorandum to Groundwater Management Area 15 dated January 10, 2019, 3 p.

McLendon, T., Booker, J.D., Coldren, C.L., and Pappas, C.R., 2016, Development of an EDYS Ecological Model for Goliad County, Texas: Final report prepared for San Antonio River Authority and Texas State Soil and Water Conservation Board, 242 p.

Rainwater, K. and Coldren, C., 2019, Goliad County Recharge Evaluation Summary of Field Data Collection as of June 2019: Report submitted to Goliad County Groundwater Conservation District, 8 p.

Rainwater, K. and Coldren, C., 2020, Goliad County Recharge Evaluation - Summary of Field Data Collection for August 2020: Report submitted to Goliad County Groundwater Conservation District, 12 p.

Texas Water Development Board, 2020, Groundwater Database Reports, http://www.twdb.texas.gov/groundwater/data/gwdbrpt.asp, accessed February 2020.

Watermark Numerical Computing, 2020, PEST – Model-Independent Parameter Estimation User Manual Part I: PEST, SENSAN, and Global Optimizers: Watermark Numerical Computing, 368 p.

Welter, D.E., White, J.T., Hunt, R.J., and Doherty, J.E., 2015, Approaches in highly parameterized inversion—PEST++ Version 3, a Parameter ESTimation and uncertainty analysis software suite optimized for large environmental models: U.S. Geological Survey Techniques and Methods 7-C12, 54 p.

Young, S., 2016, Desired Future Condition Explanatory Report for Groundwater Management Area 15: Report prepared for Groundwater Management Area 15, 52 p.

Young, S.C., Budge, T., Knox, P.R., Kalbouss, R., Baker, E., Hamlin, S., Galloway, B., and Deeds, N., 2010, Hydrostratigraphy of the Gulf Coast Aquifer from the Brazos River to the Rio Grande: Contract report for the Texas Water Development Board, 203 p.

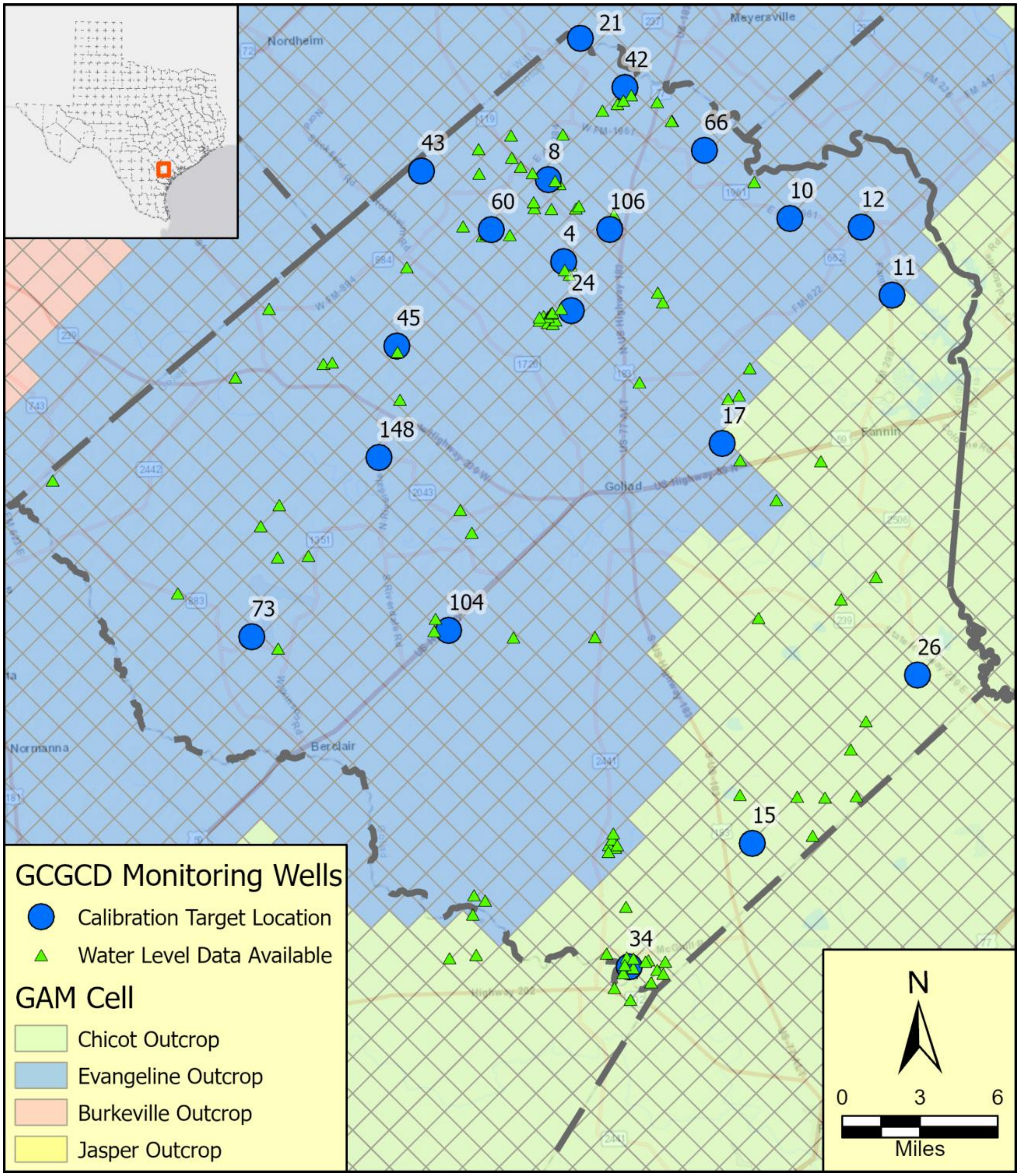


Figure 1. GCGCD monitoring well locations.

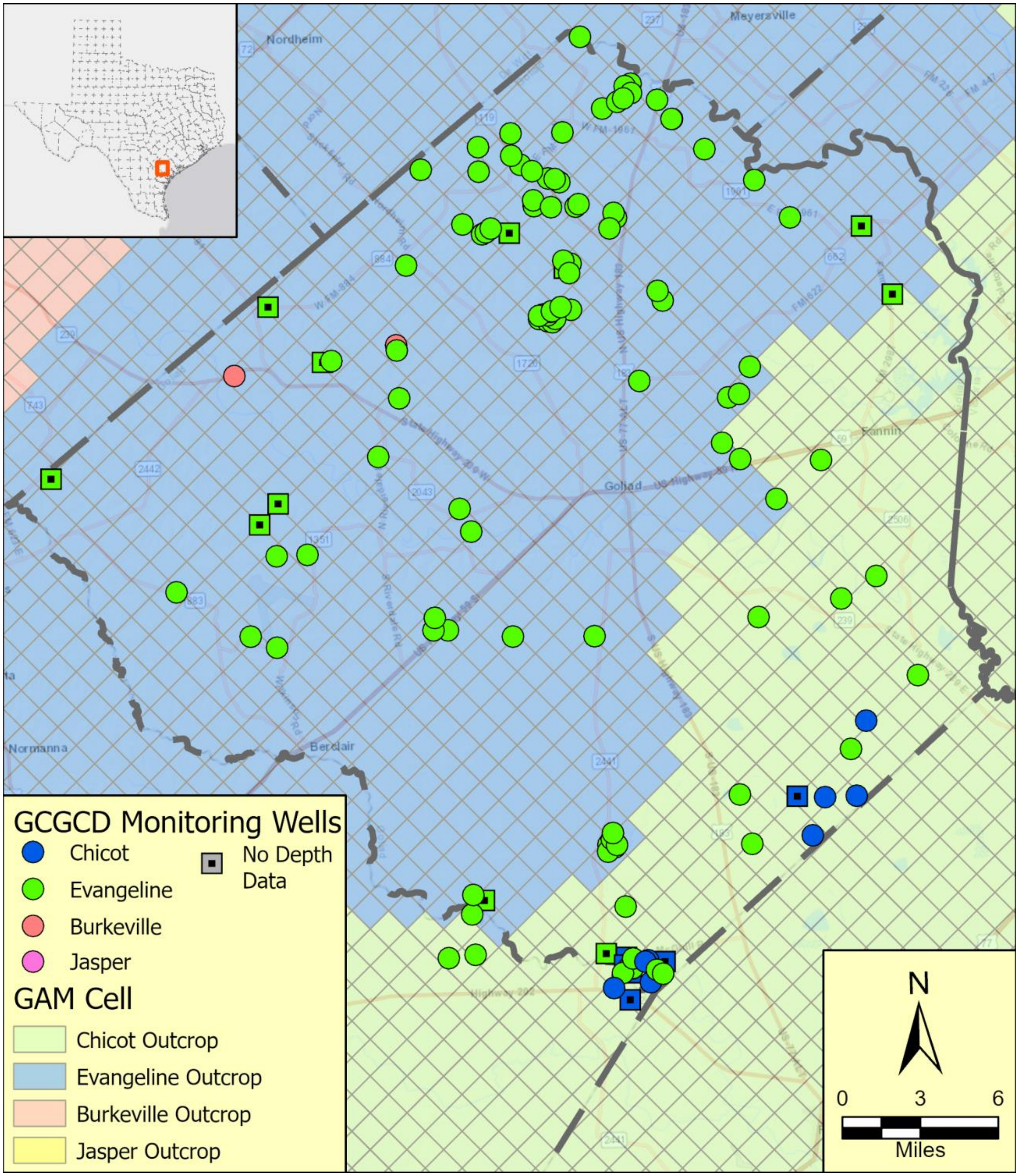


Figure 2. GCGCD monitoring wells by aquifer.

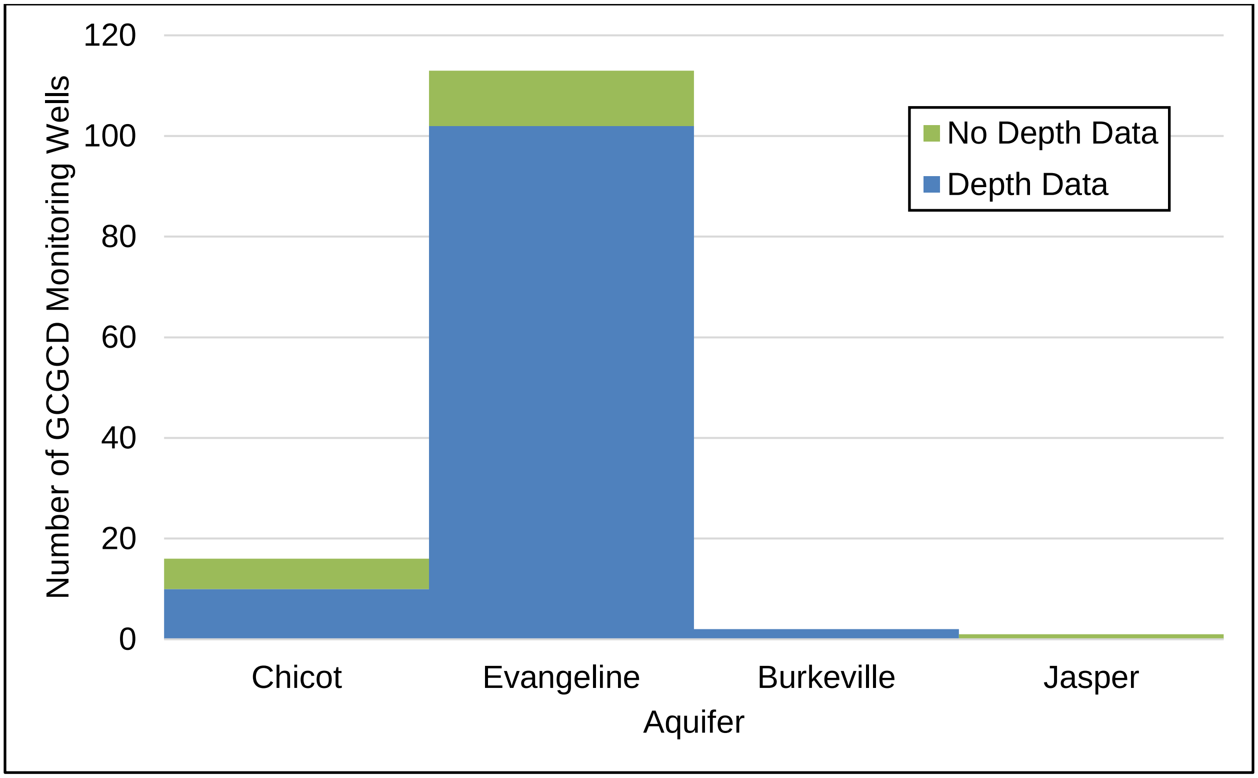


Figure 3. Number GCGCD monitoring wells by aquifer.

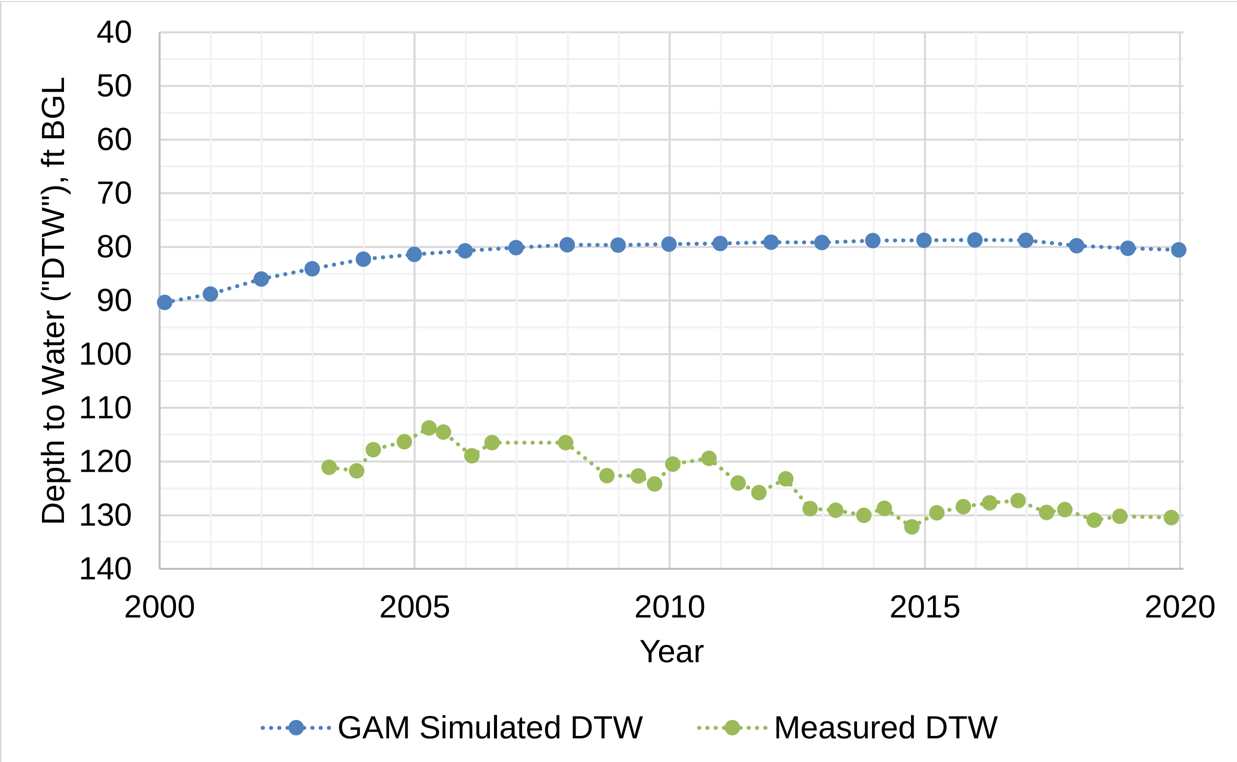


Figure 4. GCGCD monitoring well #4 simulated and measured depth to water. Simulated depth to water calculated as the difference between the land surface elevation and the simulated water level.

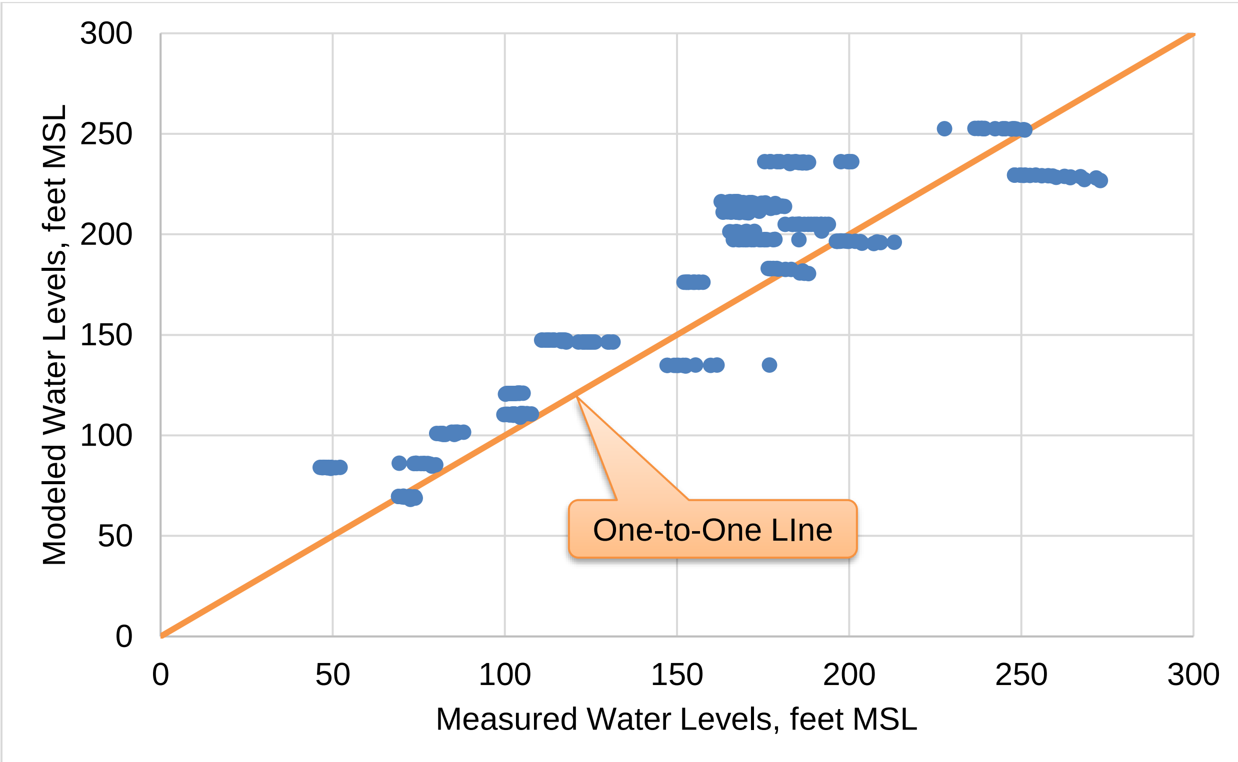


Figure 5. **GAM simulated water levels versus measured water levels at the target monitoring wells. Points above the "One-to-One Line" indicate the simulated water level is higher than the corresponding measured water level.**

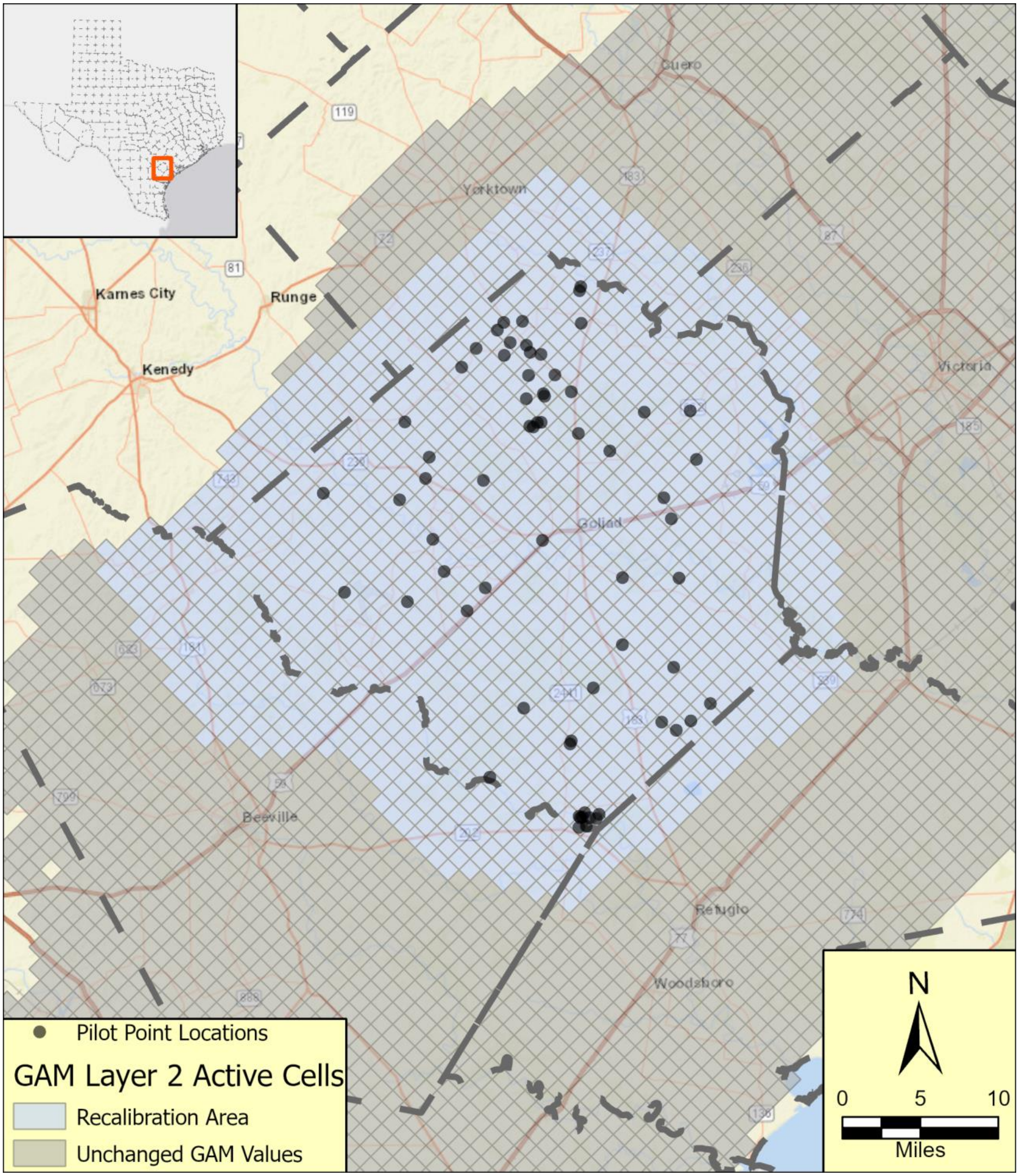


Figure 6. **GAM layer 2 recalibration error and pilot point locations.**

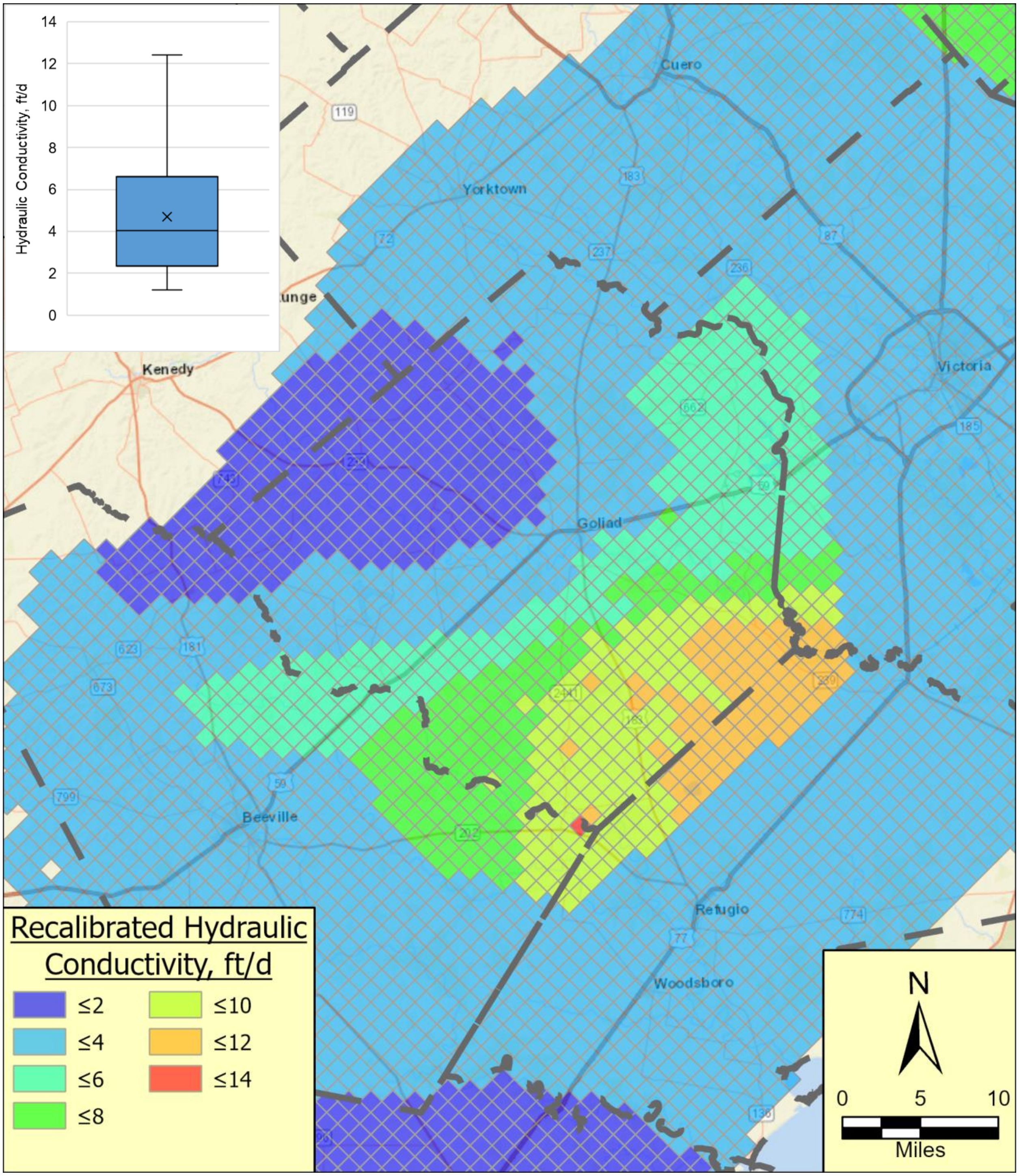


Figure 7. GAM layer 2 recalibration hydraulic conductivity distribution.

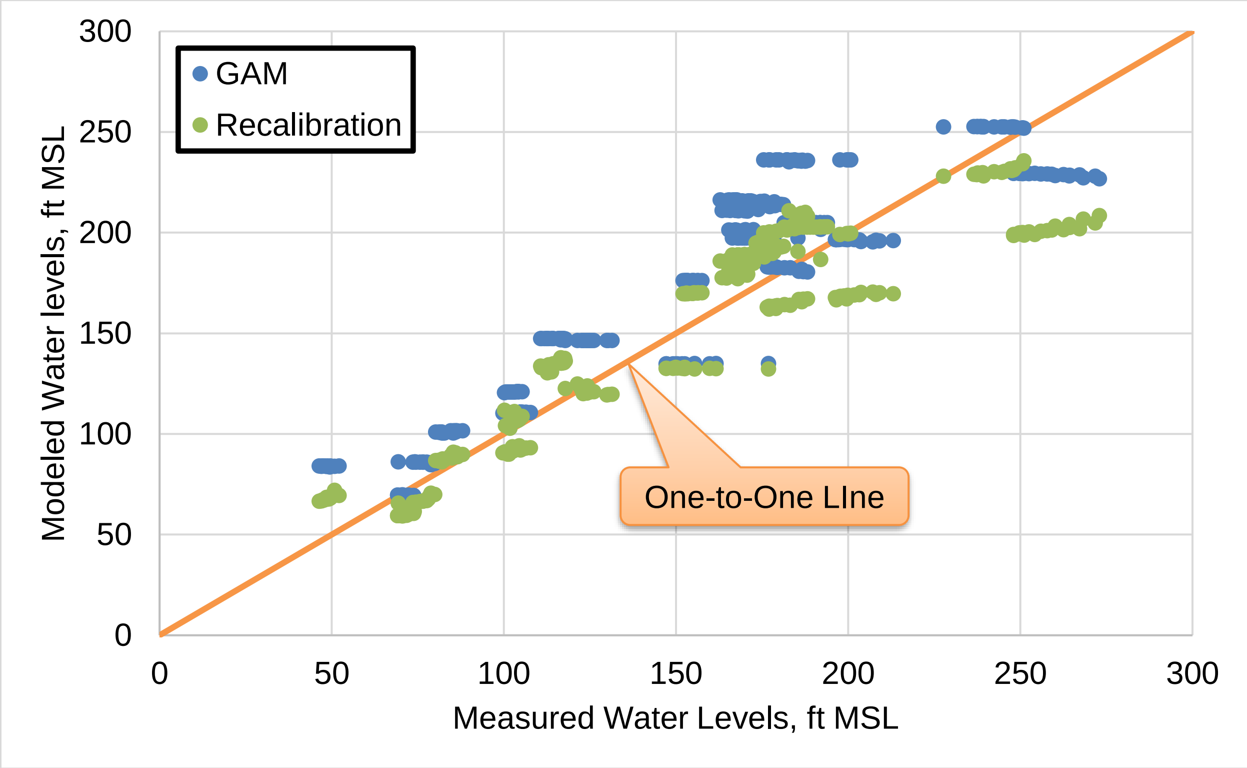


Figure 8. GAM and recalibration simulated water levels versus measured water levels at the target monitoring wells. Points above the "One-to-One Line" indicate the simulated water level is higher than the corresponding measured water level.

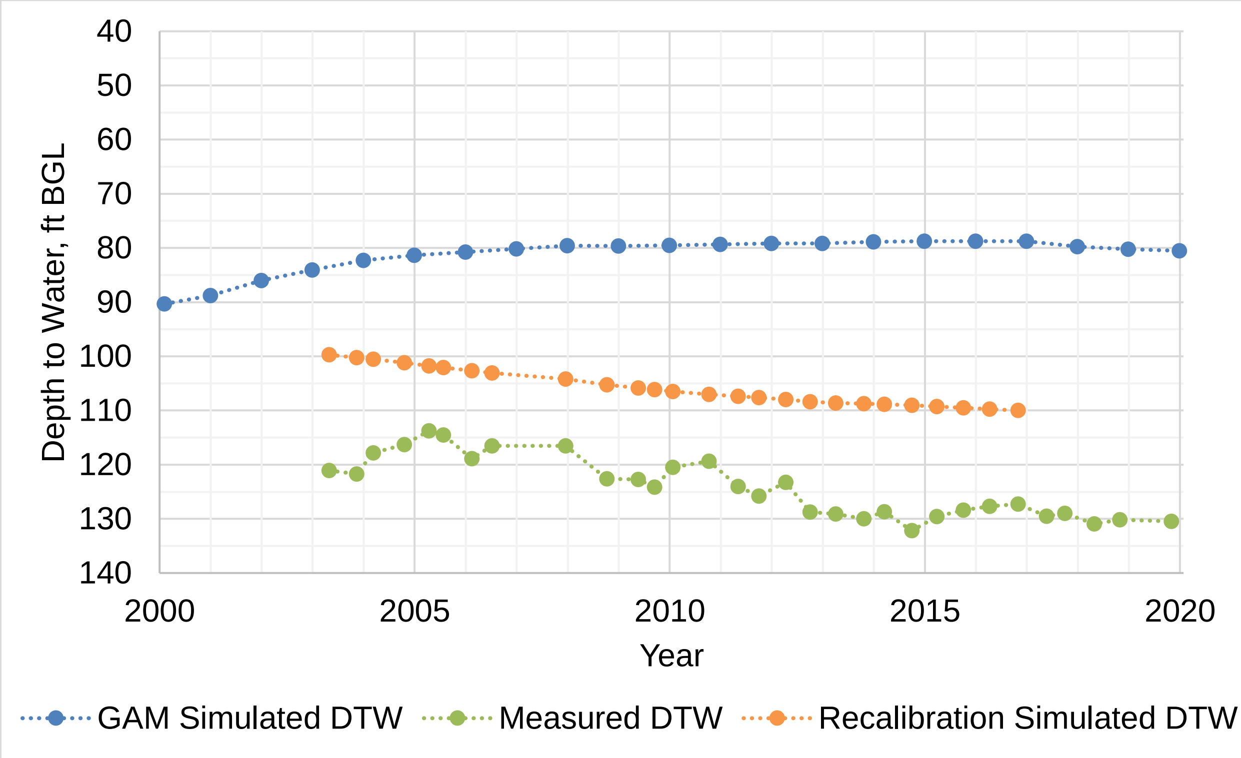


Figure 9. GCGCD monitoring well #4 GAM and recalibration simulated and measured depth to water. Simulated depth to water calculated as the difference between the land surface elevation and the simulated water level.

Table 1. GCGCD calibration statistics calculated using measured and modeled water levels at target locations.

Statistical Measure	Target Value	GAM	Recalibration
Head Measurements	N/A	322	
Minimum Measured Water Level	N/A	46.4 feet MSL	
Maximum Measured Water Level	N/A	273.0 feet MSL	
Average Measured Water Level	N/A	153.1 feet MSL	
Range of Water Levels	N/A	226.6 feet	
Mean Error	0	-17.69	0.47
Mean Absolute Error	0	23.49	17.10
Root Mean Square Error	0	27.78	21.17
Relative Root Mean Square Error	0	0.18	0.14
Normalized Root Mean Square Error	0 (< 0.10)	0.12	0.09
Nash-Sutcliffe Model Efficiency	> 0.90	0.75	0.85

Table 2. GCGCD calibration statistics calculated using trends in the measured and modeled water levels at target locations.

Statistical Measure	Target Value	GAM	Recalibration
Observed Trend Calculations	N/A	20	
Minimum Observed Trend Calculation	N/A	-2.32 feet/year	
Maximum Observed Trend Calculation	N/A	0.72 feet/year	
Average Observed Trend Calculation	N/A	-0.80 feet/year	
Range of Observed Trend Calculation	N/A	3.04 feet/year	
Mean Error	0	-0.85	-0.34
Mean Absolute Error	0	0.99	0.60
Root Mean Square Error	0	1.12	0.75
Relative Root Mean Square Error	0	-1.39	-0.94
Normalized Root Mean Square Error	0 (< 0.10)	0.37	0.25

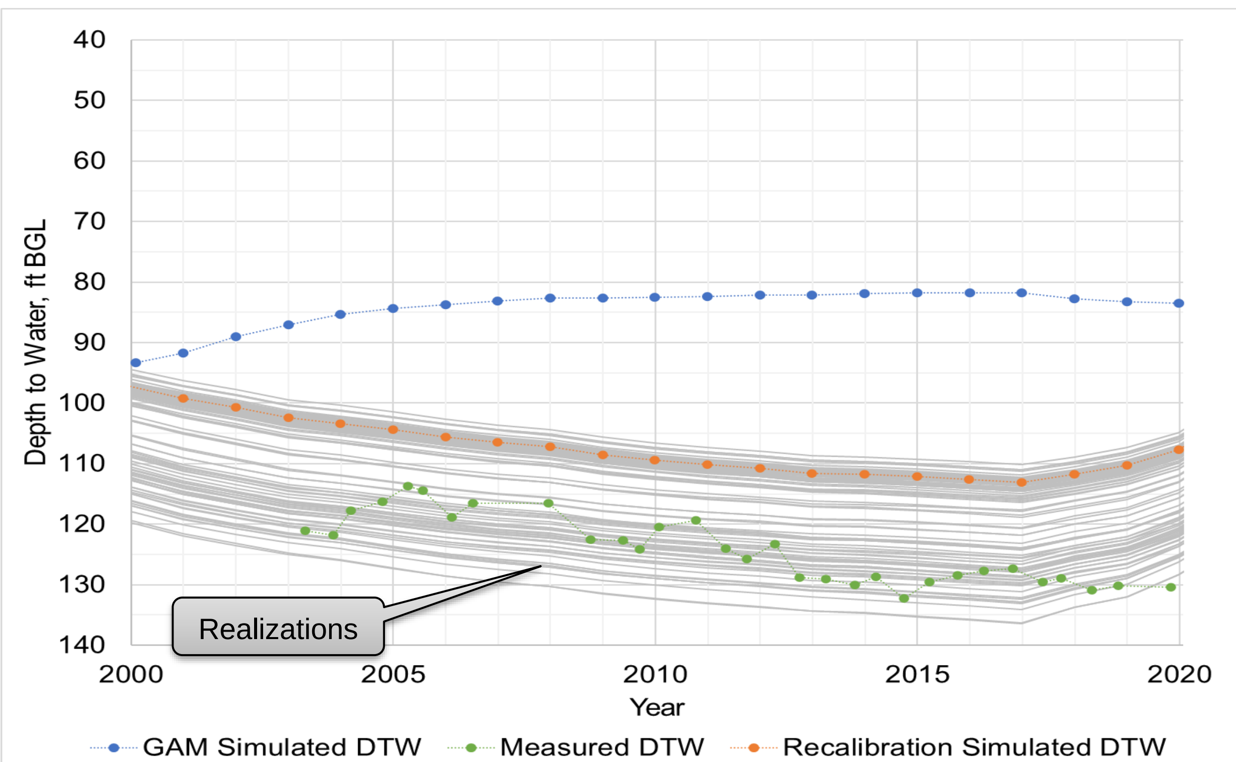


Figure 10. GCGCD monitoring well #4 measured depth to water with simulated depth to water from the GAM, recalibration, and 100 recalibration realizations (gray lines). Simulated depth to water calculated as the difference between the land surface elevation and the simulated water level.

Table 3. Revisions to the adopted GMA 15 pumping file within Goliad County for the predictive simulations.

Year	Chicot		Evangeline		Burkeville		Jasper		GCAS	
	GMA	Rev.	GMA	Rev.	GMA	Rev.	GMA	Rev.	GMA	Rev.
2010	164	164	4,651	4,648	81	81	465	465	5,361	5,358
2020	400	419	6,004	5,000	171	425	58	254	6,633	6,098
2030	410	422	6,161	5,061	176	452	59	343	6,806	6,278
2040	417	426	6,264	5,122	179	479	60	432	6,920	6,459
2050	420	429	6,312	5,182	180	506	61	522	6,973	6,639
2060	431	433	6,440	5,243	184	533	62	611	7,117	6,820
2070	436	436	6,548	5,304	187	560	63	700	7,234	7,000
2080	436	436	6,548	5,304	187	560	63	700	7,234	7,000

Table 4. GCGCD average drawdown from 01/01/2000 (12/31/1999) through 12/31/2080.

Aquifer (GAM Layer)	GAM	Recalibration	Realizations*
Chicot (1)	-4	17	17
Evangeline (2)	-2	47	46
Burkeville (3)	4	35	35
Jasper (4)	8	35	35
GCAS (1-4)	3	38	37

*Value represents the average of all realizations

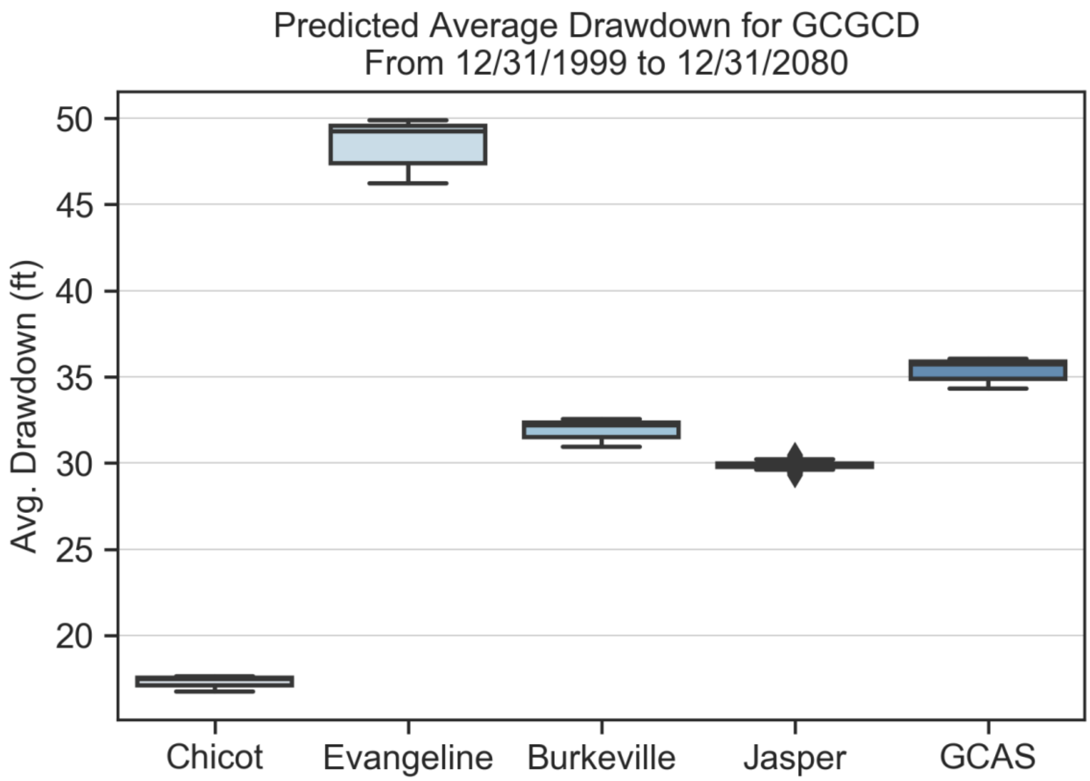


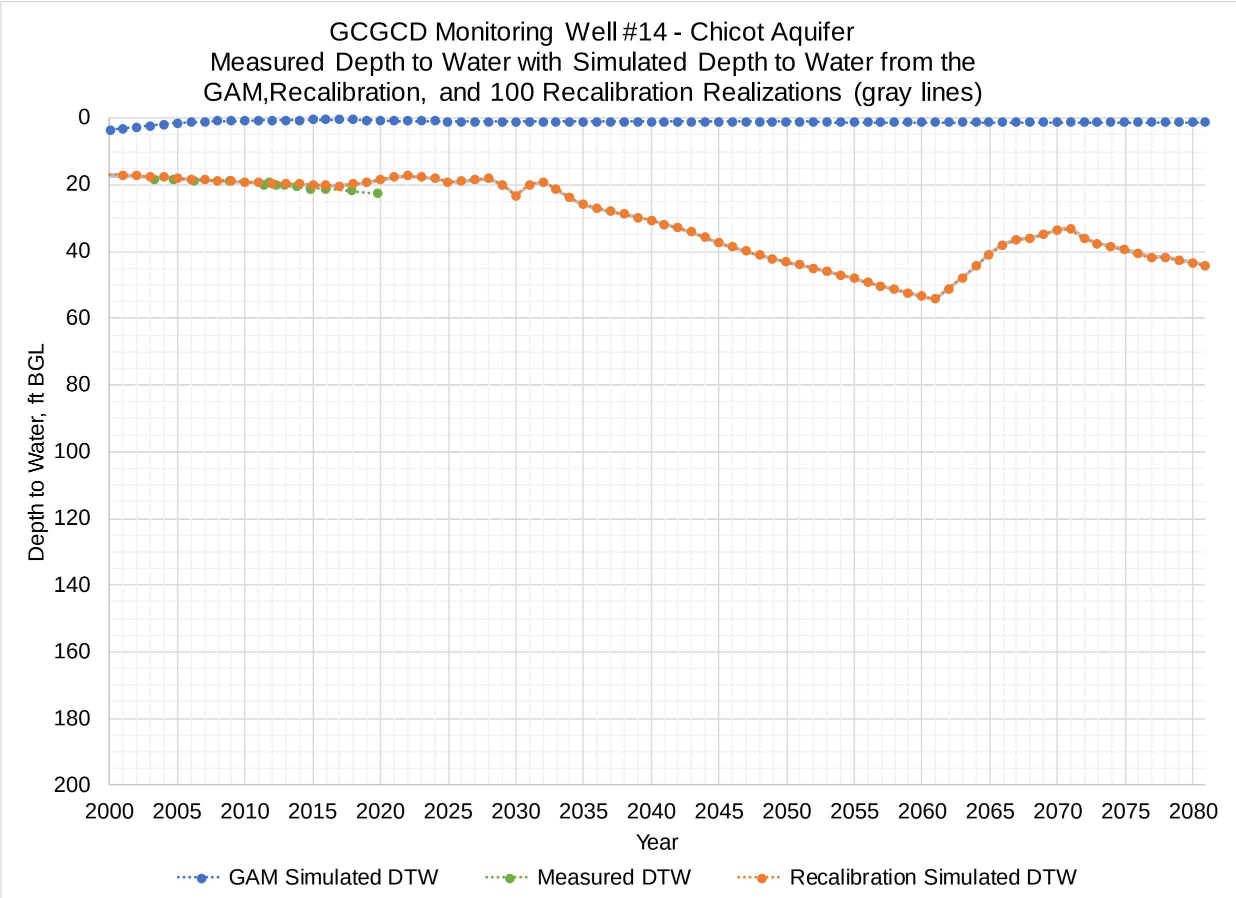
Figure 11. Box plot of the predicted average drawdown in GCGCD from predictions using the GMA 15 adopted pumping file in the model with the recalibration and realization hydraulic conductivity values.

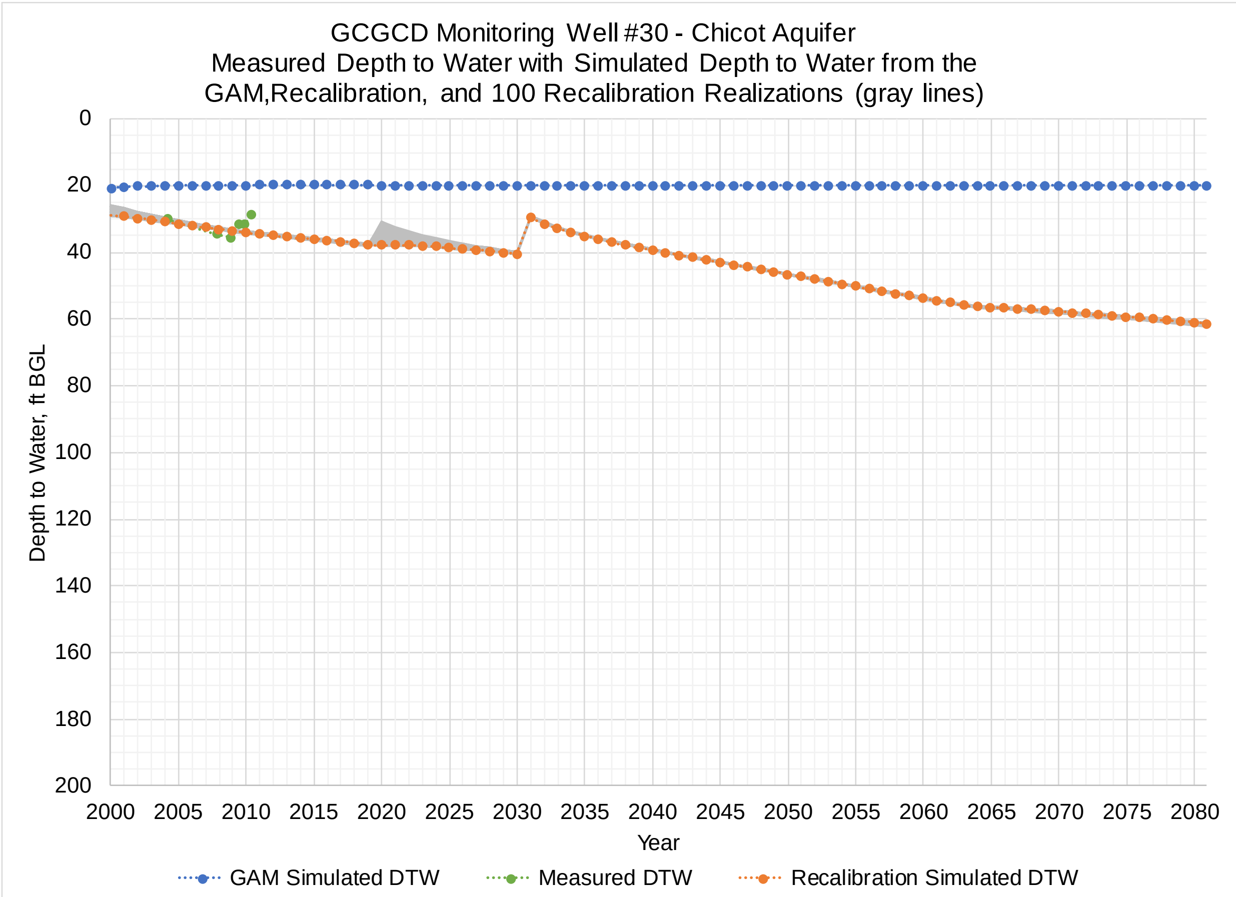
Table 5. Predicted drawdown between 12/31/1999 and 12/31/2080 at select GCGCD monitoring wells.

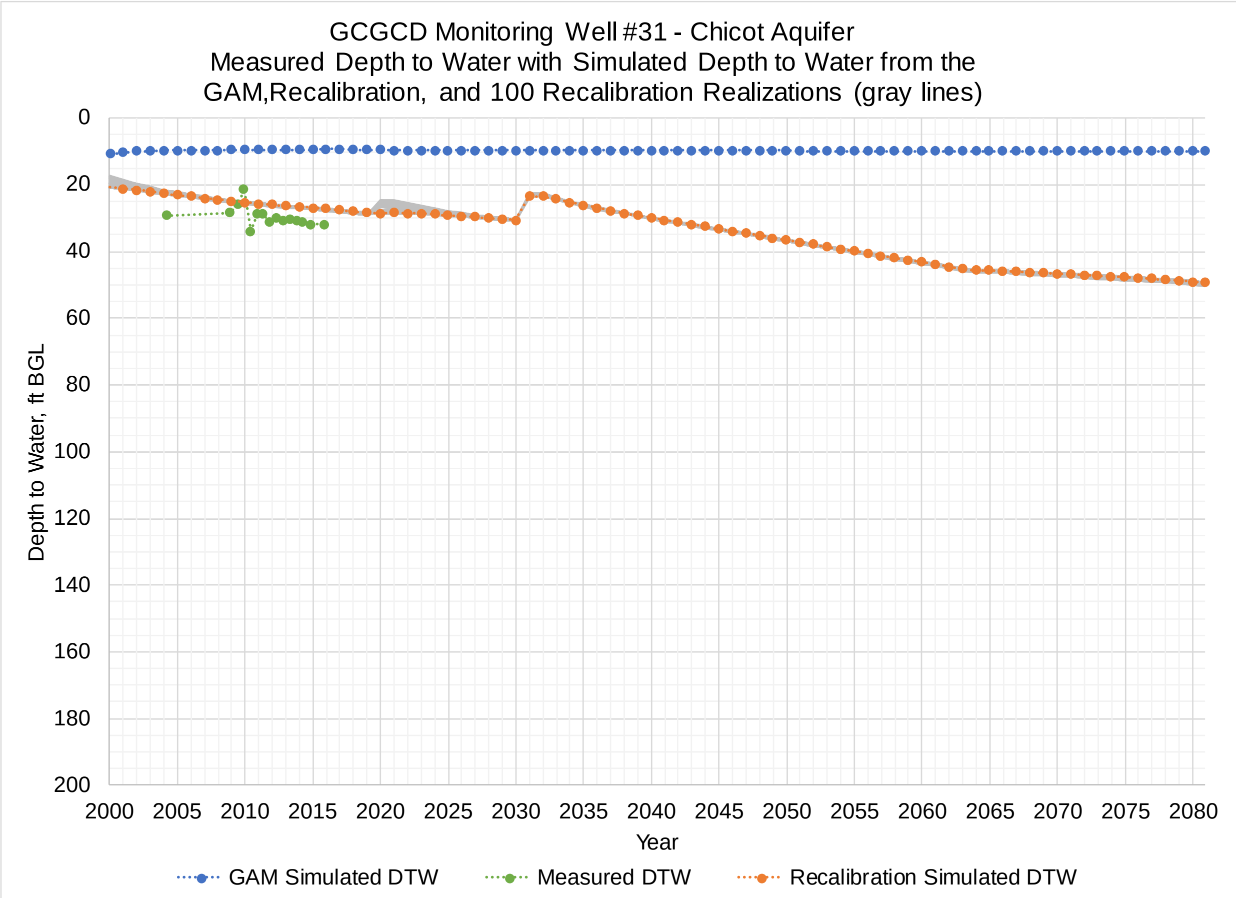
Aquifer (GAM Layer)	Monitoring Well	Predicted Drawdown	Realizations Minimum	Realizations Maximum
Chicot (1)	14	27	26	27
	34	33	32	36
	96	20	19	20
Evangeline (2)	4	81	70	81
	11	48	46	49
	15	33	28	32
	17	32	27	31
	37	41	37	41
	42	79	76	89
	43	83	75	83
	45	40	36	39
	73	94	81	95
Burkeville / Jasper (3 / 4)	45	40	36	39
	153	41	41	42
	164	38	38	39

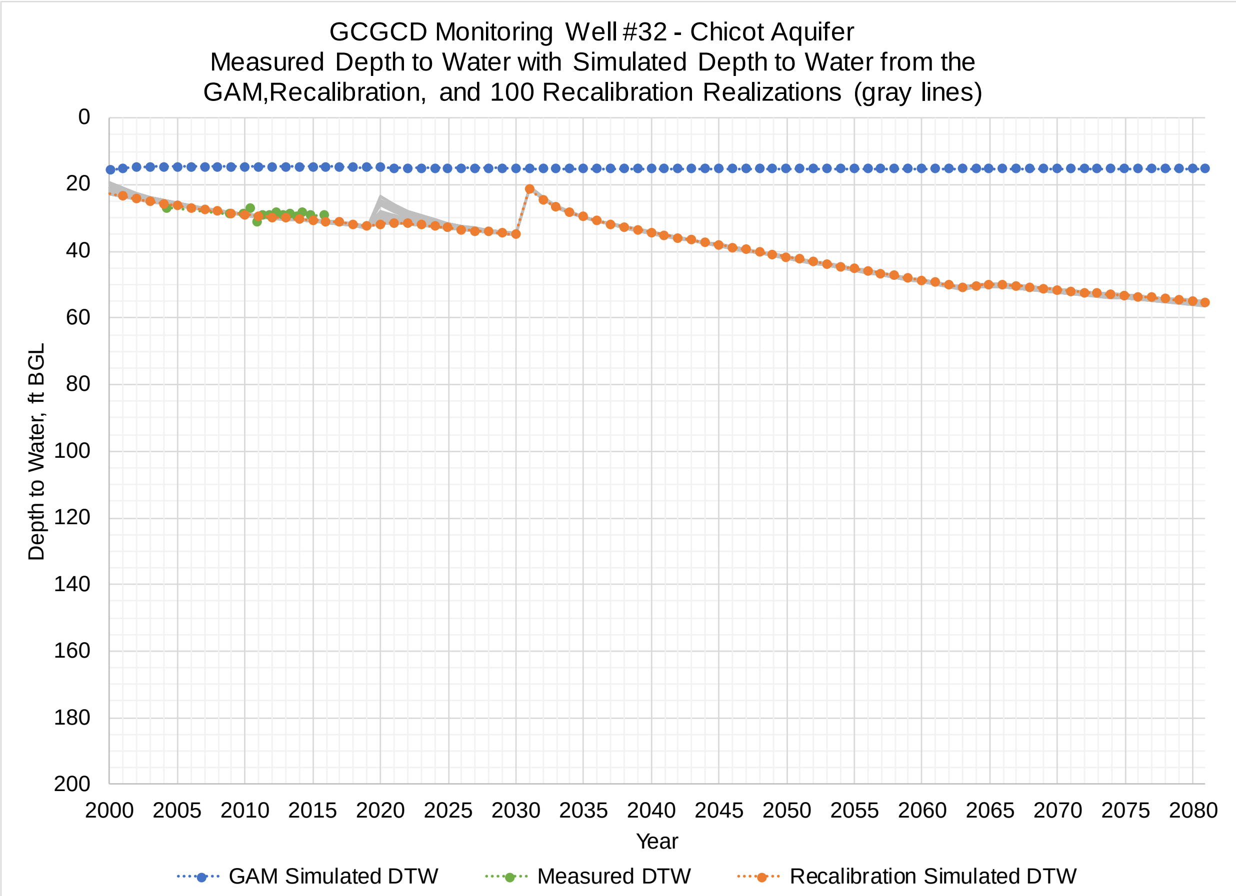
Attachment —
Measured depth to water with simulated depth to water from the GAM, recalibration, and 100 recalibration realizations (gray lines) at GCGCD monitoring well locations. Simulated depth to water represents the difference between the land surface elevation and the simulated water level.

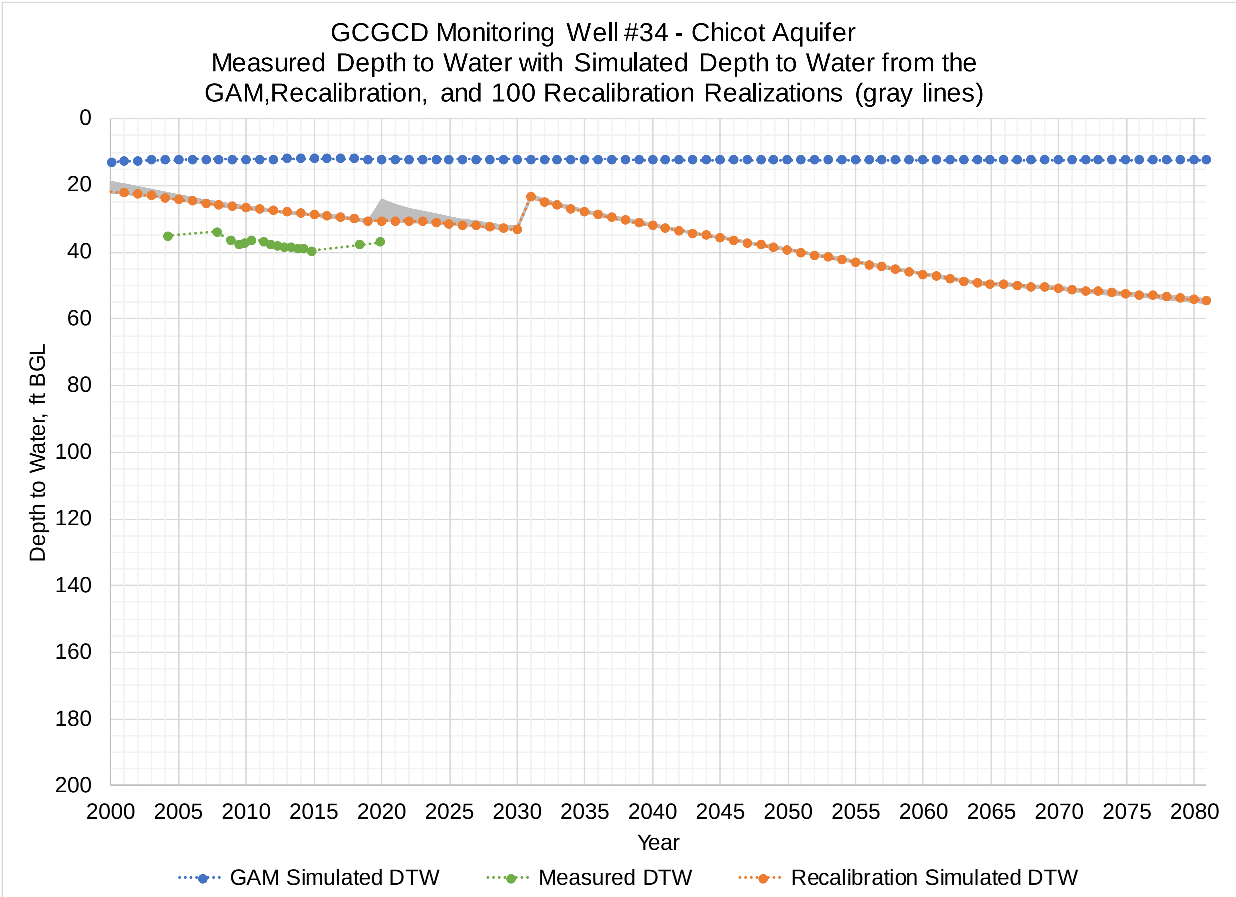
Chicot Aquifer Monitoring Wells

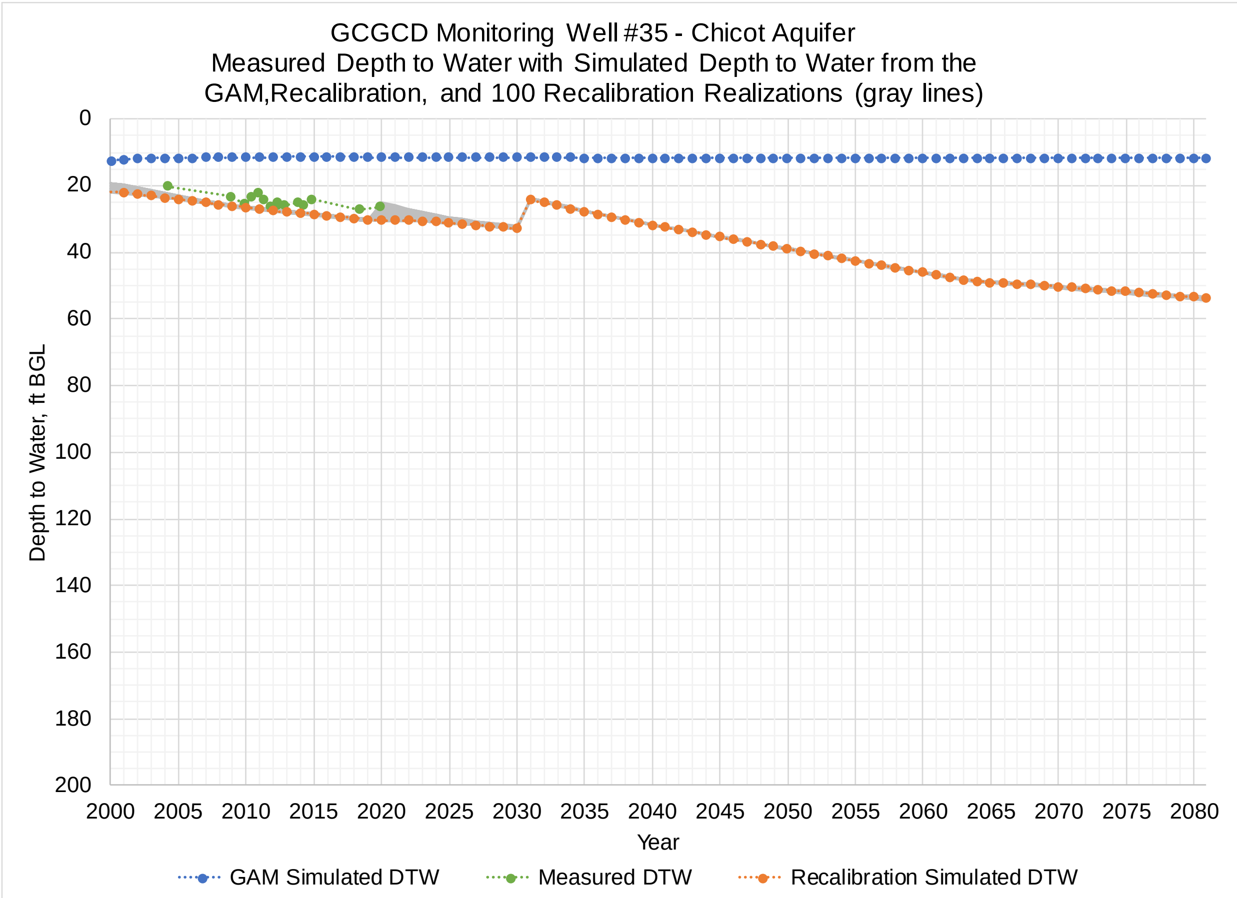

GCGCD Monitoring Well #14 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

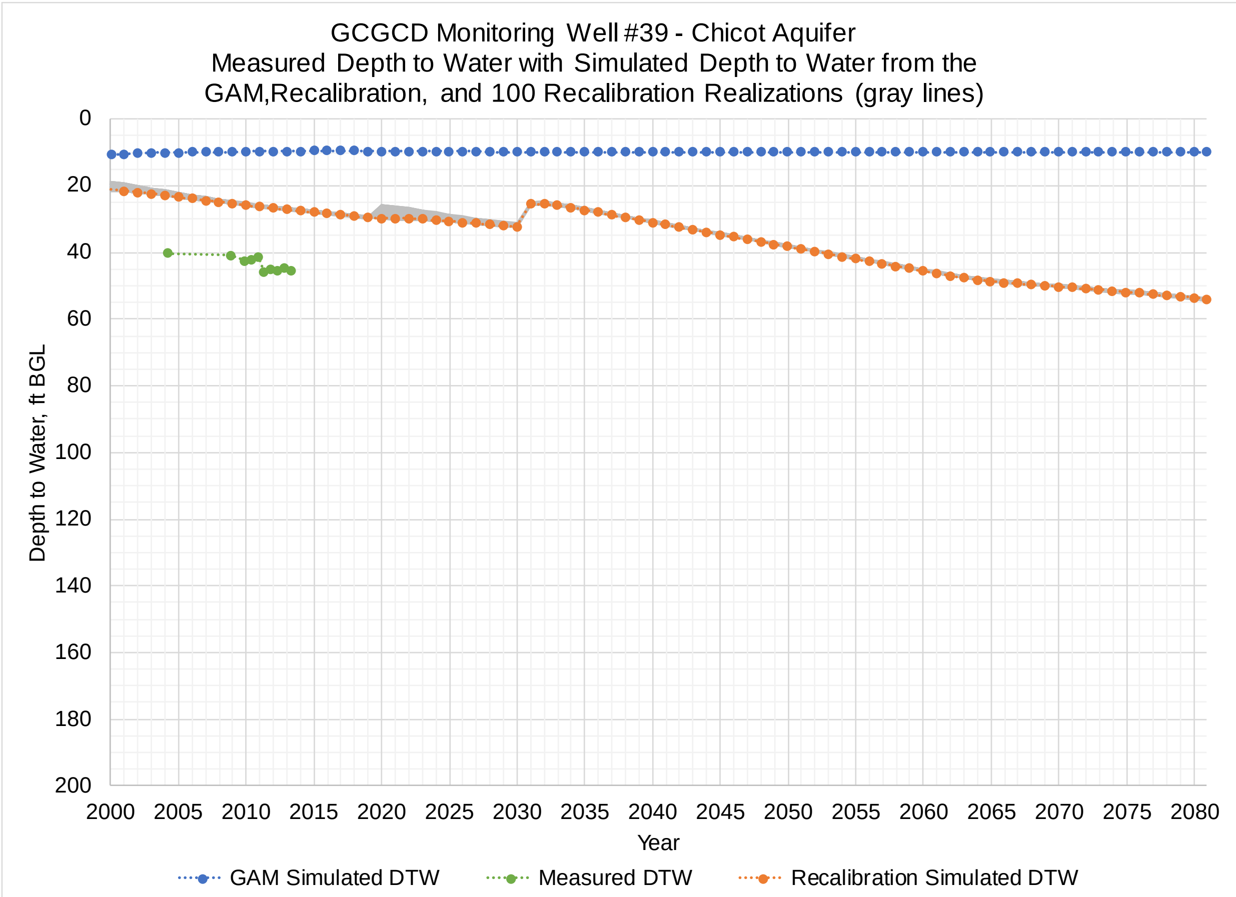

GCGCD Monitoring Well #30 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

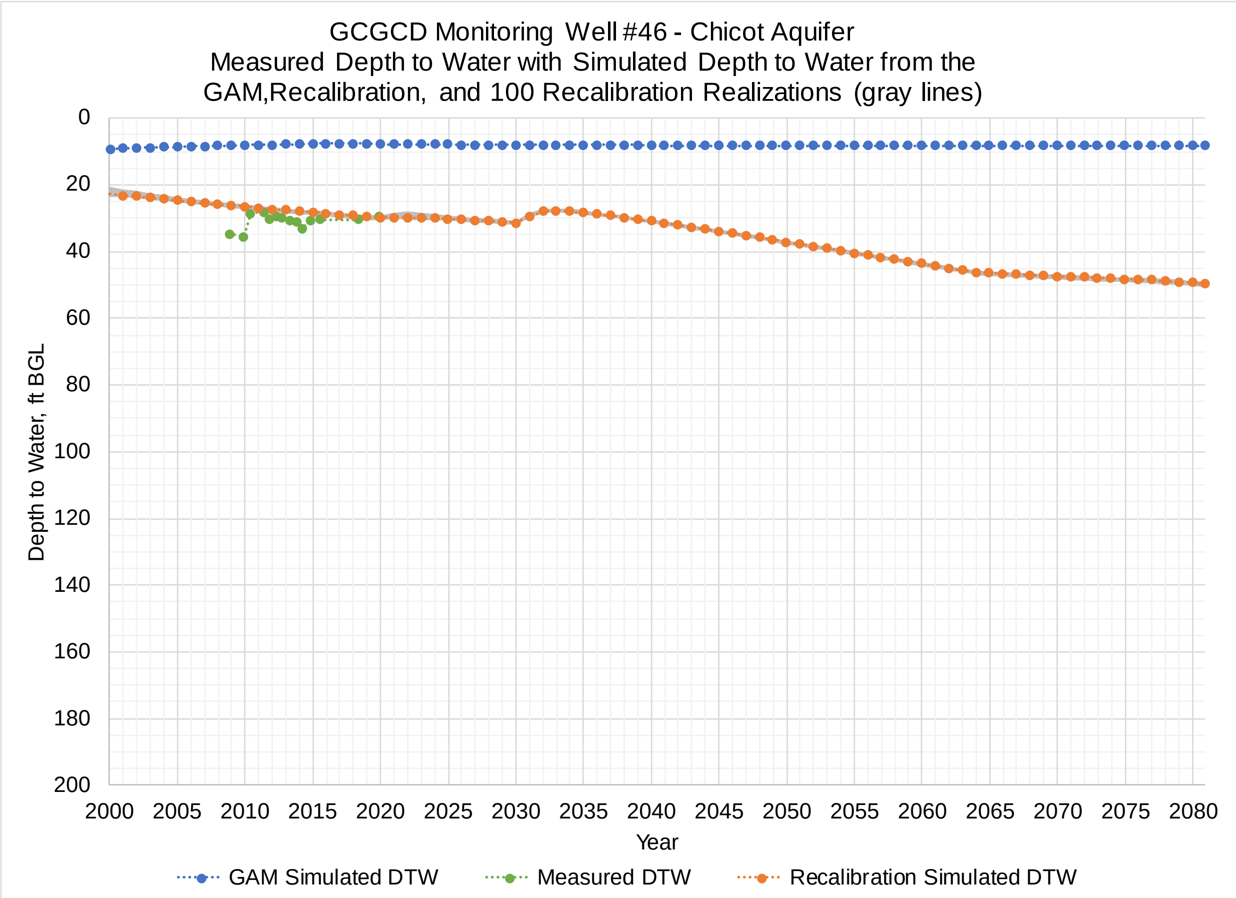

GCGCD Monitoring Well #31 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

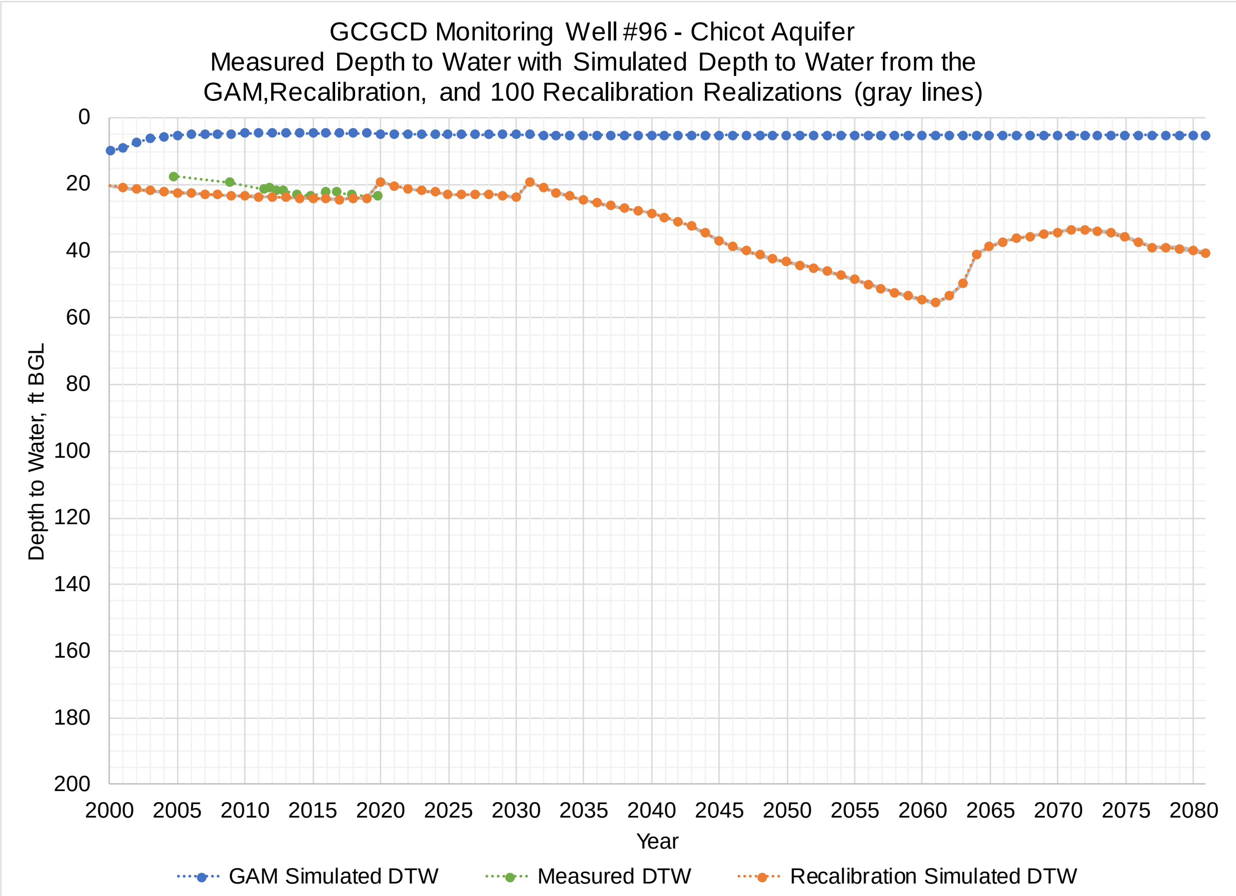

GCGCD Monitoring Well #32 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

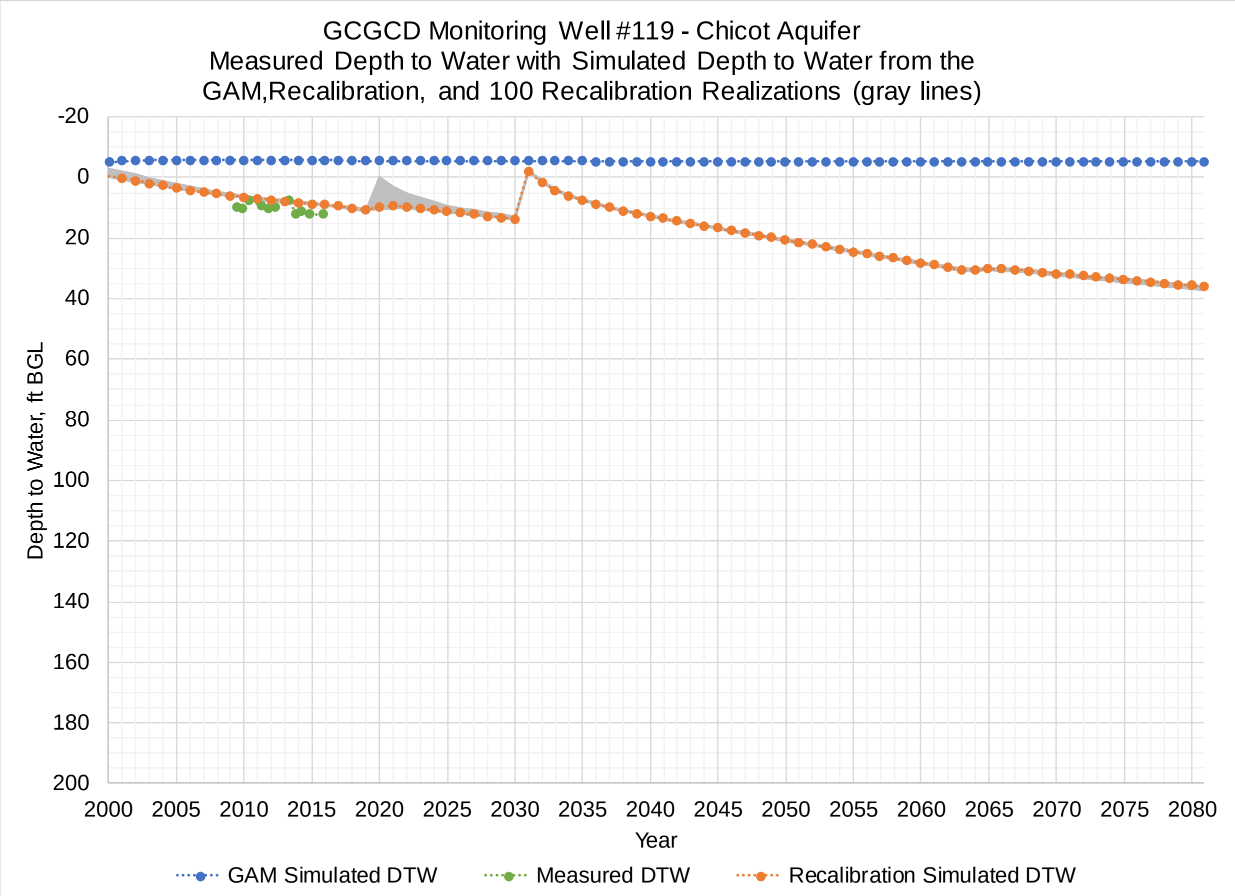

GCGCD Monitoring Well #34 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

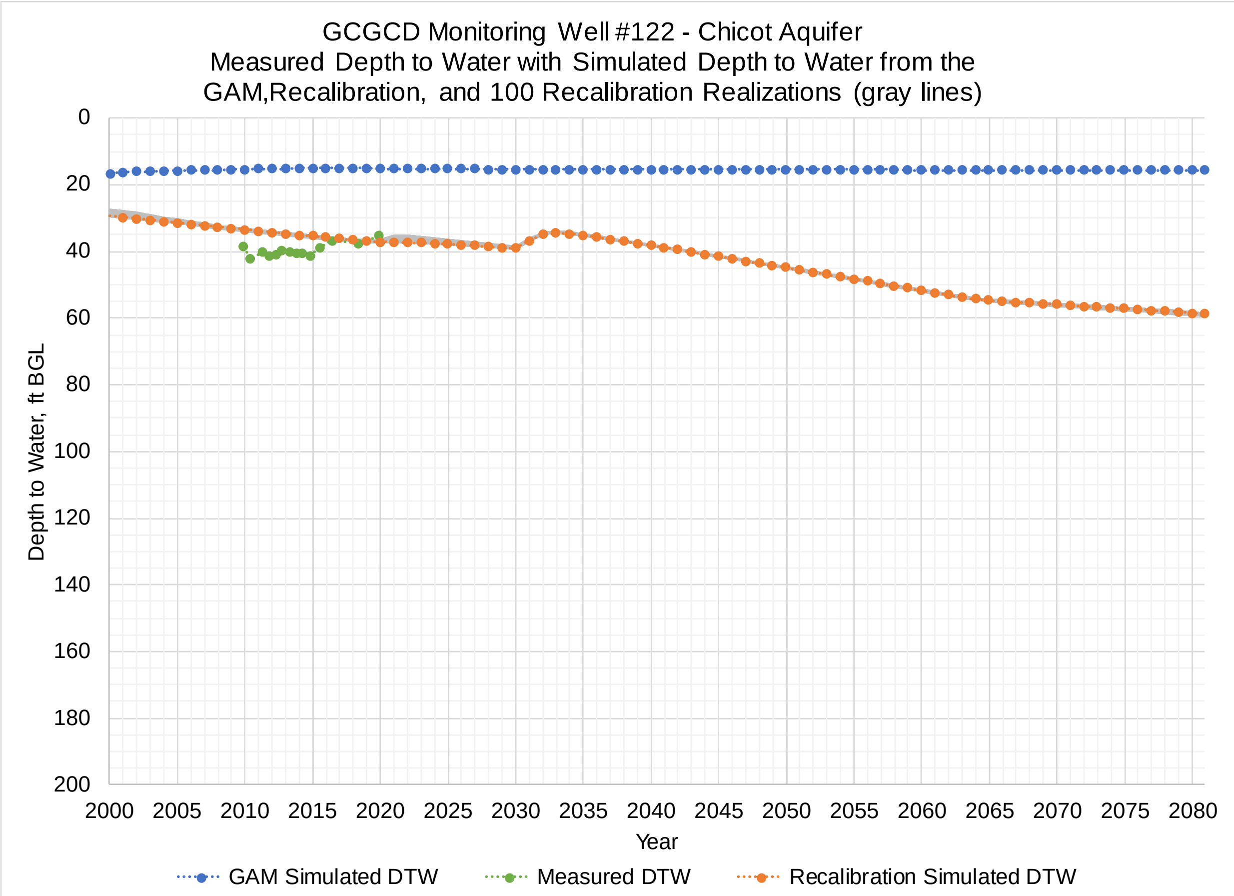

GCGCD Monitoring Well #35 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

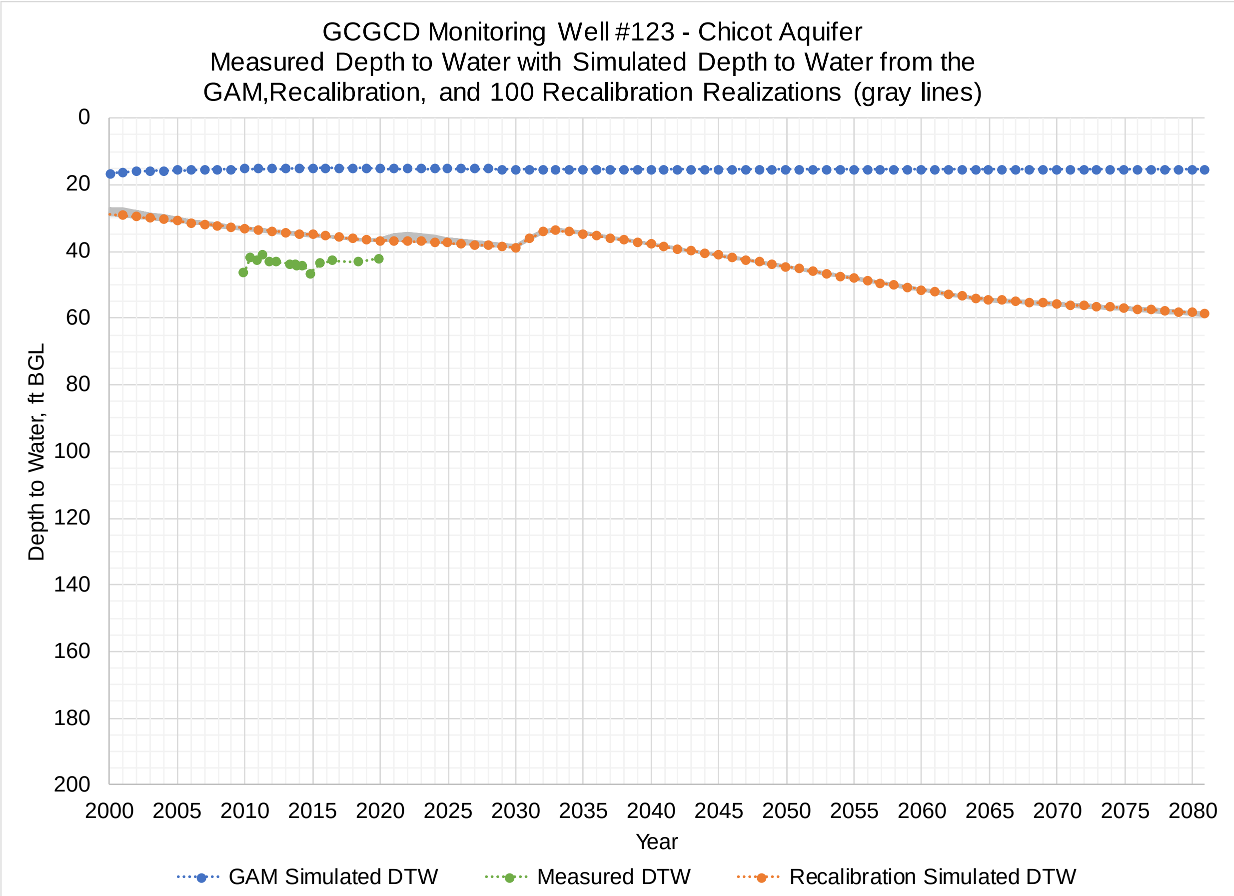

GCGCD Monitoring Well #39 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

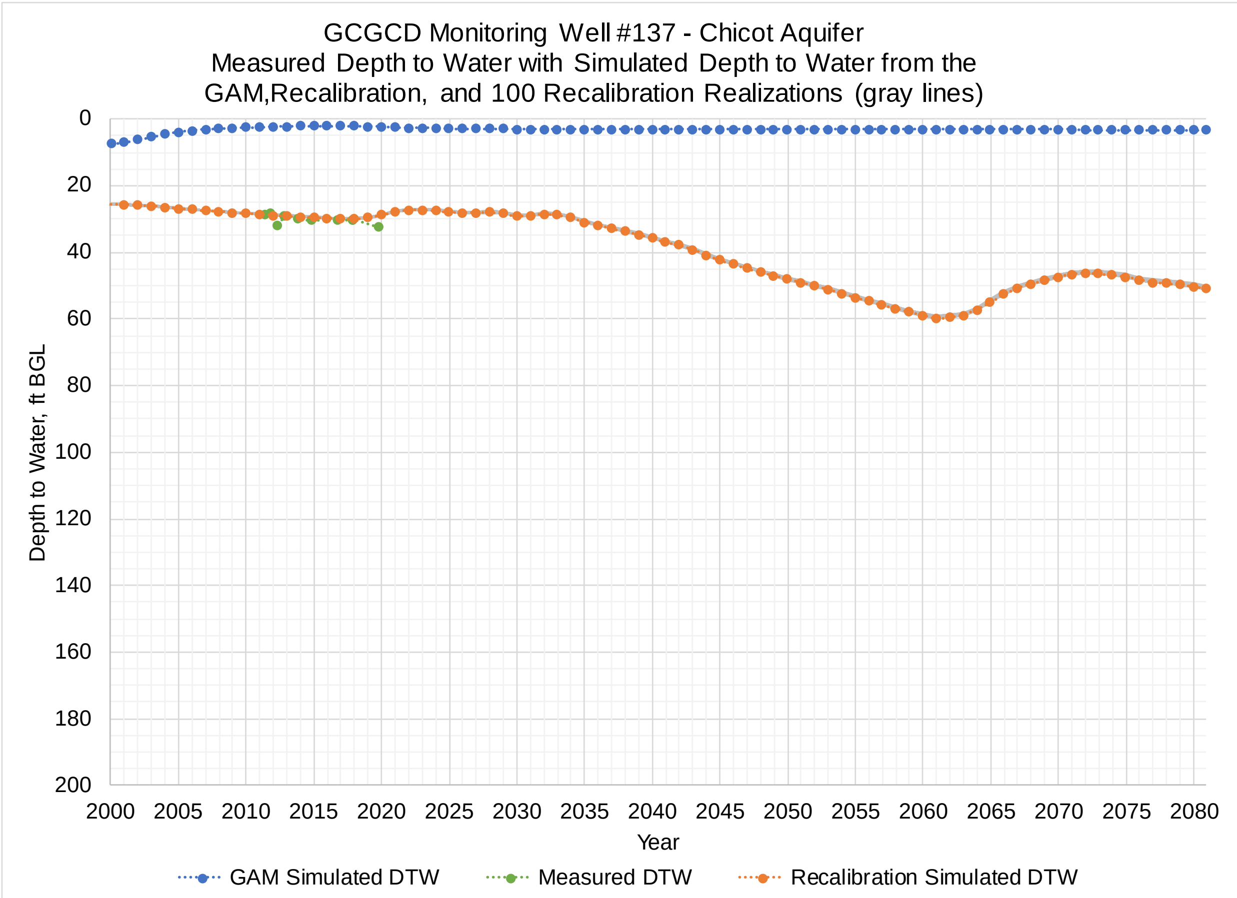

GCGCD Monitoring Well #46 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

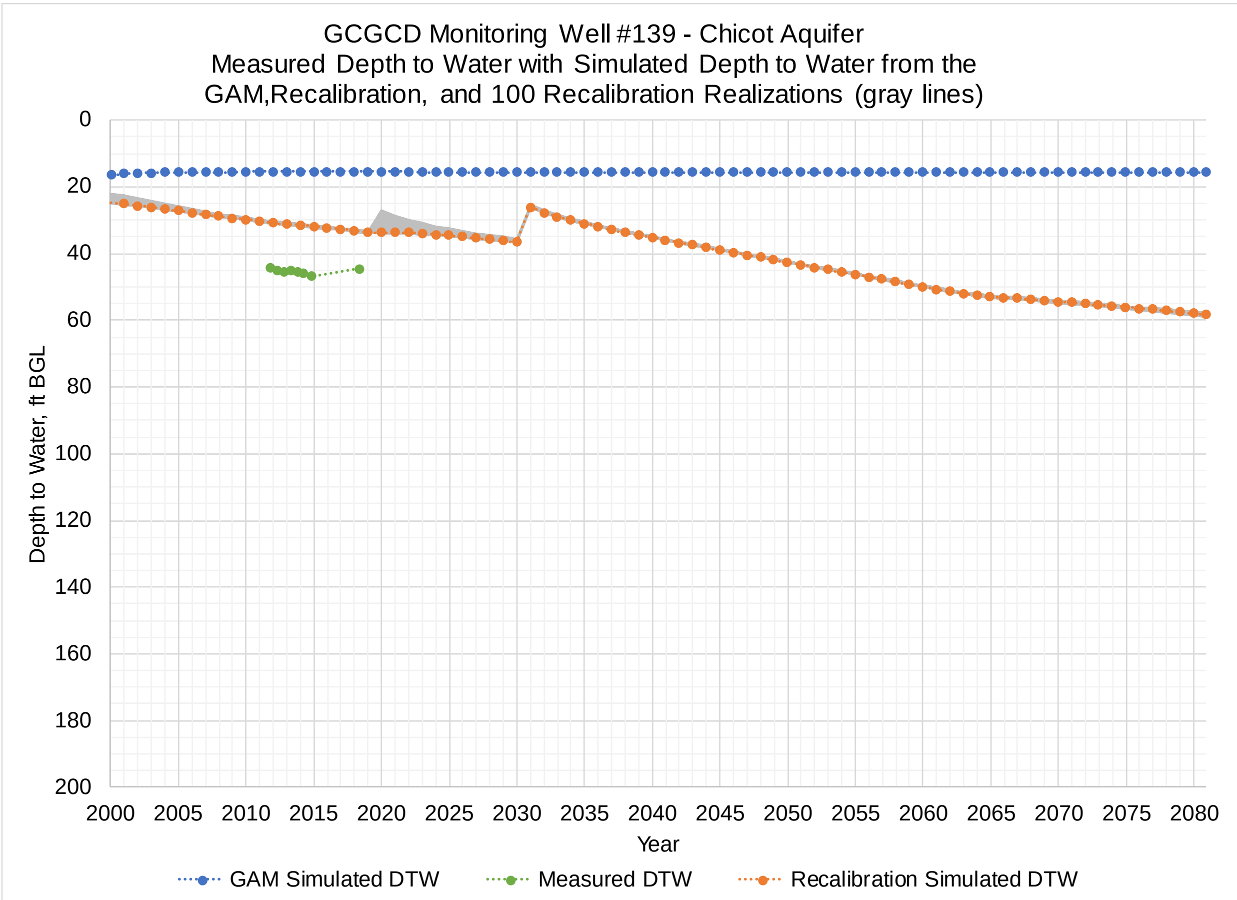

GCGCD Monitoring Well #96 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

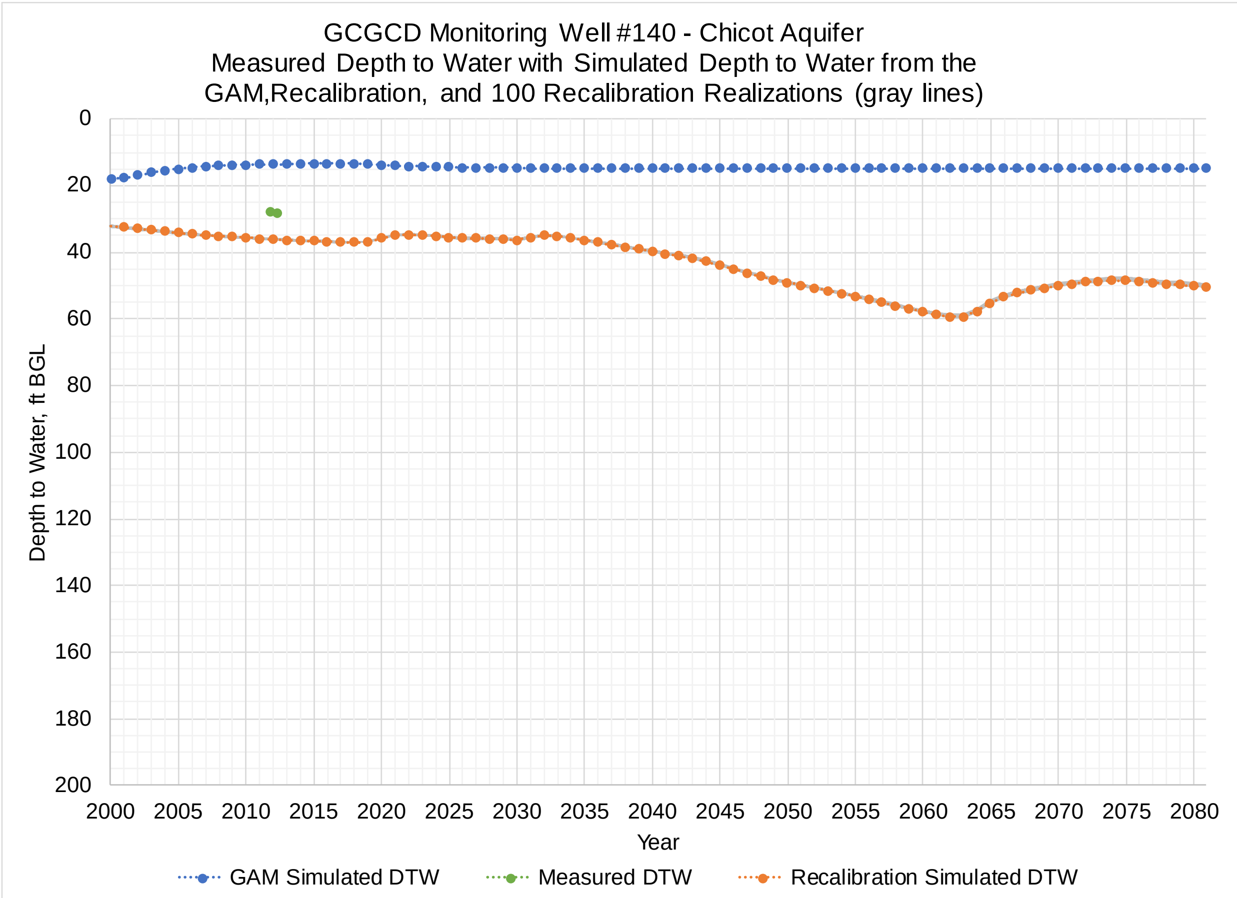

GCGCD Monitoring Well #119 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

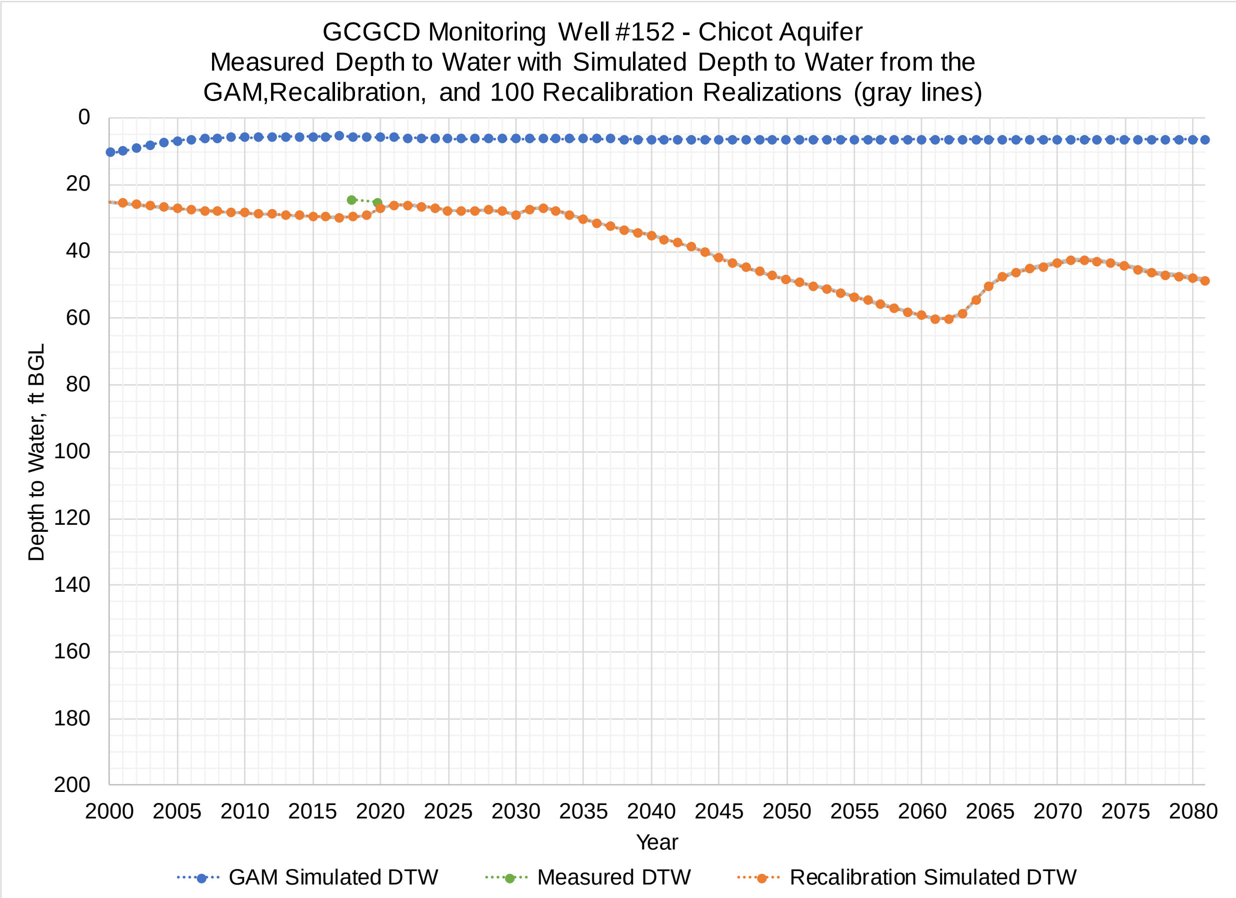

GCGCD Monitoring Well #122 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW


GCGCD Monitoring Well #123 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

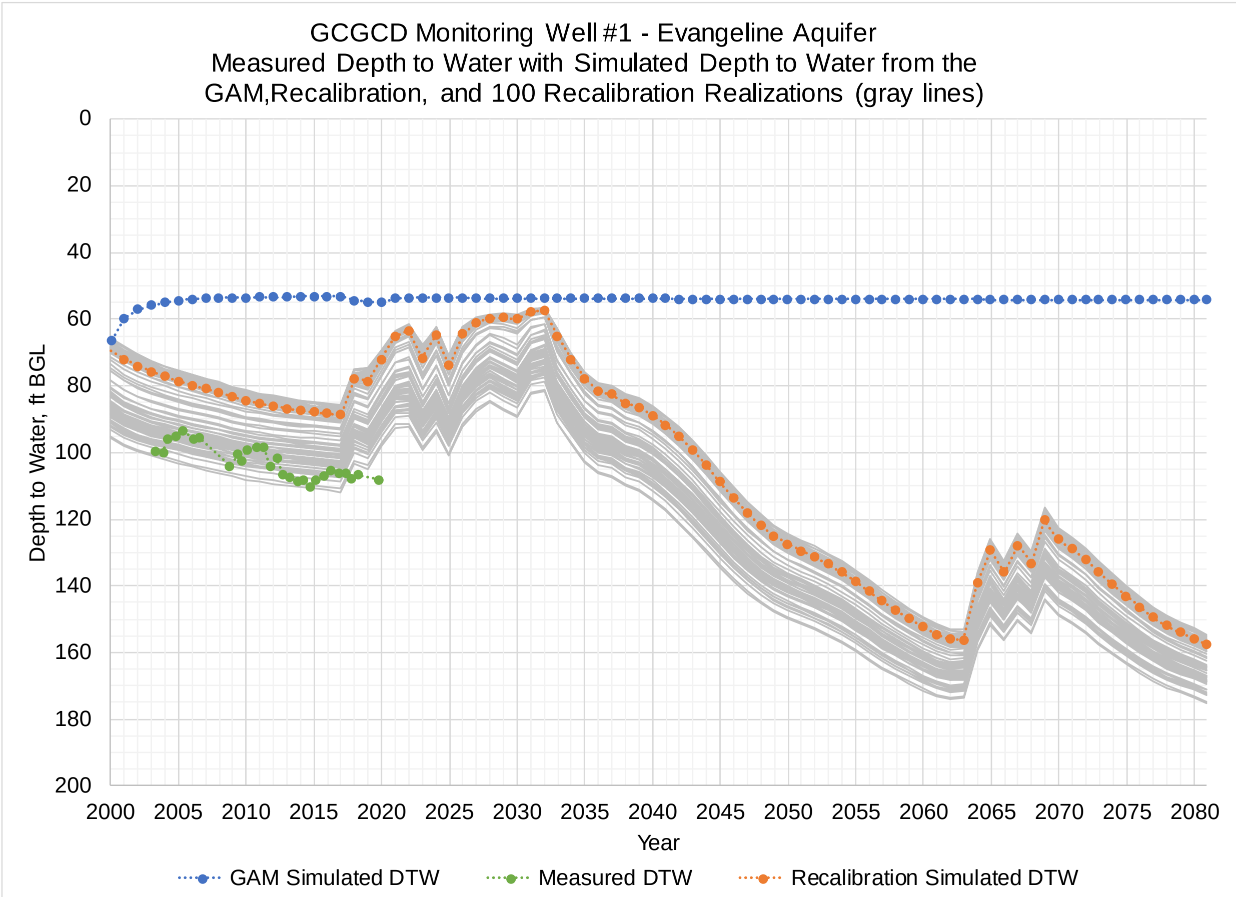

GCGCD Monitoring Well #137 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

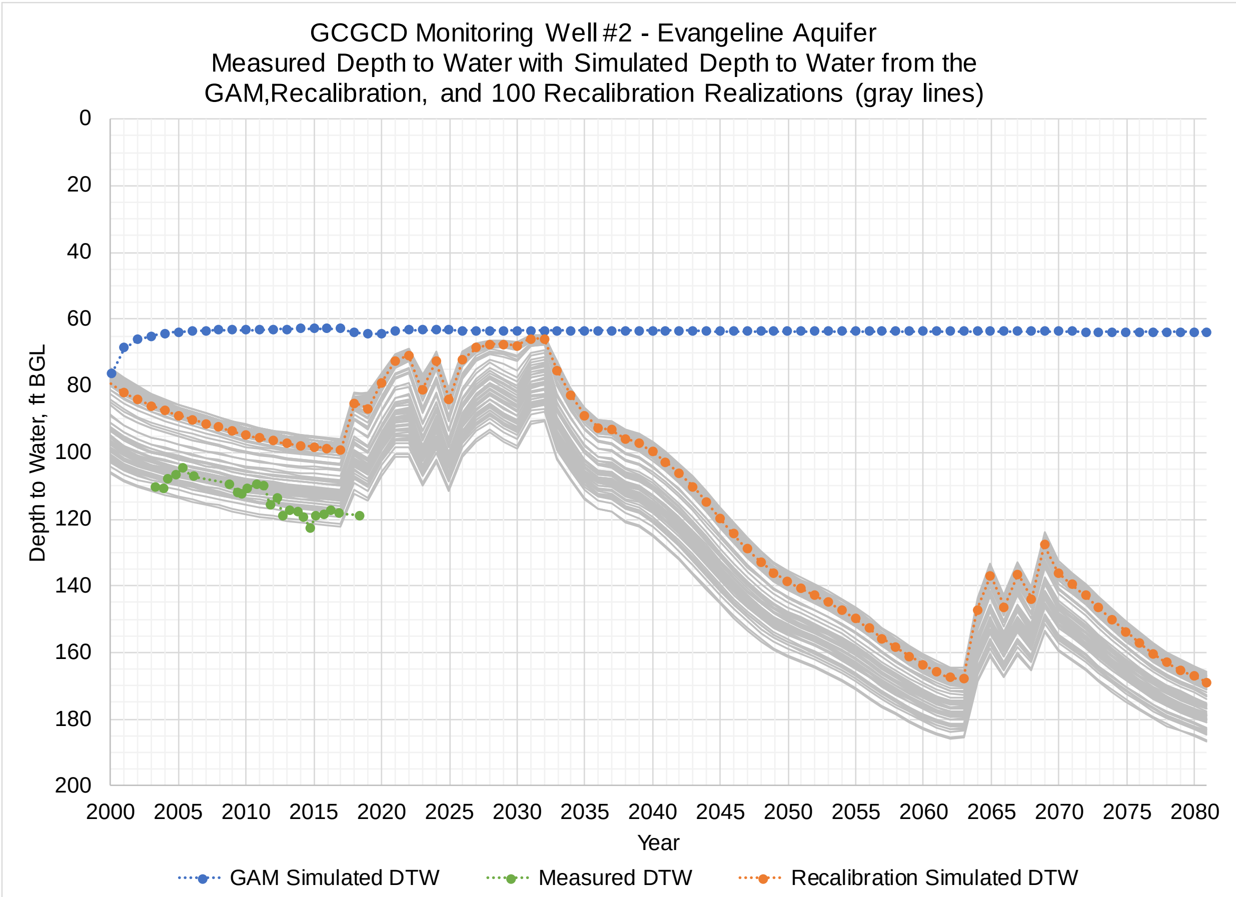

GCGCD Monitoring Well #139 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

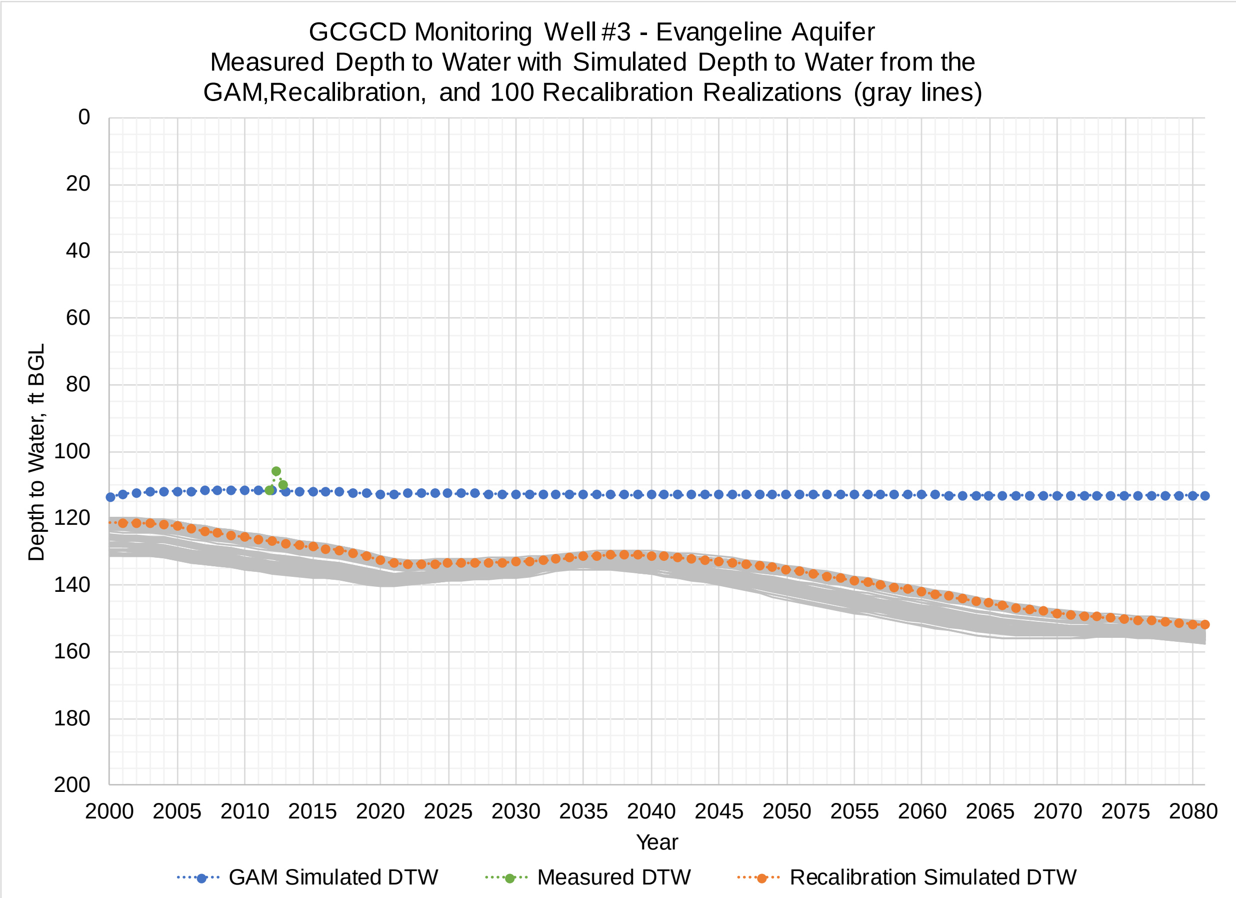

GCGCD Monitoring Well #140 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

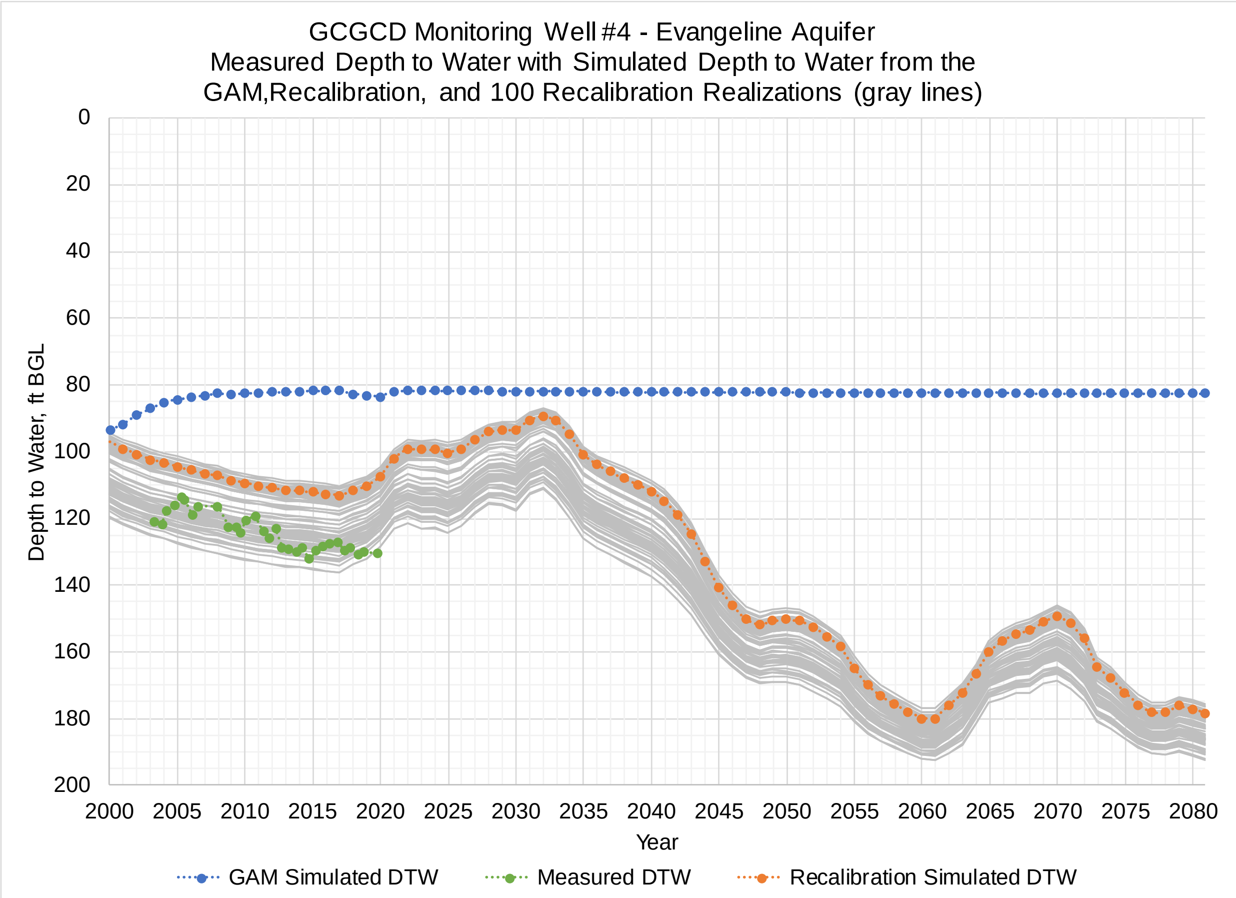

GCGCD Monitoring Well #152 - Chicot Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

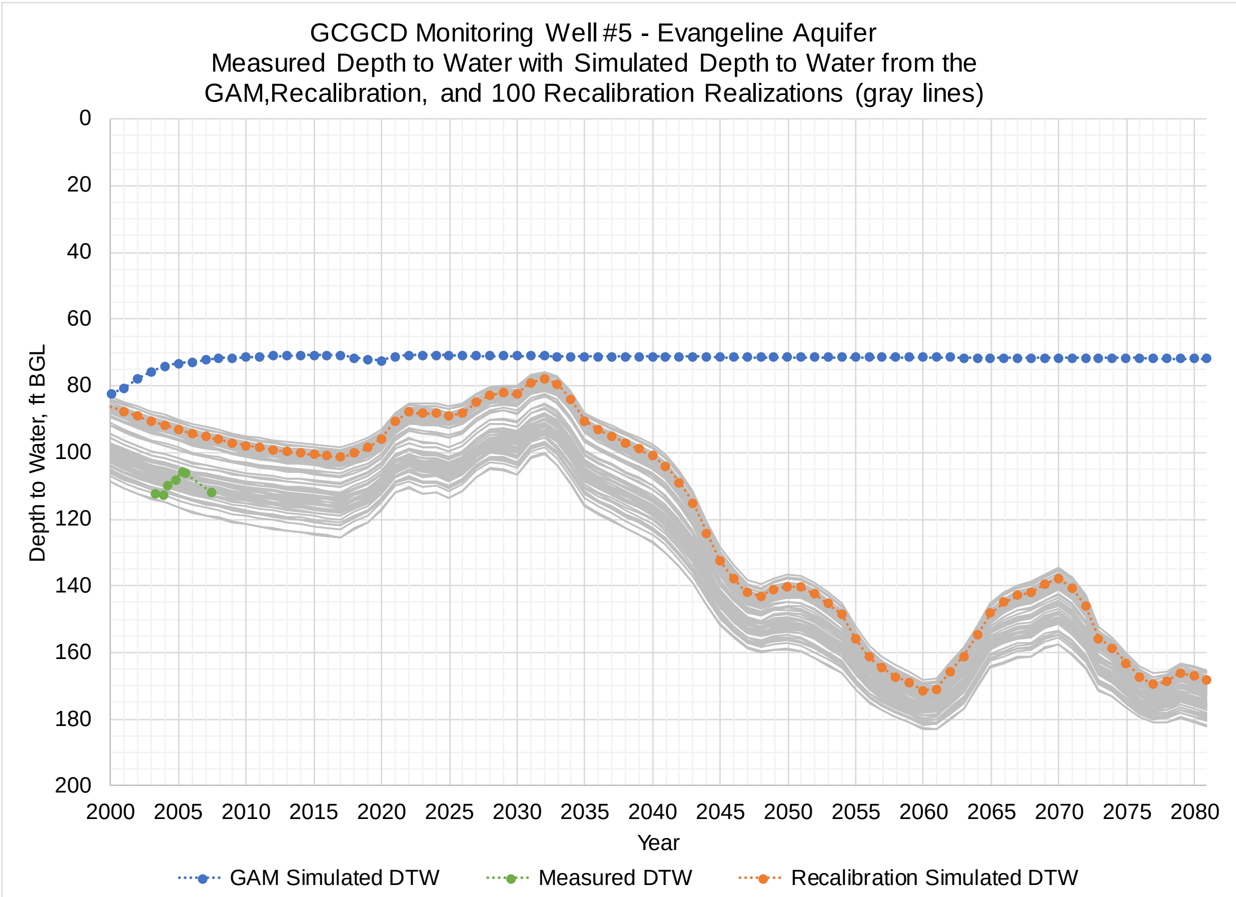
Evangeline Aquifer Monitoring Wells

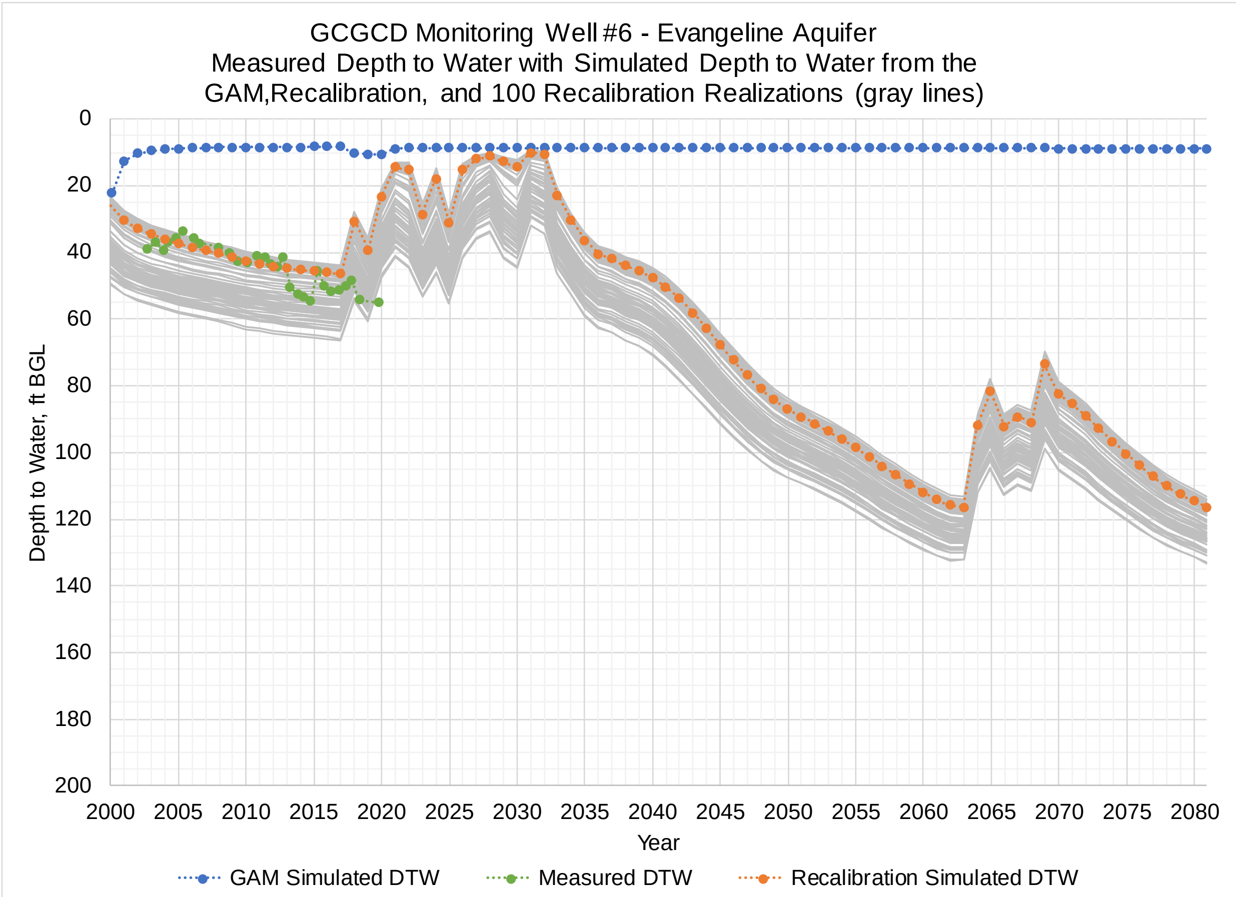

GCGCD Monitoring Well #1 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

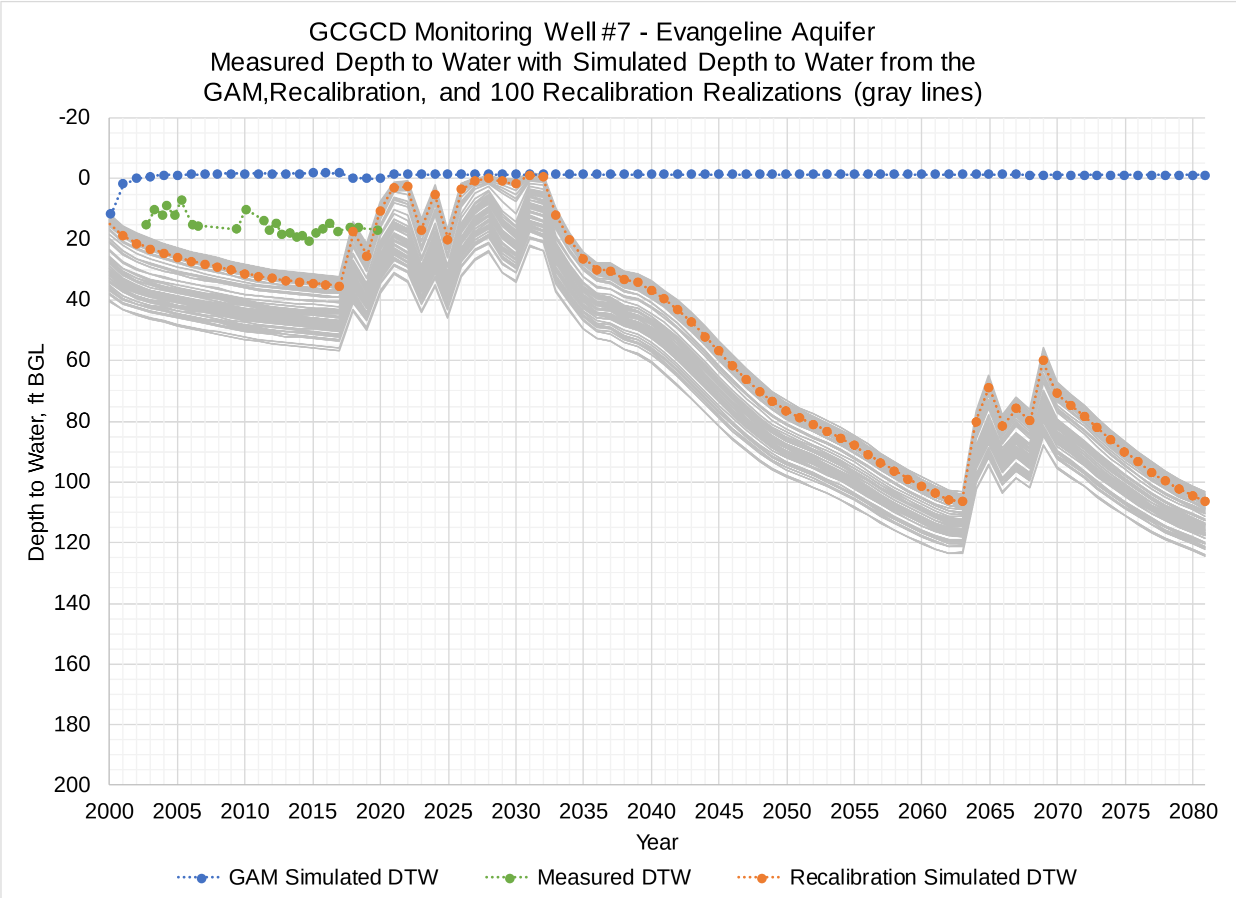

GCGCD Monitoring Well #2 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

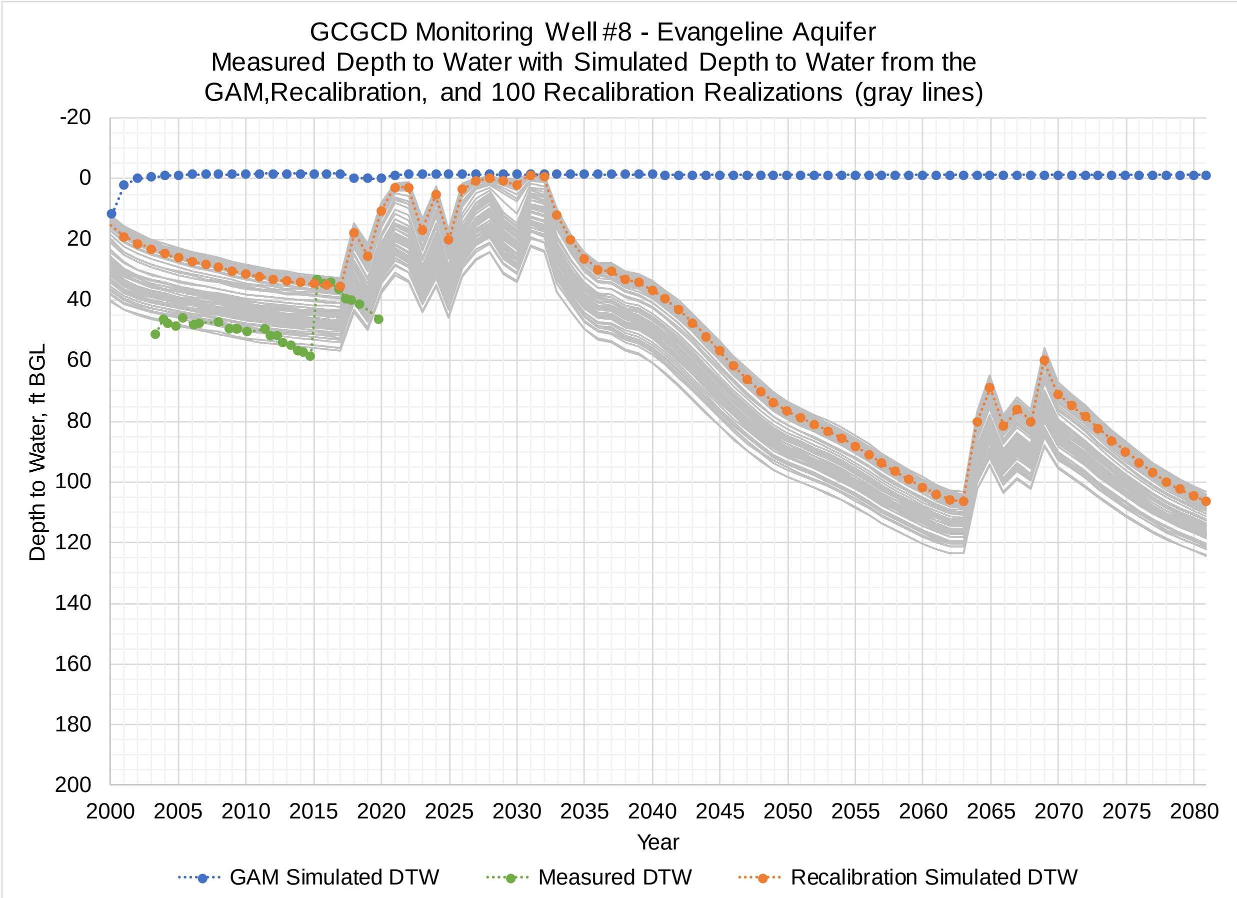

GCGCD Monitoring Well #3 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

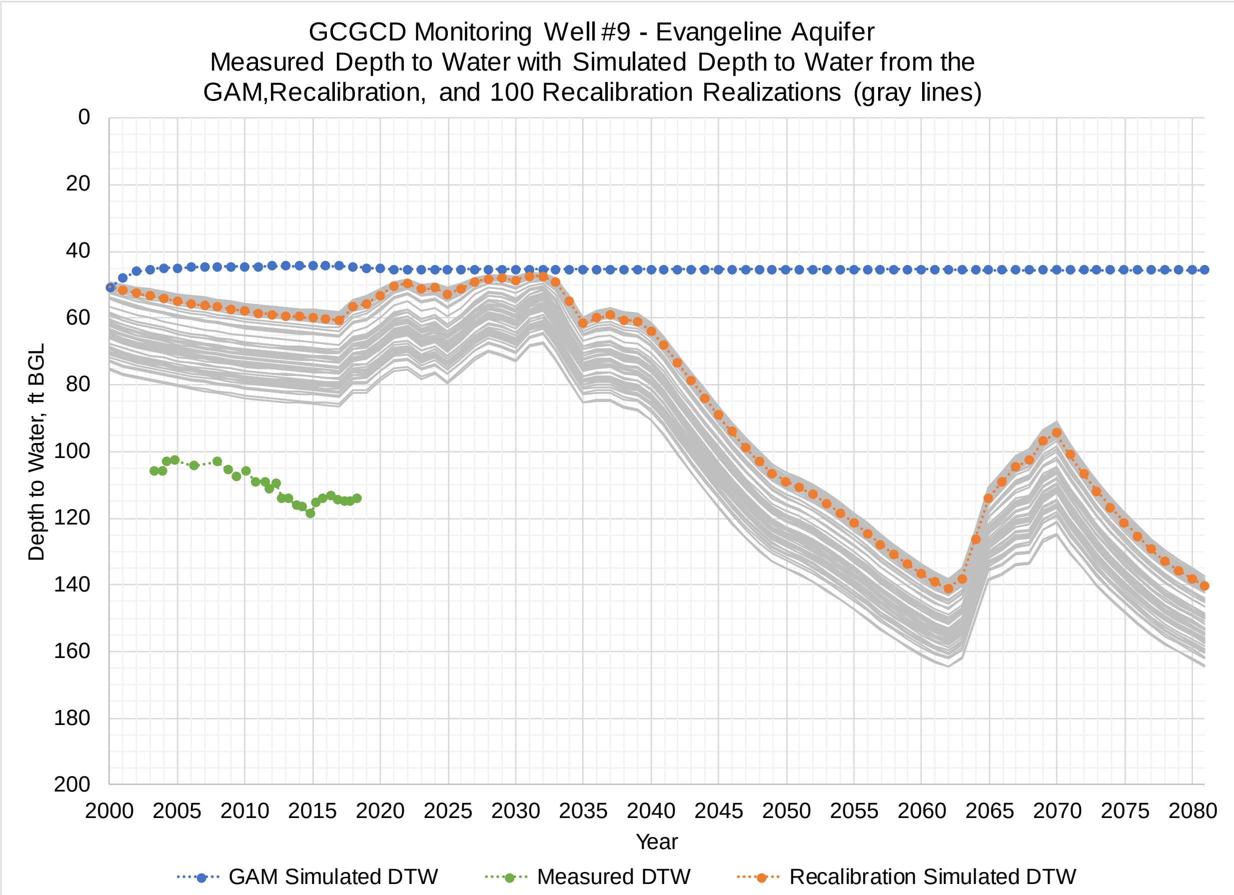

GCGCD Monitoring Well #4 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

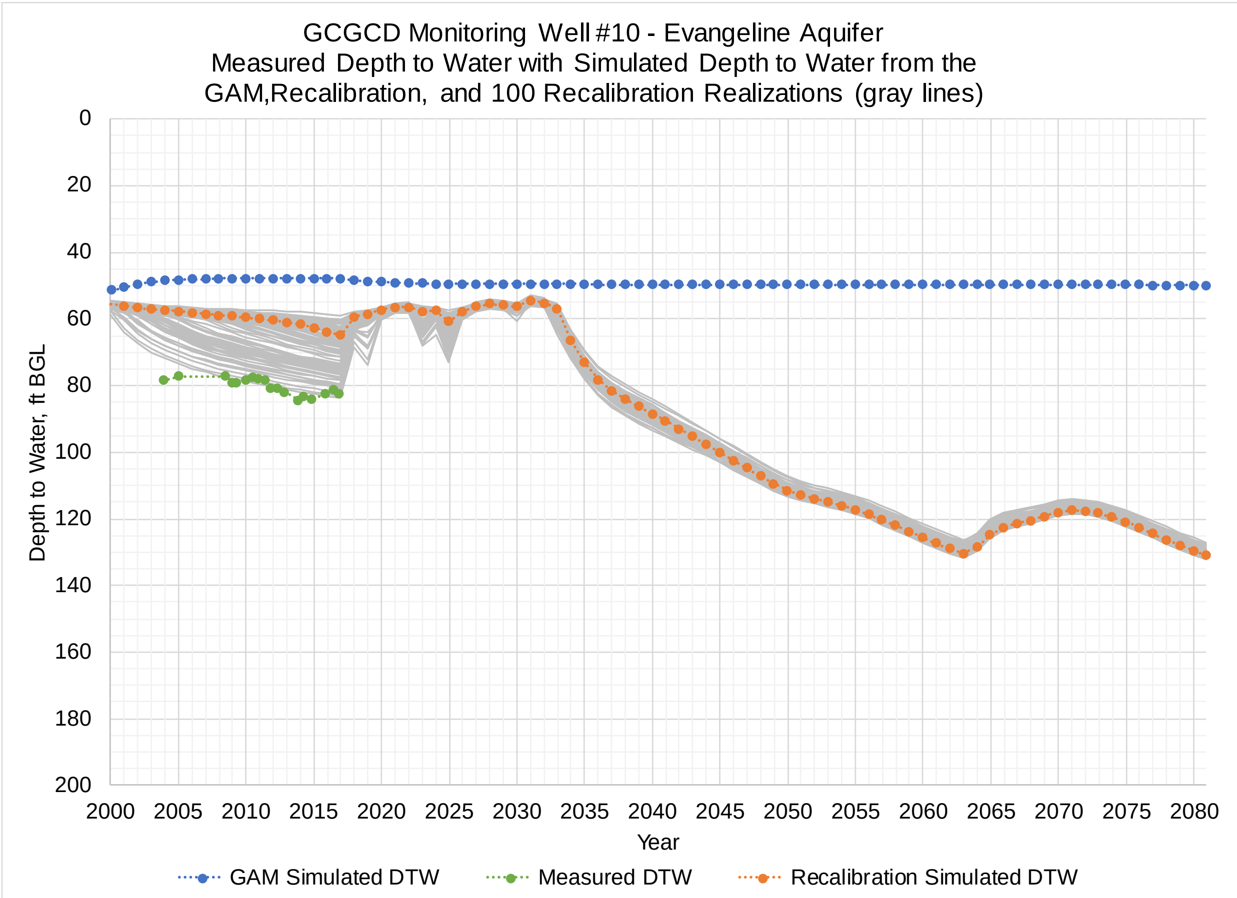

GCGCD Monitoring Well #5 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

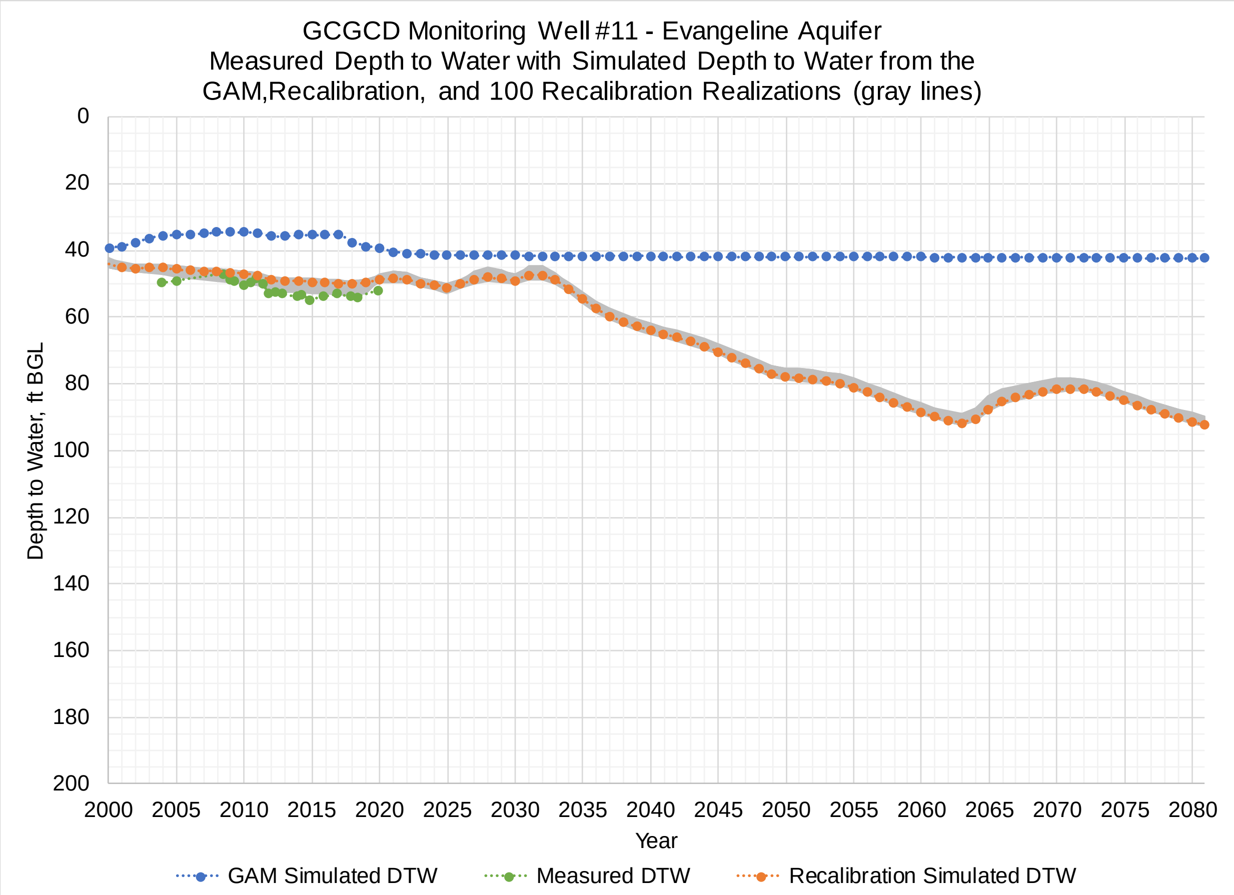

GCGCD Monitoring Well #6 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

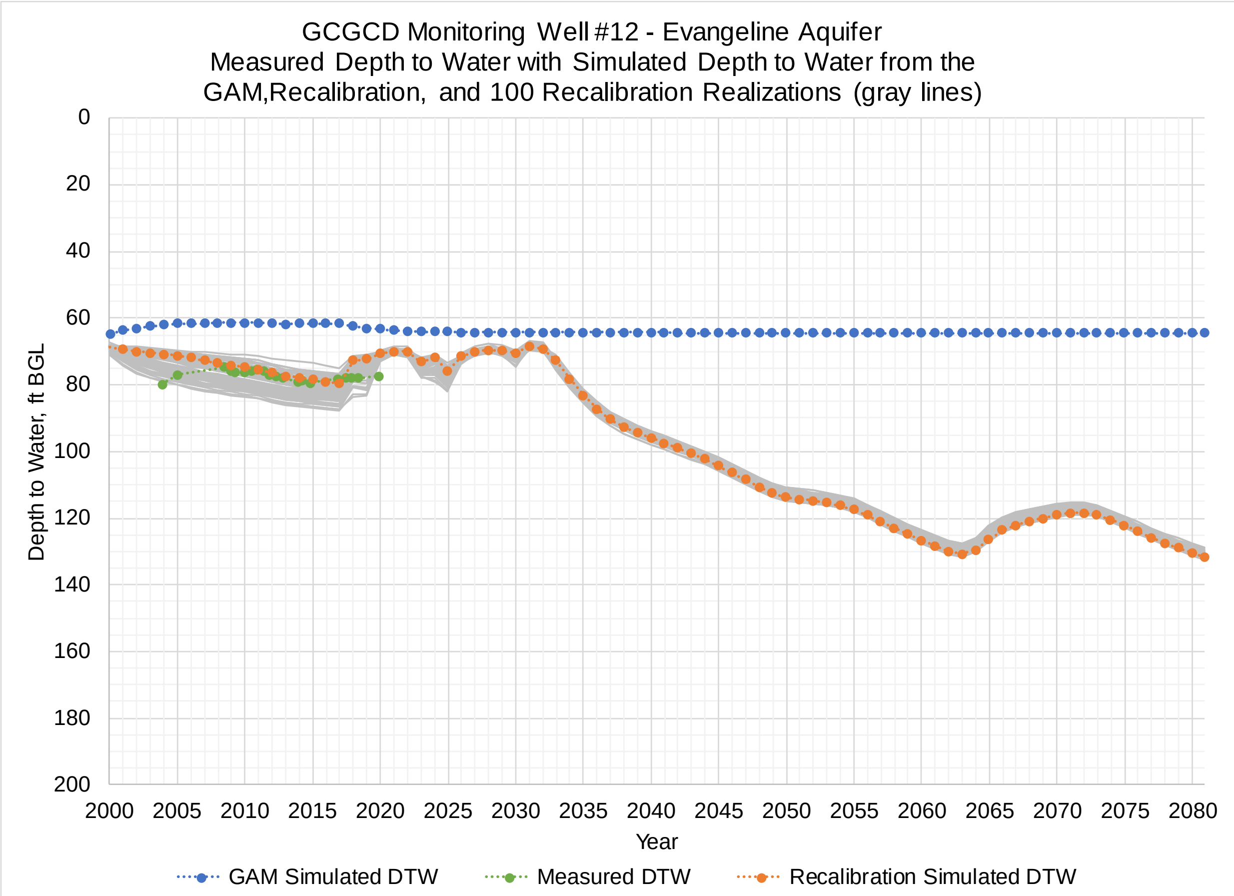

GCGCD Monitoring Well #7 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

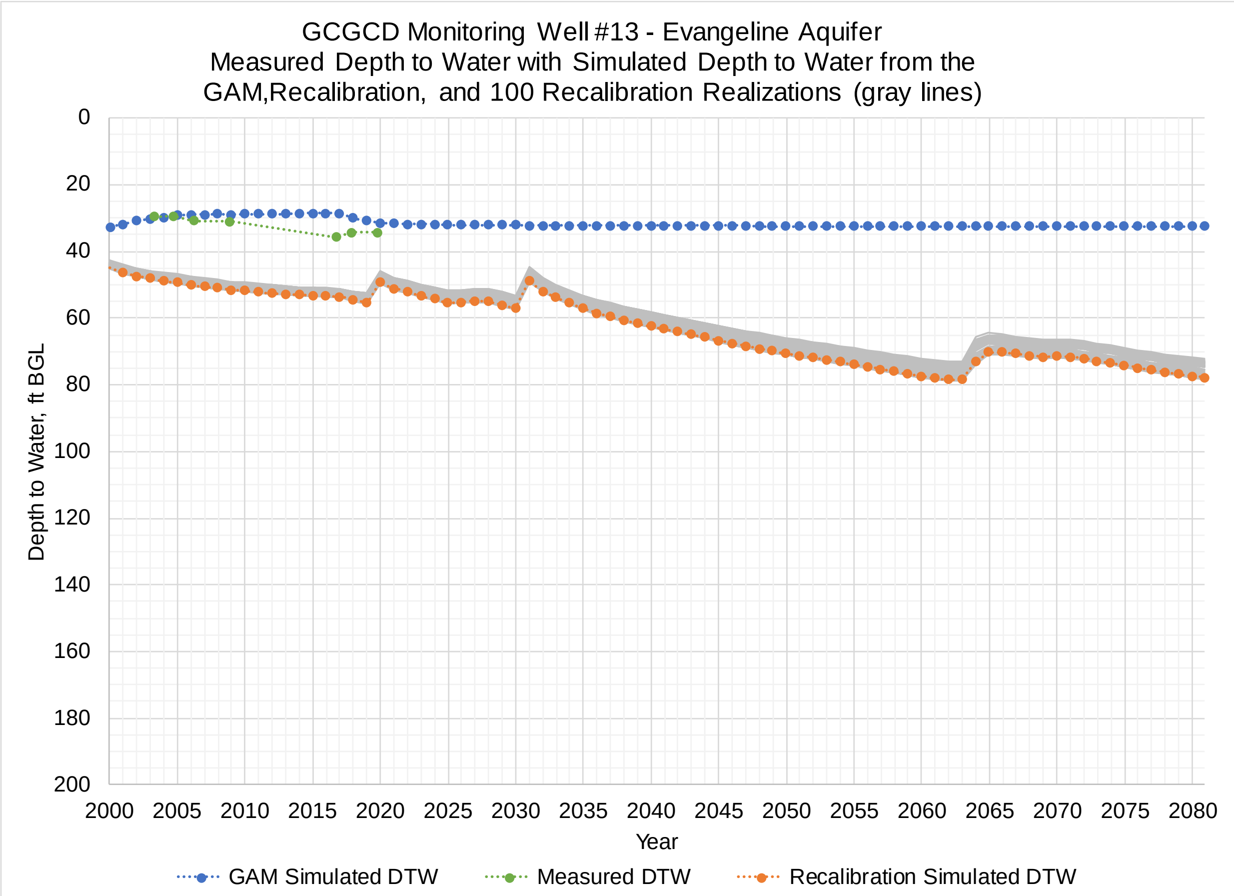

GCGCD Monitoring Well #8 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

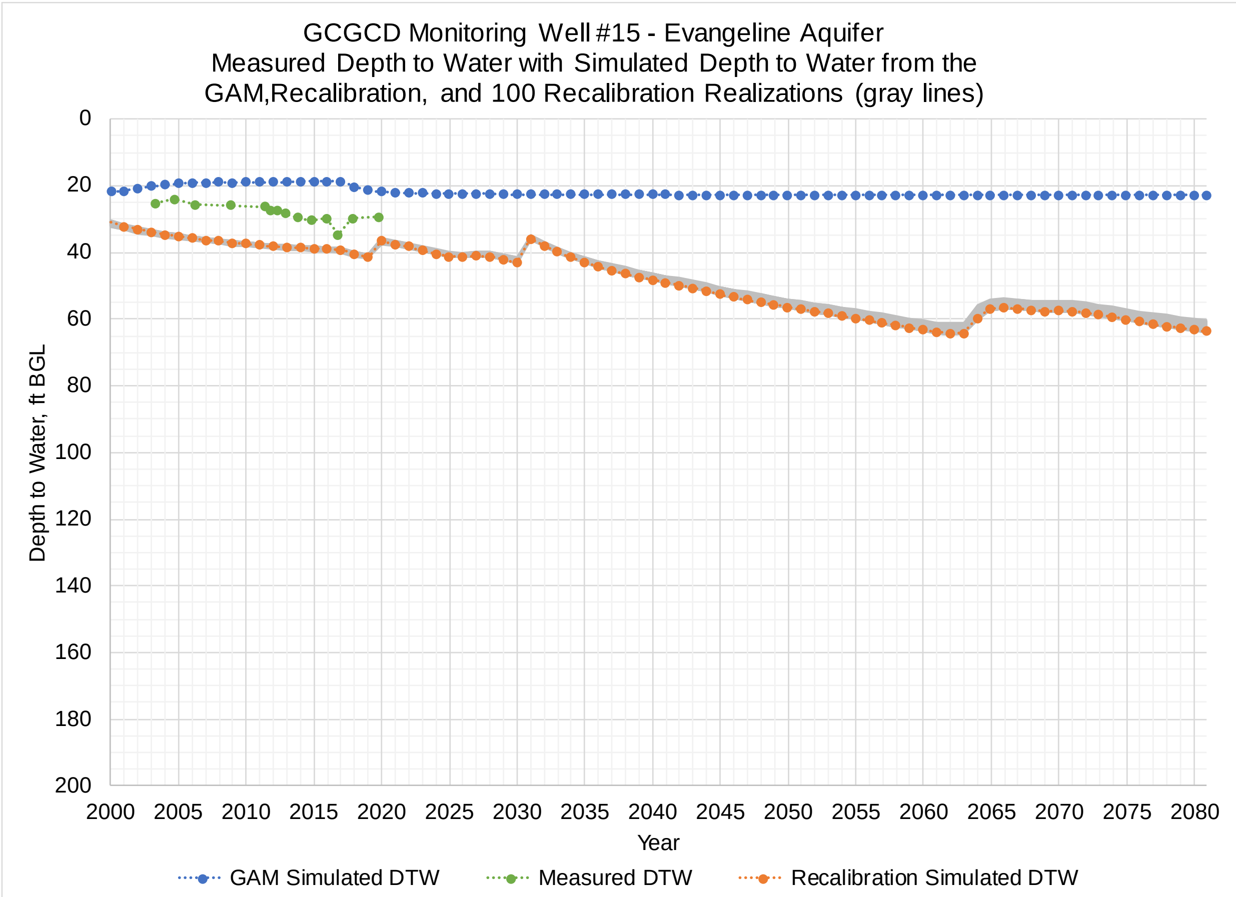

GCGCD Monitoring Well #9 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

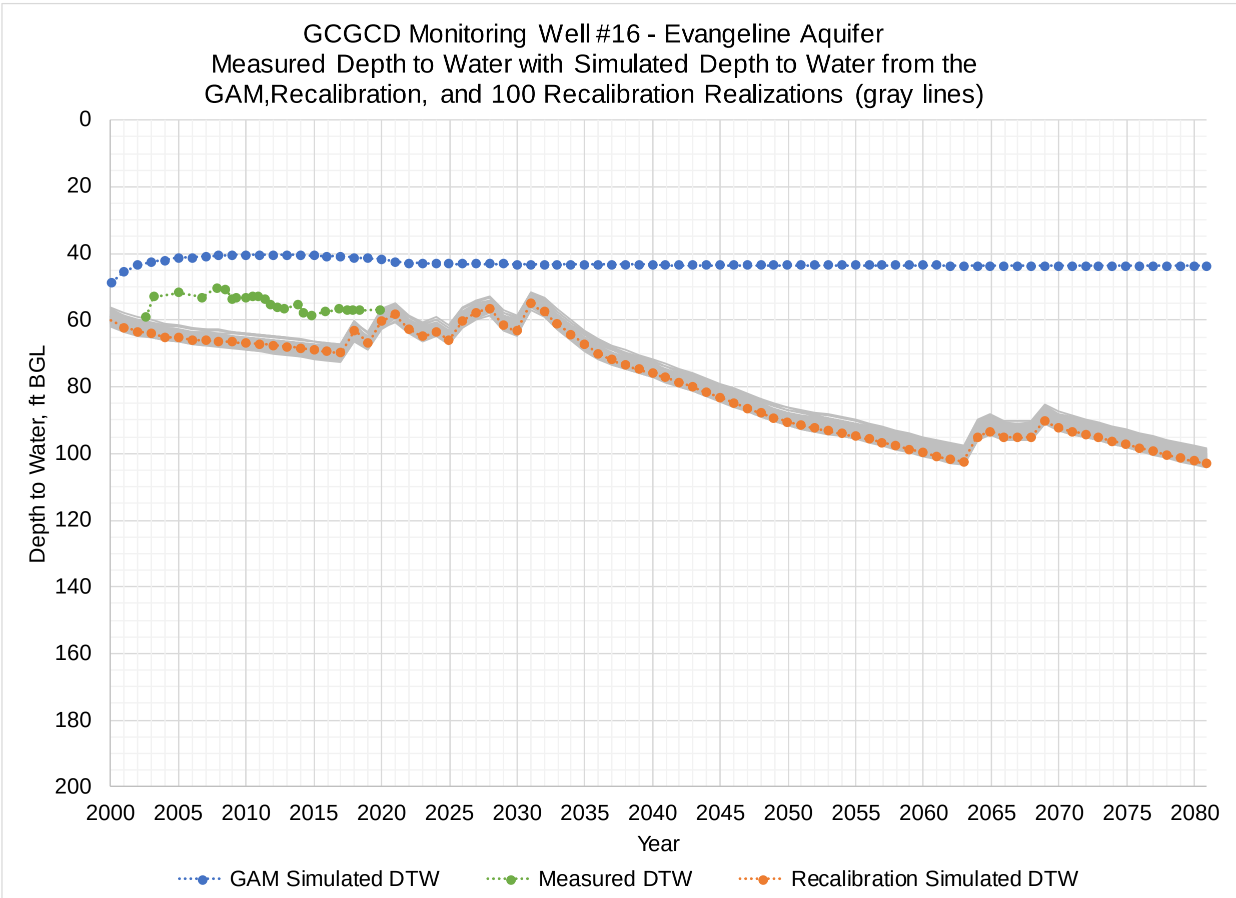

GCGCD Monitoring Well #10 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

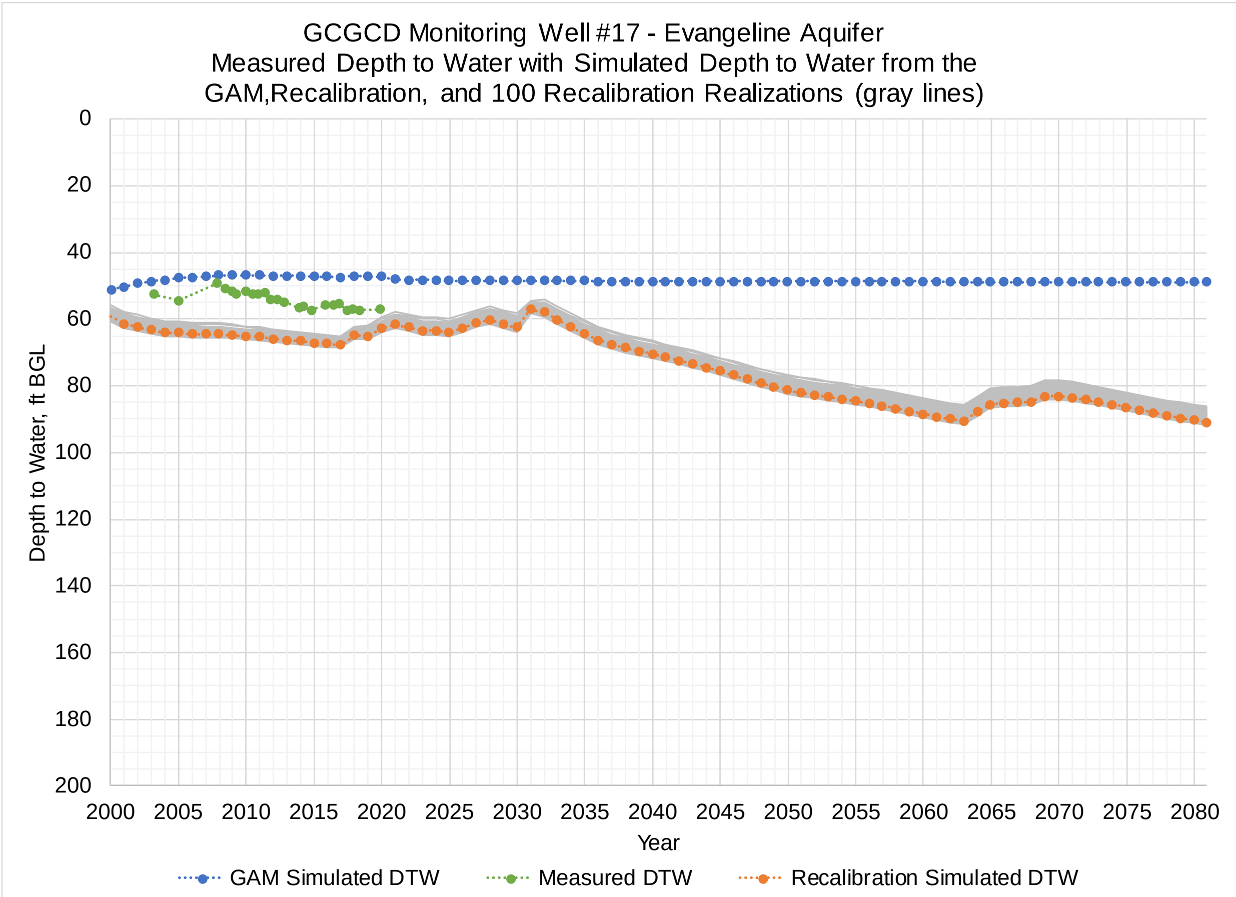

GCGCD Monitoring Well #11 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

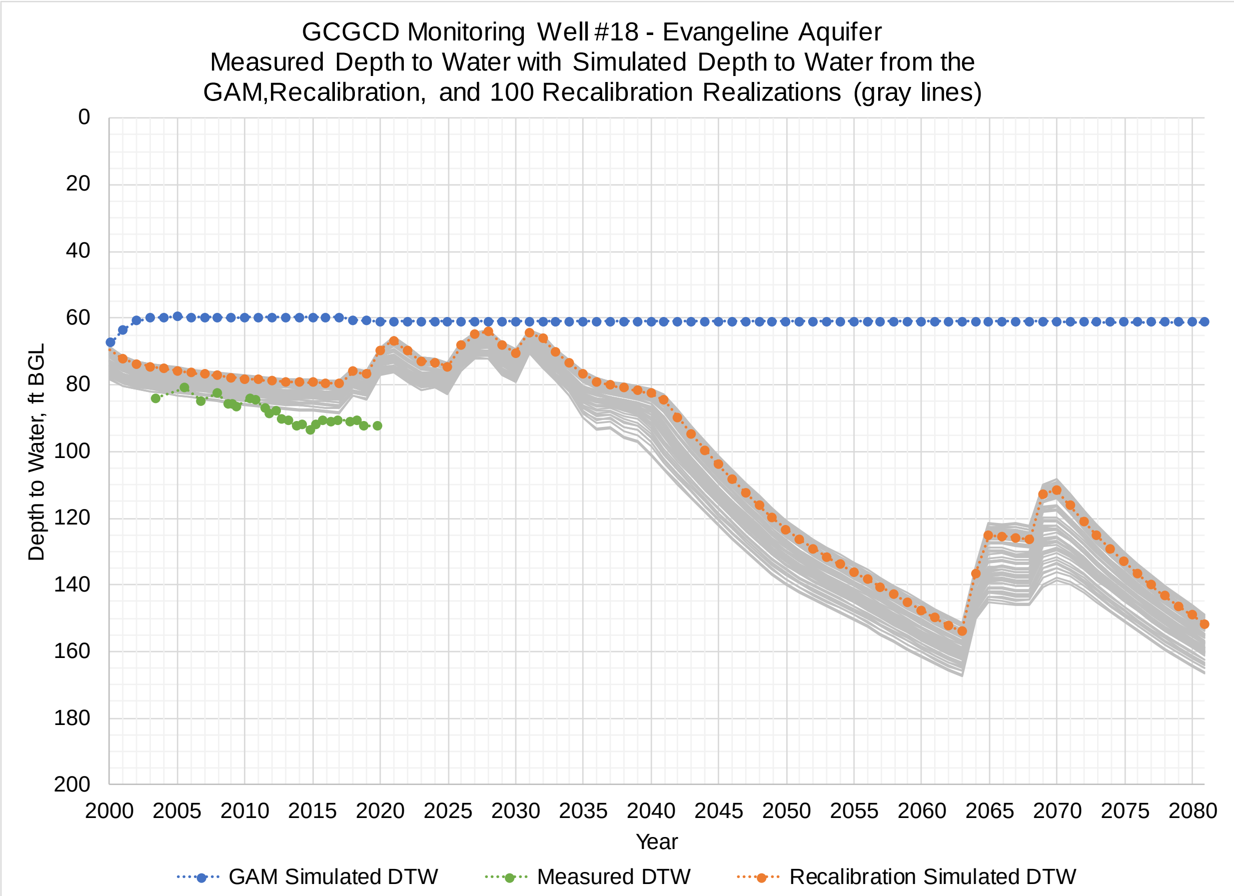

GCGCD Monitoring Well #12 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

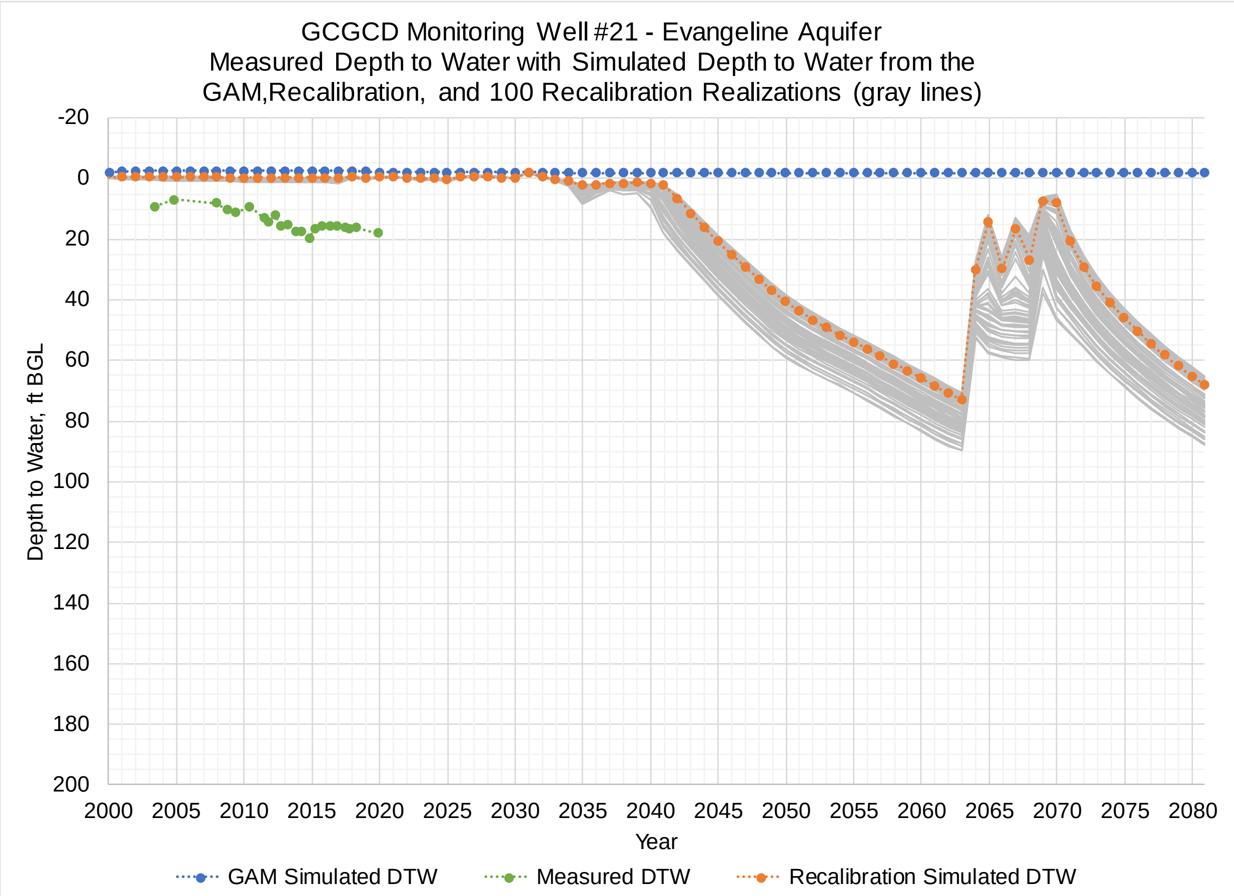

GCGCD Monitoring Well #13 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

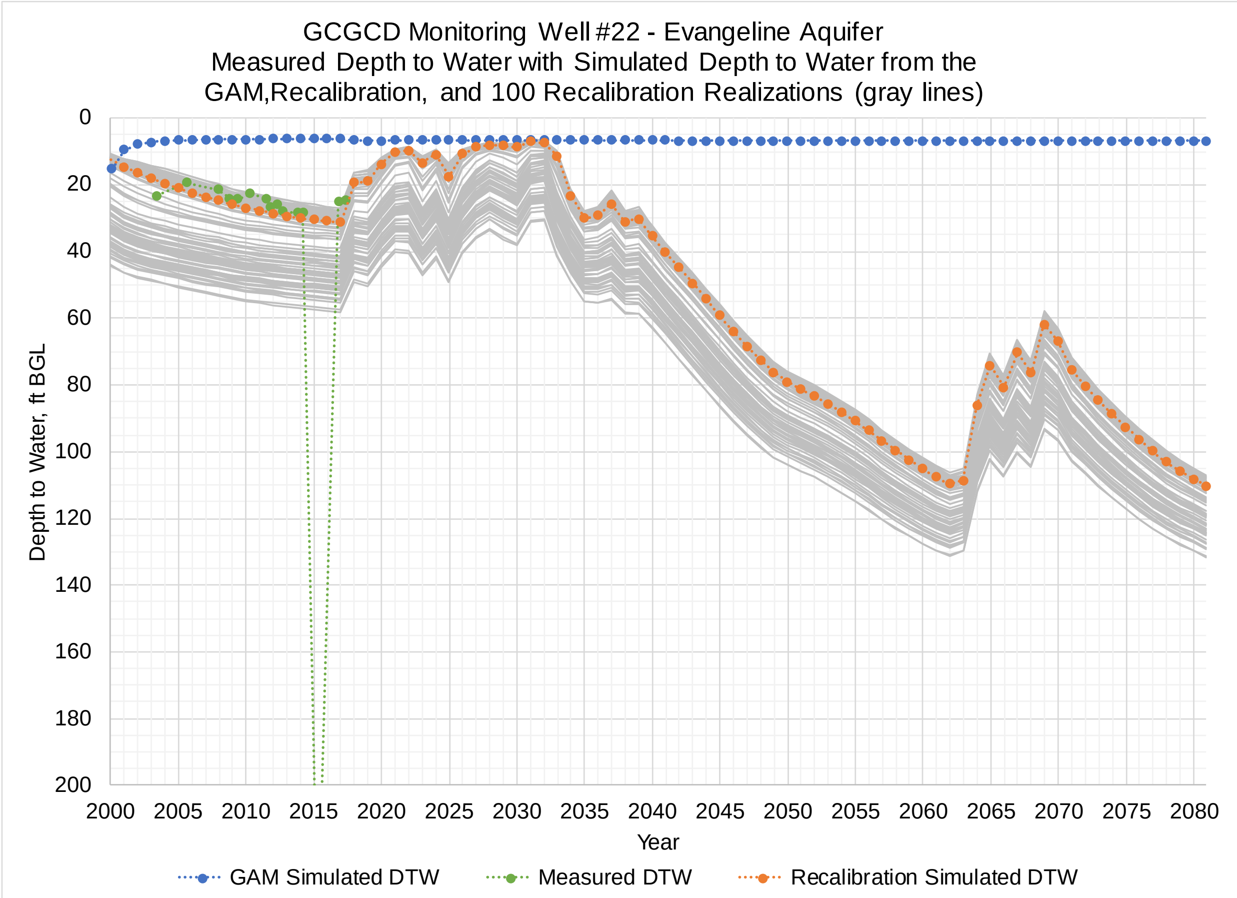

GCGCD Monitoring Well #15 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

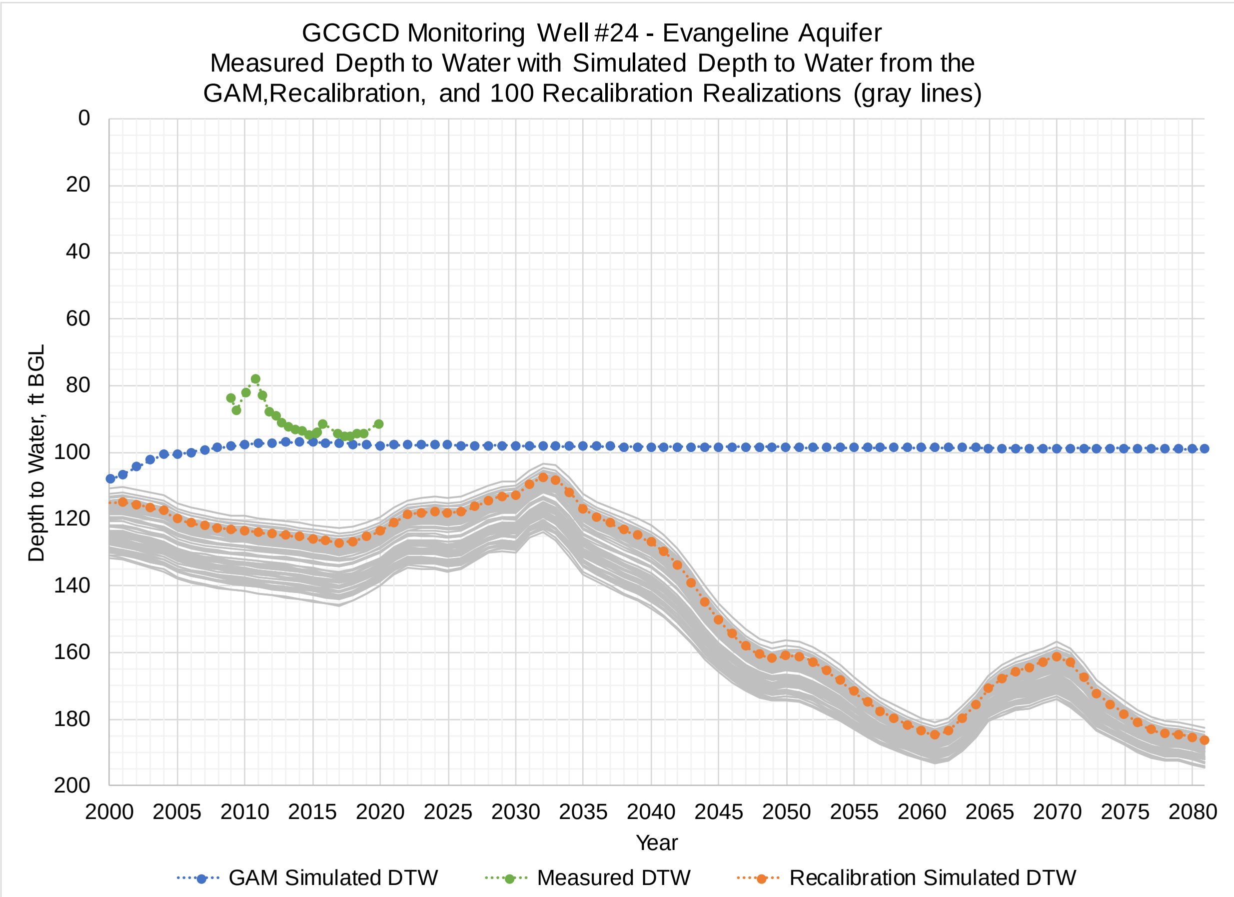

GCGCD Monitoring Well #16 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

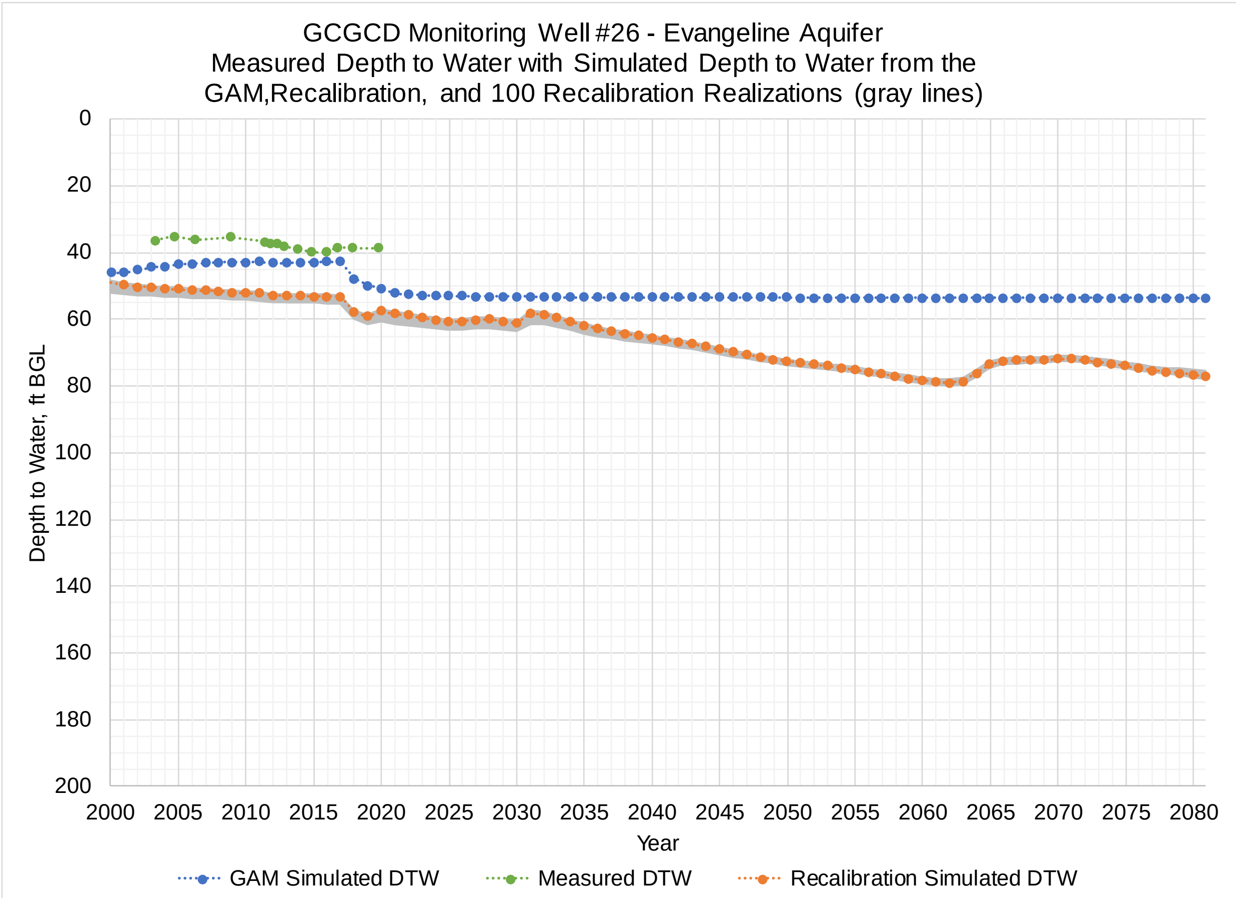

GCGCD Monitoring Well #17 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

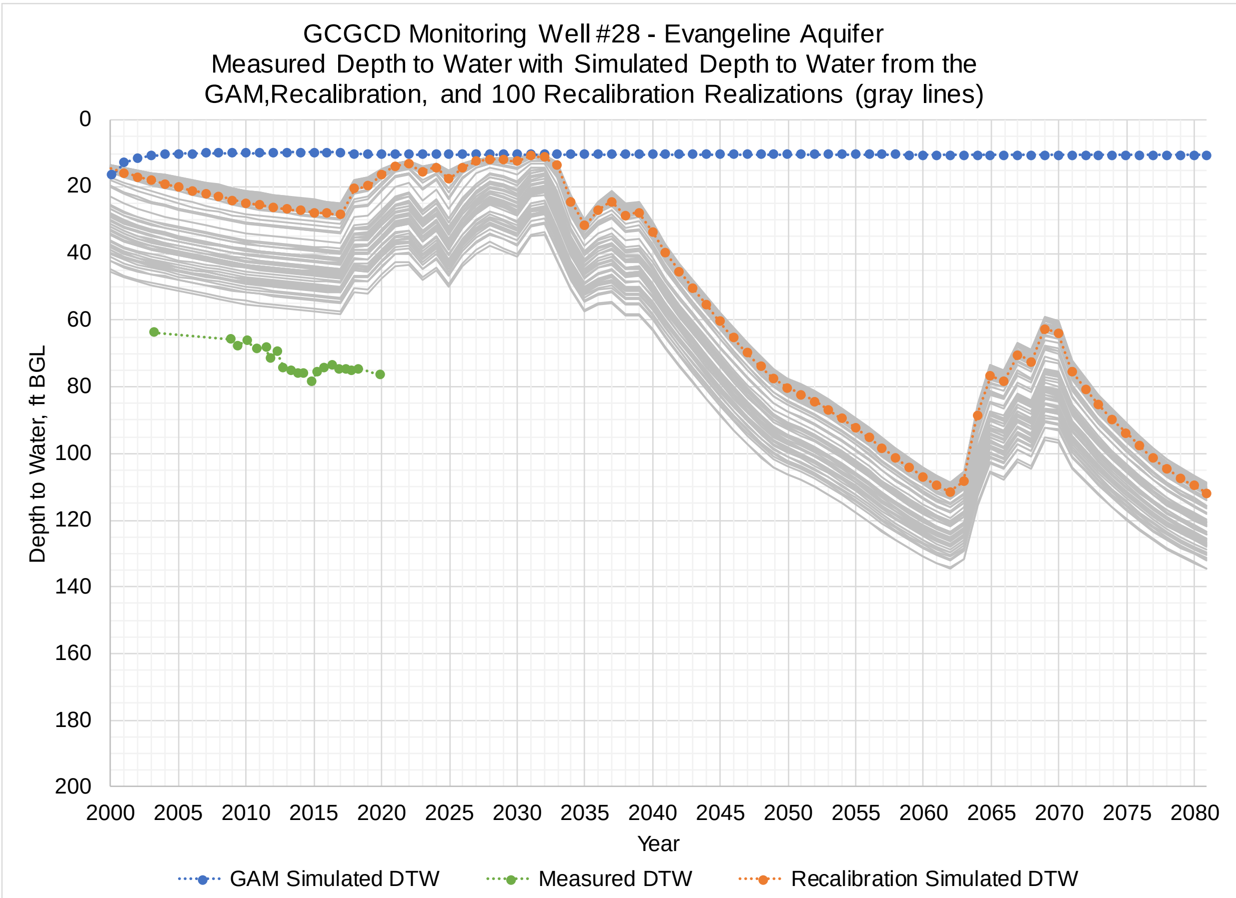

GCGCD Monitoring Well #18 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

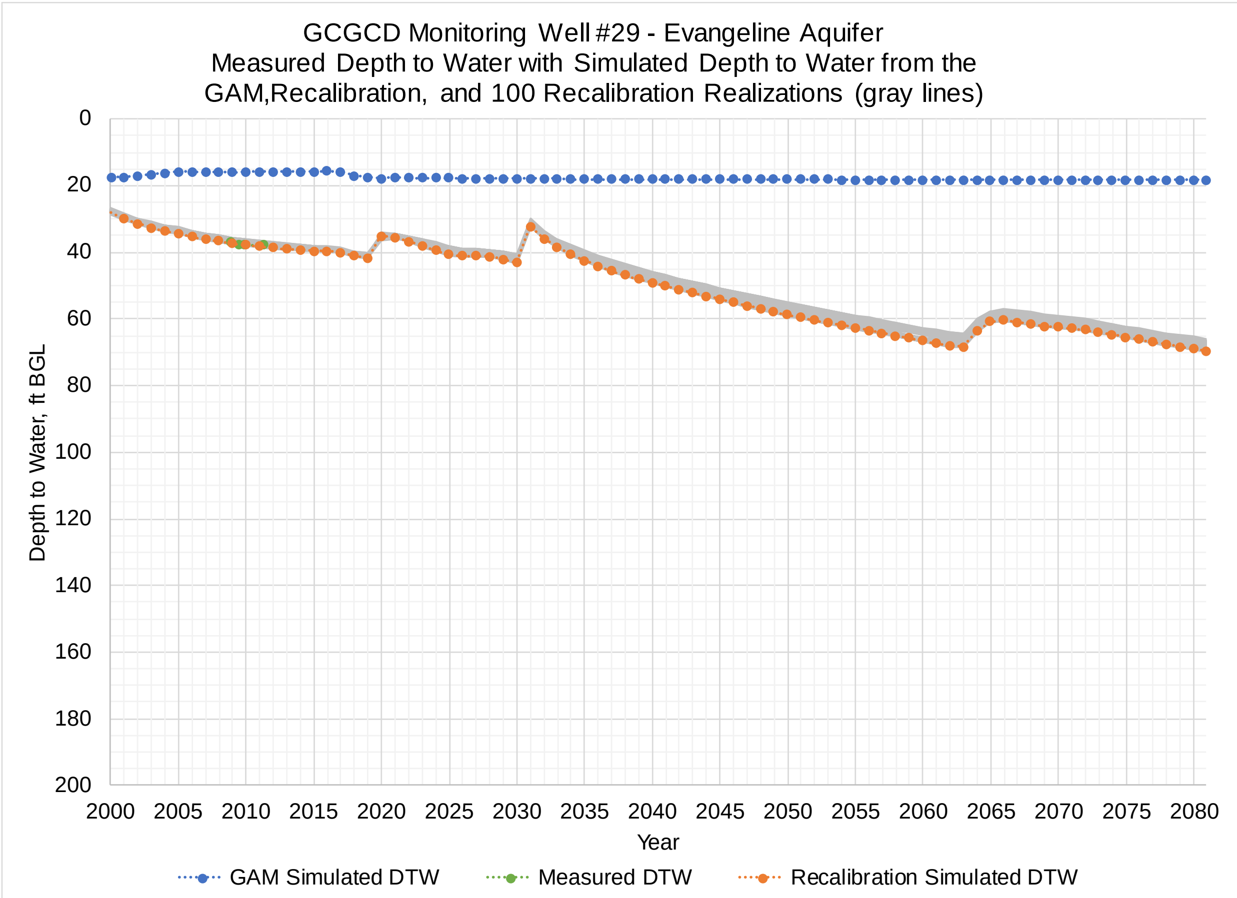

GCGCD Monitoring Well #21 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

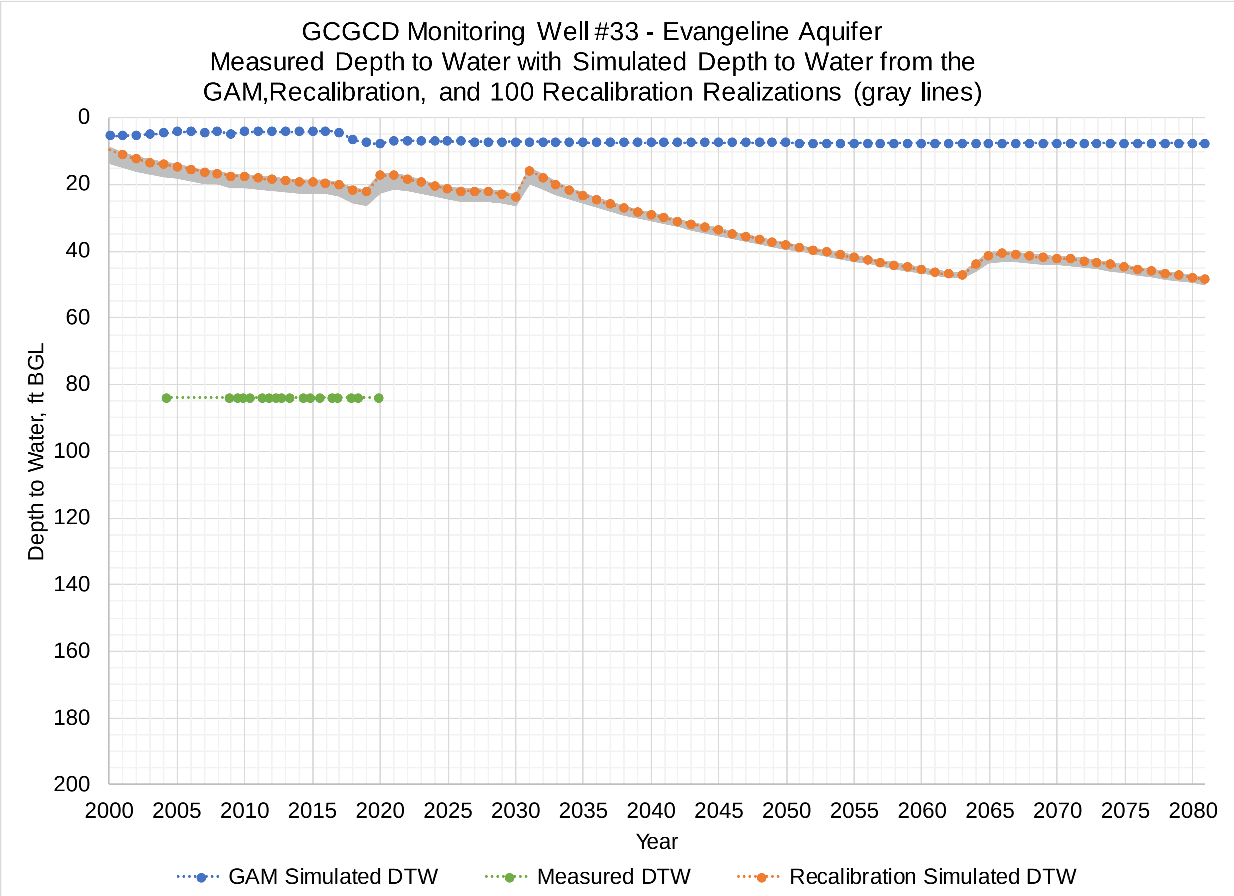

GCGCD Monitoring Well #22 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

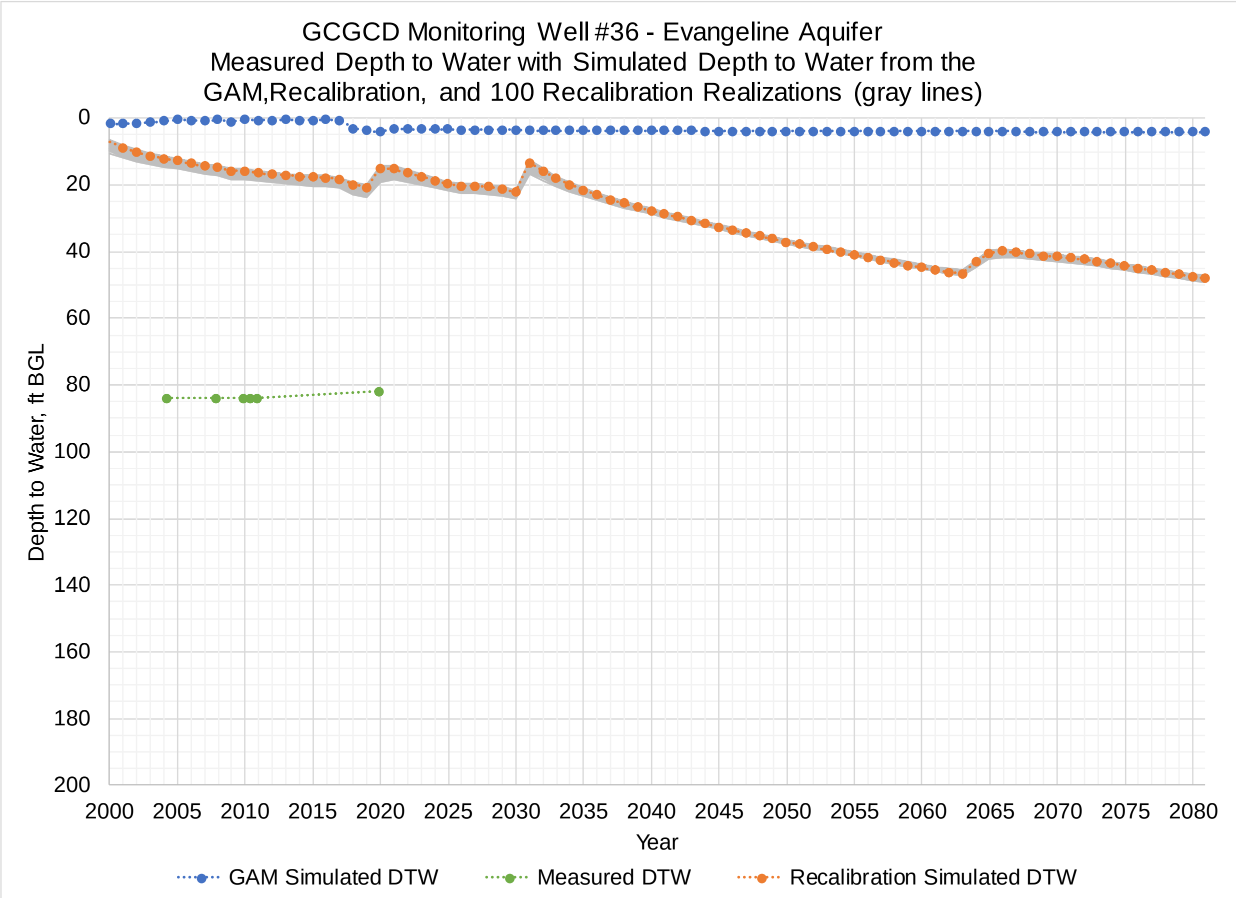

GCGCD Monitoring Well #24 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

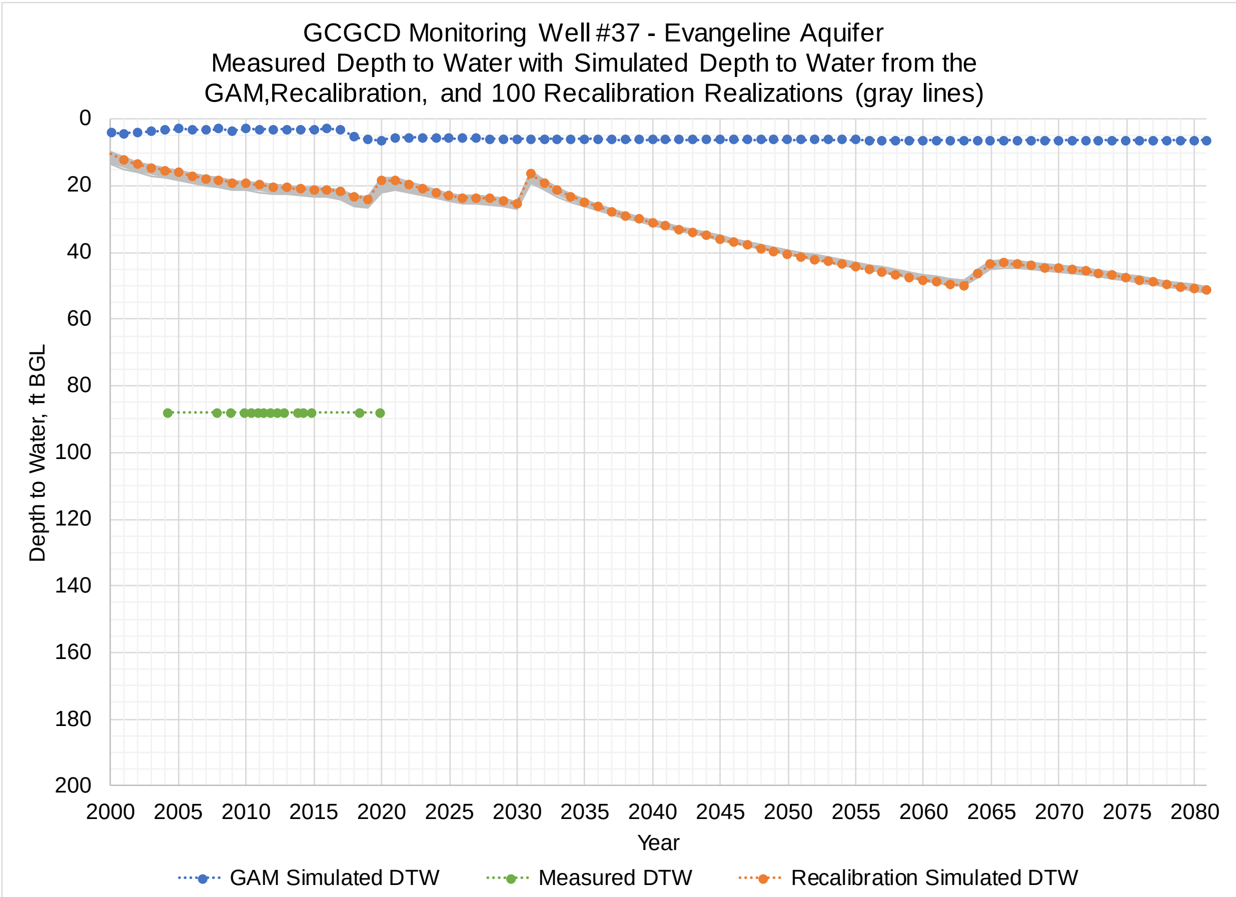

GCGCD Monitoring Well #26 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
0
20
40
60
80
100
120
140
160
180
200
Depth to Water, ft BGL
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

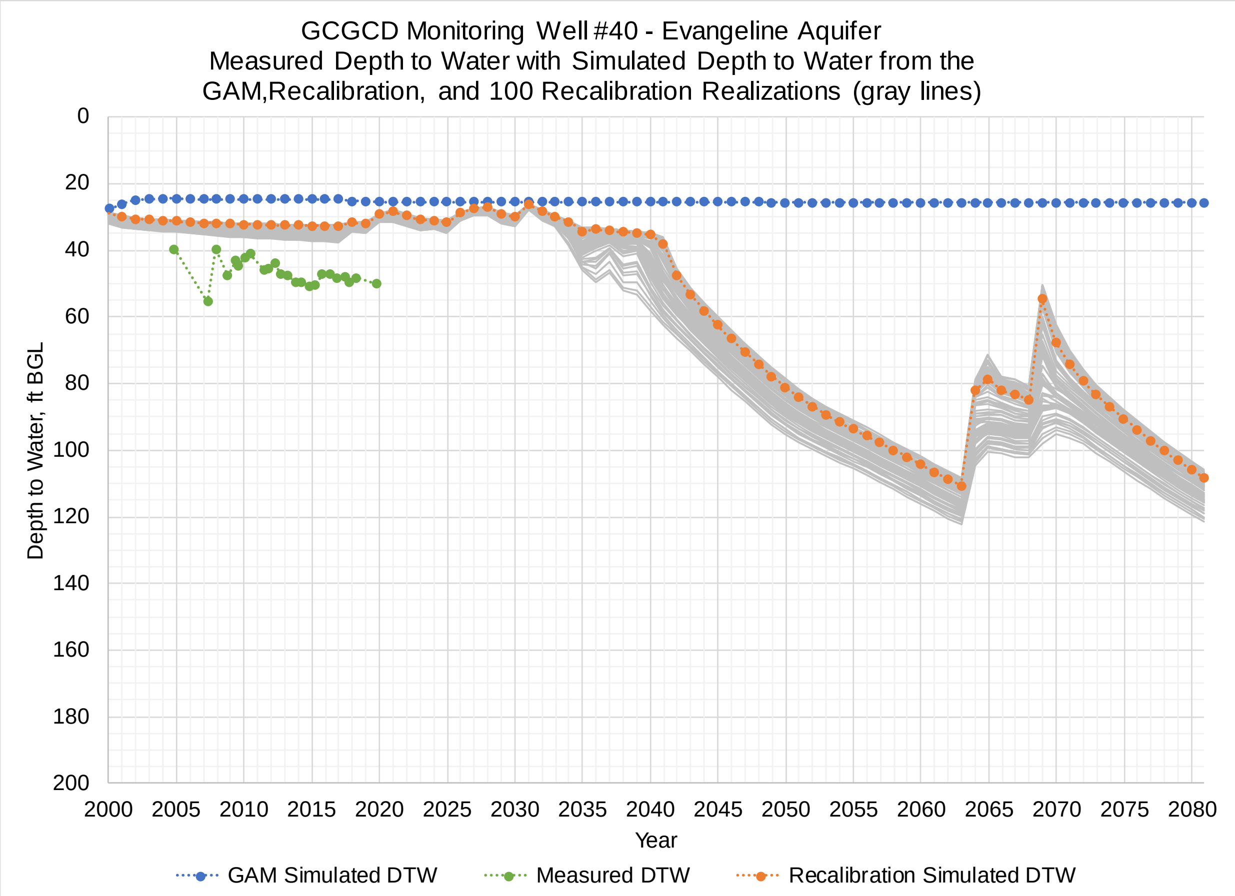

GCGCD Monitoring Well #28 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

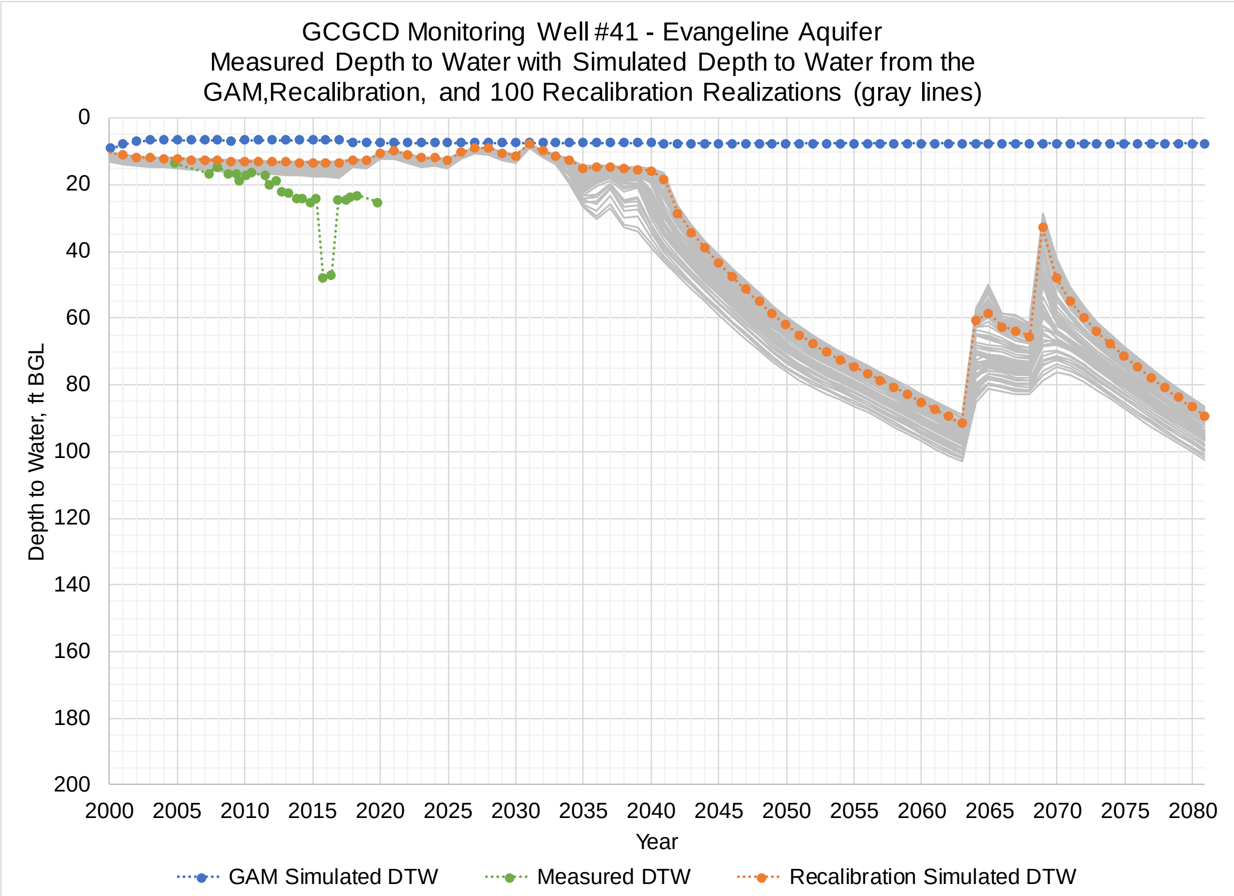

GCGCD Monitoring Well #29 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

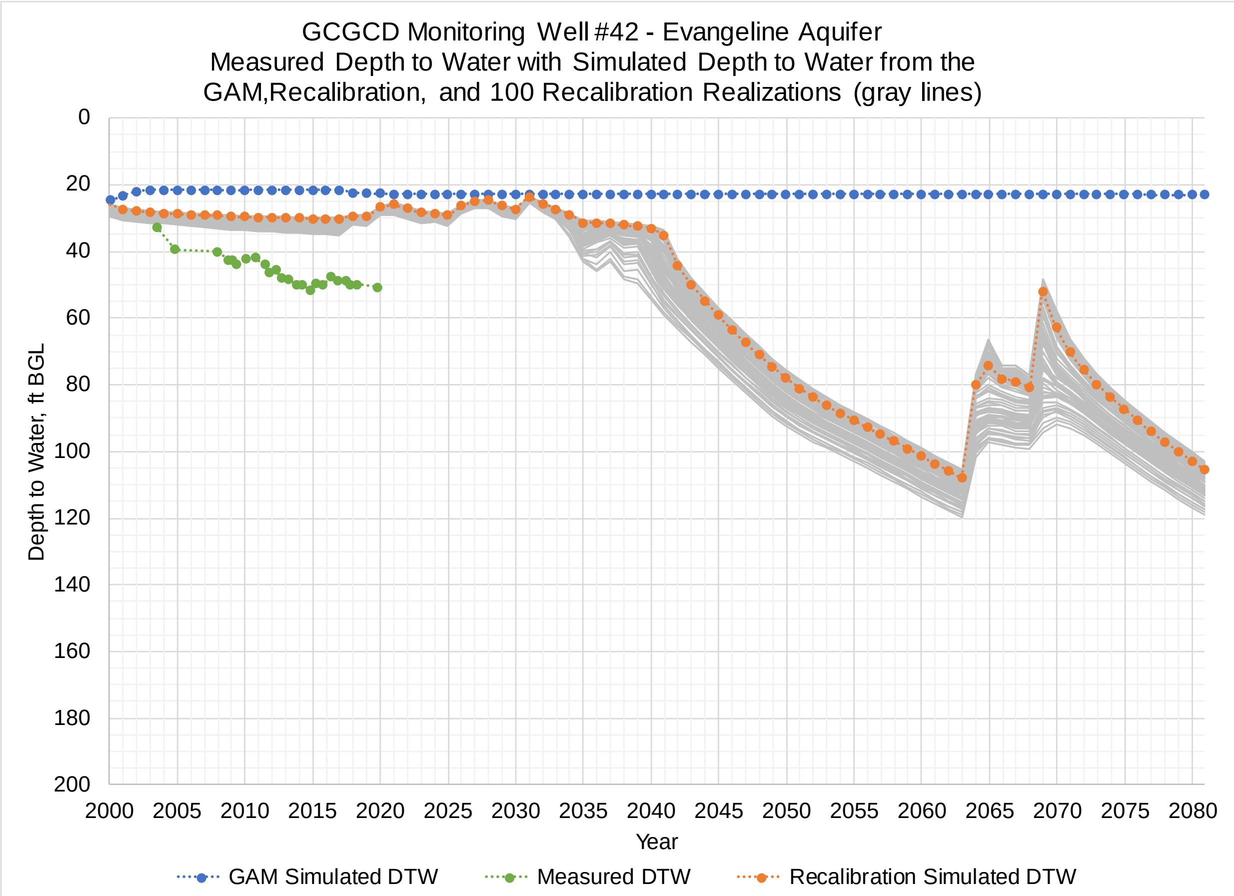

GCGCD Monitoring Well #33 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

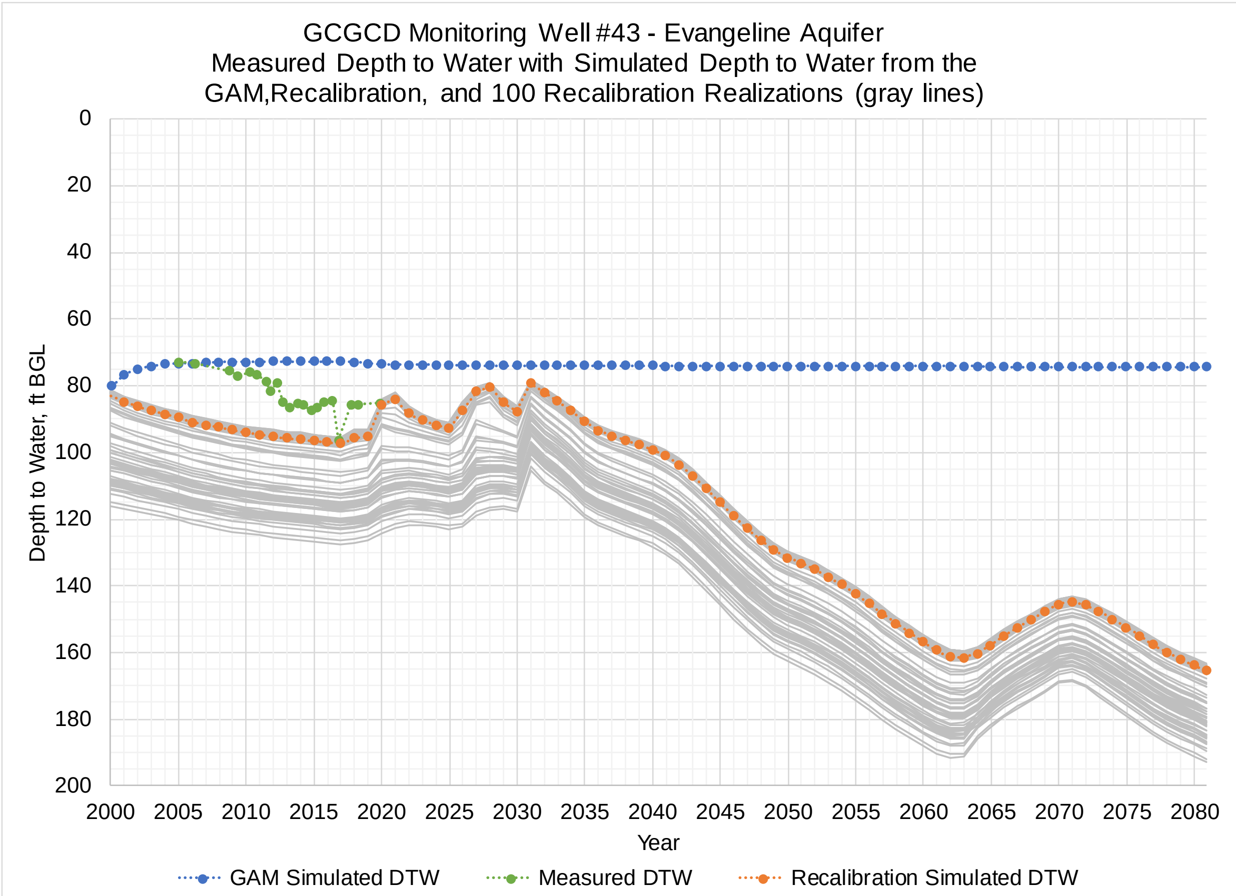

GCGCD Monitoring Well #36 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

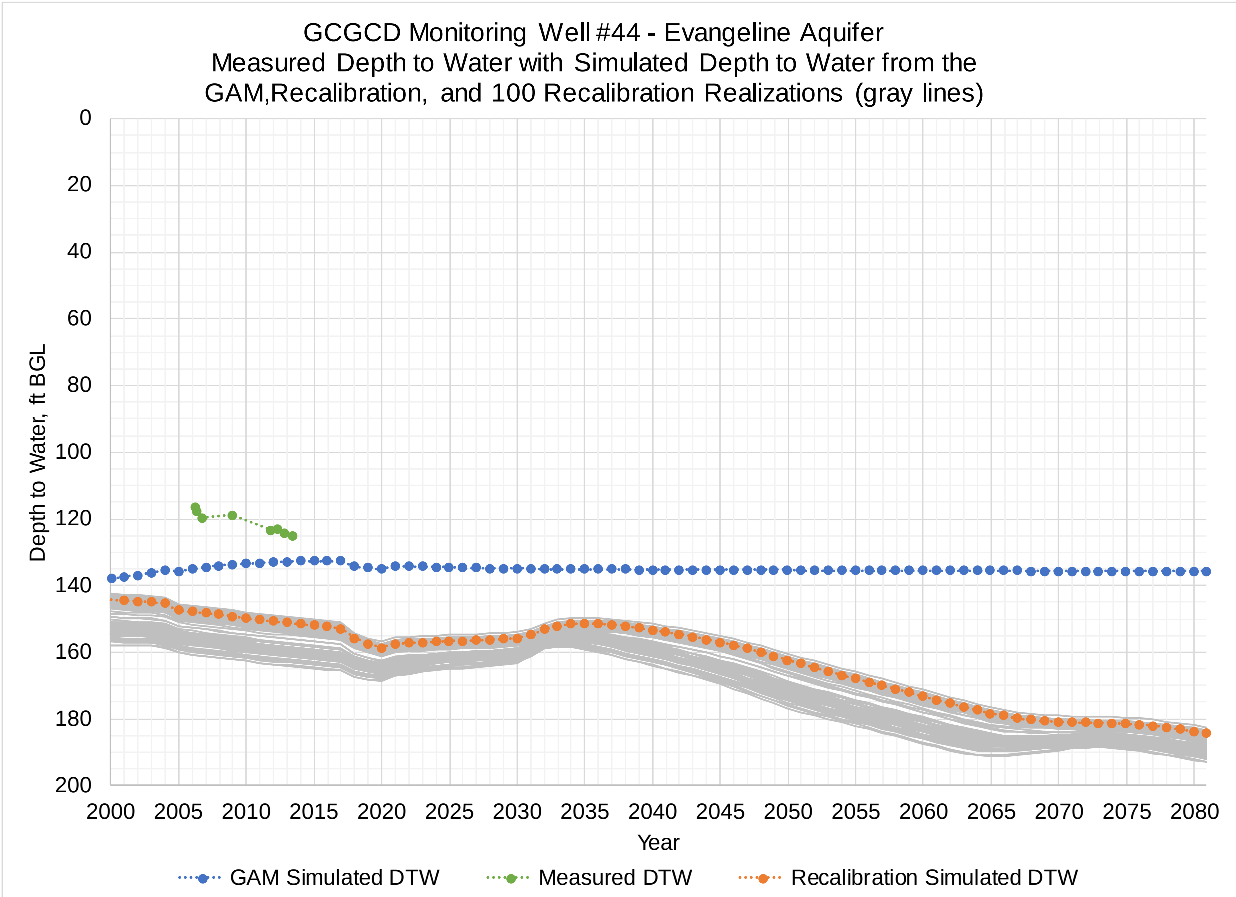

GCGCD Monitoring Well #37 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

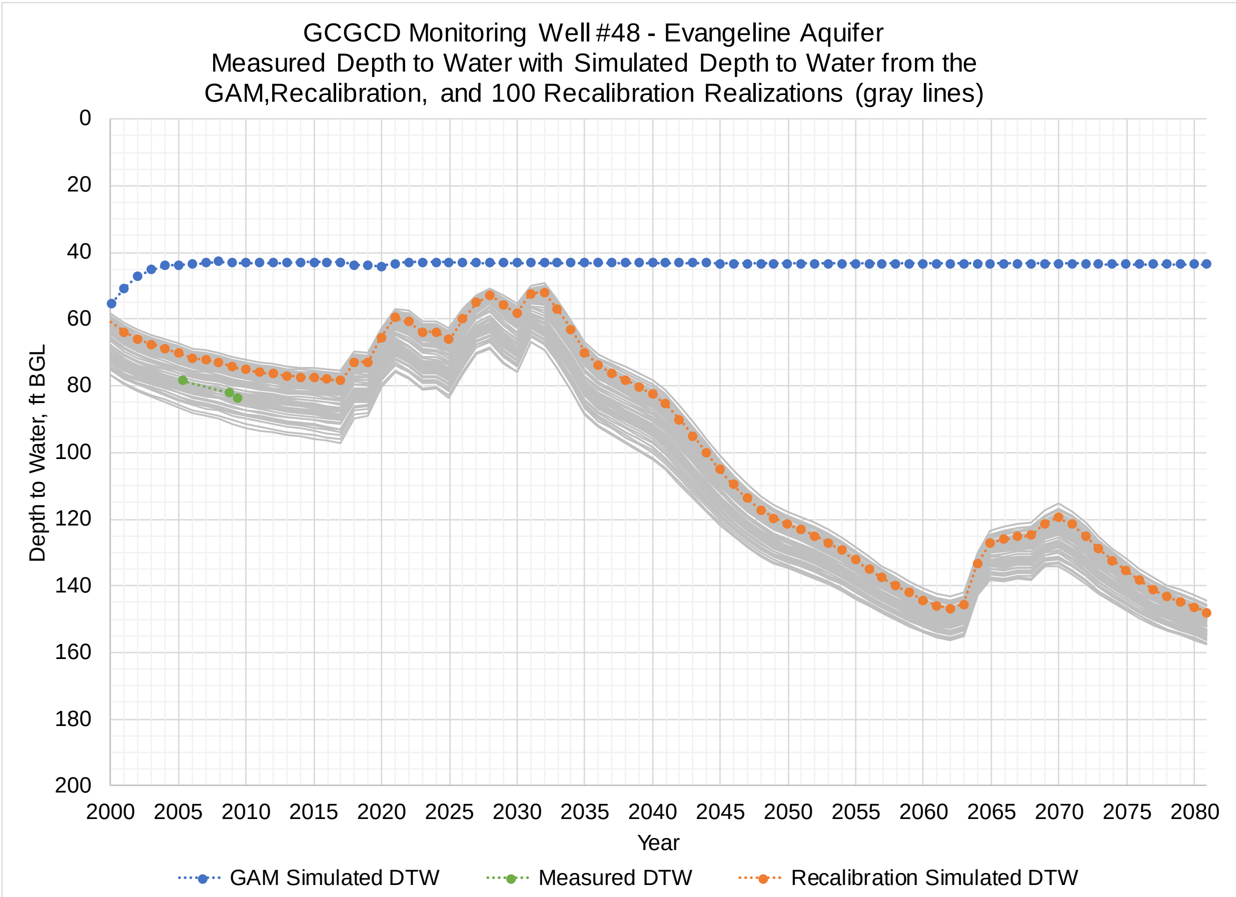

GCGCD Monitoring Well #40 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

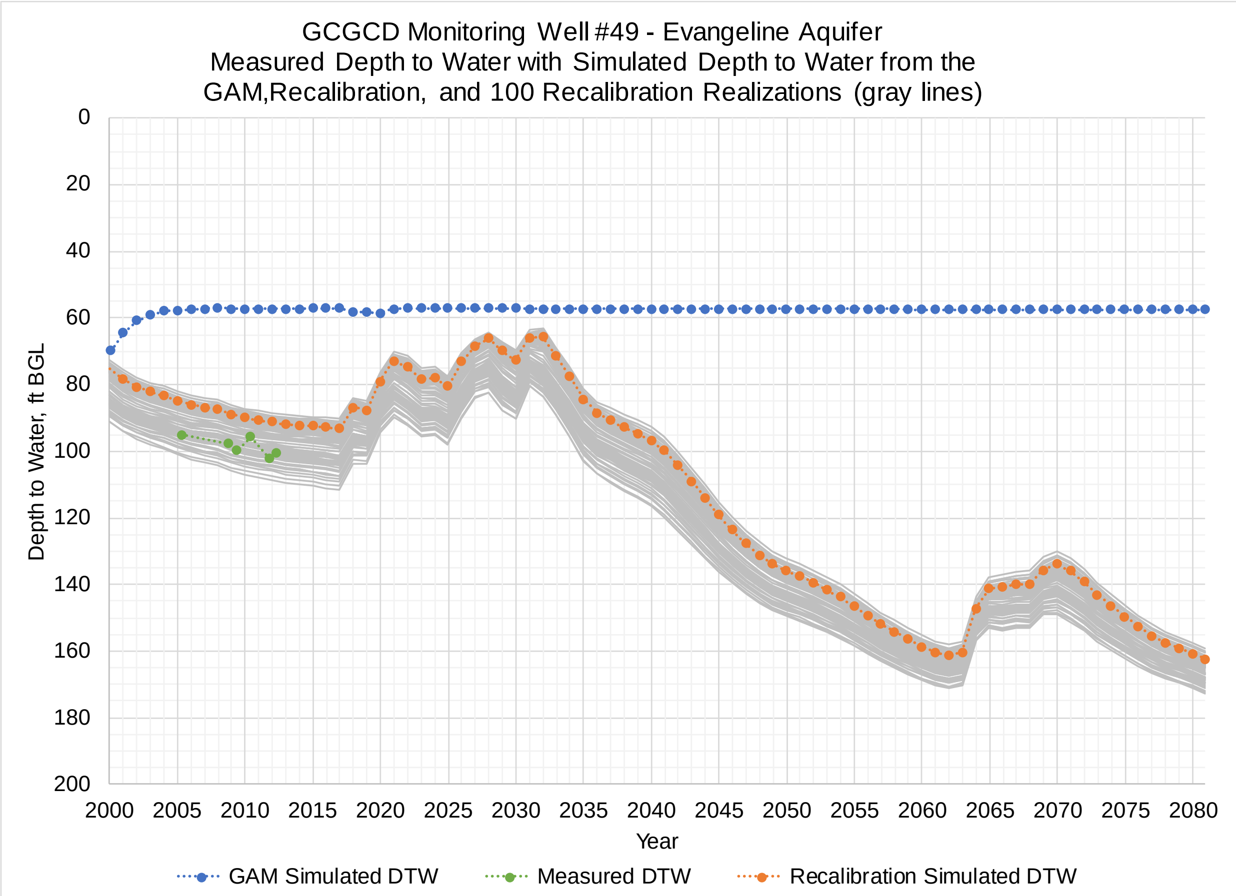

GCGCD Monitoring Well #41 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

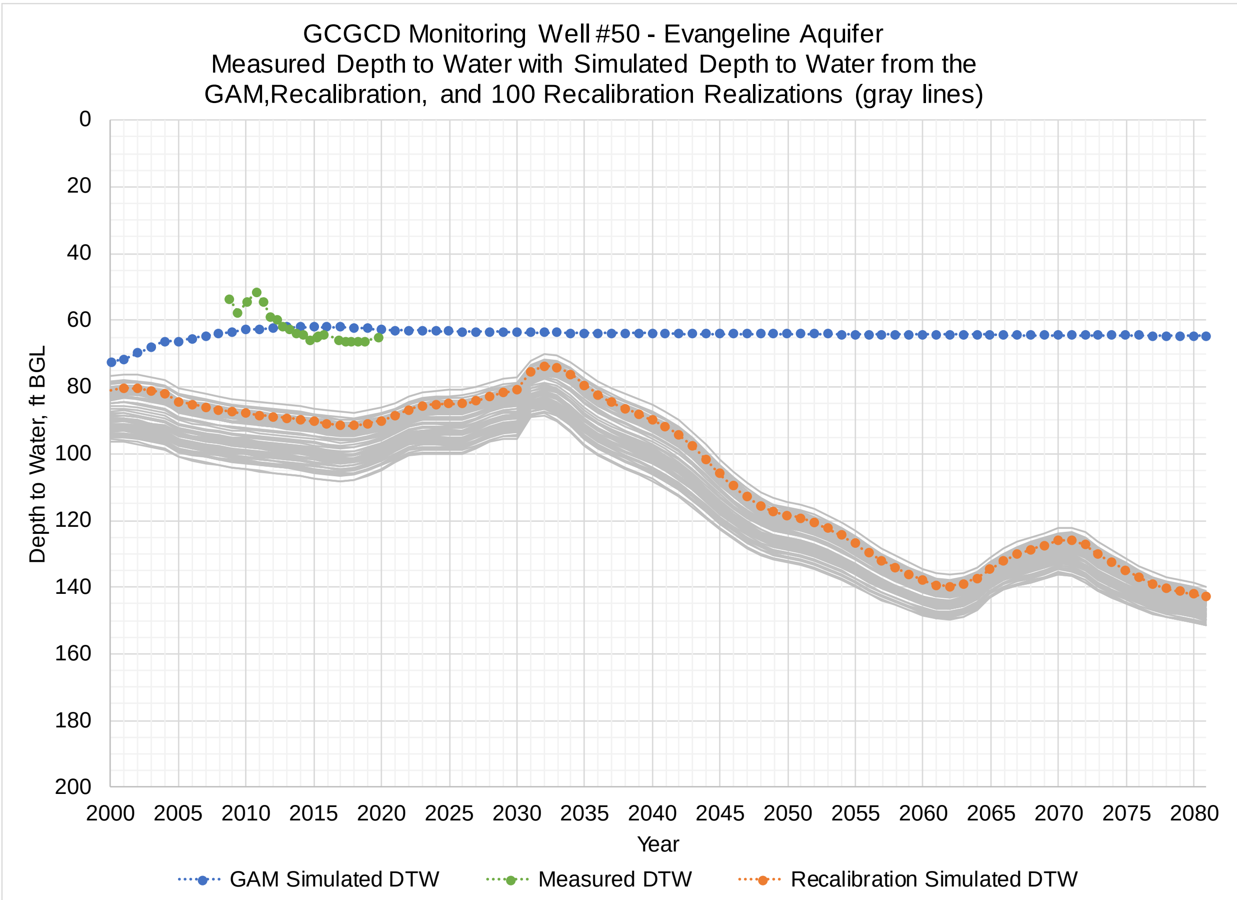

GCGCD Monitoring Well #42 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

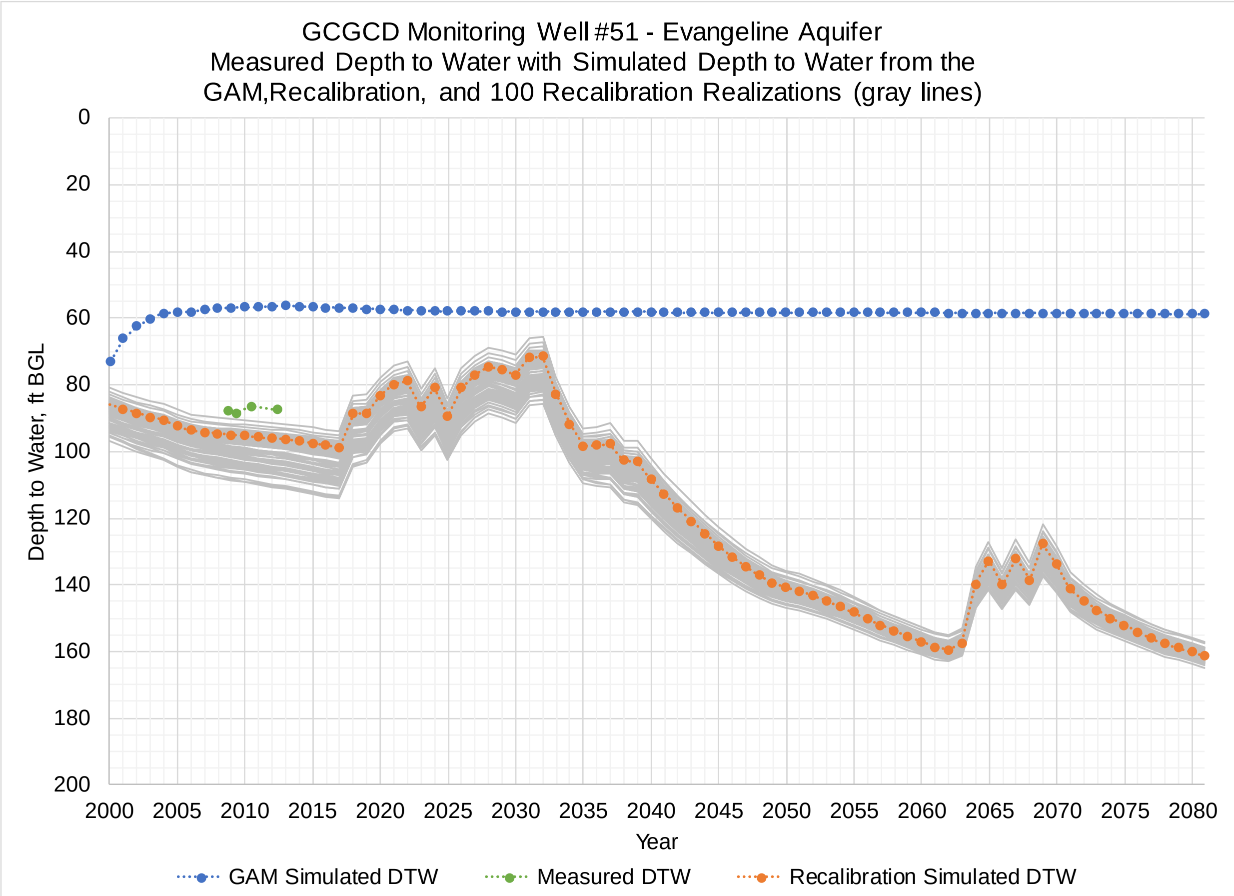

GCGCD Monitoring Well #43 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

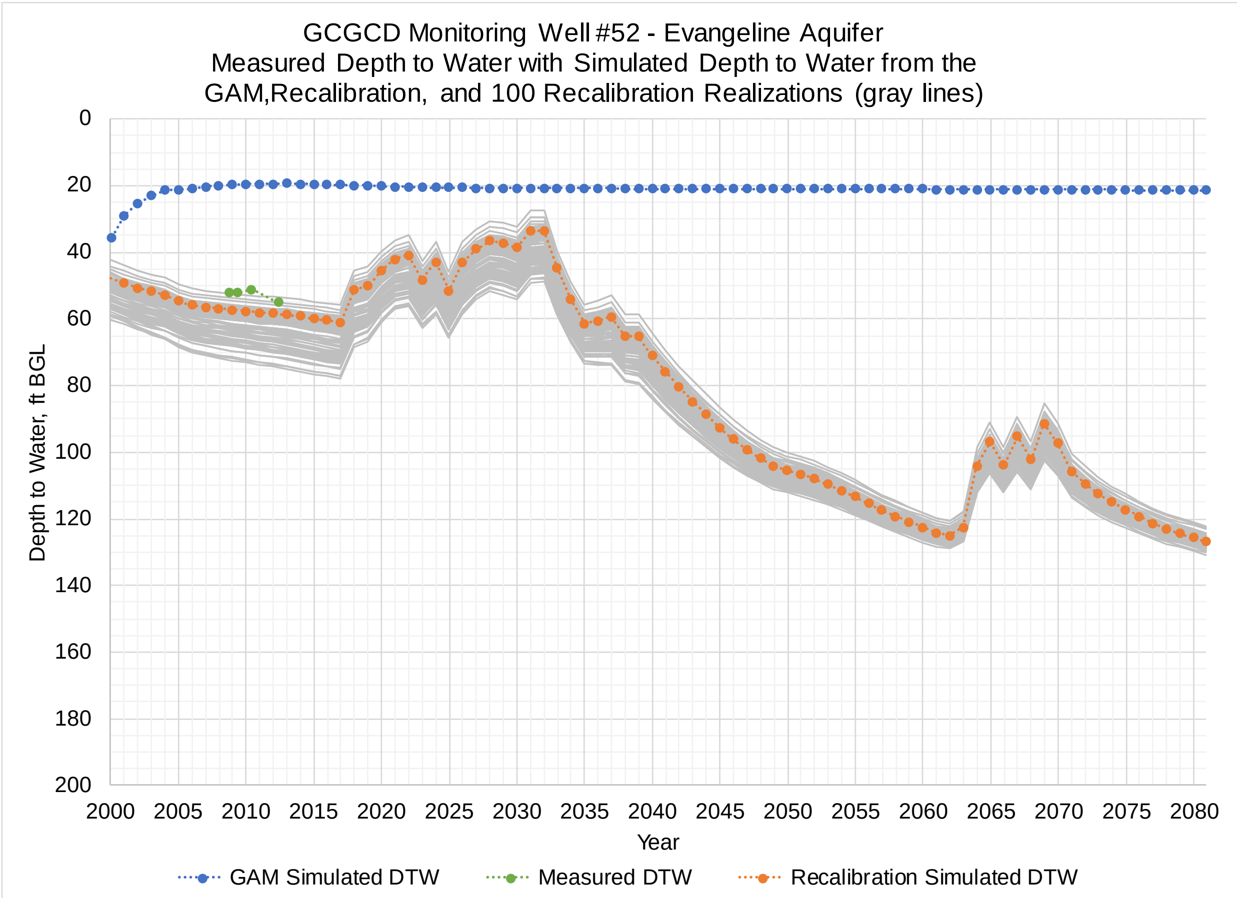

GCGCD Monitoring Well #44 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

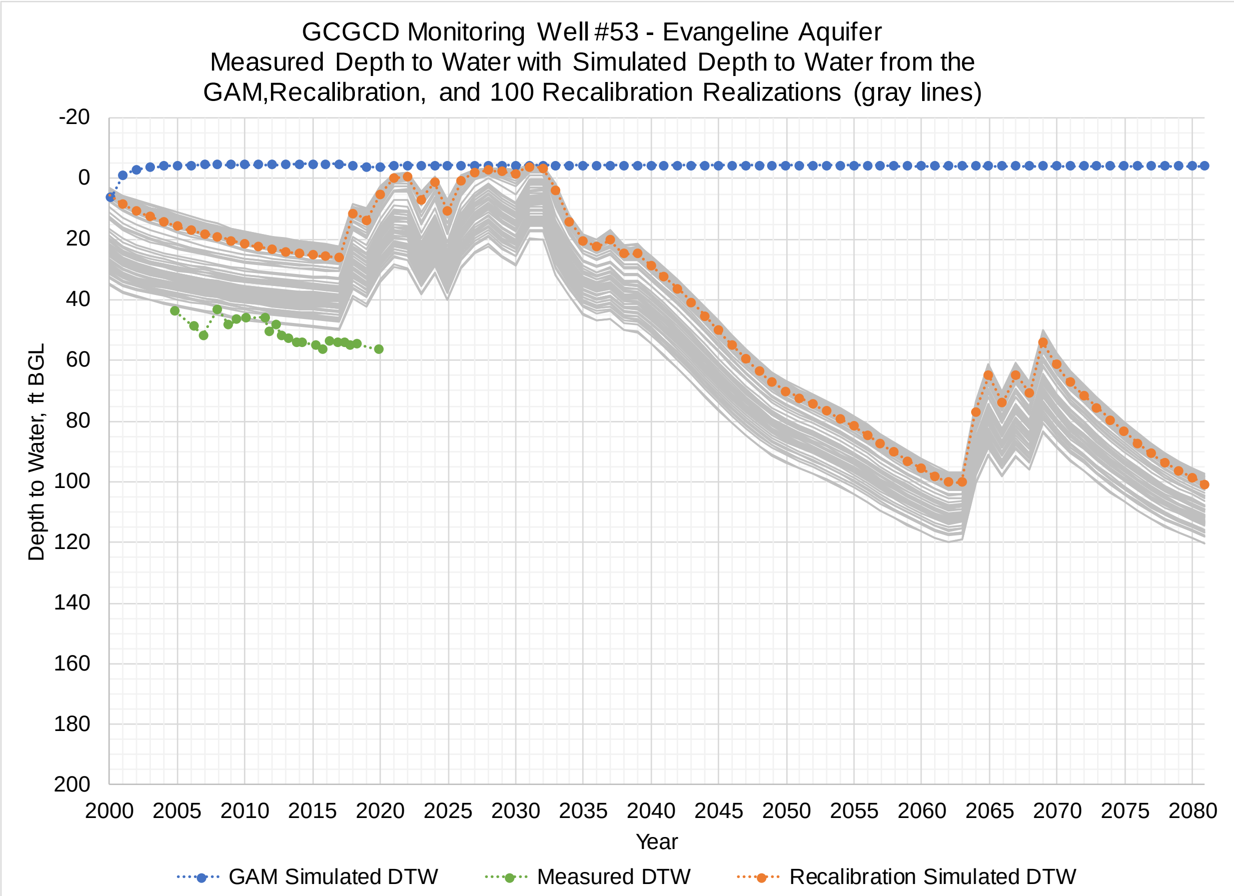

GCGCD Monitoring Well #48 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

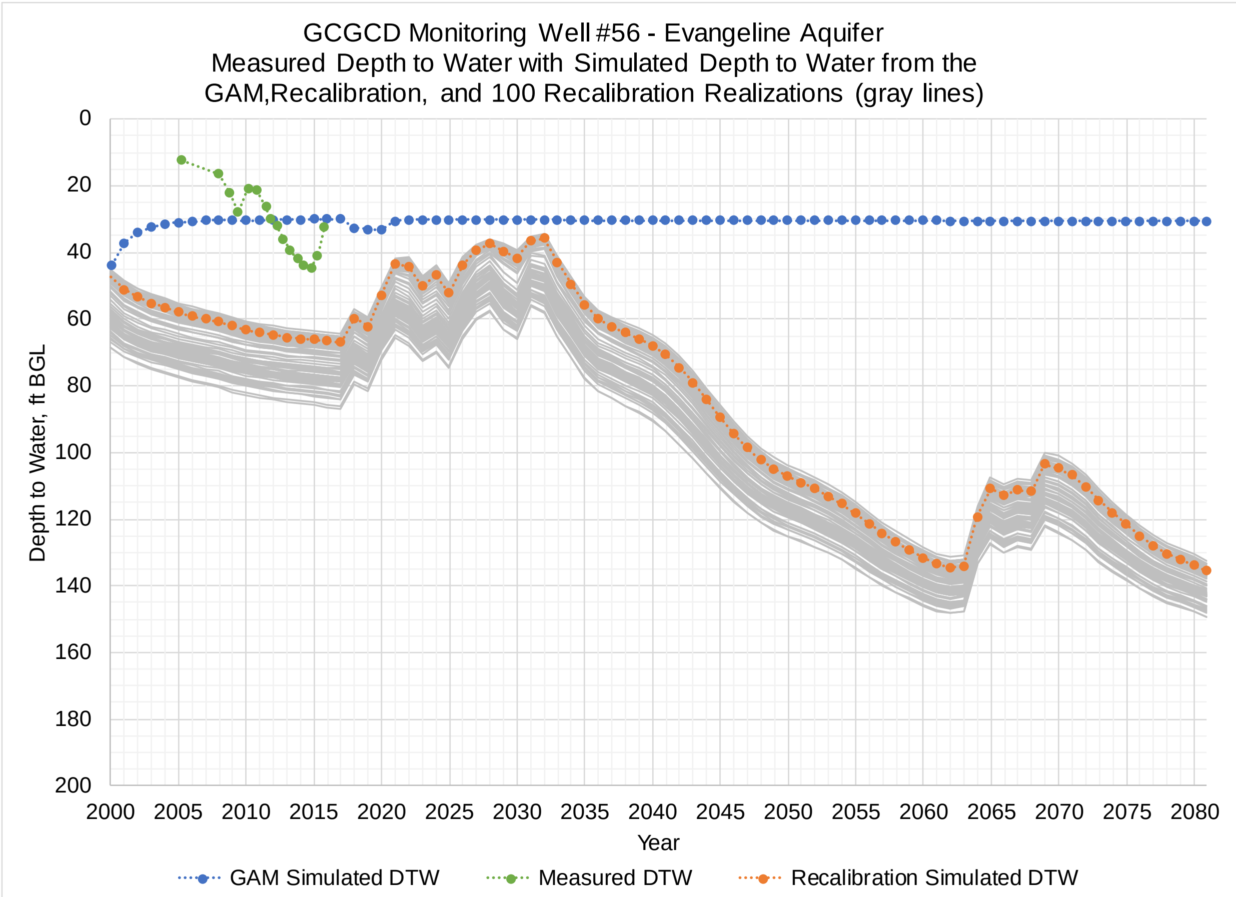

GCGCD Monitoring Well #49 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

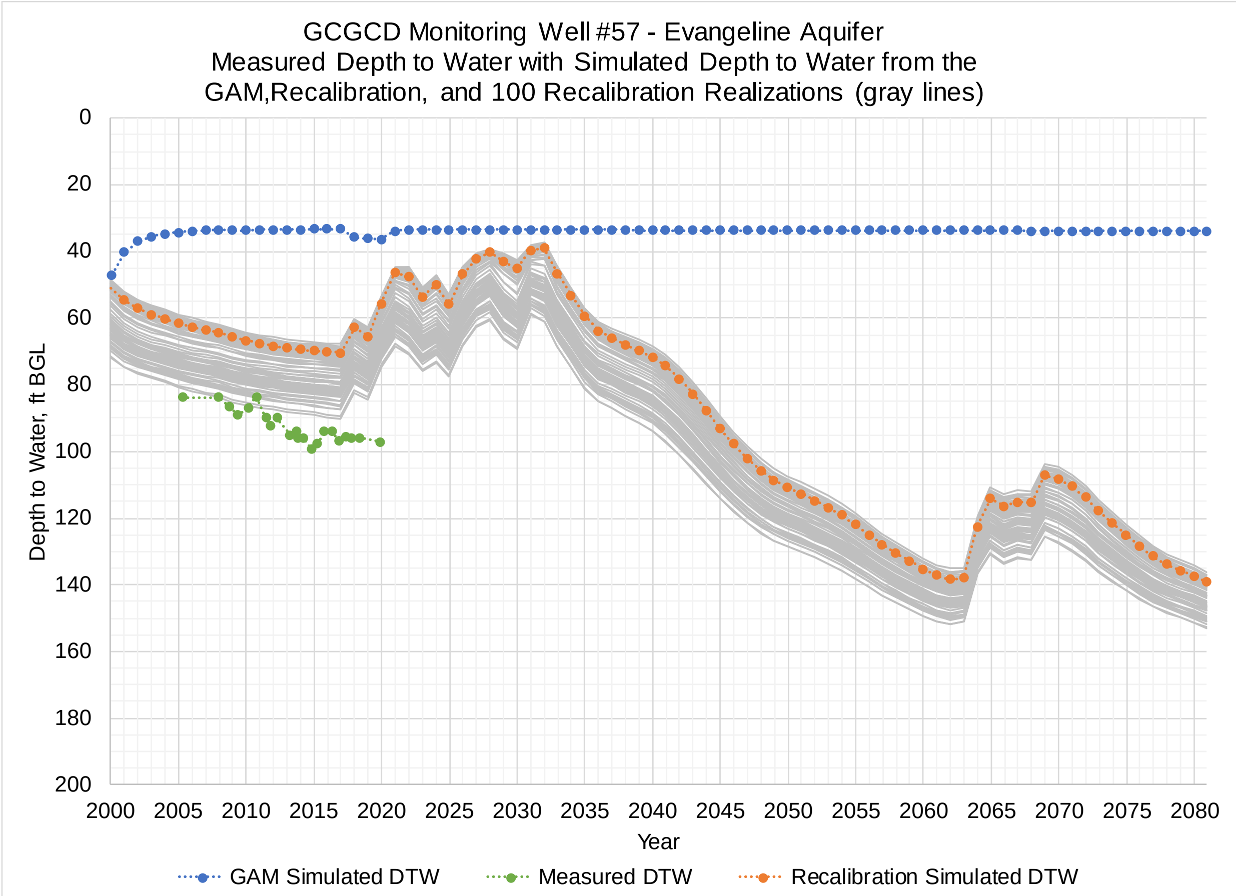

GCGCD Monitoring Well #50 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

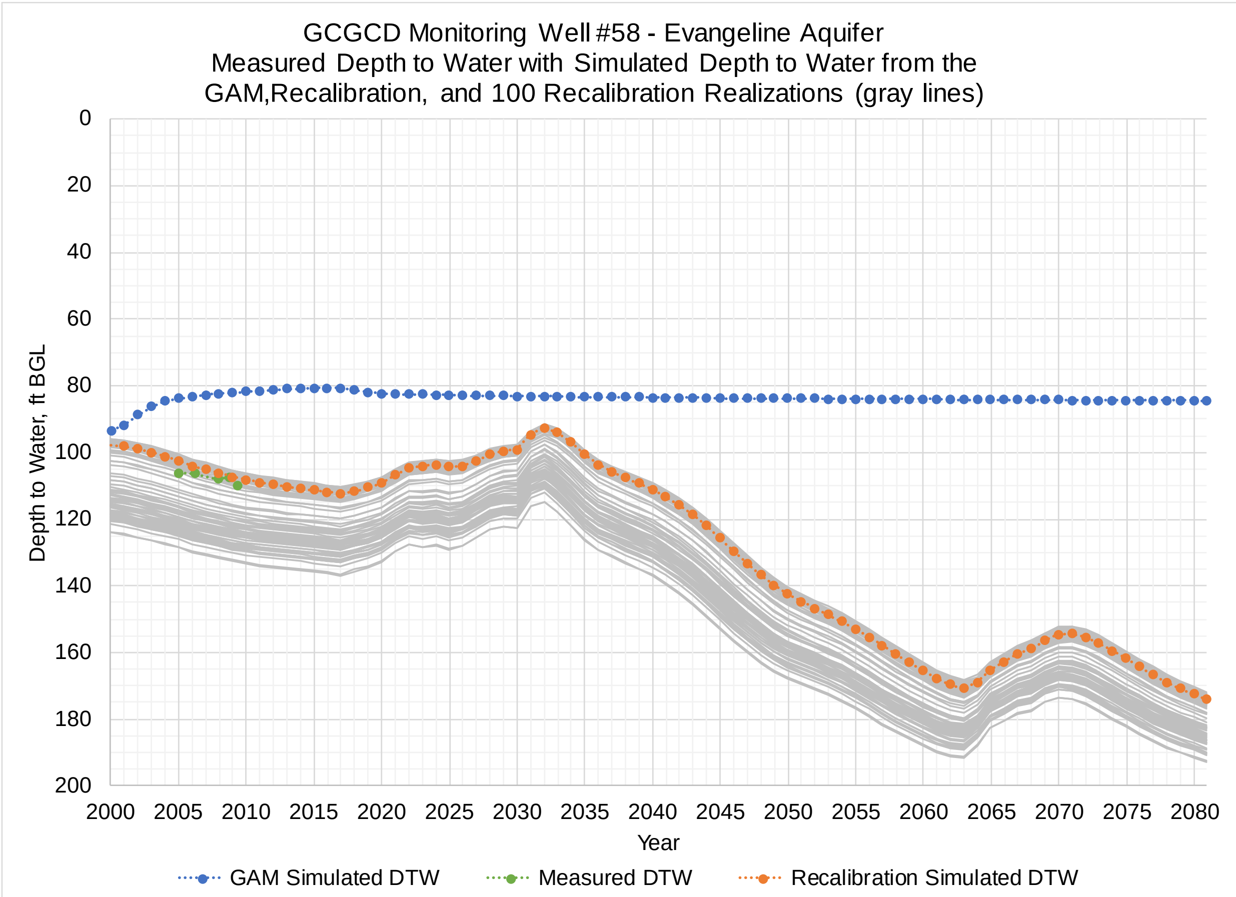

GCGCD Monitoring Well #51 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

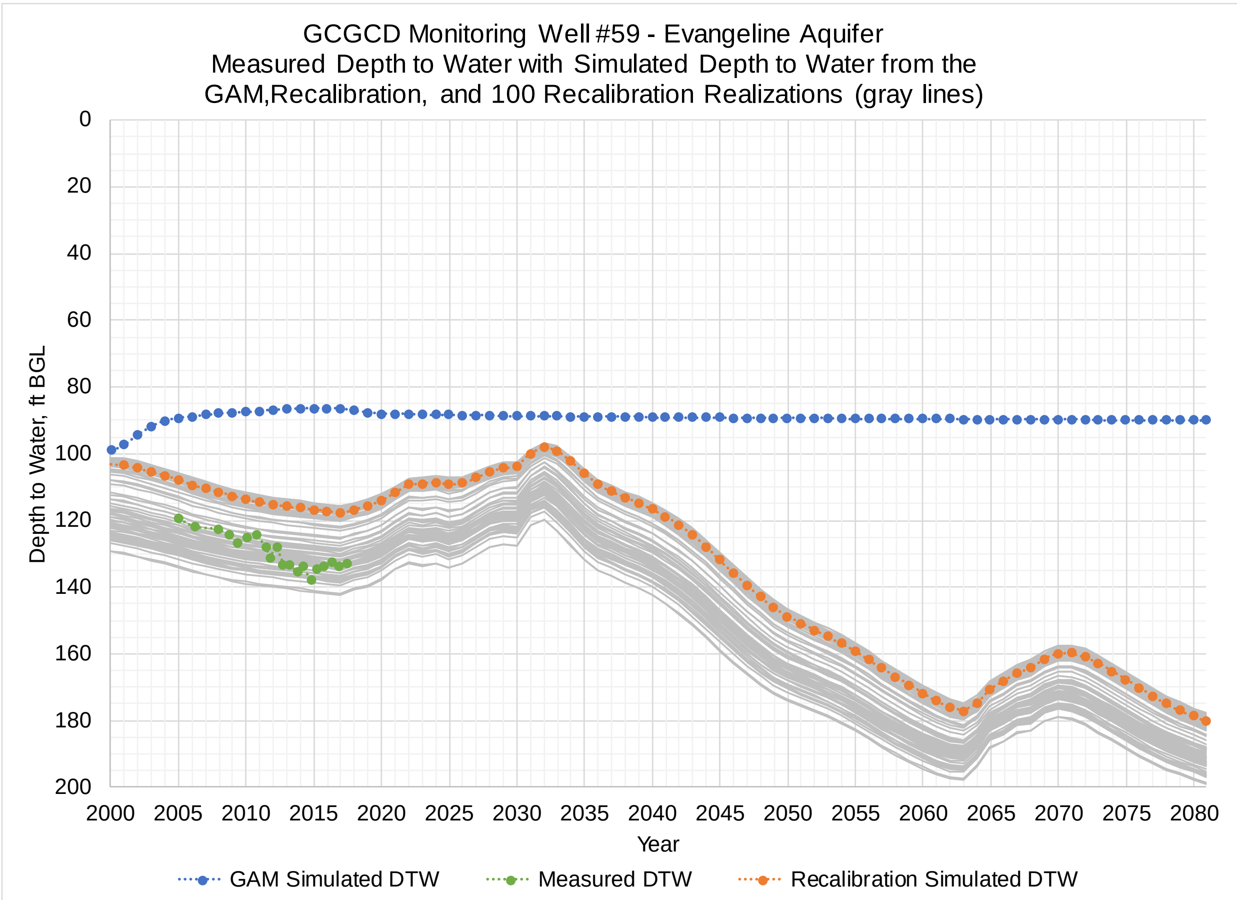

GCGCD Monitoring Well #52 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

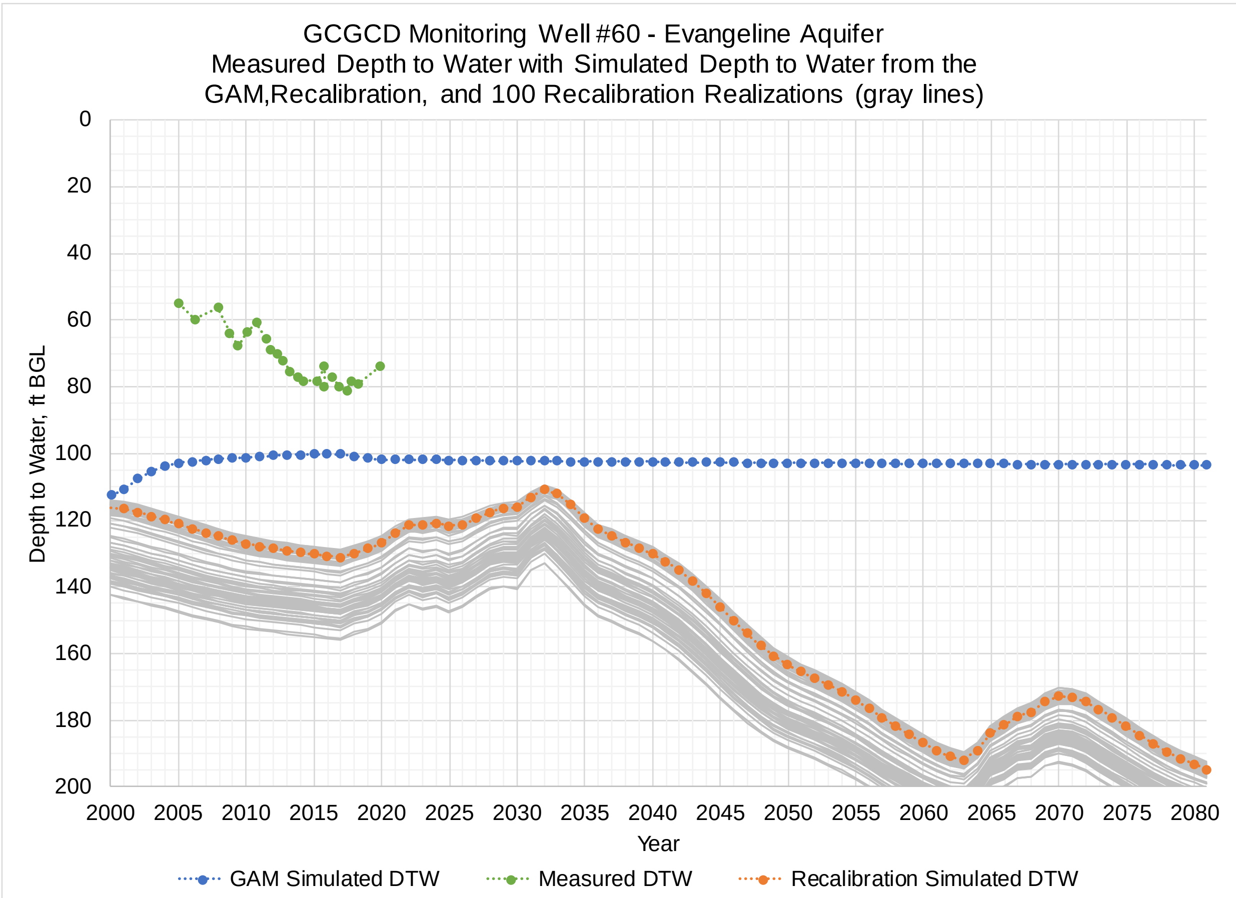

GCGCD Monitoring Well #53 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

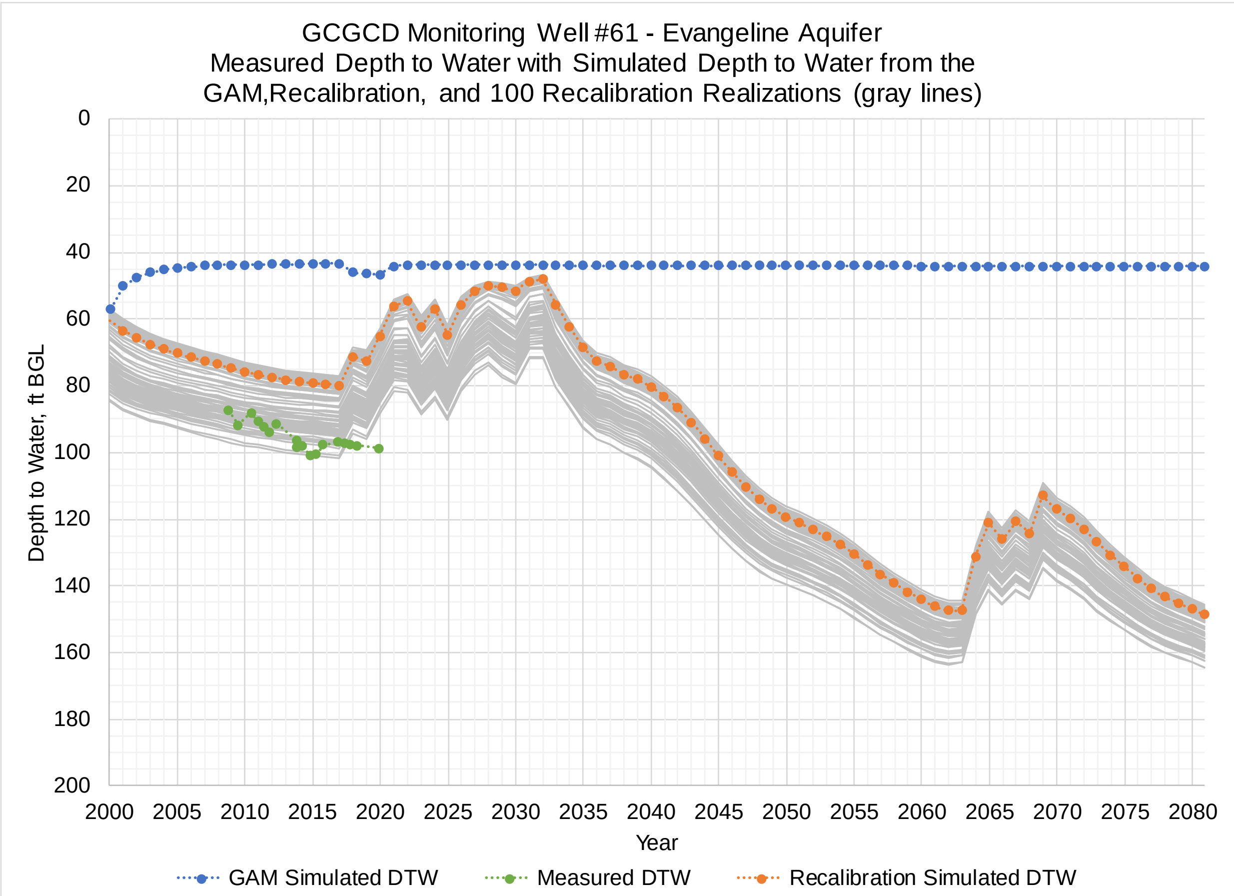

GCGCD Monitoring Well #56 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

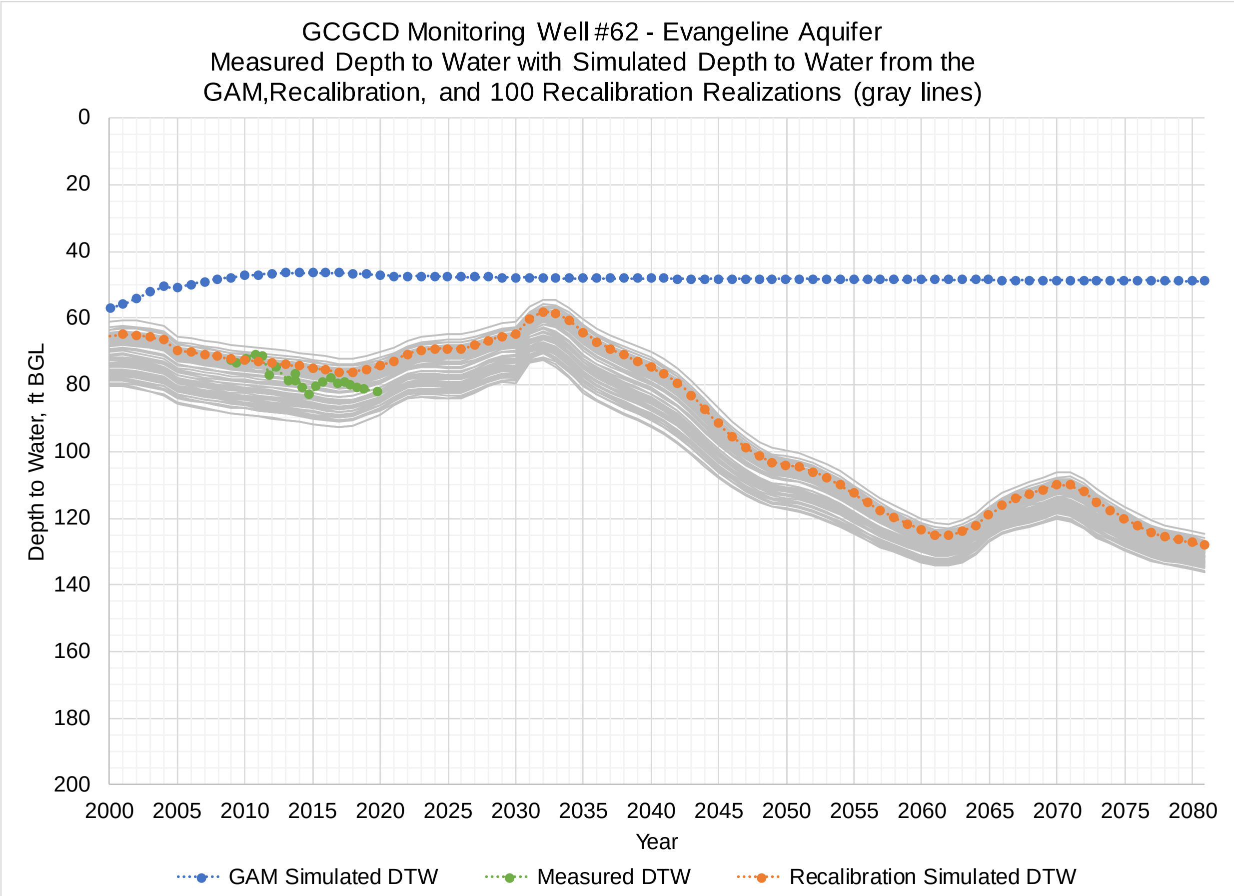

GCGCD Monitoring Well #57 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

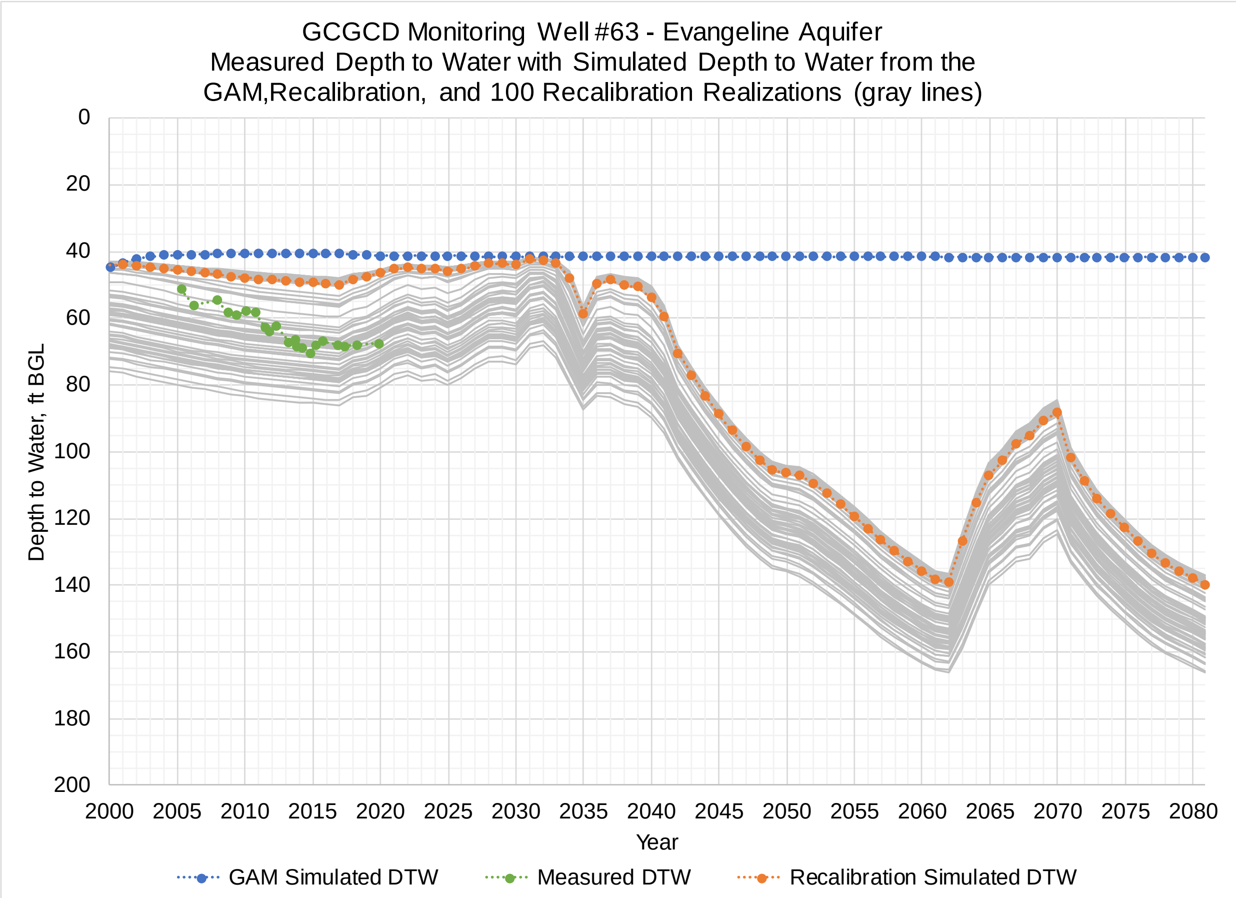

GCGCD Monitoring Well #58 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

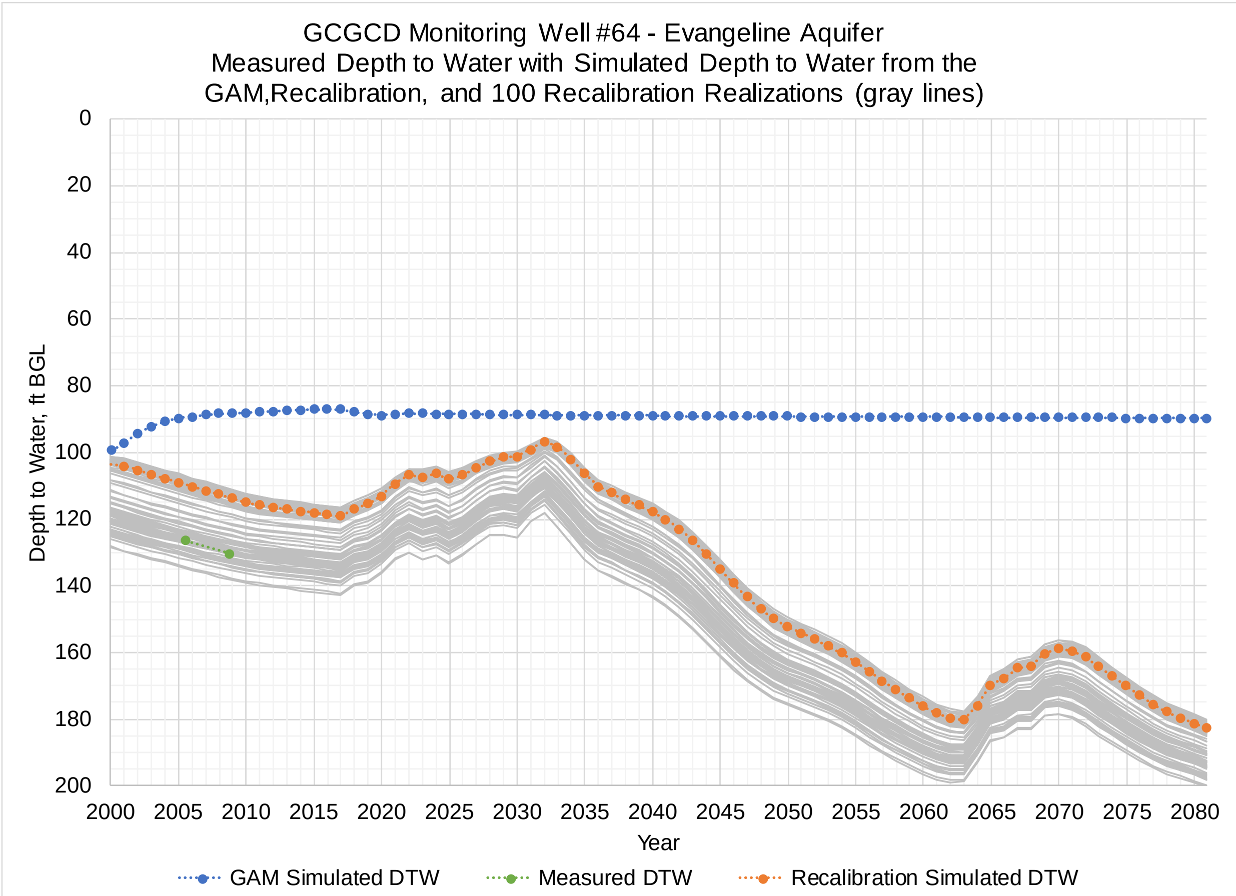

GCGCD Monitoring Well #59 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

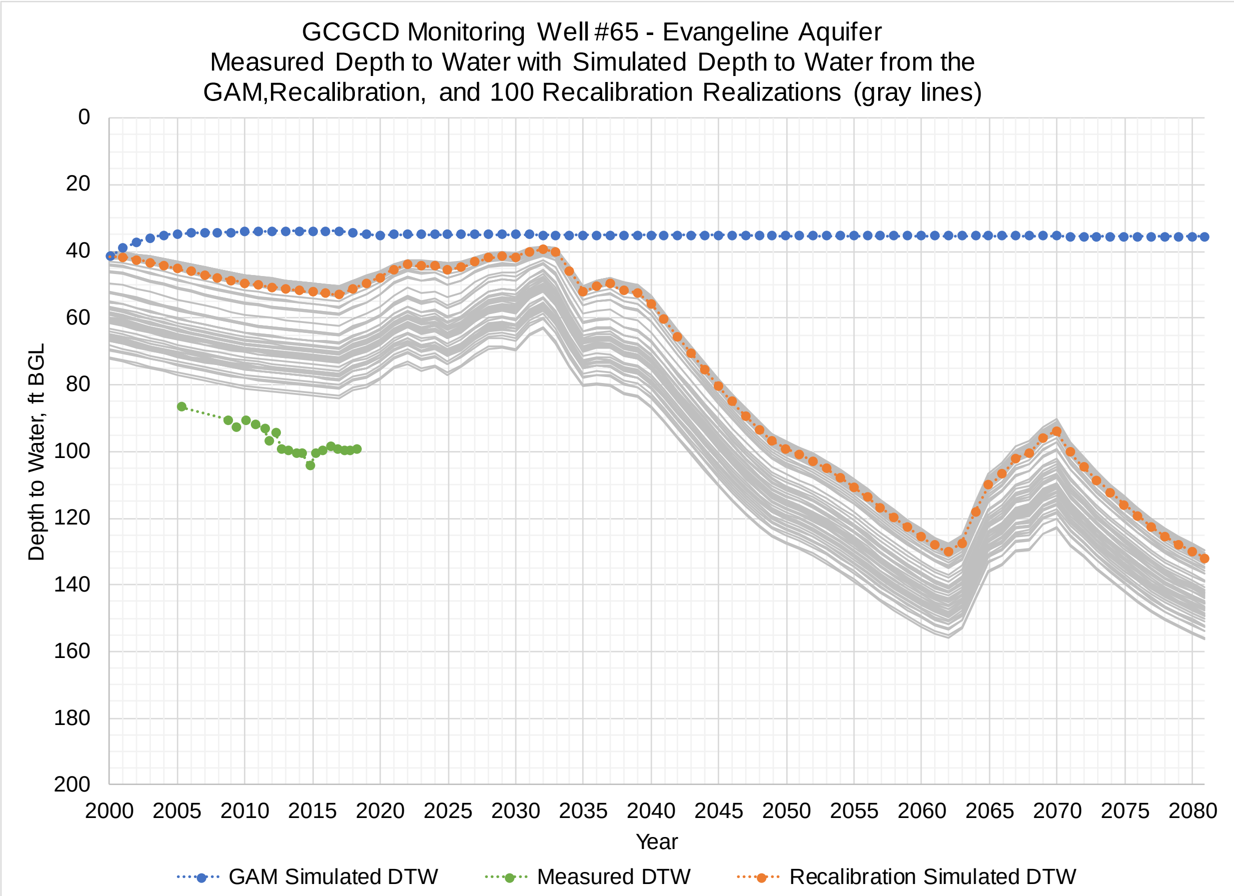

GCGCD Monitoring Well #60 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

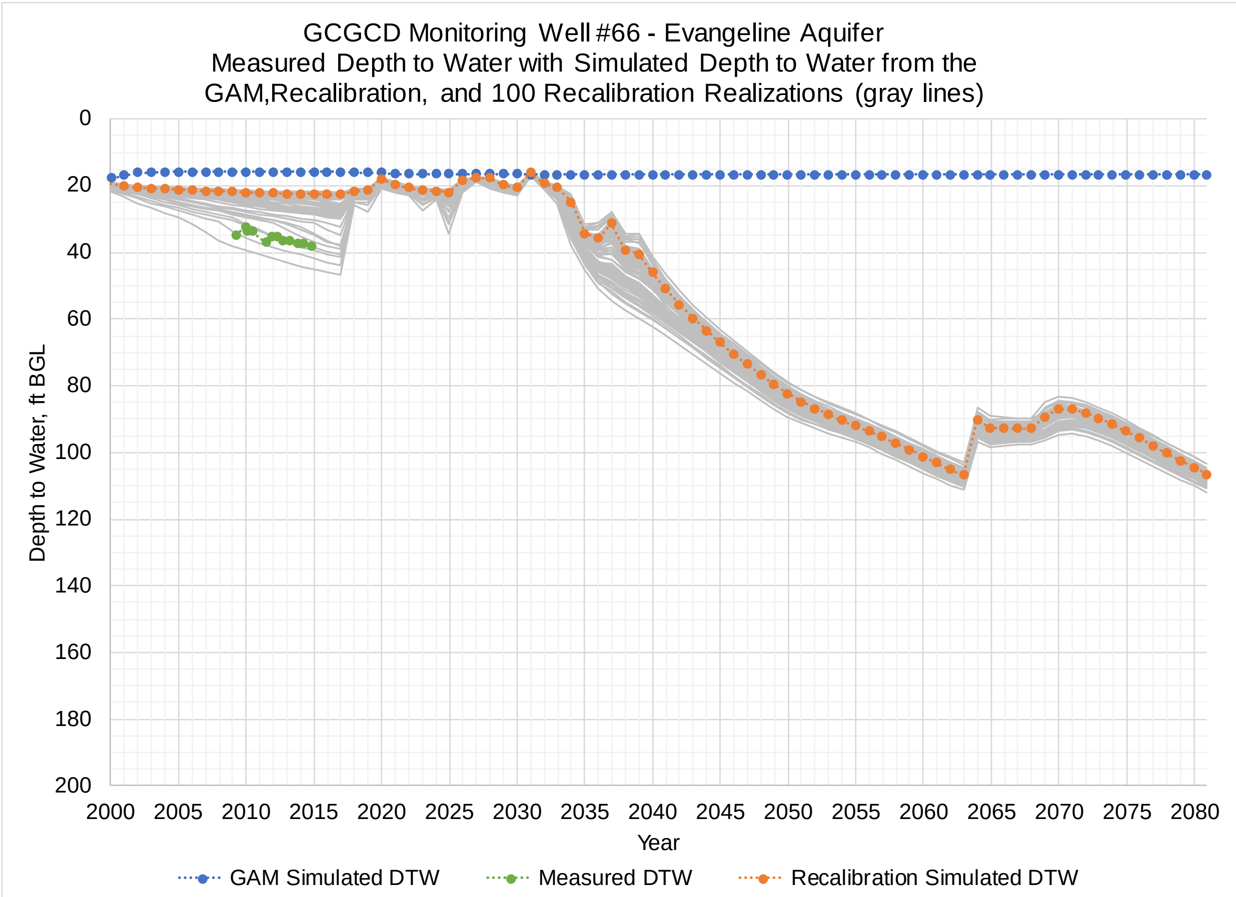

GCGCD Monitoring Well #61 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

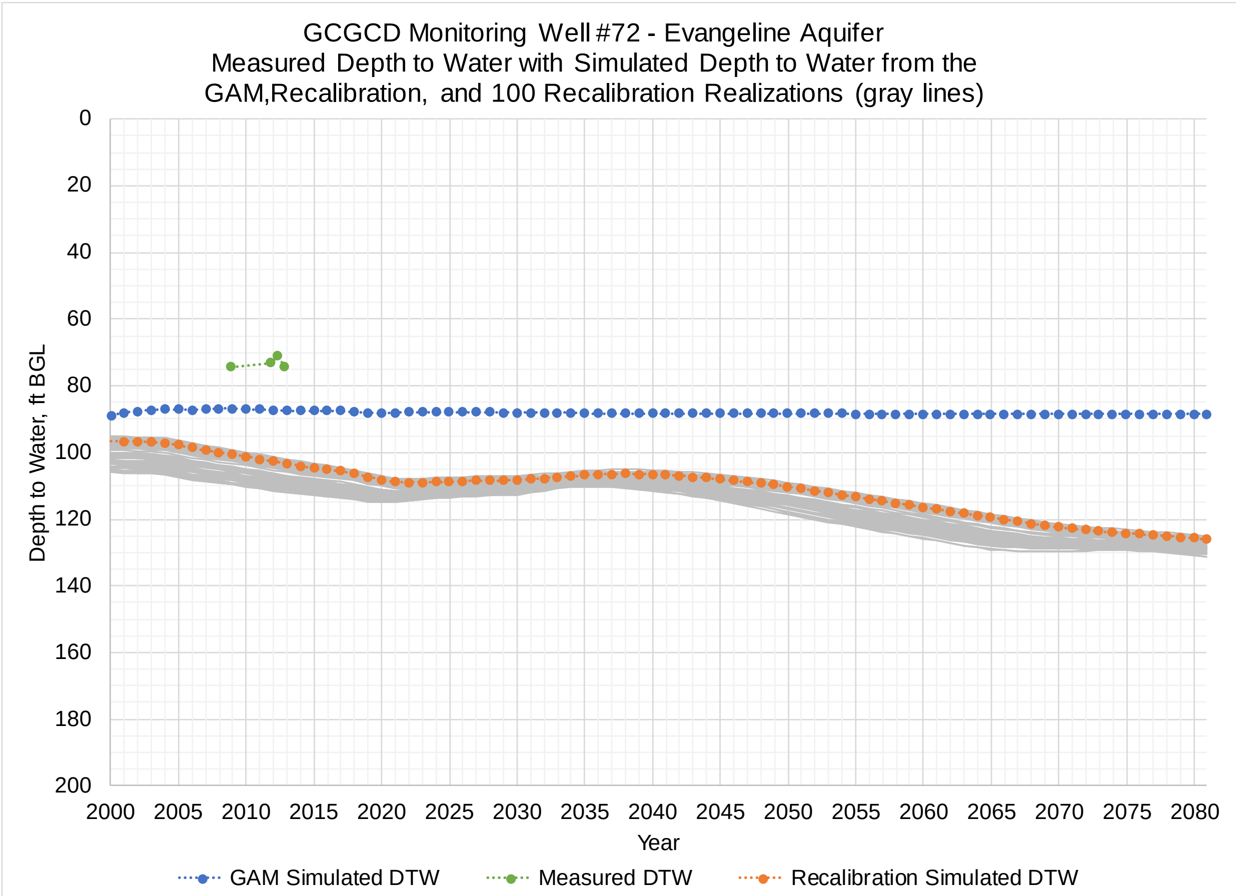

GCGCD Monitoring Well #62 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

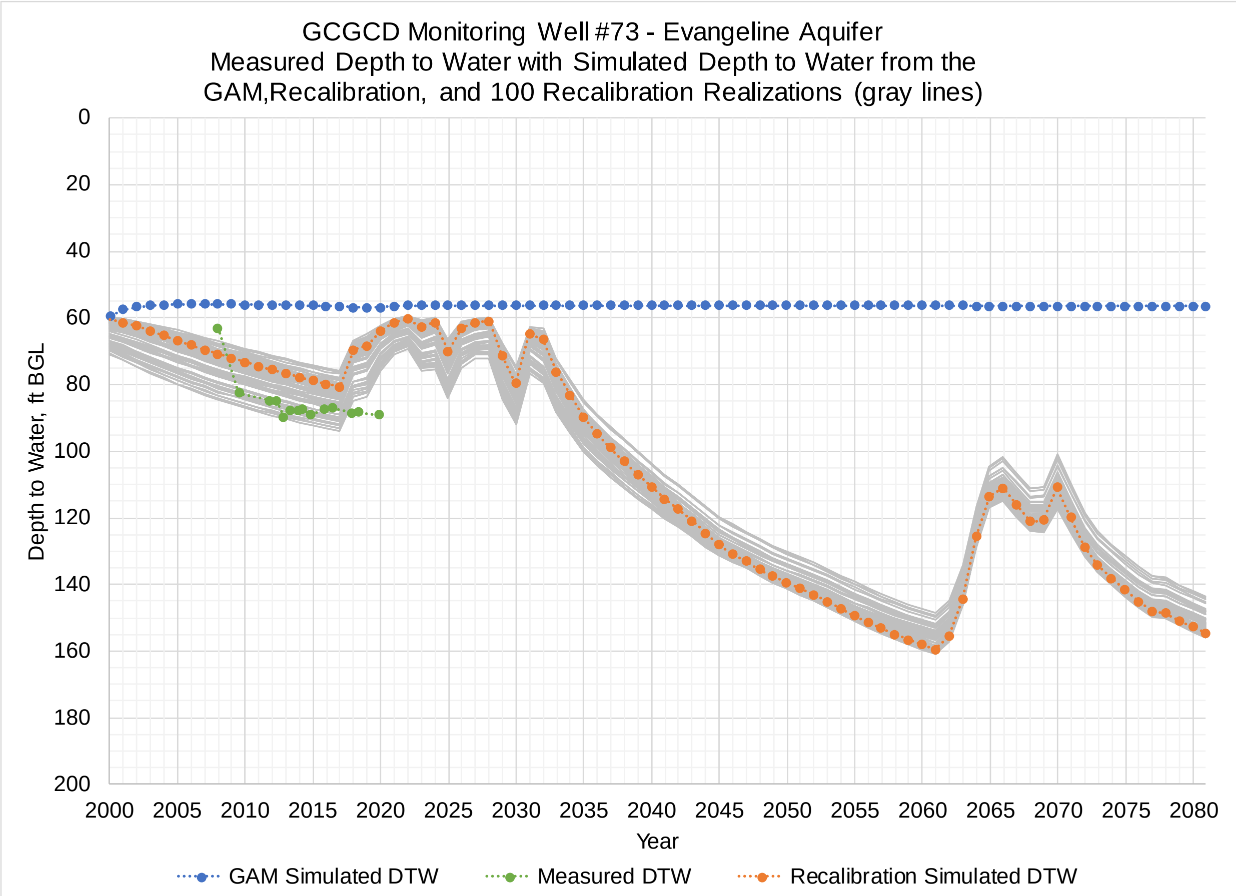

GCGCD Monitoring Well #63 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

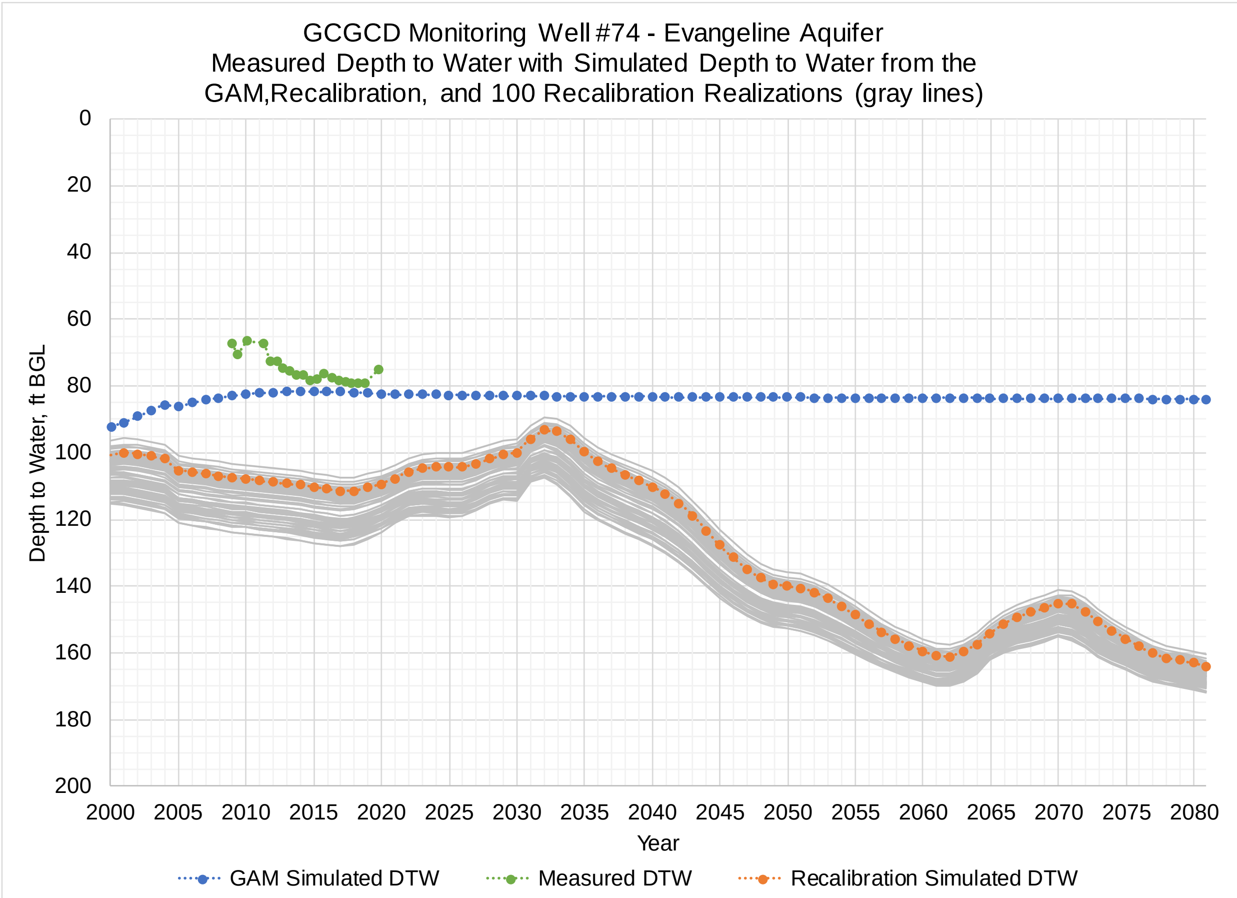

GCGCD Monitoring Well #64 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

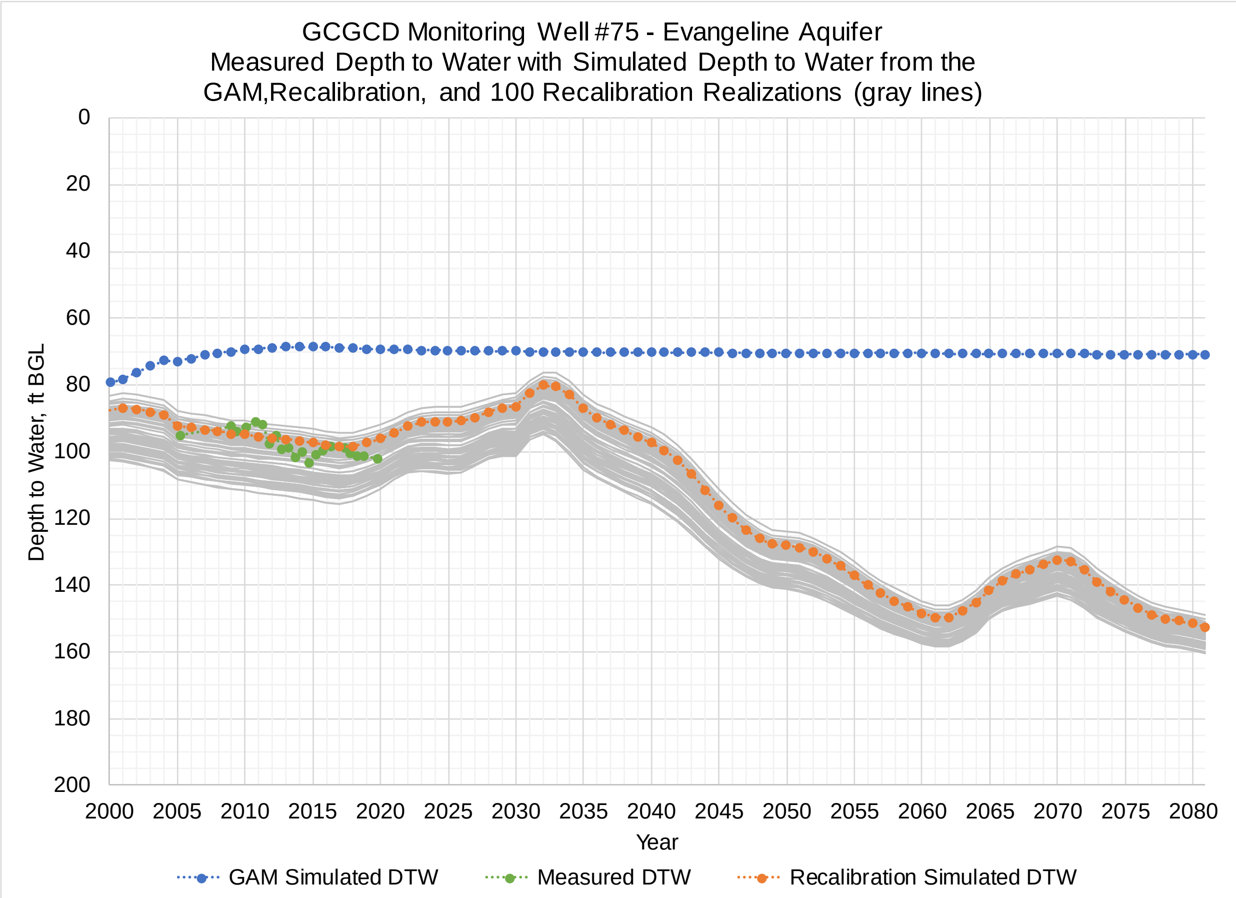

GCGCD Monitoring Well #65 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

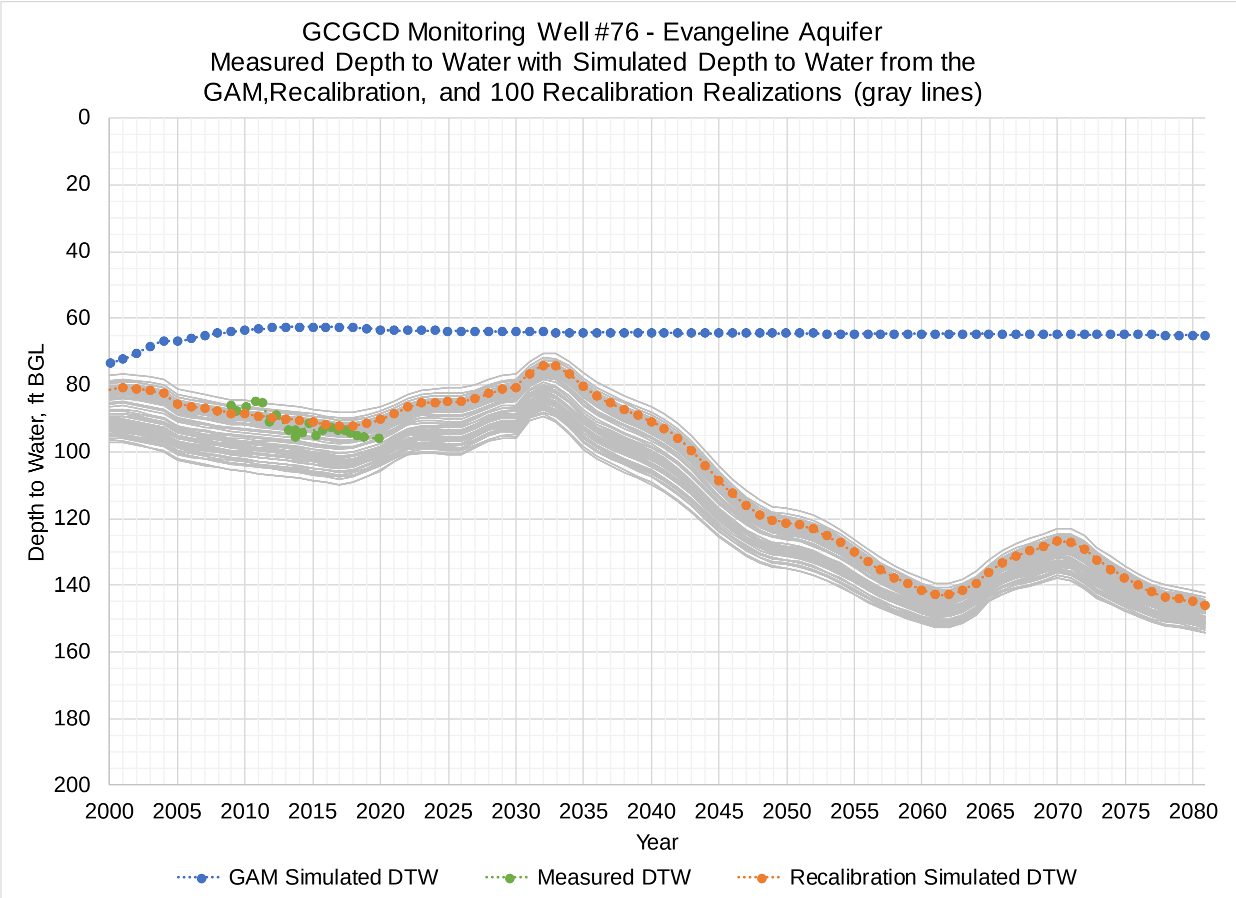

GCGCD Monitoring Well #66 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

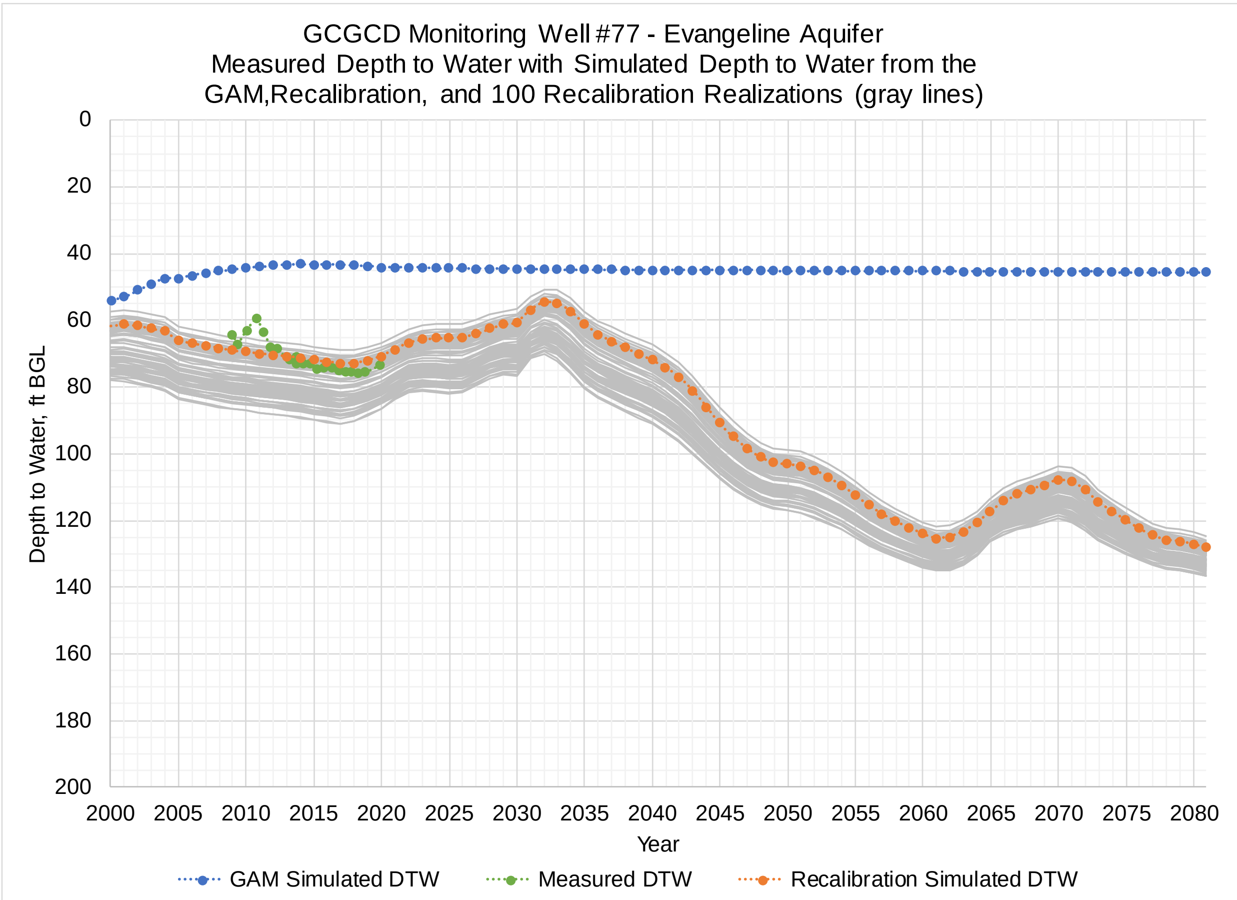

GCGCD Monitoring Well #72 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

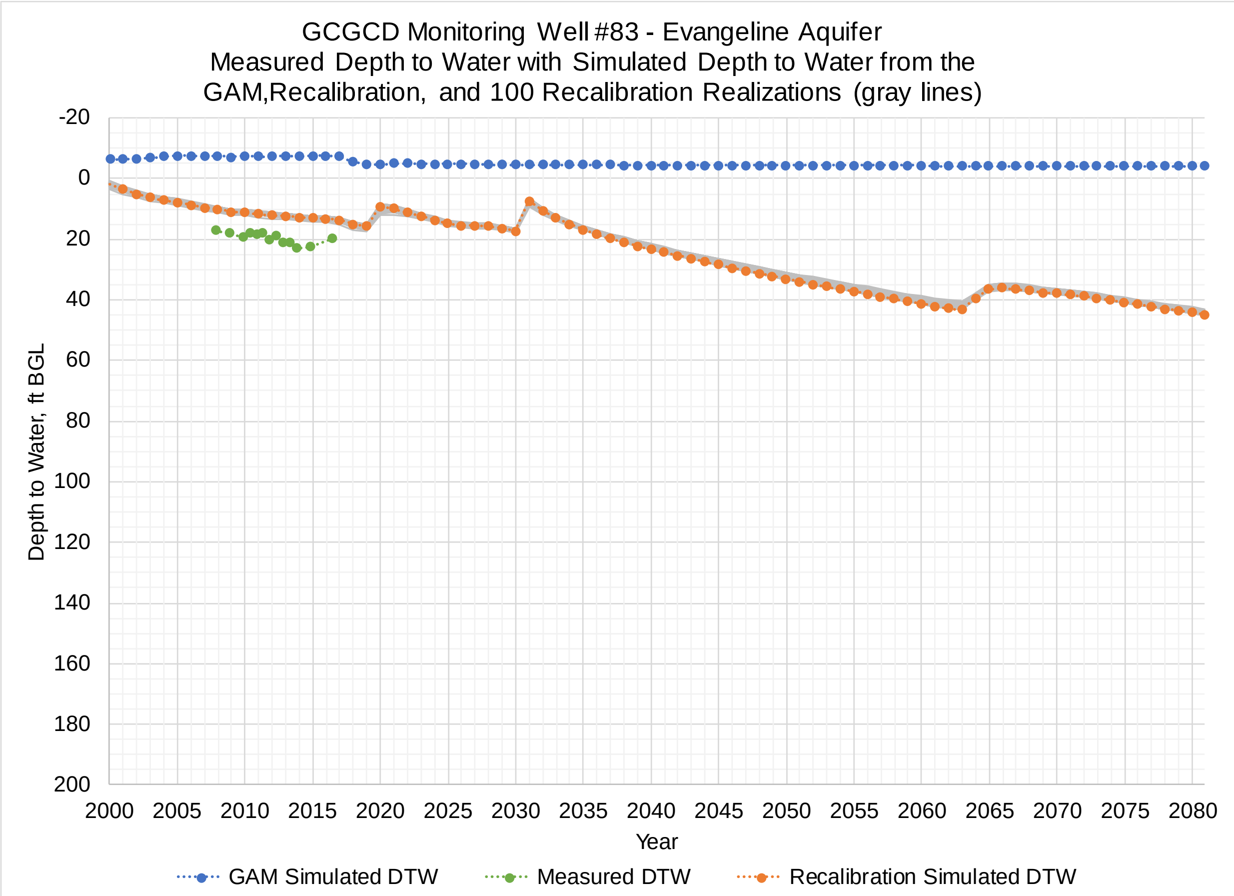

GCGCD Monitoring Well #73 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

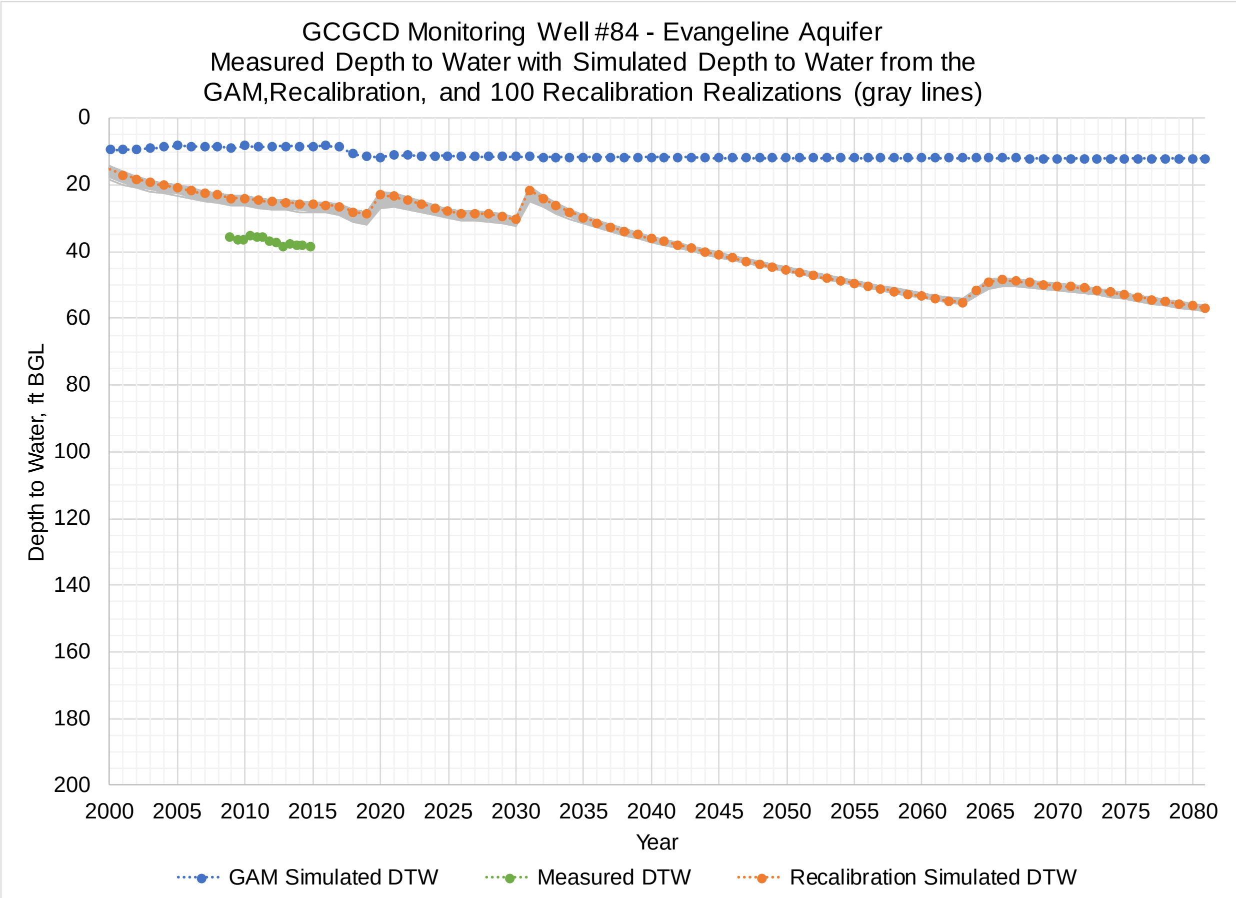

GCGCD Monitoring Well #74 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

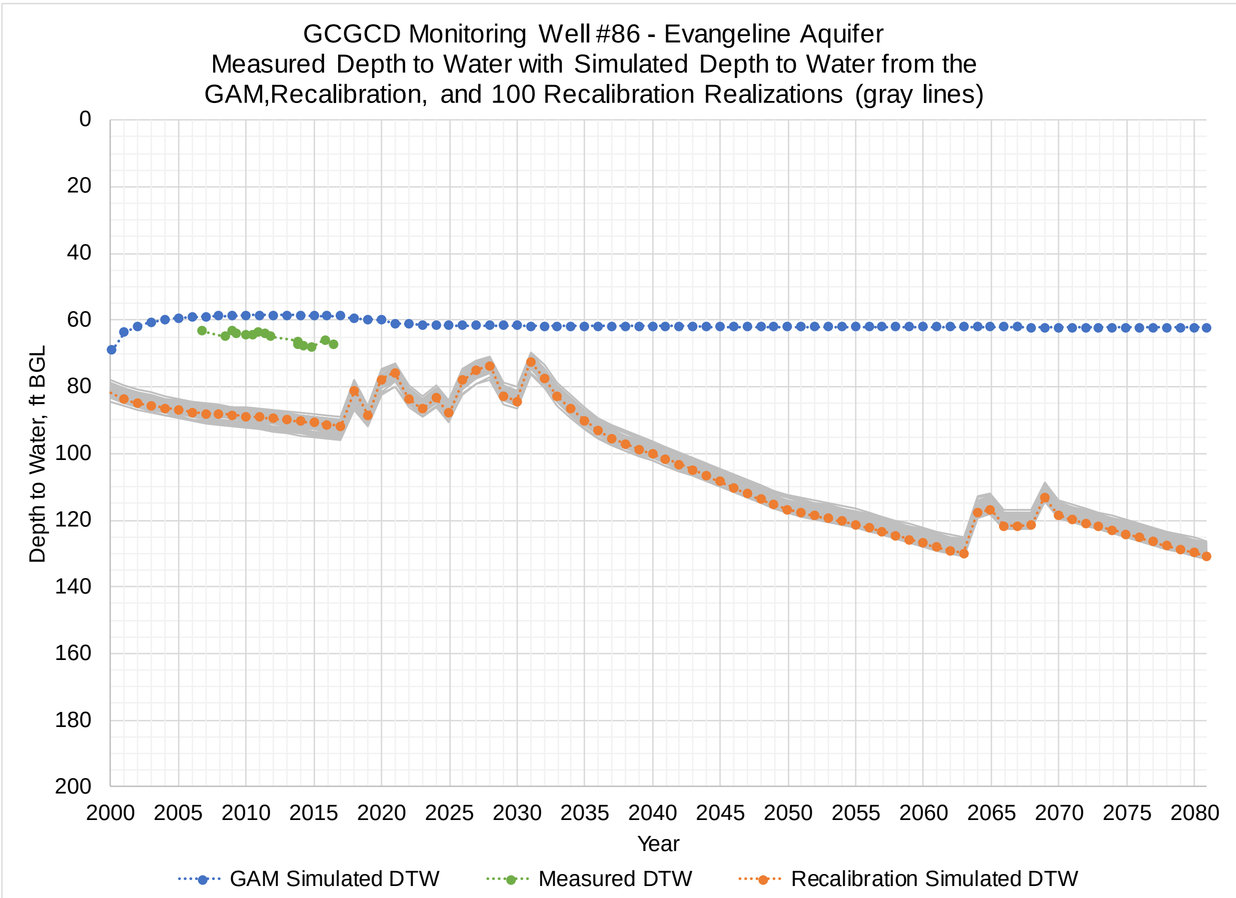

GCGCD Monitoring Well #75 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

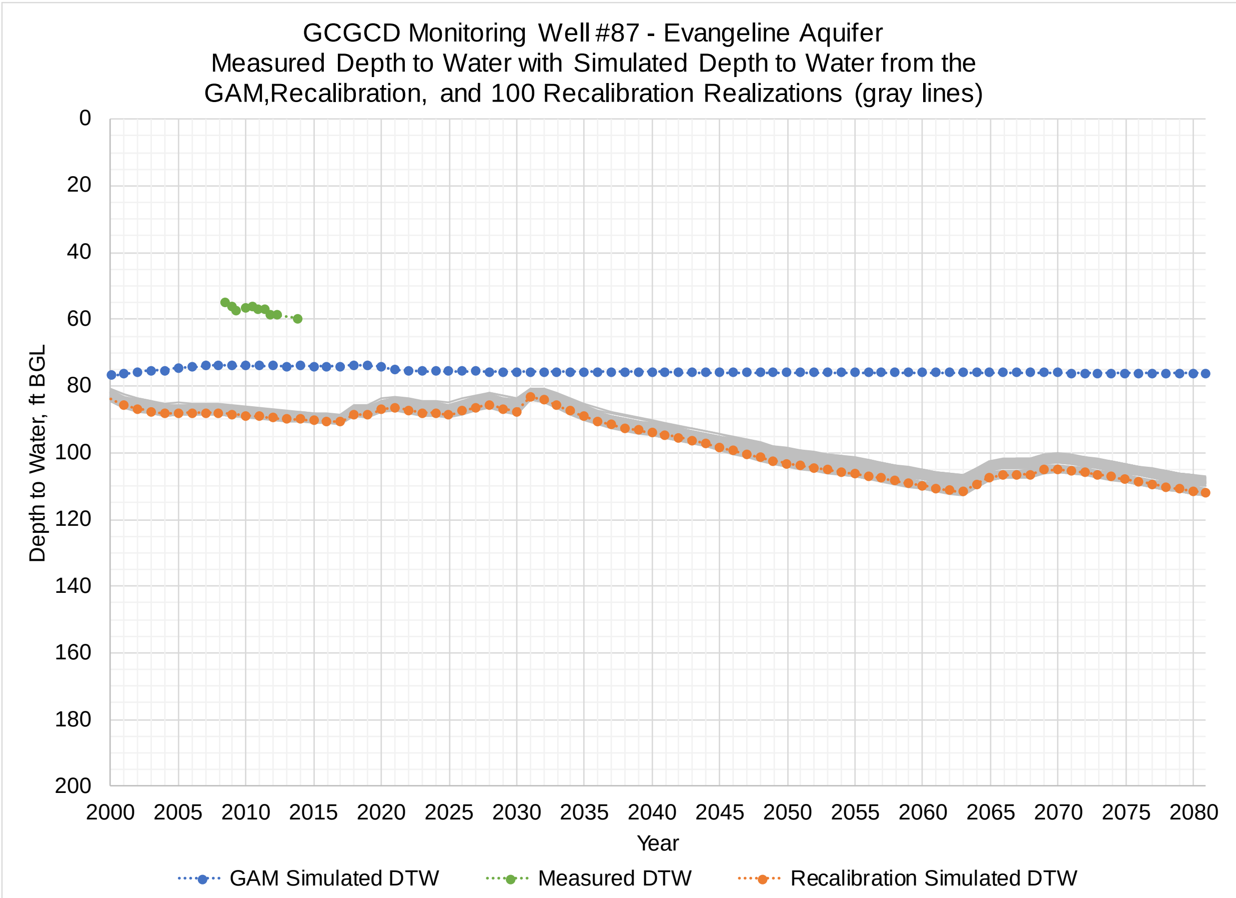

GCGCD Monitoring Well #76 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

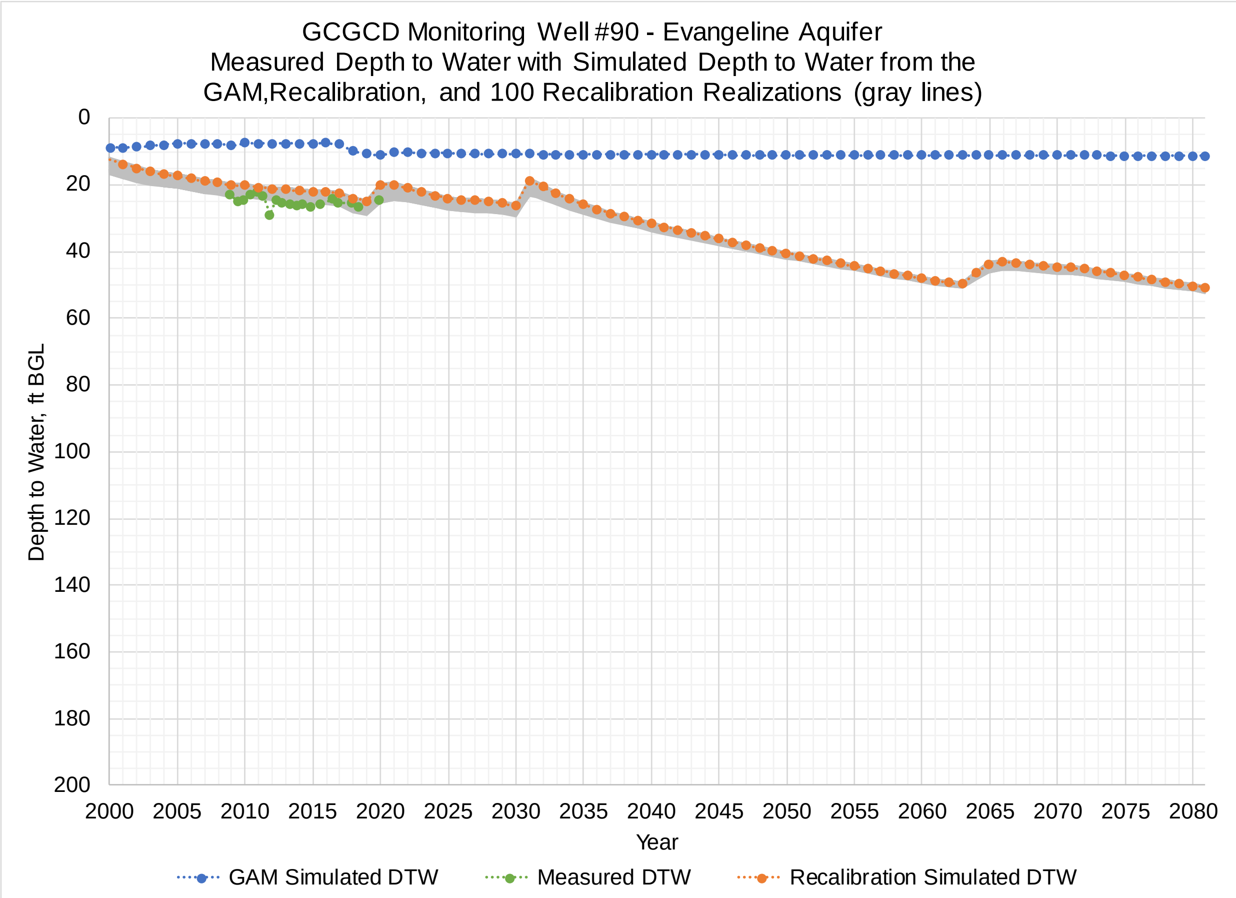

GCGCD Monitoring Well #77 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

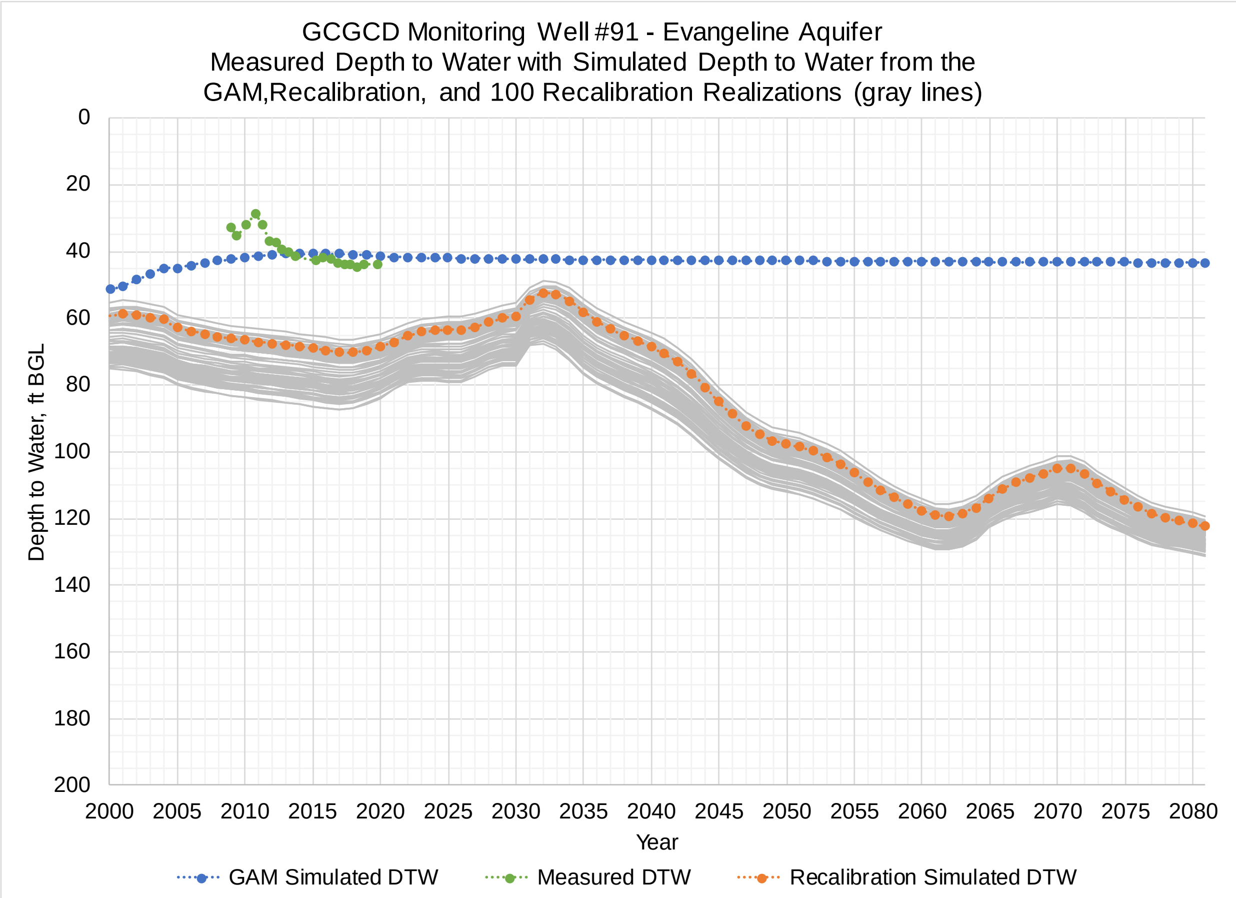

GCGCD Monitoring Well #83 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

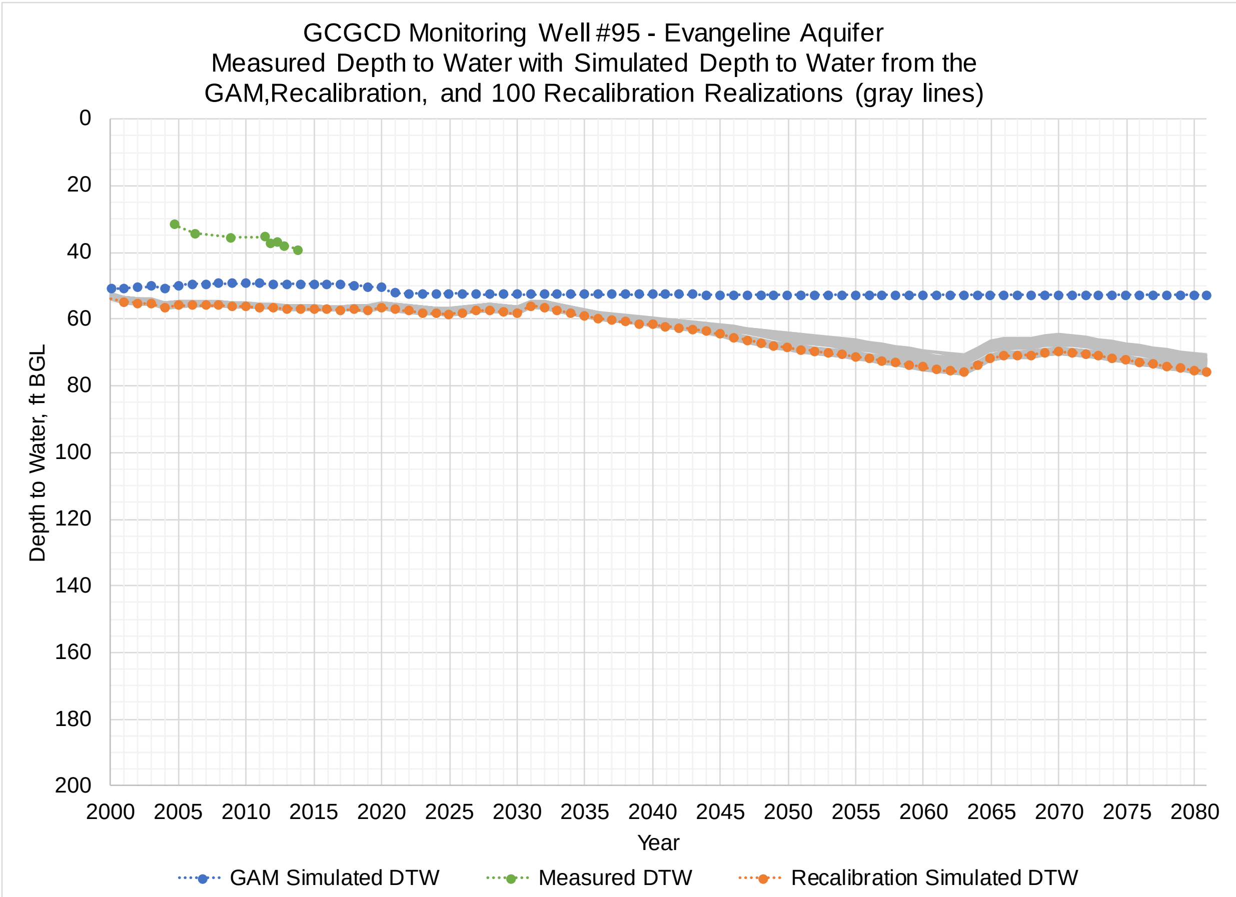

GCGCD Monitoring Well #84 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

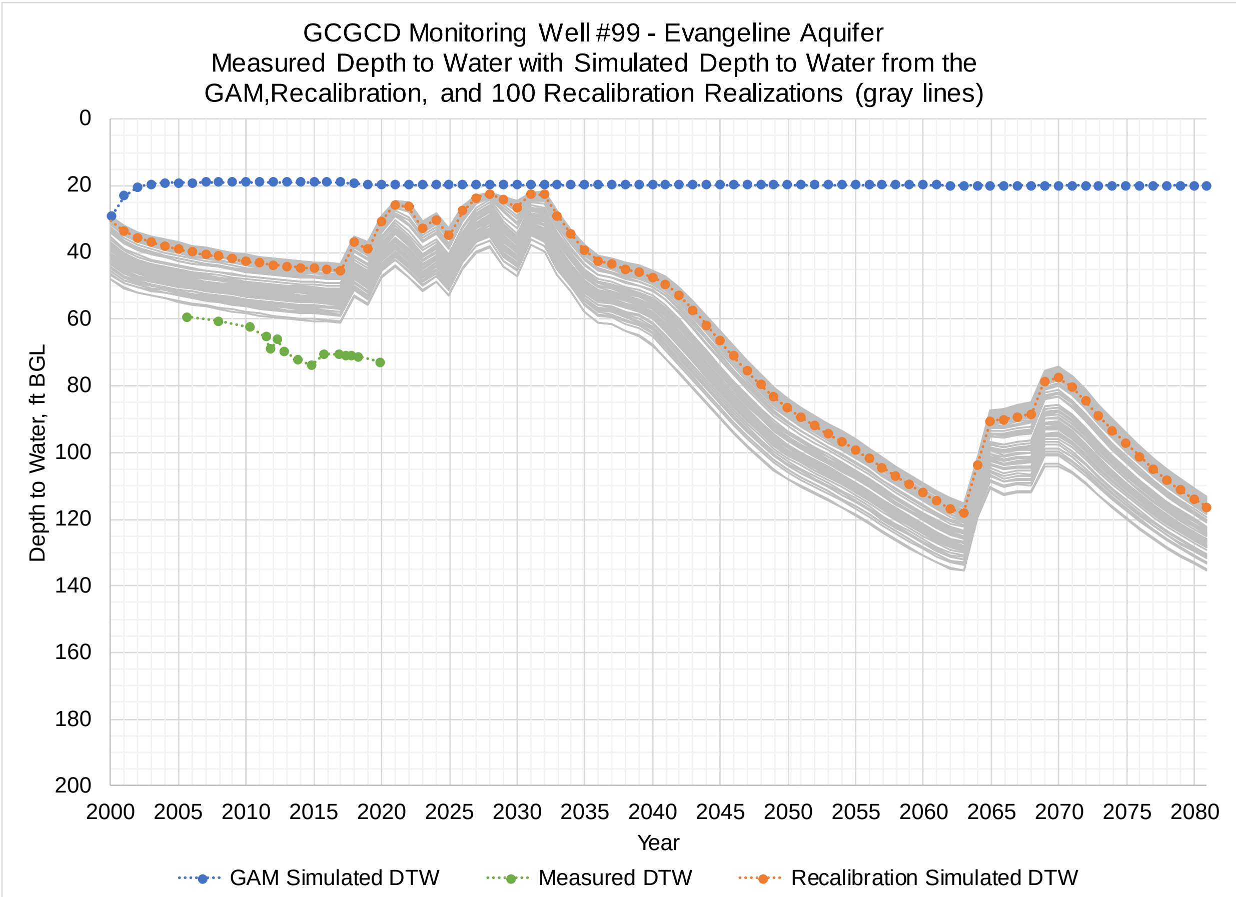

GCGCD Monitoring Well #86 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

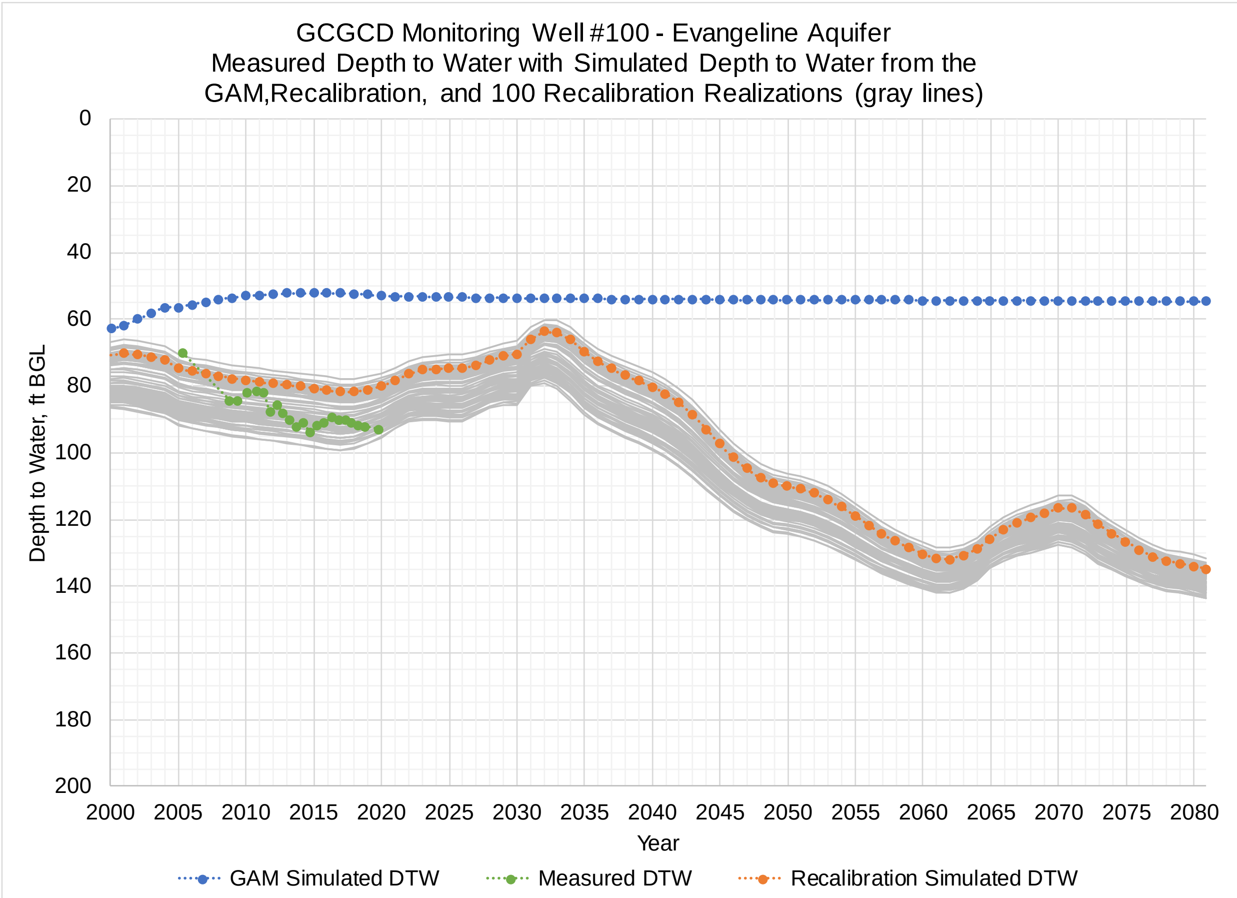

GCGCD Monitoring Well #87 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

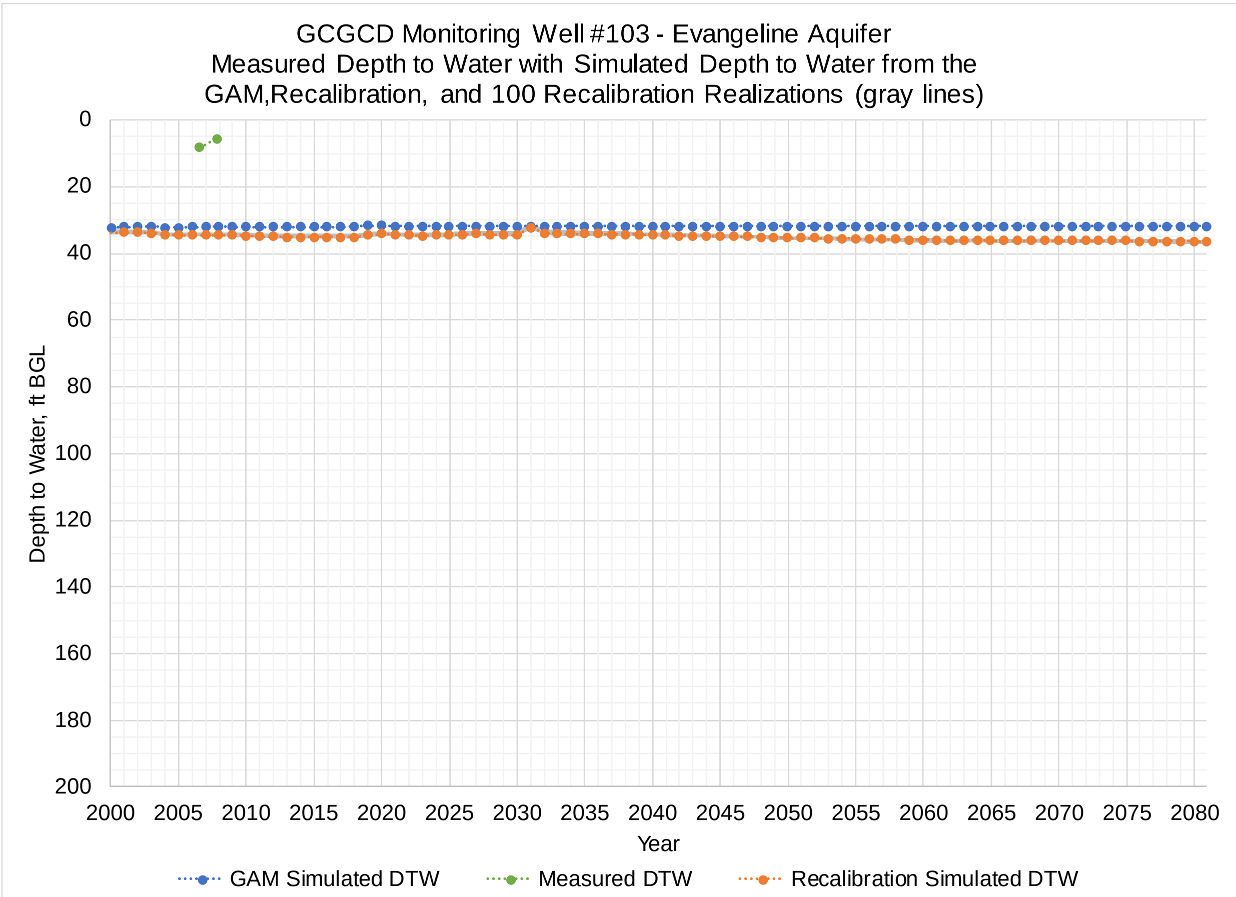

GCGCD Monitoring Well #90 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

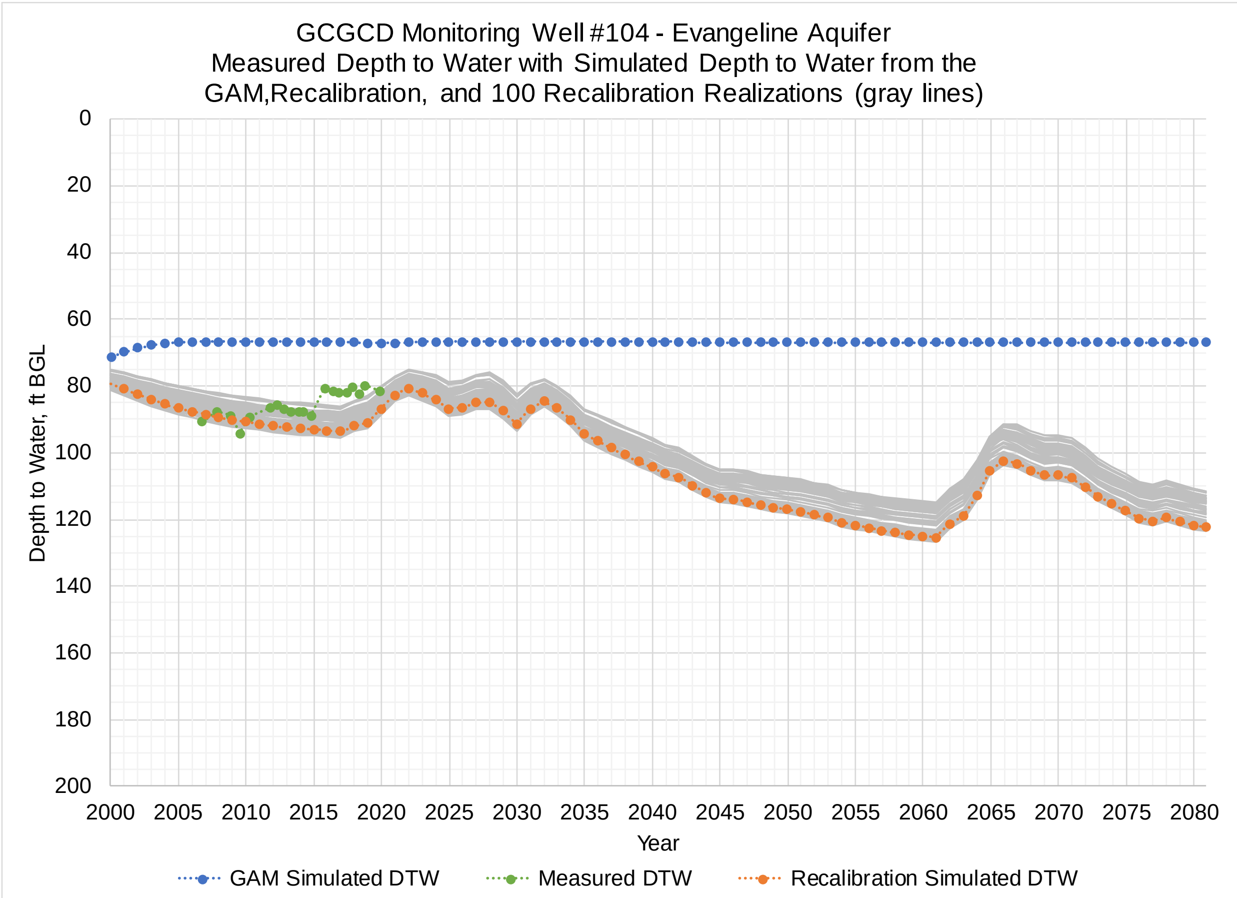

GCGCD Monitoring Well #91 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

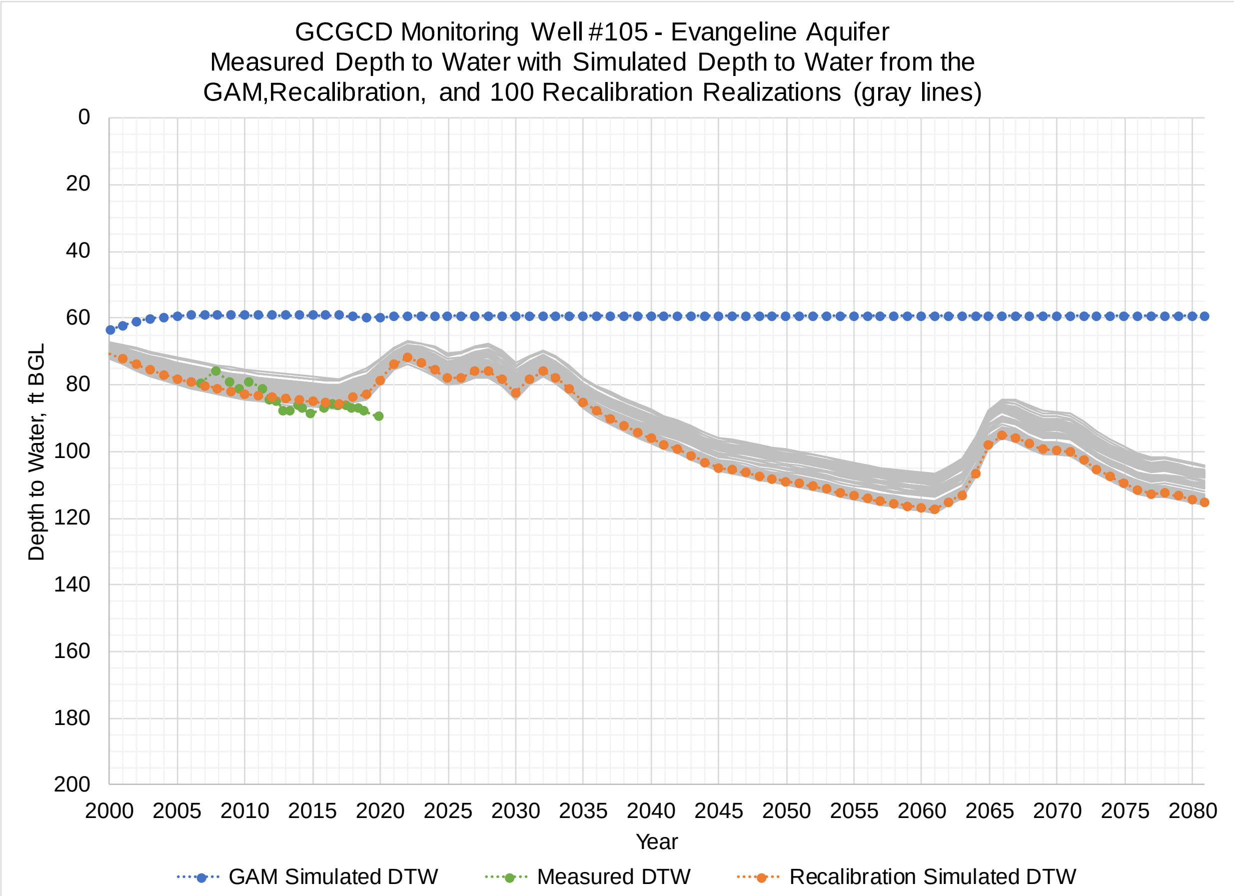

GCGCD Monitoring Well #95 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

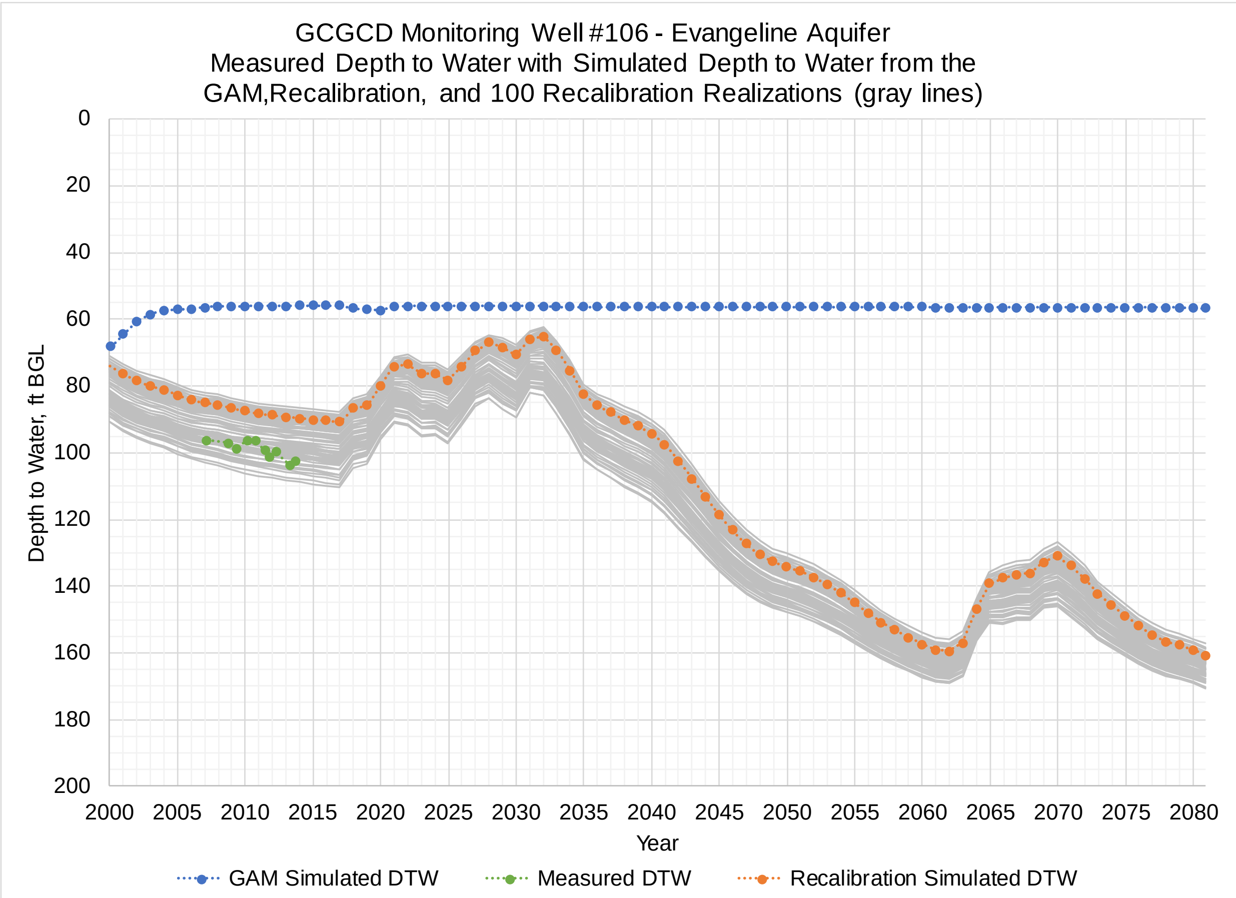

GCGCD Monitoring Well #99 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

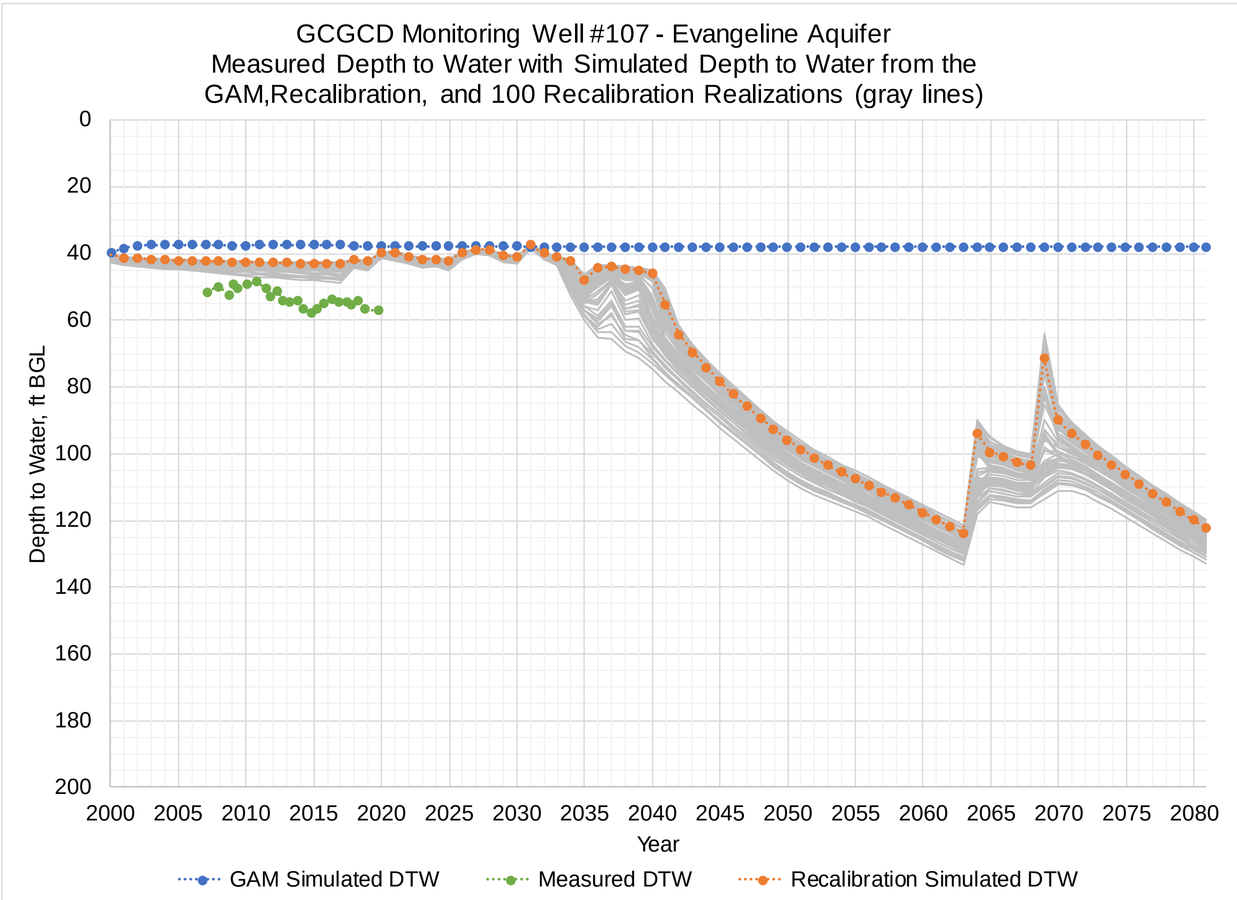

GCGCD Monitoring Well #100 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

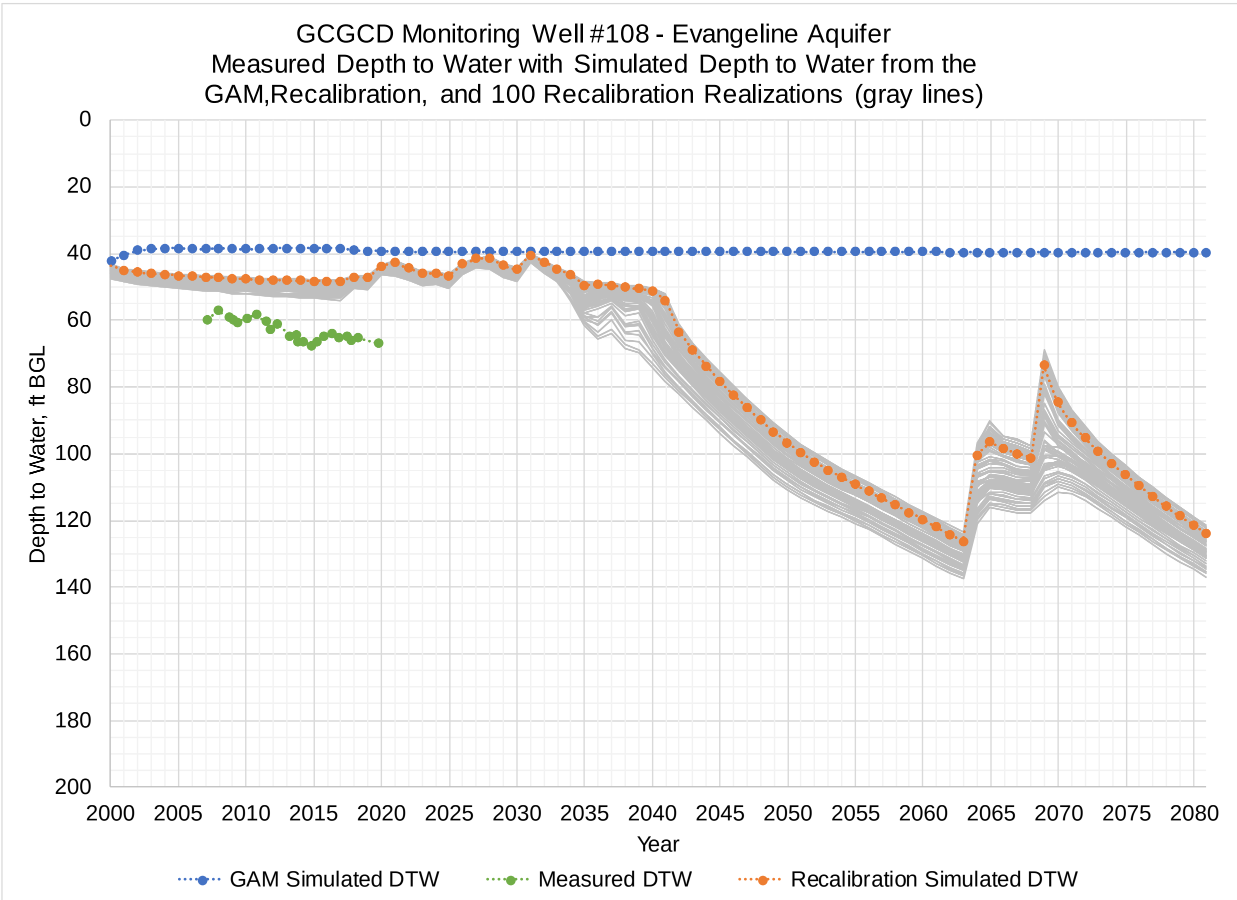

GCGCD Monitoring Well #103 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

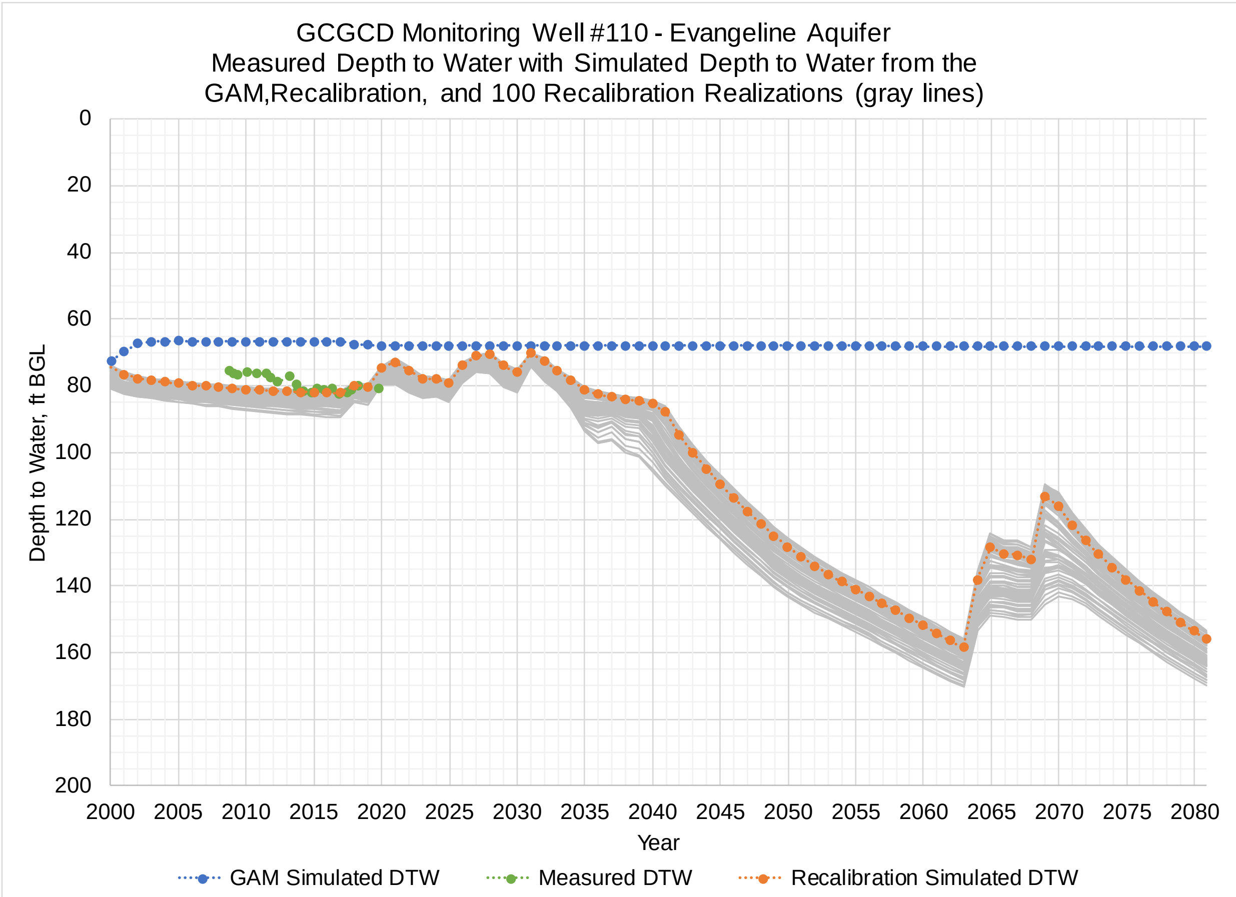

GCGCD Monitoring Well #104 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

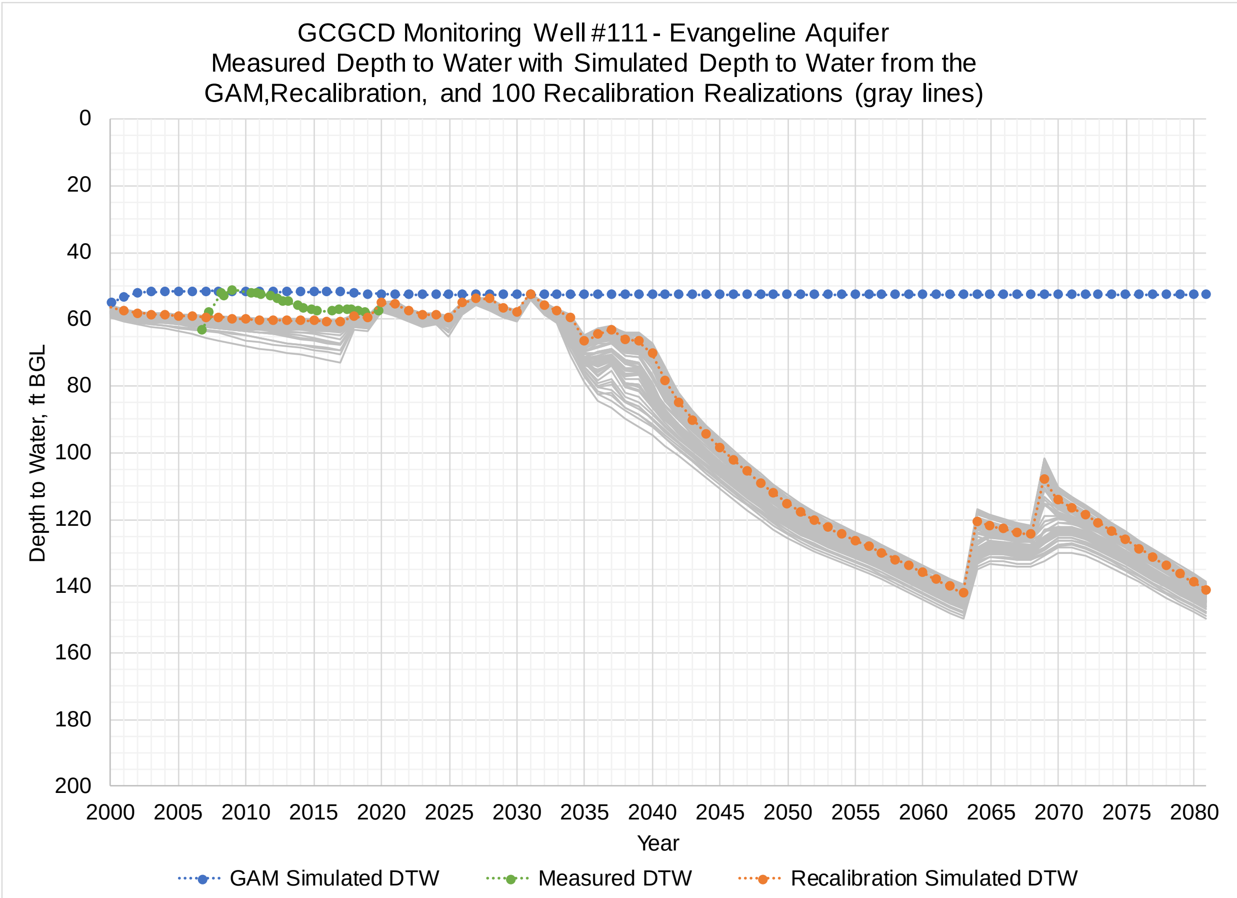

GCGCD Monitoring Well #105 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

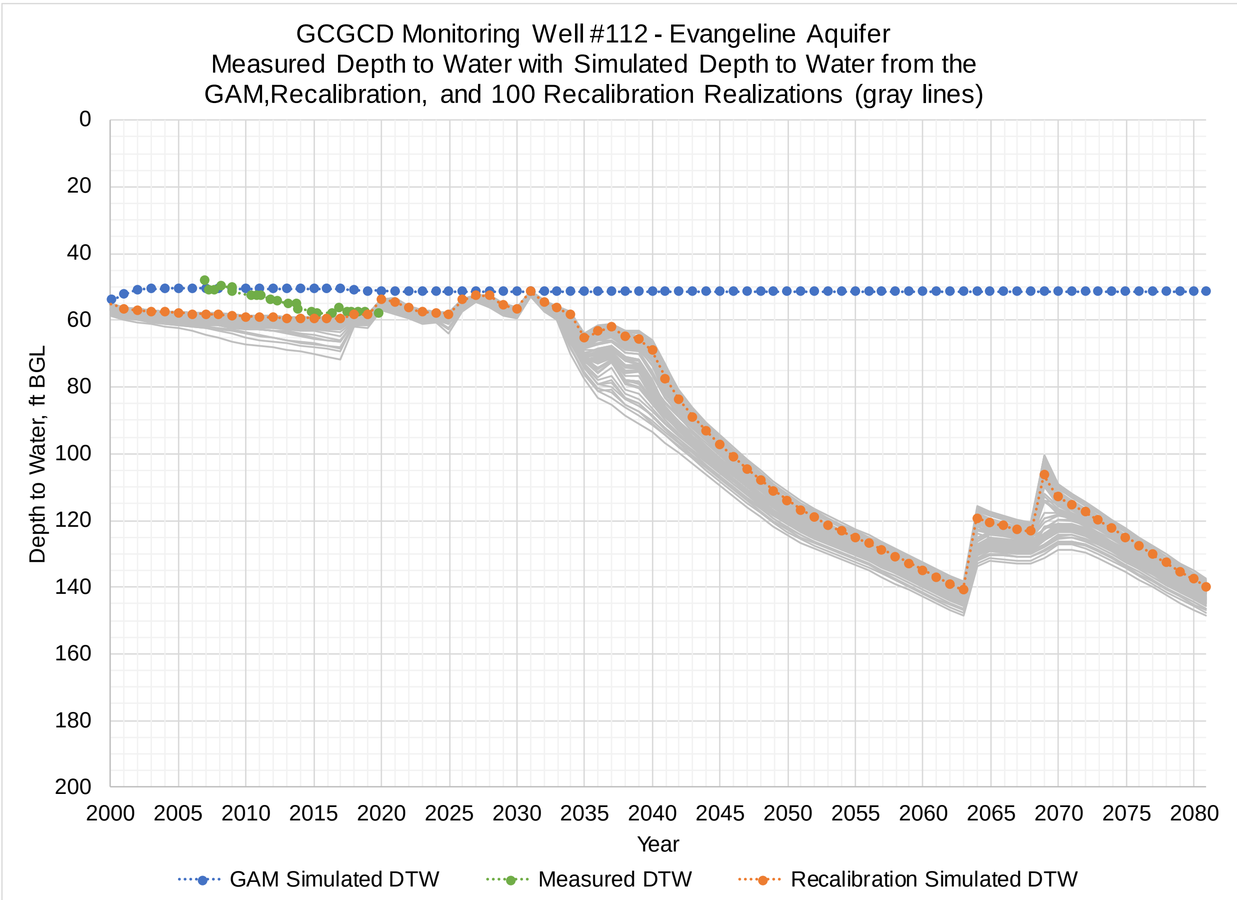

GCGCD Monitoring Well #106 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

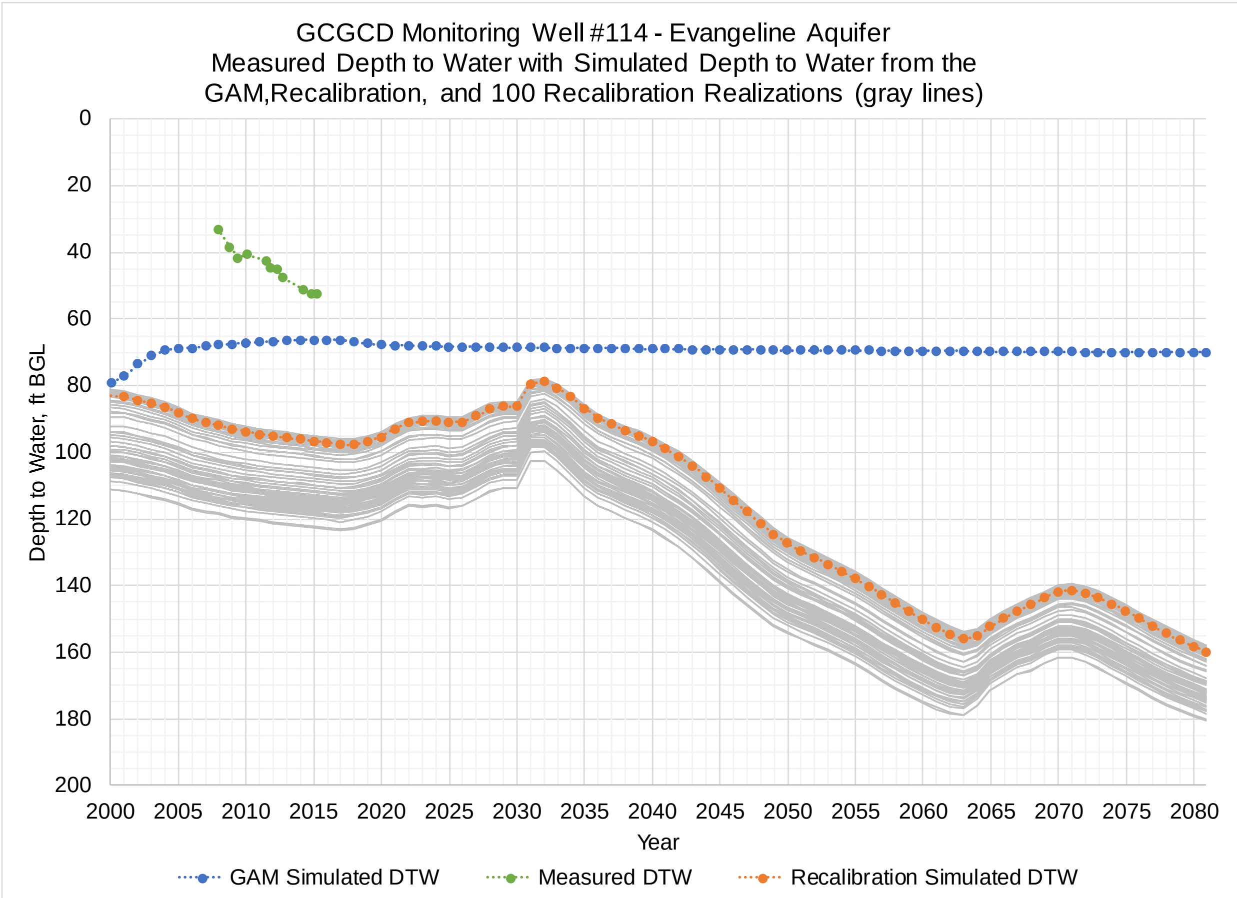

GCGCD Monitoring Well #107 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

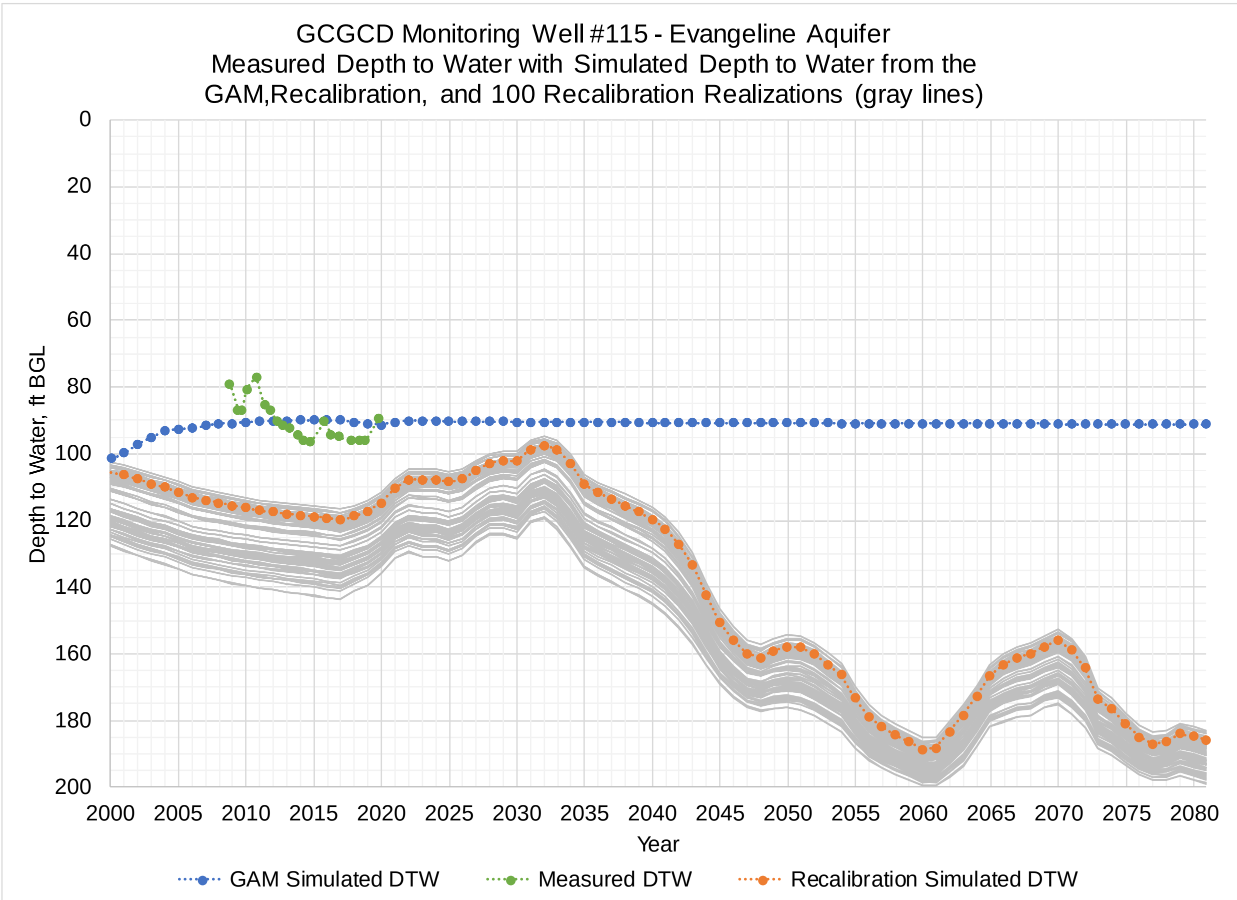

GCGCD Monitoring Well #108 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

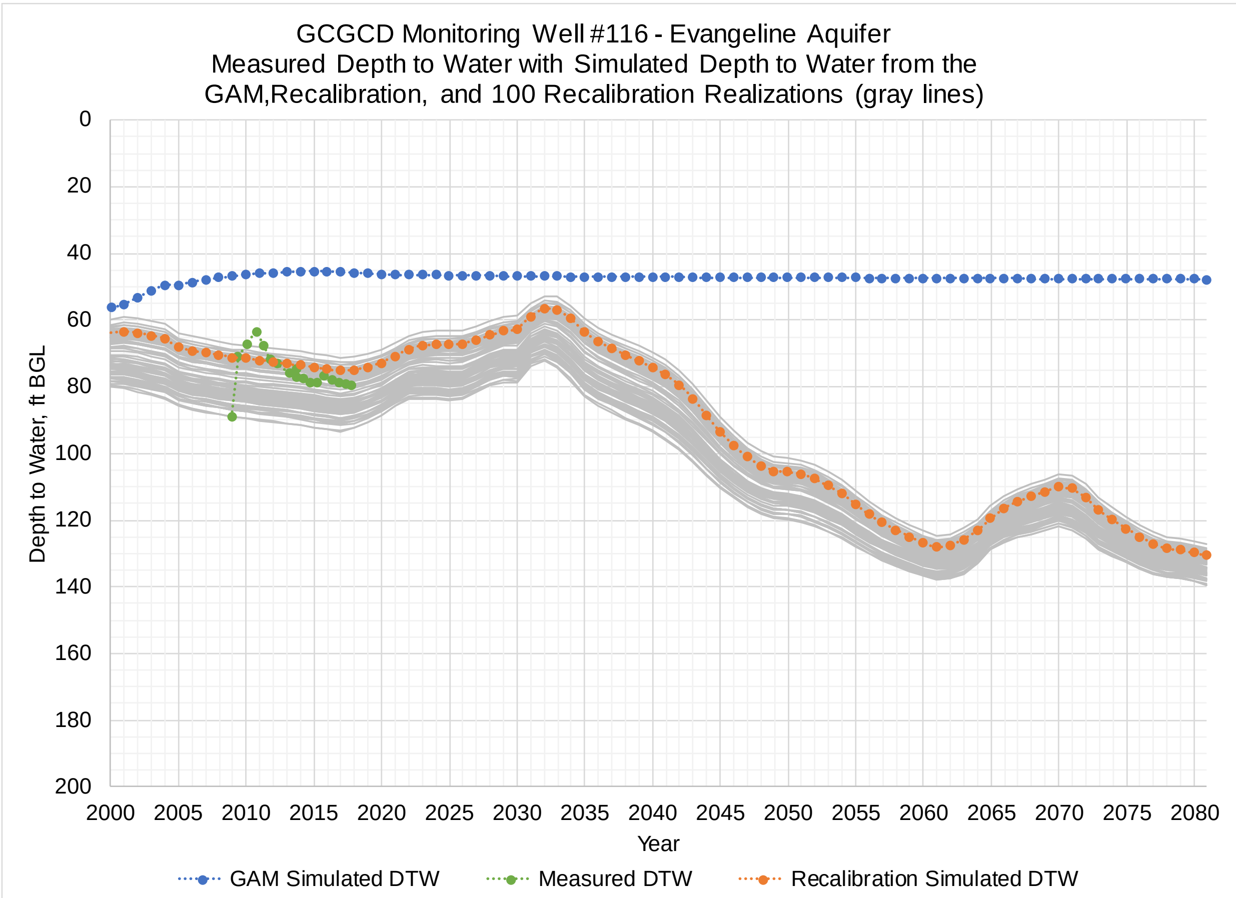

GCGCD Monitoring Well #110 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

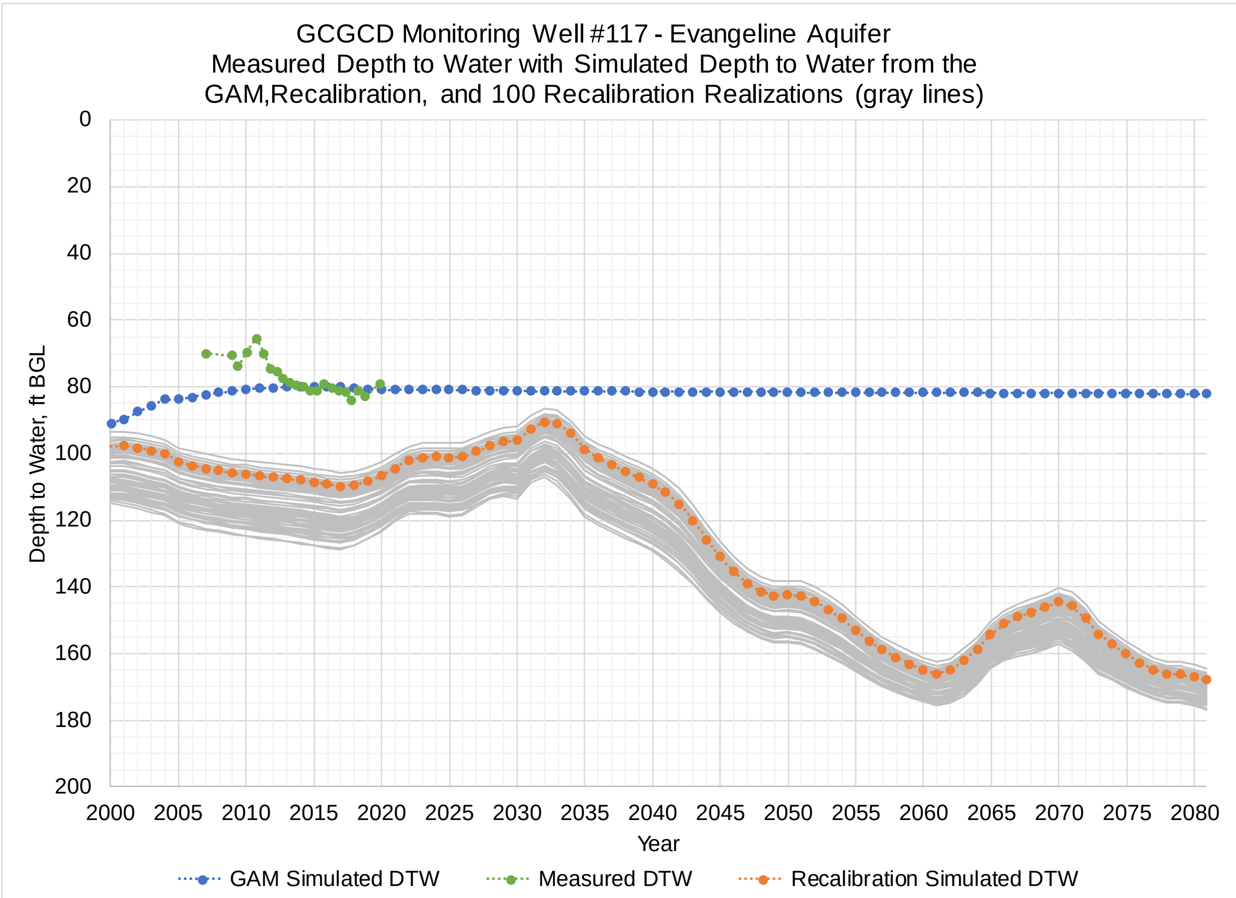

GCGCD Monitoring Well #111 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

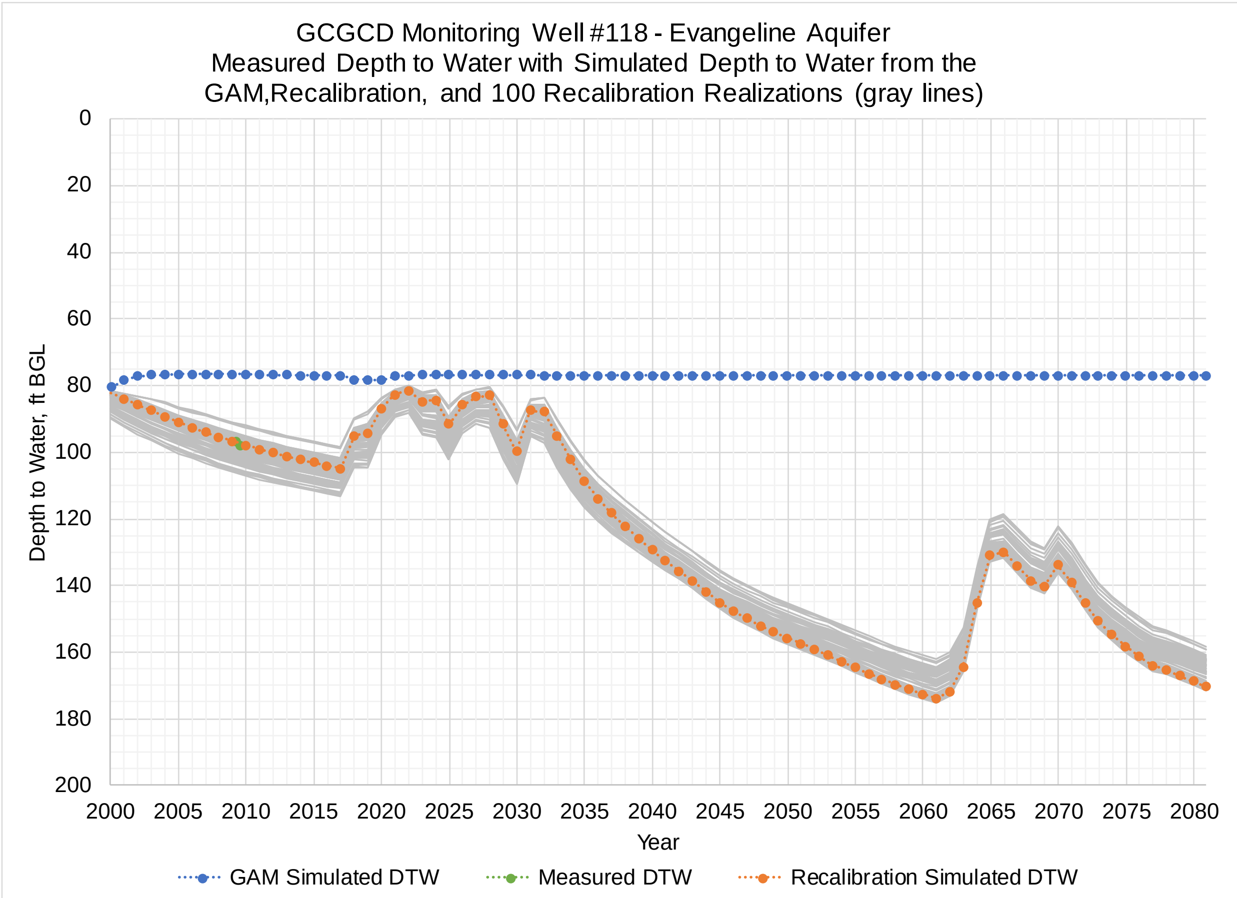

GCGCD Monitoring Well #112 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

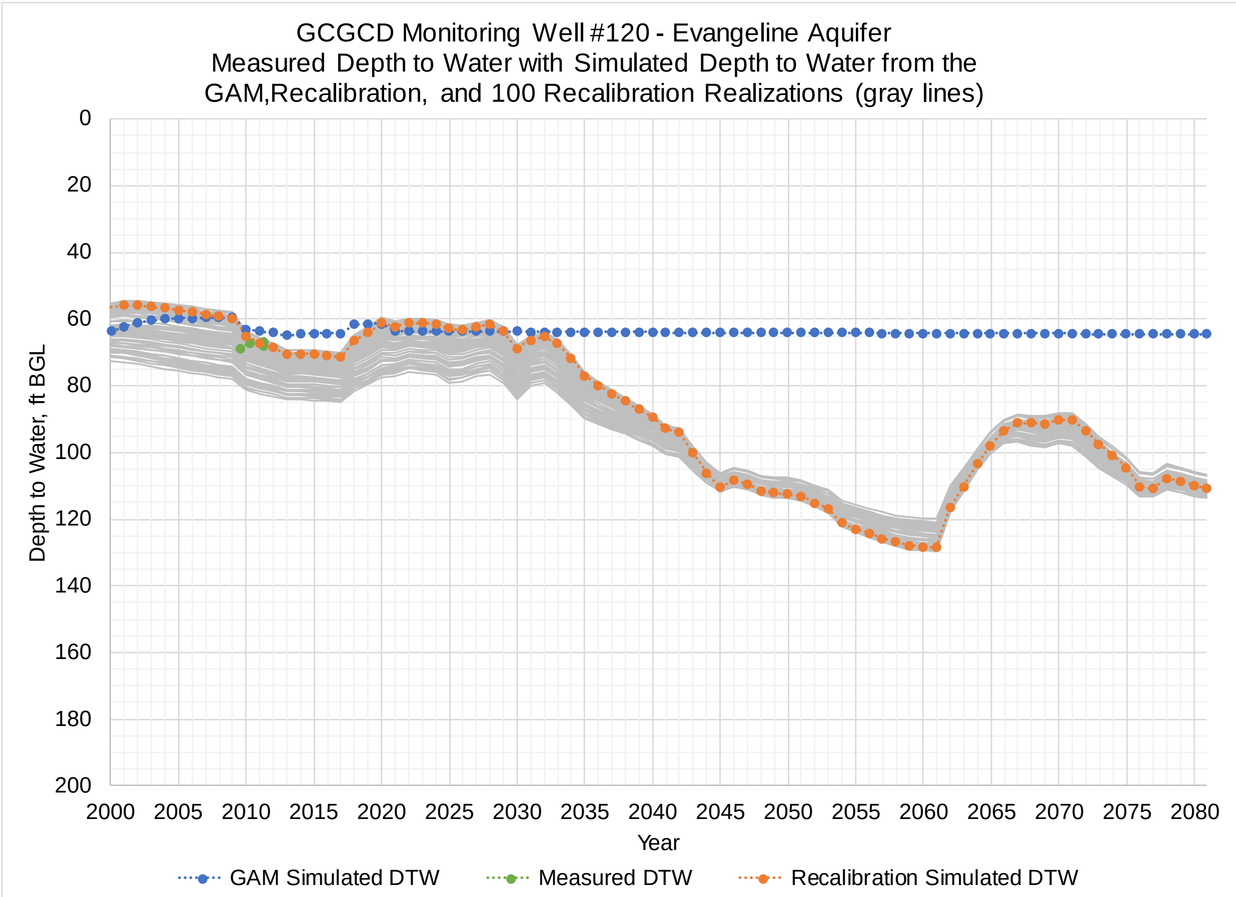

GCGCD Monitoring Well #114 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

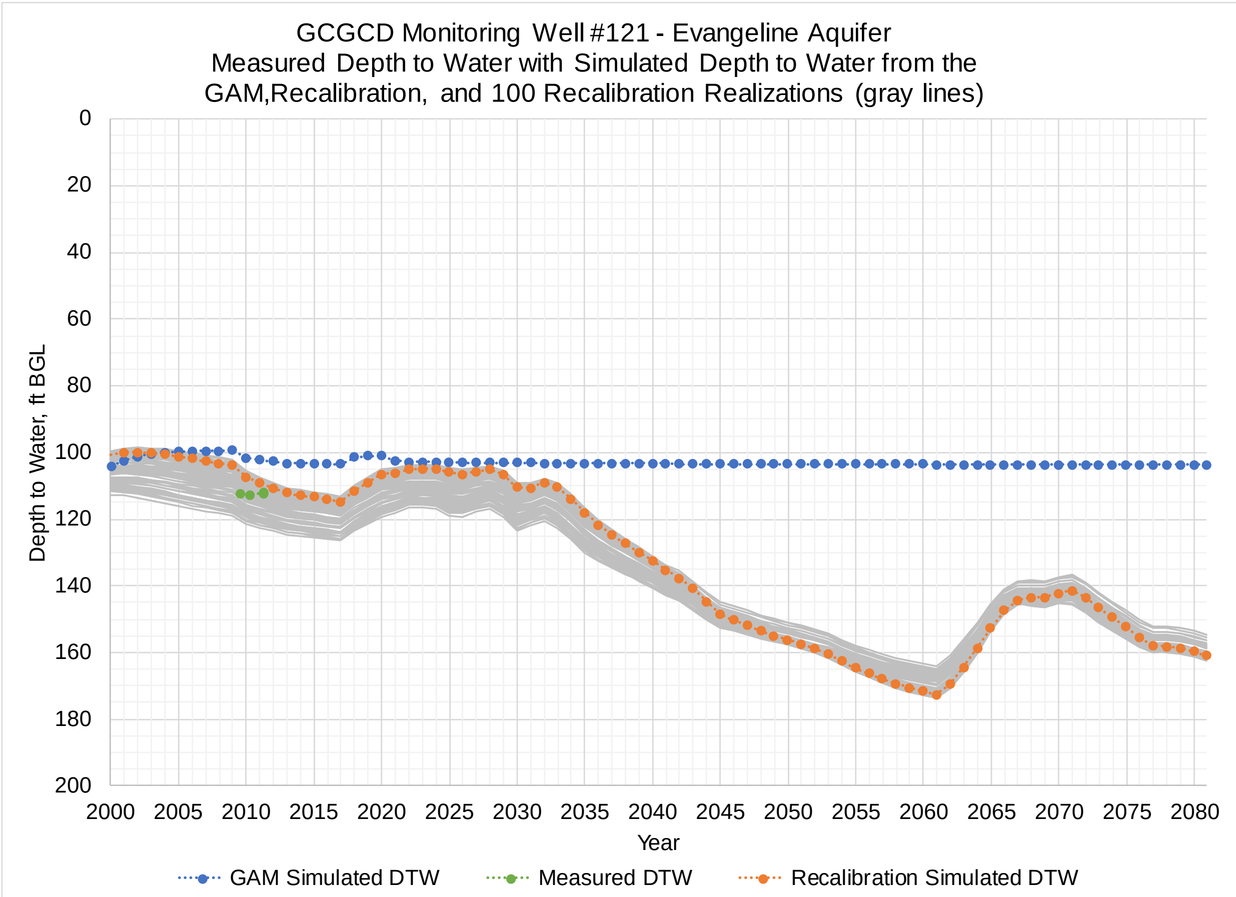

GCGCD Monitoring Well #115 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

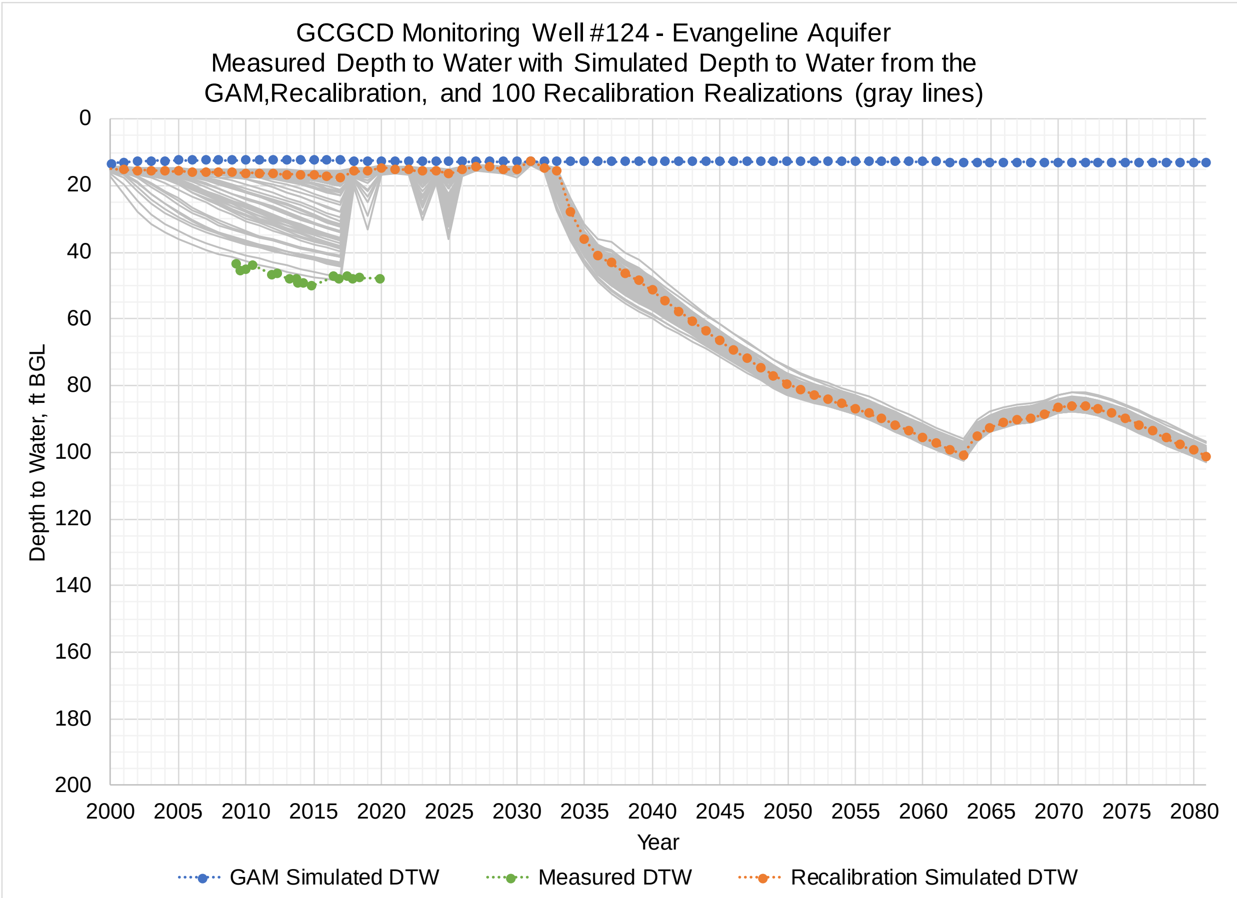

GCGCD Monitoring Well #116 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

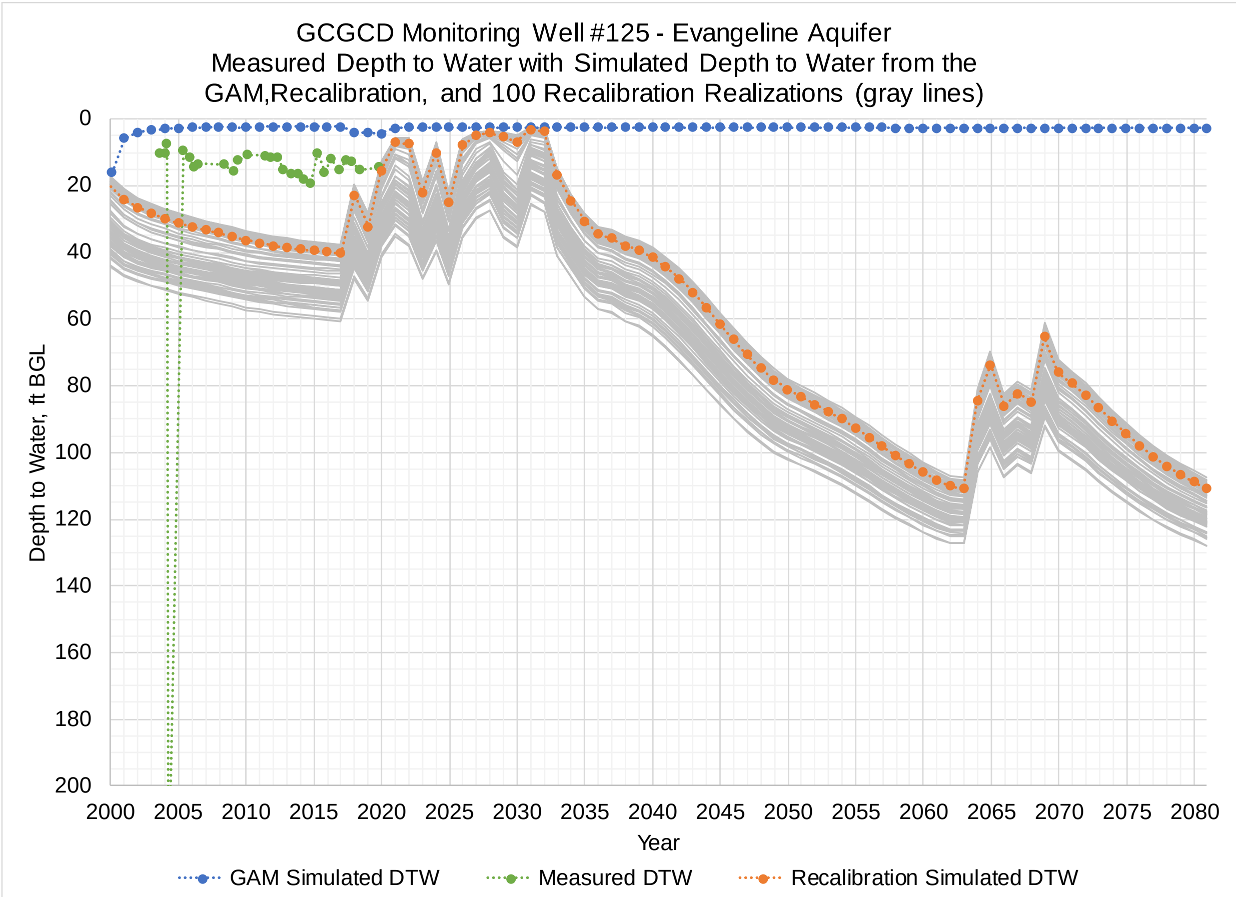

GCGCD Monitoring Well #117 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

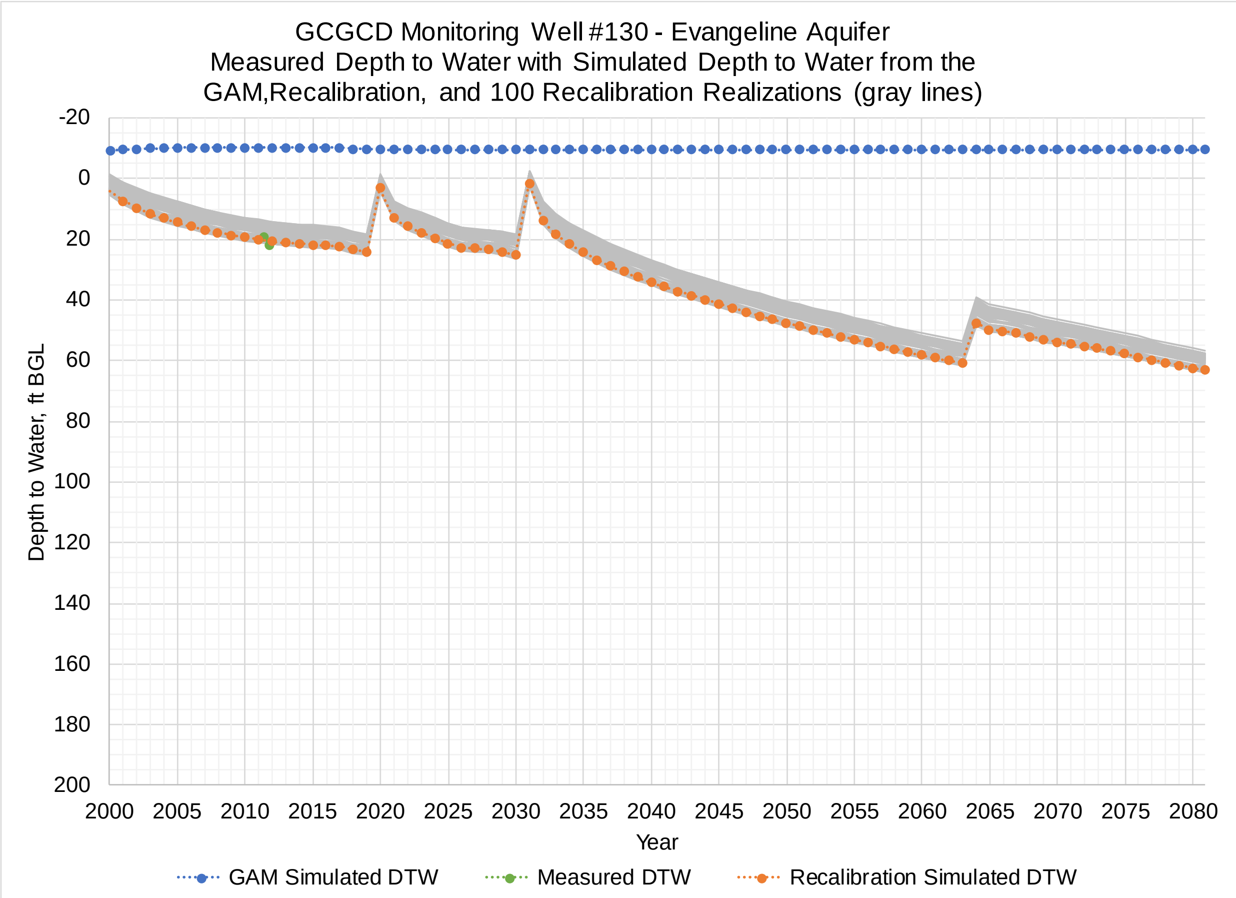

GCGCD Monitoring Well #118 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

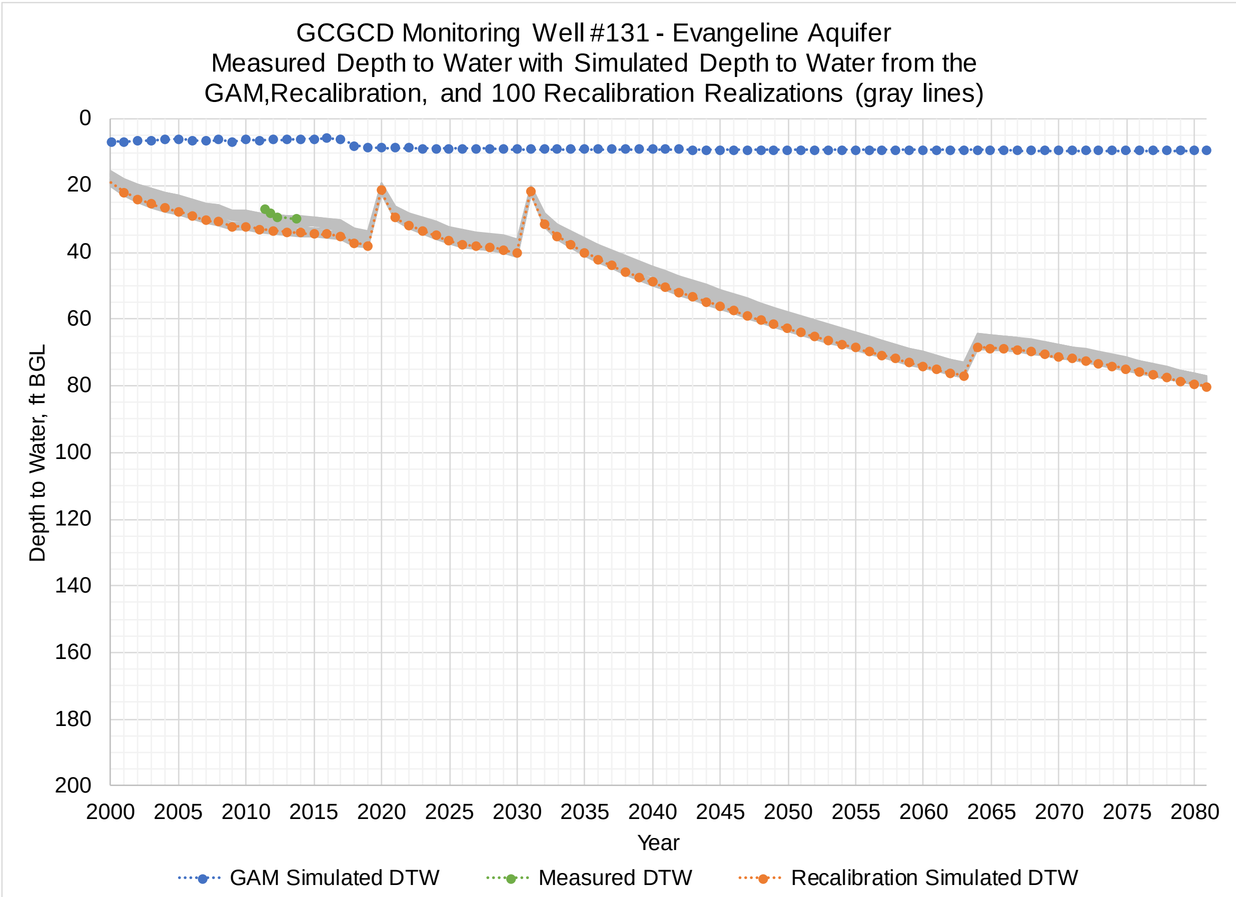

GCGCD Monitoring Well #120 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

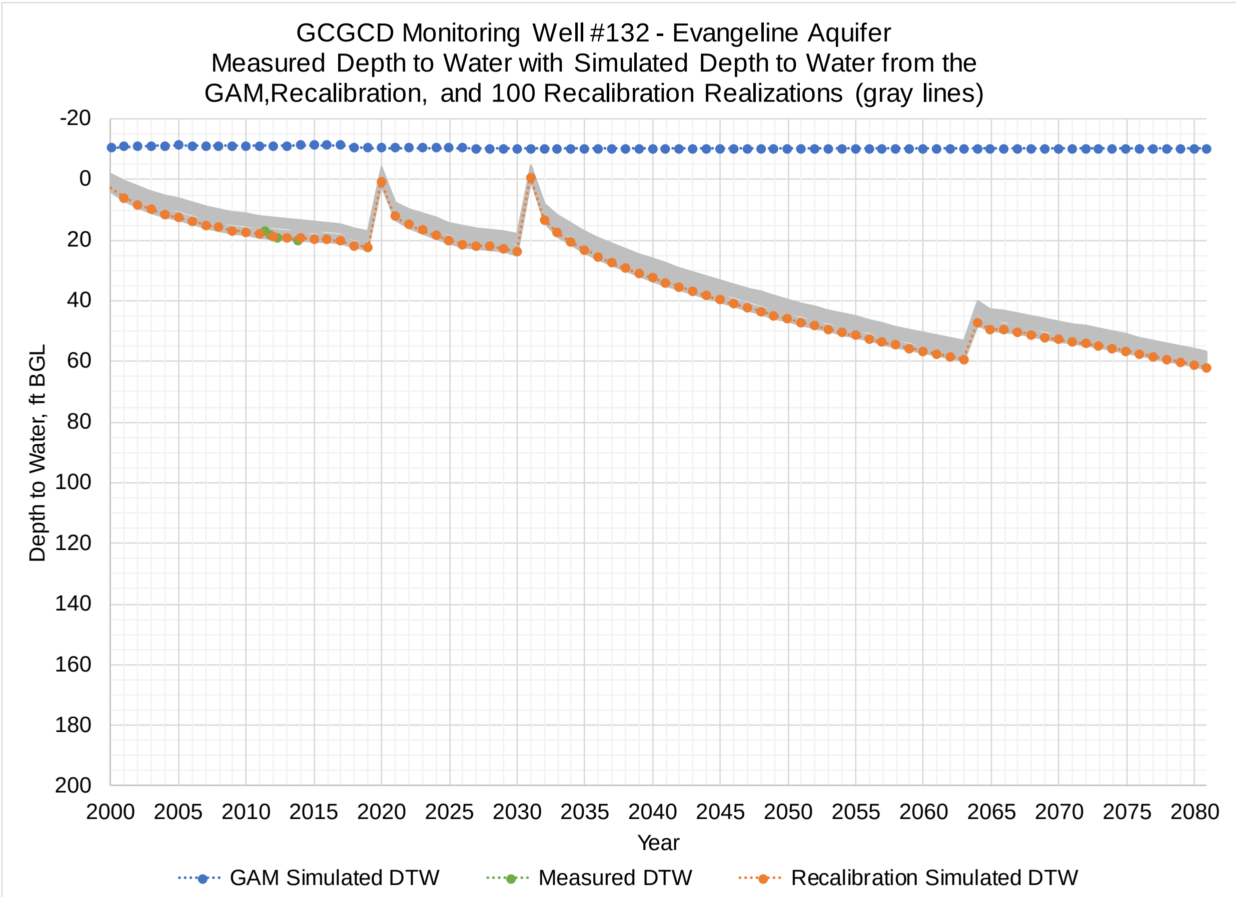

GCGCD Monitoring Well #121 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

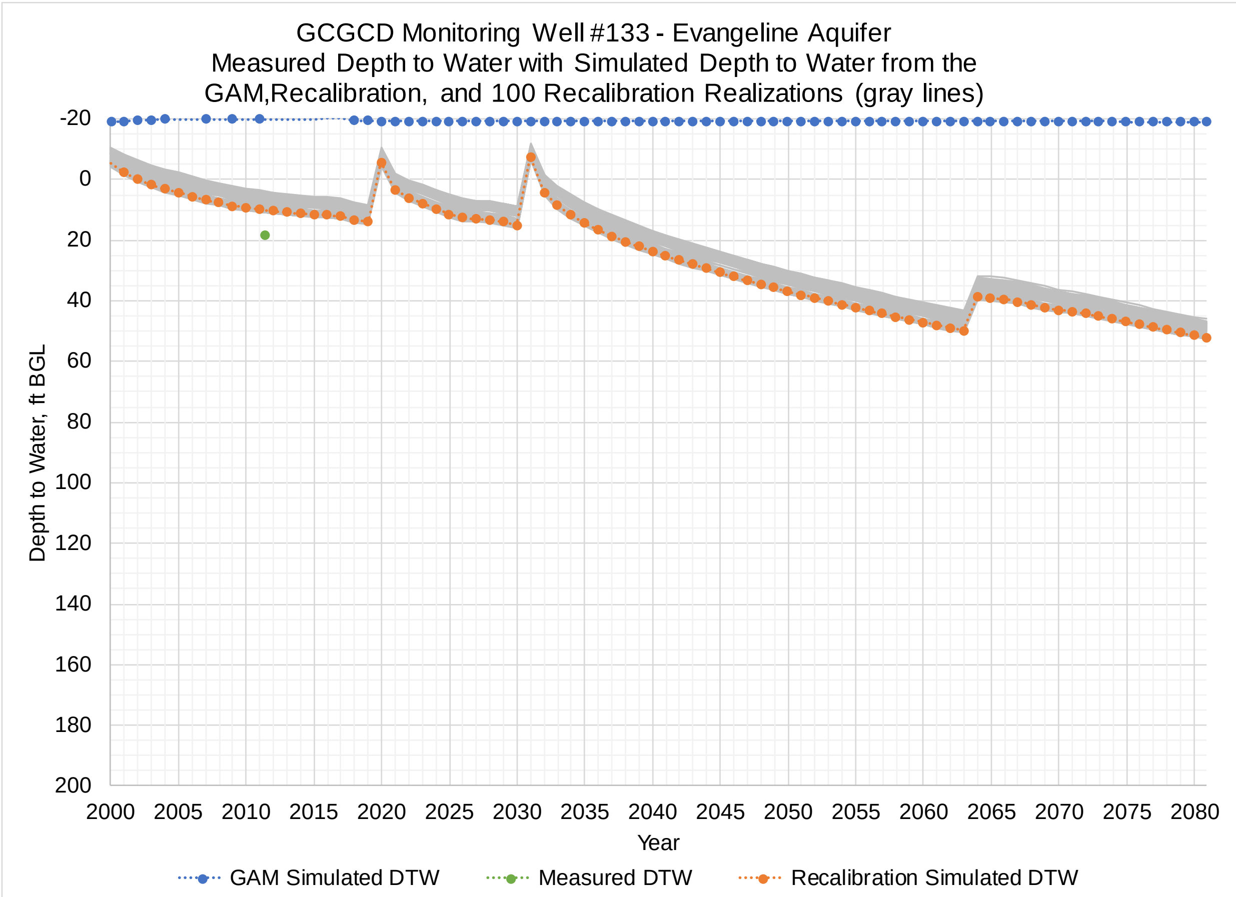

GCGCD Monitoring Well #124 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

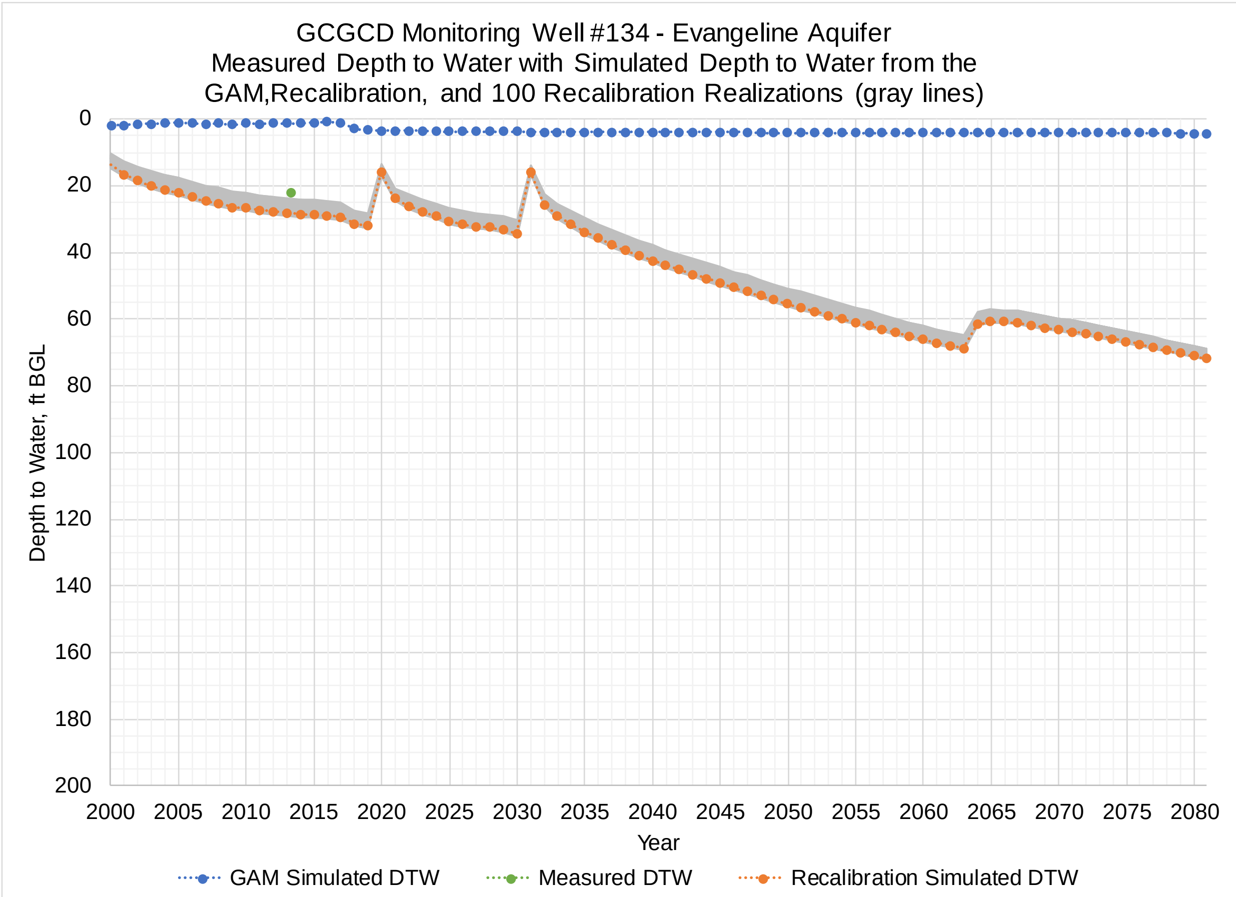

GCGCD Monitoring Well #125 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

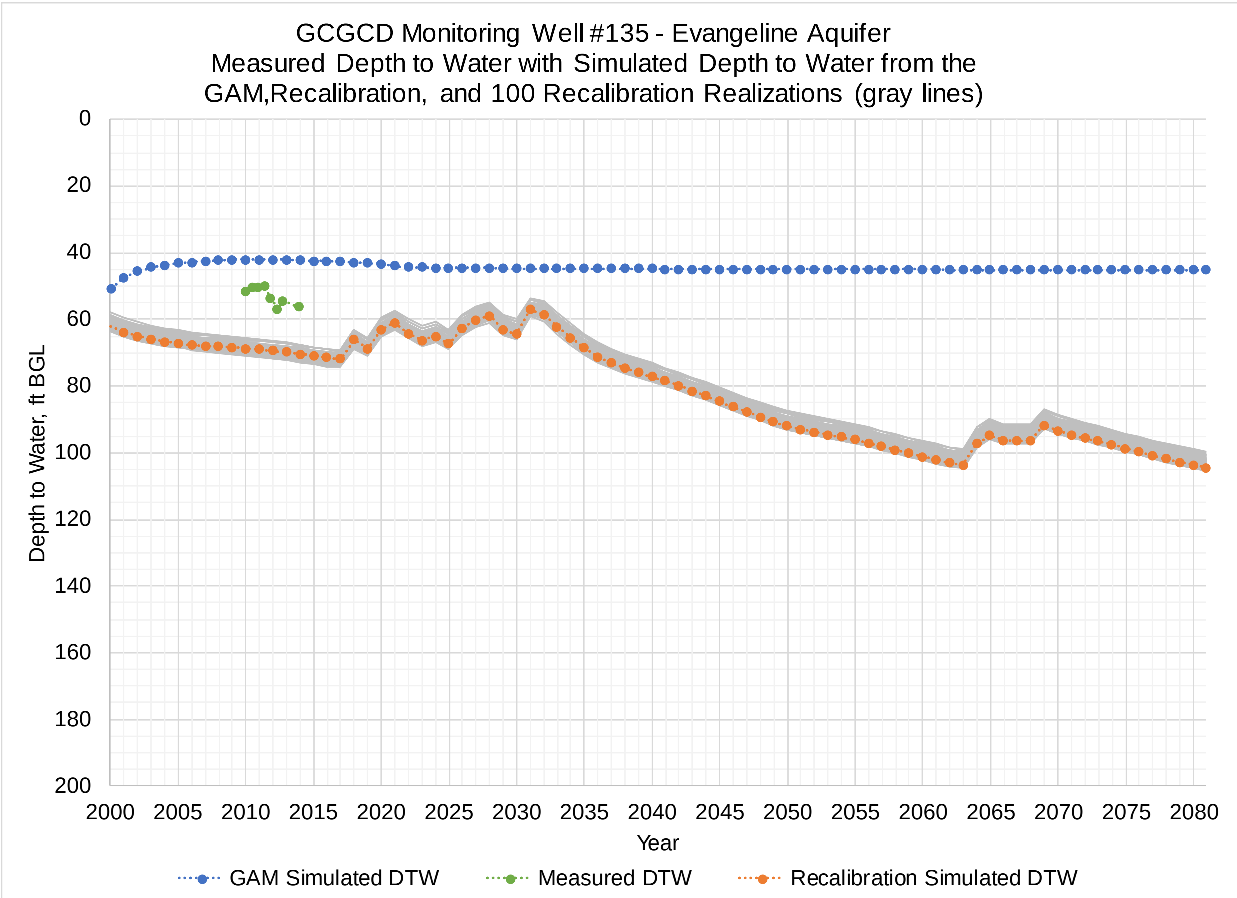

GCGCD Monitoring Well #130 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

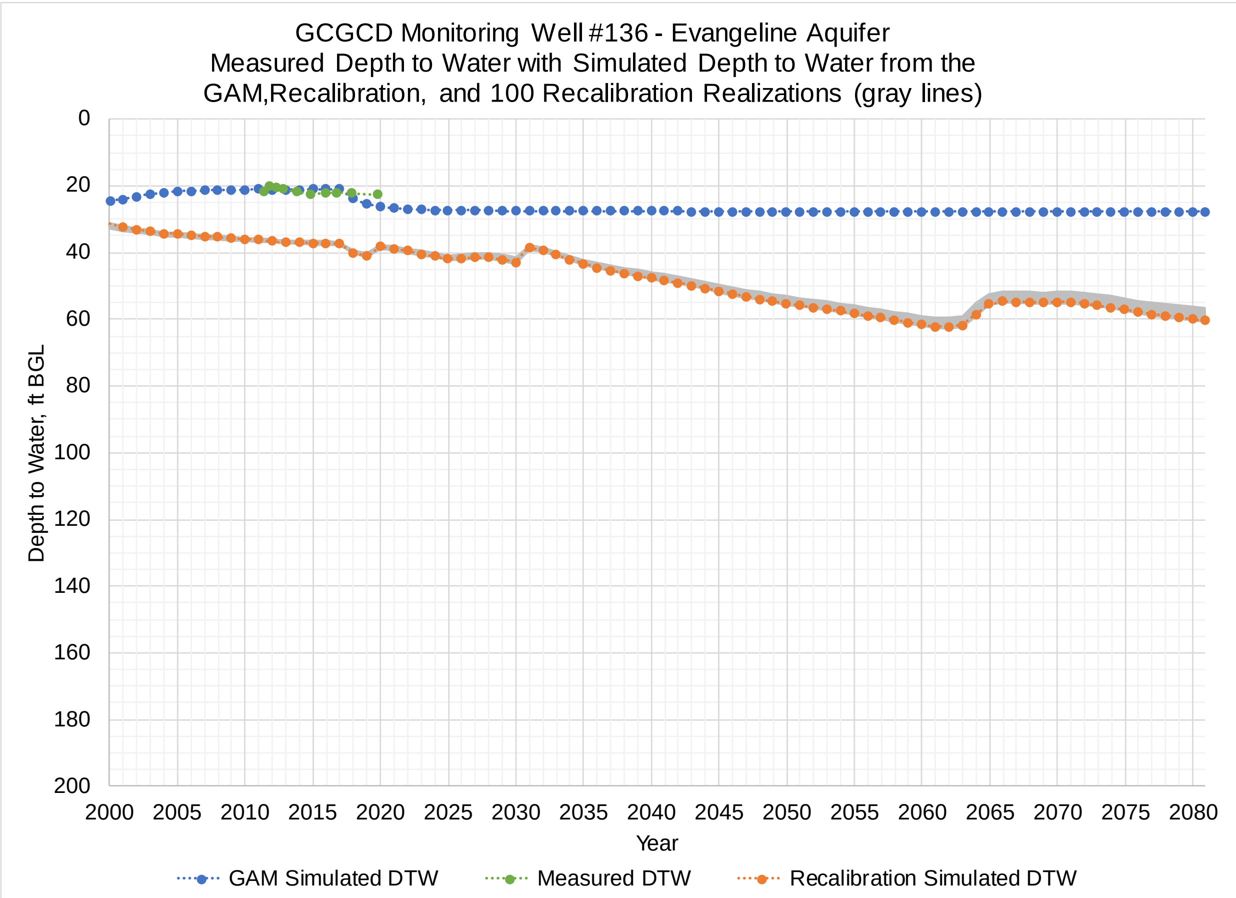

GCGCD Monitoring Well #131 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

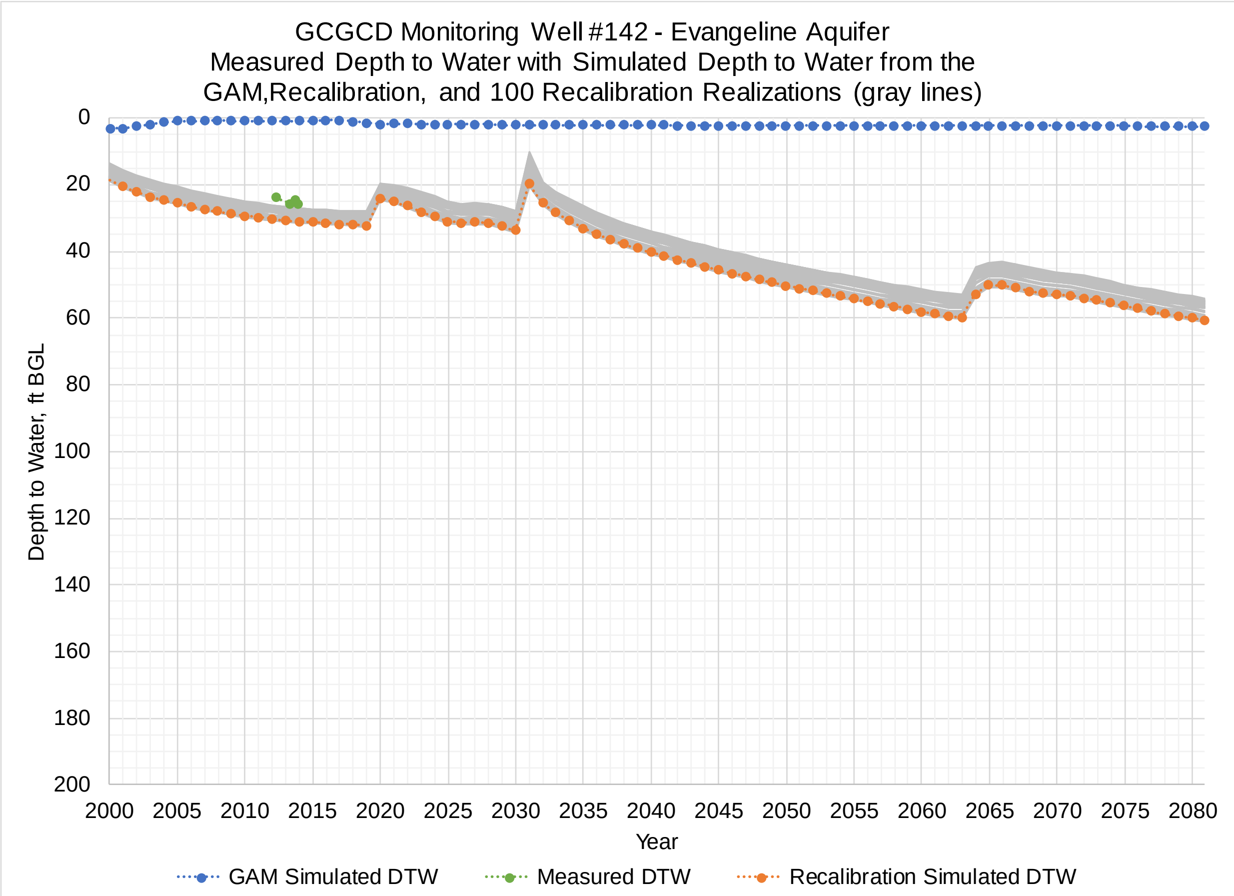

GCGCD Monitoring Well #132 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

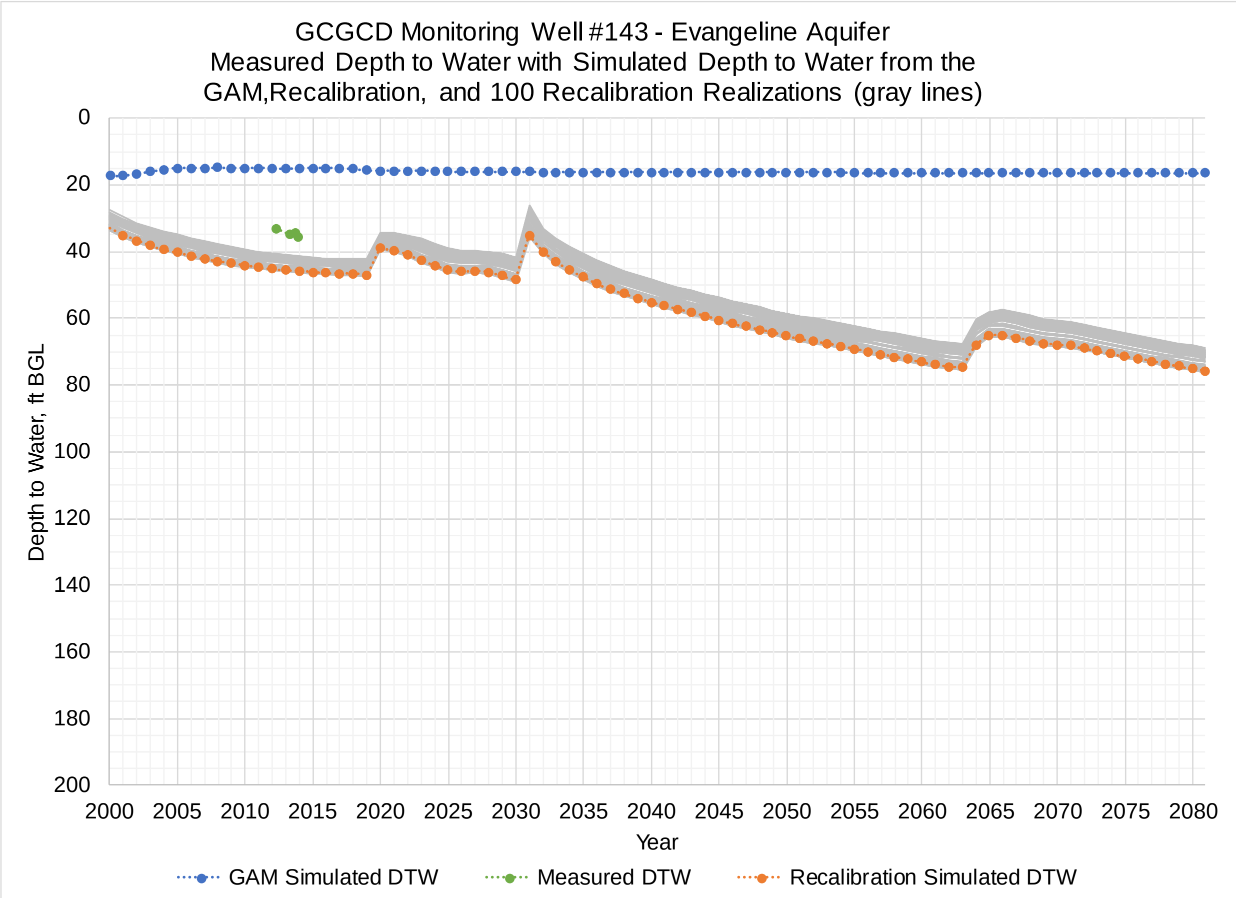

GCGCD Monitoring Well #133 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

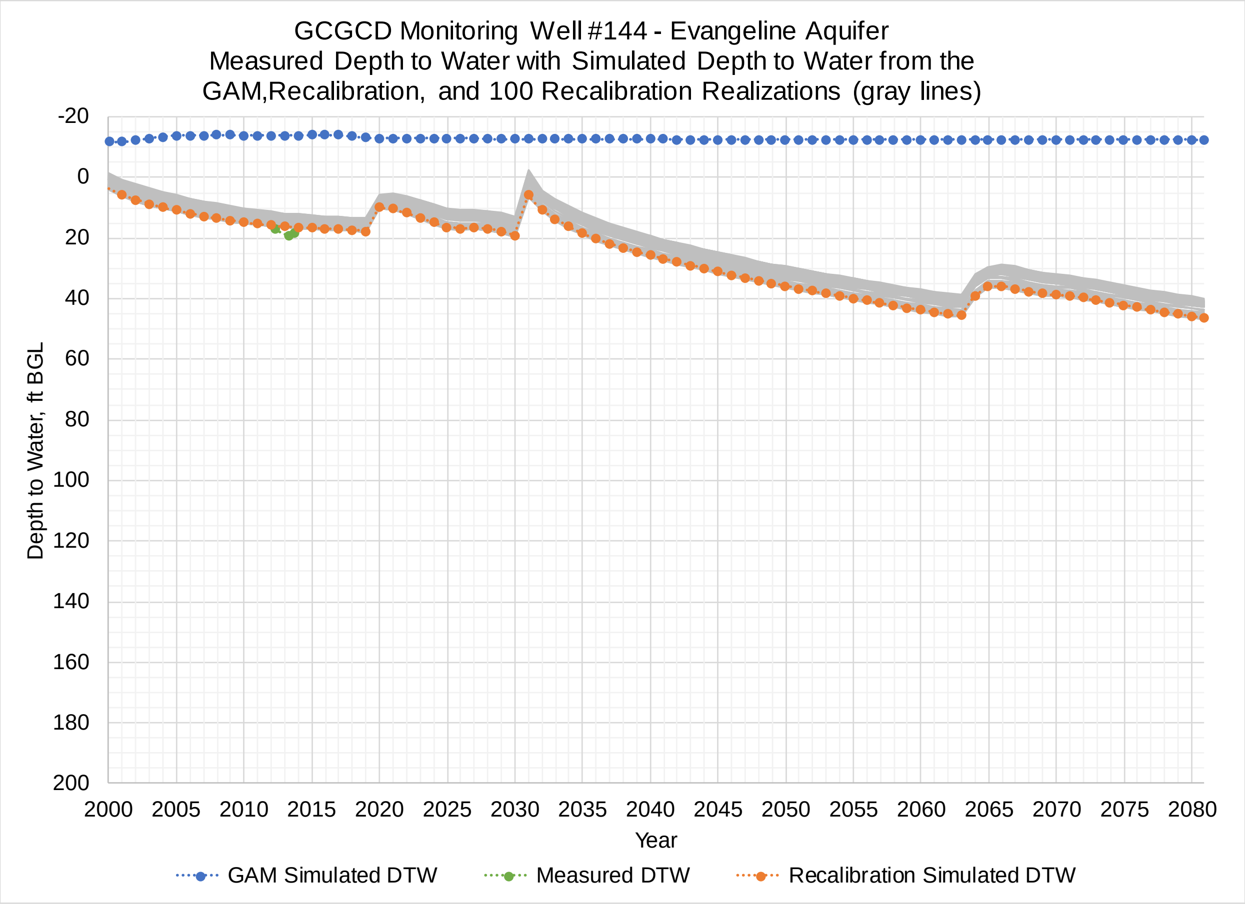

GCGCD Monitoring Well #134 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

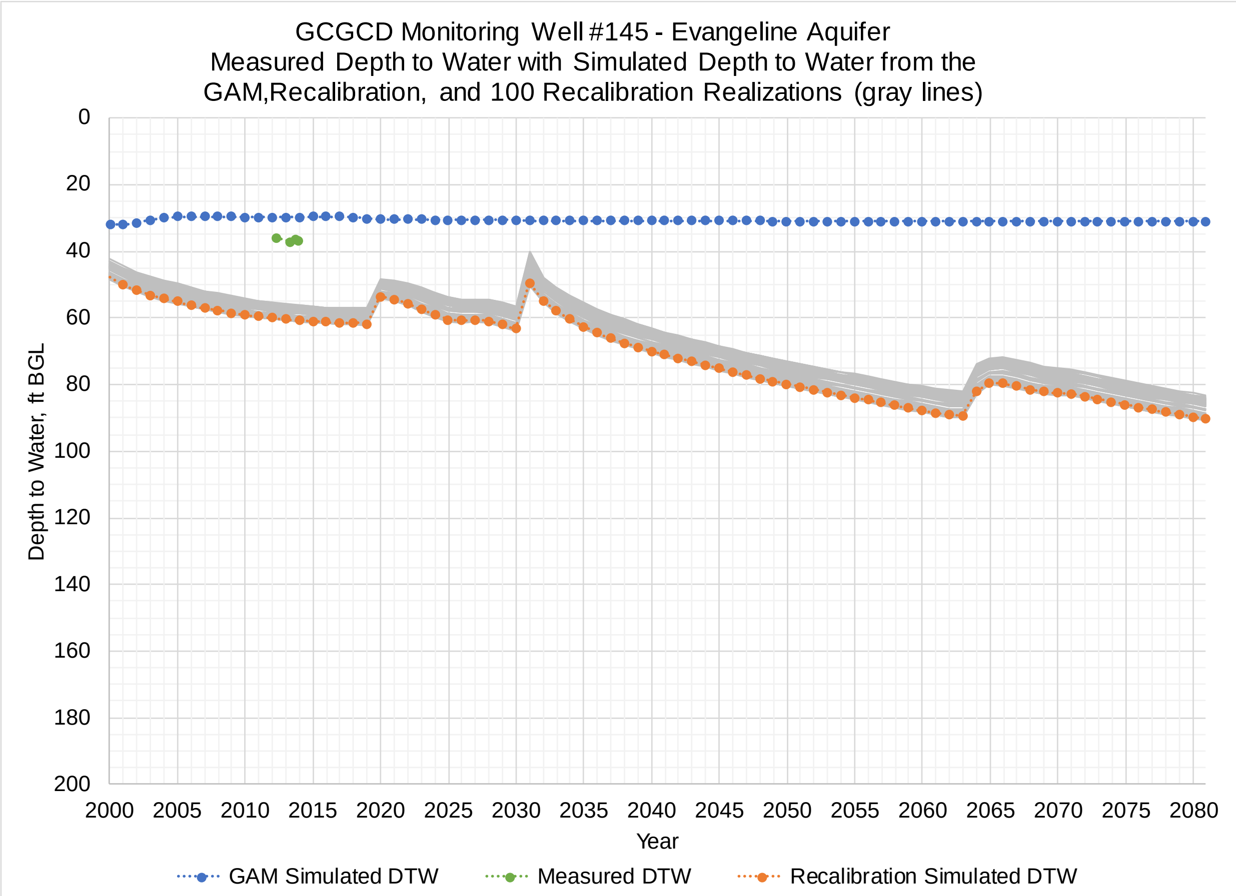

GCGCD Monitoring Well #135 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

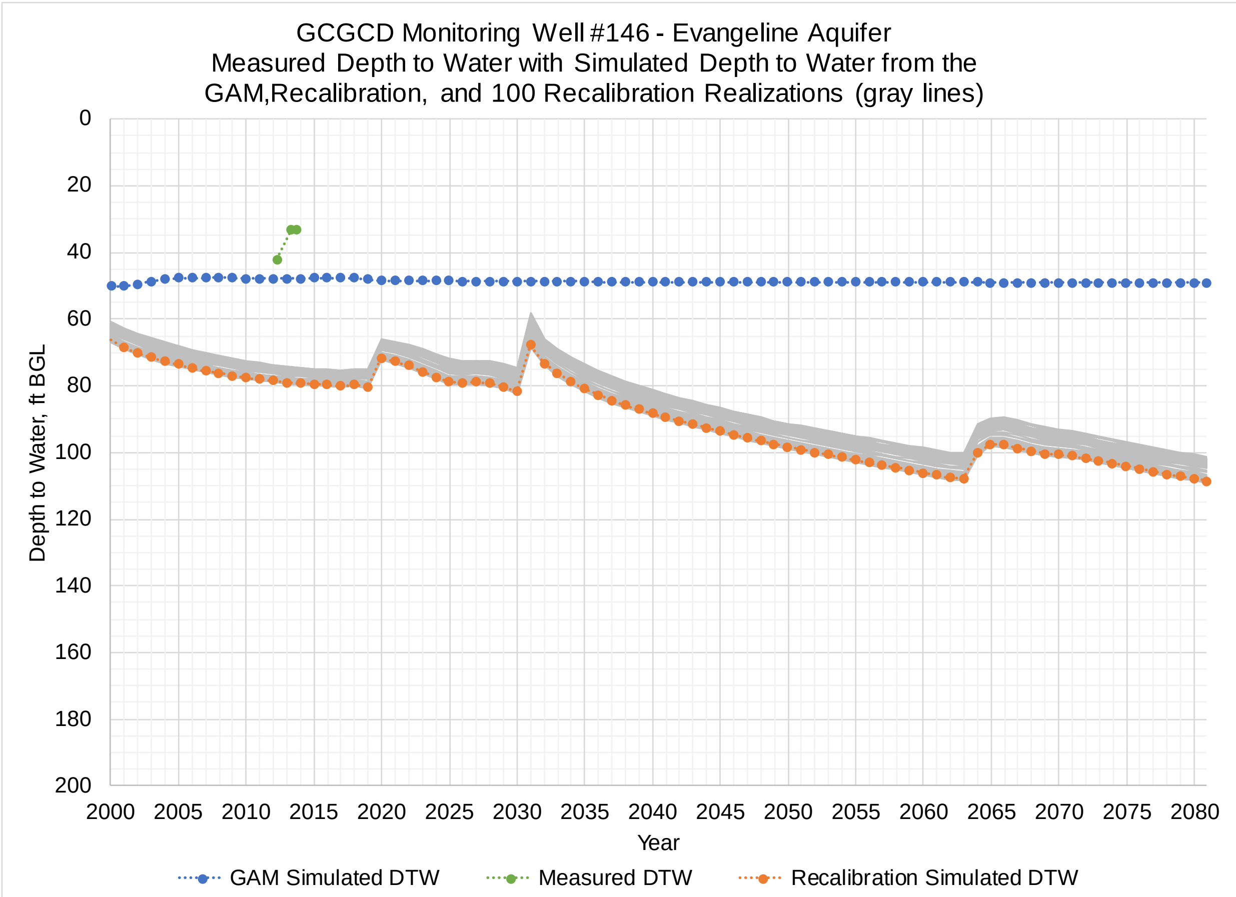

GCGCD Monitoring Well #136 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

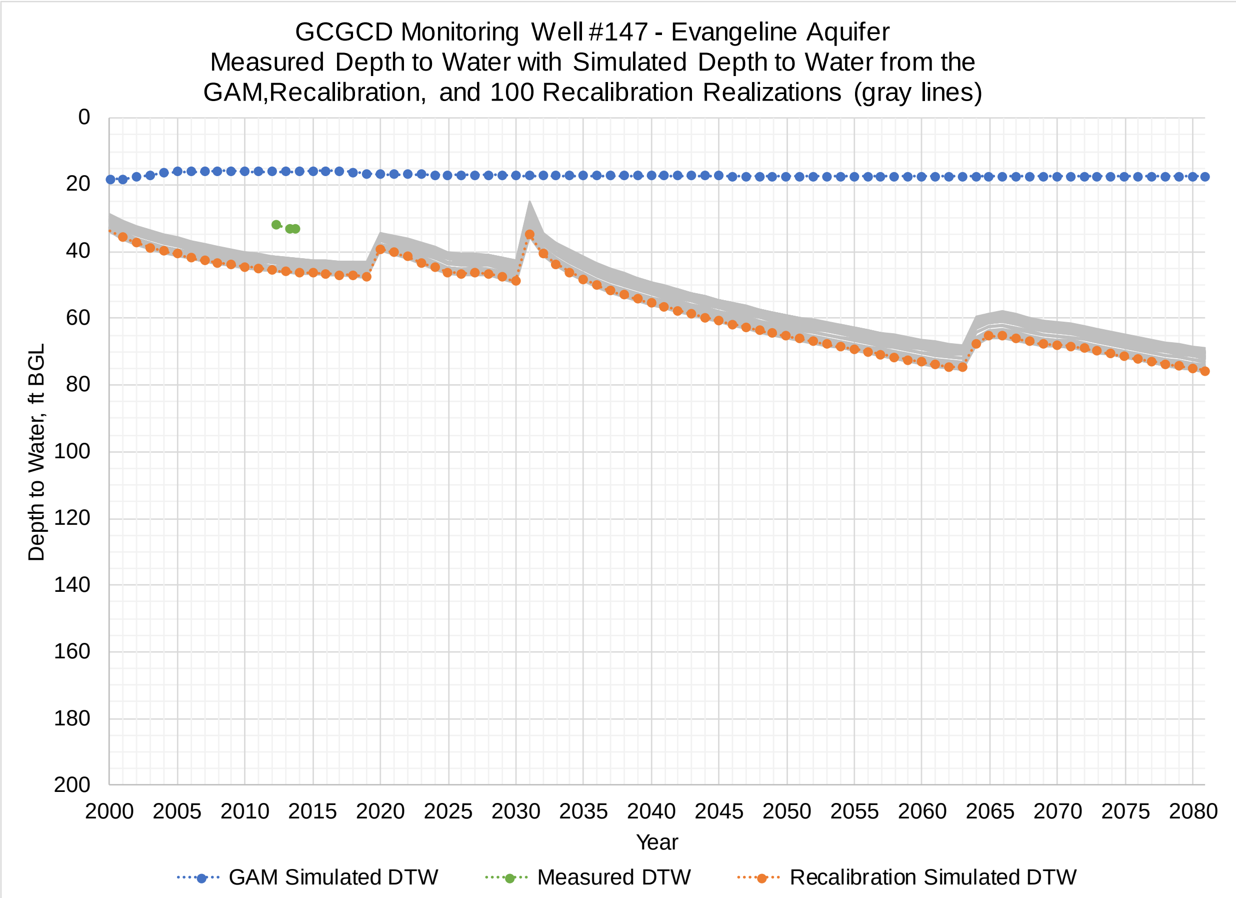

GCGCD Monitoring Well #142 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

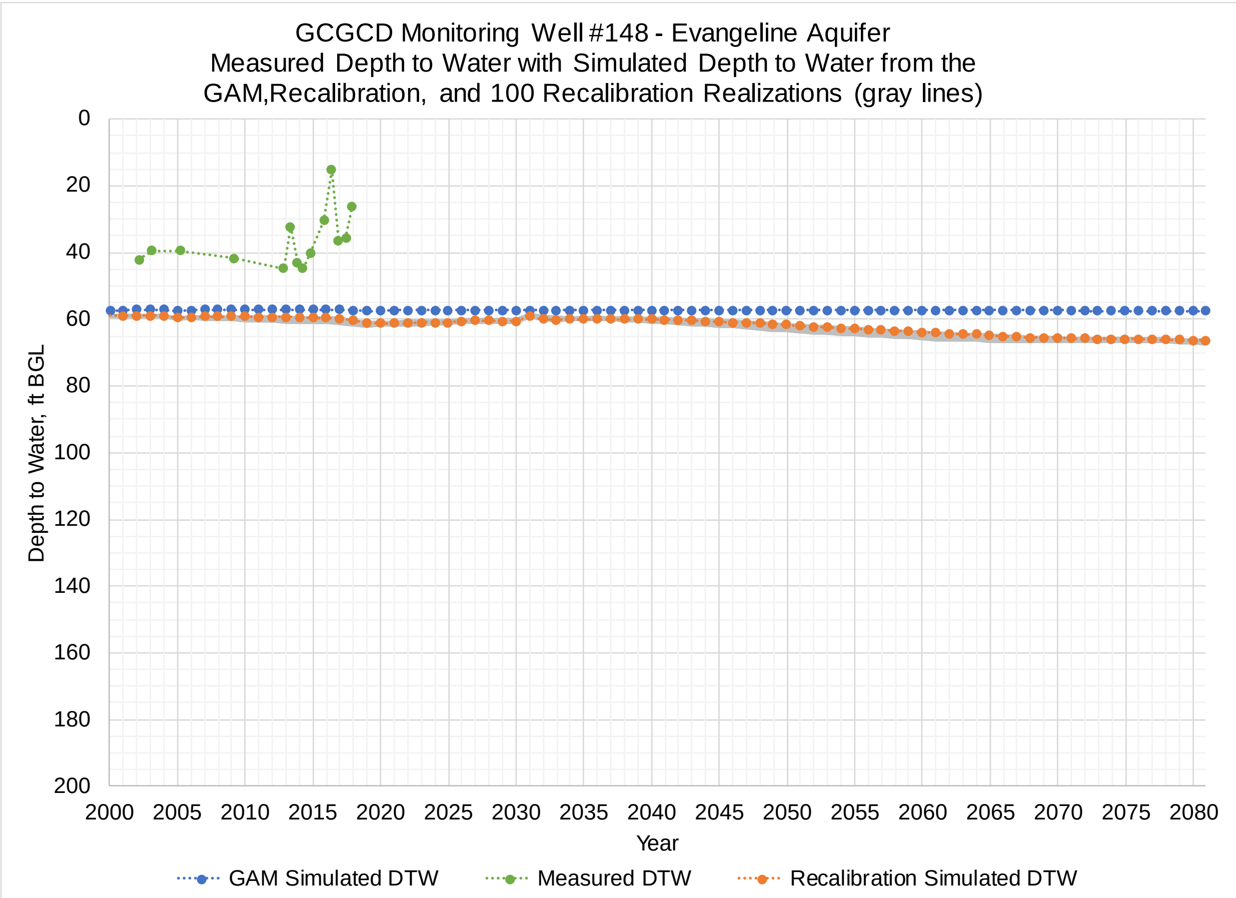

GCGCD Monitoring Well #143 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

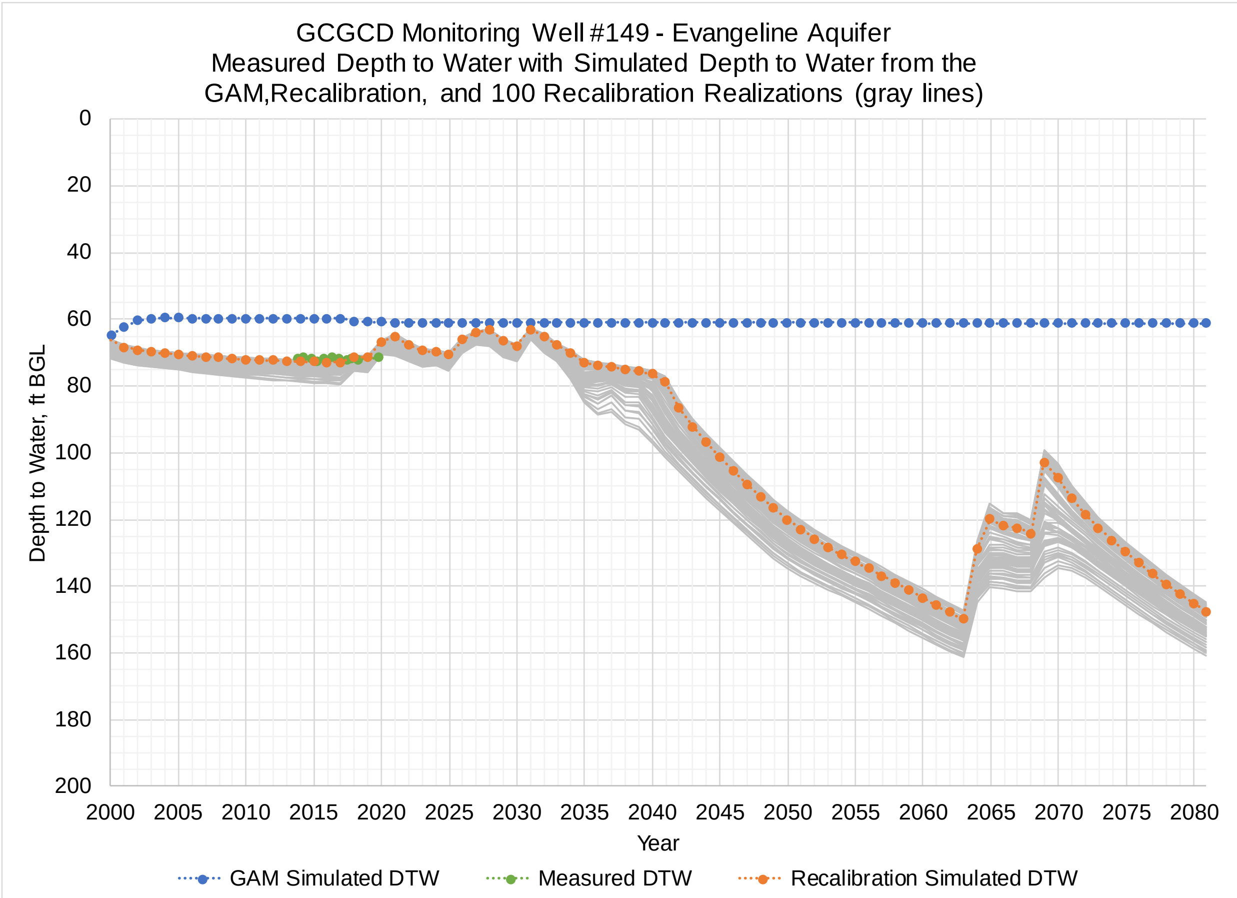

GCGCD Monitoring Well #144 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

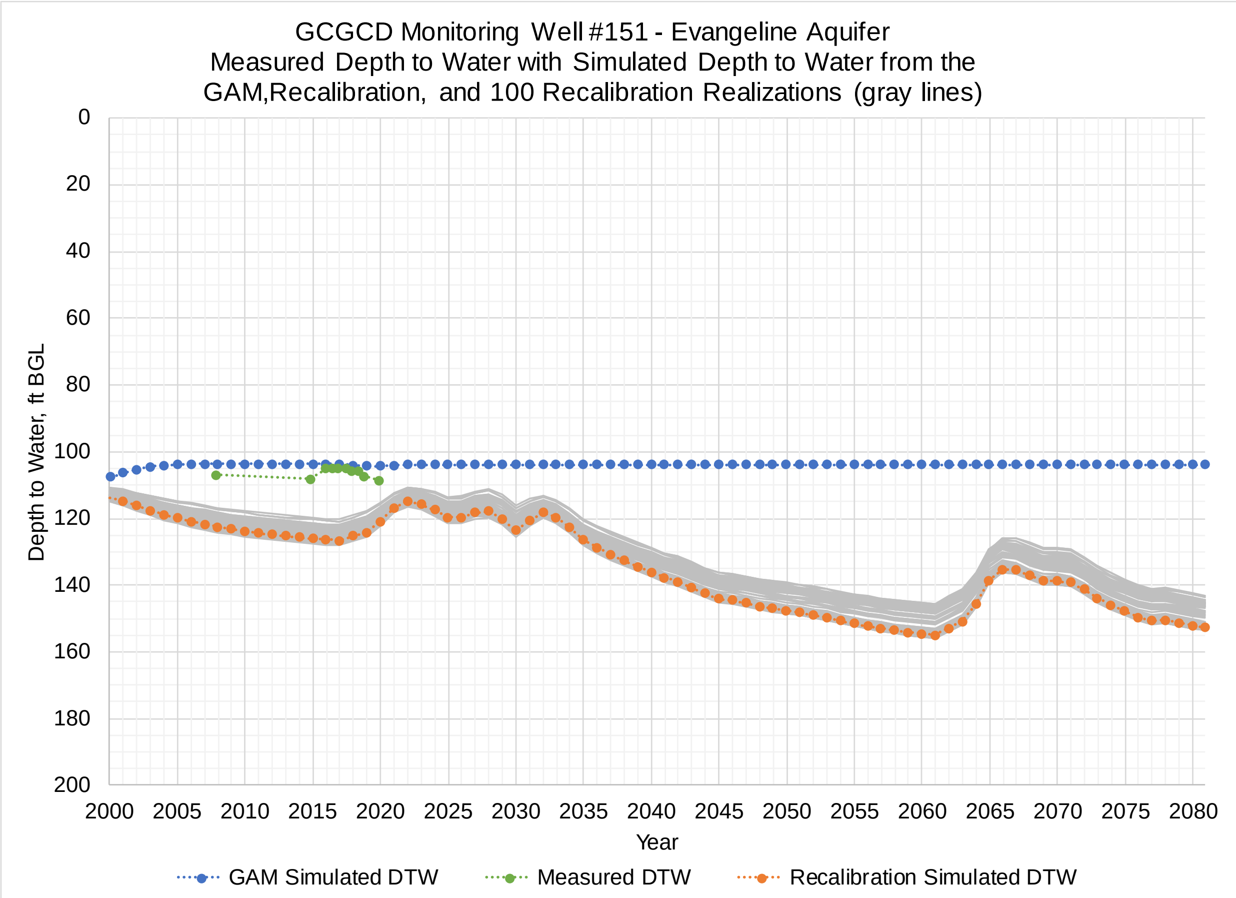

GCGCD Monitoring Well #145 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

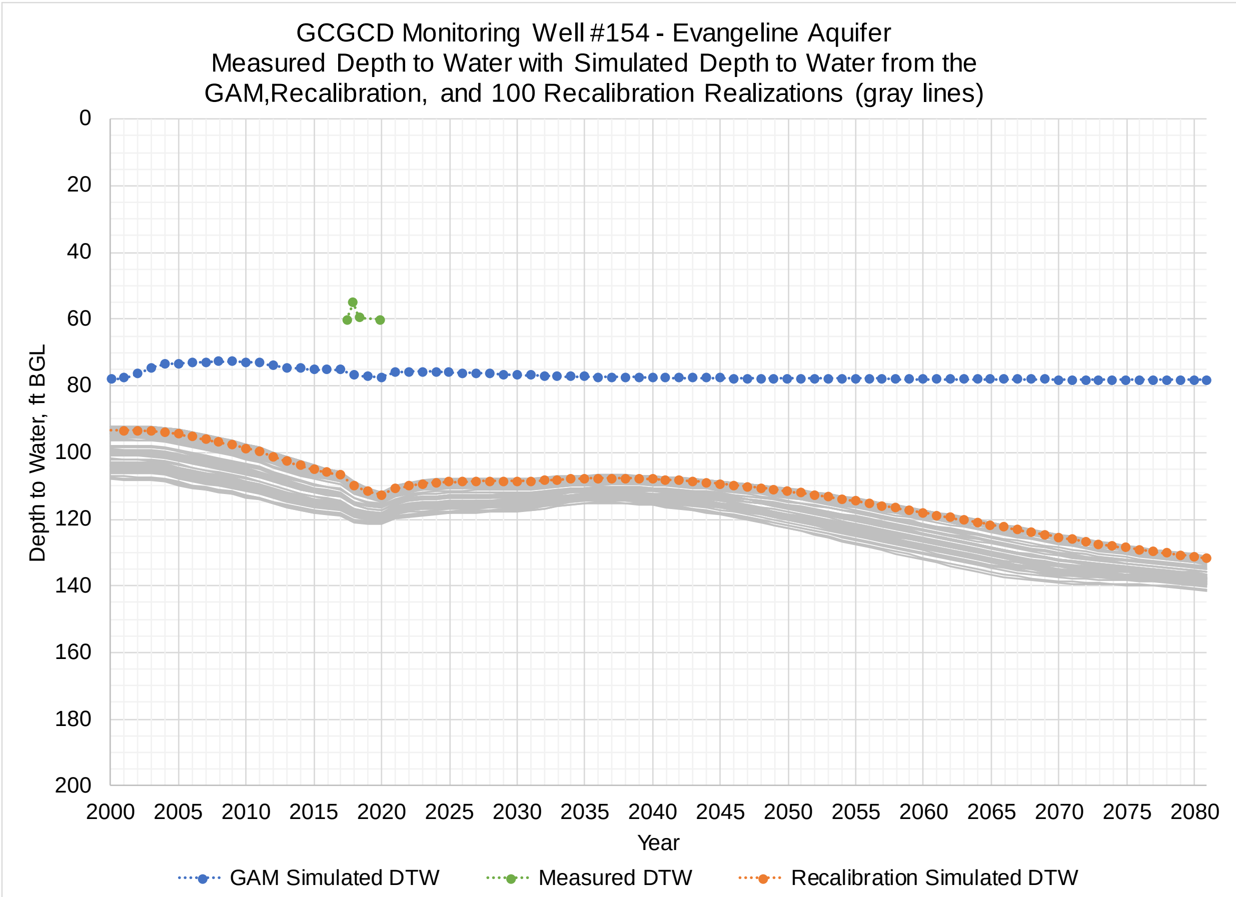

GCGCD Monitoring Well #146 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

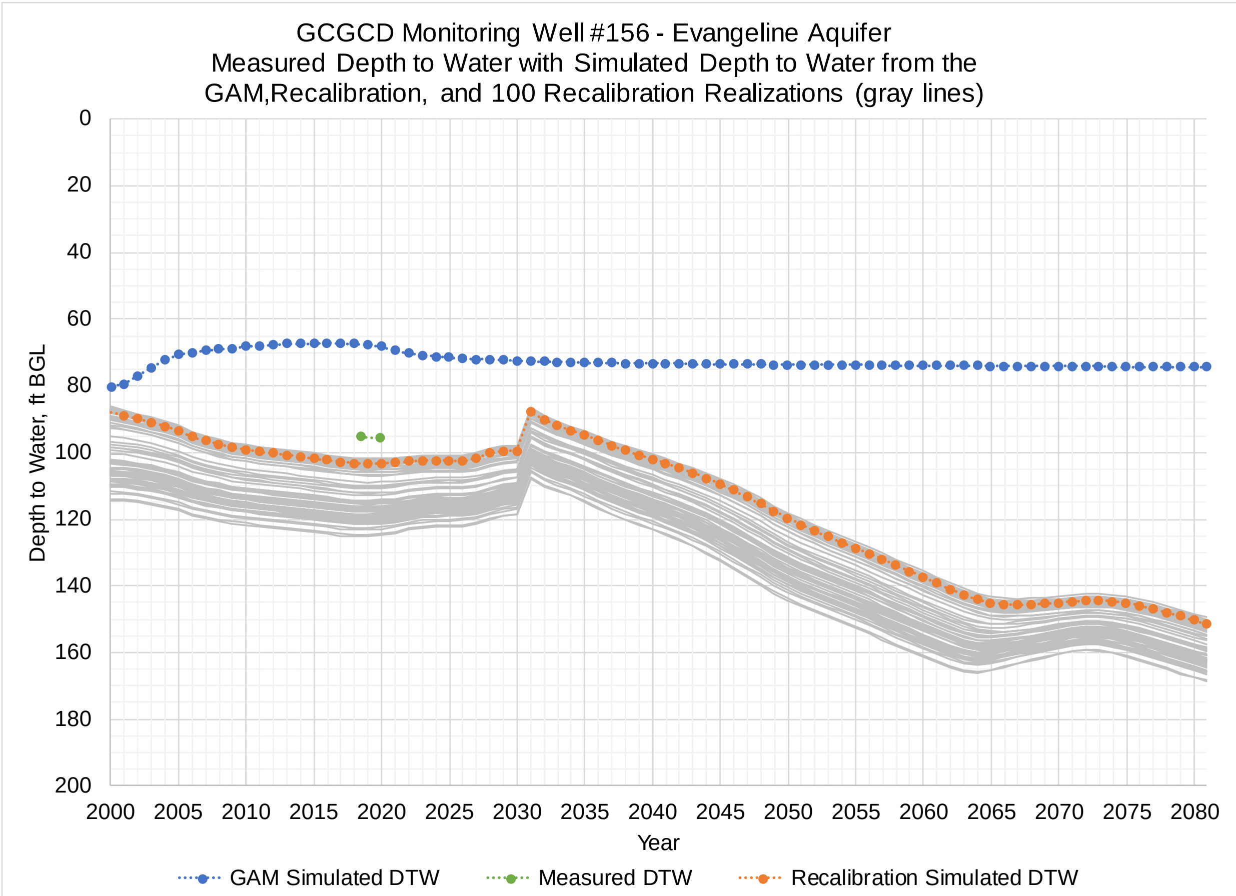

GCGCD Monitoring Well #147 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

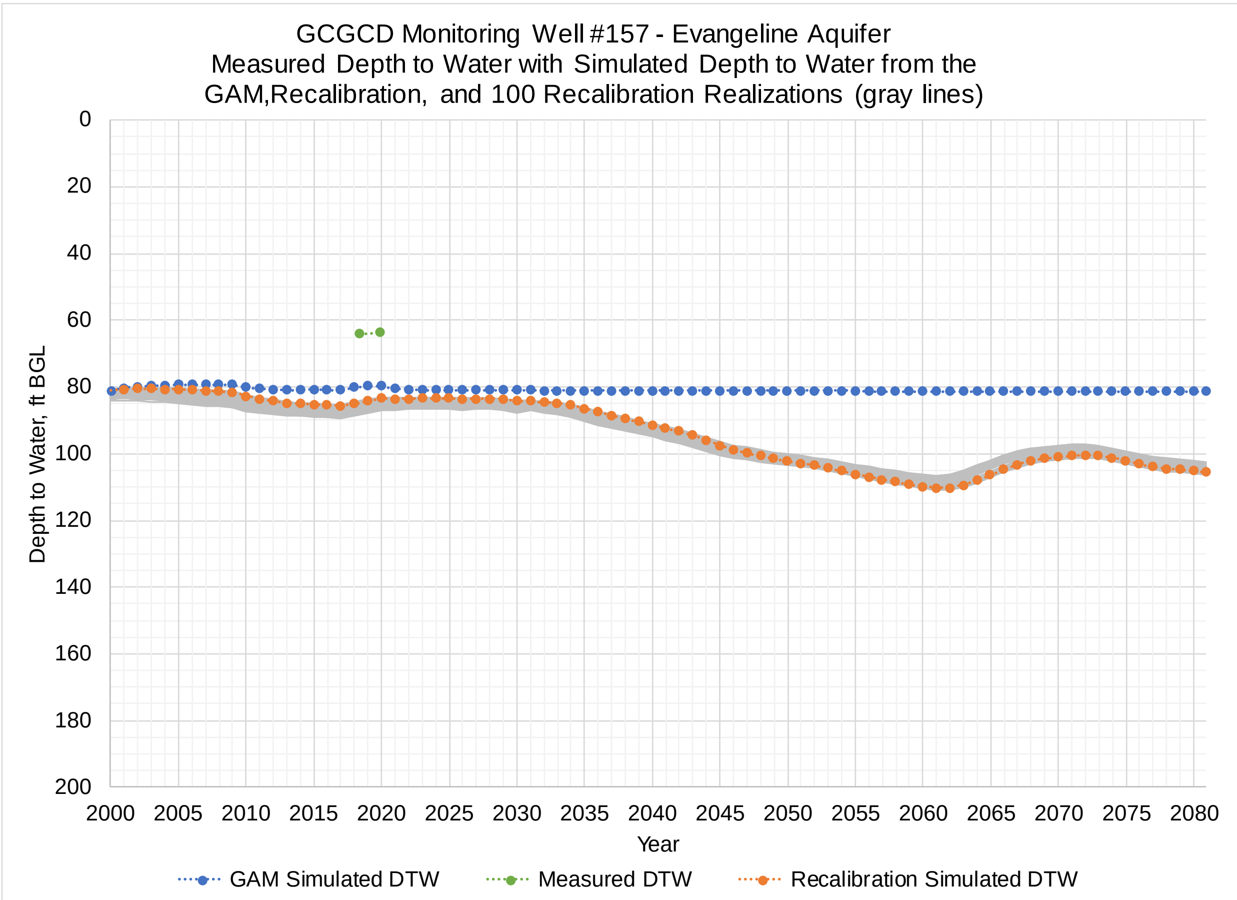

GCGCD Monitoring Well #148 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

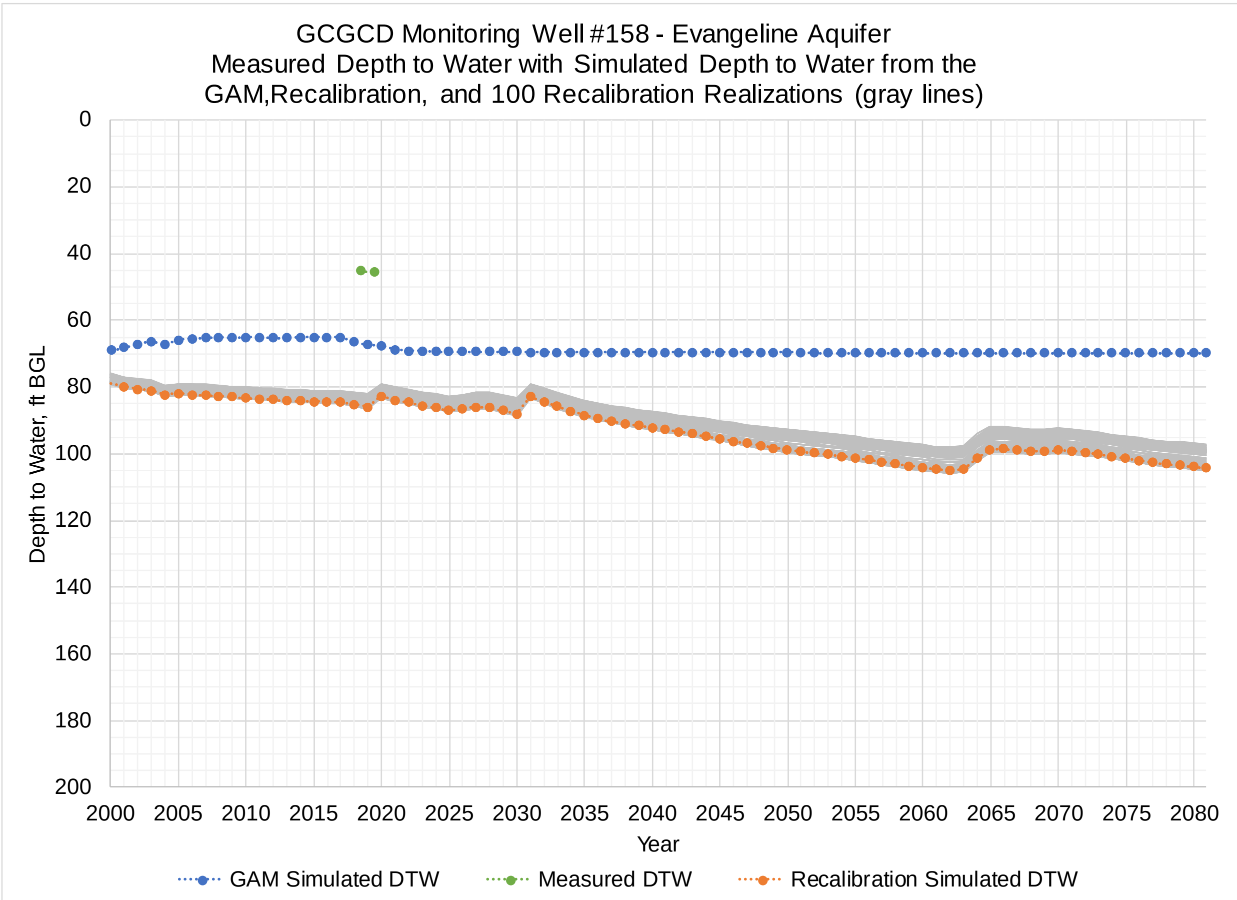

GCGCD Monitoring Well #149 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

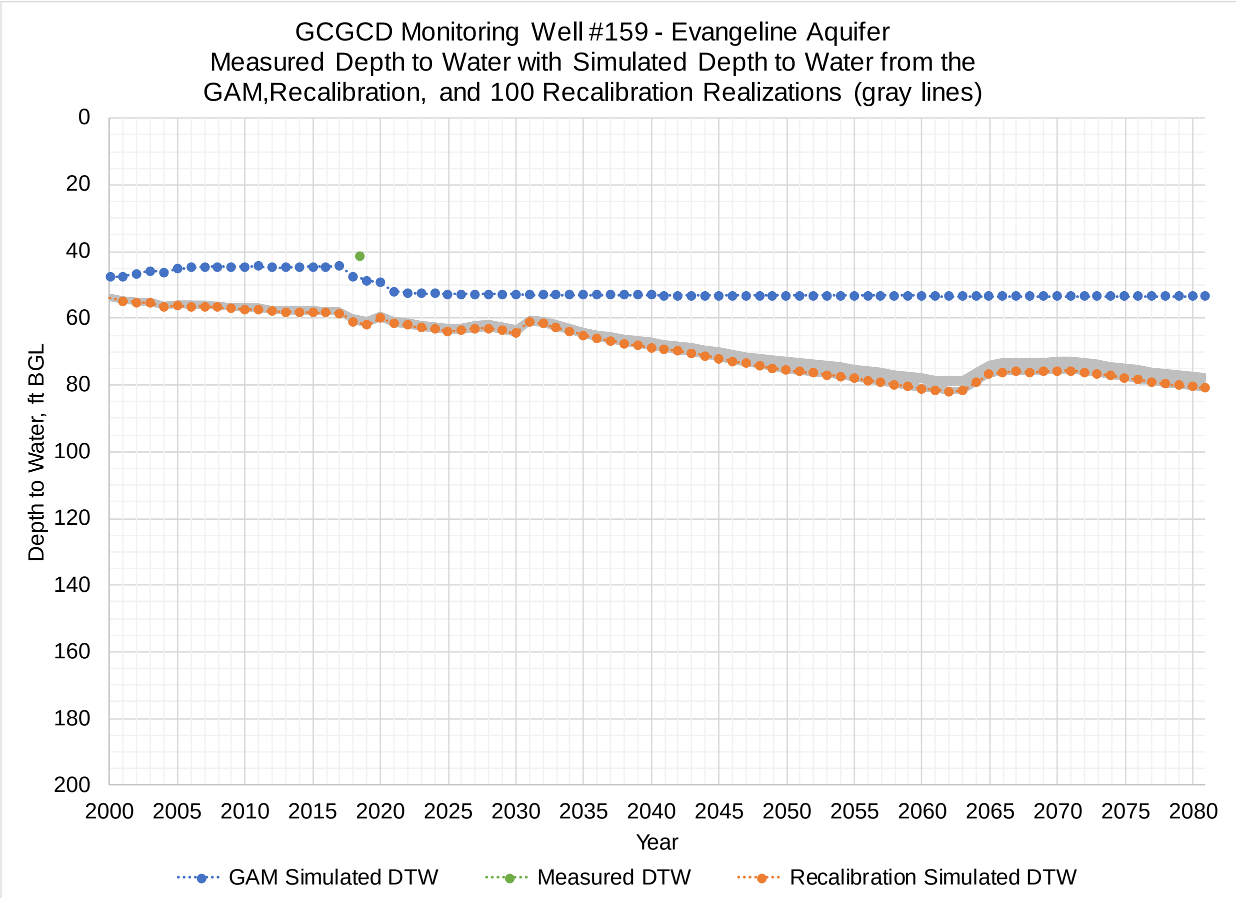

GCGCD Monitoring Well #151 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

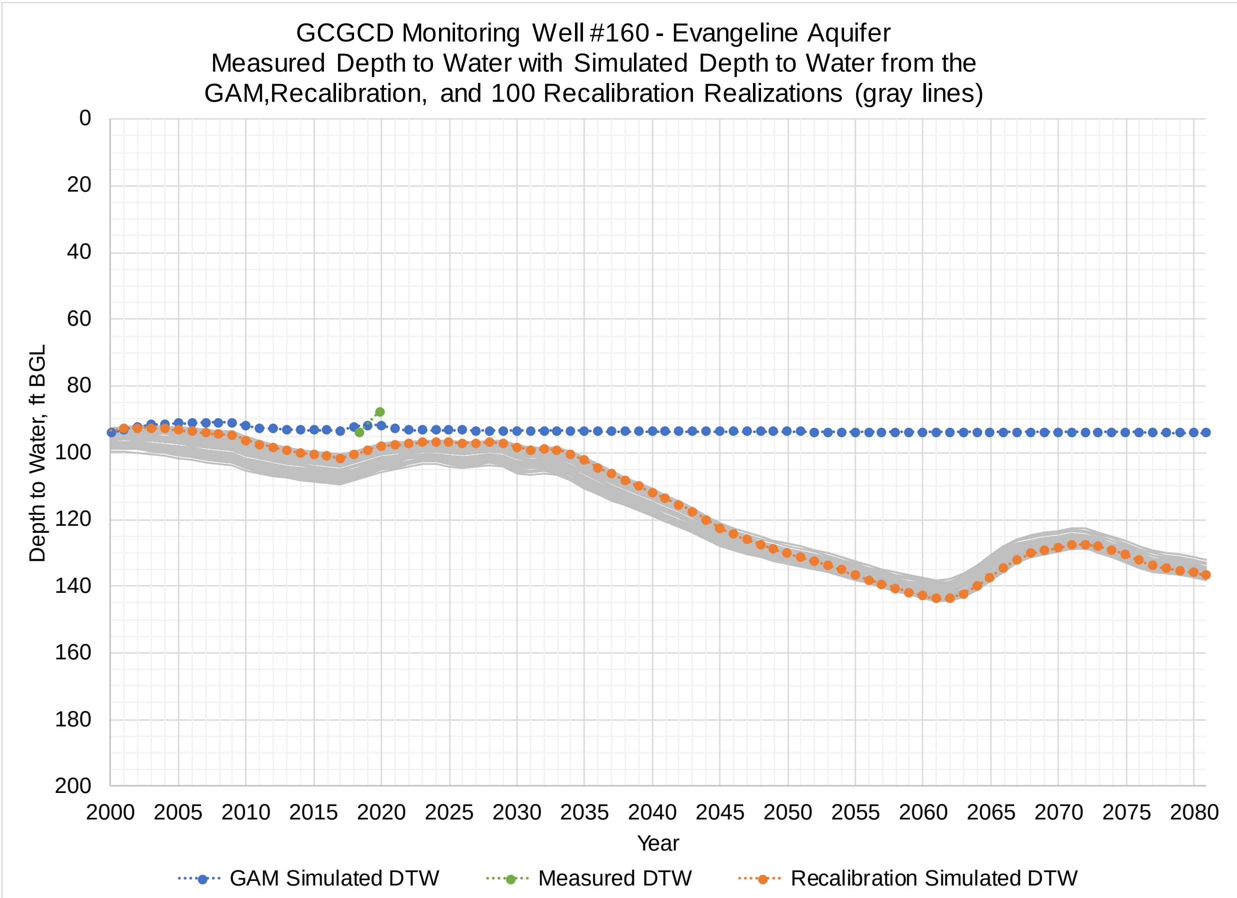

GCGCD Monitoring Well #154 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

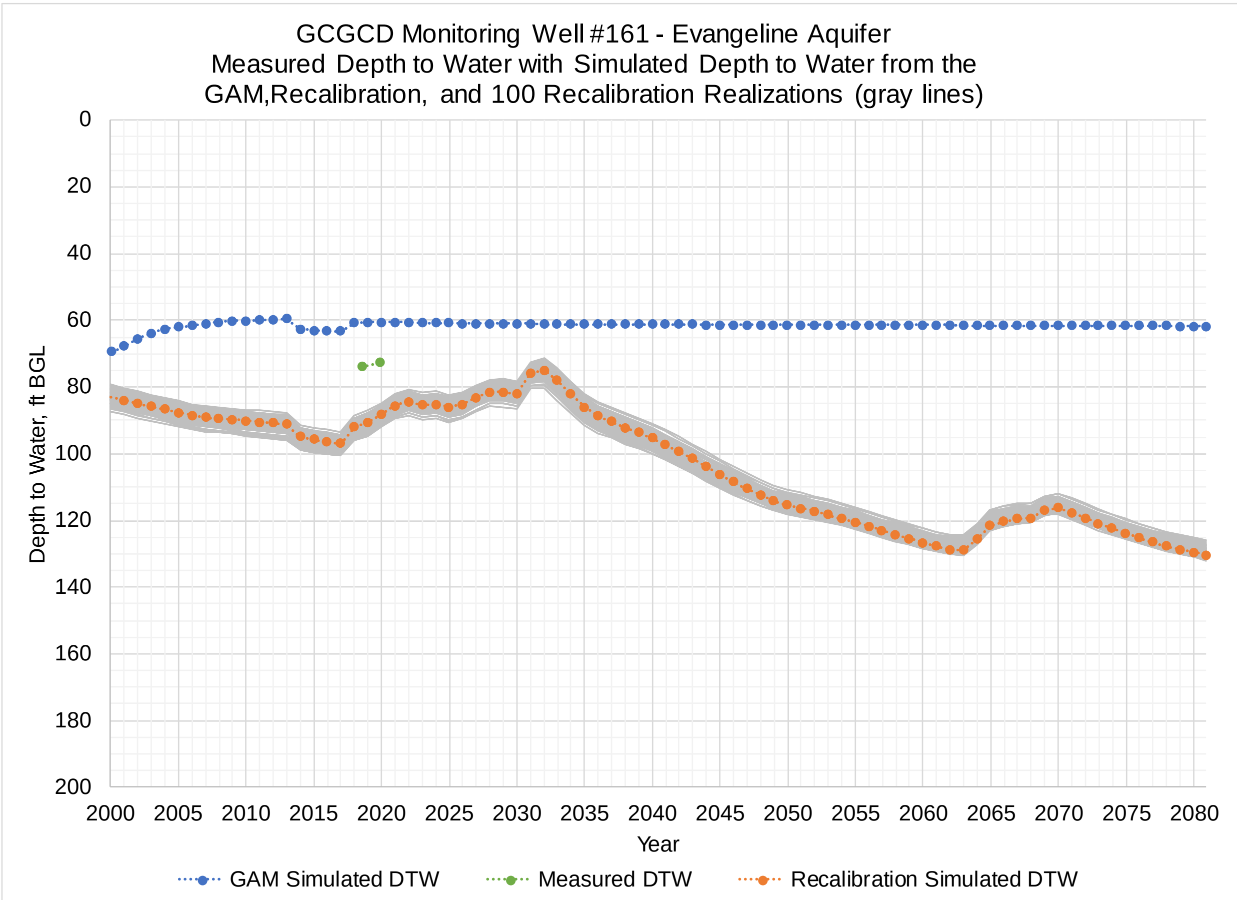

GCGCD Monitoring Well #156 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

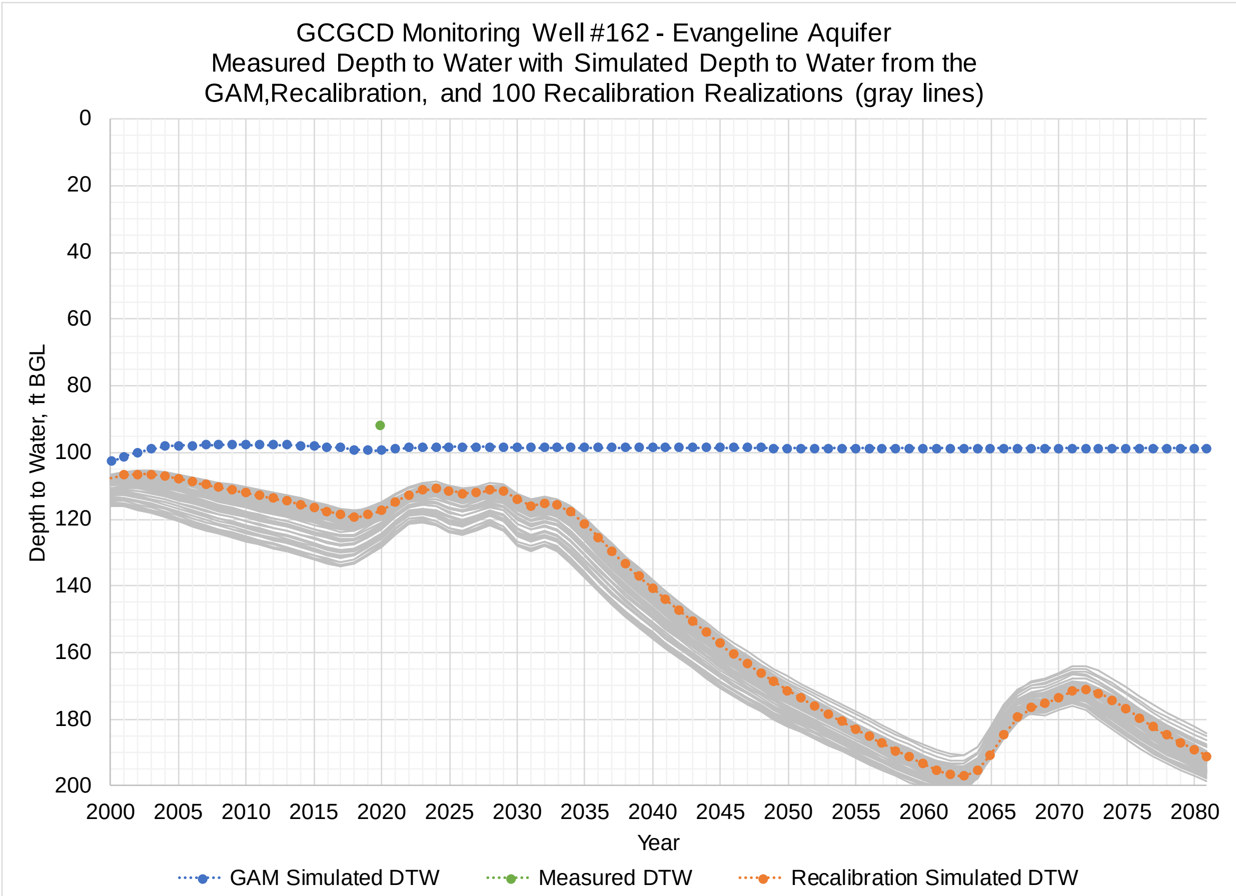

GCGCD Monitoring Well #157 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

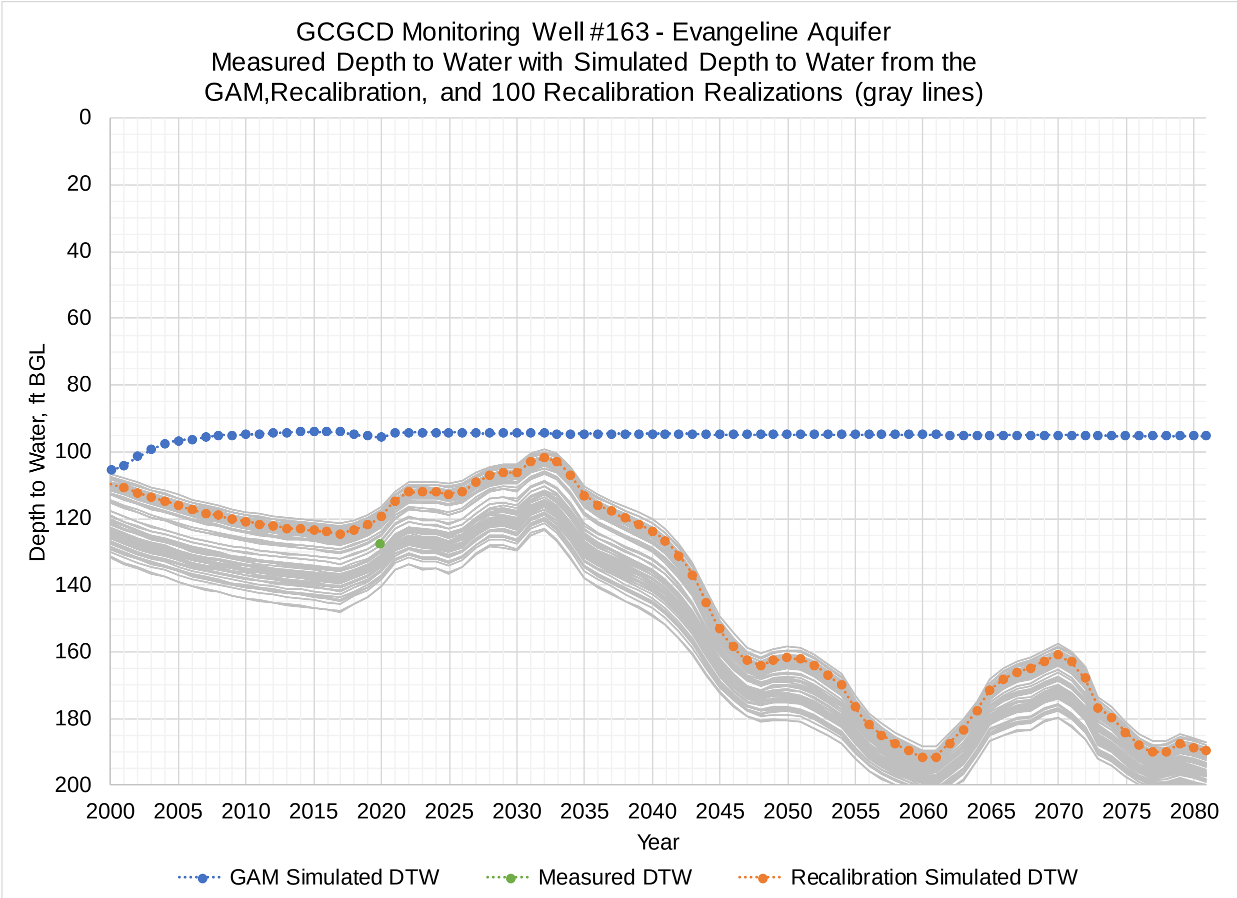

GCGCD Monitoring Well #158 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

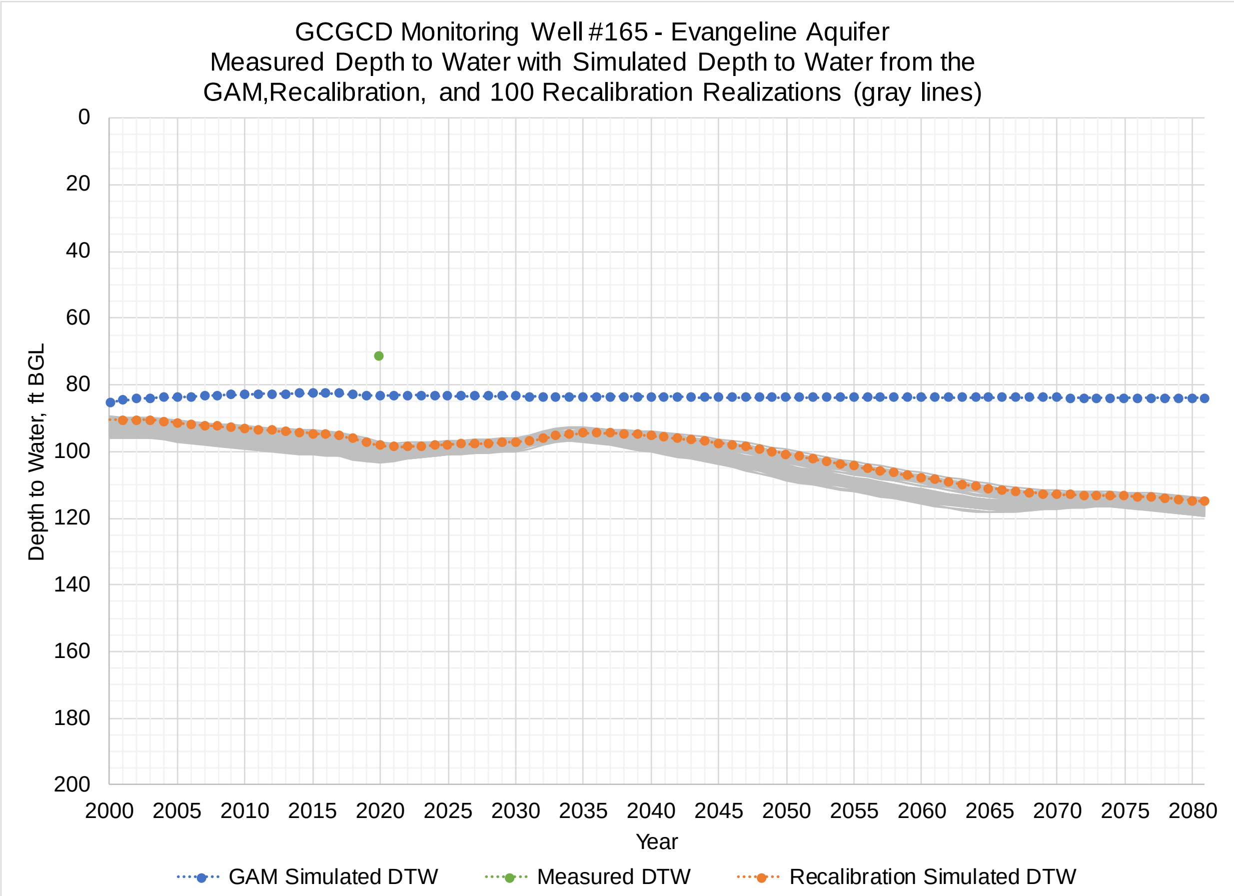

GCGCD Monitoring Well #159 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

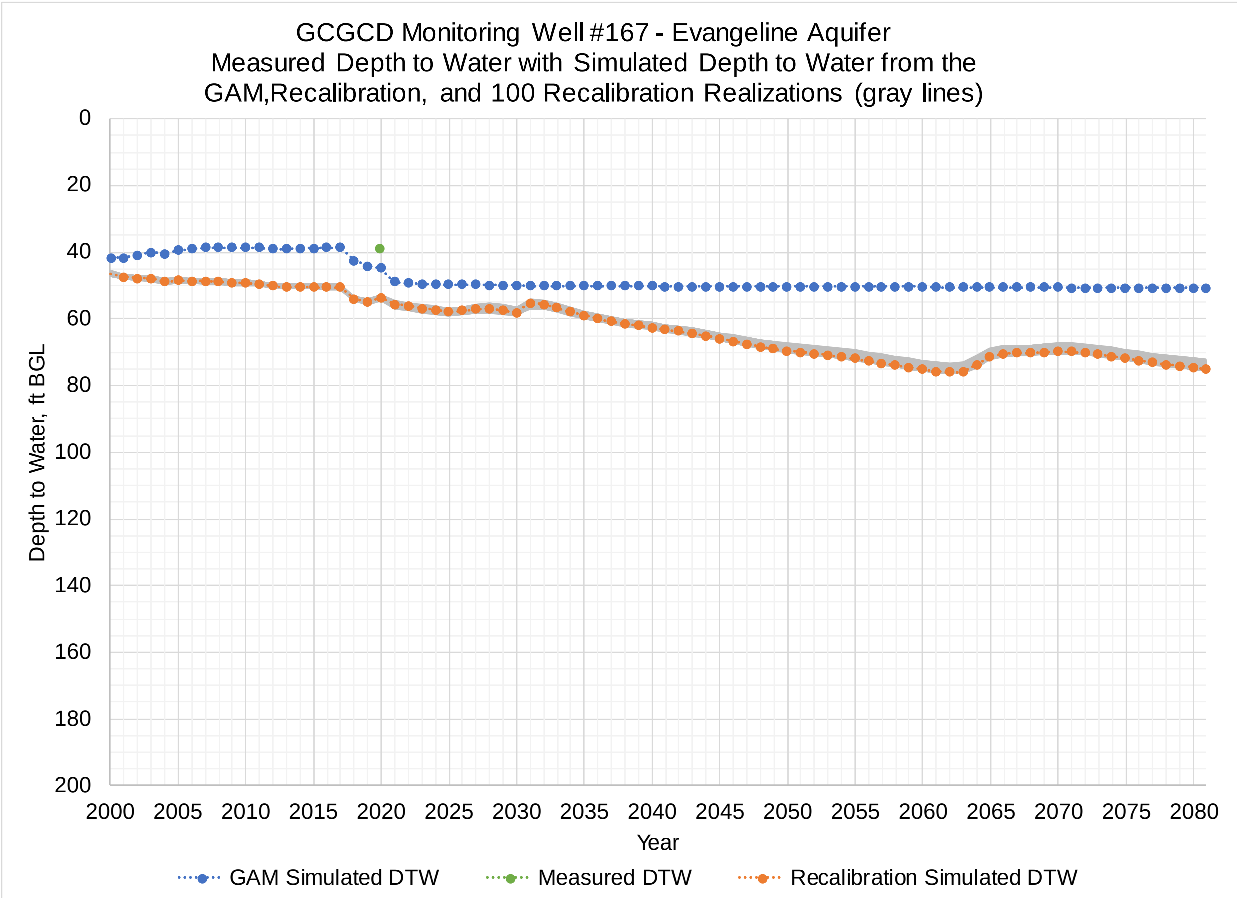

GCGCD Monitoring Well #160 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

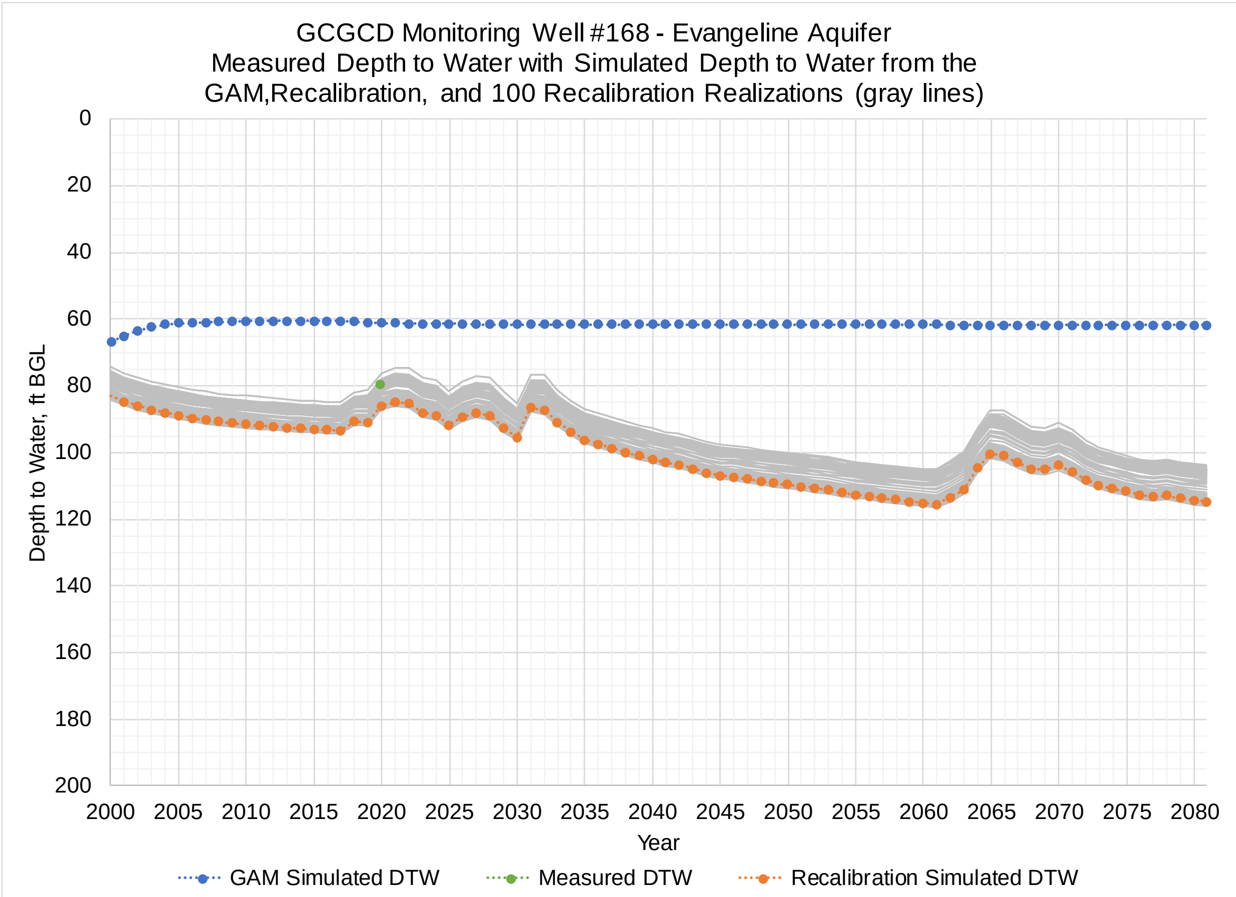

GCGCD Monitoring Well #161 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

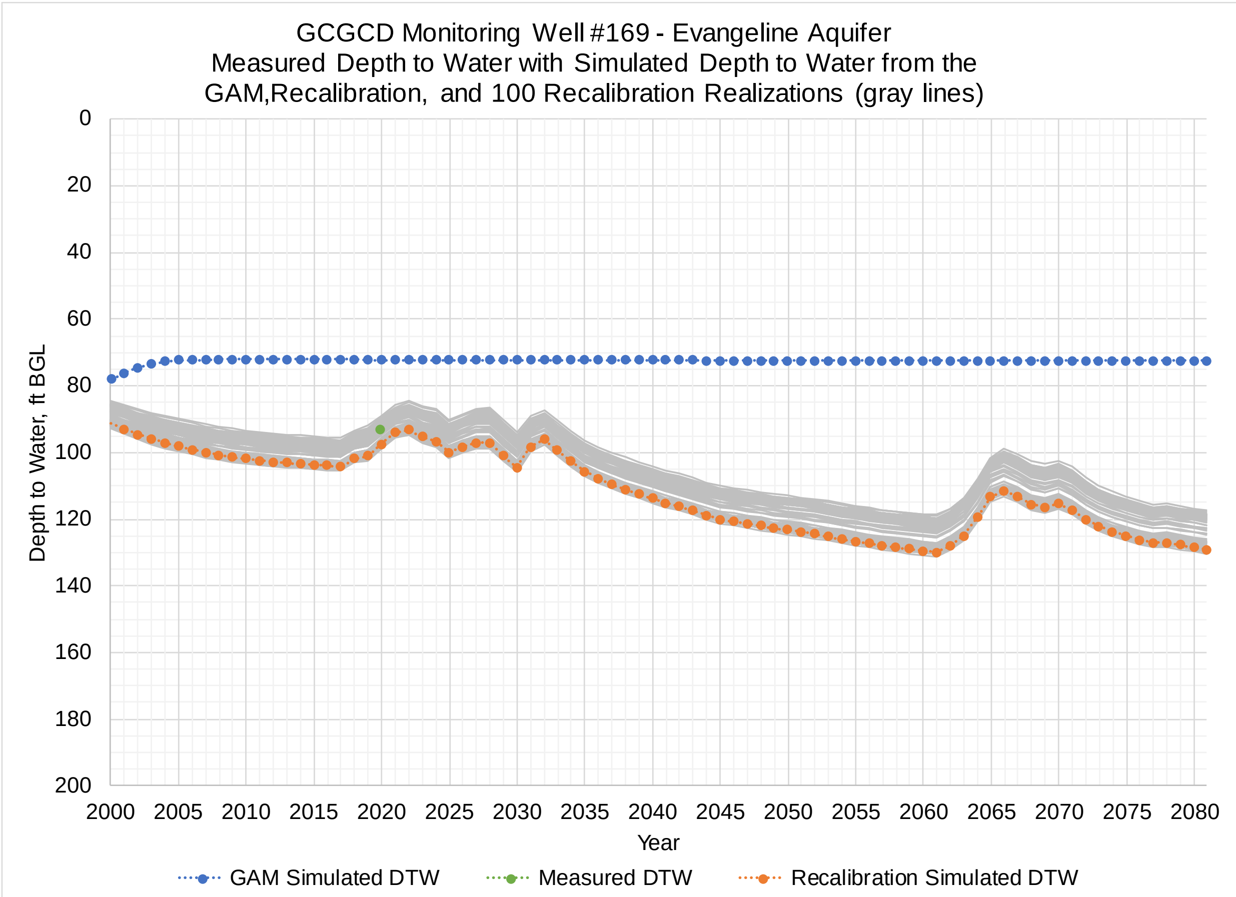

GCGCD Monitoring Well #162 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

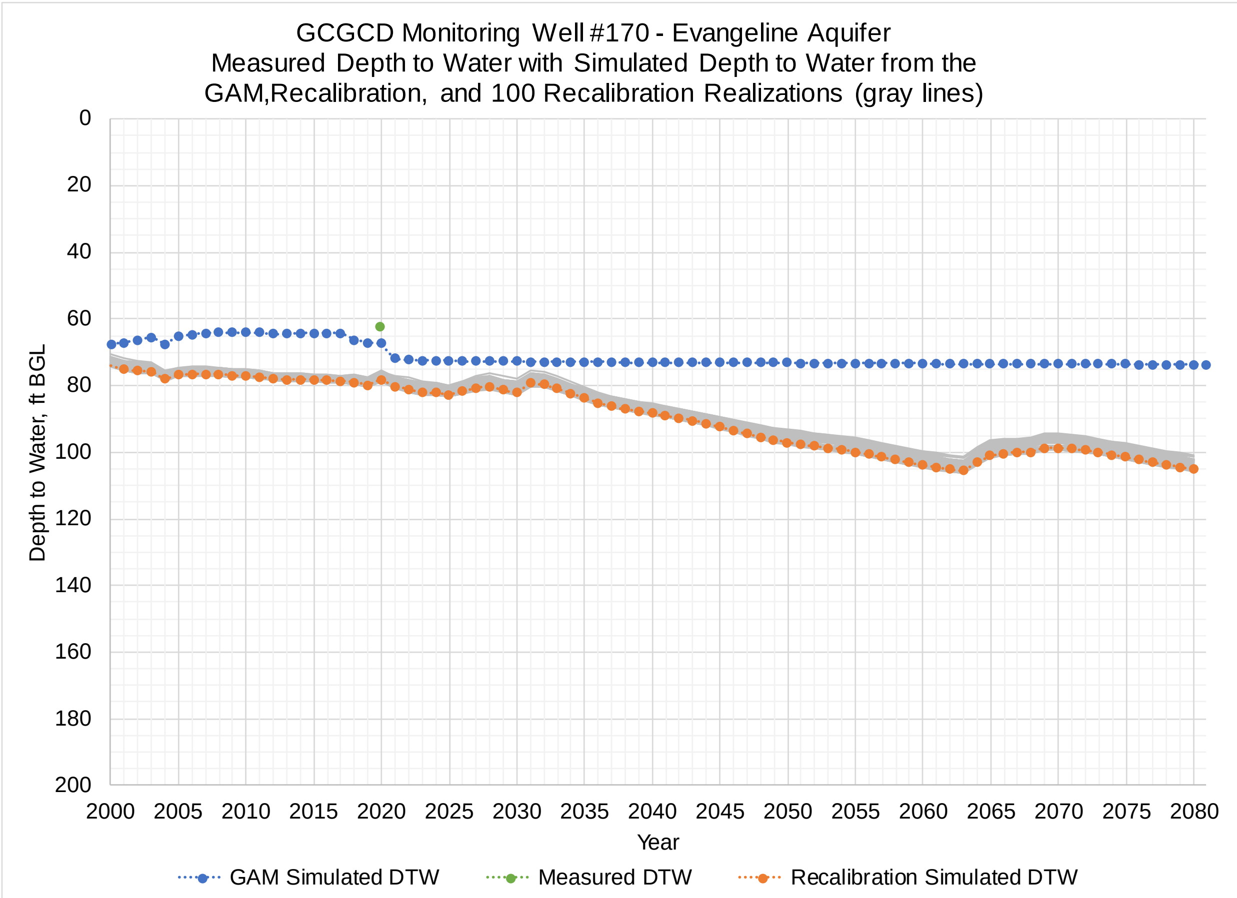

GCGCD Monitoring Well #163 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW


GCGCD Monitoring Well #165 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

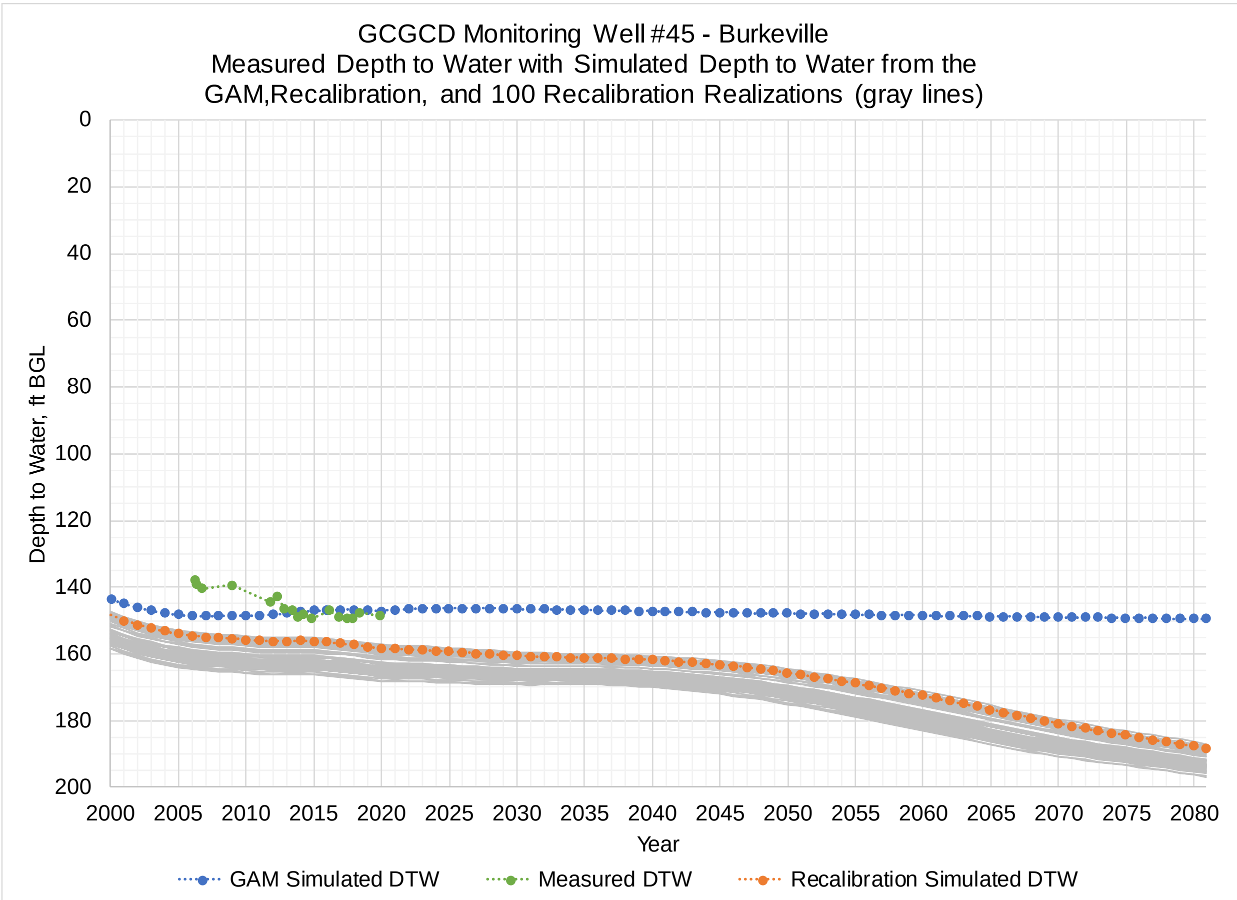

GCGCD Monitoring Well #167 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

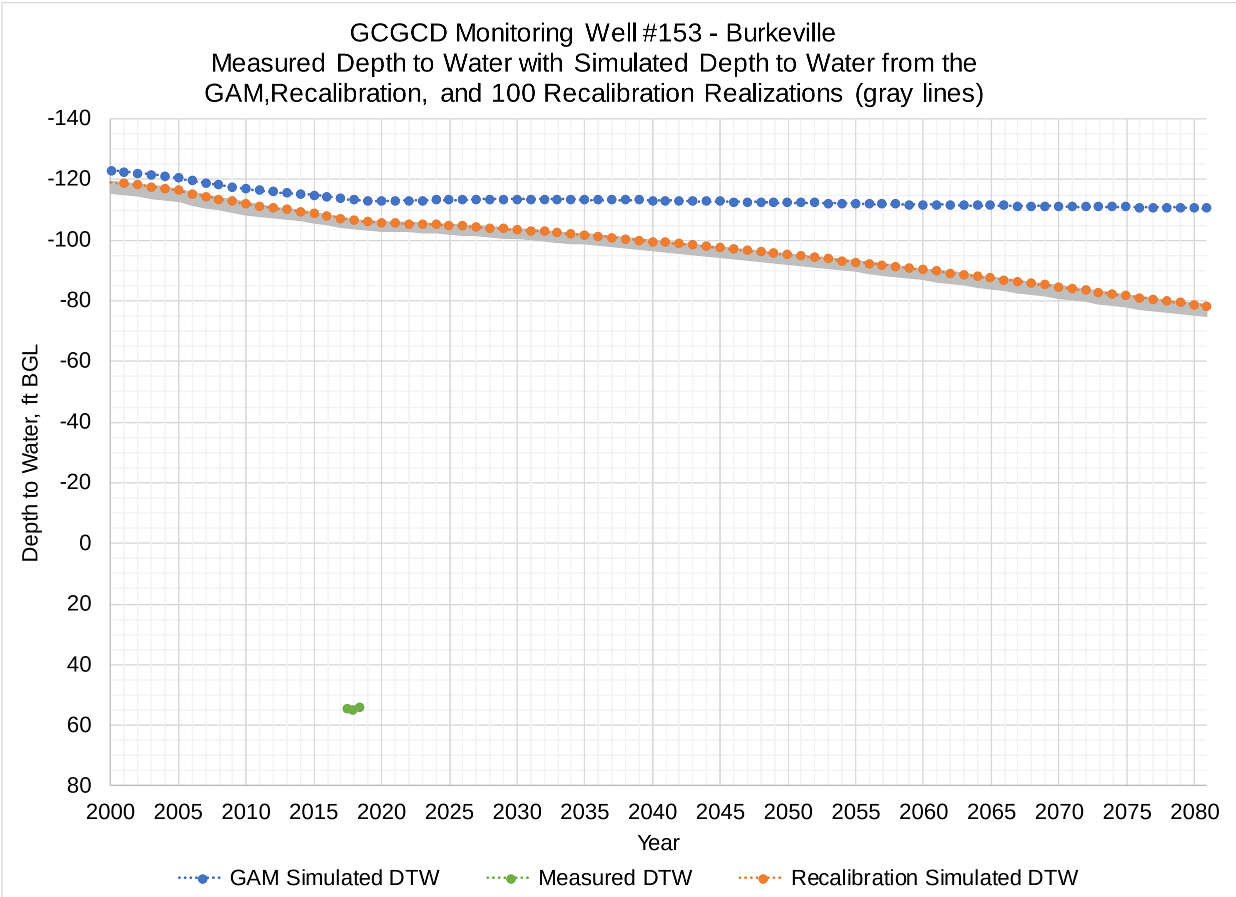

GCGCD Monitoring Well #168 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

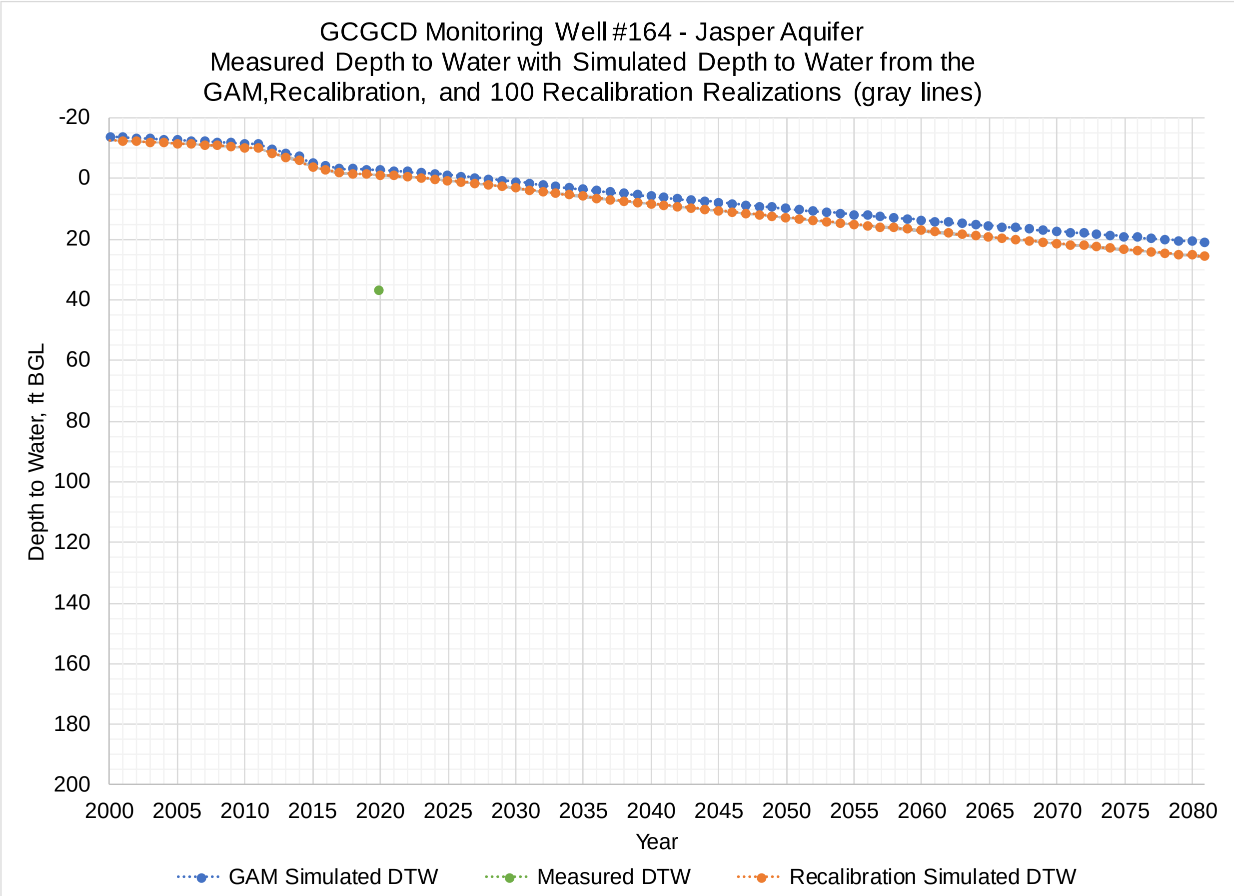

GCGCD Monitoring Well #169 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW


GCGCD Monitoring Well #170 - Evangeline Aquifer
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW

Burkeville and Jasper Monitoring Wells


GCGCD Monitoring Well #45 - Burkeville
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW


GCGCD Monitoring Well #153 - Burkeville
Measured Depth to Water with Simulated Depth to Water from the
GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-140
-120
-100
-80
-60
-40
-20
0
20
40
60
80
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW


GCGCD Monitoring Well #164 - Jasper Aquifer
Measured Depth to Water with Simulated Depth to Water from the GAM,Recalibration, and 100 Recalibration Realizations (gray lines)
Depth to Water, ft BGL
-20
0
20
40
60
80
100
120
140
160
180
200
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
2055
2060
2065
2070
2075
2080
Year
GAM Simulated DTW
Measured DTW
Recalibration Simulated DTW