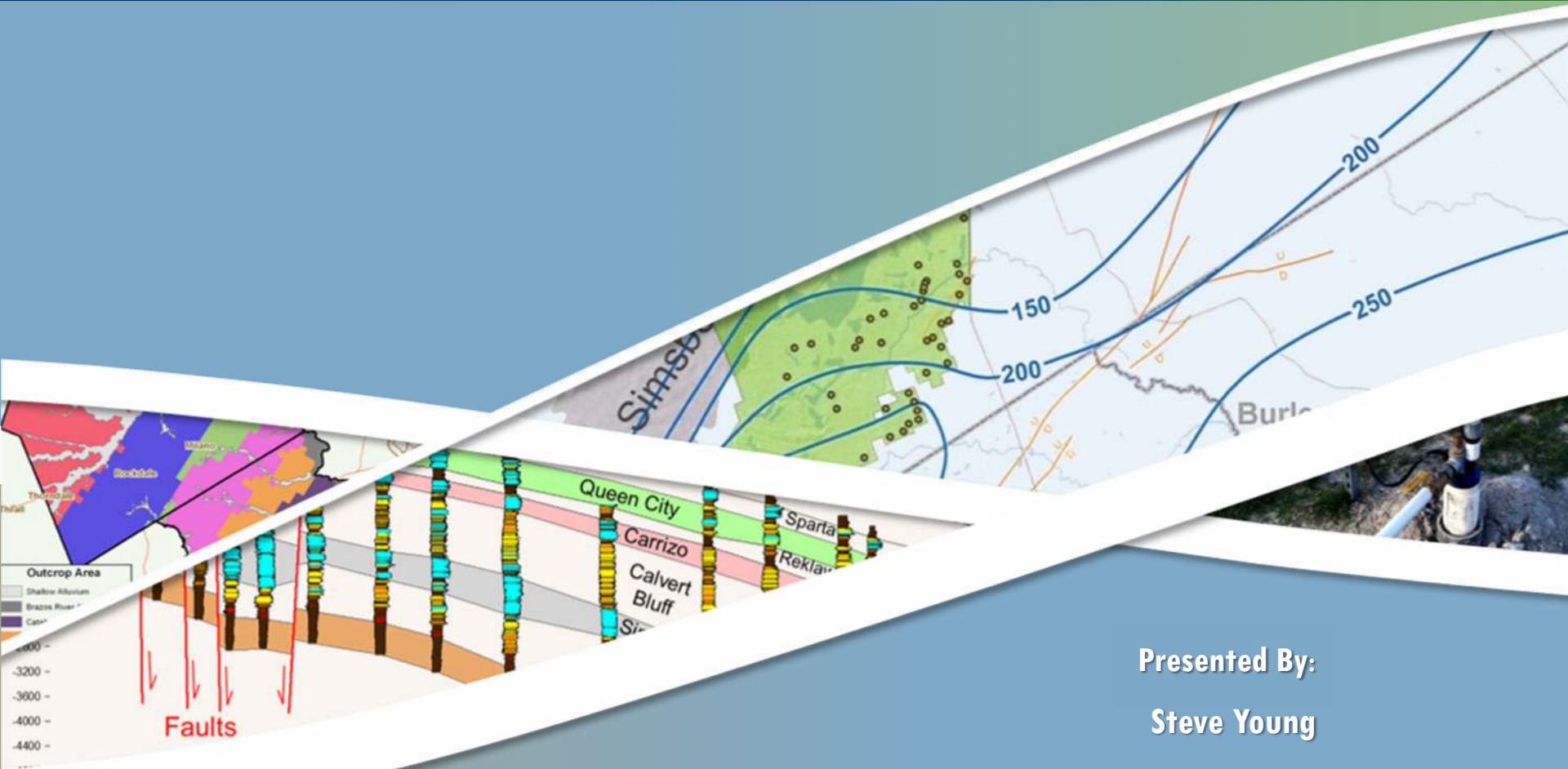


PRESENTATION TO GMA-12:

Status of Carrizo-Wilcox, Queen City, & Sparta Draft GAM



Presented By:

Steve Young

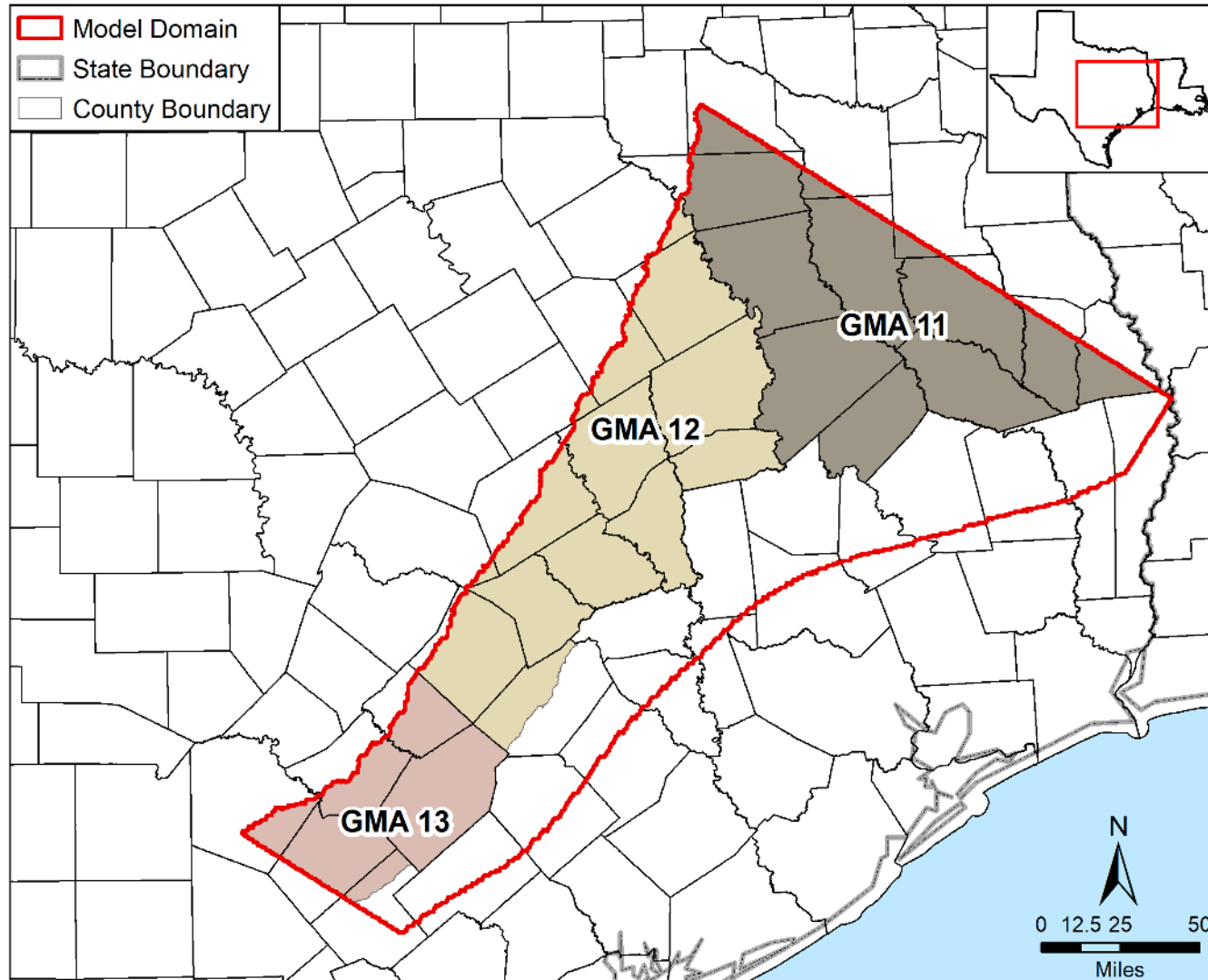
INTERA
GEOSCIENCE & ENGINEERING SOLUTIONS

May 11, 2018

Outline

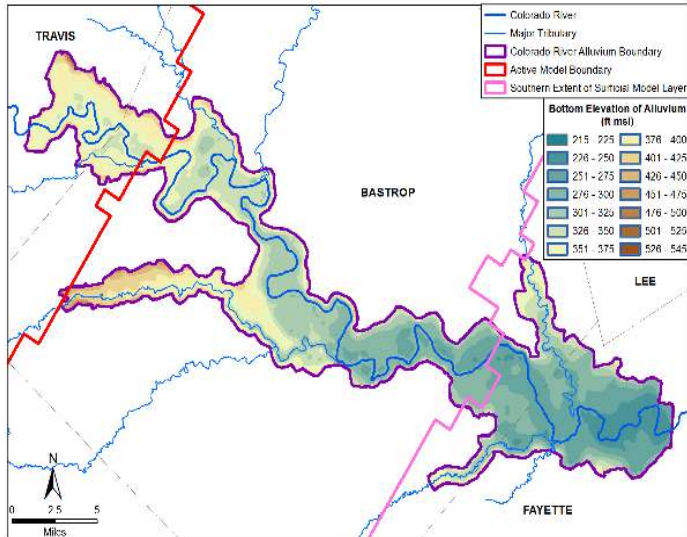
- Conceptual Groundwater Model
 - GW-SW Interaction
 - Geological Faults
 - Historical Pumping
- Draft Calibration Results for Water Levels
 - Steady State Results for 1930
 - Transient Results for 1930 to 2010

GMA

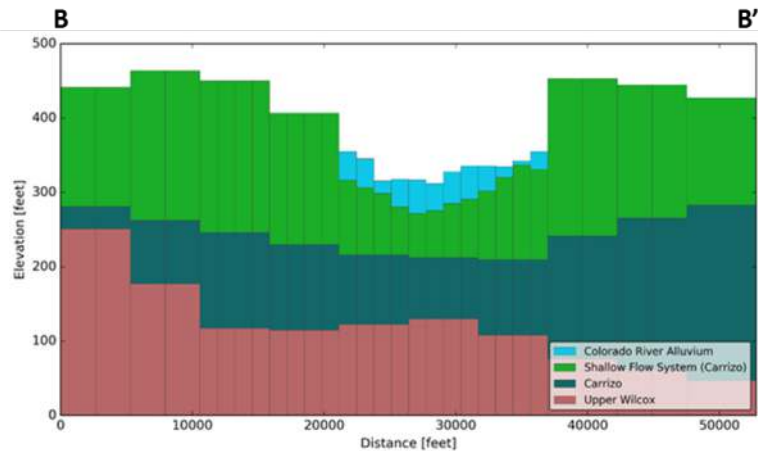


Groundwater-Surface Water Interaction

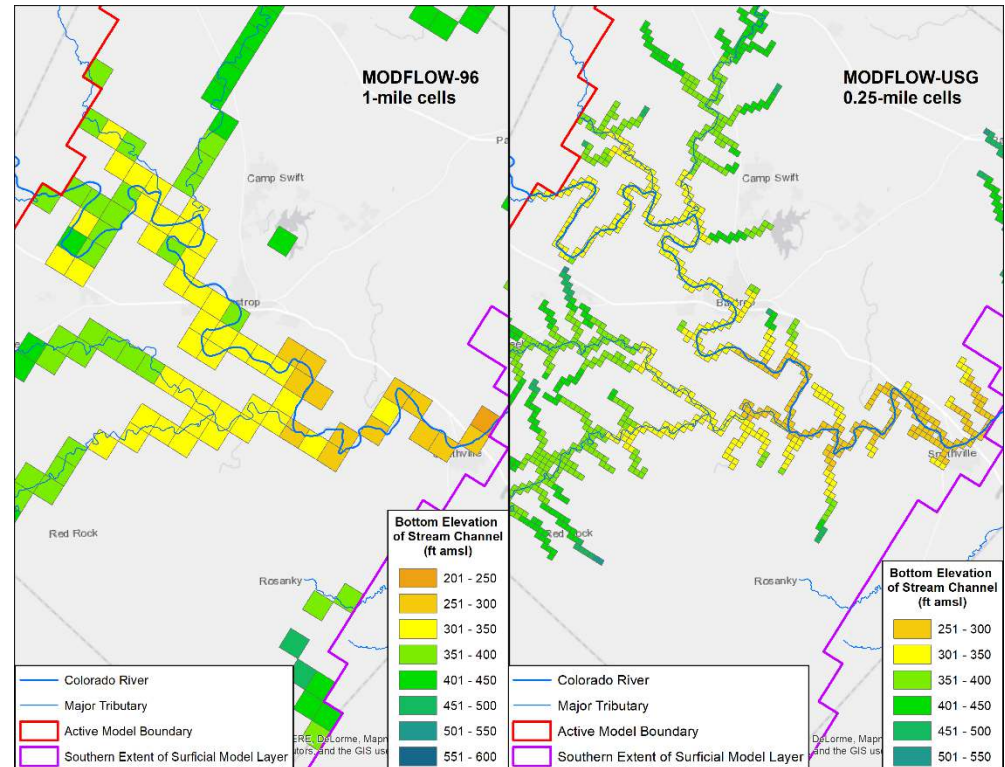
1. Map Colorado River Alluvium



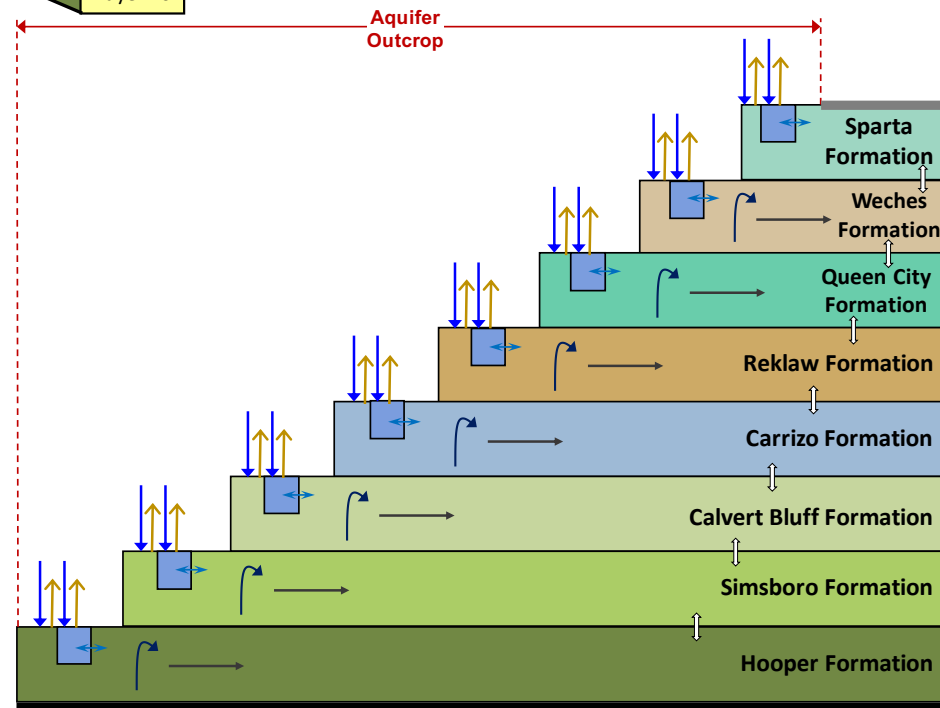
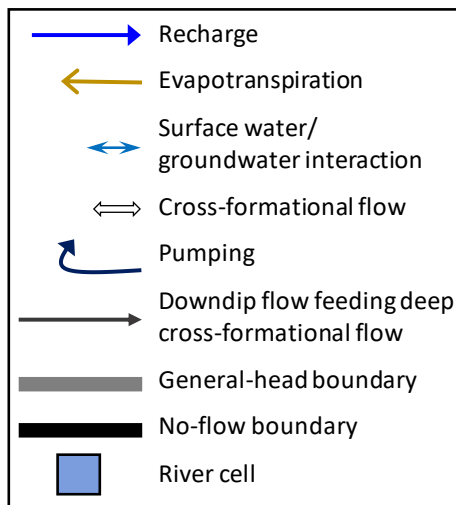
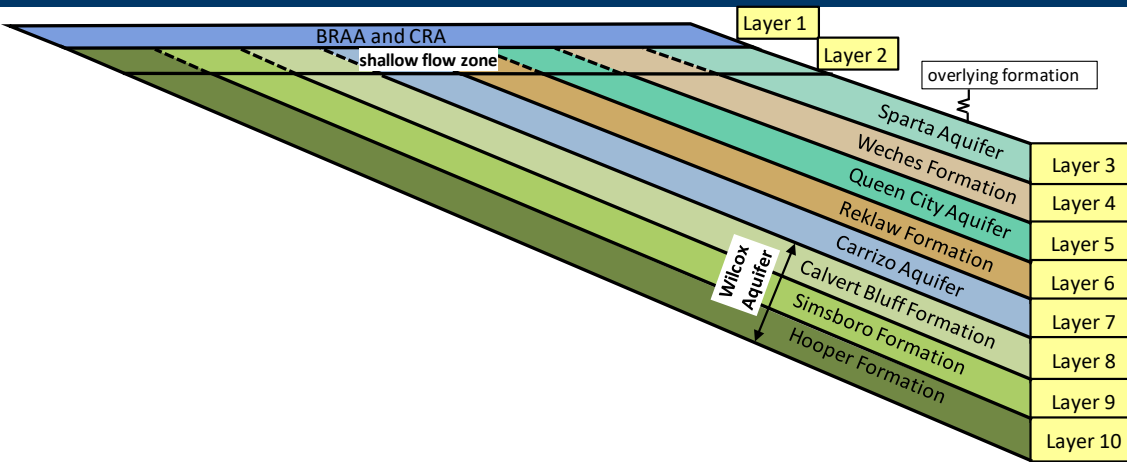
2. Develop a Model Layer for Colorado River Alluvium and Brazos River Alluvium



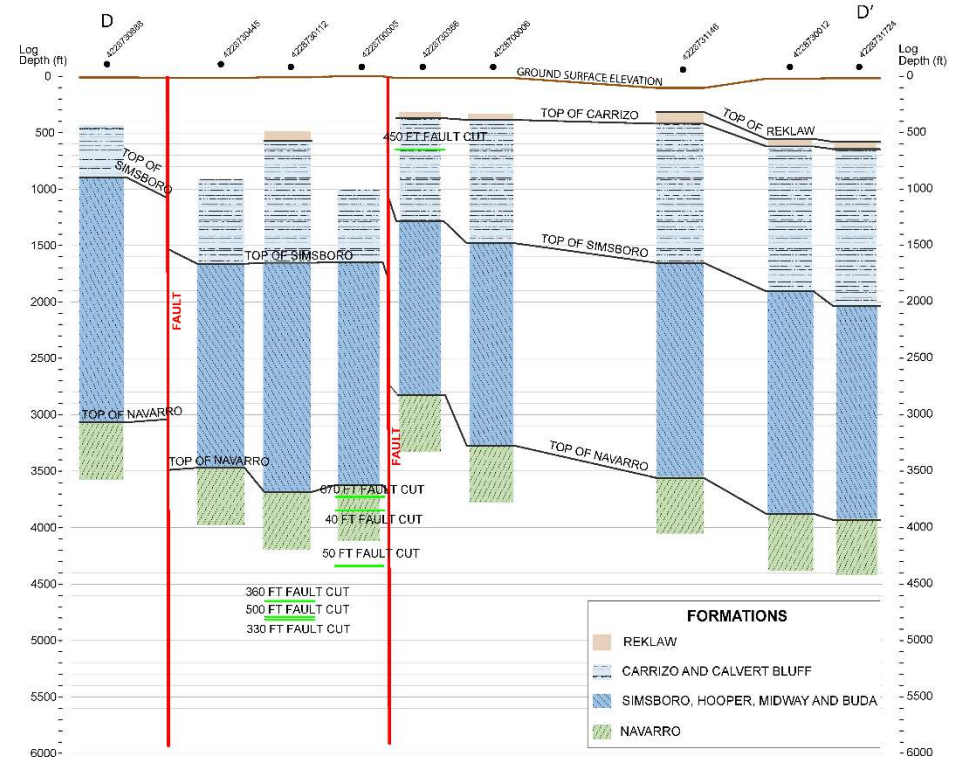
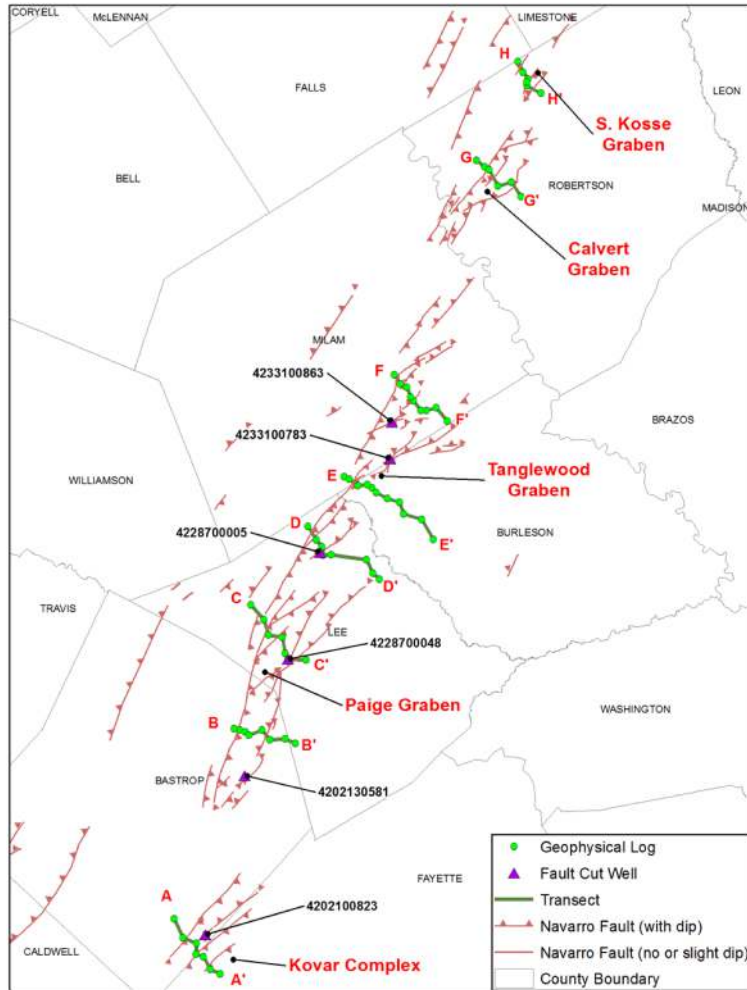
3. Refine Grid Cells In Vicinity of Alluvium and Brazos River Alluvium



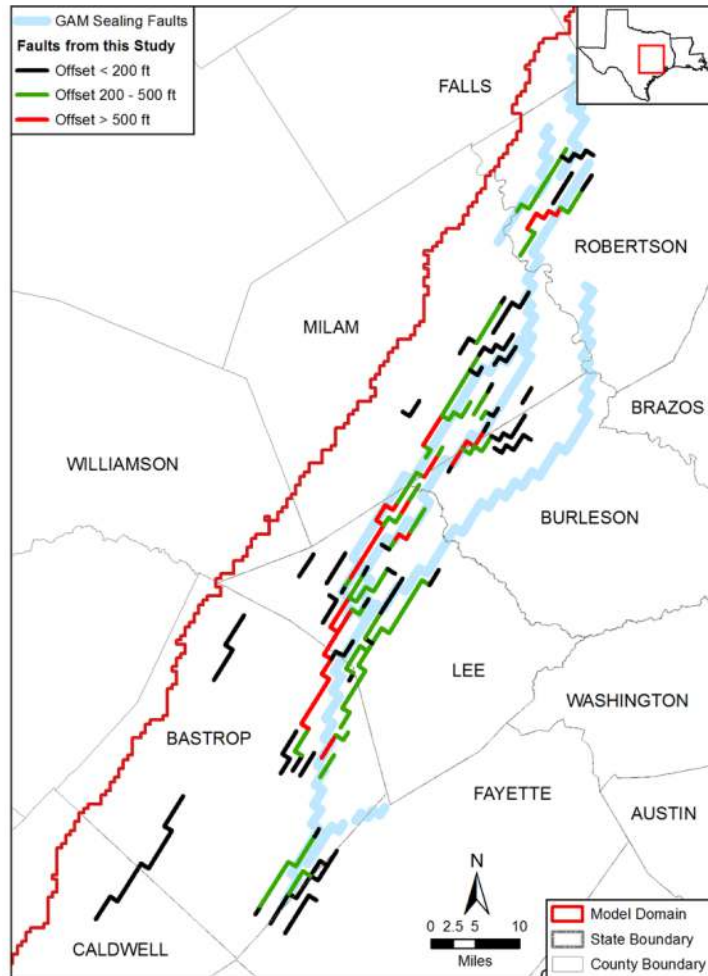
Model Layers and Flows



Mapped Geologic Faults



Impact of Faults on Pumping Tests

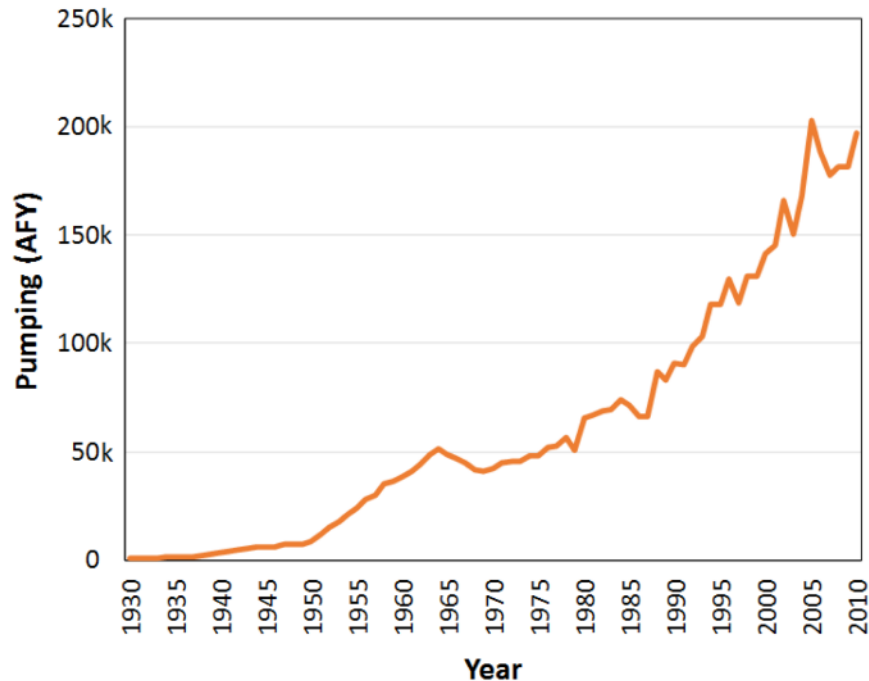


- Percentage of aquifer pumping tests that sense a nearby region of low transmissivity (potential fault barrier), categorized by the distance between the well and the closest mapped fault.

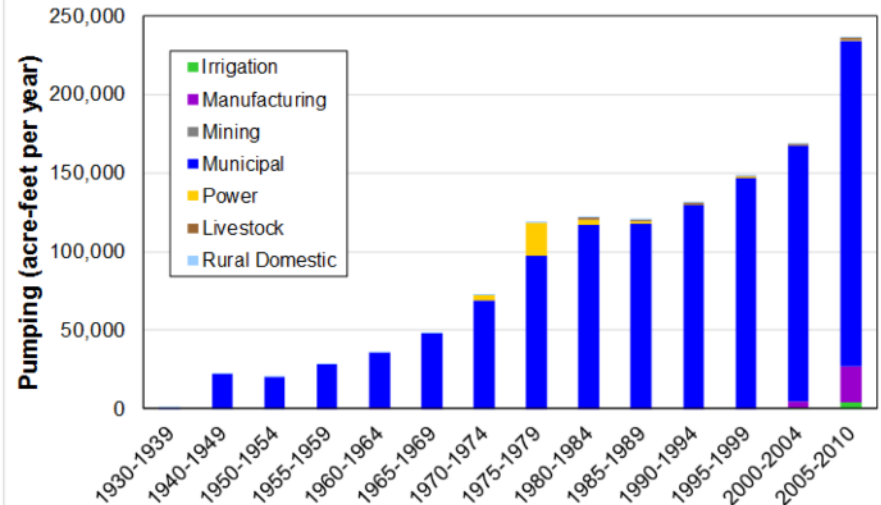
Fault Offset (feet)	Distance from Closest Fault (miles)	Total Number of Wells	Percentage of Wells with T_{late}/T_{early} Ratio < 0.65	Percentage of Wells with T_{late}/T_{early} Ratio < 0.85
> 500	2	10	50%	70%
> 200		17	35%	53%
> 500	4	16	38%	63%
> 200		20	30%	55%
> 500	6	24	29%	50%
> 200		34	21%	38%
> 500	> 8	58	3%	5%
> 200		48	2%	4%

Historical Pumping

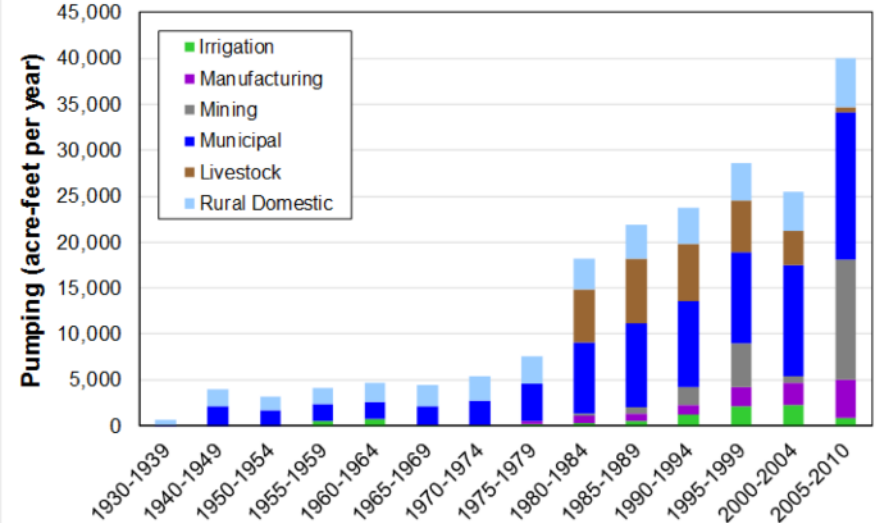
Total GMA 12 Pumping



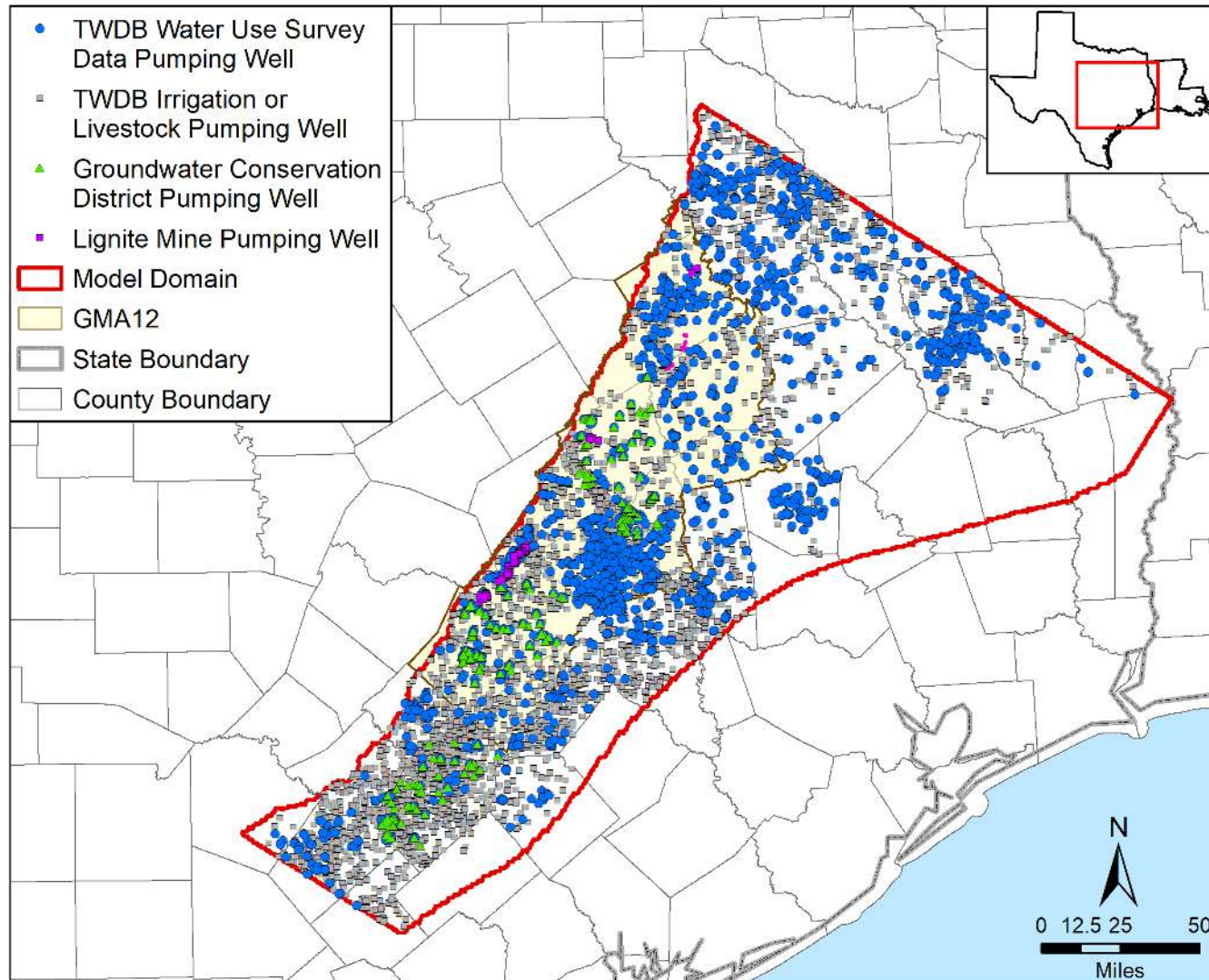
Brazos County



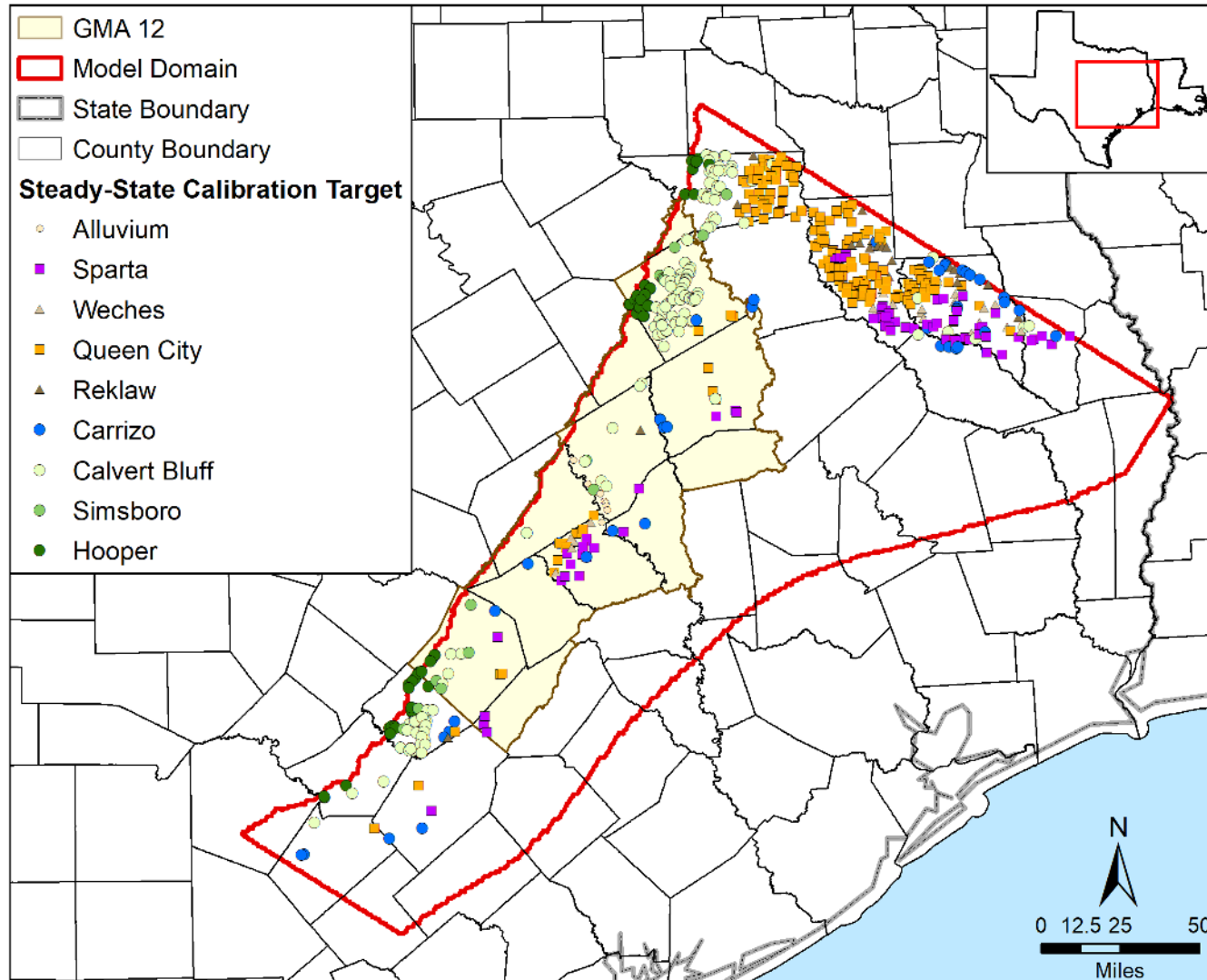
Leon County



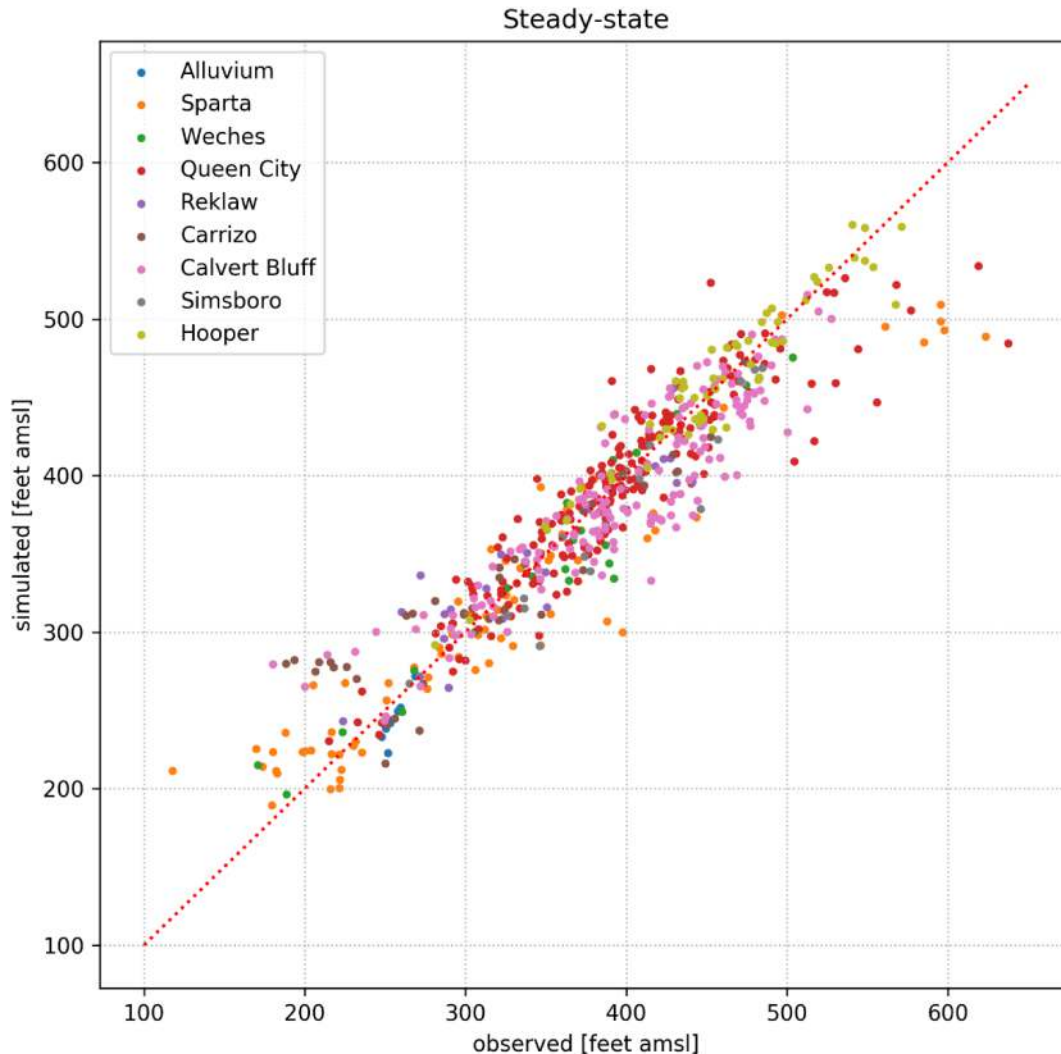
Pumping Wells/Areas



Steady-State Calibration Targets



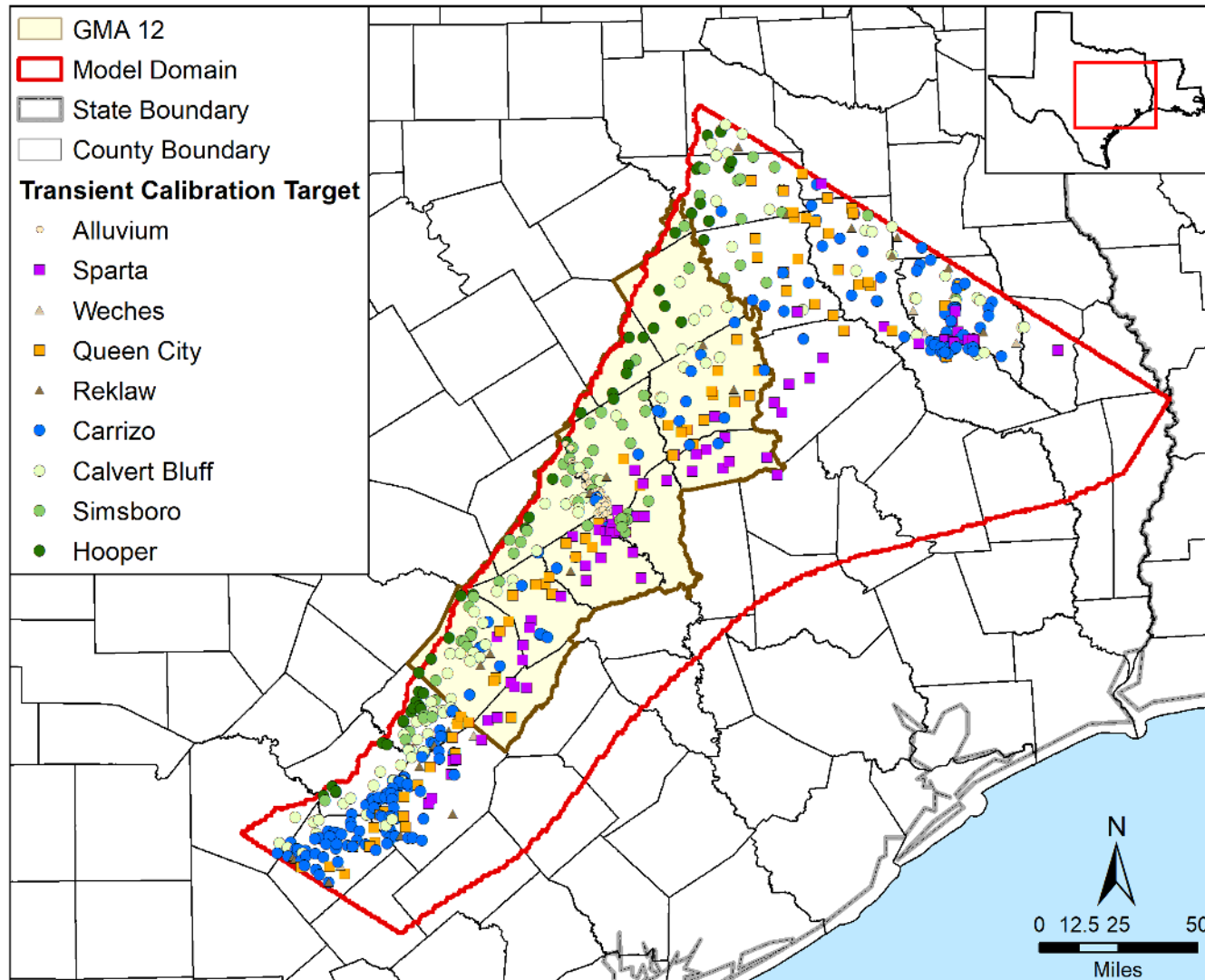
Preliminary Steady State (~1930) Calibration Results for Water Levels Targets from Draft Model



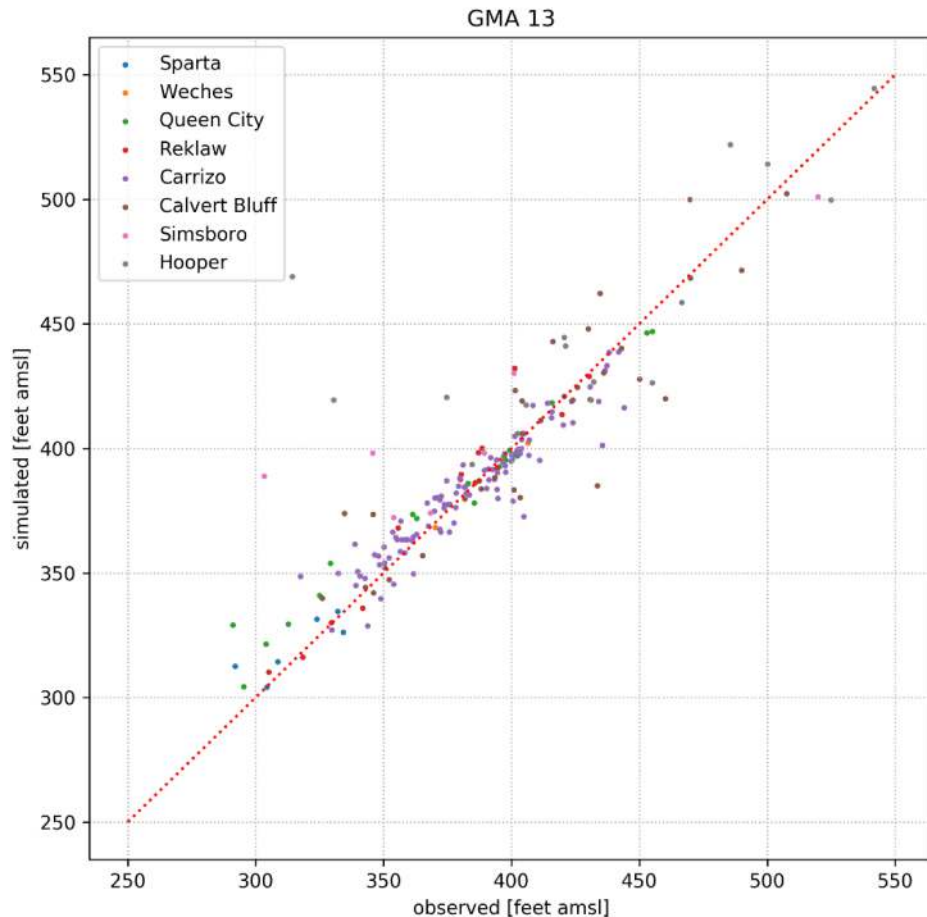
Formation	RMSE

Alluvium	13.9
Sparta	26.8
Weches	20.4
Queen City	20.3
Reklaw	25.3
Carrizo	36.7
Calvert Bluff	27.5
Simsboro	27.9
Hooper	17.4
Surficial	23.0
All	24.9

Transient Calibration Targets (1930 to 2010)

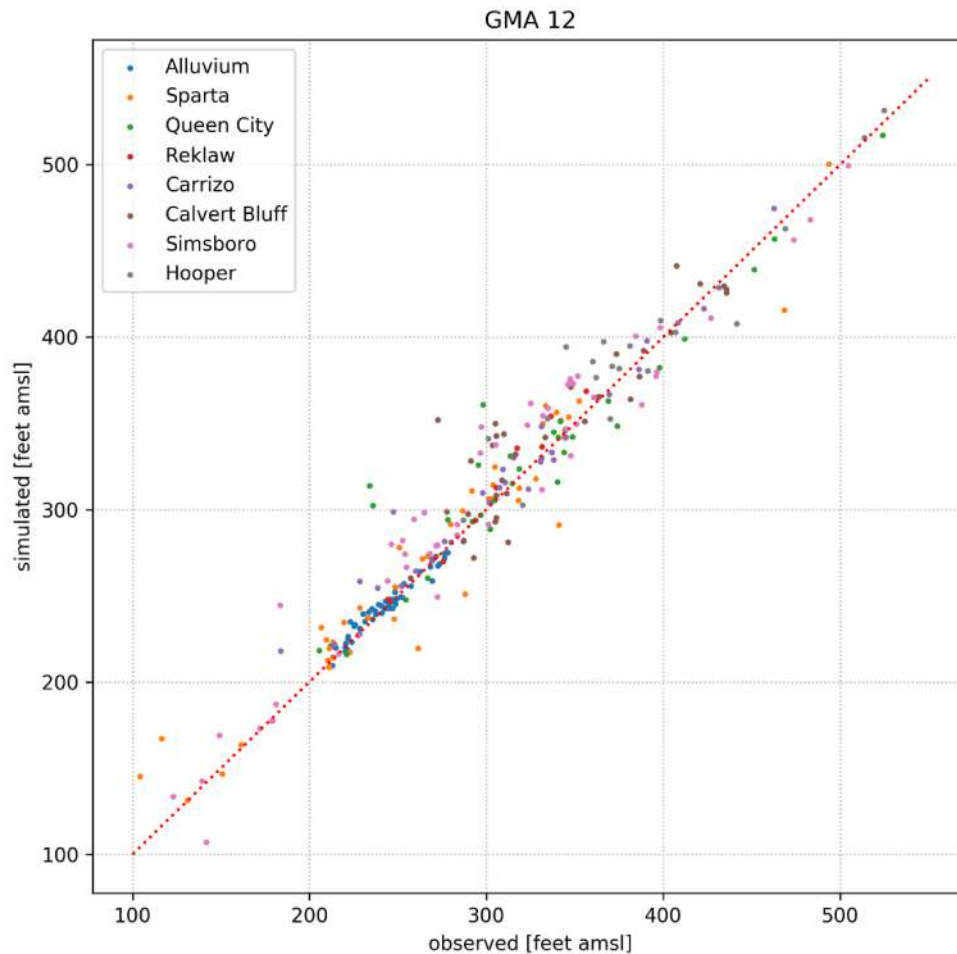


Preliminary Transient Calibration Results for Water Levels Targets from Draft Model



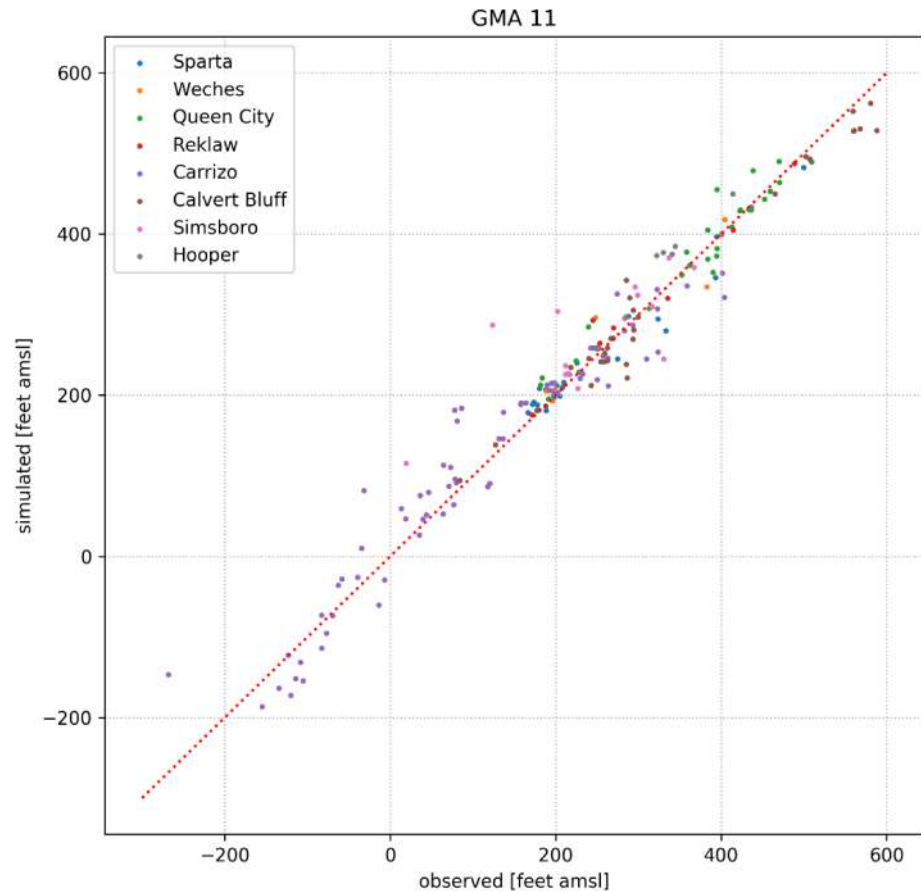
Formation	COUNT	RMSE(M20)
<hr/>		
Sparta	131	12.2
Weches	32	5.2
Queen City	391	10.8
Reklaw	230	9.8
Carrizo	1548	11.1
Calvert Bluff	697	15.5
Simsboro	168	27.7
Hooper	307	44.3
Surficial	683	29.0
All	3504	18.3

Preliminary Transient Calibration Results for Water Levels Targets from Draft Model



Formation	COUNT	RMSE(M20)
<hr/>		
Alluvium	804	5.8
Sparta	781	18.5
Queen City	609	26.0
Reklaw	151	10.0
Carrizo	540	17.8
Calvert Bluff	598	20.3
Simsboro	810	22.1
Hooper	506	21.4
Surficial	609	14.8
All	4799	19.2

Preliminary Transient Calibration Results for Water Levels Targets from Draft Model



Formation	COUNT	RMSE(M20)
<hr/>		
Sparta	255	23.2
Weches	84	23.4
Queen City	507	23.2
Reklaw	126	24.9
Carrizo	1342	44.2
Calvert Bluff	489	21.3
Simsboro	191	67.9
Hooper	220	30.8
Surficial	609	24.4
All	3214	37.3



Questions?