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SUPERIOR COURT OF THE STATE OF CALIFORNIA

FOR THE COUNTY OF SAN BERNARDINO

CHINO BASIN MUNICIPAL WATER DISTRICT,

Plaintiff,

v.

CITY OF CHINO, ET AL.,

Defendants.

Case No. RCVRS51010

[Assigned for All Purposes to the Honorable Carlos M. Cabrera]

EXHIBIT B (Appendix E) TO DECLARATION OF GARRETT RAPP IN SUPPORT OF MOTION REGARDING 2025 SAFE YIELD REEVALUATION, AMENDMENT OF RESTATED JUDGMENT, PARAGRAPH 6

Date: November 13, 2026
Time: 10:00 a.m.
Dept.: S24

BROWNSTEIN HYATT FARBER SCHRECK, LLP
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Exhibit B

Appendix E

Peer Review and Stakeholder Comments and Responses

E1. Responses to Comments for May 2026 Draft of the 2025 Safe Yield Reevaluation Report

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TECHNICAL MEMORANDUM

DATE: May 14, 2026

Project No.: 941-80-25-32
SENT VIA: EMAIL

TO: Todd Corbin

CC: Edgar Tellez Foster

FROM: Garrett Rapp, PE, RCE #86007

REVIEWED BY: Andy Malone, PG

SUBJECT: Responses to Comments for May 2026 Draft of the 2025 Safe Yield Reevaluation Report

OVERVIEW OF REVIEW PROCESS

The 2025 Safe Yield Reevaluation (2025 SYR) was subject to multiple layers of review, including:

- Independent third-party peer review conducted by S.S. Papadopulos & Associates (SSP&A)[1] (see Appendix E-2)
- Technical review and recommendations from the Appropriative Pool (AP) and its consultant, Thomas Harder & Company (THC) (see Appendix E-3)
- Written comments from Watermaster parties and agencies, including the State of California, City of Ontario, Monte Vista Water District, and Jurupa Community Services District (see Appendices E-4 through E-7, respectively)

Following receipt of these comments, Watermaster and West Yost developed a December 2025 scope of work to address the SSP&A and THC recommendations and to incorporate relevant stakeholder feedback. Comments were addressed through two primary mechanisms:

1. Implementation of the scope of work, which resulted in targeted technical refinements to the model and analysis
2. Expanded documentation and clarification in the revised report

[1] Comments and initial West Yost responses are included in Appendix E of the October 2025 Draft 2025 SYR Report.

This technical memorandum (TM) documents:

- How the 2025 SYR was updated through implementation of the scope of work
- How agency and stakeholder comments were addressed in the revised report

IMPLEMENTATION OF PEER REVIEW RECOMMENDATIONS

This section describes the scope work, results, and outcomes of implementation of the selected peer review recommendations.

Scope of Work

Peer review recommendations from SSP&A and THC were evaluated and consolidated into a targeted scope of work designed to:

- Improve transparency of model inputs and outputs
- Confirm hydrologic consistency across model components
- Refine calibration and uncertainty analysis
- Enhance documentation of model assumptions and results

SSP&A reviewed the "model calibration, development of future scenarios, and uncertainty quantification, to assess whether the resulting Safe Yield estimates are reasonable and based on sound underlying technical principles."[2] The review included access to model files, documentation, and supporting model processing scripts. SSP&A concluded that the 2025 CVM is well-calibrated and technically robust; they recommended refinements that were intended to improve confidence in model results rather than fundamentally alter the modeling framework. The scope of work was organized into a series of technical tasks that were implemented for the revised 2025 SYR:[3]

- Task 1. Develop Integrated Water Budgets
- Task 2. Refine Calibration Data
- Task 3. Refine Model Mechanics and Numerical Stability
- Task 4. Prepare, Run, and Process Additional PESTPP-IES Configuration and Projection Ensemble
- Task 5. Update Report and Appendices
- Task 6. Conduct Stakeholder Workshop

[2] SSP&A Peer Review Report, ibid

[3] Business Item III.B. of the January 2026 Watermaster Board Meeting (scope begins on page 193 of the Meeting Package)

- Task 7. Project Management and Meetings

Throughout the implementation of the scope of work, Watermaster and West Yost staff met with SSP&A and THC staff to review intermediate findings, answer questions, and refine the results of the work. Meetings were held on March 5, March 24, April 7, and May 14, 2026.

Summary of Implemented Scope of Work

Task 1 – Develop Integrated Water Budgets

Objective:

Develop comprehensive, internally consistent water budgets across the HSPF, R4, and MODFLOW components of the Chino Valley Model (CVM) to verify mass-balance closure, to improve transparency of inflow and outflow components, and to confirm that the representation of recharge, boundary inflows, and discharge processes are physically realistic and consistent across models. This task directly responded to peer review and stakeholder comments requesting improved transparency and reconciliation of water budget components.

Key Updates:

- Preparation of annual water budgets for model components
- Reconciliation of inflow and outflow terms across models
- Verification of upstream boundary inflows and recharge estimates
- Expanded accounting of recharge components, including precipitation and applied water contributions to DIPAW

Task 2 – Refine Calibration Data

Objective:

Refine the calibration dataset to improve the accuracy and representativeness of model calibration targets by evaluating data completeness, spatial and temporal distribution, and observation weighting, with the goal of achieving a more balanced and defensible calibration across measured groundwater levels and streamflow observations. This task addressed the peer review comments regarding calibration bias, observation weighting, and representation of key hydrologic signals.

Key Updates:

- Revision of groundwater-level observation datasets
- Adjustment of observation weighting, including streamflow targets
- Removal or down-weighting of observations with known bias or redundancy

Task 3 – Refine Model Mechanics and Numerical Stability

Objective:

Evaluate and refine key aspects of model configuration, parameterization, and numerical solution settings to ensure stable and reliable model performance, improve representation of key hydrologic processes, and confirm that model assumptions and parameter ranges remain physically reasonable within the context of the uncertainty analysis framework. This task responded to peer review comments regarding model mechanics, parameterization (including multipliers), and numerical stability.

Key Updates:

- Evaluation and refinement of DIPAW and lateral inflow multipliers
- Adjustment of solver convergence criteria
- Review of pumping representation and boundary conditions
- Refinement of observation noise assumptions

Task 4 – Prepare, Run, and Process Additional PESTPP-IES Configuration and Projection Ensemble

Objective:

Implement an updated calibration and uncertainty analysis using the PESTPP-IES framework to generate a revised ensemble of calibrated model realizations that better capture the range of plausible system behavior, improve agreement with observed data, and provide a robust basis for evaluating future basin conditions and Safe Yield. This task directly addressed peer review recommendations related to uncertainty characterization, ensemble development, and calibration robustness.

Key Updates:

- New PESTPP-IES calibration runs using refined datasets (e.g., streamflow, groundwater levels) and configurations
- Evaluation of calibration performance and residuals
- Selection of representative calibrated realizations
- Updated Projection Ensemble simulations

Task 5 – Update Report and Appendices

Objective:

Revise the 2025 SYR documentation by incorporating additional analyses, improve explanations of model inputs and results, and improve presentation of key findings. This task responded to peer review and stakeholder comments requesting improved explanation of model results and differences between the 2020 and 2025 analyses.

Key Updates:

- Expanded discussion of recharge components, including DIPAW (Section 6.2.1)

- Additional water budget tables and figures (Appendix A)
- Clarification of differences between the 2020 and 2025 CVMs (Sections 4 and 6)
- Improved documentation of assumptions and methodology (Sections 4 and 6)

Outcome

Implementation of the scope of work resulted in targeted refinements to the 2025 CVM and corresponding updates to the 2025 SYR Report, focused on improving transparency and documentation of the analysis:

- Development of integrated water budgets confirmed consistency among model components (particularly the HSPF and R4 models) and improved accounting of recharge and discharge processes, including clearer representation of DIPAW (Appendix A).
- Refinements to calibration data and observation weighting improved balance between groundwater-level and streamflow targets and reduced localized bias while maintaining overall calibration performance (Section 4).
- Updates to model mechanics and numerical settings enhanced stability and clarified the role of key parameters within the uncertainty framework (Section 4).
- The updated PESTPP-IES calibration and Projection Ensemble provided a more robust representation of uncertainty for the 2025 SYR (Section 4).

These updates improve the clarity and traceability of the analysis and enhance confidence in model results. Consistent with the independent peer review, the CVM remains well-calibrated and technically robust, and the refinements implemented resulted in improving transparency rather than fundamentally changing the modeling approach or conclusions.

RESPONSE TO AGENCY AND STAKEHOLDER COMMENTS

Agency and stakeholder comments were reviewed following implementation of the scope of work described above. Comments related to model calibration, recharge representation, uncertainty analysis, and water budget development were addressed through the technical refinements implemented as part of that scope.

The remaining comments primarily relate to interpretation of results, transparency, and documentation, and are addressed through clarification in the revised report. A summary of these comments and responses is provided in Table 1.

SUMMARY

The 2025 Safe Yield Reevaluation was developed through an iterative review process that included independent peer review, stakeholder technical input, and written comments from Watermaster parties and agencies. In response, Watermaster implemented a focused scope of work to improve transparency, consistency, and documentation of the modeling and analysis.

Revisions primarily enhance the clarity and interpretation of results, including water budget accounting, calibration, and documentation of recharge and uncertainty. Agency and stakeholder comments were addressed through these refinements or additional clarification. The revised 2025 SYR reflects a responsive and defensible application of the Court-approved 2022 Safe Yield Reset Methodology and provides a reliable characterization of Basin conditions and Safe Yield.

DRAFT

Table E-1. Summary of Comments and Responses to Party Comments on October 2025 Draft 2025 SYR Report				
ID	Source	Comment Summary	Response	Disposition
1	State (Rees)	Table 4-7 (water budget) should include all components (e.g., groundwater pumping, managed aquifer recharge) for completeness	Table 4-7 was updated to address the comment	Addressed
2	State (Rees)	Provide tabular water budget comparisons between the 2020 and 2025 CVMs (not just figures)	Tables of water budget components can be found in the tables showing each of the chosen calibrated realizations (Tables 4-X and Appendix B).	Addressed
3	State (Rees)	Quantify implications of Safe Yield vs. net recharge on changes in physical storage	The relationship between Safe Yield, net recharge, managed storage, and physical storage is described in Sections 6.1.2.1, 6.2.1.1, and 7.3.1, including Figures 6-13 through 6-15 and Figure 7-27. Additional retrospective accounting of annual net recharge, Court-approved Safe Yield, and unused Safe Yield placed into storage was not added because it is beyond the scope of this evaluation.	Clarified
4	State (Rees)	Concur with West Yost's response that the use of calibrating multipliers for DIPAW and lateral inflow is a reasonable approach to account for uncertainties in these water balance components in the current modeling effort.	No response necessary	Addressed
5	Ontario	The Draft 2025 SYR presents DIPAW trends and their relationship to Safe Yield in a manner that is not fully clear or appears inconsistent. Specifically, the figure showing DIPAW trends suggests stabilization over time, while the narrative indicates that declining DIPAW is a contributing factor to reduced Safe Yield. Ontario requests clarification of how DIPAW trends are represented, how they relate to Safe Yield, and how these relationships should be interpreted in the context of the overall analysis.	DIPAW trends and their relationship to Safe Yield were reviewed and clarified in Section 6.2.1. Additional discussion was included to explain the temporal variability of DIPAW, including the influence of hydrologic conditions, land use changes, and applied water. The report clarifies that while DIPAW is a significant component of recharge, changes in Safe Yield reflect the combined influence of multiple factors, including other recharge components, discharge processes, and the updated CVM calibration and uncertainty analysis.	Addressed
6	MVWD	The magnitude of the reduction in Safe Yield relative to 2020 Safe Yield Recalculation results is not adequately explained or validated.	The revised report includes expanded discussion of differences between the 2020 and 2025 CVMs, including updated calibration, revised recharge estimates, and implementation of the ensemble-based methodology (Sections 4.3.2 and 6.2.1). Regarding validation, the results of the peer review and implementation of the recommendations have demonstrated that the results of the 2025 SYR are reasonable and valid.	Addressed
7	MVWD	Concerns regarding the use of 2022 Safe Yield Reset Methodology (2022 SYRM) relative to prior court-approved approaches	Section 1 describes the process through which the 2022 SYRM was developed, adopted by the Court, and implemented. MVWD staff participated in the peer review during the development of the 2022 SYRM.	Clarified
8	JCSD/AP Letter	Additional time is needed to evaluate results and understand the basis for changes in Safe Yield	Addressed through November 2025 workshop, implementing peer review recommendations, expanding discussion of differences (Sections 4.3.2 and 6.2.1), and subsequent stakeholder communication.	Addressed
9	JCSD/AP Letter	Need clearer explanation of the basis for differences between 2020 and 2025 results and their implications for future planning	See response to Comment 5 above. Discussing the implications for future planning is beyond the scope of this report; however, Section 7 discusses recommendations for exploring optimizing basin operations based on the 2025 SYR results.	Addressed
10	JCSD/AP Letter	Need to understand whether future model refinements could result in similarly large changes	The revised report clarifies that differences between 2020 and 2025 results reflect updated data, calibration, and methodology. Future updates will continue to be influenced by new monitoring data, evolving planning information, and modeling practices consistent with the approved methodology.	Clarified
11	AP Letter	Improve transparency of recharge components, including precipitation vs. applied water contributions	Additional accounting of recharge components was included in the revised water budget documentation to improve transparency (see Appendix A).	Addressed
12	AP Letter	Clarify differences in Santa Ana River infiltration between 2020 and 2025 models	Differences were evaluated and attributed to updated model inputs (hydraulic conductivity parameters) and calibration. Additional explanation was included in Section 4.3.2 of the revised report.	Addressed

E2. Peer Review of the Draft 2025 Safe Yield Reevaluation (October 2025) S.S. Papadopulos & Associates

DRAFT

Peer Review of the Draft 2025 Safe Yield Reevaluation

Prepared for:

Chino Basin Watermaster

Prepared by:

Vivek Bedekar
Christian Langevin

October 16, 2025

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Appendices

Appendix A. Time Series Plots Comparing Observed and Simulated Groundwater Levels

Acronyms

2015 SYRM	2015 Safe Yield Reset Methodology
2020 SYR	2020 Safe Yield Recalculation
2022 SYRM	2022 Safe Yield Reset Methodology
2025 SYR	2025 Safe Yield Reevaluation
AFY	Acre-feet per year
CVM	Chino Valley Model
DIPAW	Deep Infiltration of Precipitation and Applied Water
DWR	California Department of Water Resources
ET	Evapotranspiration

FY	Fiscal Year
MAR	Managed Aquifer Recharge
PESTPP-IES	Iterative Ensemble Smoother from the PEST++ software suite
SSP&A	S.S. Papadopulos & Associates, Inc.

Executive Summary

S.S. Papadopulos & Associates, Inc. (SSP&A) was retained by the Chino Basin Watermaster to perform an independent peer review of the Draft 2025 Safe Yield Reevaluation (2025 SYR; West Yost, 2025).

The purpose of this review was to evaluate whether the methodology, model calibration, and uncertainty analysis used in the 2025 SYR provide a sound and defensible estimate of Safe Yield for Fiscal Years (FYs) 2021–2030.

The Draft 2025 Safe Yield Reevaluation provides a technically sound and defensible foundation for estimating the Chino Basin's Safe Yield. Implementing the recommended refinements will improve confidence in the hydrologic modeling framework, ensure consistency across model components, and strengthen the basis for stakeholder decision-making on basin management.

The 2025 SYR builds upon the 2022 Safe Yield Reset Methodology (2022 SYRM) and represents the latest step in a long series of technical efforts that use the Chino Valley Model (CVM) to estimate Safe Yield. The CVM is part of an integrated hydrologic system that combines surface water, land use, unsaturated zone, and saturated groundwater system. It remains the principal tool for estimating Chino Basin's Safe Yield.

The 2025 SYR estimated a Safe Yield ranging from 116,000 to 119,000 acre-feet per year (AFY), which is lower than the 2020 Safe Yield estimate of 131,000 AFY for the same projection period (FYs 2021–2030). This decrease, though partly attributable to updated data, revised calibration methods, and expanded uncertainty analysis, represents a significant change that has important implications for stakeholders who rely on Safe Yield to guide basin management, pumping rights, and replenishment obligations.

This peer review found that the 2025 SYR demonstrates substantial technical rigor and advancement relative to previous evaluations, particularly in model calibration and the treatment of uncertainty. However, several areas of improvement were identified to further enhance the transparency, consistency, and defensibility of the final Safe Yield estimates. Key recommendations include:

- **Develop integrated water budgets** across all model components (HSPF, R4, HYDRUS-2D, and MODFLOW-NWT) to ensure internal consistency and avoid potential gaps or double-counting.
- **Refine model calibration** by strengthening streamflow and groundwater-level representation, addressing spatial and temporal bias, representing trends, avoiding the use of recharge multipliers that decouple linked model systems, and avoiding randomized observation noise that may distort temporal trends.

Introduction

Chino Basin Watermaster retained S.S. Papadopulos & Associates, Inc. (SSP&A) to perform a peer review of the Draft 2025 Safe Yield Reevaluation (2025 SYR; West Yost, 2025). The purpose of the peer review was to evaluate whether the methodology, model calibration, and uncertainty analysis used in the 2025 SYR provide a sound and defensible estimate of Safe Yield for Fiscal Years (FYs) 2021–2030.

Background

The Chino Valley Model (CVM) has been developed over many years. It simulates a basin with complex hydrology and hydrogeology with inter-basin flows and faulted basin boundaries, and changes in anthropogenic conditions such as land use, water demand and supply, and surface water management, that are referred to as cultural conditions. The integrated model incorporates meteorological data, land use and surface water components, runoff and surface routing, managed recharge, vadose zone induced time lag, streamflow, groundwater flow, and stream-aquifer interaction, within the Chino Valley and the surrounding watersheds. The CVM incorporates observed data from multiple sources for a variety of water budget components, is routinely updated to incorporate new data, uses state of the art modeling tools and methods, and remains the primary tool for calculating Chino Basin's Safe Yield. The integrated model is an amalgamation of four different software programs that are directly or indirectly used to represent the hydrologic system in and around the Chino Basin. It is comprised of Hydrological Simulation Program-FORTRAN, or HSPF (Version 12.5, Bicknell et al., 2005), R4 Model (WEI, 2007), HYDRUS-2D (Rassam et al., 2003), and MODFLOW-NWT (Version 1.3.0, Niswonger et al., 2011).

The Chino Basin's Safe Yield was first defined in the 1978 Stipulated Judgment at 140,000 acre-feet per year (AFY). Subsequent re-evaluations have progressively lowered this figure. The 2015 Safe Yield Reset Methodology (2015 SYRM) estimated a Safe Yield of 135,000 AFY for FYs 2011-2020 and the 2020 Safe Yield Recalculation (2020 SYR) estimated a Safe Yield of 131,000 AFY for FYs 2021-2030. The 2015 SYRM was used for the 2015 and 2020 Safe Yield Recalculations. The 2015 SYRM introduced the use of long-term hydrology in the model rather than only a 10-year look-back period. The 2020 SYR used the long-term hydrology period from 1950-2011 for the planning period.

Stemming from Chino Basin Watermaster's outreach initiatives, a revised Safe Yield Reset Methodology was developed in 2022 called the 2022 SYRM. The current 2025 SYR is a mid-decade reevaluation pursuant to the 2022 SYRM. It continues the 2015 SYRM methodology, which introduced long-term hydrology (1950–2011) and integrates more recent data. The following key tasks were identified based on the 2022 SYRM:

- Recalibrate the CVM.
- Explicitly quantify uncertainty in the estimated Safe Yield.
- Develop future scenarios for climate and cultural conditions to determine a plausible range of future net recharge and groundwater conditions that can cause Undesirable Results or Material Physical Injury.

The historical CVM simulation period is FYs 1992-2022 and Safe Yield was calculated for FYs 2021-2030. Safe Yield was estimated to be between 116,000 and 119,000 AFY. A wider range of Safe Yield estimates was developed considering all the factors considered for the uncertainty.

Objectives

The primary objective of the SSP&A effort was to perform an independent peer review of Draft 2025 SYR. As part of the review, the model, the accompanying report, and relevant past reports, background data and information were reviewed. The peer review focused on model calibration, development of future scenarios, and uncertainty quantification, to assess whether the resulting Safe Yield estimates are reasonable and based on sound underlying technical principles.

The review examined whether uncertainty has been adequately and appropriately addressed, explored the reasons behind changes in the revised safe-yield estimates compared to the 2020 evaluation, whether these differences stem from the incorporation of more recent data, adjustments in projection estimates, or modifications to the model calibration methodology, and assessed whether the tools and analytical methods employed are appropriate for the intended purpose.

Safe Yield Calculations

Background

The Safe Yield calculations are detailed by WEI (2020). The report documents how Chino Basin inflows, outflows, and the change in groundwater storage are considered within the context of the CVM for estimating Safe Yield for FYs 2021-2030. Net recharge calculations for the historical simulation period (FYs 1992-2022), as detailed by WEI (2020), form the basis of Safe Yield calculations. Put simply, both the net recharge and Safe Yield estimates use the same calculations but for two different time periods, historical versus projected.

Sources of Uncertainty

A range of Safe Yield estimates were calculated by the 2025 SYR to account for uncertainty. Two sources of uncertainty were considered: (1) uncertainties in future climate and cultural conditions simulated as **projection scenarios**; and (2) the uncertainty associated with calibration of the CVM quantified using an ensemble of **model realizations**.

The projection scenarios considered future climate variability and water demand conditions in the Chino Basin. Three climate scenarios and three water demand scenarios were considered, resulting in nine unique combinations of future conditions. **Projection Scenarios 1-9** are described in the following section.

Hundreds of model realizations were generated by perturbing input variables such as aquifer properties and boundary conditions as part of the model calibration process. This was facilitated by PESTPP-IES (White, 2018; White et al., 2020), an Iterative Ensemble Smoother from the PEST++ software suite used for parameter estimation and uncertainty quantification in numerical models using an ensemble of model runs. Out of the hundreds of model realizations, five CVM realizations were manually selected for 2025 SYR. These selections were based on calculated net recharge from the individual realizations for FYs 1992-2022. The calculated net recharge from FYs 1992-2022 was used as a surrogate for Safe Yield. The five **Model Realizations (A-E)** were selected to represent the ensemble variability of net recharge. The selected realizations are comprised of the mean net recharge realization (Realization C), one standard deviation on both sides of the mean (Realizations B and D for lower and higher net recharge, respectively) and two standard deviations on both sides of the mean (Realizations A and E for lower and higher net recharge, respectively).

The combination of nine projection scenarios (labeled as numbers 1-9) and five model realizations (labeled as letters A-E) produced 45 unique Safe Yield estimates for the 2021-2030 period as shown in **Figure 1**. A range of approximately 30,000 AFY was estimated when all 45 simulations were considered. To assess the range of uncertainty provided only by the Projection Scenarios, Safe Yield values were plotted only for Realization C, representing the mean Safe Yield realization. **Figure 2** shows that an uncertainty range of approximately 20,000 AFY was represented by the Projection Scenarios, which are a combination of future climate and water demand projections. The contribution of climate projections to uncertainty is in the order of 20,000 AFY, which is the dominant reason for the uncertainty range provided by the Projection Scenarios. Water demand projections provide an uncertainty in the order of 1,000 AFY.

Figure 3 shows that the range of uncertainty provided by Model Realizations A-E plotted for Projection Scenario 1 (average climate and water demand projections) is approximately 10,000 AFY. The average Safe Yield based on **Figure 1** and **Figure 2** are similar, indicating that model uncertainty is contributing to a wider range of uncertainty but is not influencing the average Safe Yield.

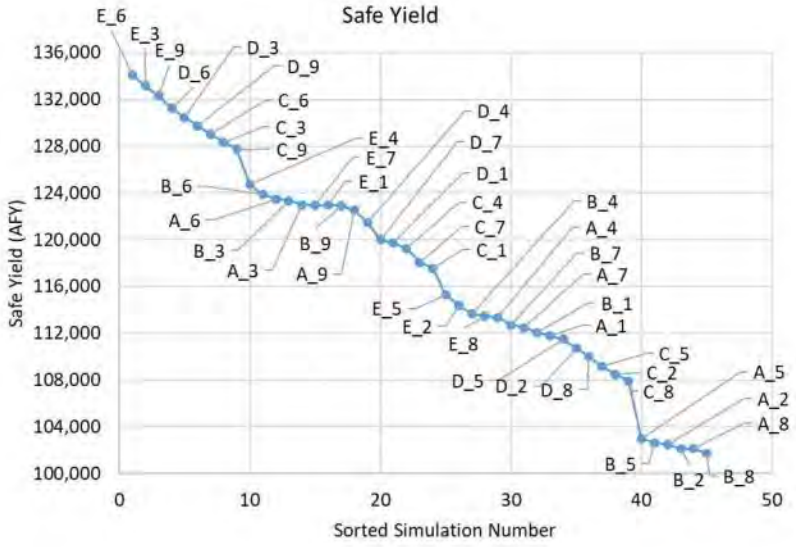


Figure 1. The range of estimated Safe Yield values for the 2021-2030 period within the Chino Basin. The letters A-E represent different model realizations and numbers 1-9 represent projection scenarios.

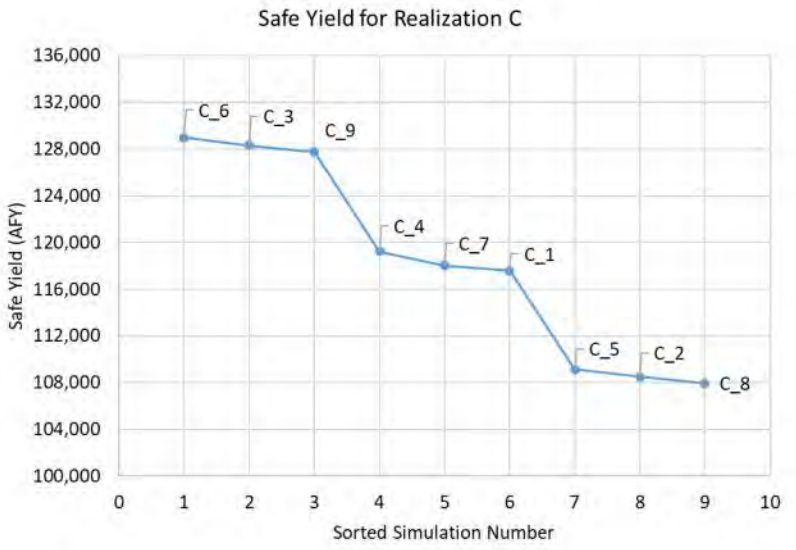


Figure 2. The range of estimated Safe Yield values for the 2021-2030 period within the Chino Basin only considering Realization C (mean net recharge/Safe Yield) with Projection Scenarios 1-9.

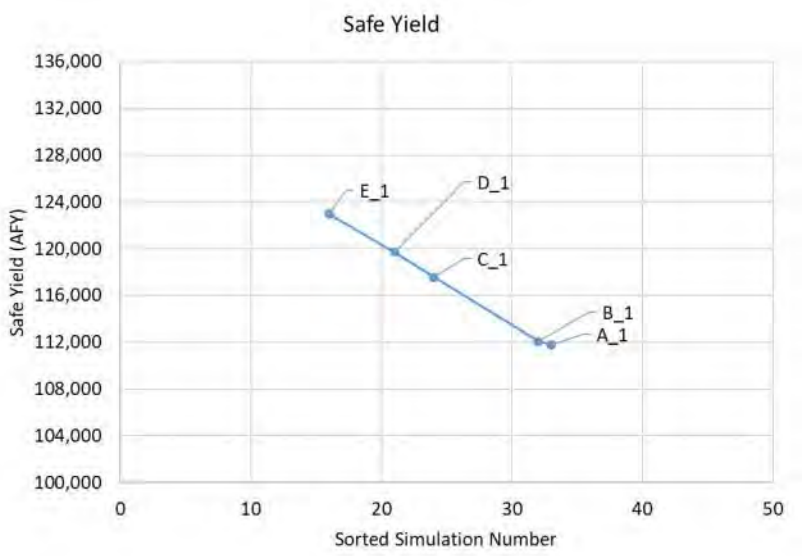


Figure 3. The range of estimated Safe Yield values for the 2021-2030 period within the Chino Basin only considering Projection Scenario 1 (expected water demand) with Realizations A-E.

Review of Safe Yield Estimates

To focus on relevant processes and water budget components, it is critical to understand how Safe Yield calculations were performed. As described by WEI (2020), inflows for the Safe Yield calculations include net subsurface inflow to Chino Basin from surrounding basins, deep infiltration of precipitation and applied water (DIPAW), streambed infiltration, and managed aquifer recharge (MAR) from stormwater. Outflows considered for the calculations include riparian evapotranspiration (ET) and aquifer to stream flow, referred to as 'rising groundwater.' The difference between inflows and outflows listed above provided net recharge, or Safe Yield estimates. These inflows and outflows exclude MAR from recycled and imported water, change in groundwater storage, and groundwater pumping.

MAR from recycled and imported water (supplemental recharge) is not counted towards Safe Yield, hence not included as an inflow term. Historical supplemental recharge data are generally measured. Future estimates of recycled water recharge were provided by the Inland Empire Utilities Agency and future estimates of imported water recharge were calculated based on the projected water rights and use of storage by various stakeholders. Beyond 2023, no additional imported water recharge was assumed for storage and recovery programs. In general, reliable information is available for the supplemental recharge water budget term.

As illustrated by WEI (2020), Safe Yield calculations can be alternatively performed by utilizing the remaining water budget components that are not incorporated in the calculation described above by subtracting groundwater storage depletion and supplemental recharge from groundwater pumping. Two out of the three water budget terms, i.e., groundwater pumping in the Chino Basin and the supplemental recharge, are generally known. The third term, the storage change, which is affected by all inflows and outflows to/from the groundwater system is calculated from the CVM. Change in groundwater storage can also be inferred from temporal changes in measured groundwater levels, and therefore, it is critical that changes in groundwater

elevations at monitoring well locations are well represented by the CVM. Therefore, model calibration, selection of appropriate realizations, and estimated water budget components form key aspects of Safe Yield calculations.

Based on the forgoing discussion, the peer review focused on: (1) Projection Scenarios, particularly on climate projections; and (2) the CVM, exploring water budgets, model calibration, and uncertainty quantification. These items are further discussed in the following sections.

Projection Scenarios

Projection Scenarios are based on three climate projections and three water demand projections. The climate projections consider average, hot/dry, and cool/wet scenarios bracketing Safe Yield estimates based on different meteorological conditions, while water demand projections consider expected, low, and high future water demand.

For generating climate projections precipitation and reference ET were varied in the R4 model resulting in changed recharge to groundwater. Three sets of seven-year periods were selected from historical data to represent FYs 2024-2030 under average, dry, and wet conditions for Safe Yield assessment. Precipitation and reference ET time series for the period FYs 1959-2008 was reused for the projection period of FYs 2031-2080. The documented method for developing the precipitation and reference ET time-series for future projections is consistent with the guidance (DWR, 2018) provided by the California Department of Water Resources (DWR), including the historic period selection and the use of change factors for generating future conditions.

The projected water plan scenarios were developed to capture future cultural conditions. Reference Water Plans were first developed for Overlying Agricultural, Overlying Non-agricultural, and Appropriative Pools. Uncertainty was considered for water demands, groundwater utilization, and imported water utilization. The approach explicitly considers variability in growth, conservation policy, climate impacts on demand, and reliance on different supply sources. Three Water Plan scenarios were developed: Average, High-Demand, and Low-Demand. Total demands changed for the 2025 SYR as compared to the 2020 SYR because of recent data through 2023, updated growth assumptions, explicit climate-demand linkage by incorporating multipliers for precipitation and temperature, and dynamic groundwater and imported water use. Water Plan variability accounts for several factors that reasonably consider uncertainty.

A likelihood weight was ascribed to each of the nine Projection Scenarios. Alternative weighting schemes were evaluated as part of the review and did not have a large effect on resulting Safe Yield estimates. The weights used in the Safe Yield assessment are reasonable.

The key takeaways from the peer review of Projection Scenarios are:

- Climate scenarios provide the largest uncertainty. Therefore, planning efforts for the Chino Basin need to address and mitigate uncertainties associated with climate impacts.
- Water Plan scenarios are based on stakeholder feedback and can be managed by adapting and refining in the future as more data become available.

Model

The CVM is an intricate and interconnected representation of the hydrological and hydrogeological system that it simulates. The complexity of the system emanates from the challenging natural conditions of the basin such as its geological structure and from the surface water and groundwater operations and management that result in complexities such as the inter-basin flows and the surface water groundwater interaction. The model forms the basis of Safe Yield estimates for the Chino Basin, and therefore, there are key aspects of the hydrological system that the model is expected to capture. To assess the model's performance in estimating Safe Yield, the peer review focused on water budgets, model calibration, and uncertainty quantification.

Water Budgets

The integrated model is comprised of four different models that are directly or indirectly simulated in sequence: HSPF, R4, HYDRUS-2D, and MODFLOW. The extents of these models are shown in **Figure 4**. The HSPF domain encompasses the San Gabriel mountains and generally simulates the partitioning of precipitation into ET, runoff, and groundwater recharge. The runoff generated by HSPF becomes inflow to the R4 Model and the recharge from HSPF becomes inflow to the MODFLOW model. The R4 Model receives water from HSPF, simulates precipitation over its extents, and computes runoff, routes the water through managed surface water systems, and calculates recharge from stormwater percolation, precipitation, and applied water on urban and agricultural land uses. **Figure 5** presents a schematic of the connections between different models.

The runoff and recharge calculated by R4 is used as an inflow boundary for the stream network simulated by MODFLOW and as a recharge boundary for MODFLOW, respectively. The shallow infiltration from R4 applied to MODFLOW as deep infiltration was time-lagged to account for seepage through the unsaturated zone. The time lag was varied in space with different areas lagged differently ranging from 1 to 36 years. HYDRUS-2D was used to estimate the distribution of lag and documented by WEI (2020). HYDRUS-2D was not simulated for the 2025 SYR assessment.

During the peer review it was unclear whether water budgets were consistent and balanced within each model and between different models, particularly with regards to the R4 Model. The R4 Model plays a crucial role in providing: (1) Inflows to streams, which feeds to streamflow calibration within MODFLOW; (2) Lateral inflow to MODFLOW; and (3) Recharge to MODFLOW.

Inflow to streams in MODFLOW partially come from runoff calculated by the R4 Model. This is important because outflow from the basin measured at the Prado Dam outflow gage is a key component for water budgets for the overall system. Similarly, lateral inflow to MODFLOW in many parts of the basin is provided by R4. It is important to ensure that the spatial components of R4 properly account for recharge, runoff, and infiltration occurring outside of the CVM MODFLOW model domain providing lateral inflows to MODFLOW, to avoid potential errors such as double counting or gaps in water budgets.

As part of model calibration, discussed in further detail below, recharge applied to MODFLOW was decreased for history matching. However, this approach created a disconnect between the shallow infiltration of water

and its deep percolation to the saturated zone. Given that the CVM represents an integrated system, modifying the recharge received by MODFLOW raises concern about whether the adjustment is physically justified and which component of the overall water budget (such as runoff, unsaturated zone storage, or surface ET) it is implicitly compensating for.

The application of lagging water movement through the unsaturated zone introduces several considerations that need to be carefully evaluated. First, the applied lag values need to be assessed for physical realism by validating whether they represent plausible delays between infiltration and recharge. This evaluation needs to be supported by real-world observations, such as groundwater-level responses to known recharge events. Second, the potential for numerical artifacts introduced by lagging needs to be examined, particularly within the unsaturated zone where storage may be consistently accumulating or depleting, as such artifacts can distort the simulated water budget and affect overall model balance.

Based on these evaluations, the necessity of including lagging needs to be confirmed. If lagging is found to improve model realism, its implementation needs to be calibrated and validated to ensure that it enhances model performance without introducing bias or imbalance in the simulated water budgets.

Following are the recommendations from the review of the suite of integrated models:

1. Develop comprehensive water budgets within and between the individual models (HSPF, R4, and MODFLOW) to ensure consistency and balance across the integrated system.
2. Consider incorporating the R4 Model within the calibration process to better link surface-water and groundwater components and improve streamflow calibration.
3. Reassess the lag representation for both physical realism and numerical integrity, confirming its necessity through comparison with observed groundwater responses.

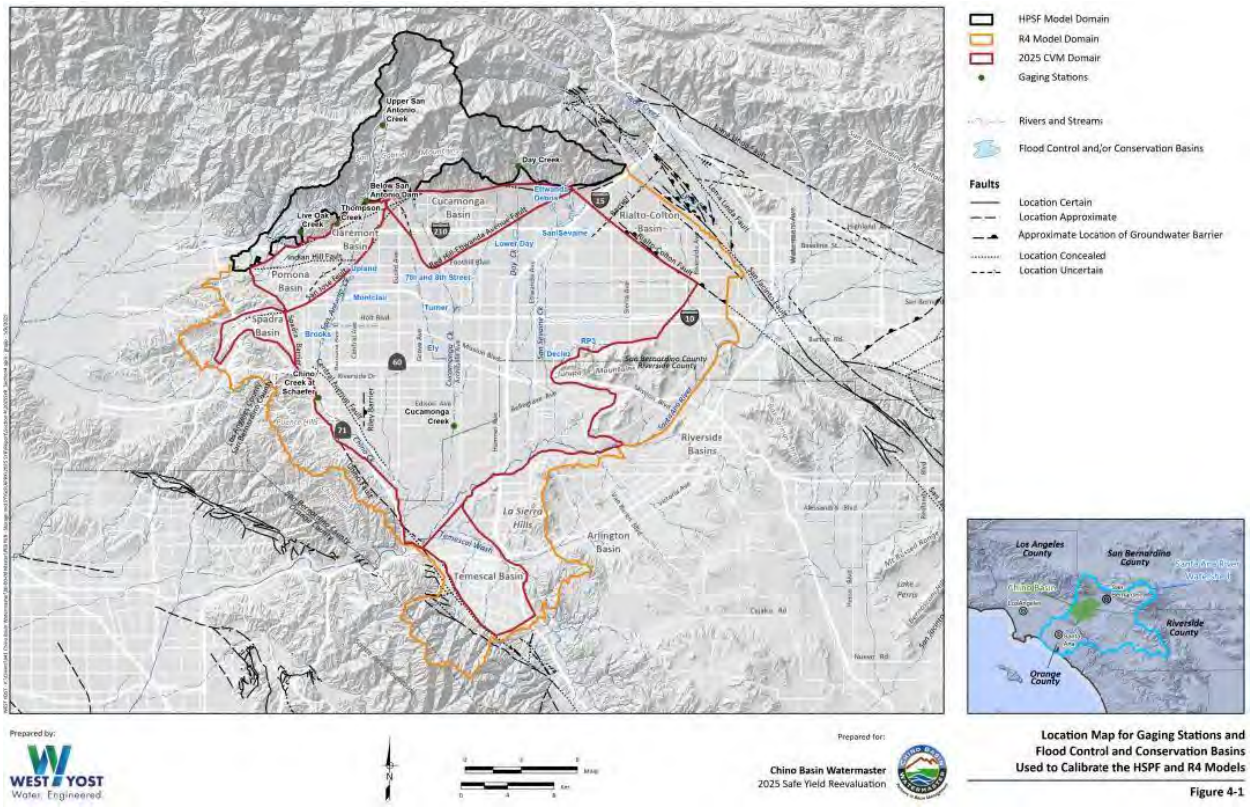


Figure 4. The spatial extent of the HSPF model, R4 Model, and the Chino Valley Model (*reproduced from West Yost (2025) Figure 4-1 of the Draft 2025 SYR*).

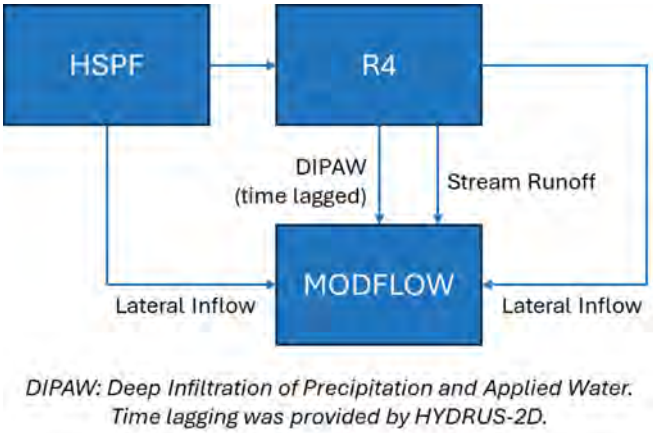


Figure 5. A schematic illustrating connections between different modeling software used for the integrated hydrological model. Note that this is not a complete water budget schematic.

Model Calibration

As part of the peer review of the CVM the following items were reviewed: (1) history-matching of observed data, i.e., streamflow and groundwater levels; (2) calibration of aquifer parameters and the plausibility of these parameters; and (3) calibration of boundary conditions.

Streamflow Observations

A combination of streamflow and groundwater-level observations provides essential constraints on the water budget and helps reduce model uncertainty. Streamflow observations at the Prado Dam outflow gage represent a critical dataset for model calibration. However, an error was identified in the PEST setup for streamflow observations, and as a result, streamflow did not meaningfully contribute to the overall objective function.

The overall streamflow calibration is primarily influenced by specified inflows to the SFR package, which are partly generated using the R4 Model. The groundwater model contributes only about 5–10% of the total streamflow. Because these specified inflows play a critical role in model calibration, developing consistent water budgets is vital for improving calibration integrity. Incorporating the R4 Model within the calibration framework would help achieve this integration.

Streamflow observations need to be incorporated within PEST to constrain flows between the groundwater and stream systems. If the R4 Model is included in the calibration framework, the weight assigned to streamflow observations should be increased to ensure that streamflow contributes more effectively to the overall objective function.

Groundwater Level Observations

Groundwater levels were the primary dataset used for model calibration. Overall, the average conditions in the Chino Basin are well represented by the model as seen in **Figure 6**, however, a spatial bias is apparent based on the spatial distribution of average groundwater level residuals over the simulation period with northern and eastern areas overpredicting groundwater levels and western areas consistently underpredicting groundwater levels.

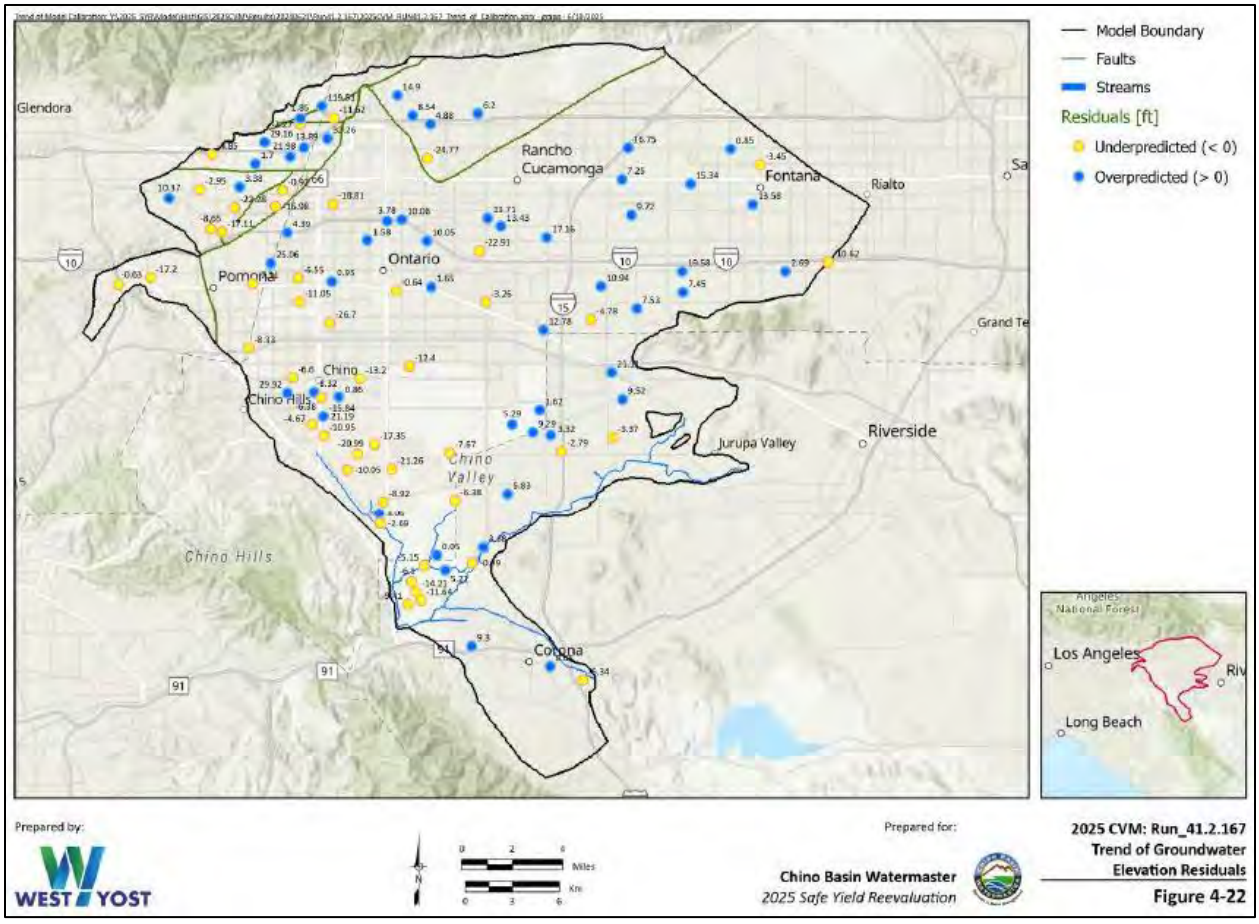
To examine the change in spatial bias with time, a residual map and scatterplots are shown in **Figures 7, 8, and 9** for the periods 1991-2001, 2001-2011, and 2011-2022, respectively. Spatial bias is more pronounced for later times during the simulation. A temporal bias is also highlighted with groundwater levels generally overestimated initially and underestimated towards the end of the simulation. Addressing spatial and temporal bias is important for the model to reasonably represent conditions in the valley in the context of basin-wide groundwater management.

The spatial and temporal bias was further examined by reviewing groundwater level time series comparing observed and simulated groundwater levels. **Figure 10** presents example hydrographs illustrating that in some hydrographs the collection of realizations bracket observed data, some hydrographs are biased too low with all realizations underpredicting groundwater levels particularly to the west and some hydrographs are

biased too high with all realization overpredicting groundwater levels particularly in the northeast areas of the basin.

Figure 11 shows example hydrographs illustrating that recent trends of increasing observed groundwater levels are misrepresented by the model, which shows an opposite declining trend during the last decade. Increasing groundwater levels indicate storage accretion that directly influences Safe Yield estimates. The incorrect representation of these trends is likely to result in an underestimation of the Basin's Safe Yield.

All hydrographs are provided in **Appendix A**.



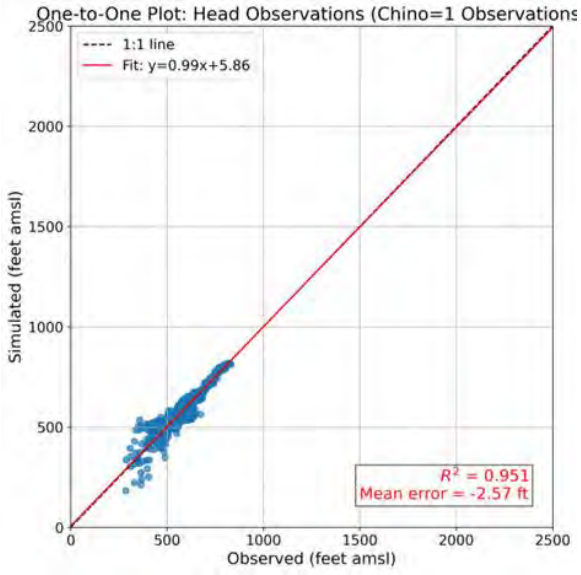
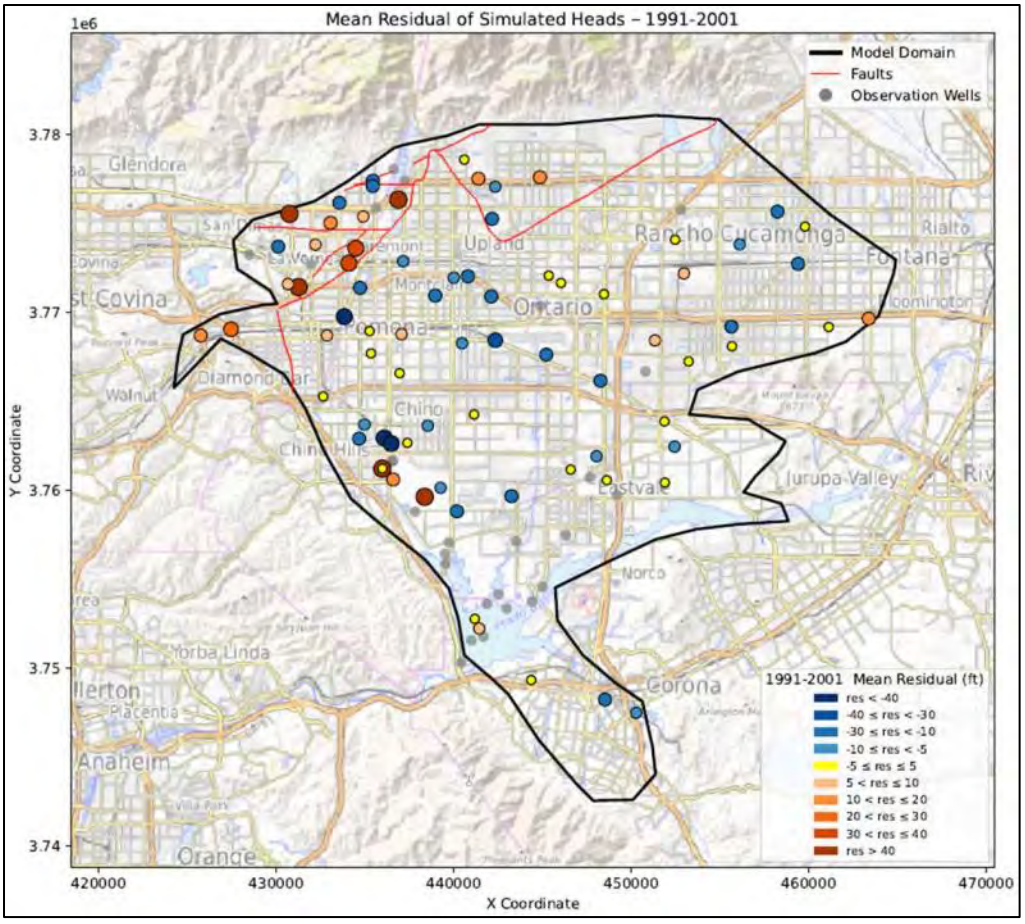


Figure 6. Map showing spatial distribution of groundwater level residuals and scatterplot comparing observed and simulated groundwater levels within the Chino Basin for the entire simulation period.



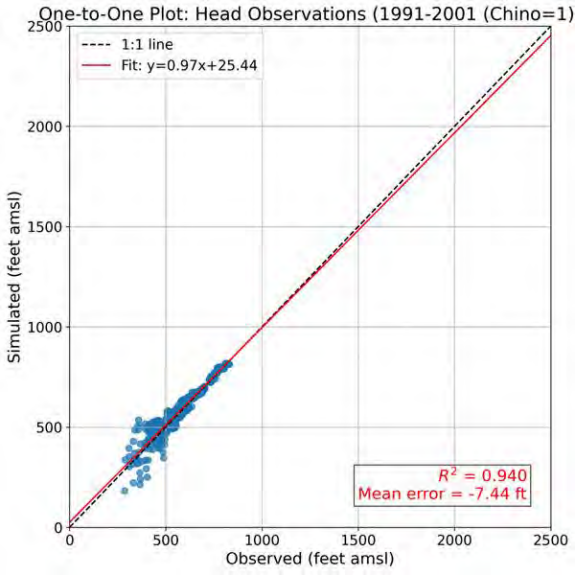
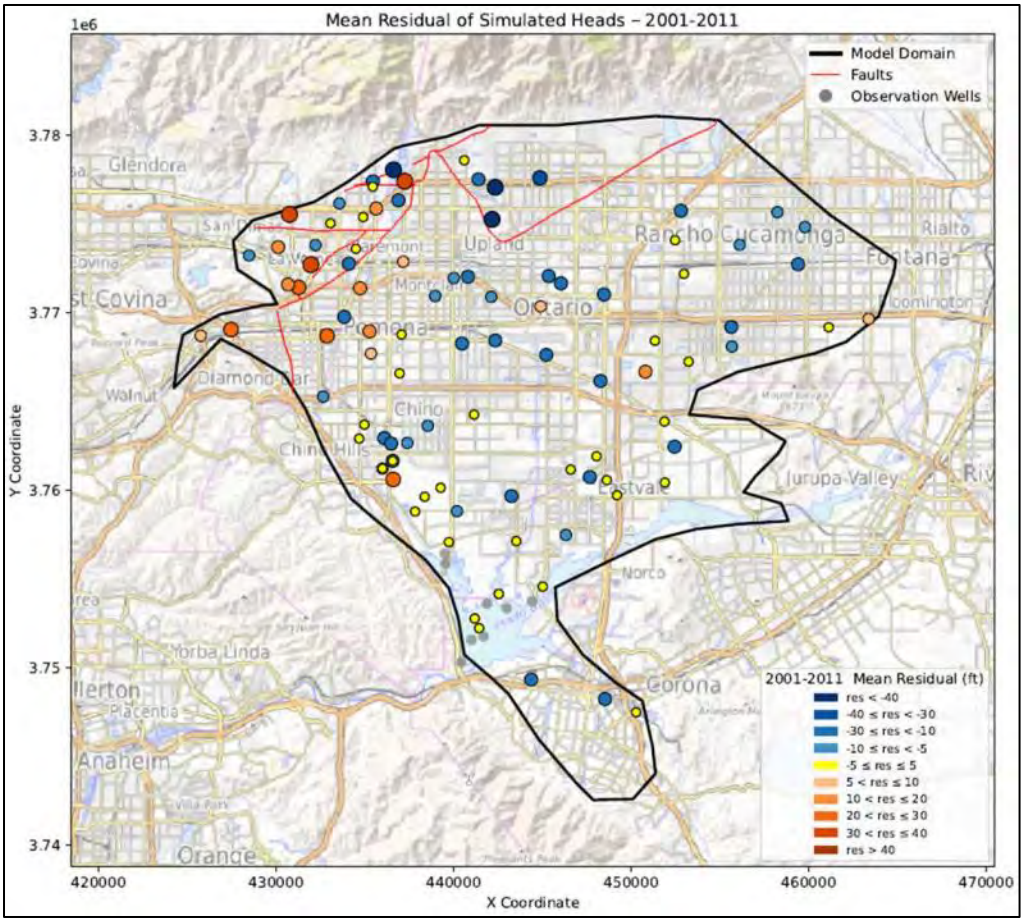


Figure 7. Map showing spatial distribution of groundwater level residuals and scatterplot comparing observed and simulated groundwater levels within the Chino Basin for FY 1991-2001.



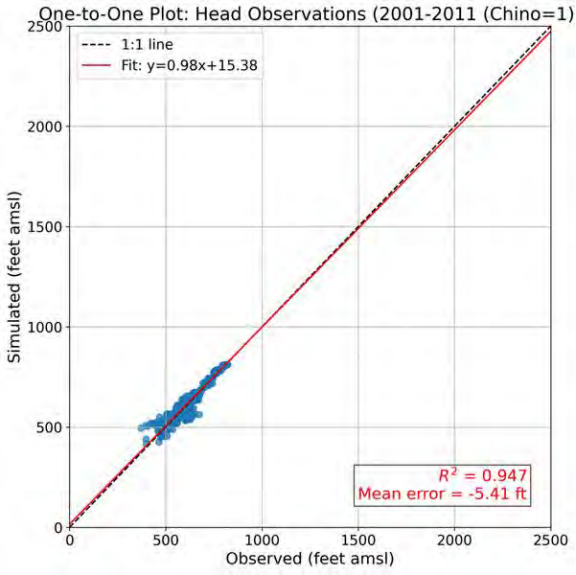


Figure 8. Map showing spatial distribution of groundwater level residuals and scatterplot comparing observed and simulated groundwater levels within the Chino Basin for FY 2001-2011.

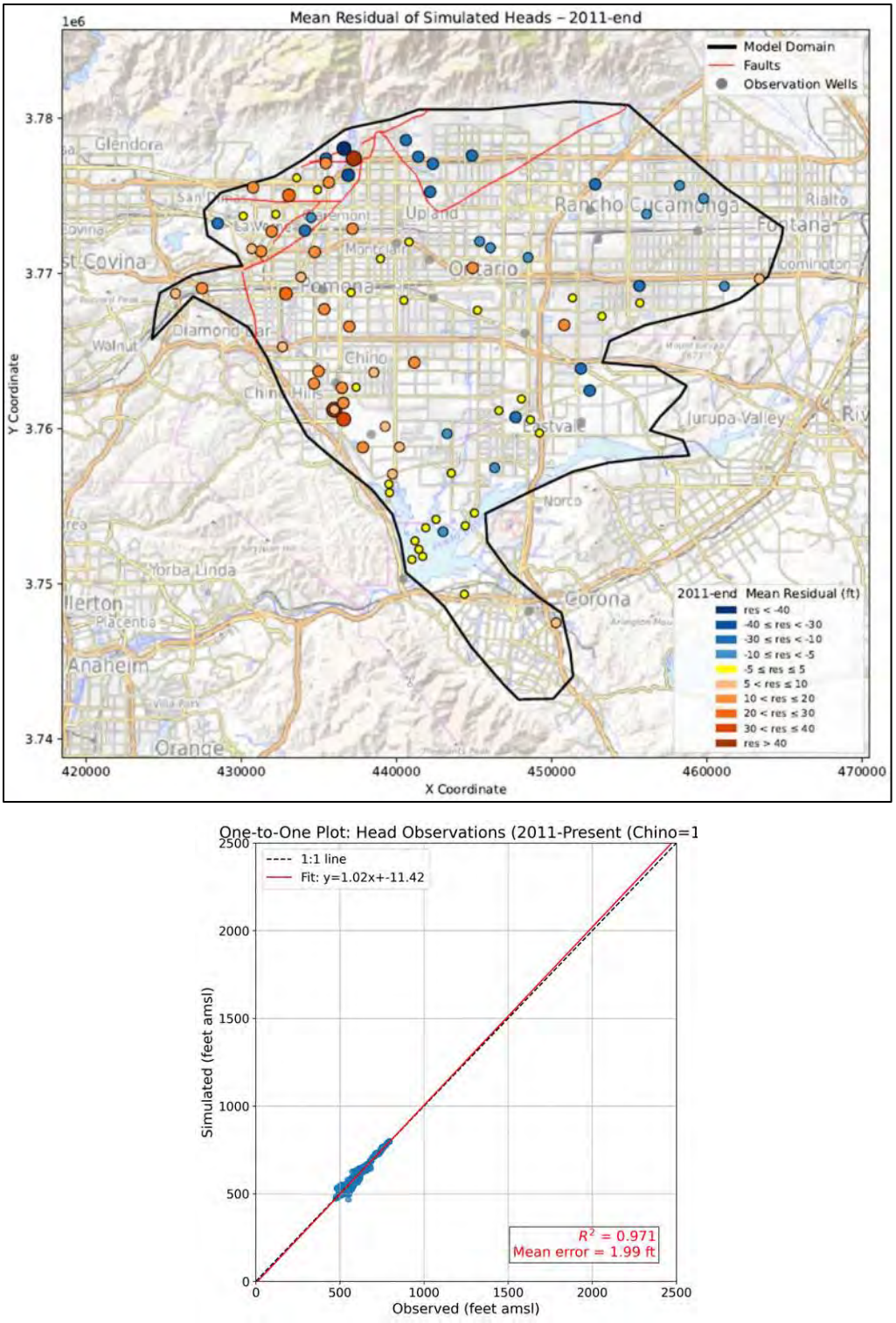


Figure 9. Map showing spatial distribution of groundwater level residuals and scatterplot comparing observed and simulated groundwater levels within the Chino Basin for FY 2011-2022.

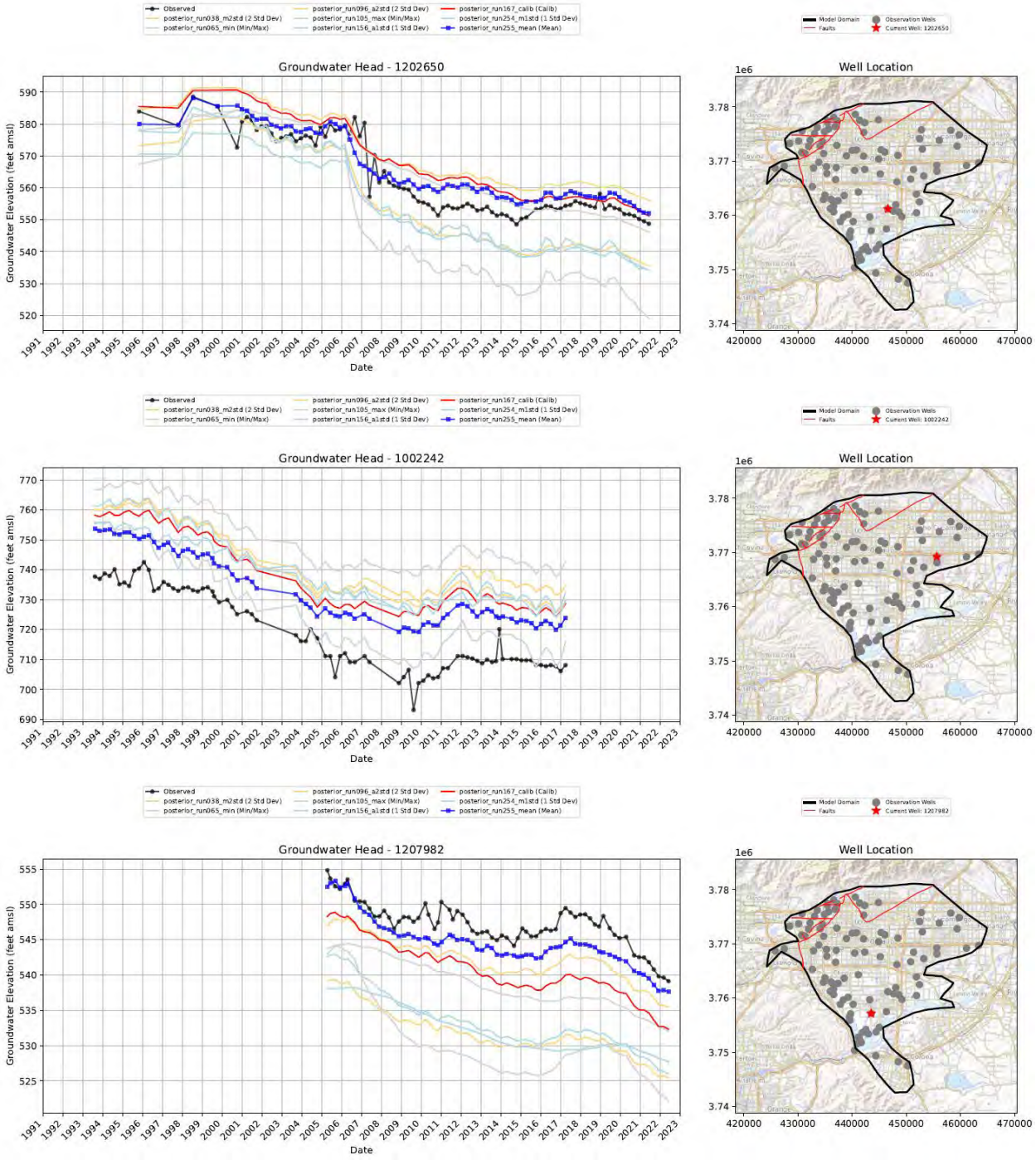


Figure 10. Time series plots comparing observed and simulated groundwater levels. Plots for all observations are provided in Appendix A.

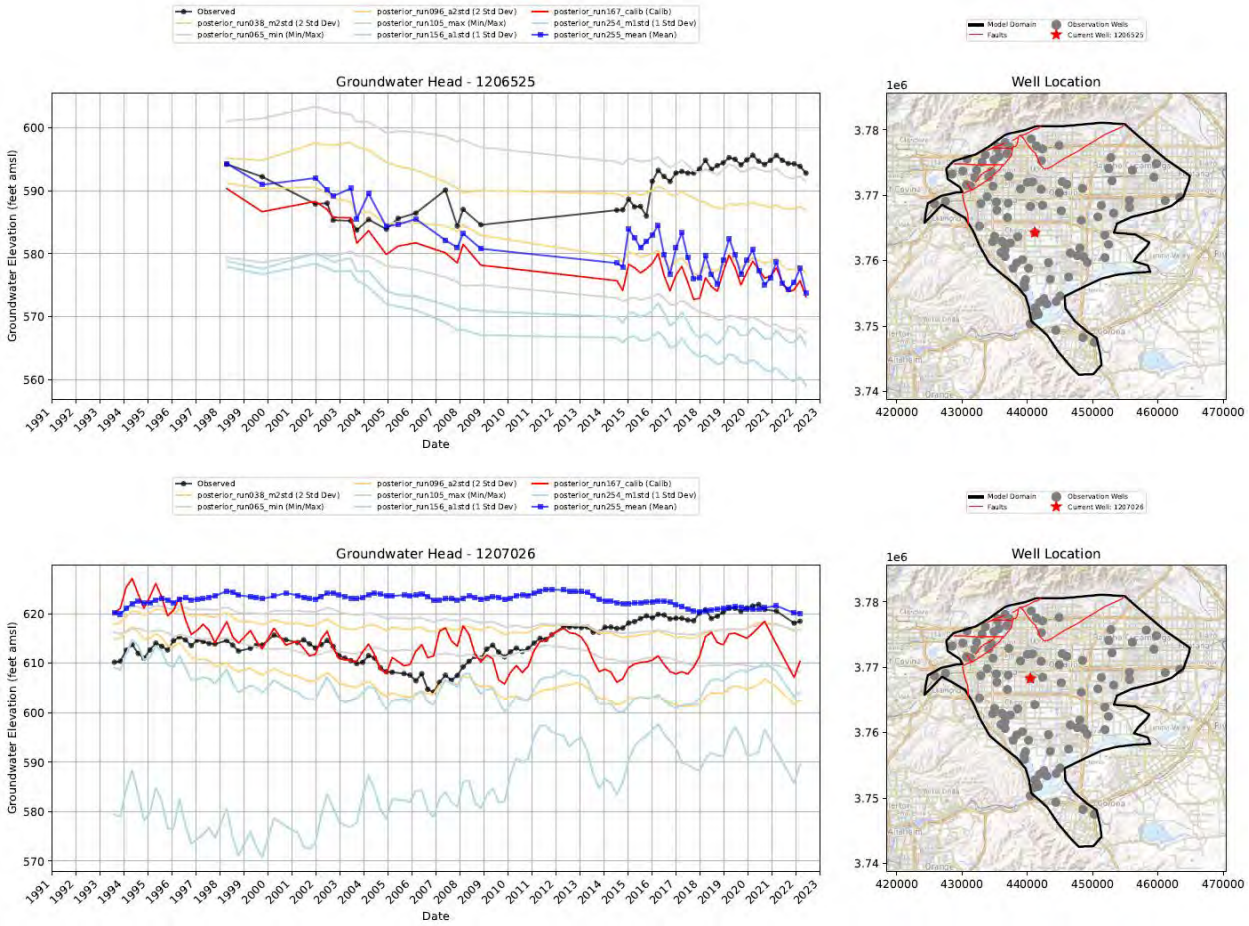


Figure 11. Time series plots comparing trends in observed and simulated groundwater levels.

Aquifer Properties

In addition to history-matching of observations, it is equally important that the calibrated aquifer parameters are within reasonable ranges. Overall, the calibrated values of aquifer properties are within reasonable ranges.

Boundary Conditions

Groundwater recharge, ET, and lateral inflow time series were changed during calibration by applying a multiplier to the recharge, ET, and inflow inputs. The calibrated ET multipliers were centered around 1.0 indicating that the overall ET is consistent with the inputs. However, recharge multipliers consistently reduced the applied recharge with a minimum, average, and maximum multiplier of 0.9, 0.94, and 1.0, respectively. The lateral inflow multipliers also reduced inflow rates, but to a lesser extent.

Given that the groundwater recharge was derived from the R4 Model, which was also validated as part of the 2025 SYR, changing groundwater recharge leads to a disconnect between different modeling systems that are

part of the same integrated system. It is recommended to avoid using recharge and lateral inflow multipliers as part of model calibration.

Model Calibration Findings

Streamflow and groundwater level observations on average, are well represented by the CVM. The calibrated aquifer properties are also within a reasonable range. However, there are specific issues that were identified during the peer review that can improve the Safe Yield estimation of the Chino Basin. To address these issues, following are the recommendations related to model calibration.

Key recommendations for streamflow observations include:

- Incorporate streamflow observations within PEST and increase their weighting to ensure that streamflow observations meaningfully contribute to the overall calibration objective function.
- Evaluate the reasonableness of surface headwater inflows to streams to confirm that upstream boundary conditions are appropriately represented.
- Consider integrating the R4 Model within the calibration framework to improve consistency between surface-water and groundwater systems and strengthen overall water-budget accounting.
- Consider incorporating cumulative streamflow volumes as additional observations to aid in the model calibration. This will help constrain the overall flow budgets of the system.

Key recommendations for groundwater level observations include:

- Avoid calibrating multipliers for DIPAW and lateral inflow.
- Consider storage change as an additional calibration target in the form of “head change” targets or “type-hydrographs” if cluster analysis is performed.
- Monitor calibration improvement in groundwater levels.
  - Address spatial bias in the model – north and east heads overestimated, west underestimated.
  - Ensure that recent trends showing increasing groundwater levels are well represented.

Additional recommendations for the CVM include:

- Address pumping curtailment in the model to ensure that all the prescribed pumping is simulated. Pumping curtailment happens automatically with MODFLOW-NWT when simulated water levels are too low. Consequently, the rate of groundwater extracted by the model may not match the specified extraction rate.
- Currently the head closure criteria is set to 15 feet. It is recommended to reduce this value to the extent practical. A maximum of one foot is recommended.
- Check if any pumping wells are co-located with a constant head boundary.
- Include stream inflows for the last stress period that are currently missing.

Uncertainty Quantification

The uncertainty quantification was facilitated by the software PESTPP-IES. Starting with the prior parameter ensemble based on manual calibration, two PESTPP-IES iterations were performed to generate hundreds of model realizations. Out of hundreds, five realizations labeled A-E were selected based on their net recharge estimates. The five realizations represented the mean, +/- one standard deviation, and +/- two standard deviations of net recharge, capturing a wide range of values representing model uncertainty. The range of net recharge values are shown in **Figure 12**.

To assess the effect of model calibration, net recharge was calculated for two more simulations in addition to the five selected realizations. The first model was the 'calibration' model. This model is one of the realizations that provided the lowest objective function, a measure of model calibration. The selected 'calibration' model is the same as the realization presented in the 2025 SYR report (West Yost, 2025) to illustrate model performance. The second model was the 'base' model. This model was simulated using the 'base' parameters that PESTPP-IES creates as a starting point for the subsequent calibration iteration. Net recharge values for the 'calibration' and the 'base' models are also shown in **Figure 12**. The net recharge calculated using the additional models is greater than the net recharge based on the 'mean' realization (Realization C) by 2,000 to 4,000 AFY. Note that the net recharge estimates are equivalent to Safe Yield estimates in terms of calculations, but the difference is the period over which the calculations are made. Net recharge computes average values for the simulation period FY 1992-2022 whereas Safe Yield calculations are made for the FY 2021-2030 period.

To account for measurement uncertainty, PESTPP-IES offers an option to introduce measurement noise in the calibration process. Measurement noise was introduced for both the streamflow data and groundwater level data. An example histogram of the introduced noise is shown in **Figure 13**. For streamflow data, the noise creates negative values that are physically meaningless. Moreover, the observation at Prado Dam is a key observation that is closely monitored and has a long period of record and therefore, it is questionable whether observation noise should be considered for that observation. It is recommended that measurement noise should be avoided for streamflow observations.

With regards to groundwater level observations, **Figure 13** shows that more than 30 feet of noise was introduced during the calibration process and **Figure 14** shows the time series of the randomized noise. The approach of introducing randomized and uncorrelated noise can mislead the calibration process and potentially lead to misrepresentation of trends. The use of uncorrelated observation noise for time-series hydrographs can also artificially reduce uncertainty estimates. Based on these findings, it is recommended that introducing noise be avoided, and if needed a systematic approach be used rather than using randomized noise. A systematic approach will retain the head changes observed within a hydrograph, which is an essential component when Safe Yield estimation is the principal objective of the model.

Following is a summary of findings and recommendations for uncertainty quantification:

- Model uncertainty is not fully captured. Several observations are outside of the modeled range provided by selected realizations.

- Enhance model uncertainty quantification by basing representative model realizations on both calibration quality and net recharge variability.
- Avoid the use of random noise in observations.
  - » Avoid streamflow observation noise.
  - » Avoid observation noise in groundwater, if possible; or use systematic noise that retains temporal changes in individual hydrographs to capture change in storage.
- In the report (West Yost, 2025):
  - » Add uncertainty bands around groundwater level time-series plots in Appendix B.
  - » Presenting calibration realization does not provide insights into how the model that is selected for Safe Yield calculations is really performing. It is recommended that calibration results for the 'mean' realization (Realization C) be presented in the report since it forms the basis of Safe Yield estimates.

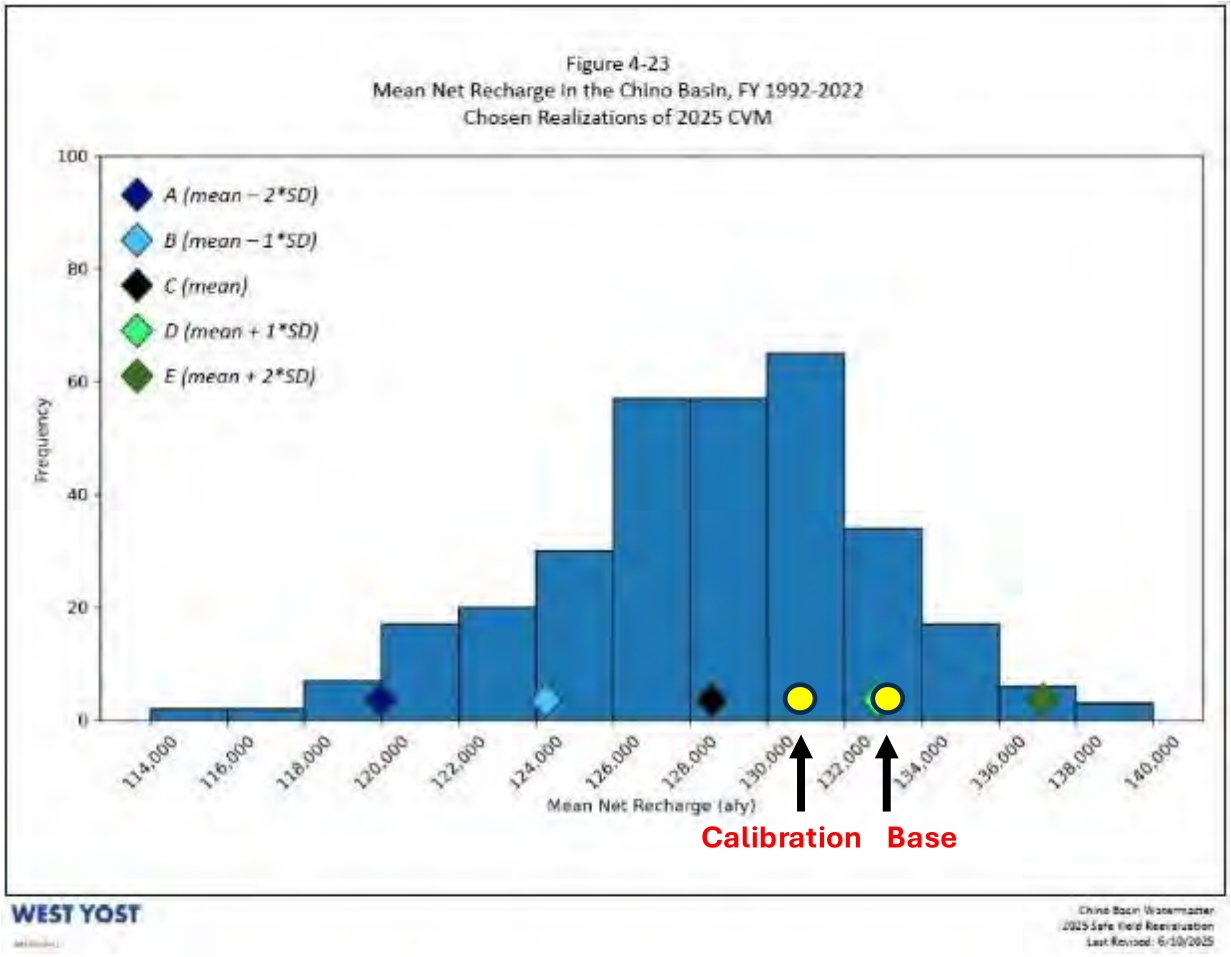
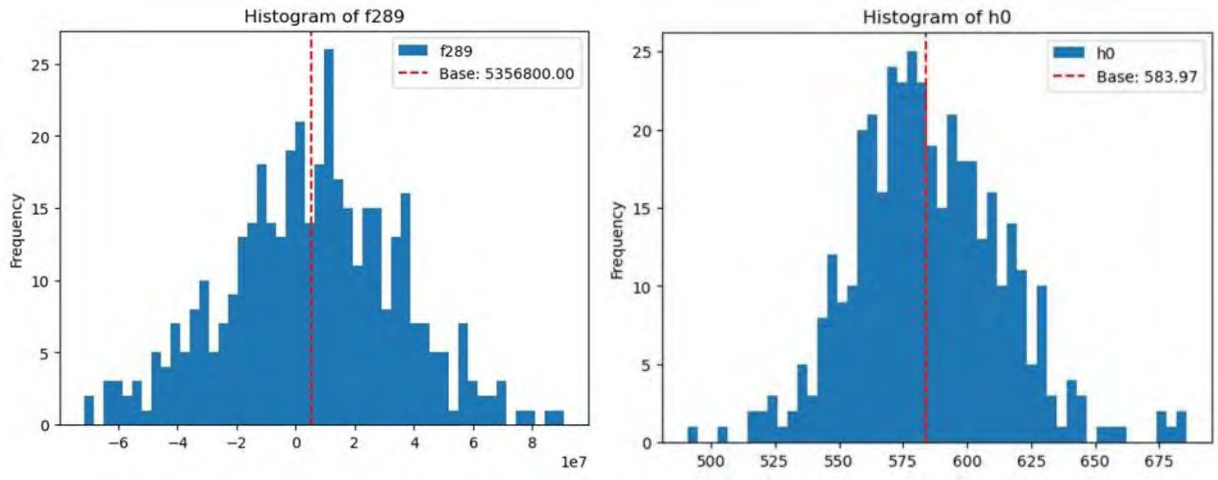


Figure 12. Comparison of net recharge estimates between selected realizations and calibrated simulations (*background image reproduced from West Yost (2025) Figure 4-23 of the Draft 2025 SYR*).



(a) (b)

Figure 13. Examples of observation noise used as part of model calibration for (a) streamflow; and (b) groundwater levels.

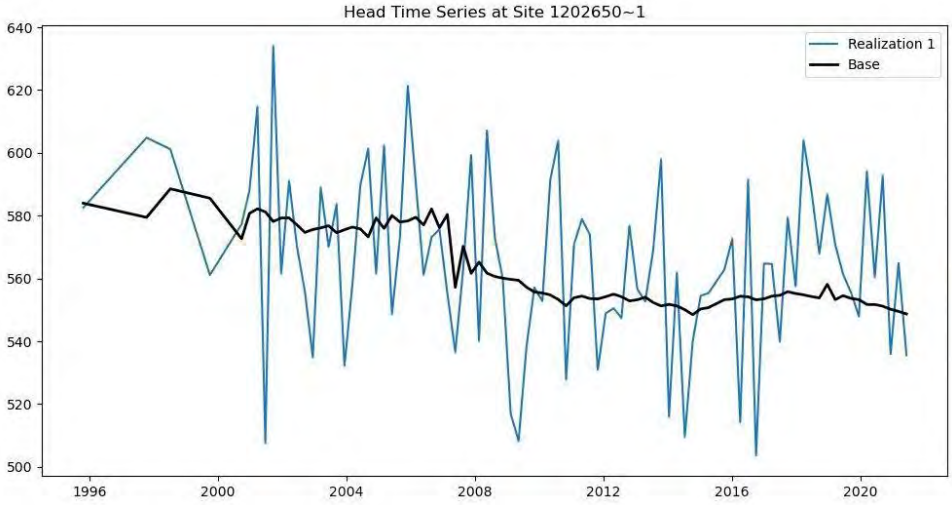


Figure 14. An example of randomized hydrograph observation noise used as part of model calibration for groundwater levels.

Conclusions

The peer review documented in this report examined several aspects relevant to the estimation of Safe Yield and the associated uncertainties for the Chino Basin. The Draft 2025 SYR demonstrates significant technical rigor and advances over previous evaluations. The CVM is fundamentally sound and provides a credible basis for Safe Yield estimation. Addressing the recommended improvements will strengthen the defensibility of the Final 2025 SYR.

This review leads to the following overarching recommendations. Details associated with each recommendation are provided in the respective sections of this report.

1. Develop integrated water budgets.
2. Refine model calibration to improve the accuracy of Safe Yield estimates.

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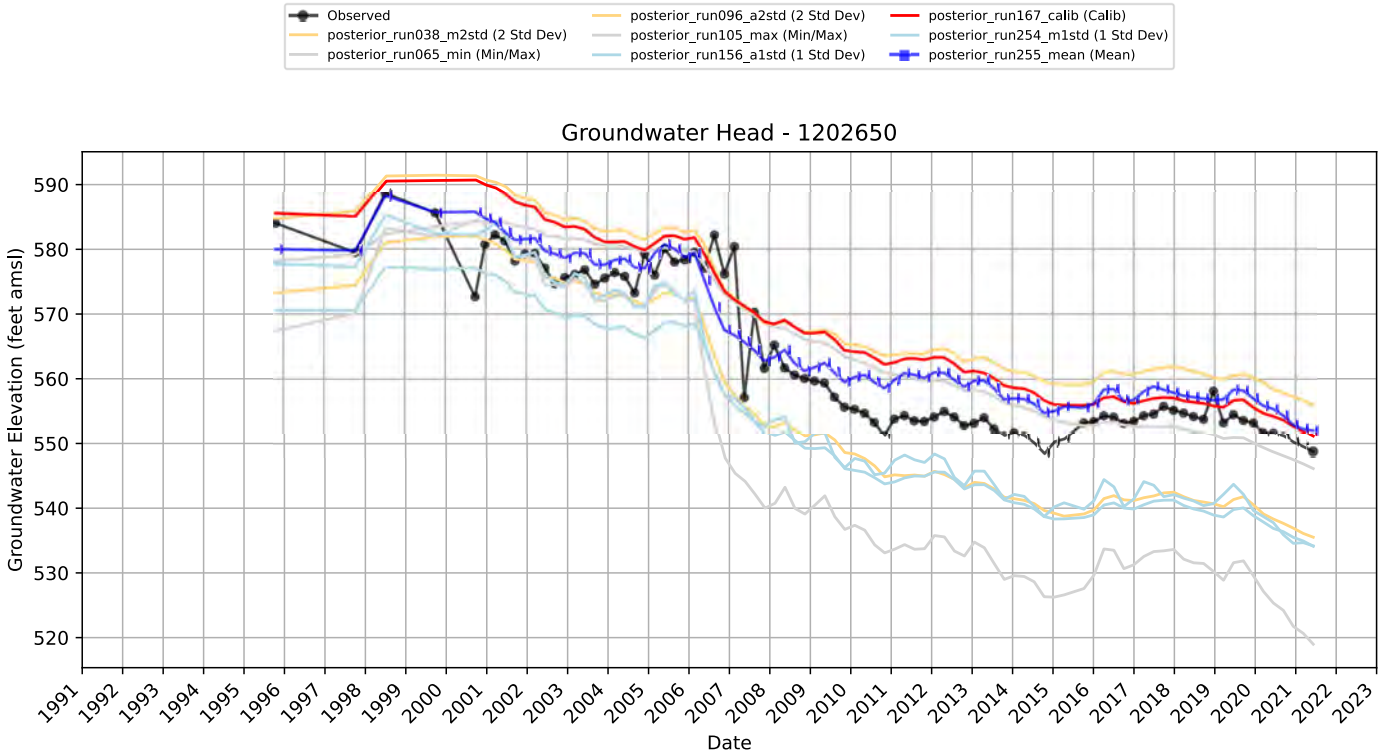
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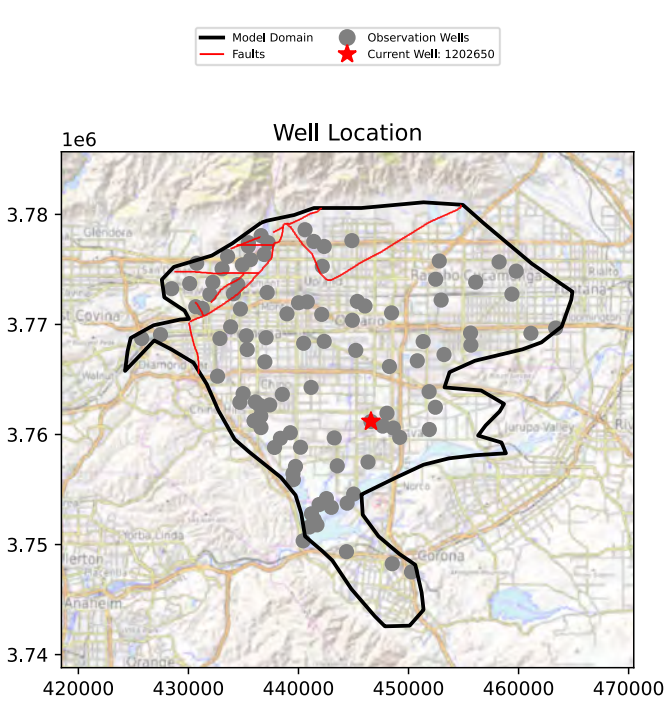
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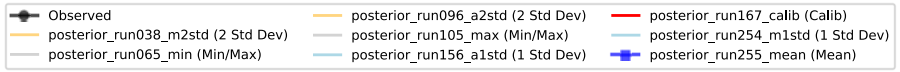
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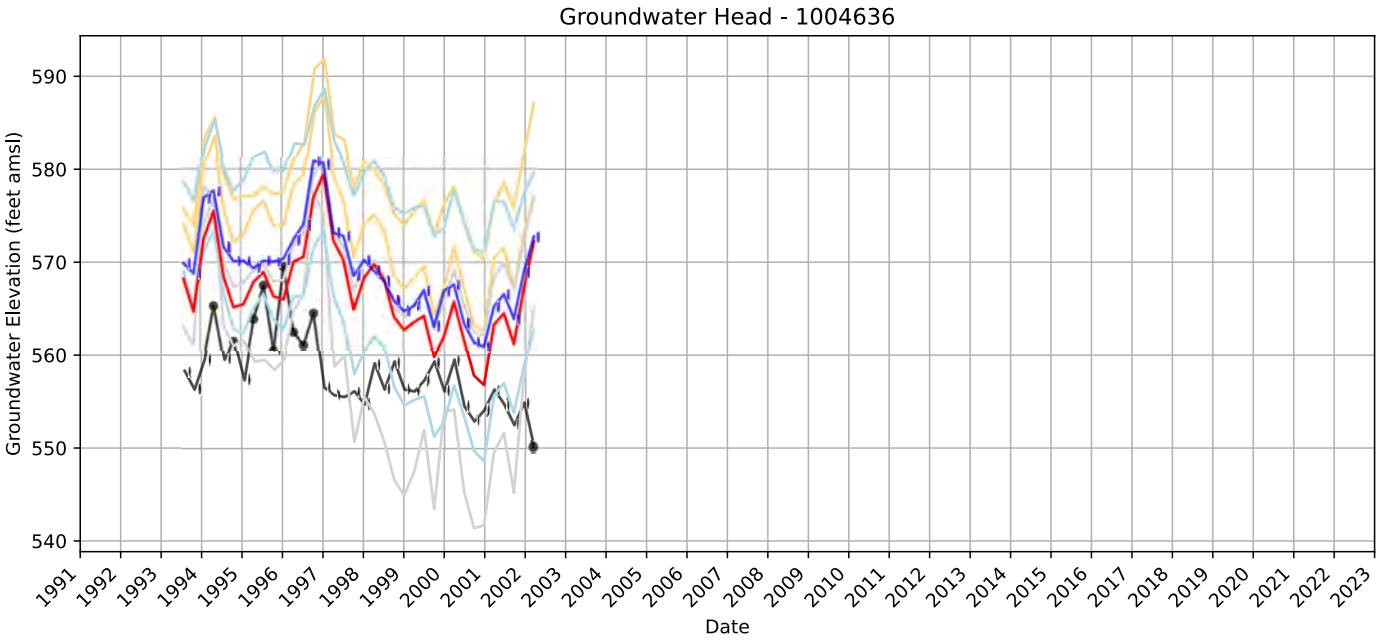
Appendix A

Time Series Plots Comparing Observed and Simulated Groundwater Levels

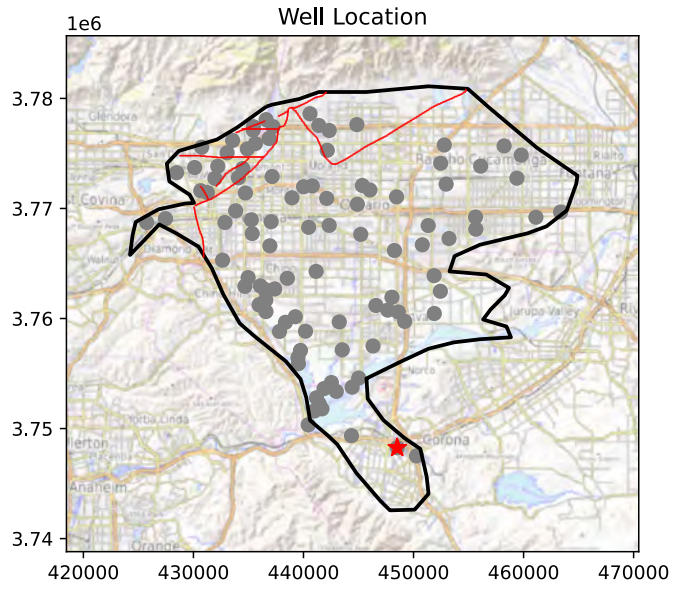

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1202650
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
530
520
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1202650
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1004636
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1004636


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

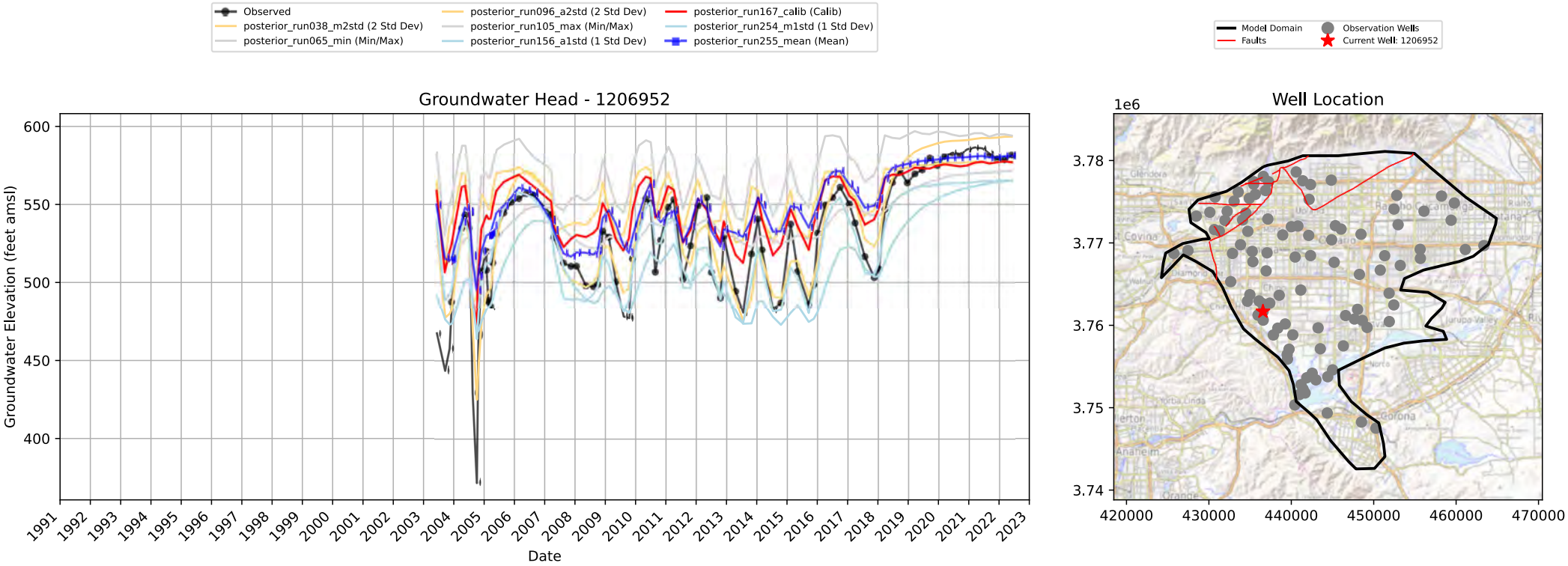
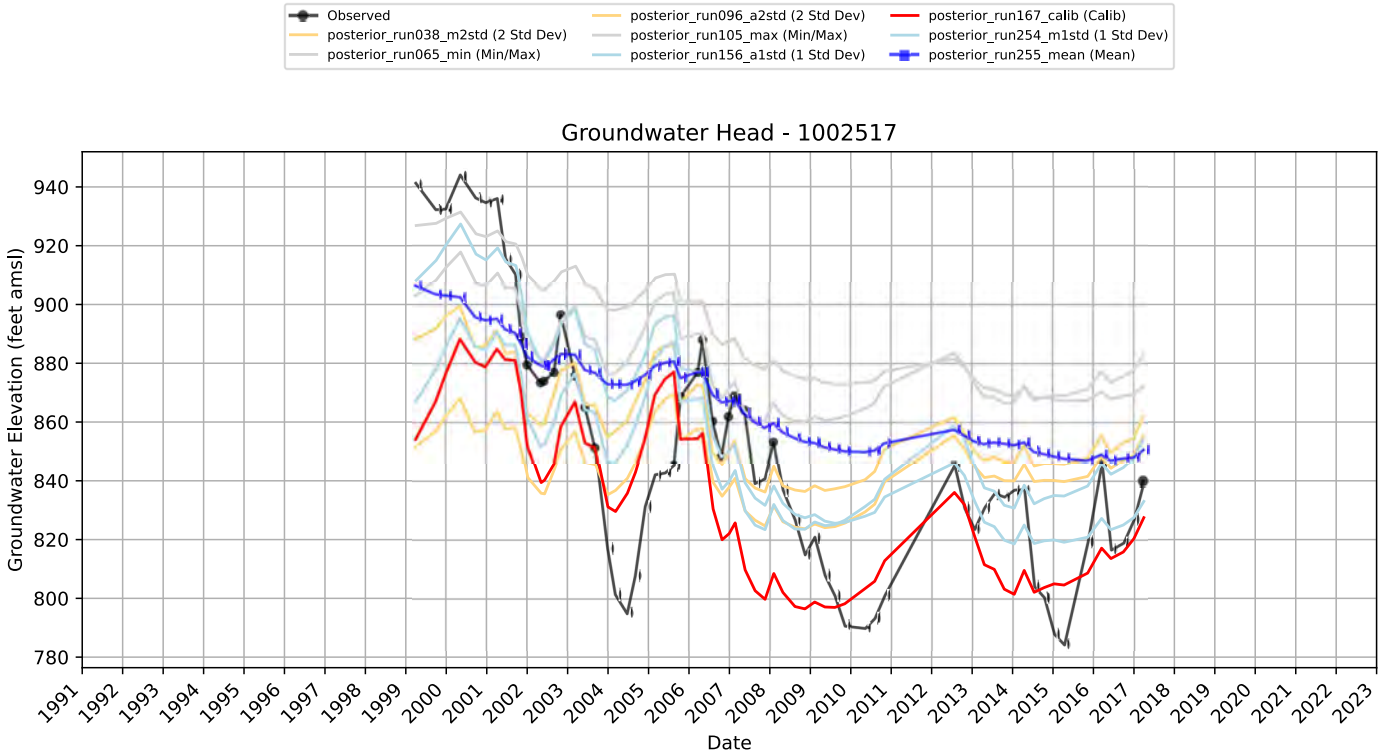
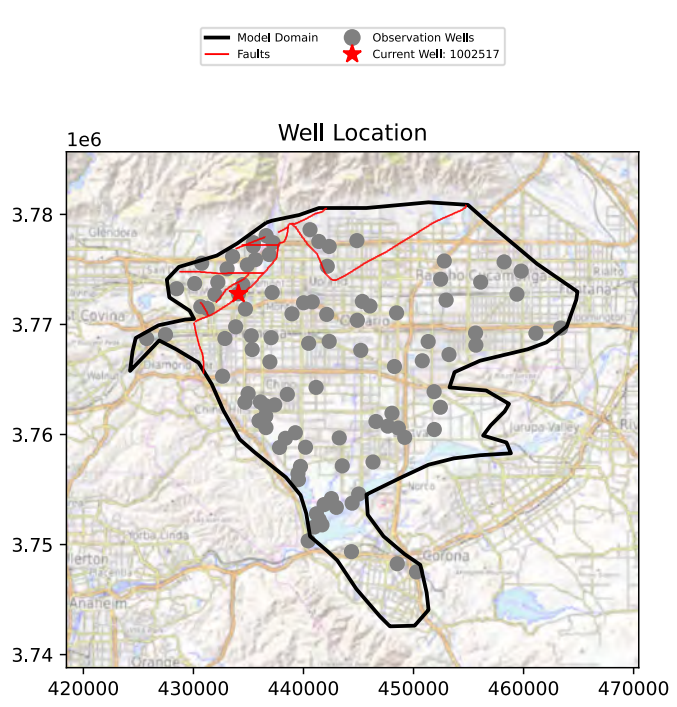
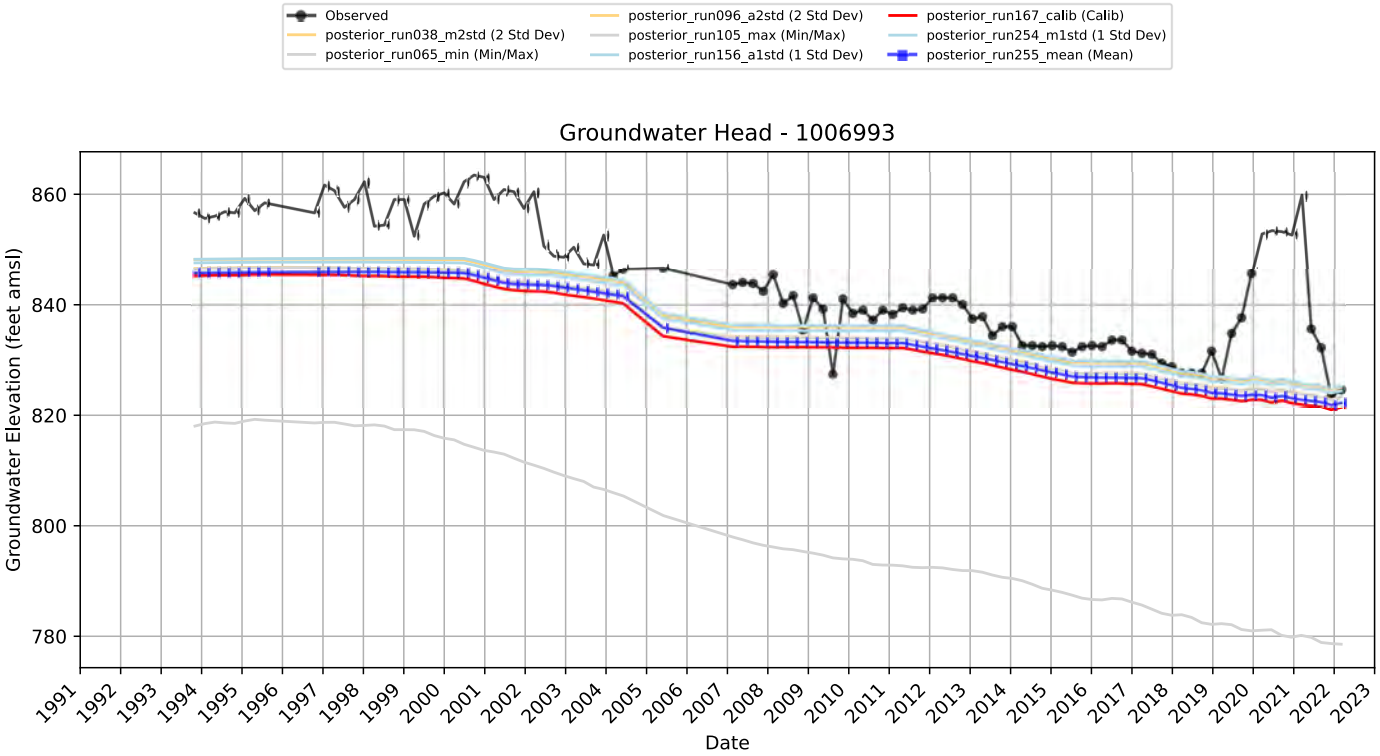
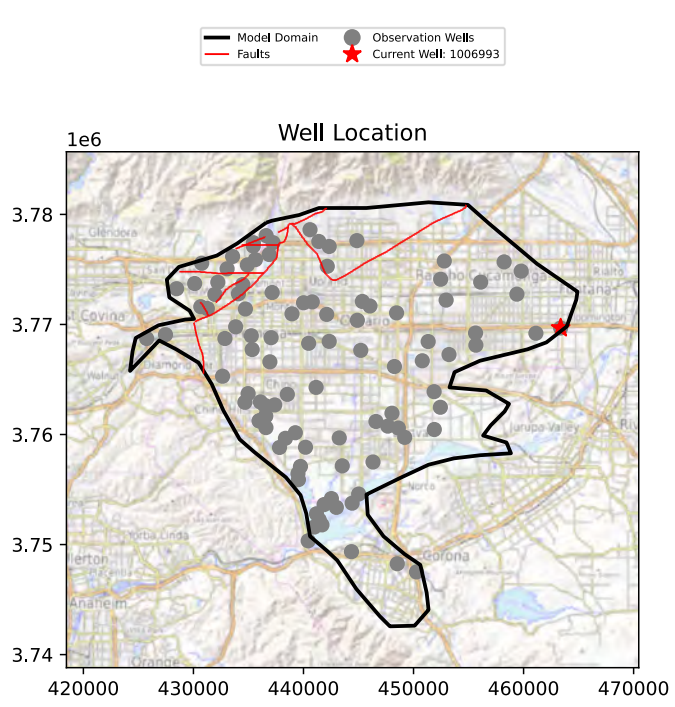


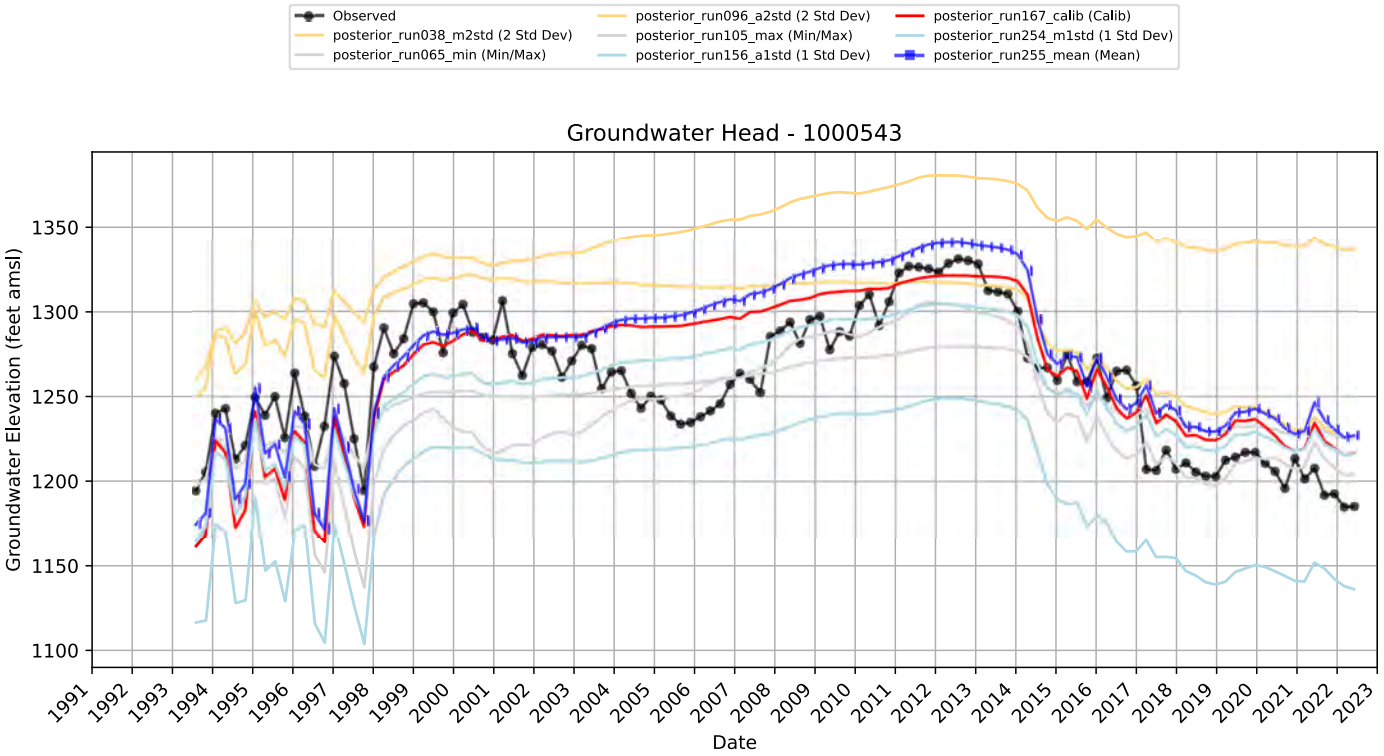
Exhibit B, Pg. 278

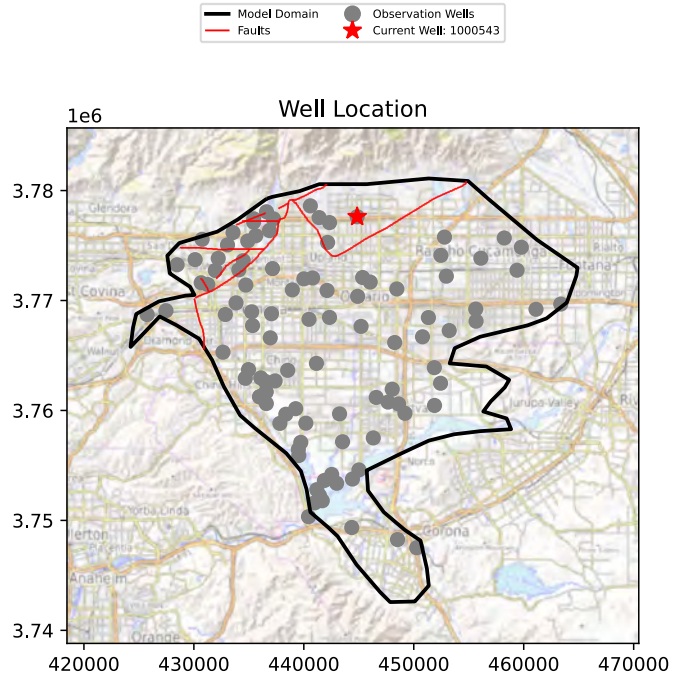

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002517
Groundwater Elevation (feet amsl)
940
920
900
880
860
840
820
800
780
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2011
2012
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2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

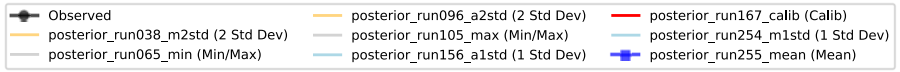

Model Domain
Faults
Observation Wells
Current Well: 1002517
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

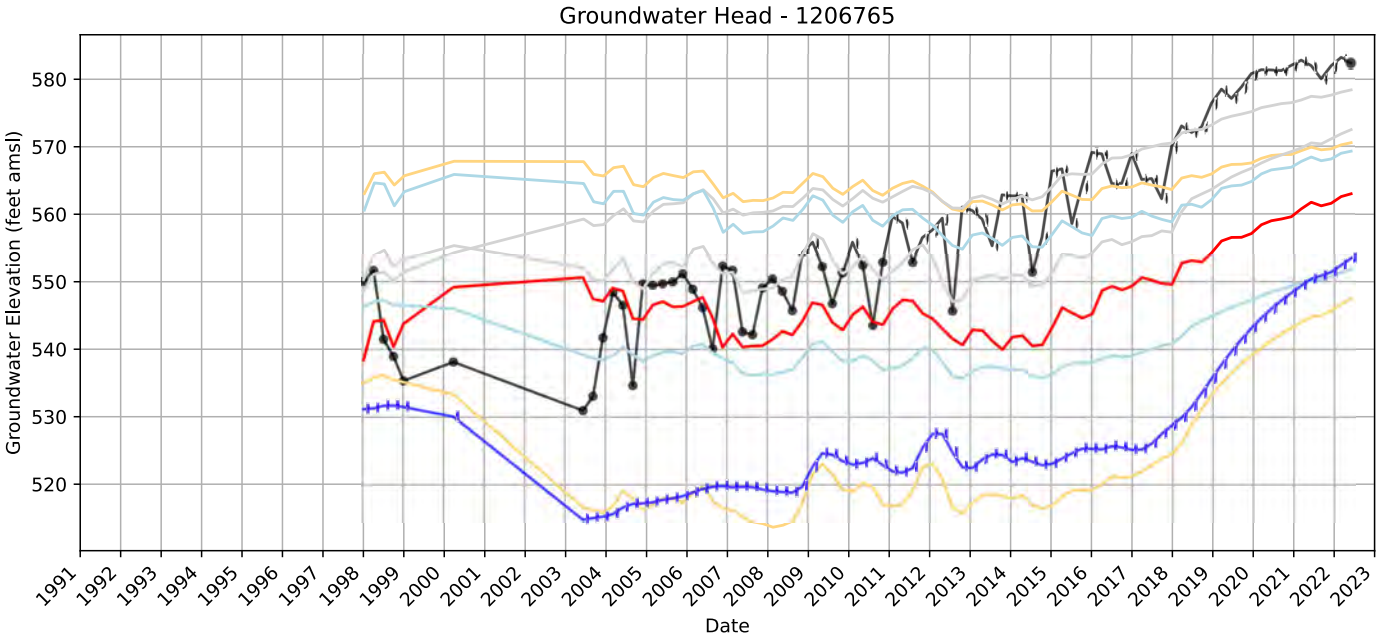

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1006993
Groundwater Elevation (feet amsl)
860
840
820
800
780
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1006993
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

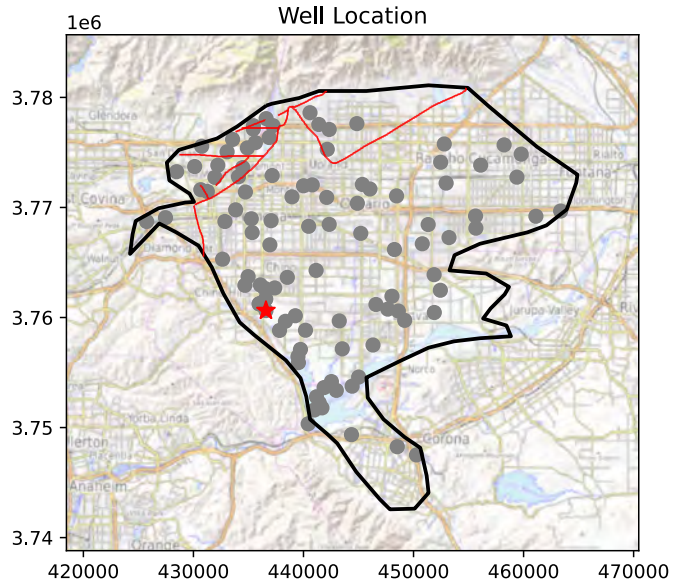

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000543
Groundwater Elevation (feet amsl)
1350
1300
1250
1200
1150
1100
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

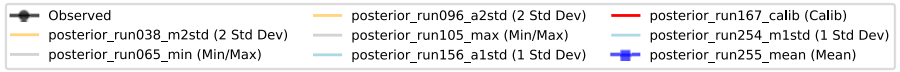

Model Domain
Faults
Observation Wells
Current Well: 1000543
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

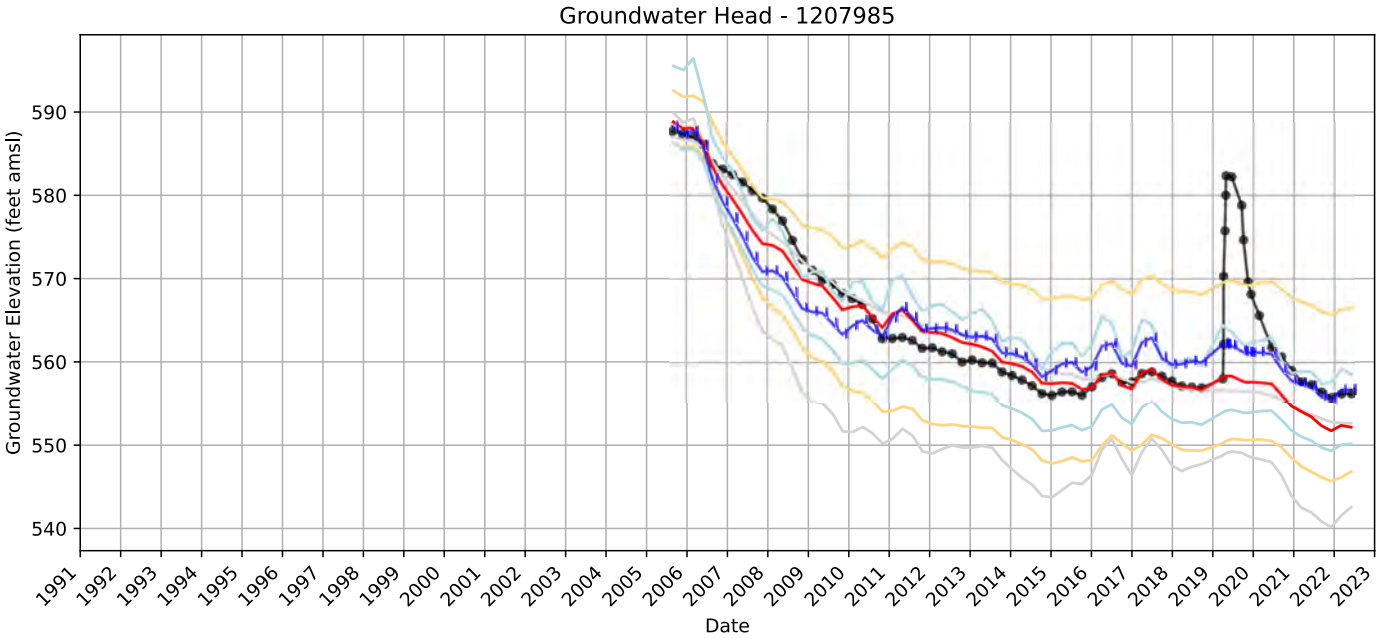

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1206765
Groundwater Elevation (feet amsl)
580
570
560
550
540
530
520
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

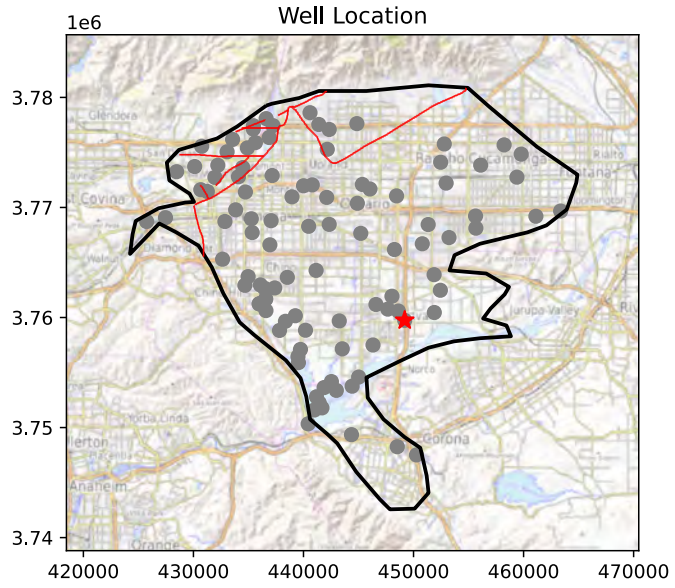

Model Domain
Faults
Observation Wells
Current Well: 1206765

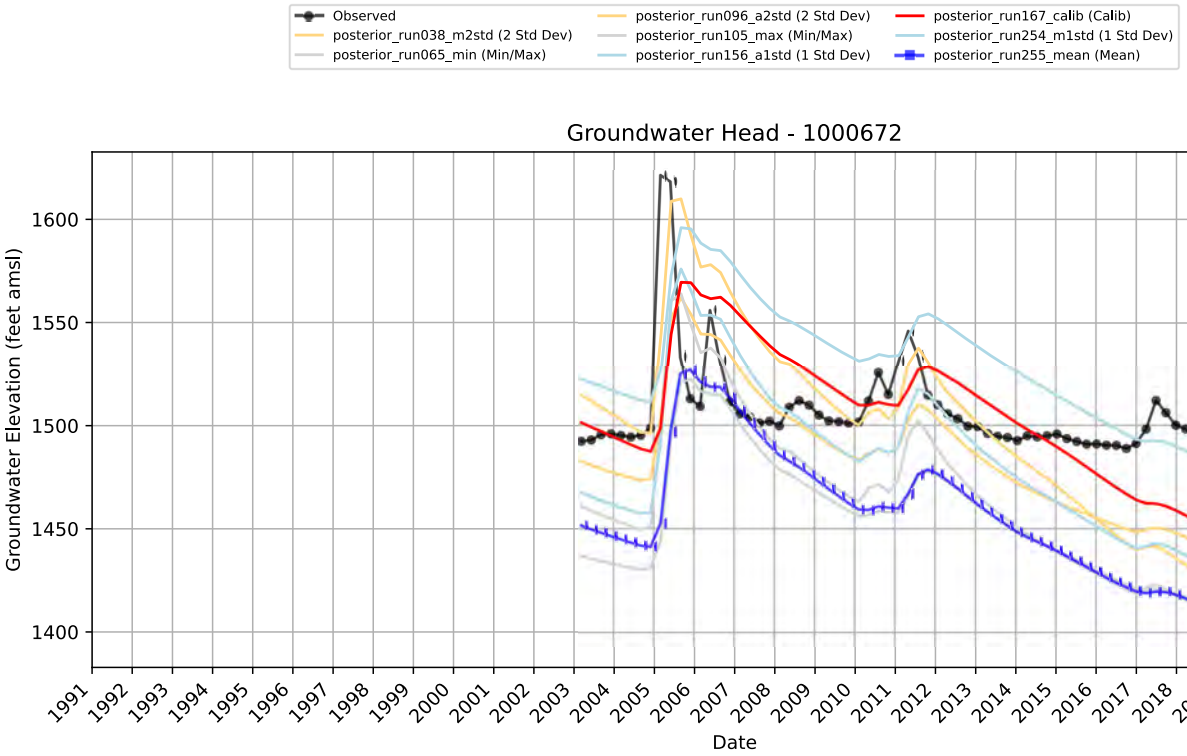

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

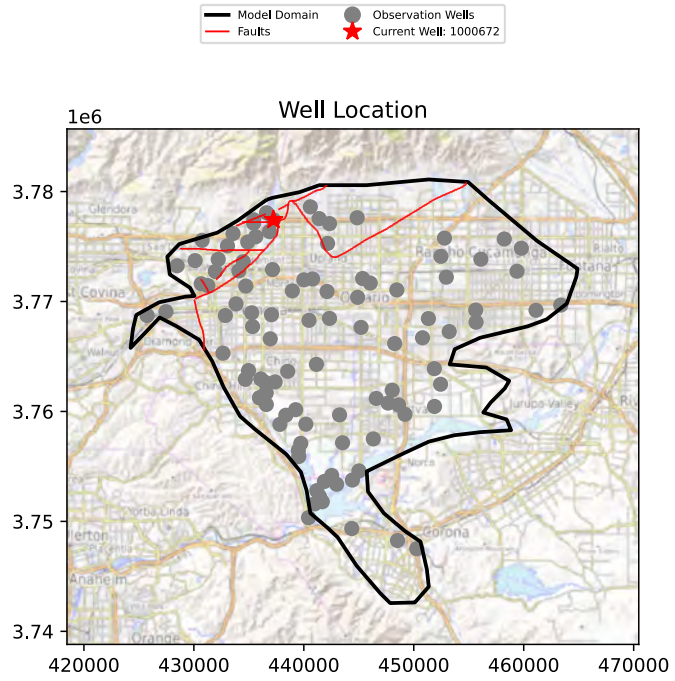

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

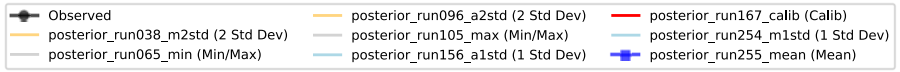

Groundwater Head - 1207985
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2016
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2018
2019
2020
2021
2022
2023
Date

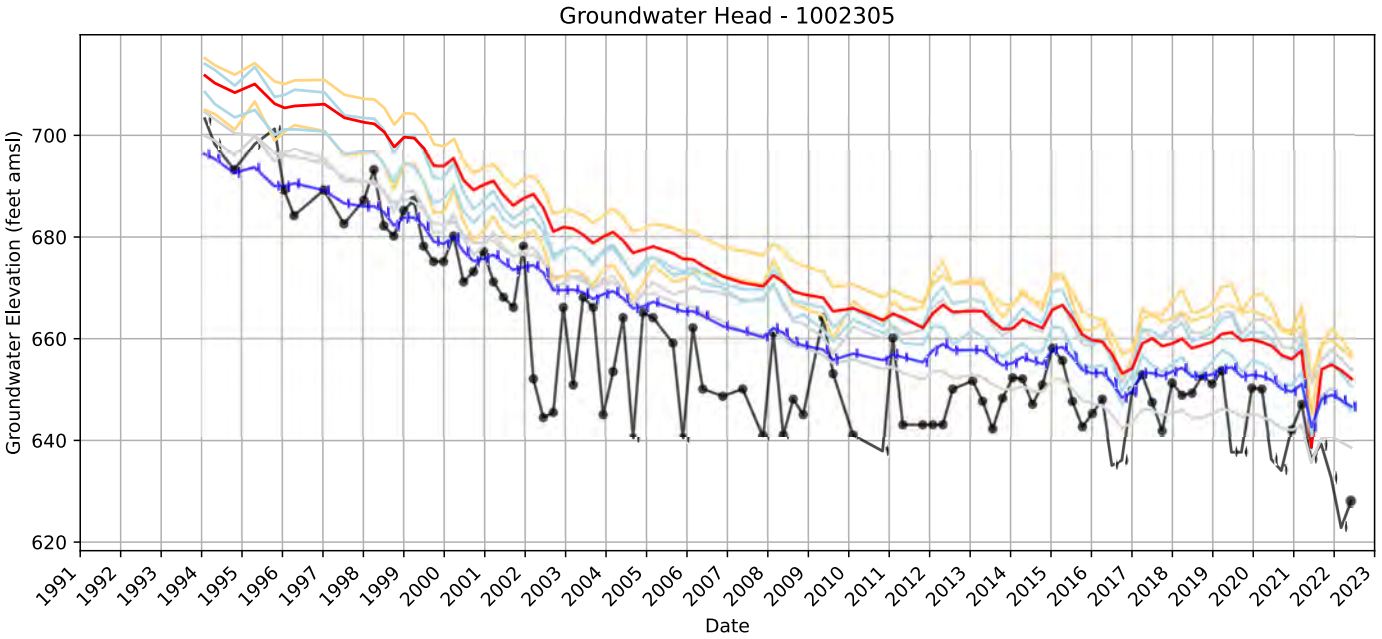

Model Domain
Faults
Observation Wells
Current Well: 1207985


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

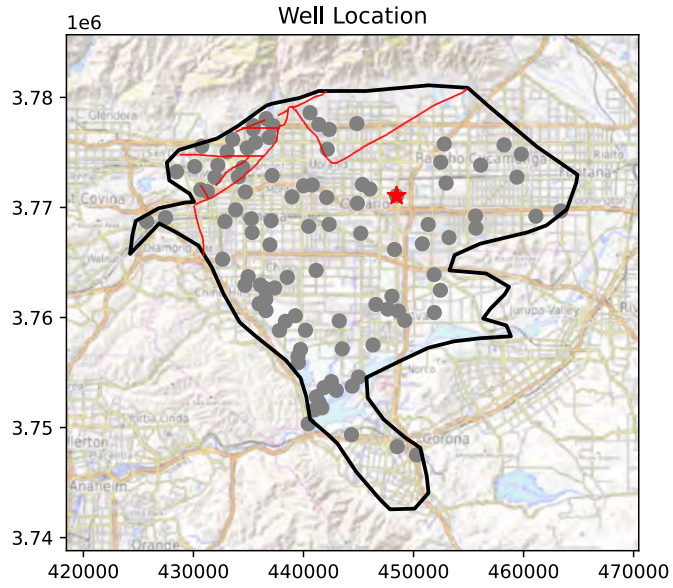

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000672
Groundwater Elevation (feet amsl)
1600
1550
1500
1450
1400
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2015
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2018
2019
2020
2021
2022
2023
Date

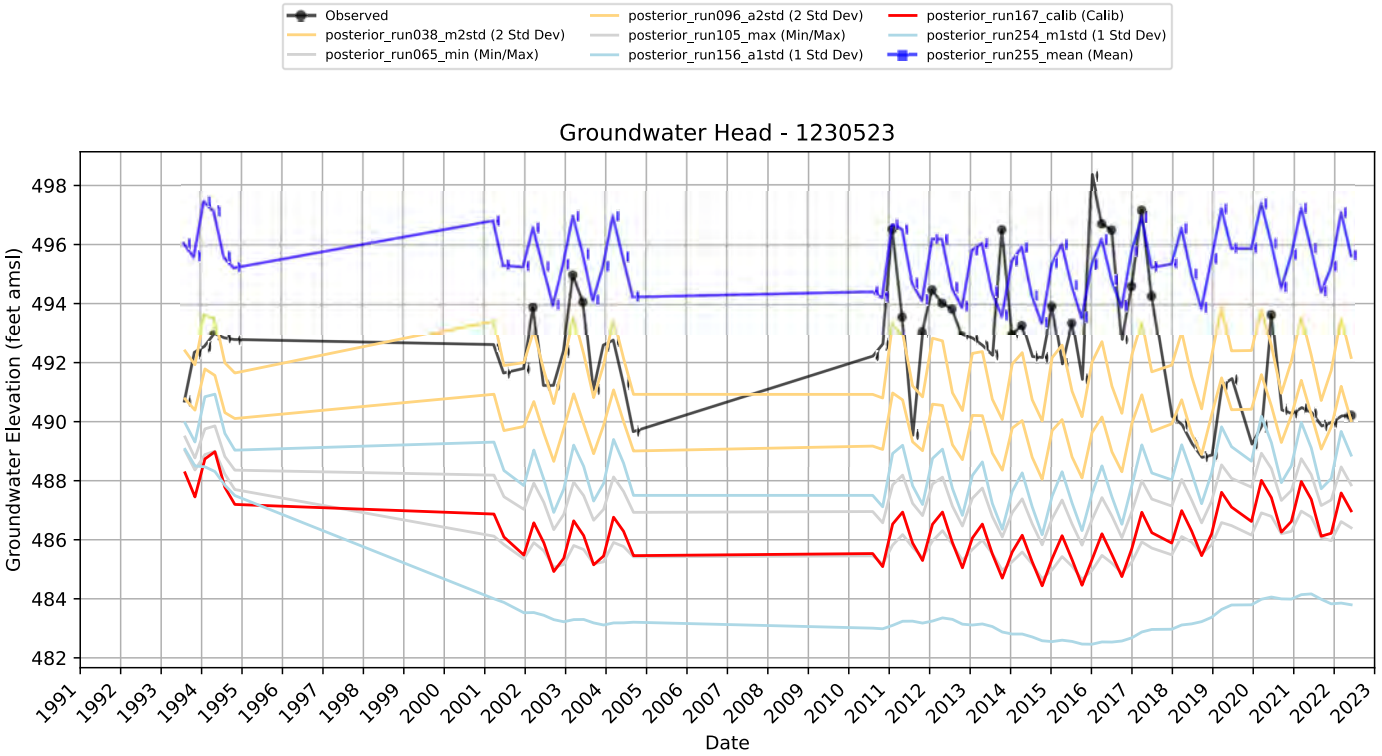

Model Domain
Faults
Observation Wells
Current Well: 1000672
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

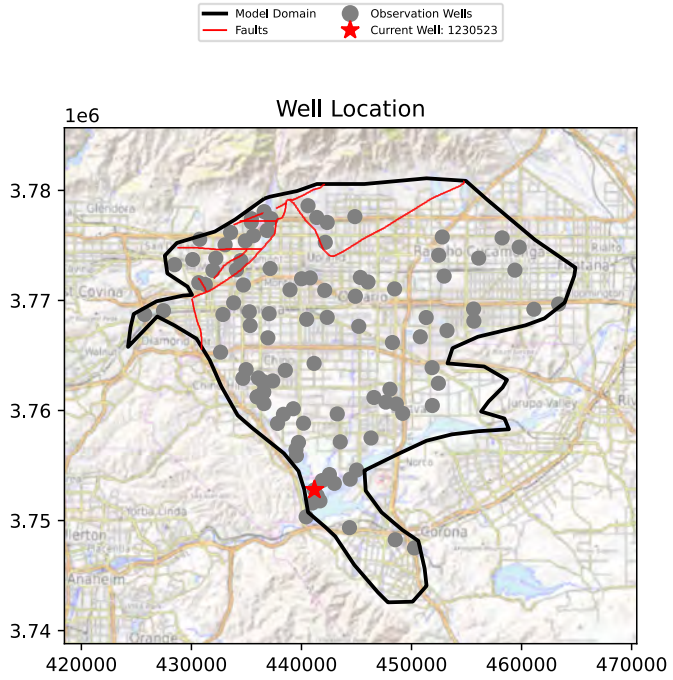

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

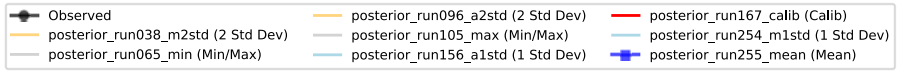

Groundwater Head - 1002305
Groundwater Elevation (feet amsl)
700
680
660
640
620
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

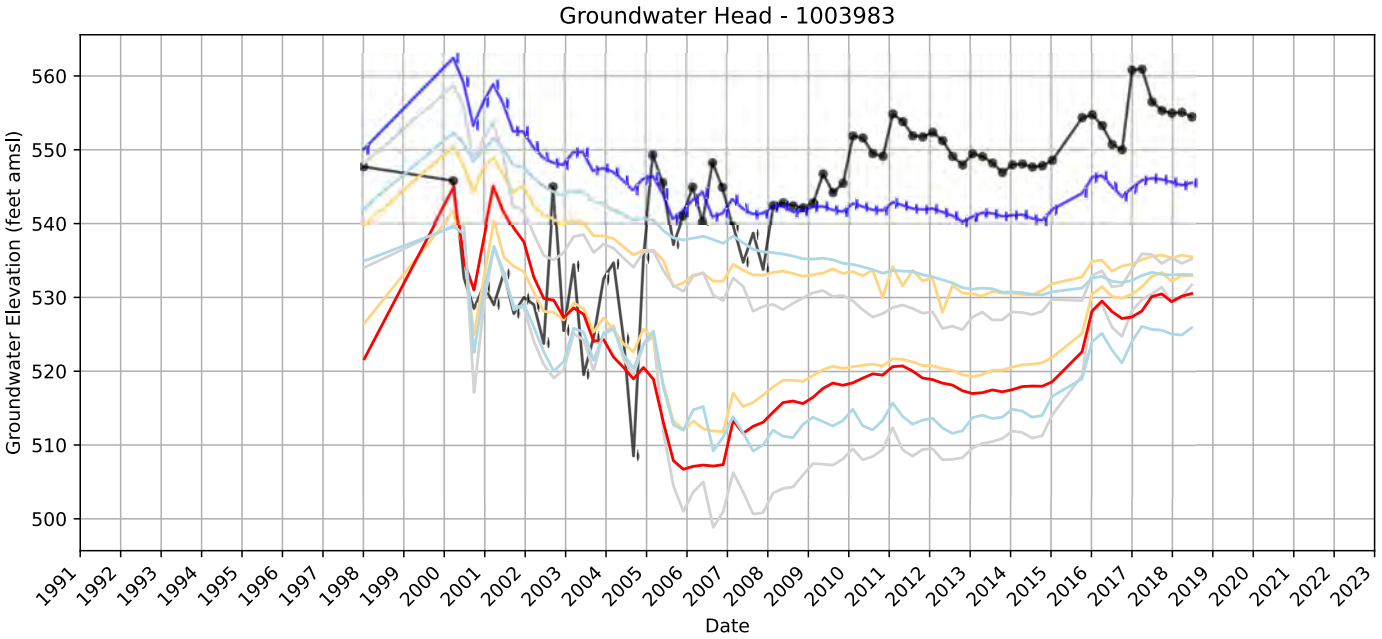

Model Domain
Faults
Observation Wells
Current Well: 1002305


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

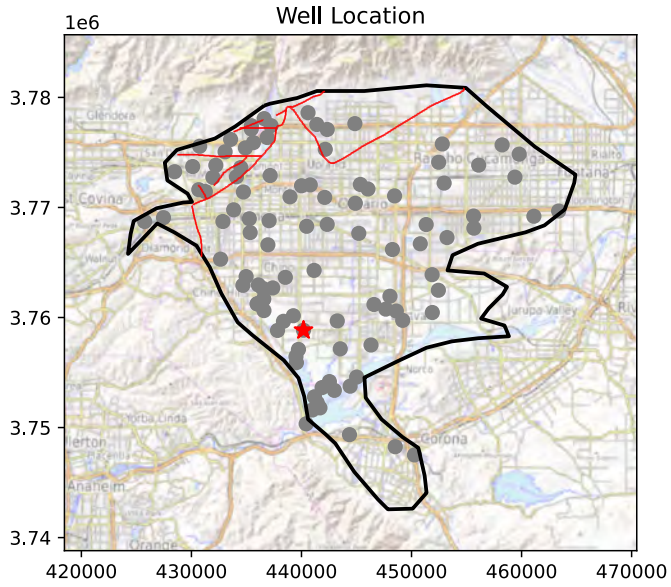

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1230523
Groundwater Elevation (feet amsl)
Date

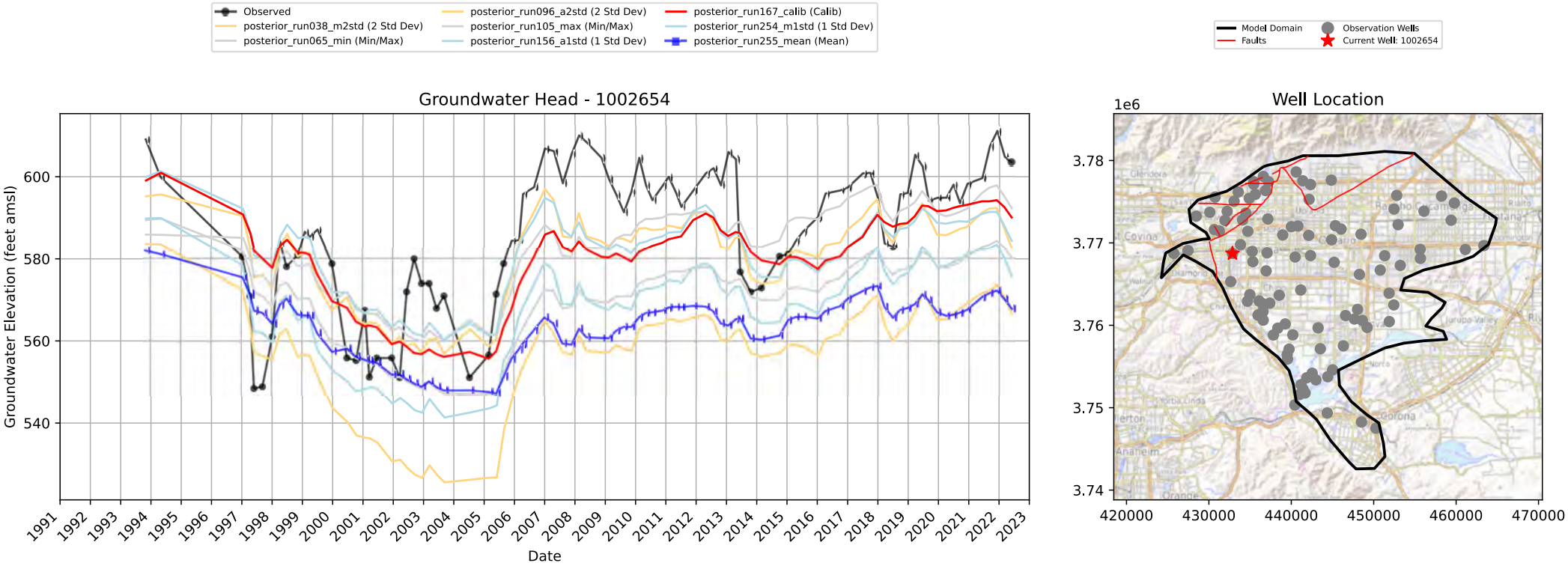

Model Domain
Faults
Observation Wells
Current Well: 1230523
Well Location
1e6

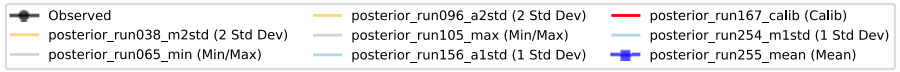

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

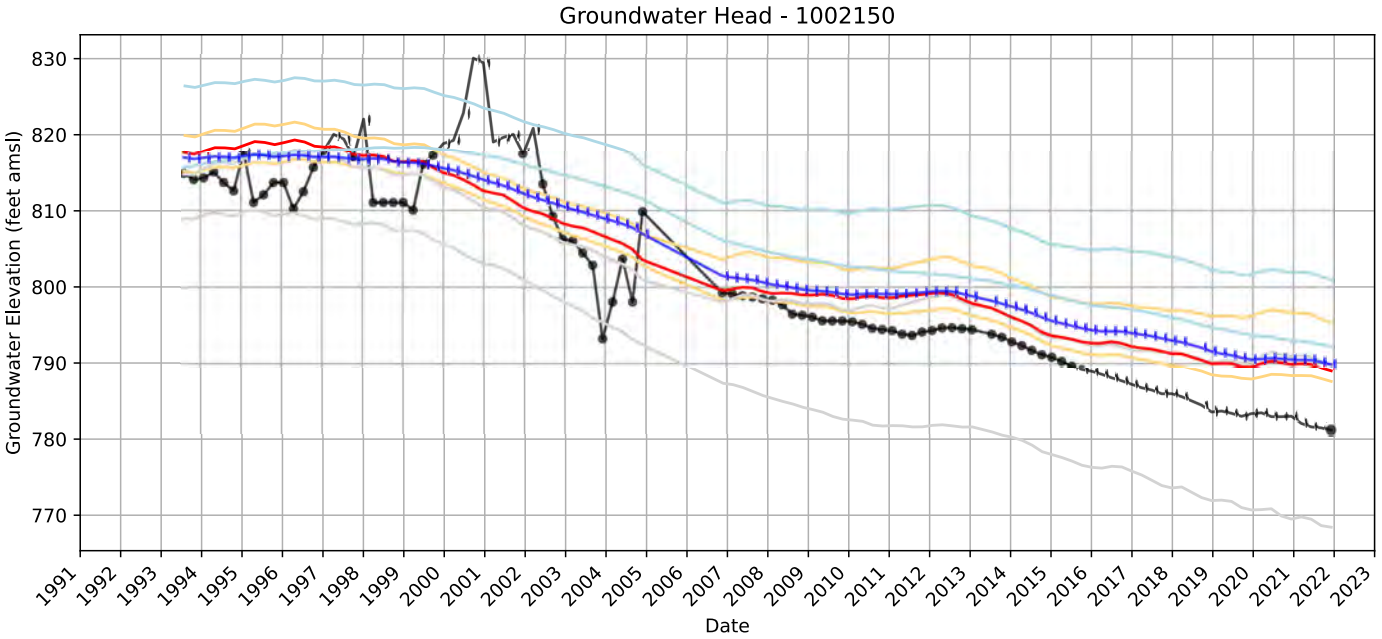

Groundwater Head - 1003983
Groundwater Elevation (feet amsl)
560
550
540
530
520
510
500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1003983

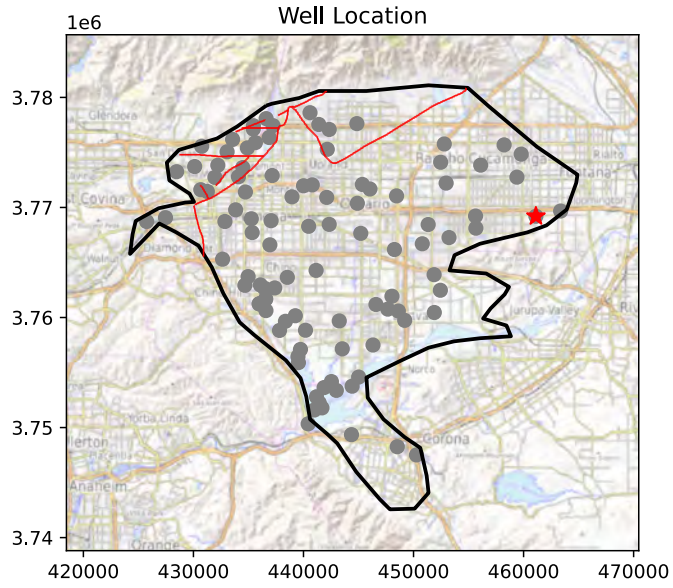

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

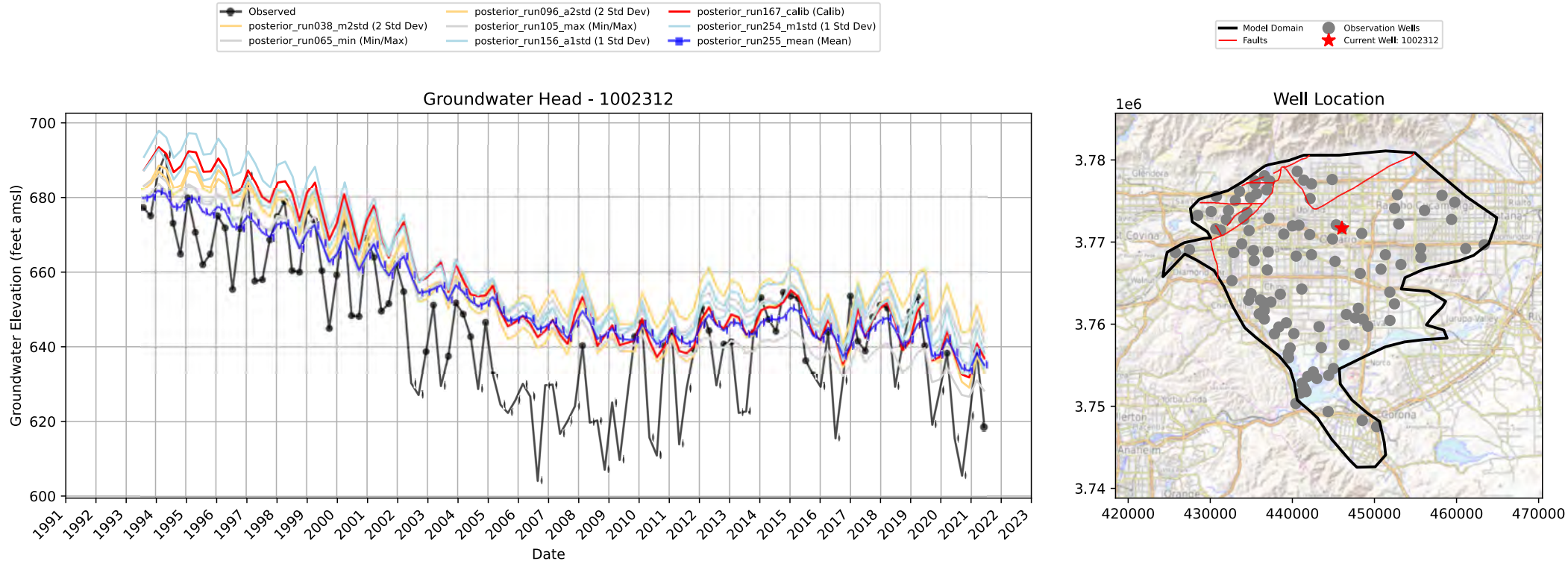

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002654
Groundwater Elevation (feet amsl)
600
580
560
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002654
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

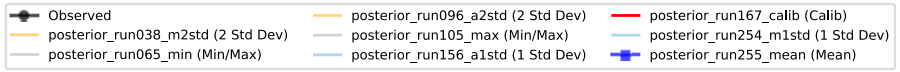

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

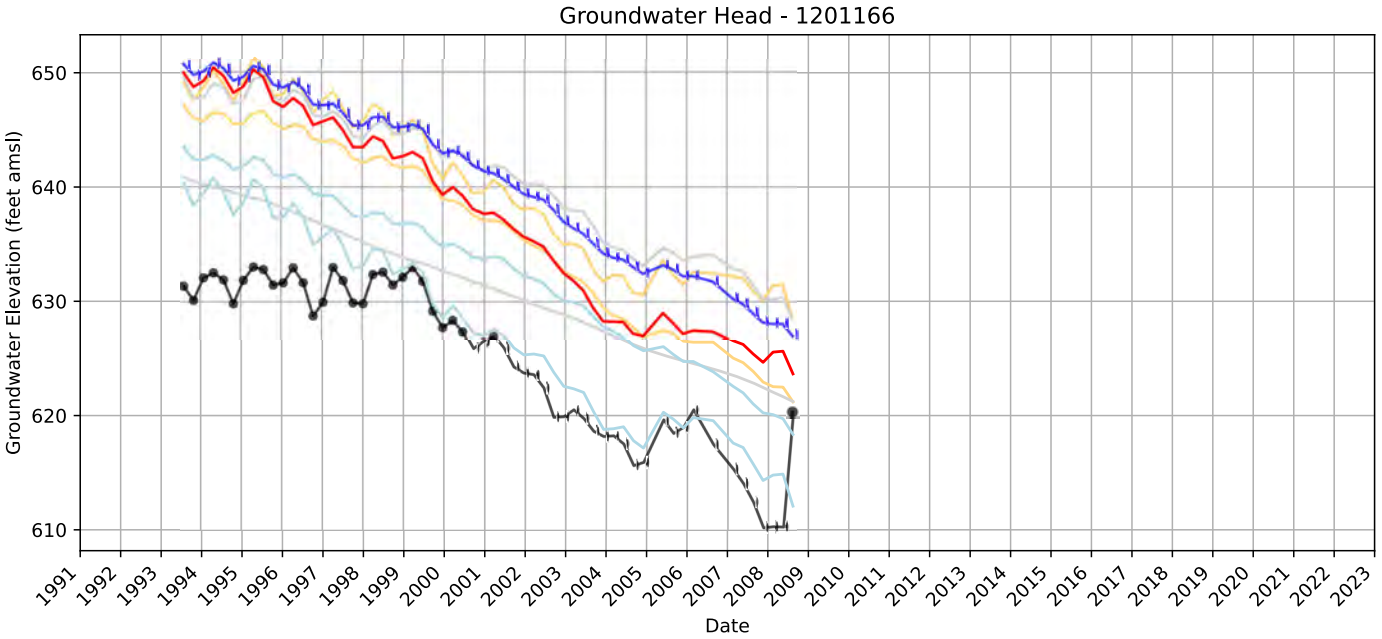

Groundwater Head - 1002150
Groundwater Elevation (feet amsl)
830
820
810
800
790
780
770
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1002150

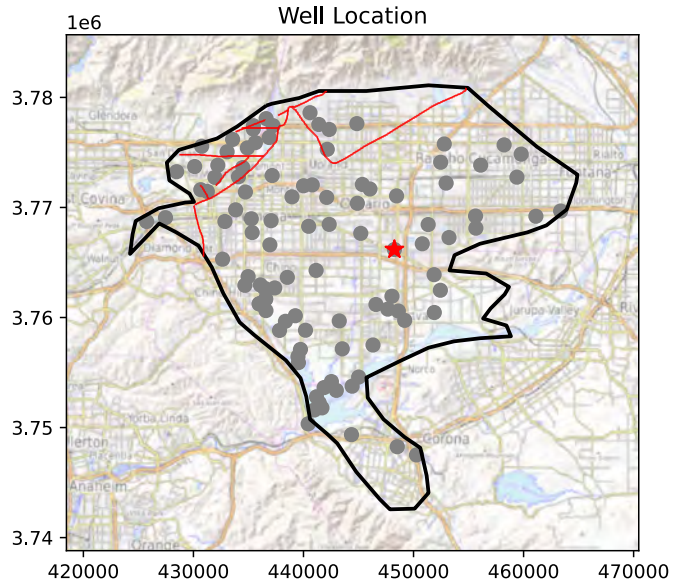

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

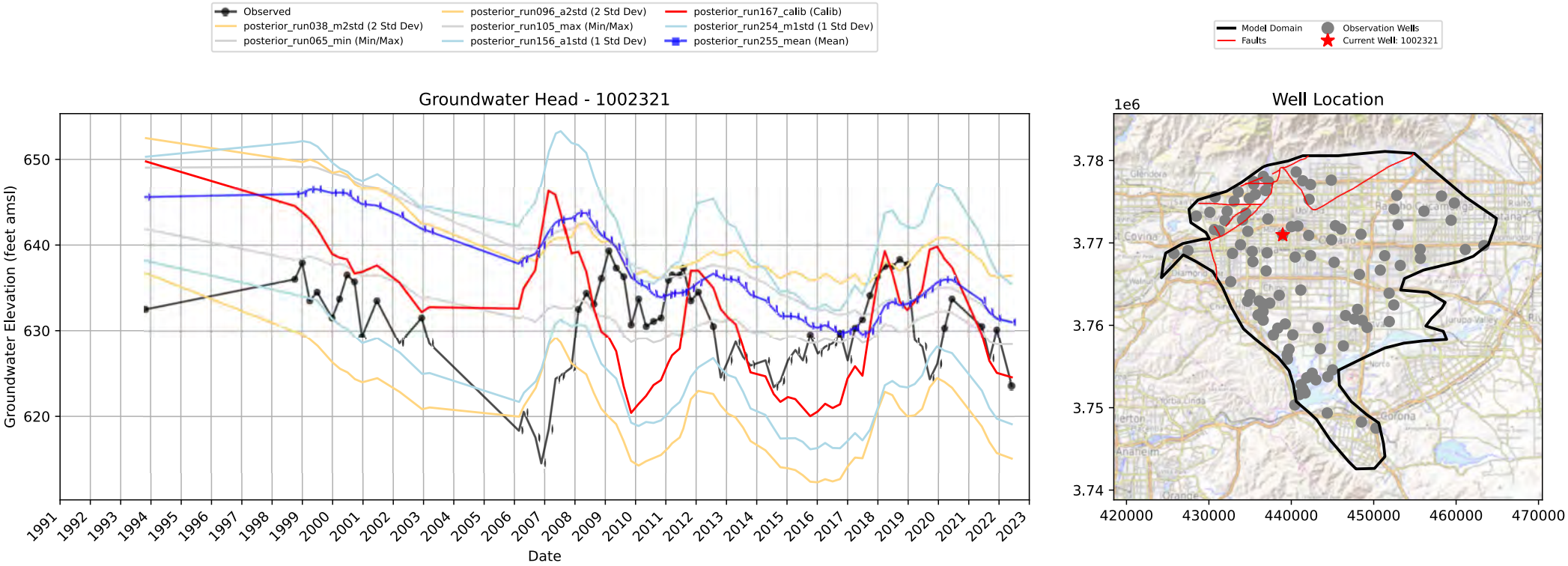

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002312
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1002312
Well Location
1e6

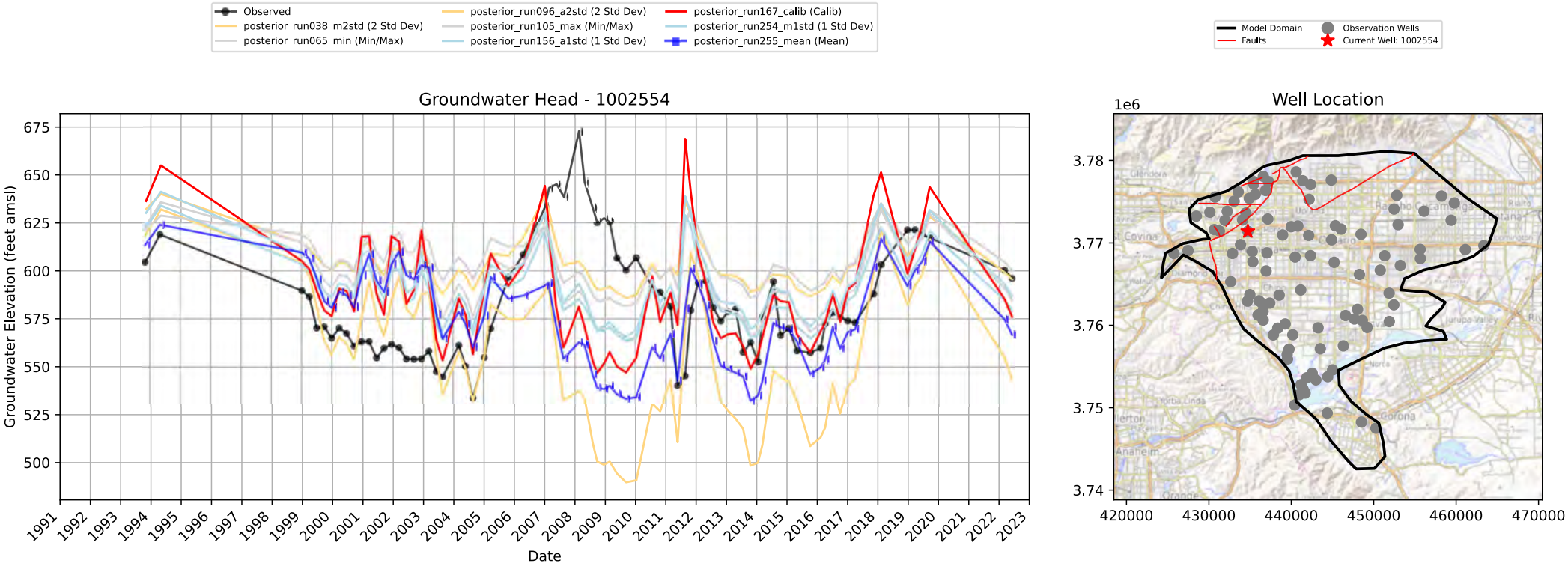

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1201166
Groundwater Elevation (feet amsl)
650
640
630
620
610
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

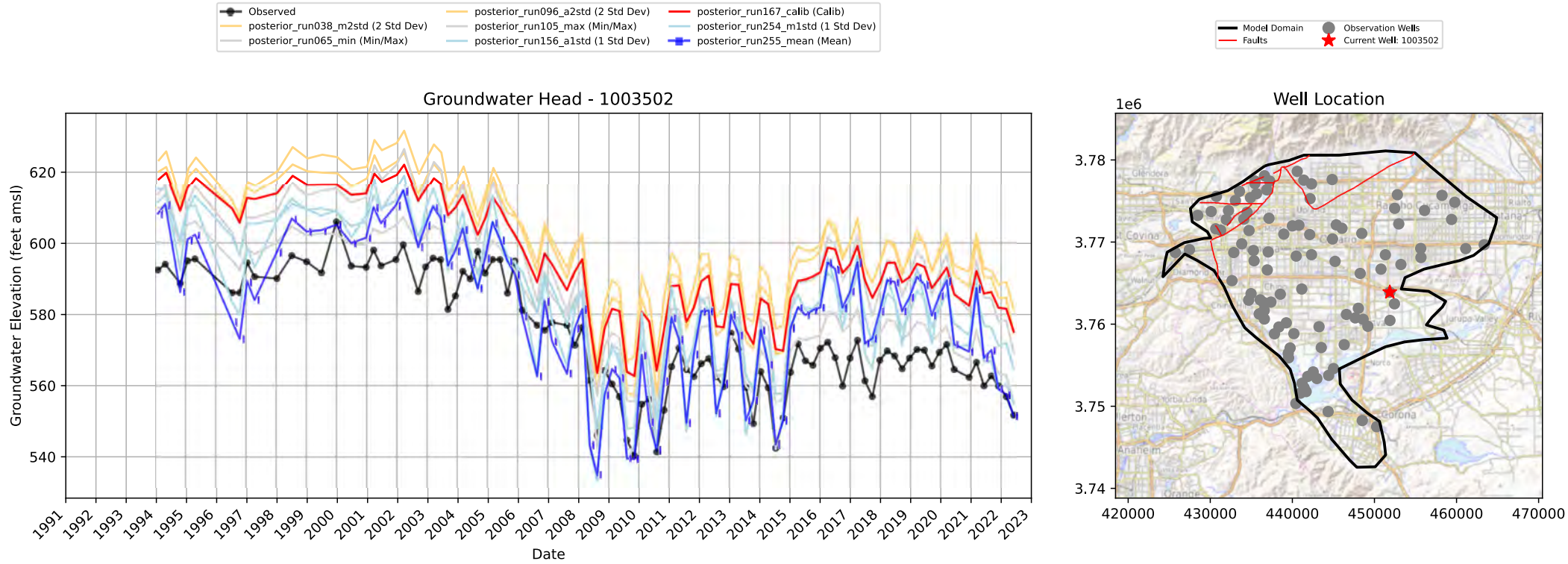

Model Domain
Faults
Observation Wells
Current Well: 1201166


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

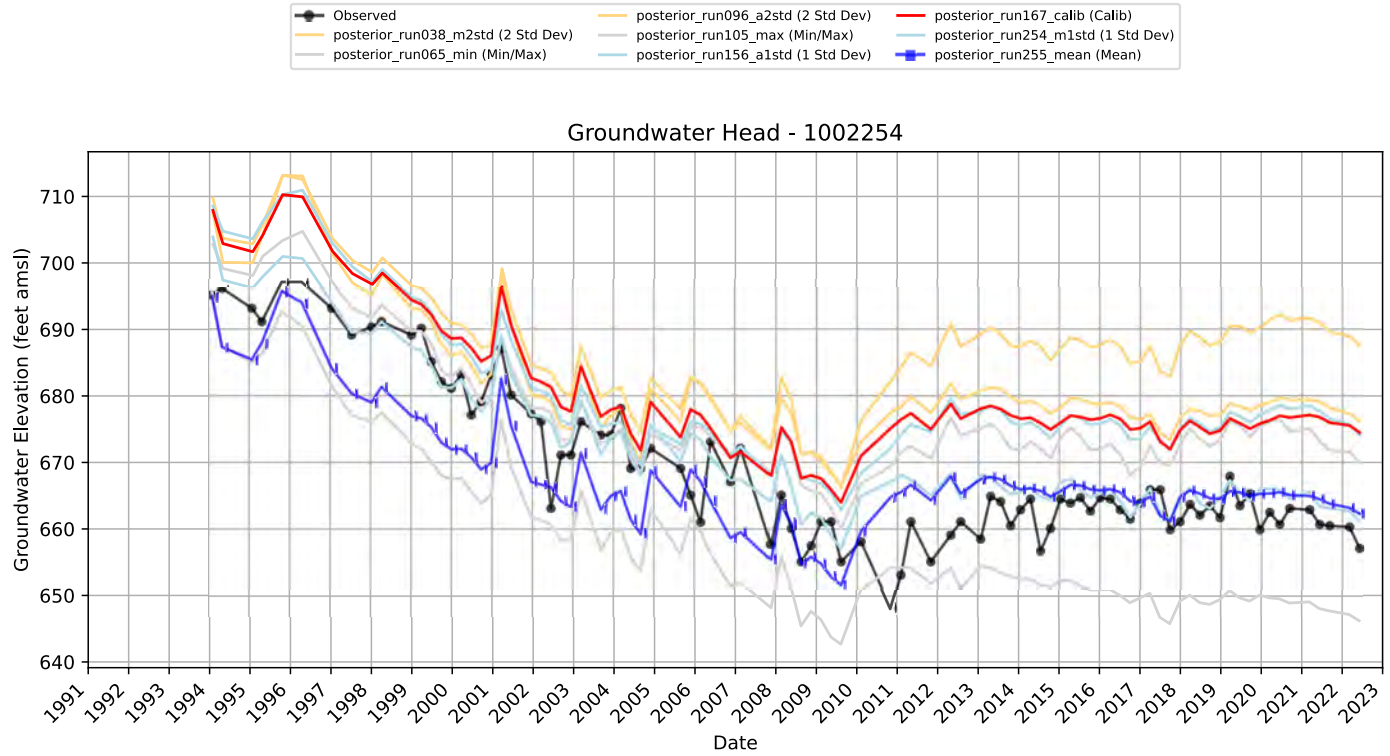

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002321
Groundwater Elevation (feet amsl)
650
640
630
620
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002321
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002554
Groundwater Elevation (feet amsl)
675
650
625
600
575
550
525
500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

Model Domain
Faults
Observation Wells
Current Well: 1002554
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1003502
Groundwater Elevation (feet amsl)
620
600
580
560
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

Model Domain
Faults
Observation Wells
Current Well: 1003502
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000



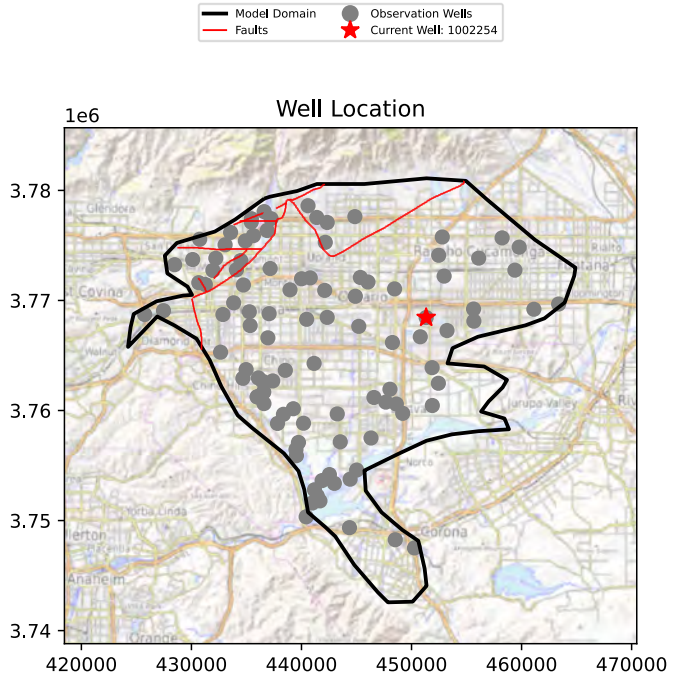
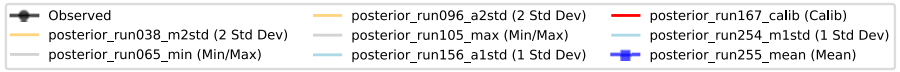
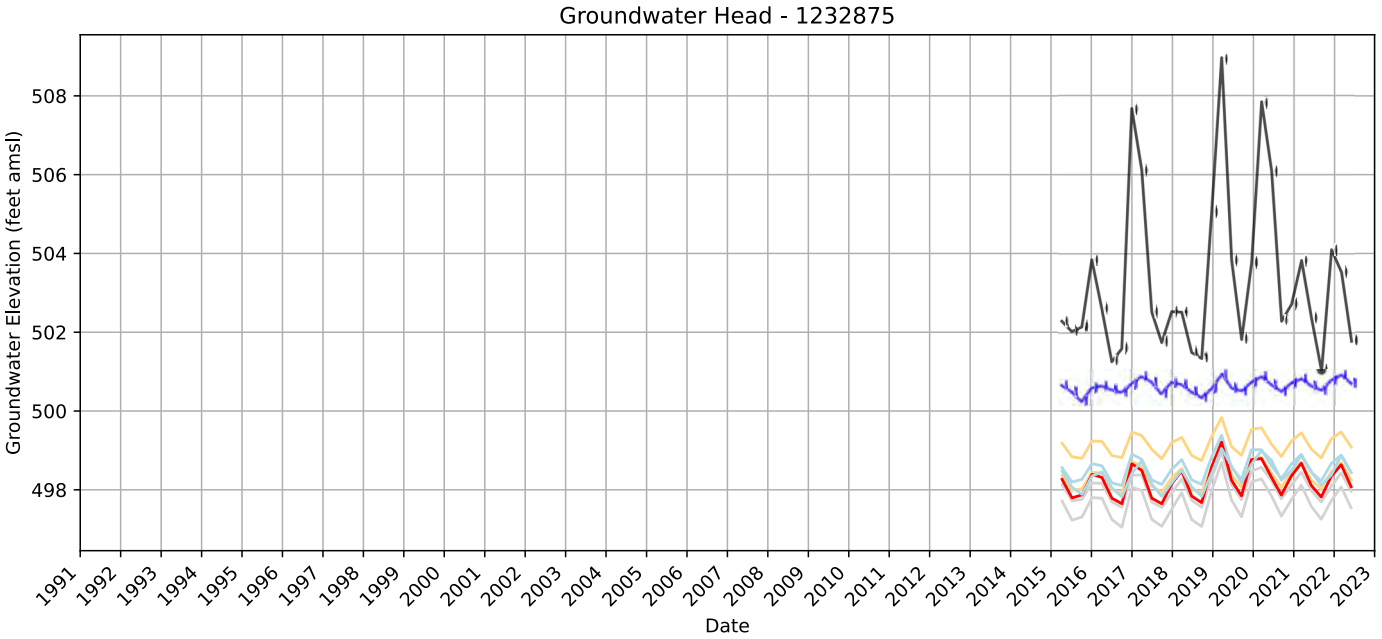
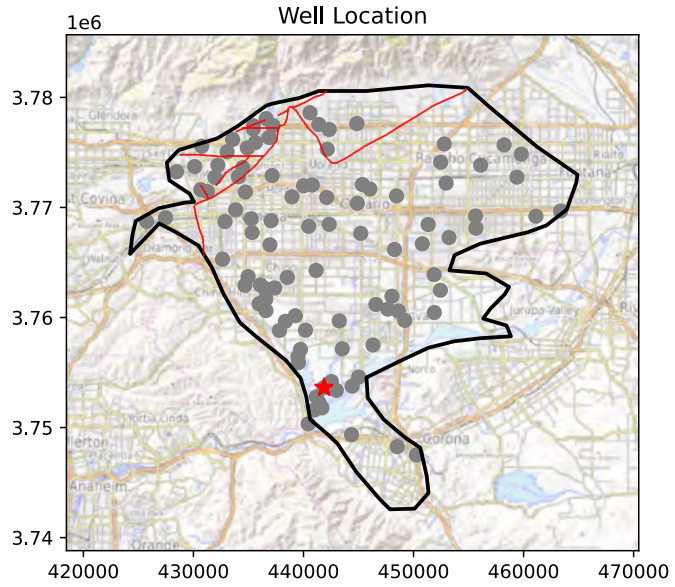


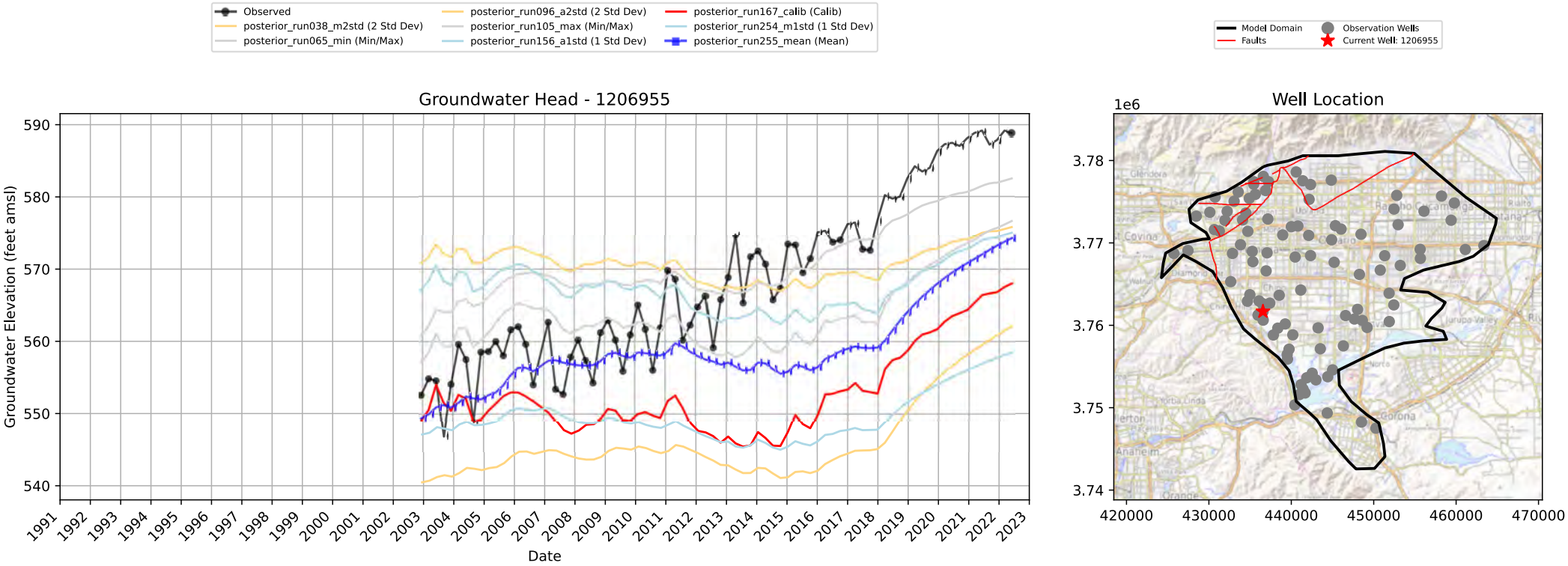
Exhibit B, Pg. 295


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

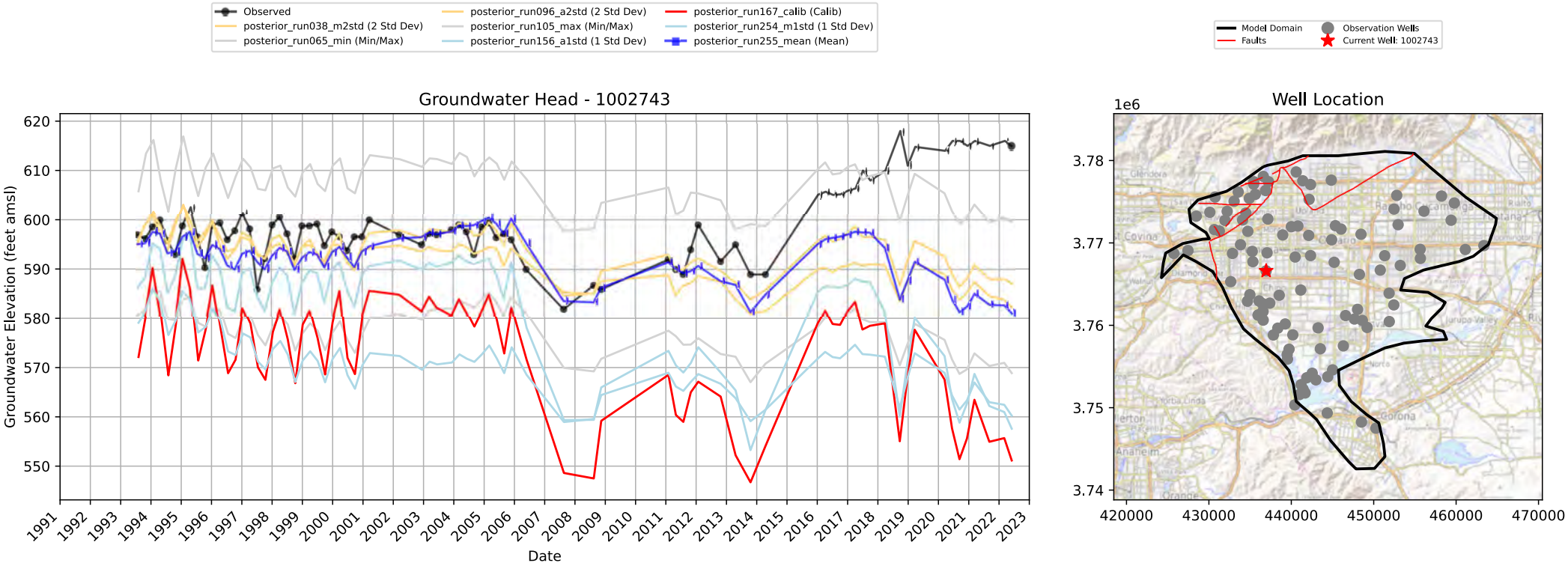

Groundwater Head - 1232875
Groundwater Elevation (feet amsl)
508
506
504
502
500
498
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2011
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2019
2020
2021
2022
2023
Date

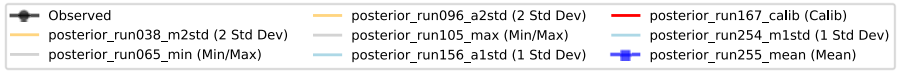

Model Domain
Faults
Observation Wells
Current Well: 1232875

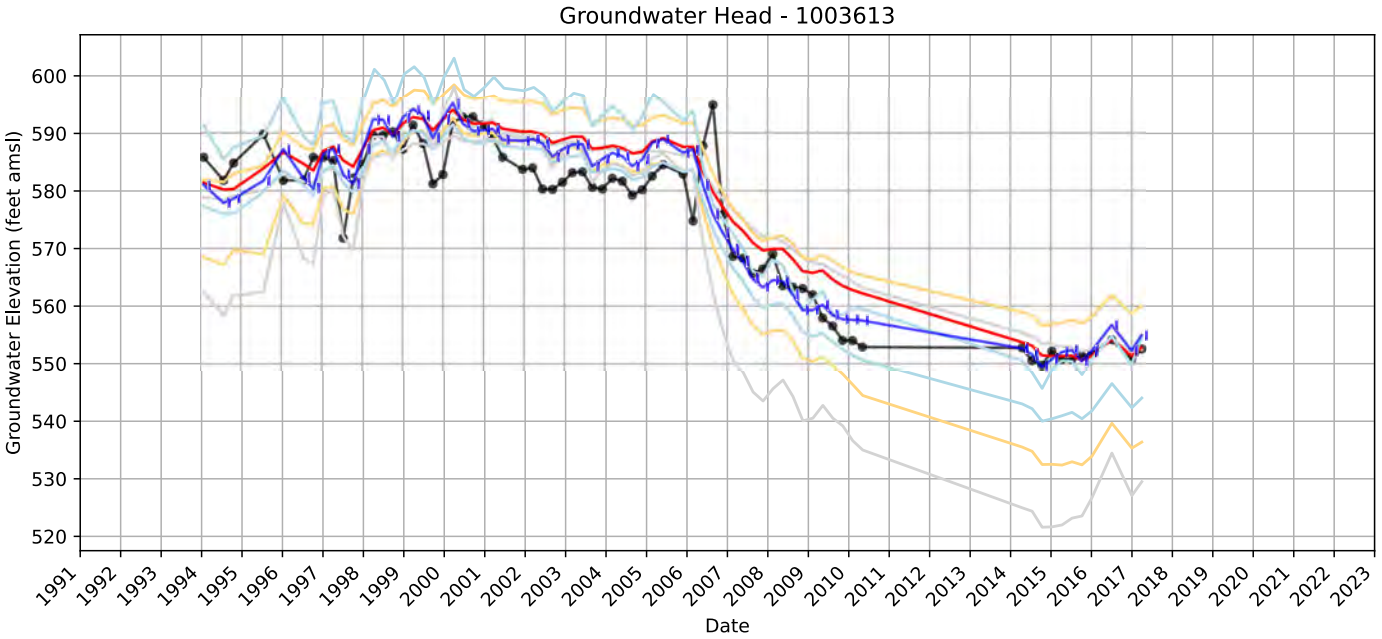

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1206955
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2011
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2019
2020
2021
2022
2023
Date

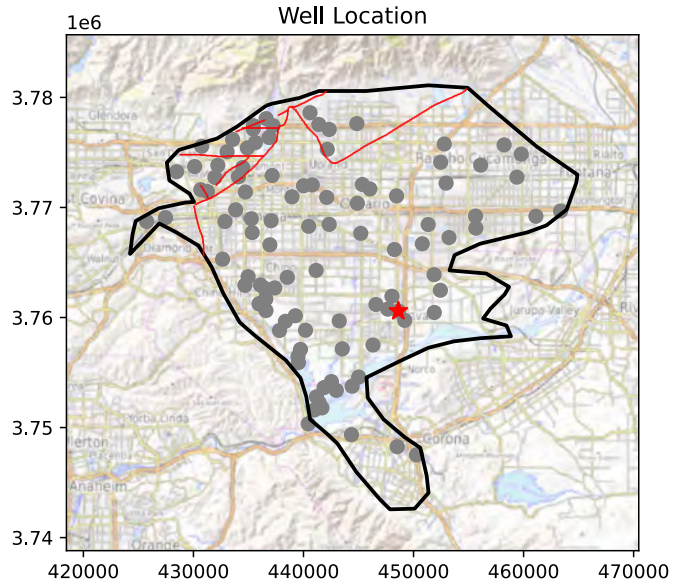
Model Domain
Faults
Observation Wells
Current Well: 1206955
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

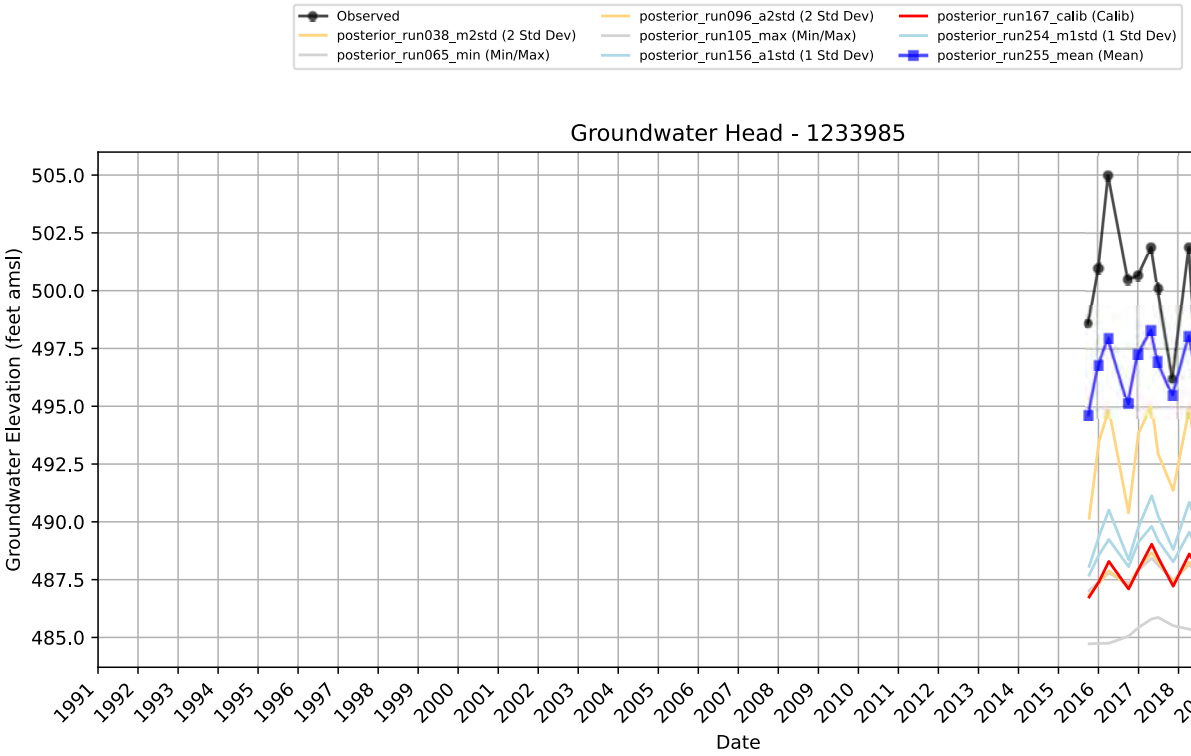

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002743
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1002743
Well Location
1e6

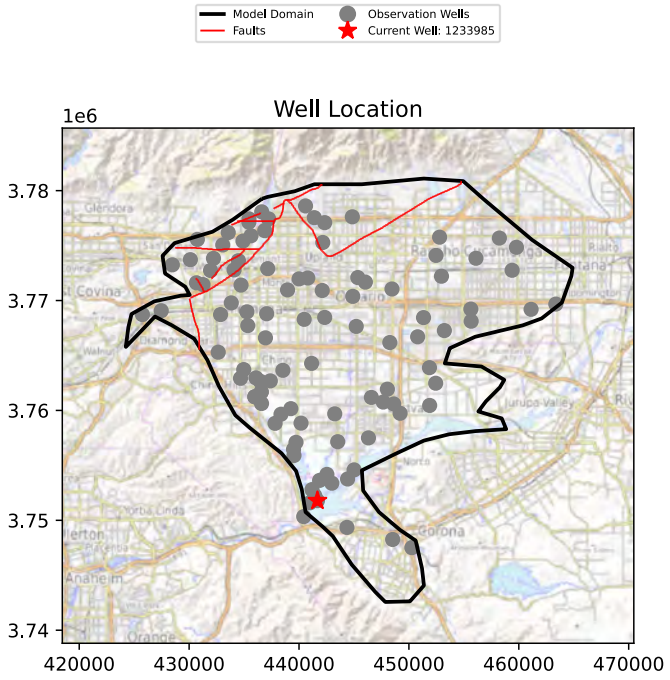

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

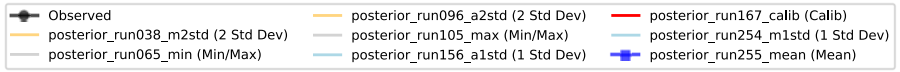

Groundwater Head - 1003613
Groundwater Elevation (feet amsl)
600
590
580
570
560
550
540
530
520
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
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2019
2020
2021
2022
2023
Date

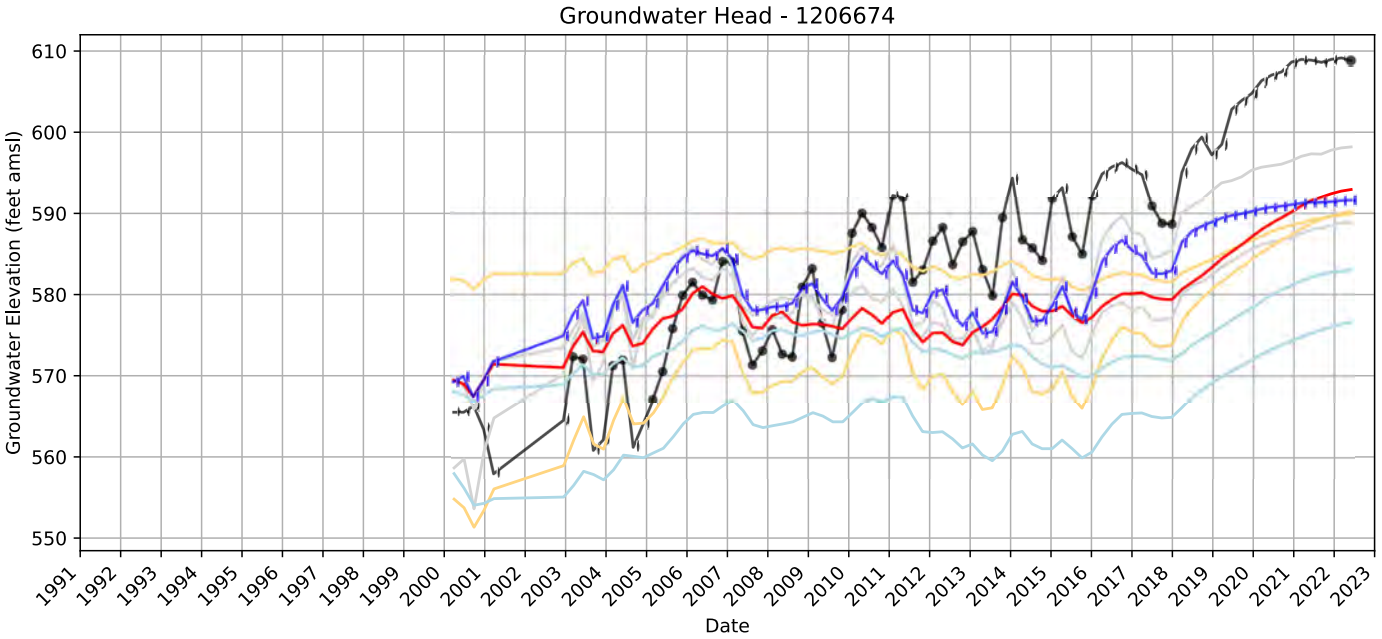

Model Domain
Faults
Observation Wells
Current Well: 1003613


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

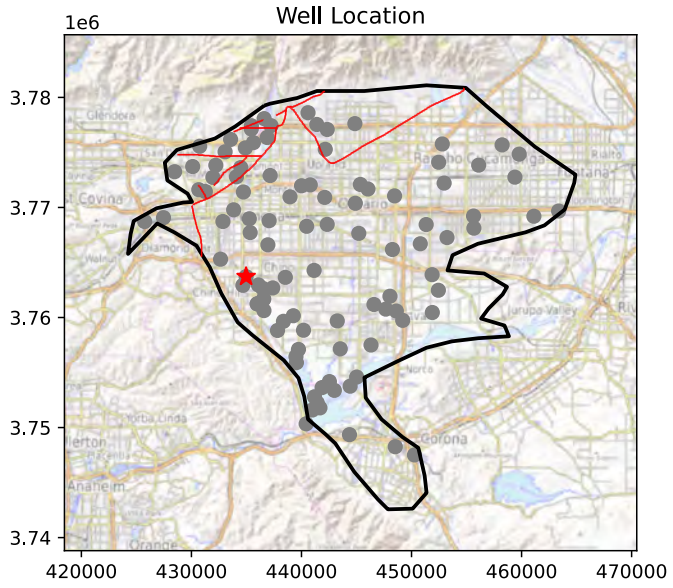

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1233985
Groundwater Elevation (feet amsl)
505.0
502.5
500.0
497.5
495.0
492.5
490.0
487.5
485.0
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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2020
2021
2022
2023
Date

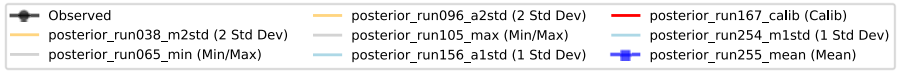

Model Domain
Faults
Observation Wells
Current Well: 1233985
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

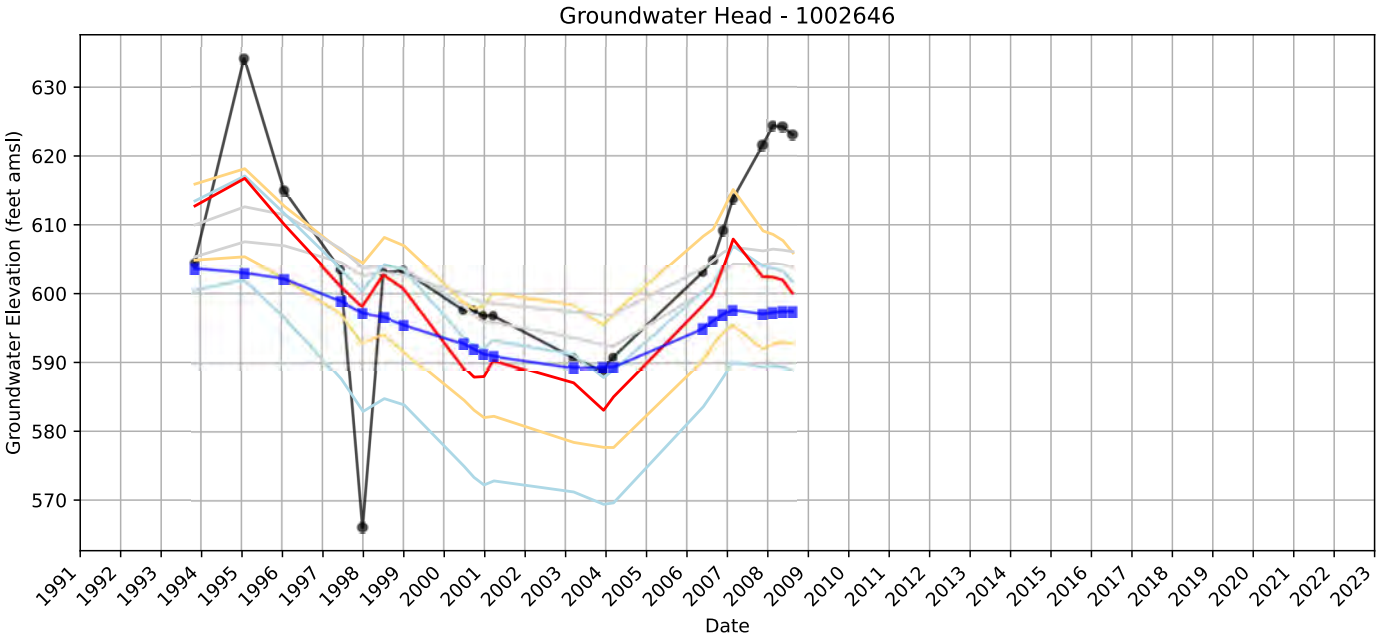

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1206674
Groundwater Elevation (feet amsl)
610
600
590
580
570
560
550
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
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2016
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2018
2019
2020
2021
2022
2023
Date

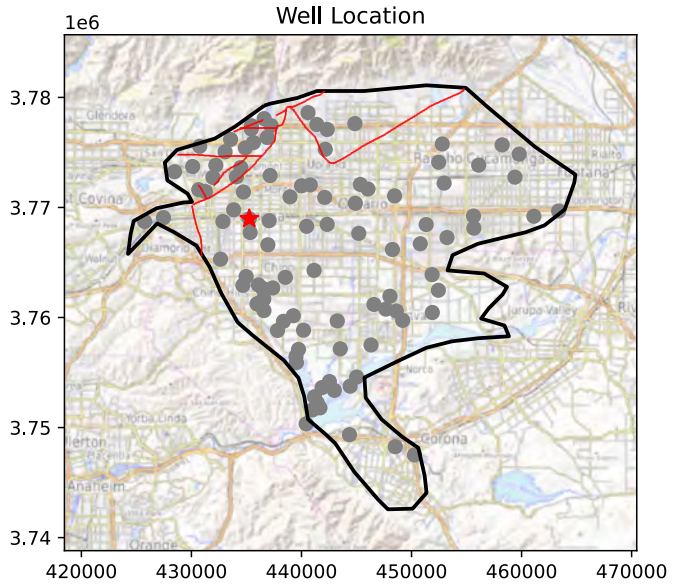

Model Domain
Faults
Observation Wells
Current Well: 1206674

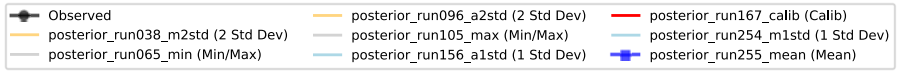

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

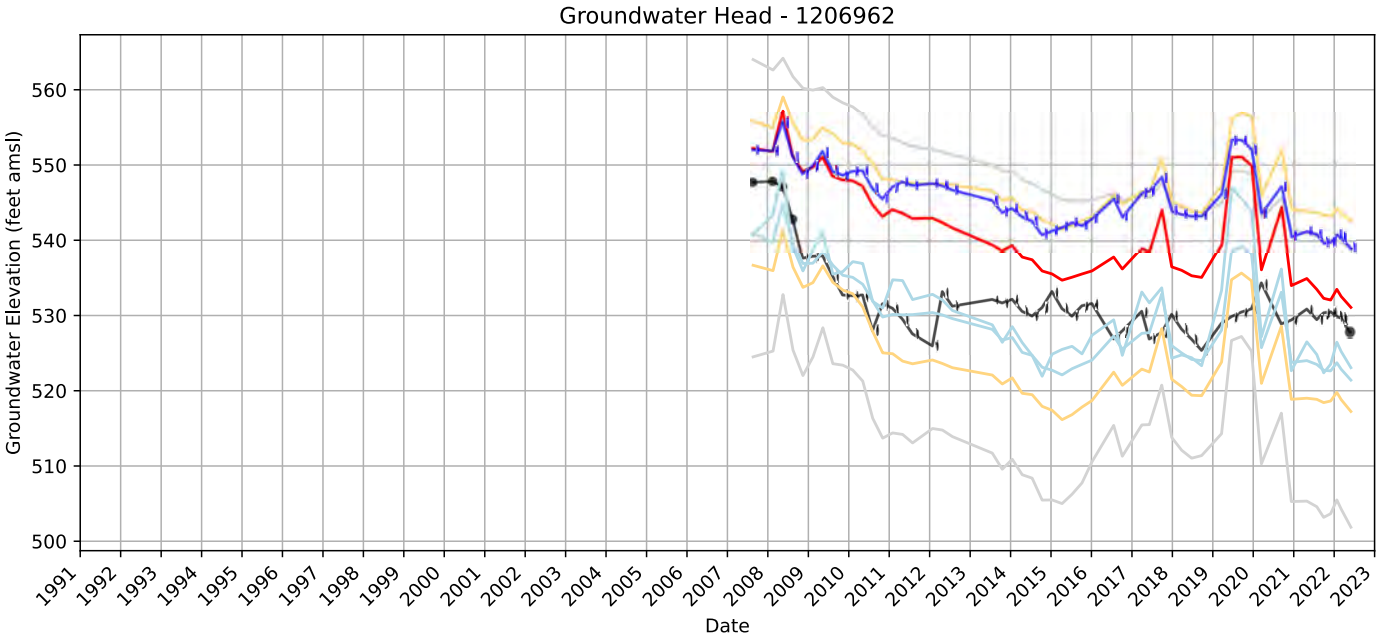

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1002646
Groundwater Elevation (feet amsl)
630
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2016
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2018
2019
2020
2021
2022
2023
Date

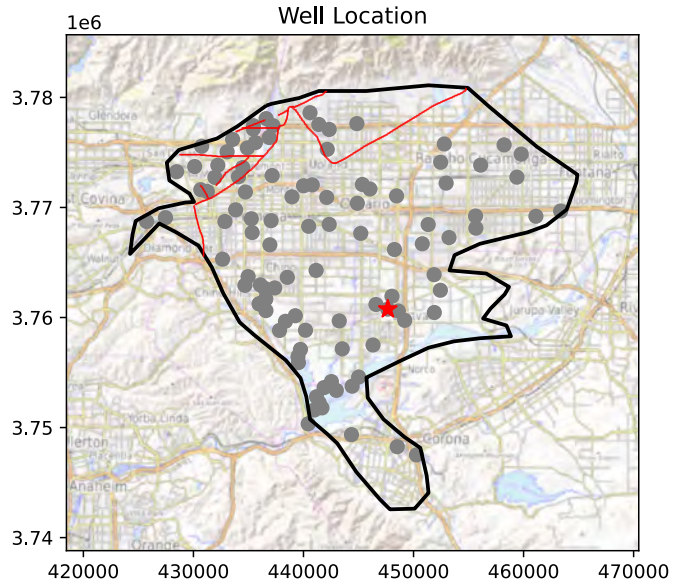

Model Domain
Faults
Observation Wells
Current Well: 1002646

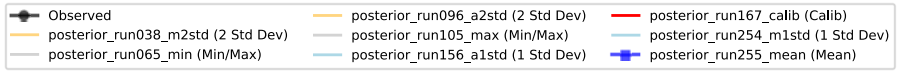

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

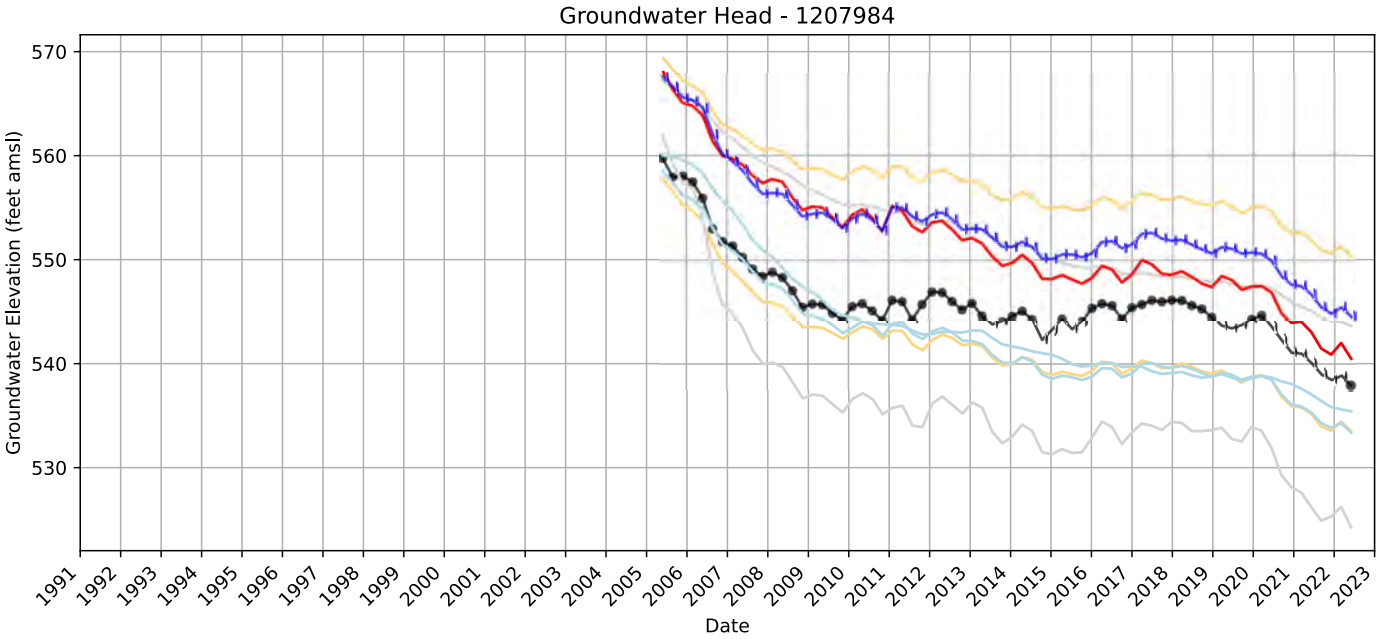

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1206962
Groundwater Elevation (feet amsl)
560
550
540
530
520
510
500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
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2010
2011
2012
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2016
2017
2018
2019
2020
2021
2022
2023
Date

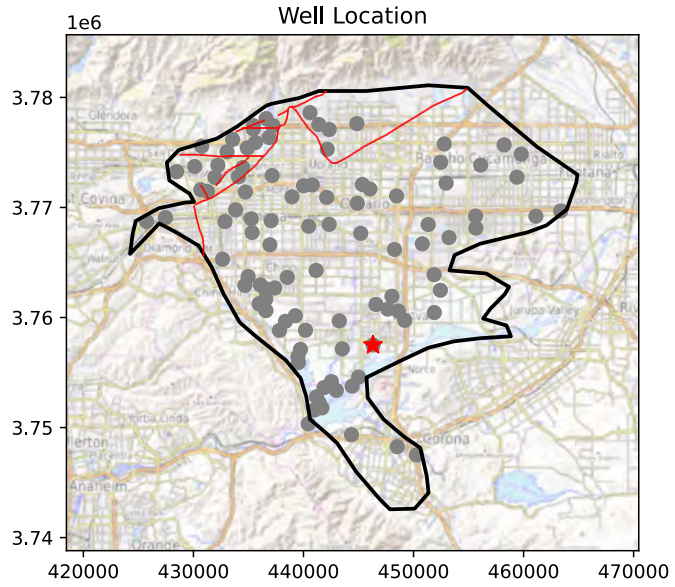

Model Domain
Faults
Observation Wells
Current Well: 1206962

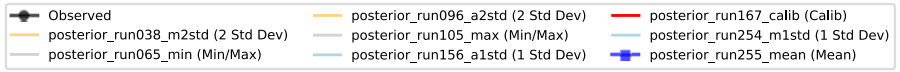

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

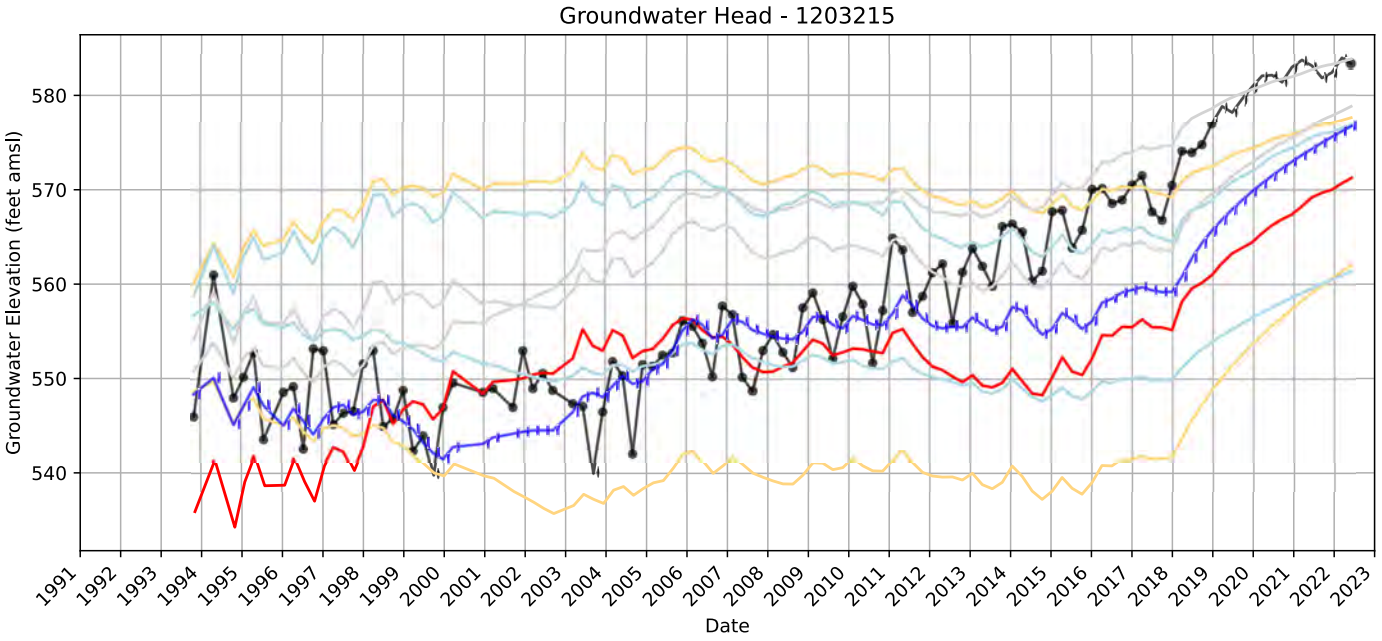

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1207984
Groundwater Elevation (feet amsl)
570
560
550
540
530
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

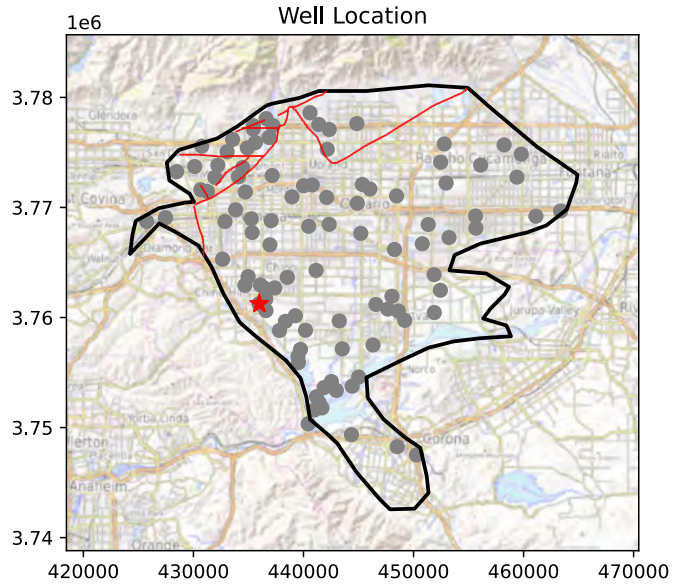

Model Domain
Faults
Observation Wells
Current Well: 1207984

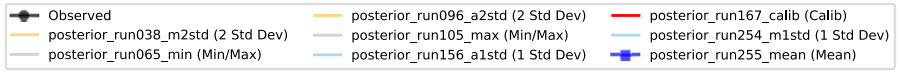

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

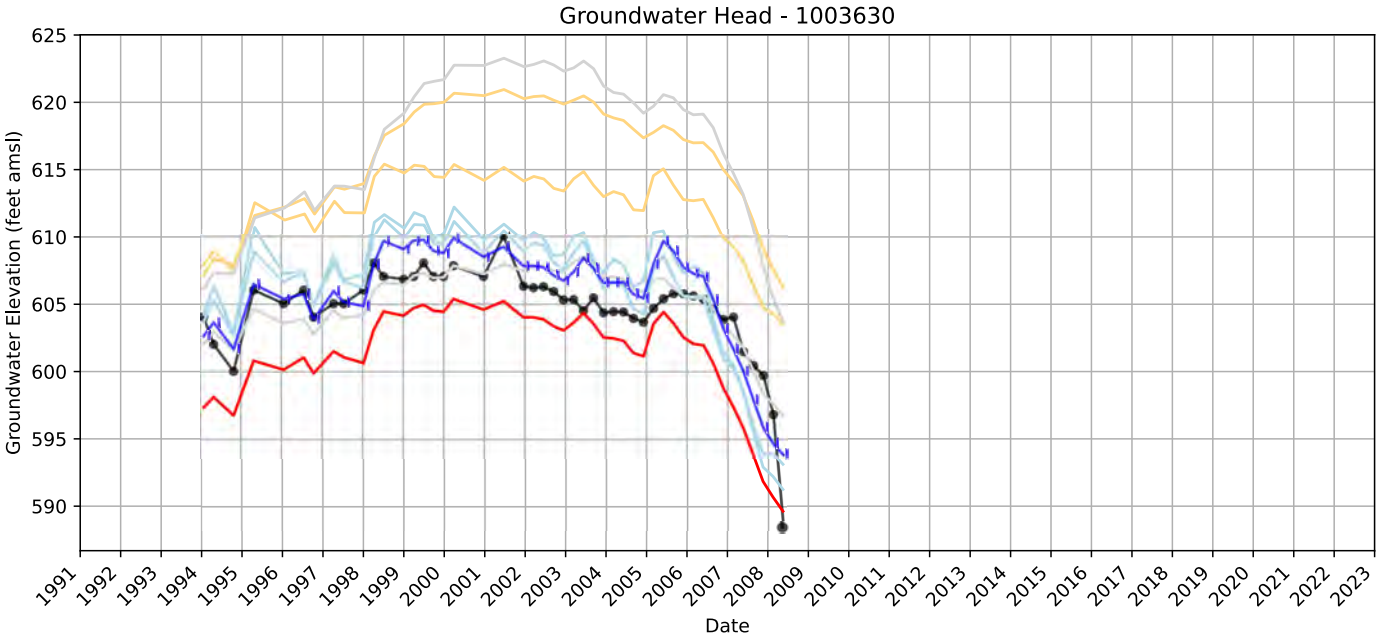

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1203215
Groundwater Elevation (feet amsl)
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

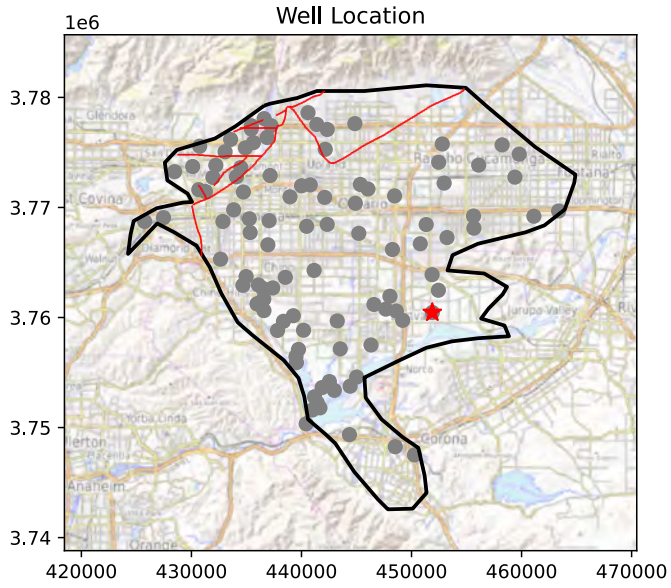

Model Domain
Faults
Observation Wells
Current Well: 1203215

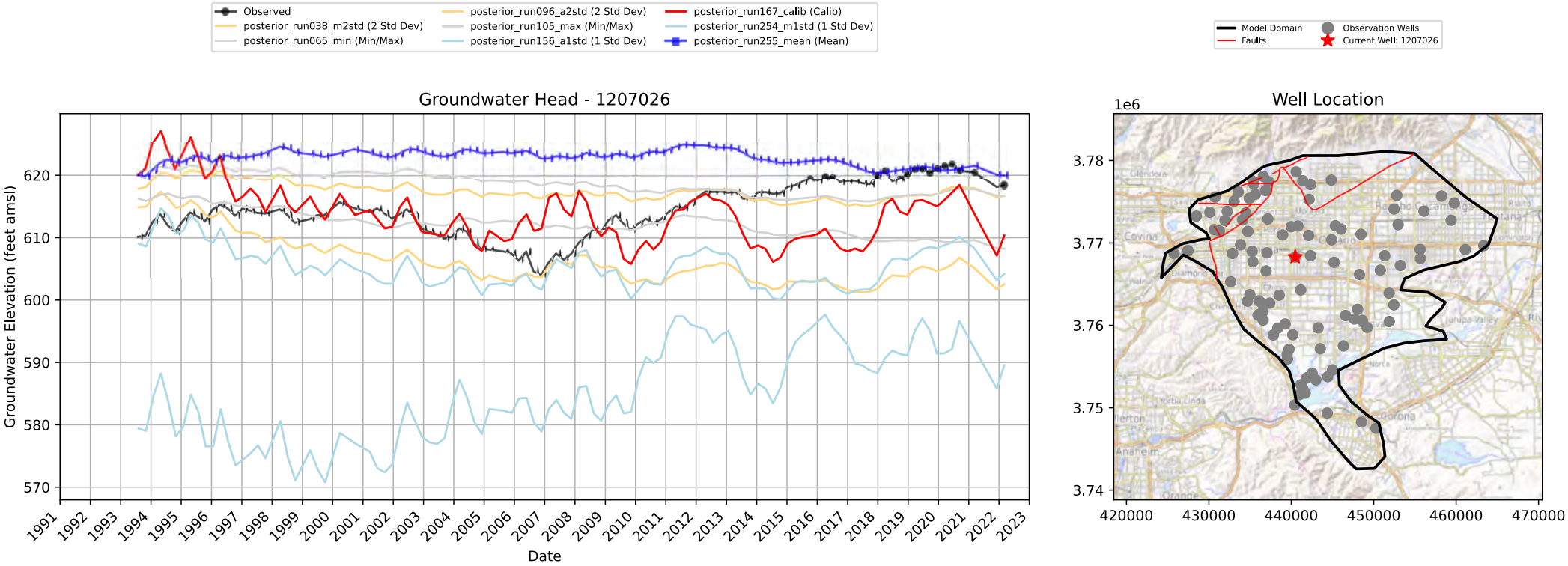

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1003630
Groundwater Elevation (feet amsl)
625
620
615
610
605
600
595
590
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1003630


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207026
Groundwater Elevation (feet amsl)
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1207026
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

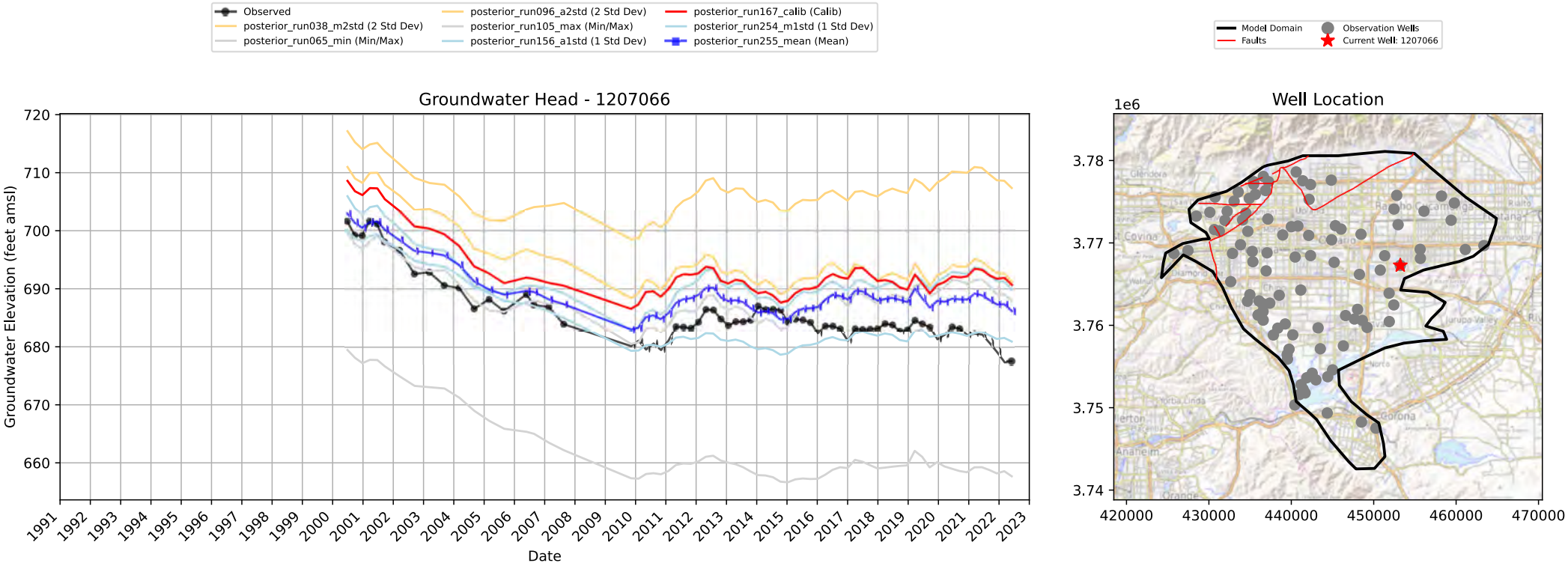
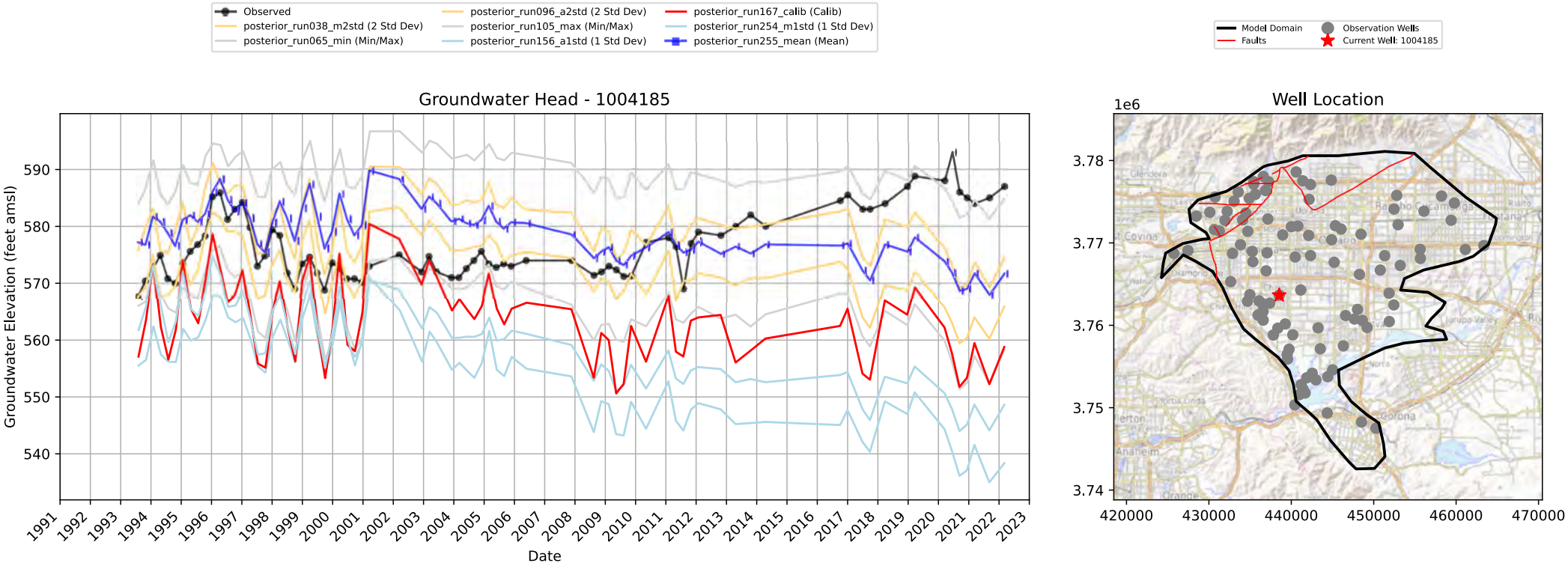
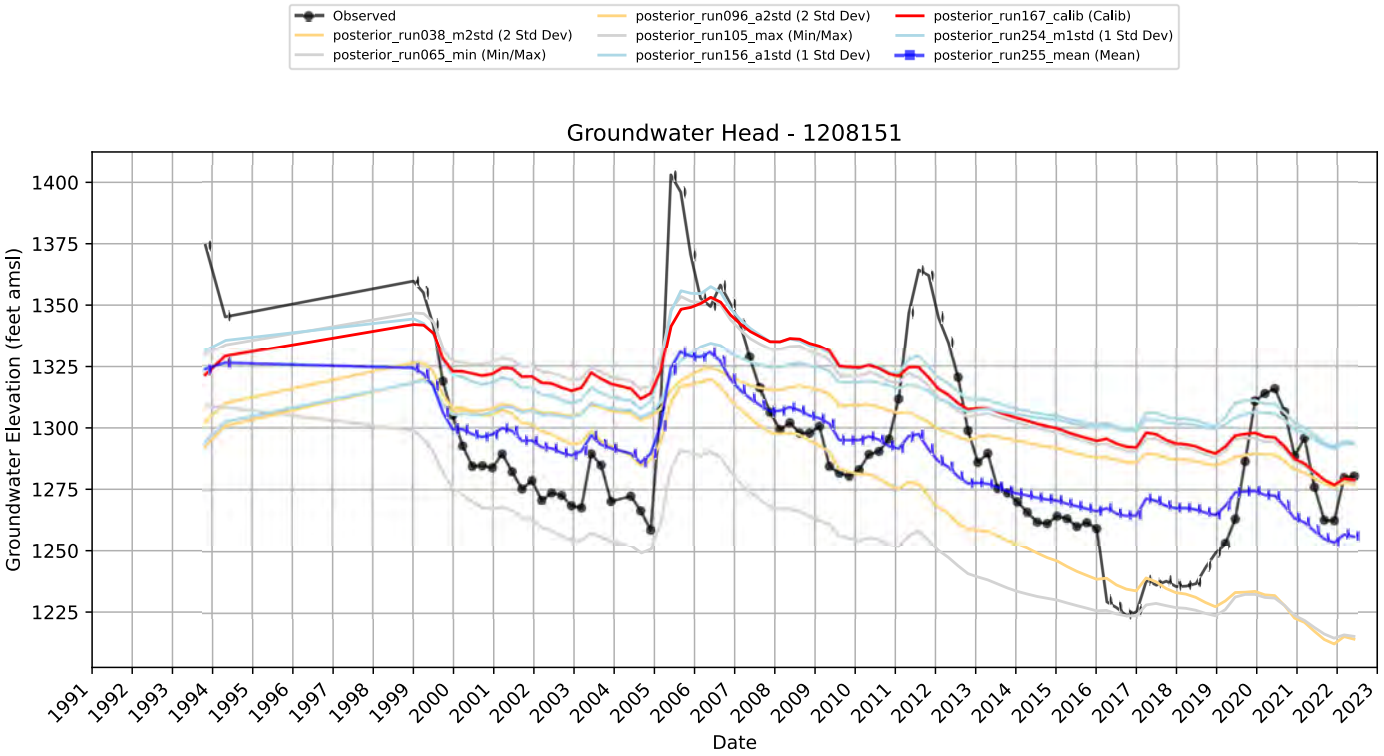
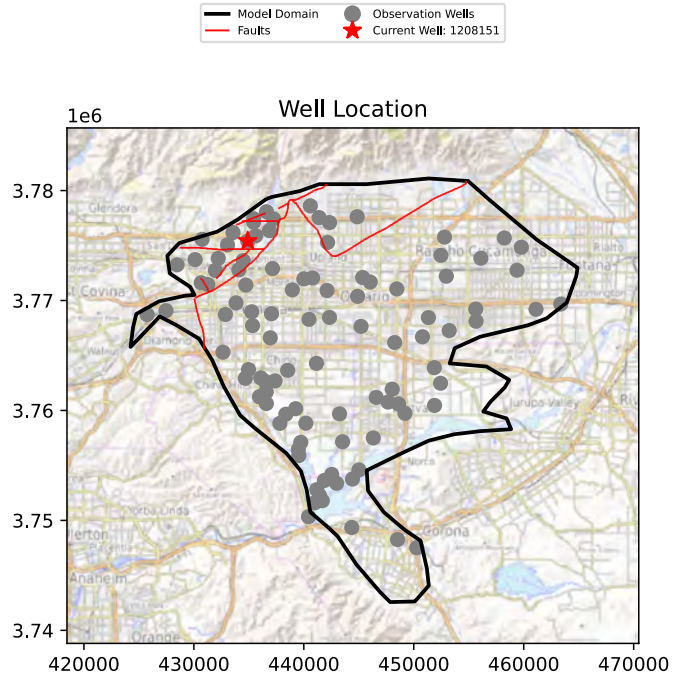
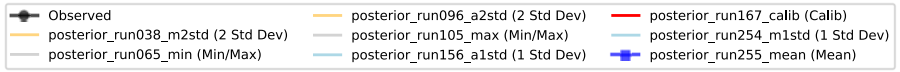


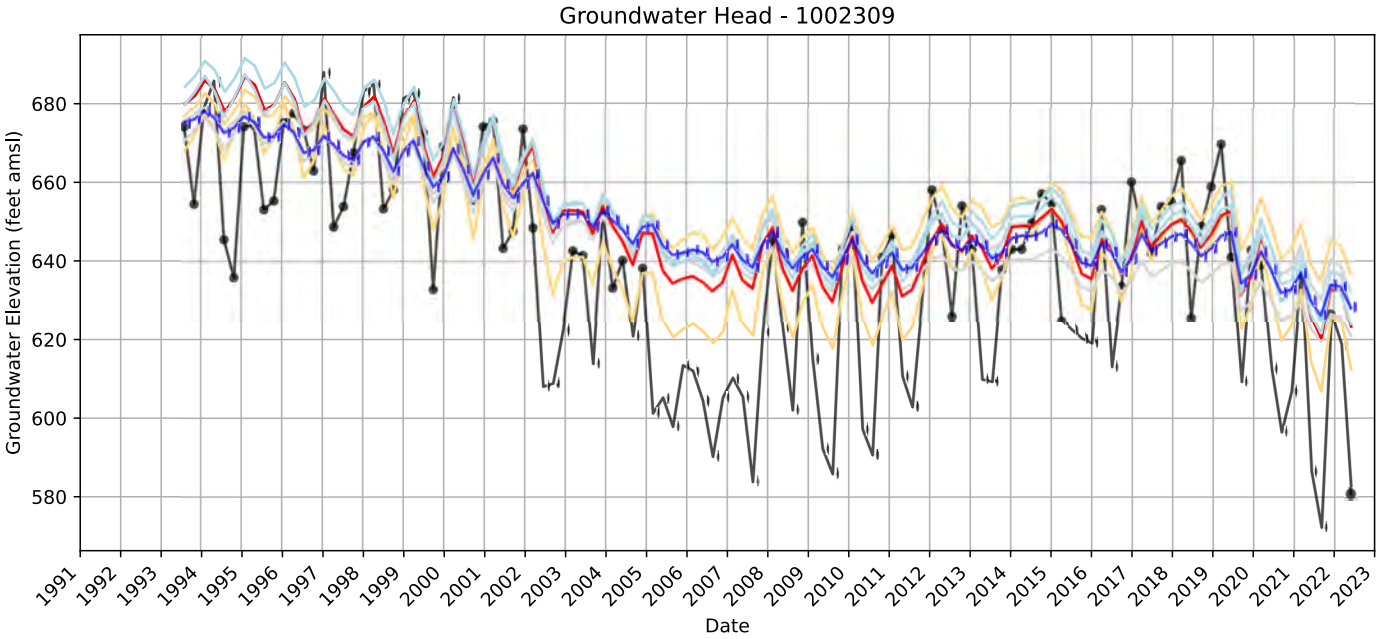
Exhibit B, Pg. 308


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1004185
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1004185
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

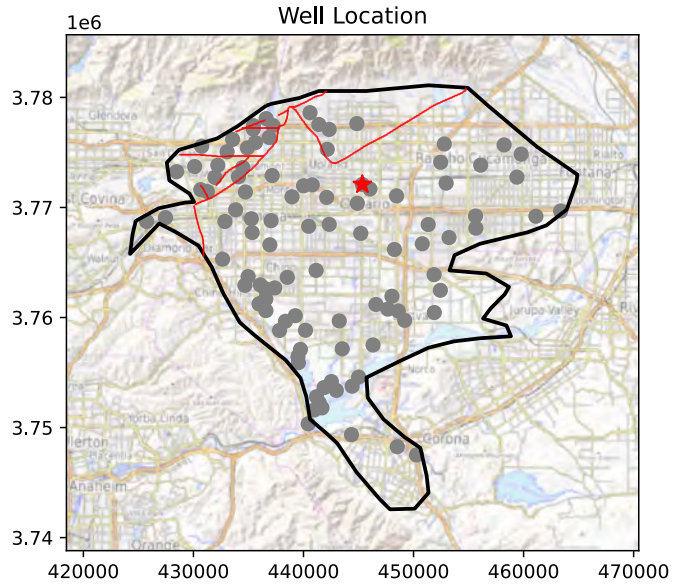

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1208151
Groundwater Elevation (feet amsl)
Date

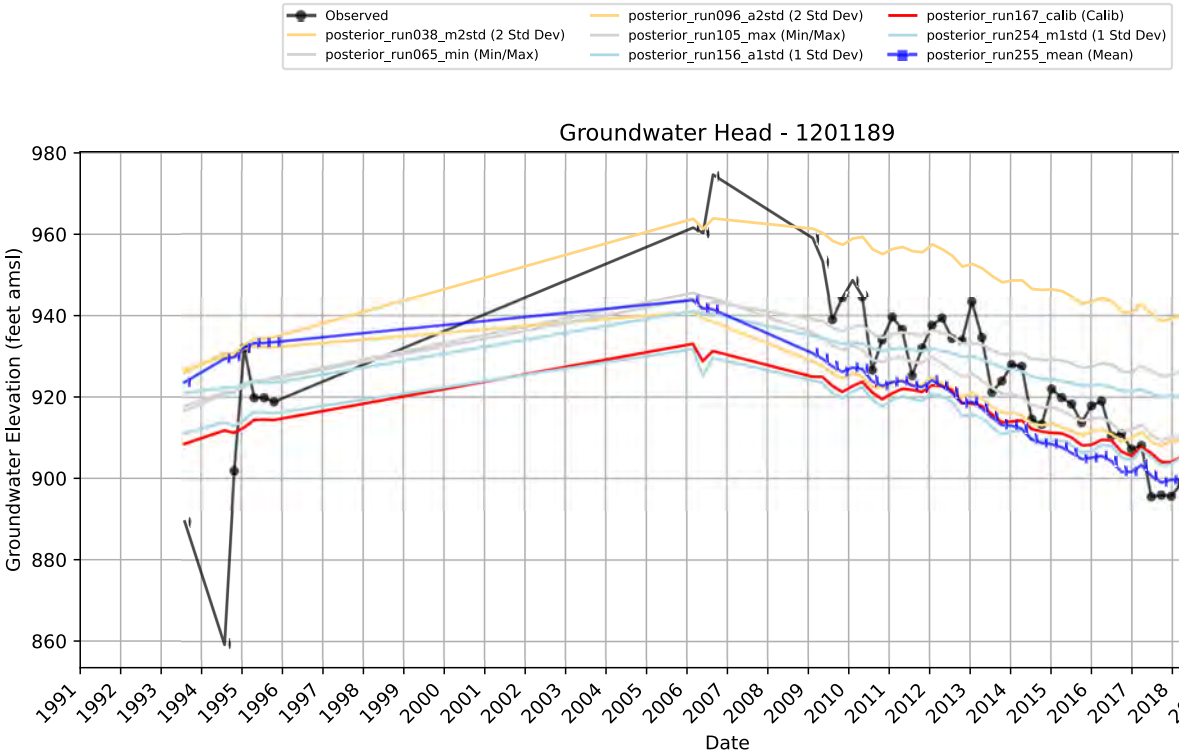

Model Domain
Faults
Observation Wells
Current Well: 1208151
Well Location
1e6

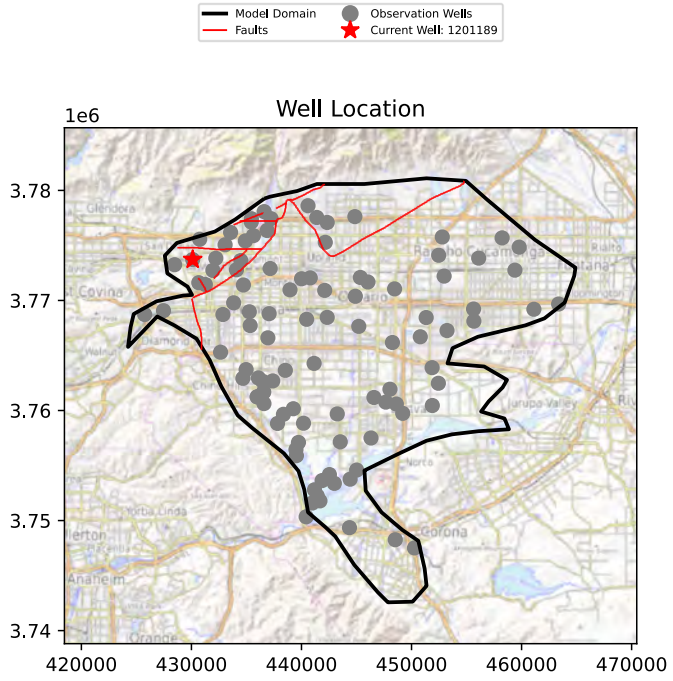

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

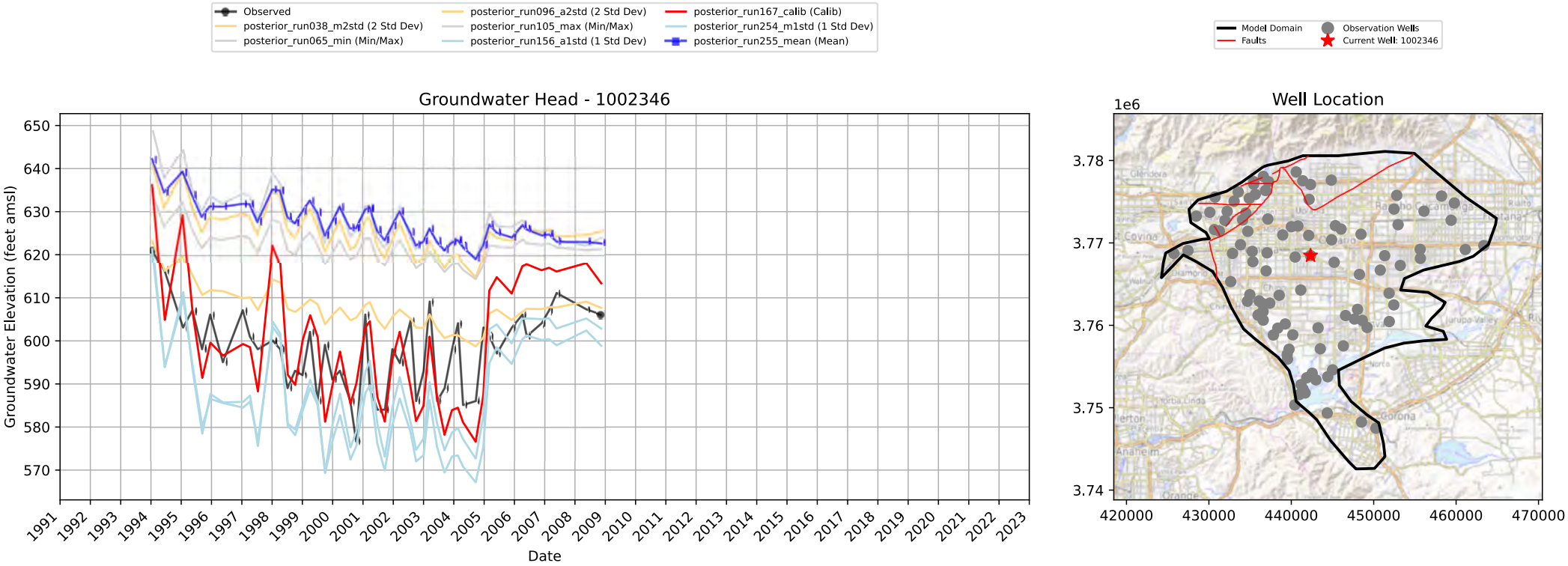

Groundwater Head - 1002309
Groundwater Elevation (feet amsl)
680
660
640
620
600
580
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1002309

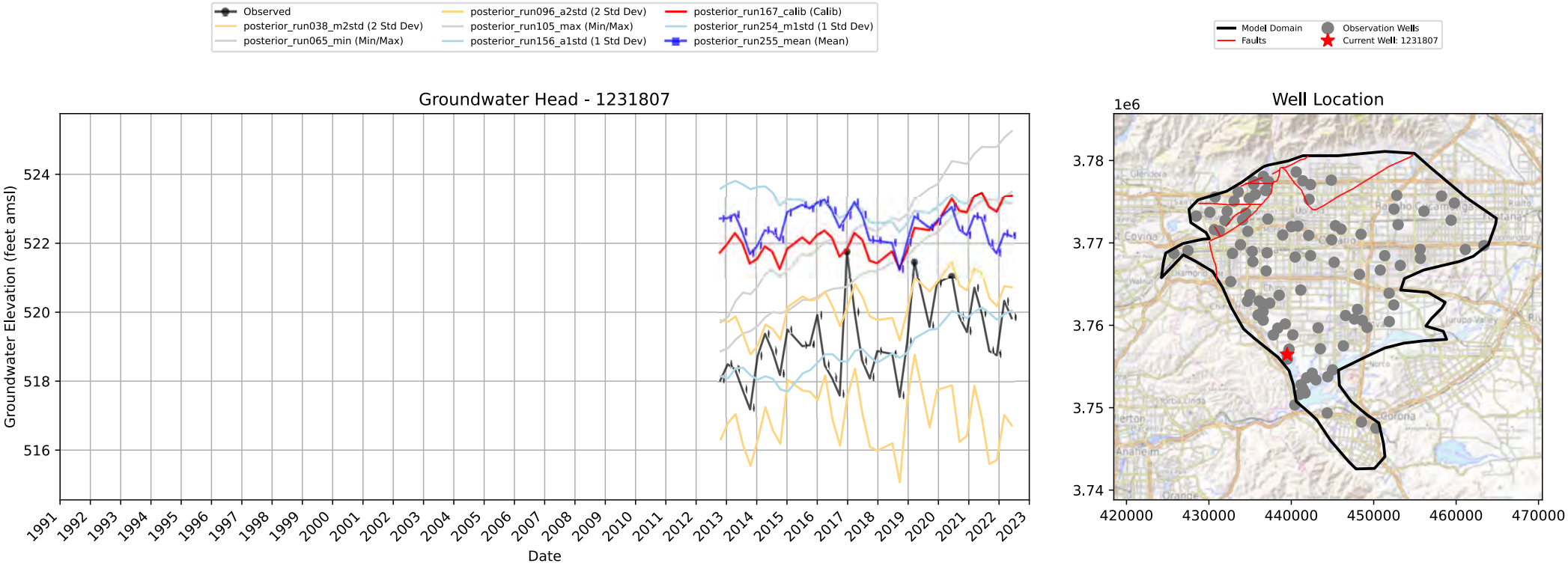

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

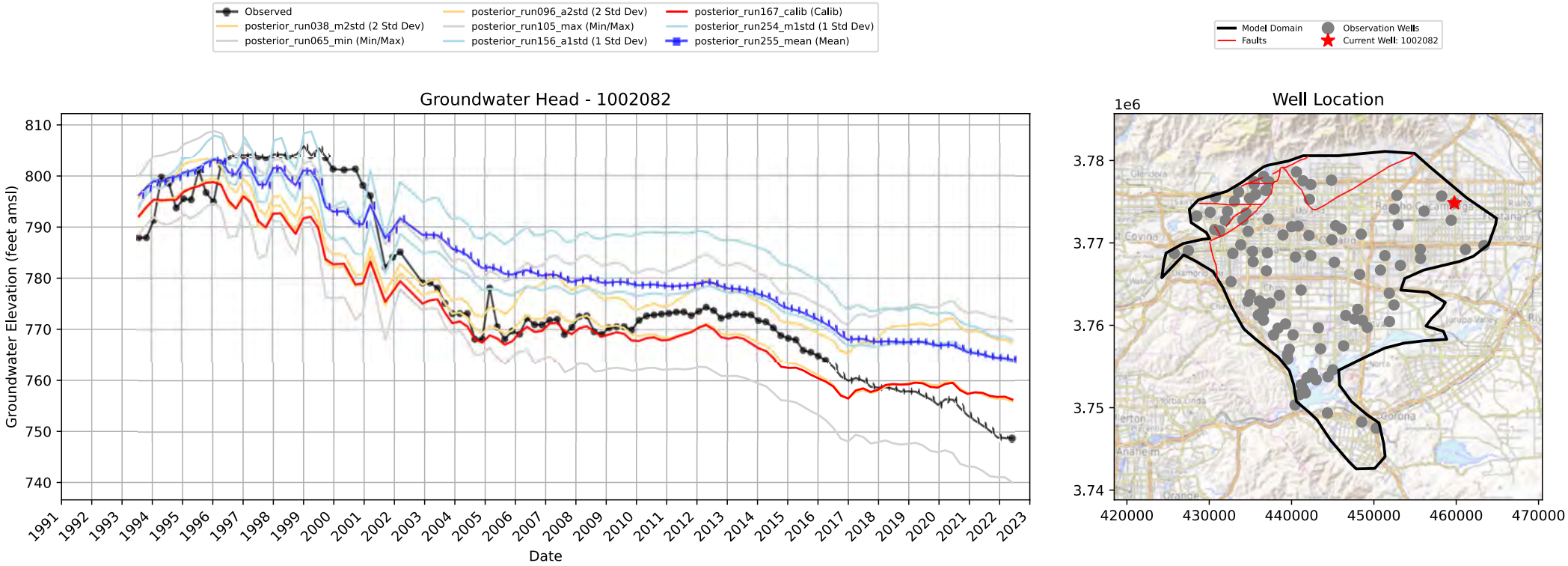

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1201189
Groundwater Elevation (feet amsl)
980
960
940
920
900
880
860
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2016
2017
2018
2019
2020
2021
2022
2023
Date

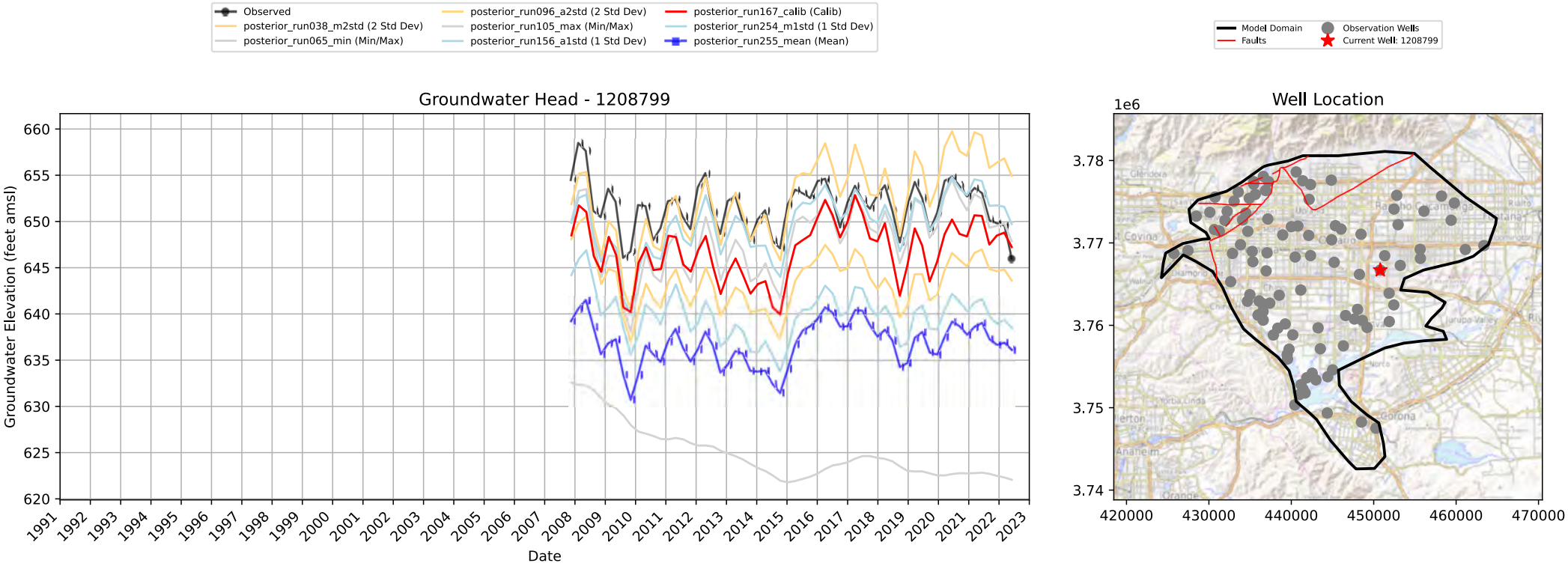

Model Domain
Faults
Observation Wells
Current Well: 1201189
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

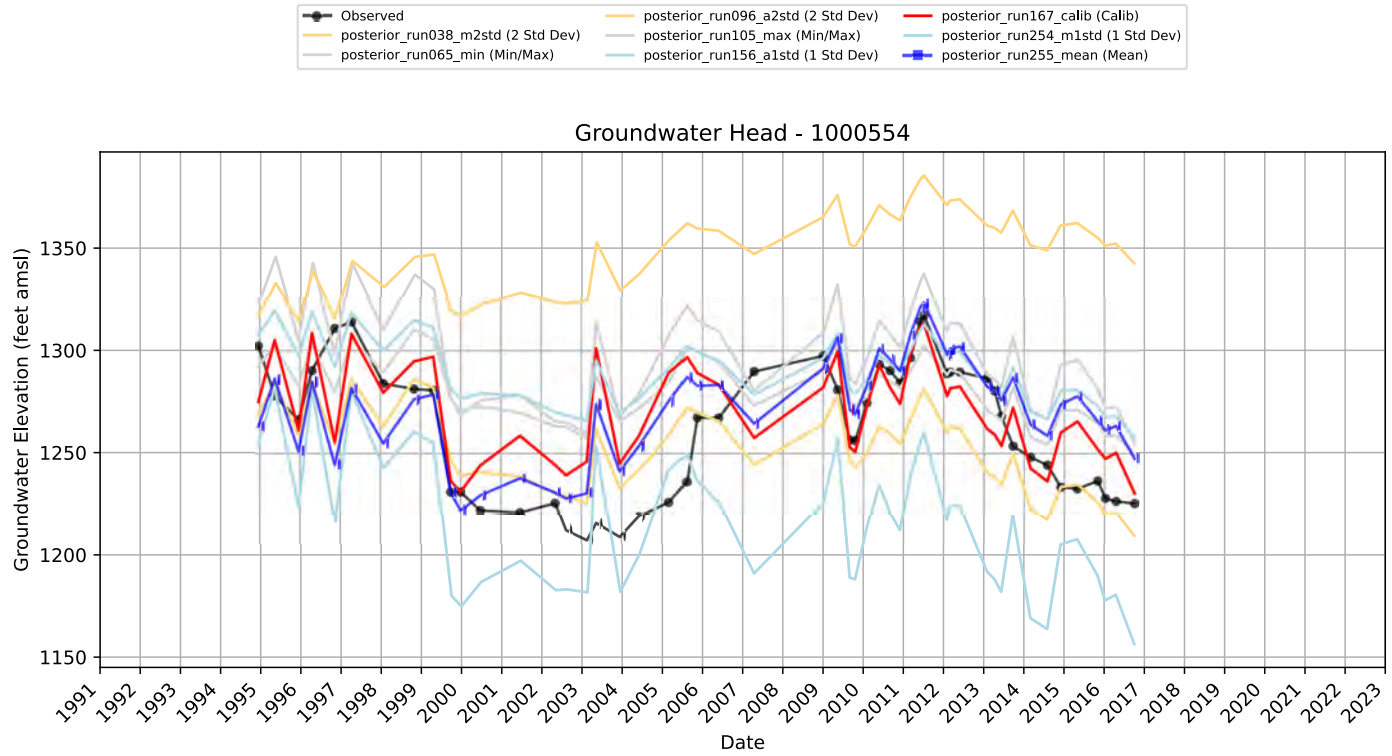

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002346
Groundwater Elevation (feet amsl)
650
640
630
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

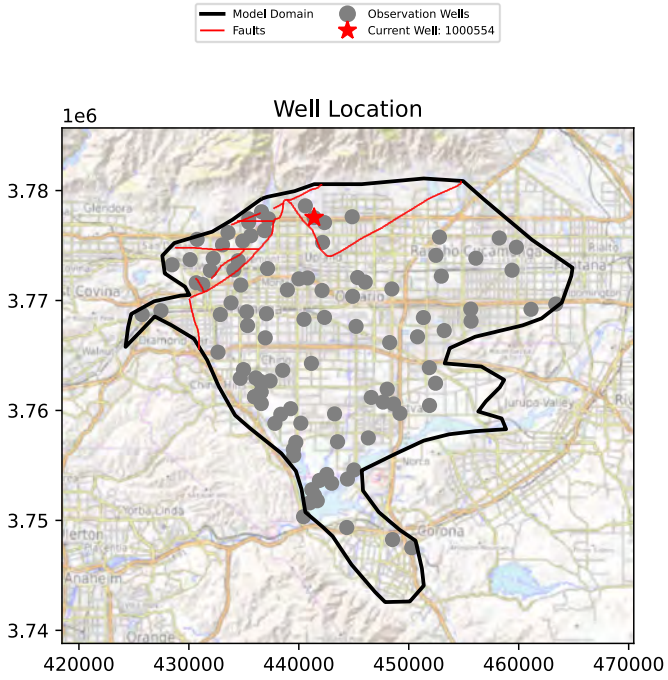
Model Domain
Faults
Observation Wells
Current Well: 1002346
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

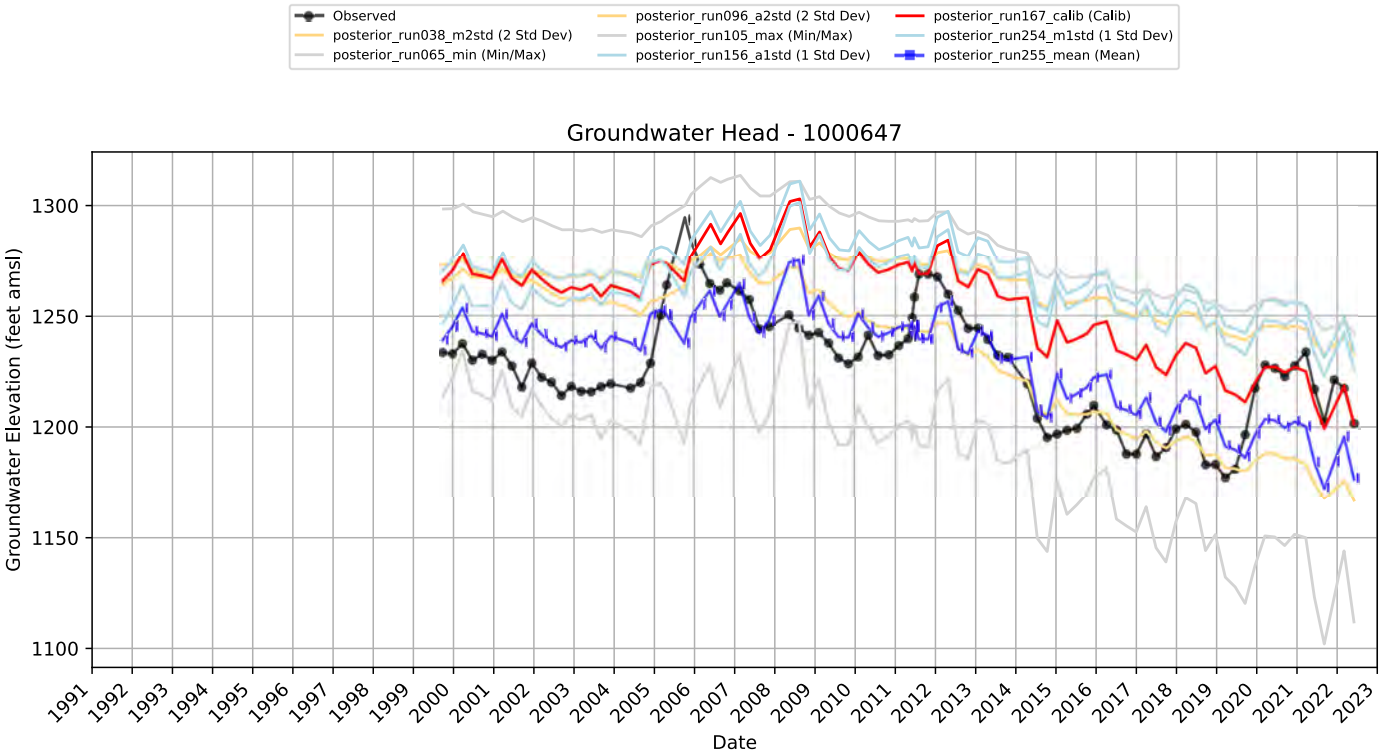

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1231807
Groundwater Elevation (feet amsl)
524
522
520
518
516
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1231807
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

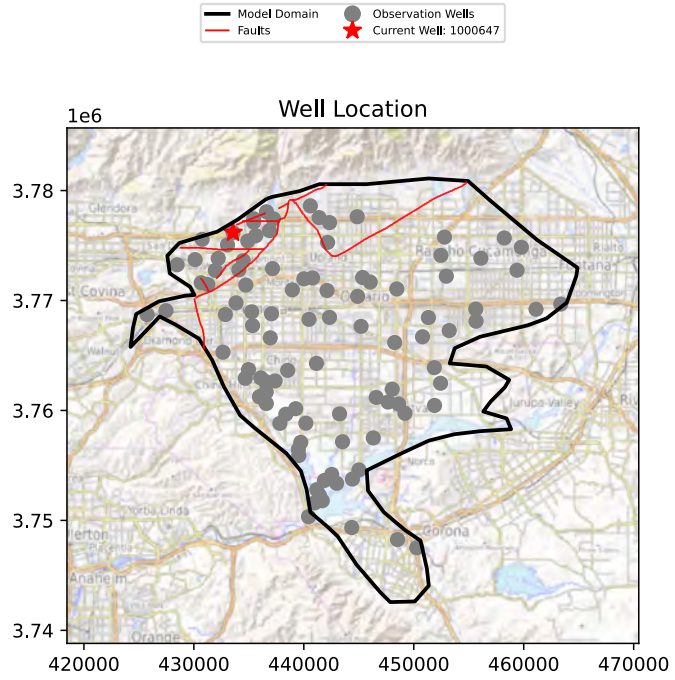

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002082
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1002082
Well Location
1e6

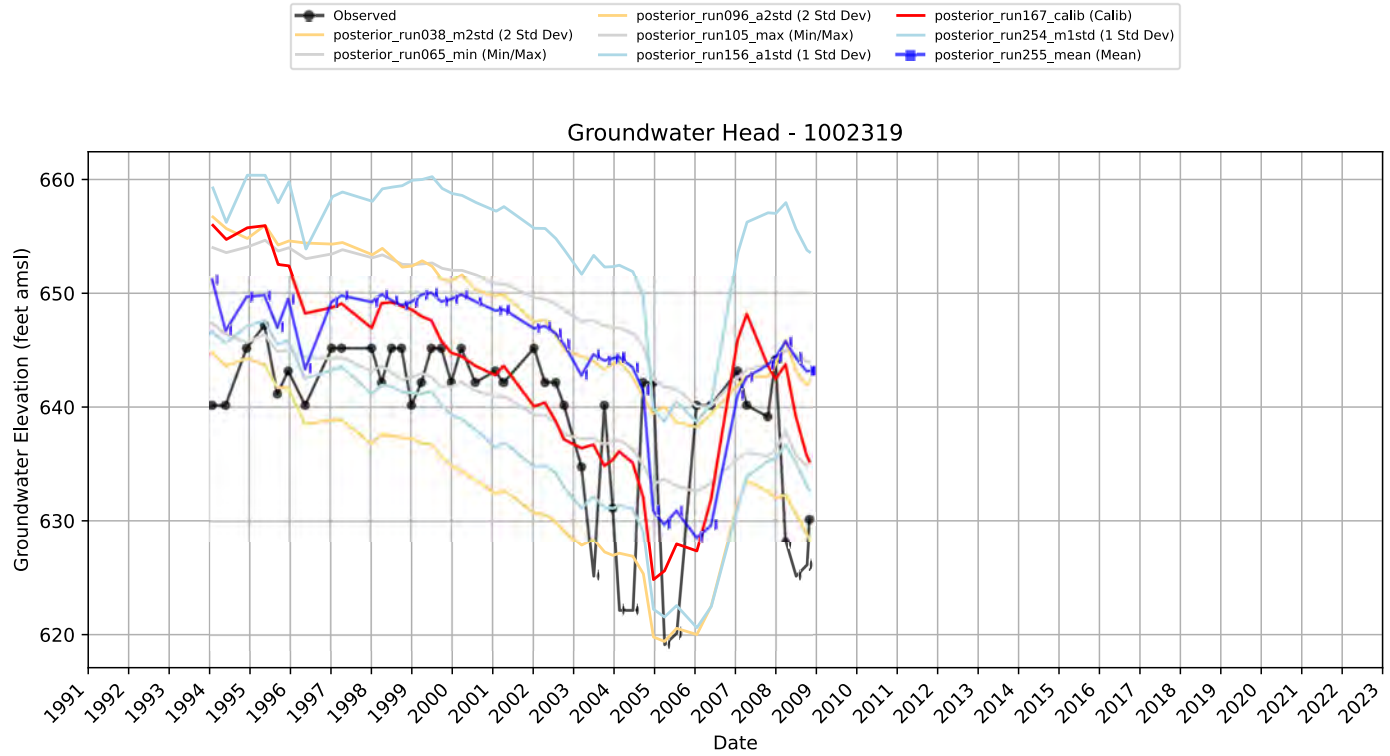

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1208799
Groundwater Elevation (feet amsl)
660
655
650
645
640
635
630
625
620
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1208799
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

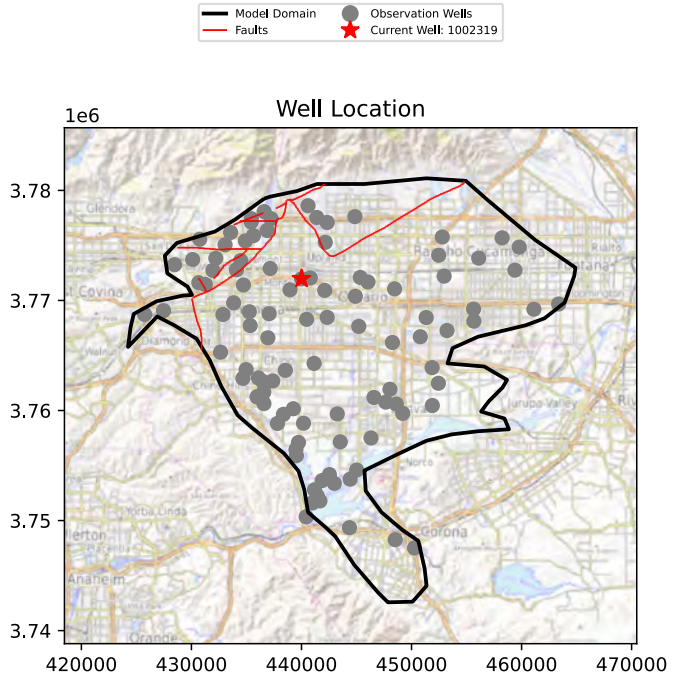

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000554
Groundwater Elevation (feet amsl)
1350
1300
1250
1200
1150
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

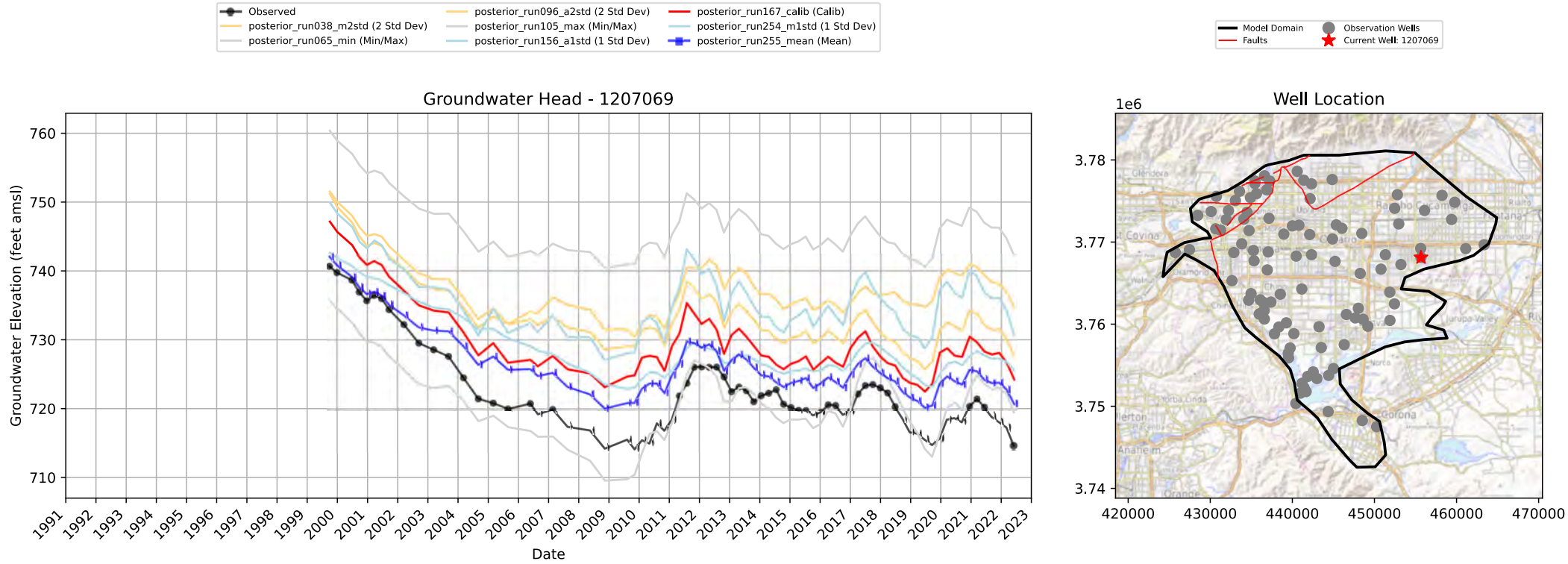

Model Domain
Faults
Observation Wells
Current Well: 1000554
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000647
Groundwater Elevation (feet amsl)
1300
1250
1200
1150
1100
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

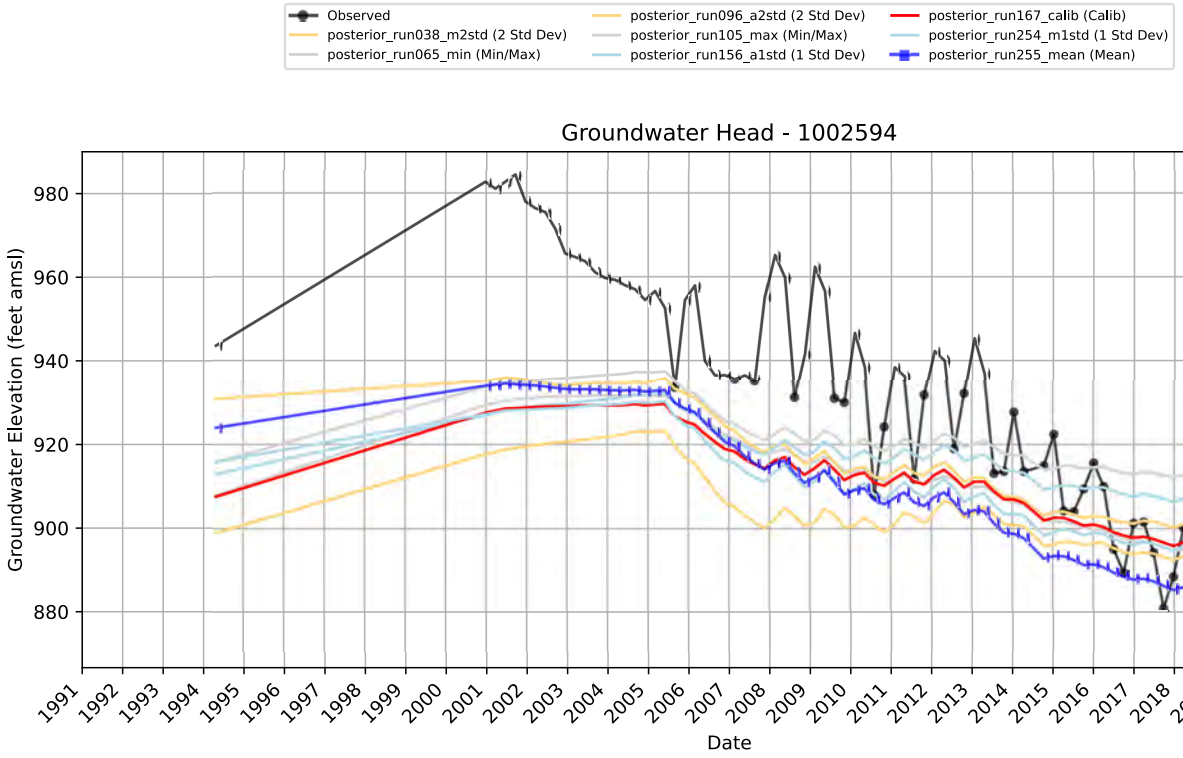

Model Domain
Faults
Observation Wells
Current Well: 1000647
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

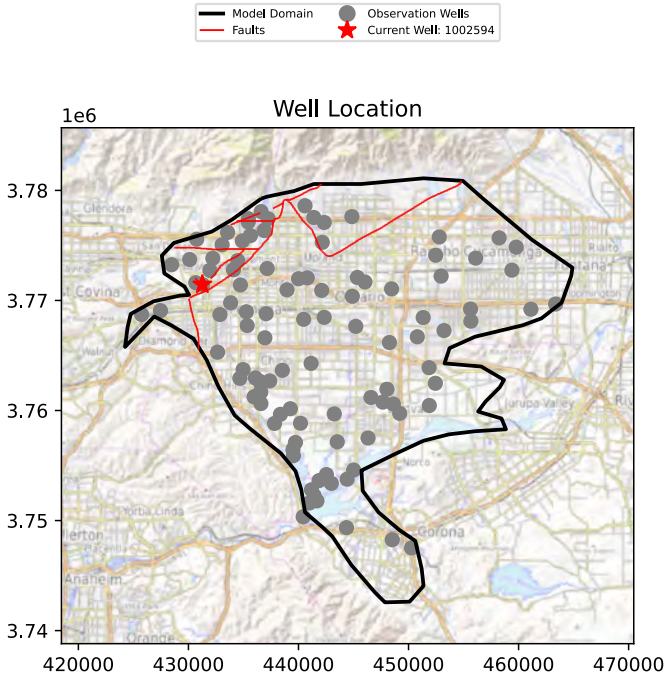

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002319
Groundwater Elevation (feet amsl)
660
650
640
630
620
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

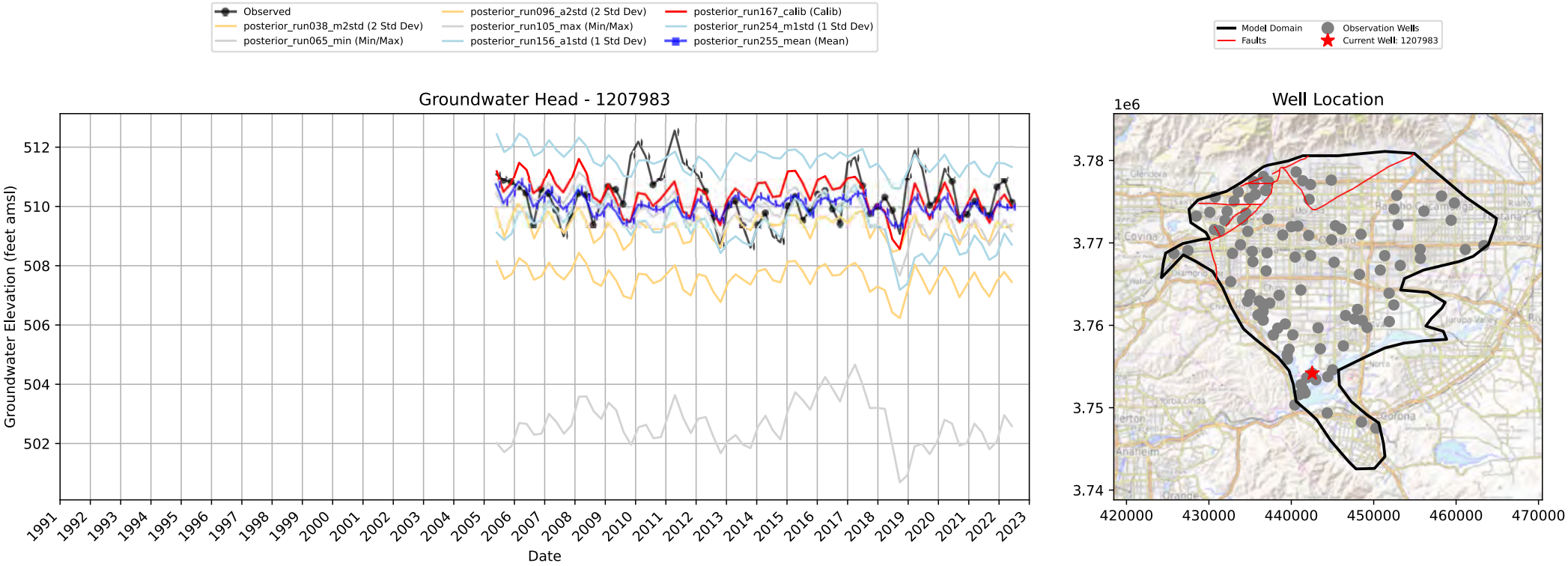

Model Domain
Faults
Observation Wells
Current Well: 1002319
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

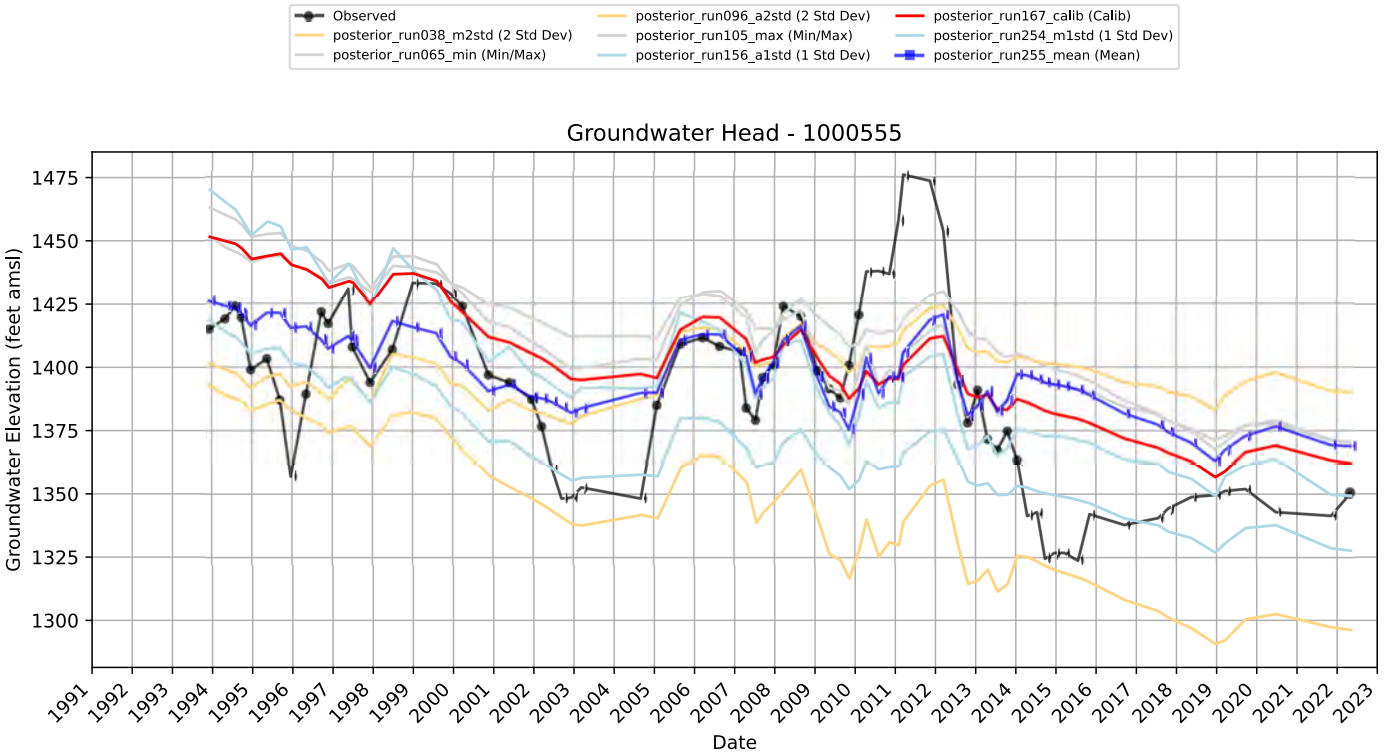

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207069
Groundwater Elevation (feet amsl)
760
750
740
730
720
710
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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2016
2017
2018
2019
2020
2021
2022
2023
Date

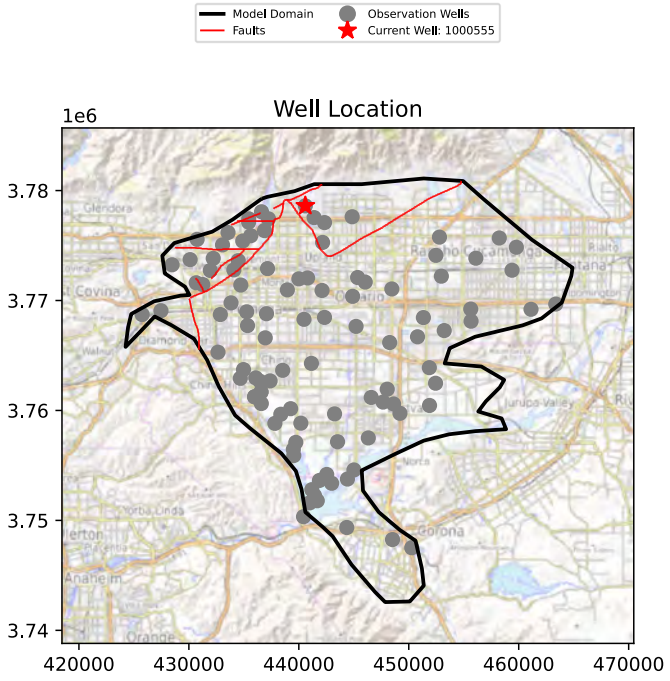
Model Domain
Faults
Observation Wells
Current Well: 1207069
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

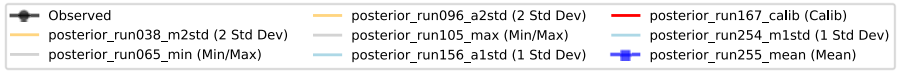

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002594
Groundwater Elevation (feet amsl)
980
960
940
920
900
880
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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2016
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2018
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2021
2022
2023
Date

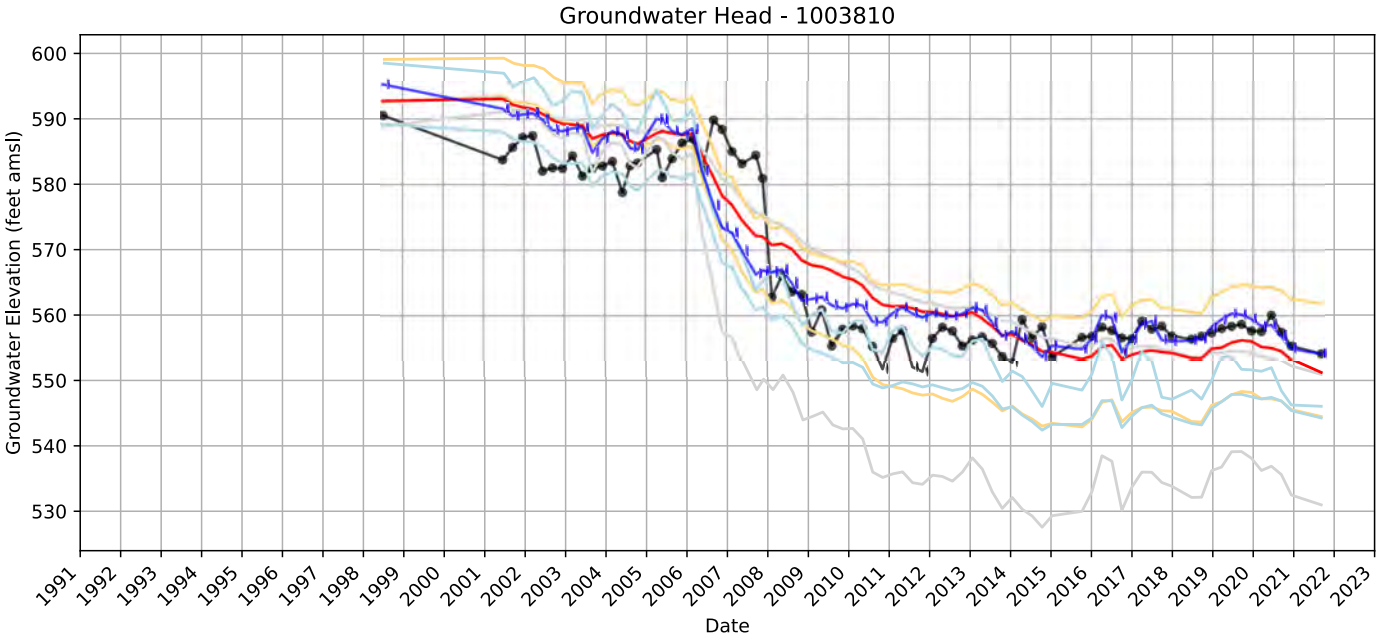

Model Domain
Faults
Observation Wells
Current Well: 1002594
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207983
Groundwater Elevation (feet amsl)
512
510
508
506
504
502
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1207983
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

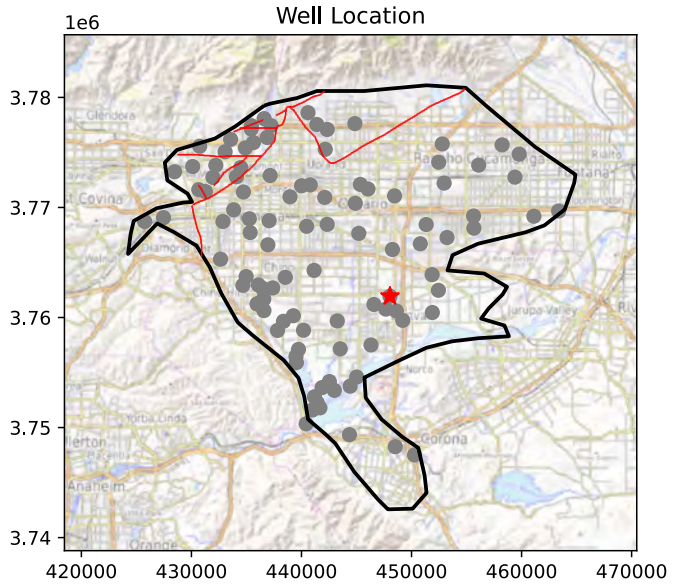

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000555
Groundwater Elevation (feet amsl)
1475
1450
1425
1400
1375
1350
1325
1300
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
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2012
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2016
2017
2018
2019
2020
2021
2022
2023
Date

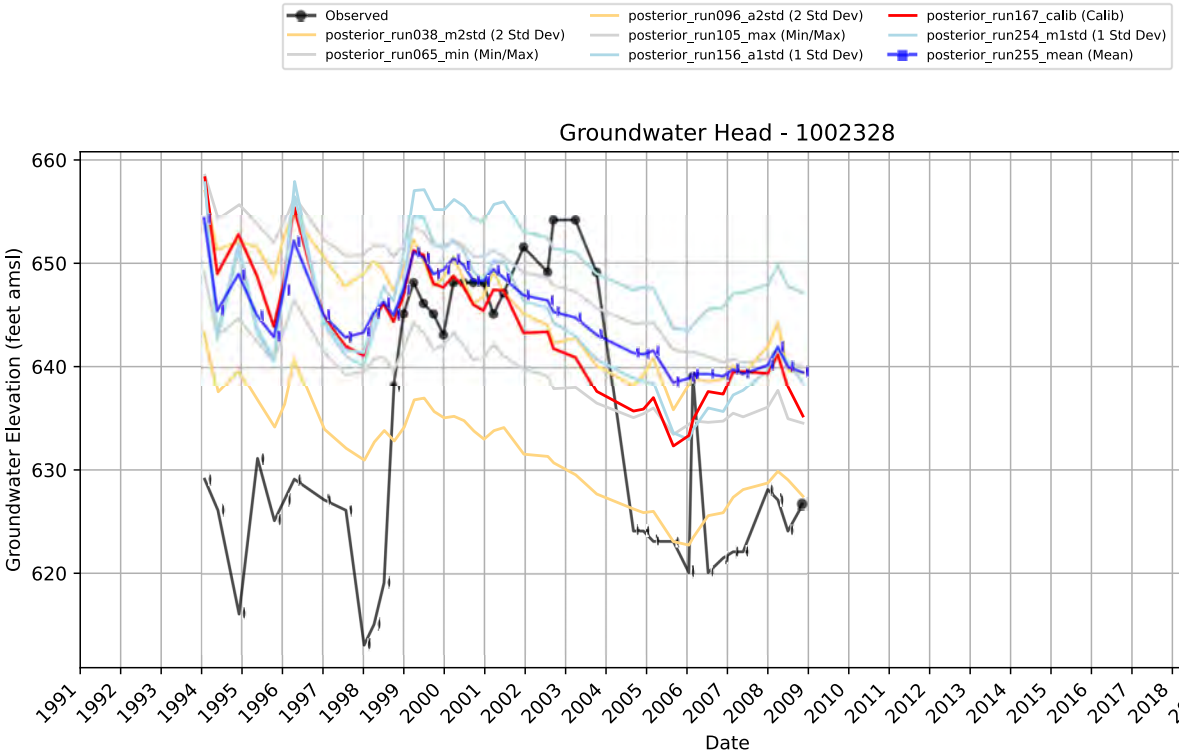

Model Domain
Faults
Observation Wells
Current Well: 1000555
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

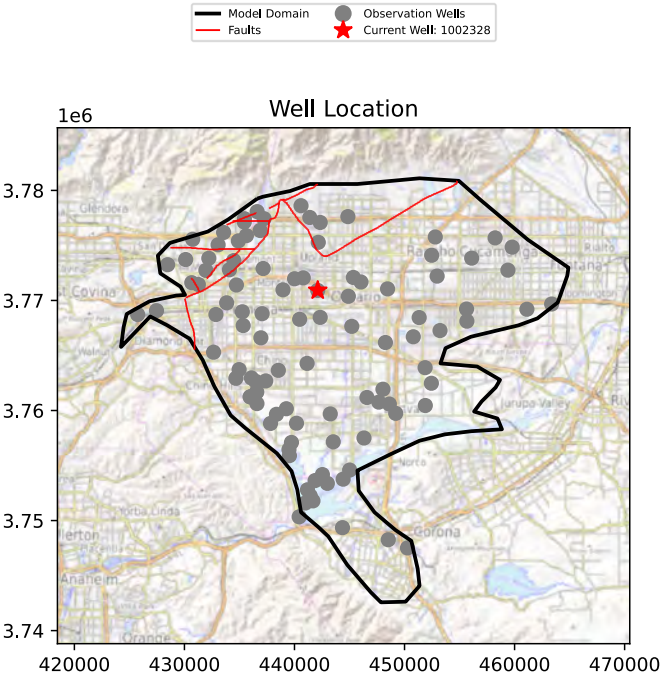

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

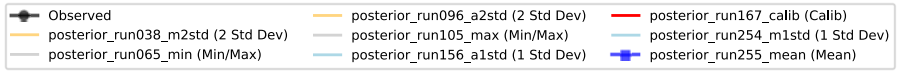

Groundwater Head - 1003810
Groundwater Elevation (feet amsl)
600
590
580
570
560
550
540
530
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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2008
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2016
2017
2018
2019
2020
2021
2022
2023
Date

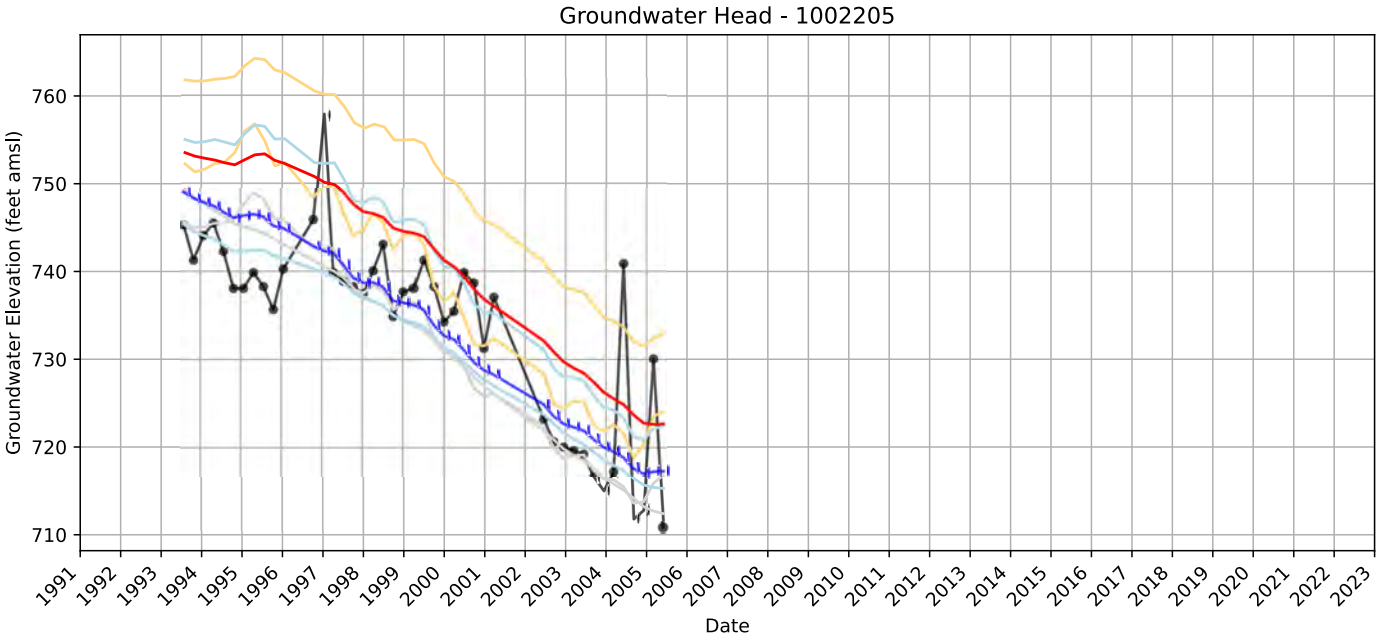

Model Domain
Faults
Observation Wells
Current Well: 1003810


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

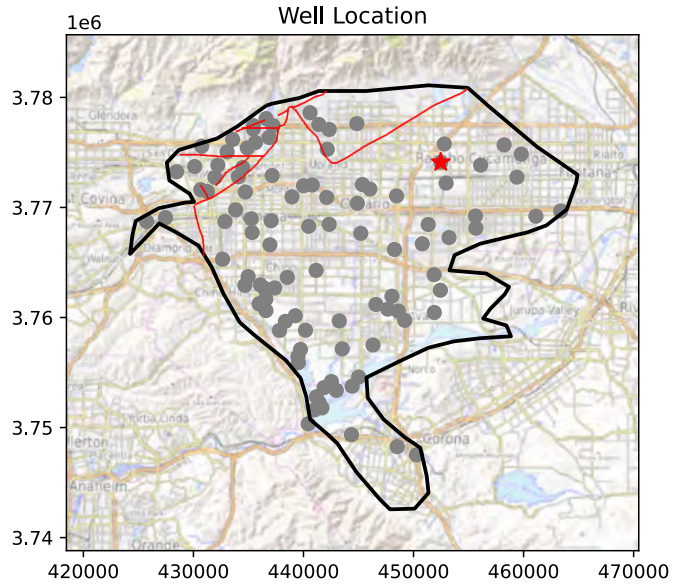

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002328
Groundwater Elevation (feet amsl)
660
650
640
630
620
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2010
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2012
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2016
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2018
2019
2020
2021
2022
2023
Date

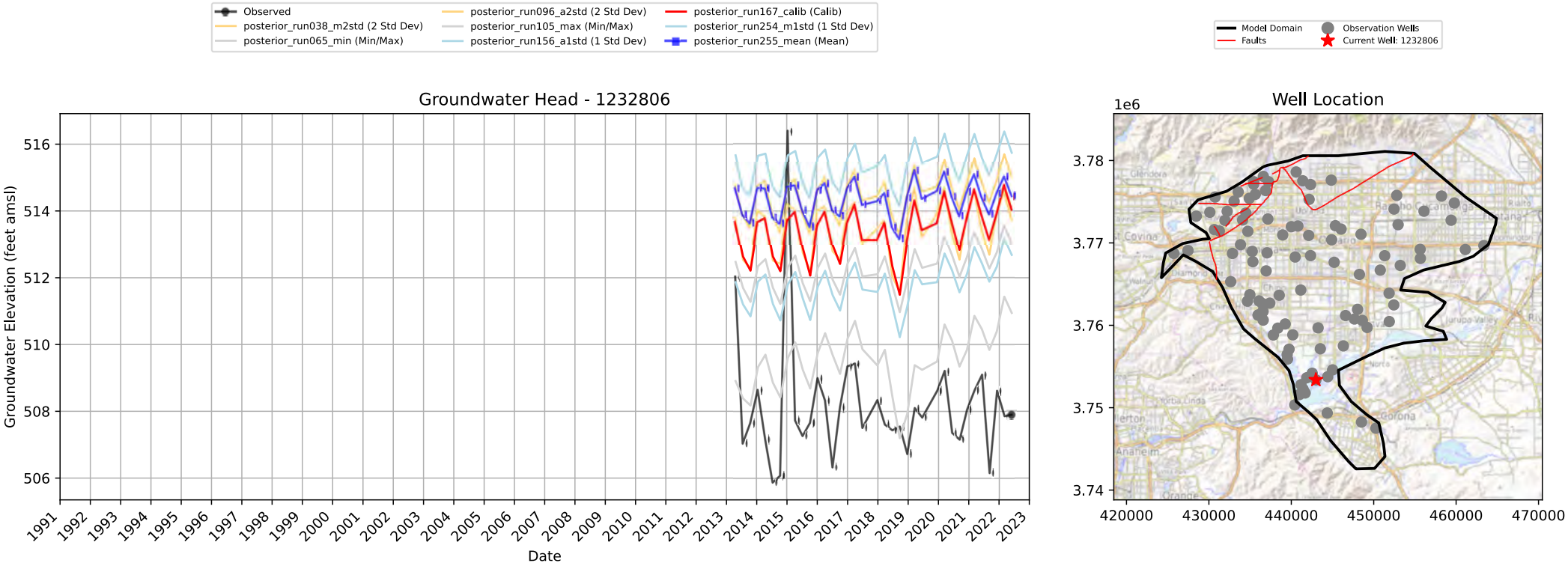

Model Domain
Faults
Observation Wells
Current Well: 1002328
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

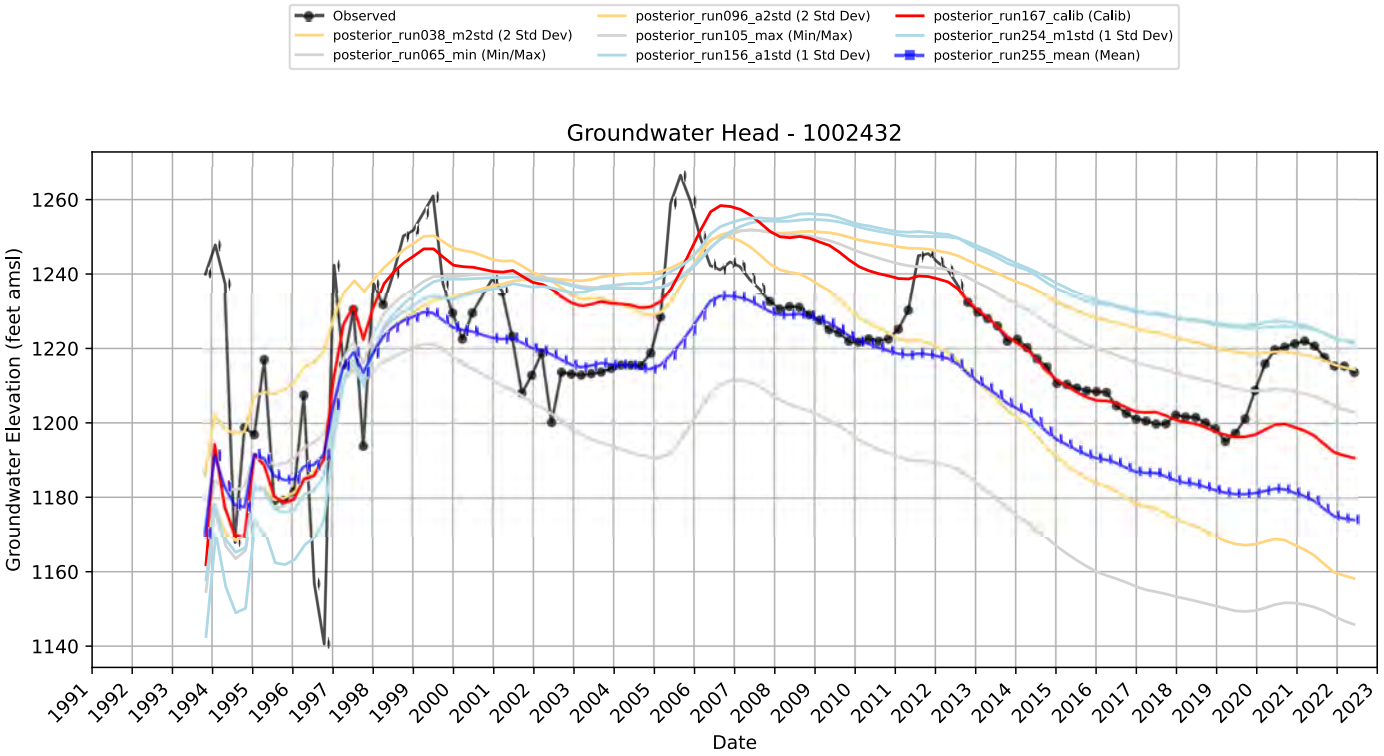

Groundwater Head - 1002205
Groundwater Elevation (feet amsl)
760
750
740
730
720
710
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

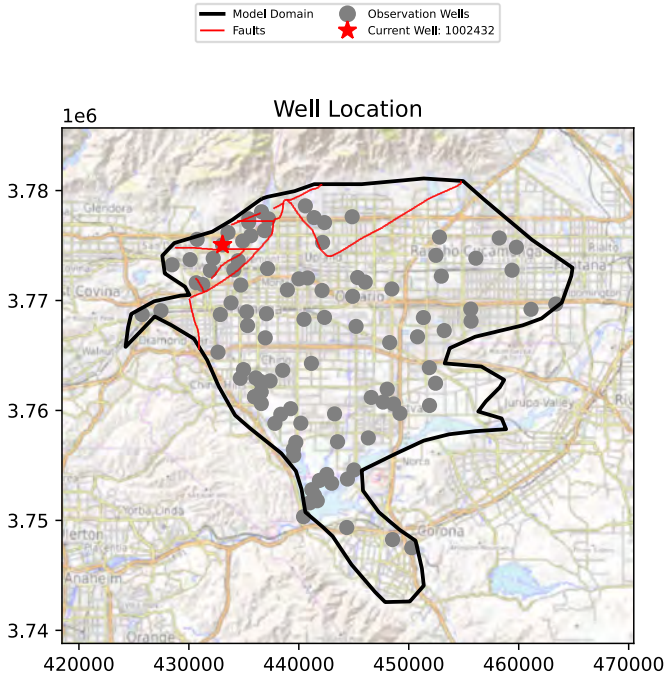

Model Domain
Faults
Observation Wells
Current Well: 1002205

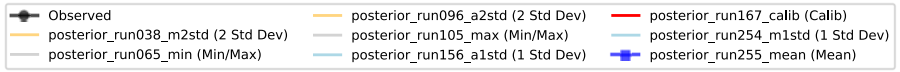

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

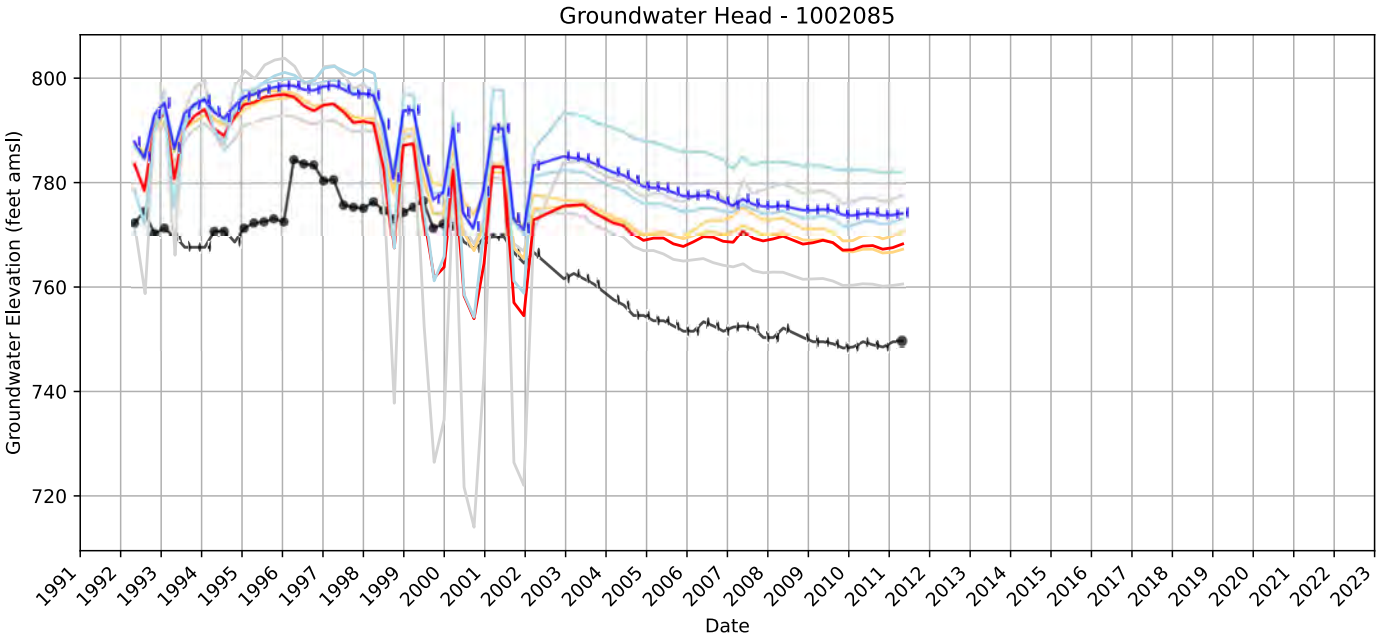

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1232806
Groundwater Elevation (feet amsl)
516
514
512
510
508
506
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

Model Domain
Faults
Observation Wells
Current Well: 1232806
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

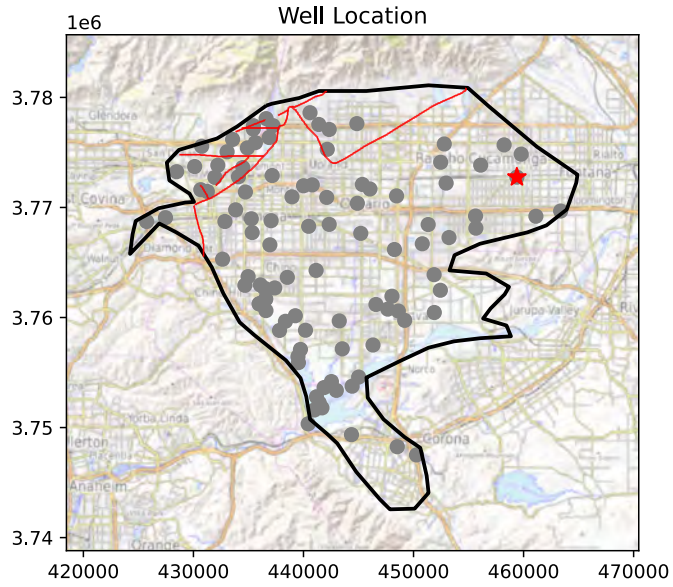

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002432
Groundwater Elevation (feet amsl)
1260
1240
1220
1200
1180
1160
1140
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

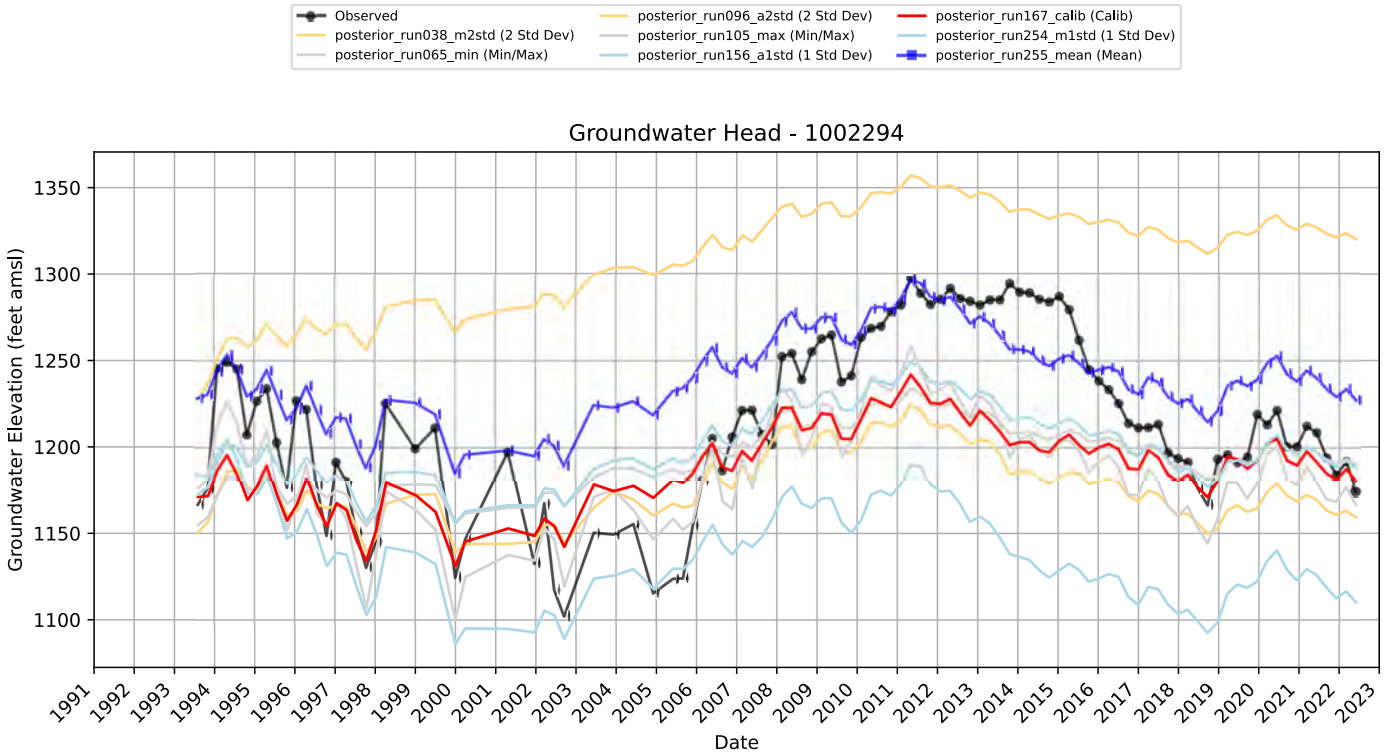

Model Domain
Faults
Observation Wells
Current Well: 1002432
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

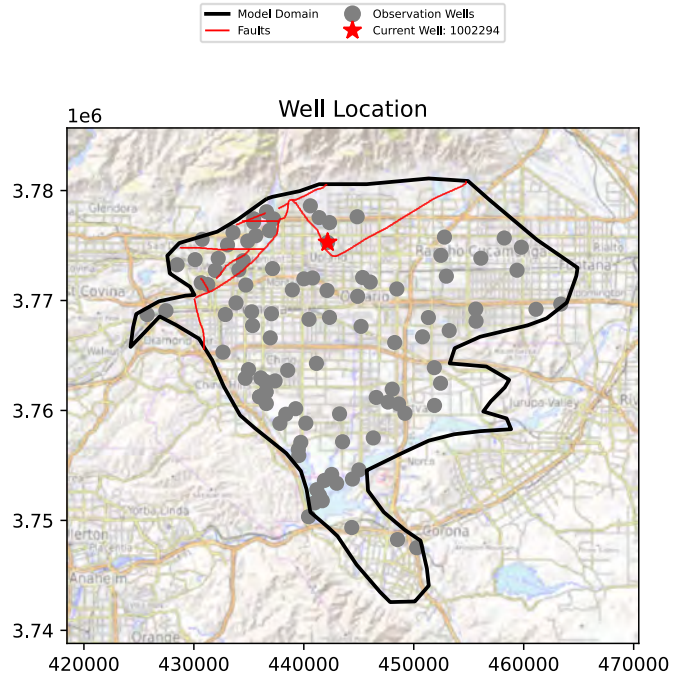

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

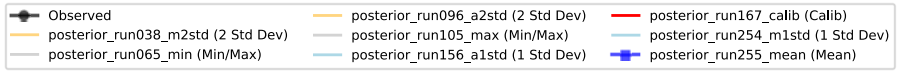

Groundwater Head - 1002085
Groundwater Elevation (feet amsl)
800
780
760
740
720
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

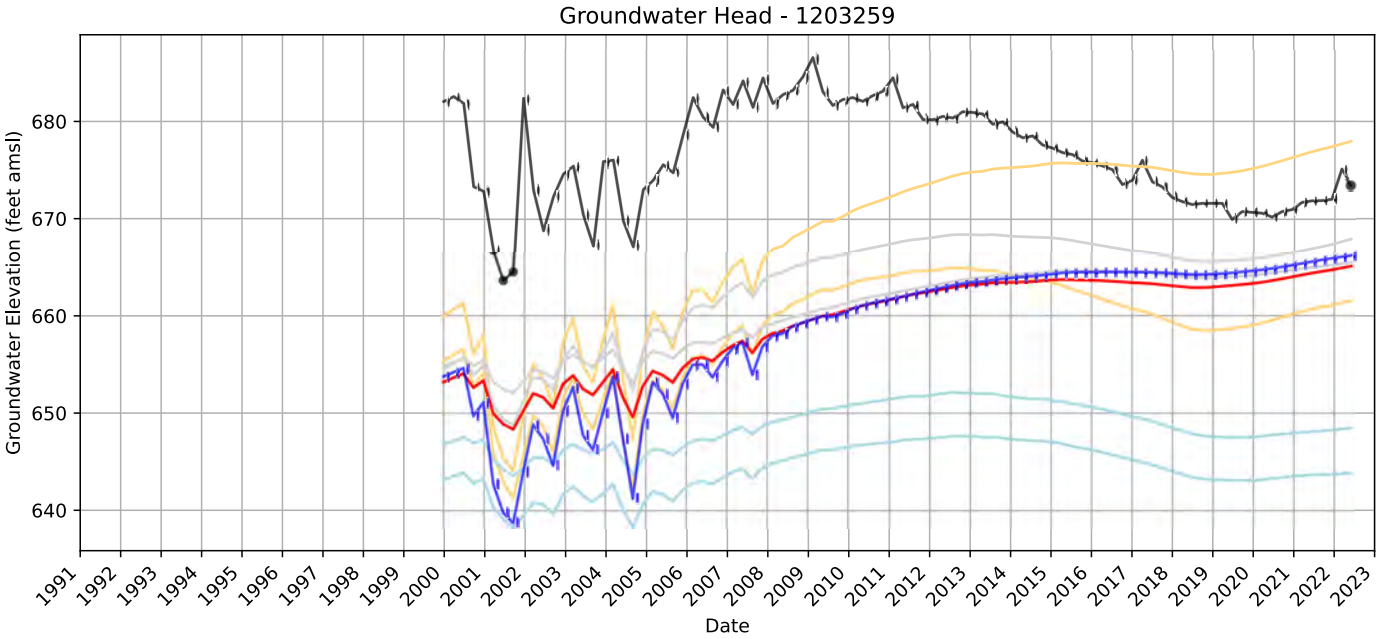

Model Domain
Faults
Observation Wells
Current Well: 1002085


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

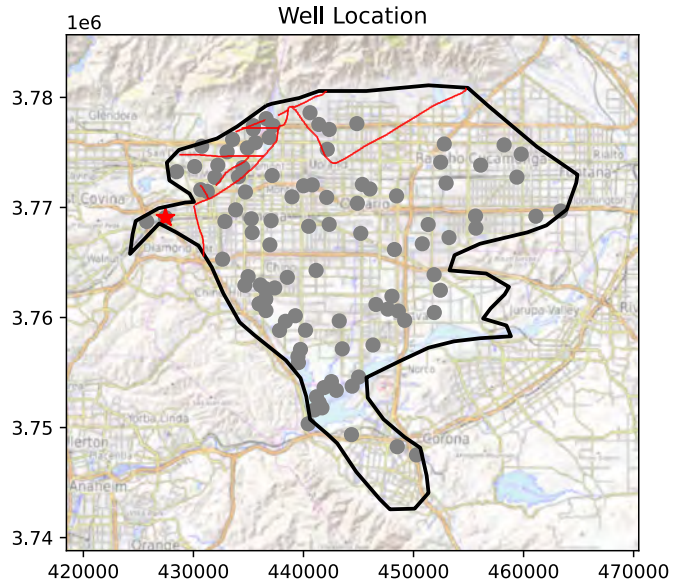

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002294
Groundwater Elevation (feet amsl)
Date

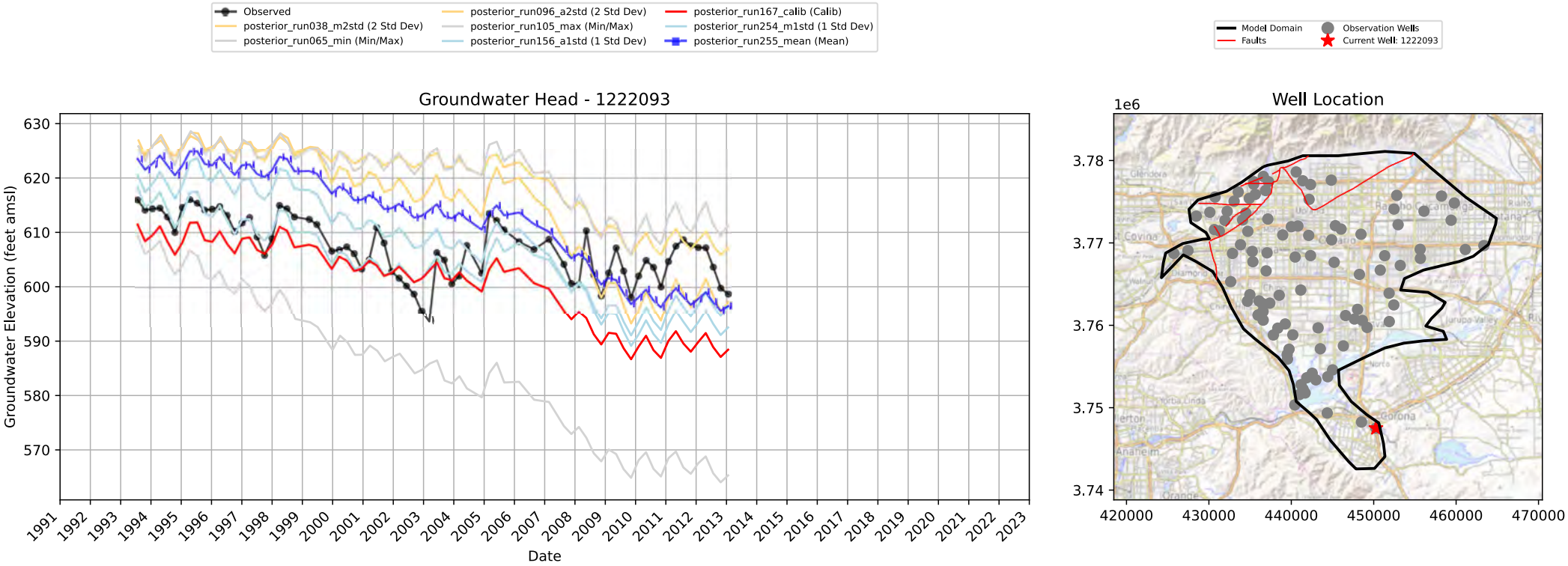

Model Domain
Faults
Observation Wells
Current Well: 1002294
Well Location
1e6


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

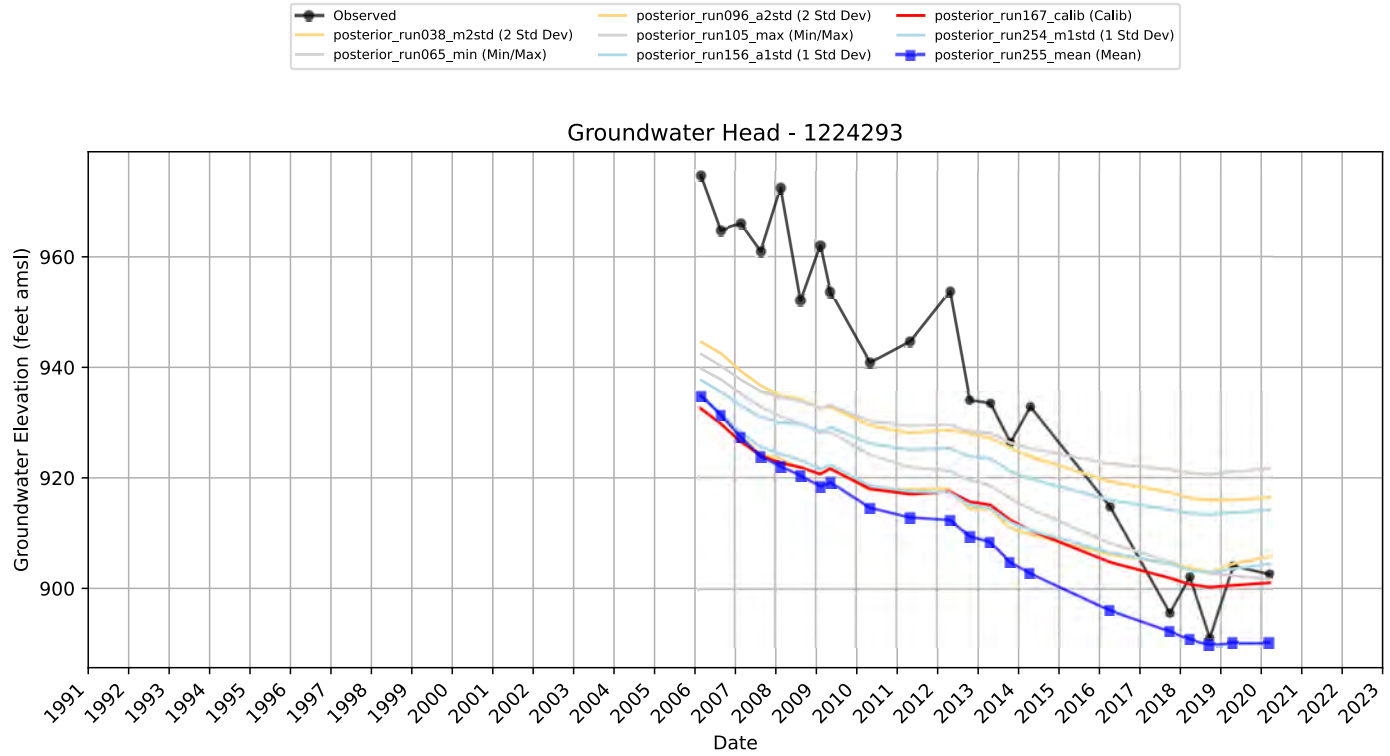

Groundwater Head - 1203259
Groundwater Elevation (feet amsl)
680
670
660
650
640
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

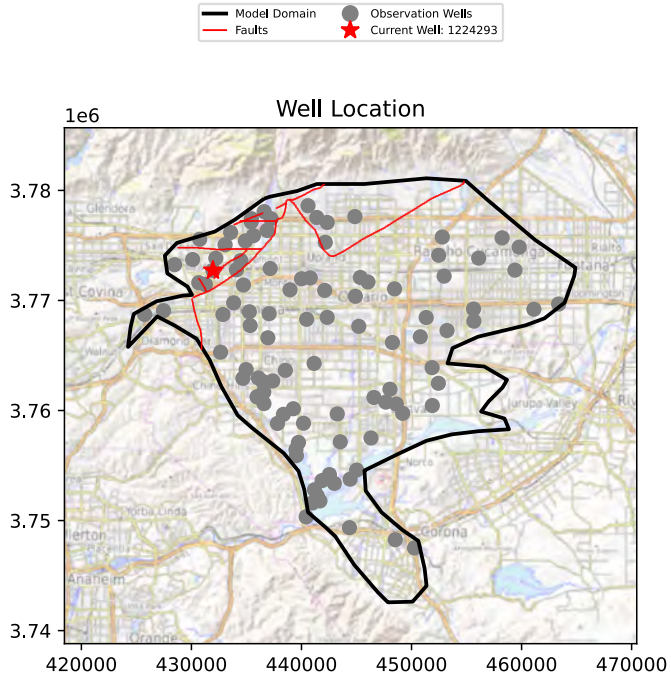

Model Domain
Faults
Observation Wells
Current Well: 1203259

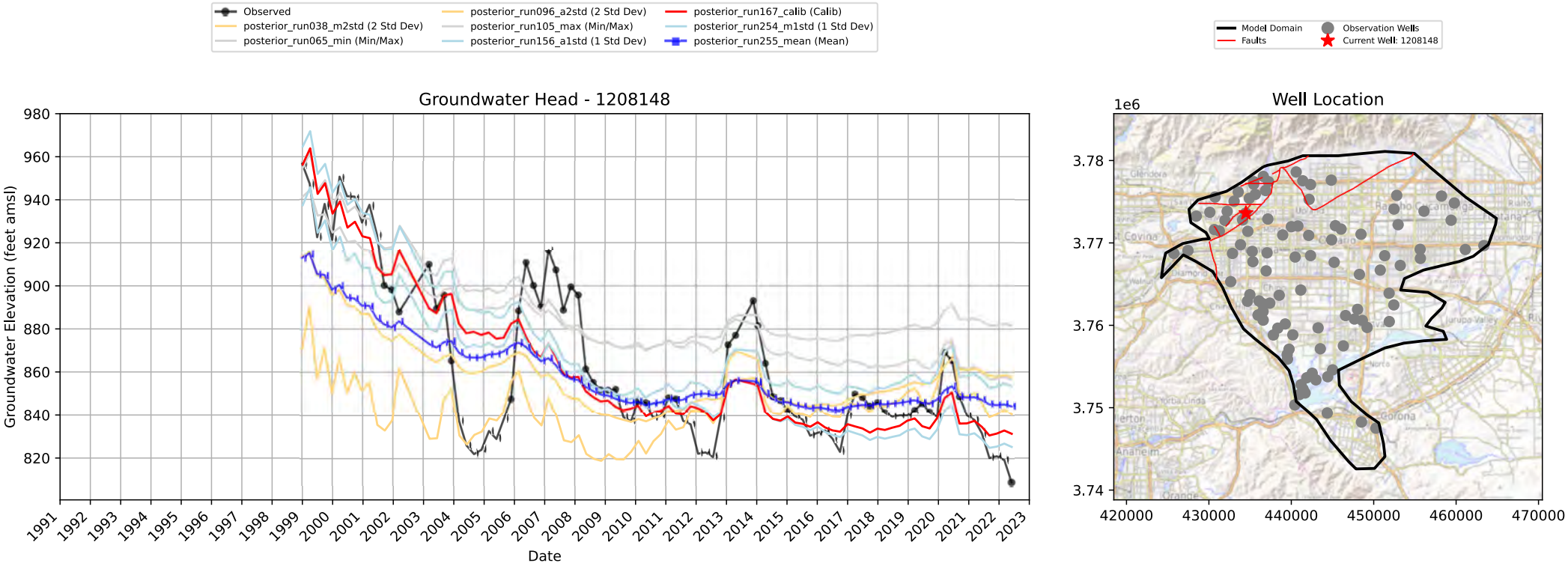

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

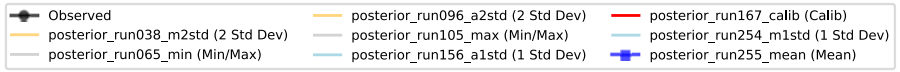

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1222093
Groundwater Elevation (feet amsl)
630
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

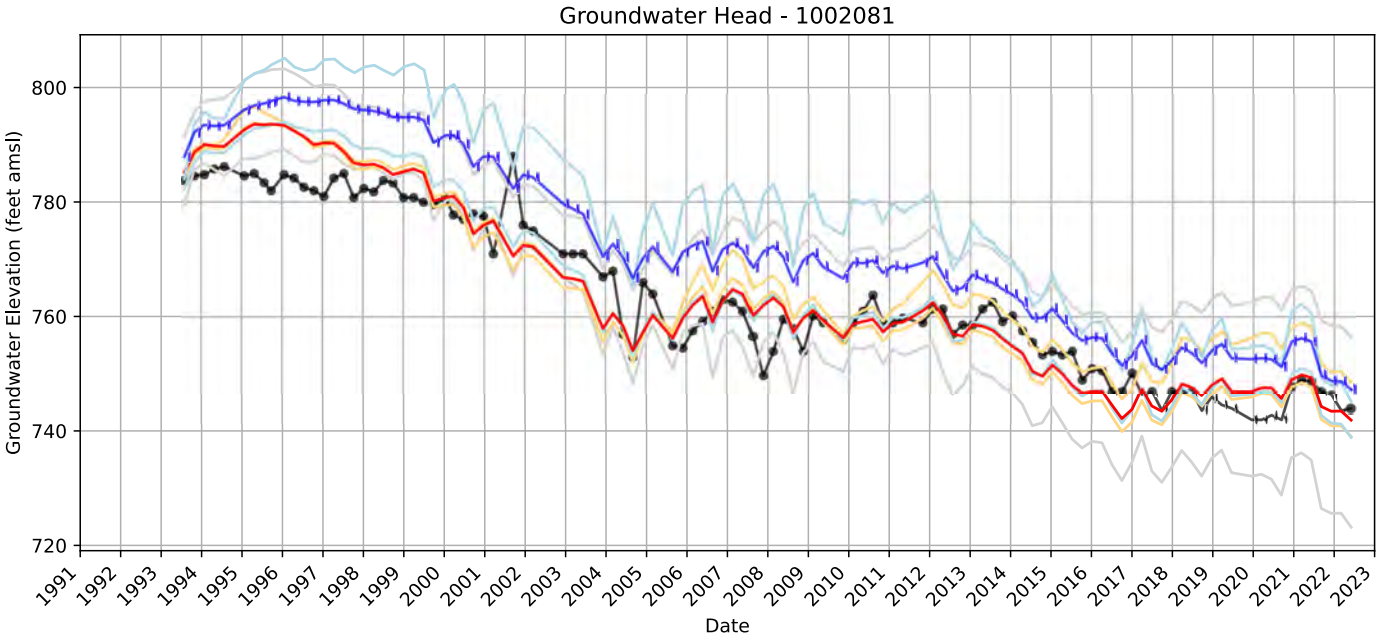
Model Domain
Faults
Observation Wells
Current Well: 1222093
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1224293
Groundwater Elevation (feet amsl)
960
940
920
900
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

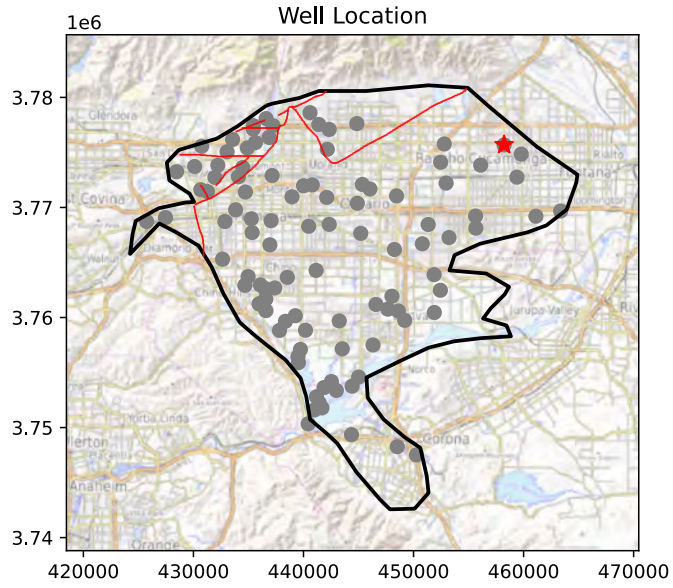

Model Domain
Faults
Observation Wells
Current Well: 1224293
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

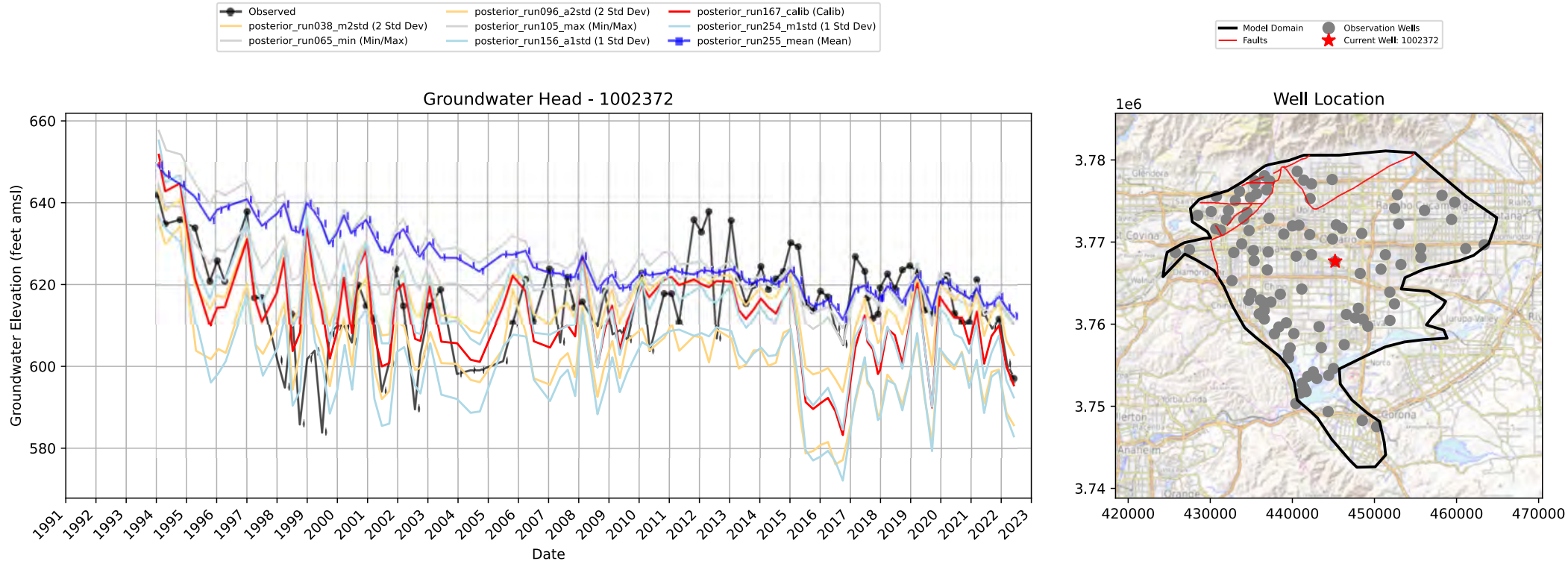

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1208148
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1208148
Well Location
1e6

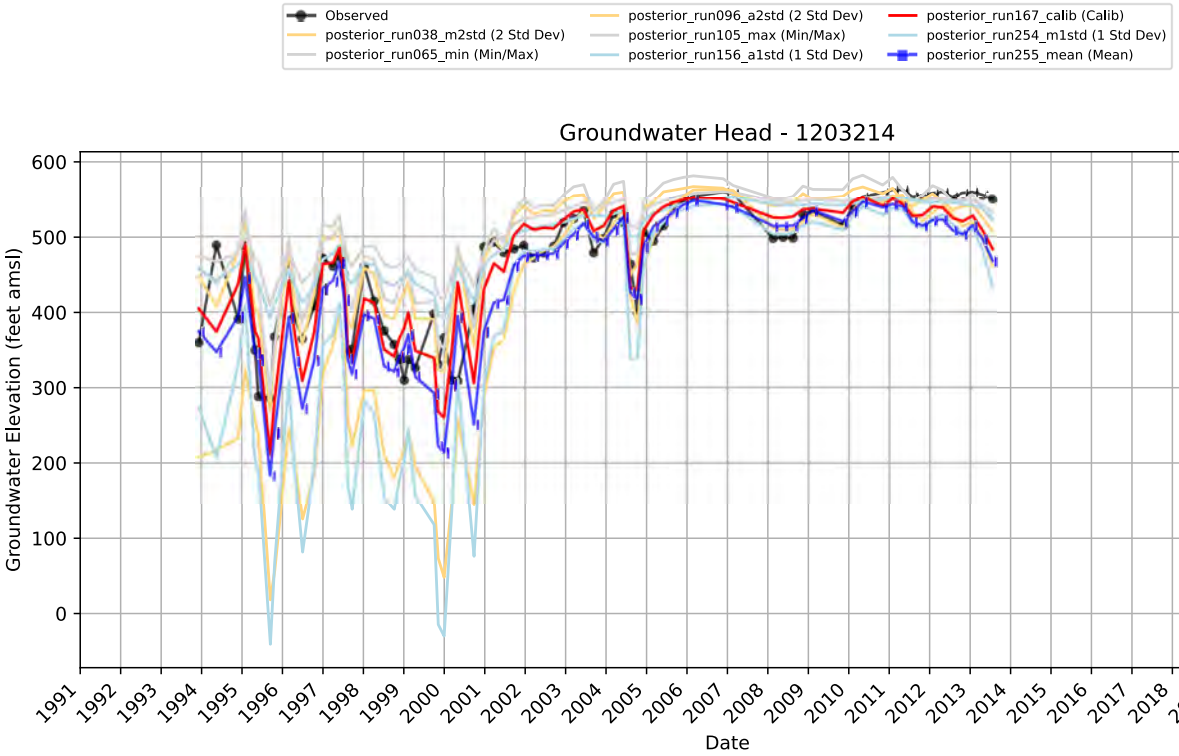

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

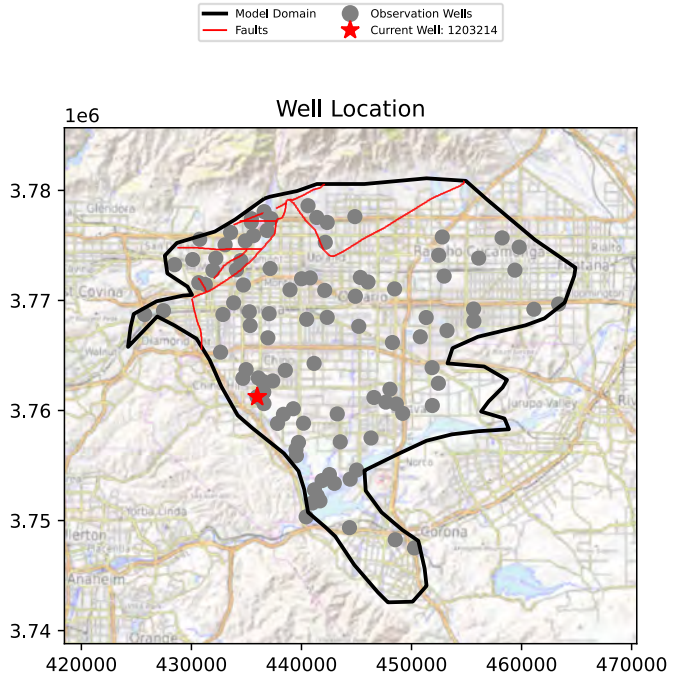

Groundwater Head - 1002081
Groundwater Elevation (feet amsl)
800
780
760
740
720
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

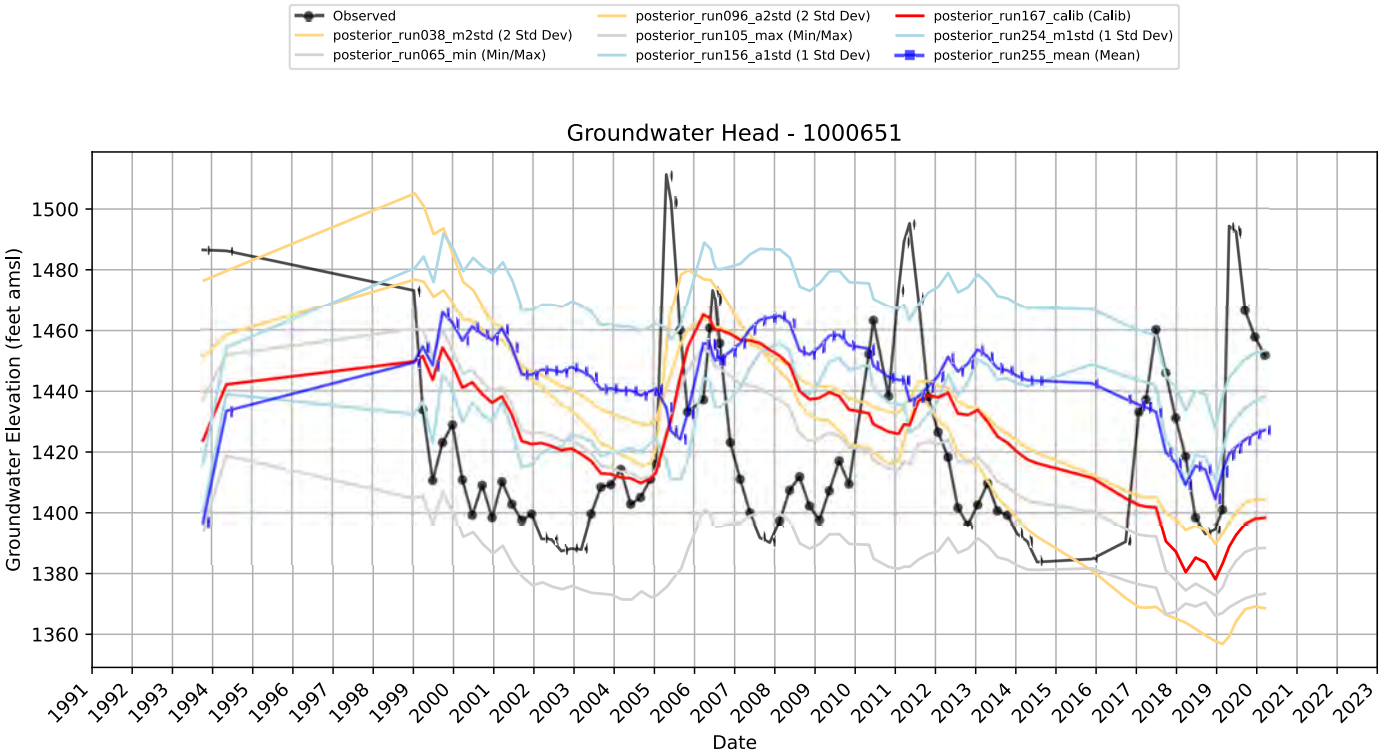

Model Domain
Faults
Observation Wells
Current Well: 1002081

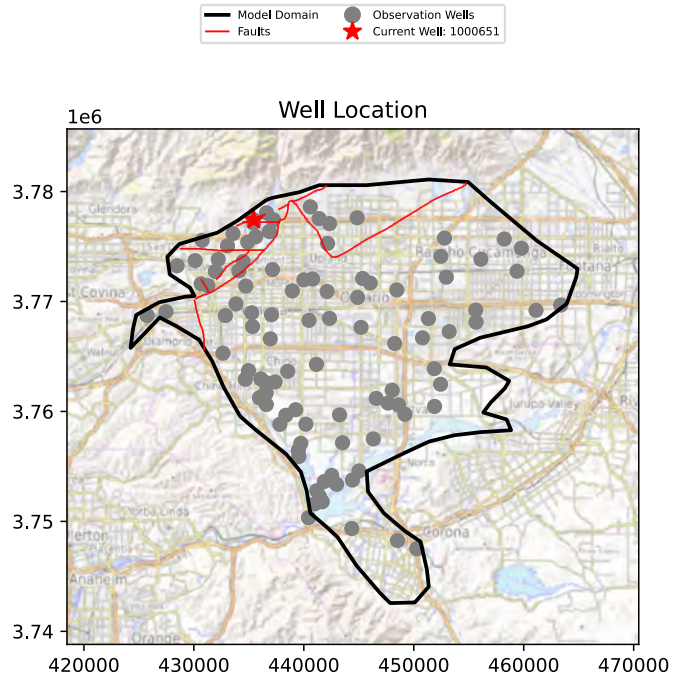

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

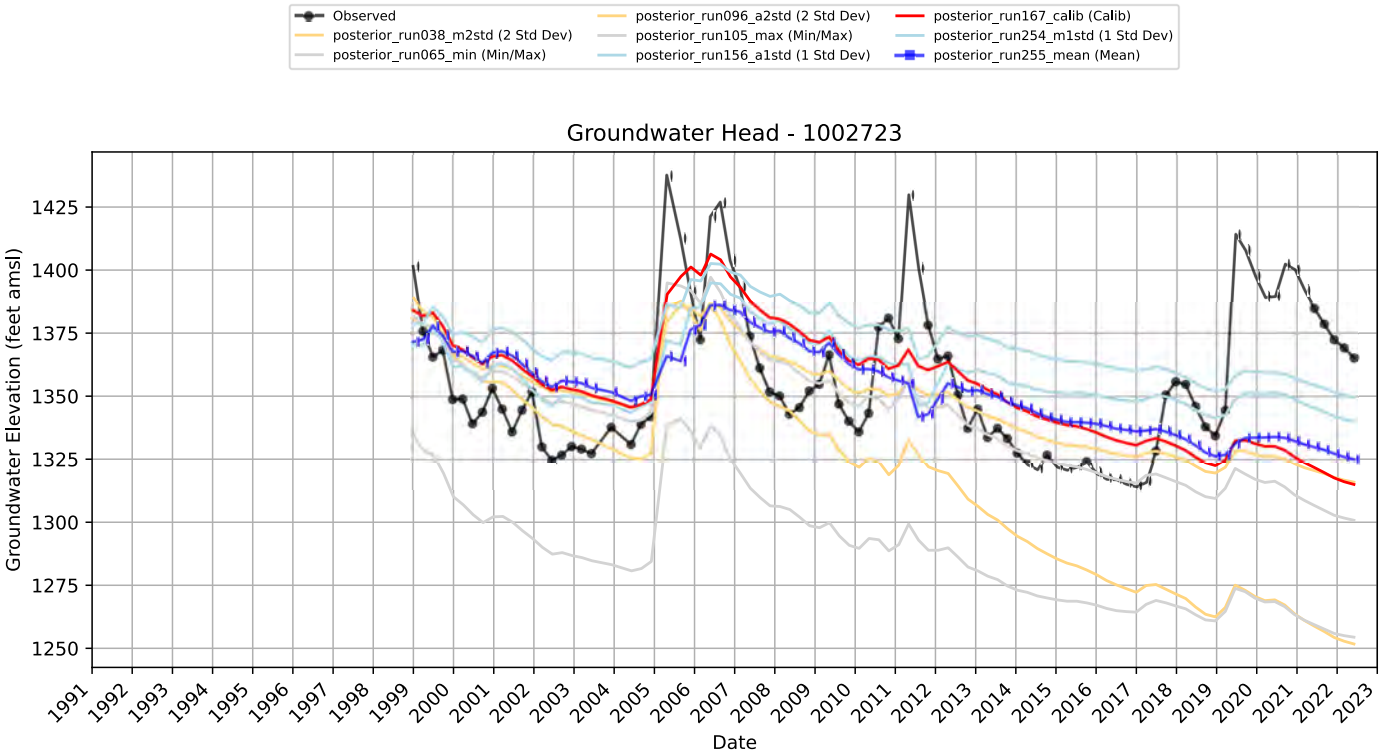

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002372
Groundwater Elevation (feet amsl)
660
640
620
600
580
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002372
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

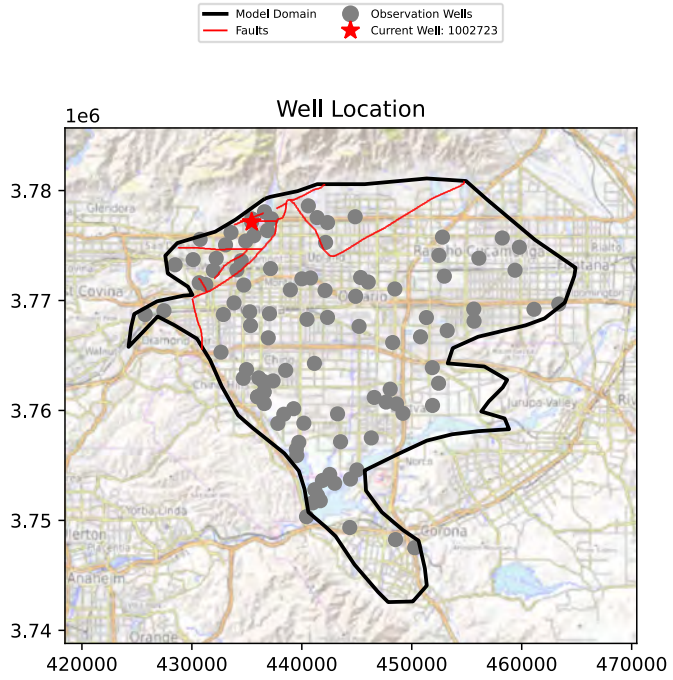

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1203214
Groundwater Elevation (feet amsl)
Date

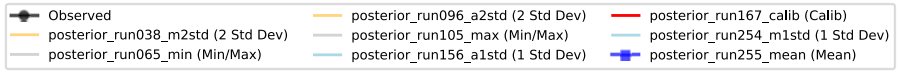

Model Domain
Faults
Observation Wells
Current Well: 1203214
Well Location
1e6

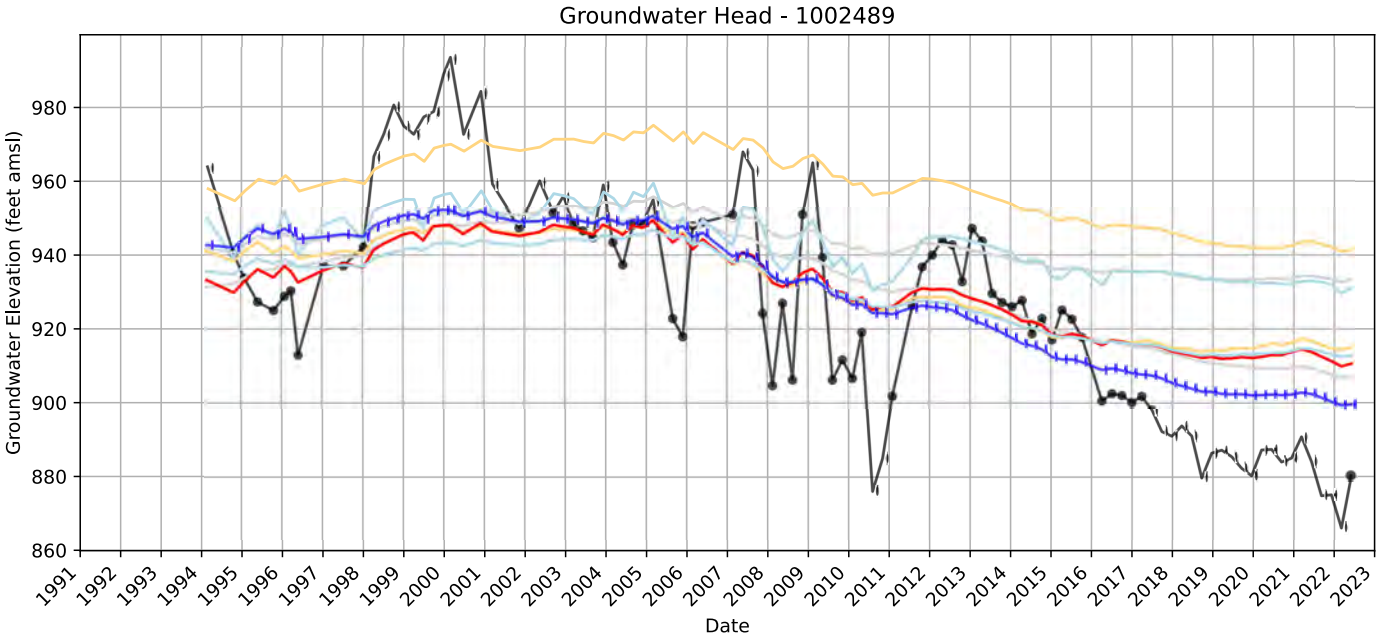

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000651
Groundwater Elevation (feet amsl)
1500
1480
1460
1440
1420
1400
1380
1360
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1000651
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

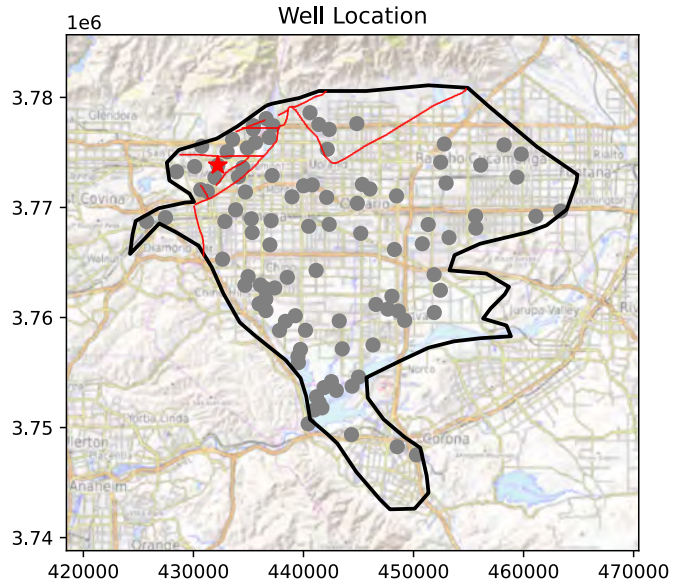

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002723
Groundwater Elevation (feet amsl)
Date

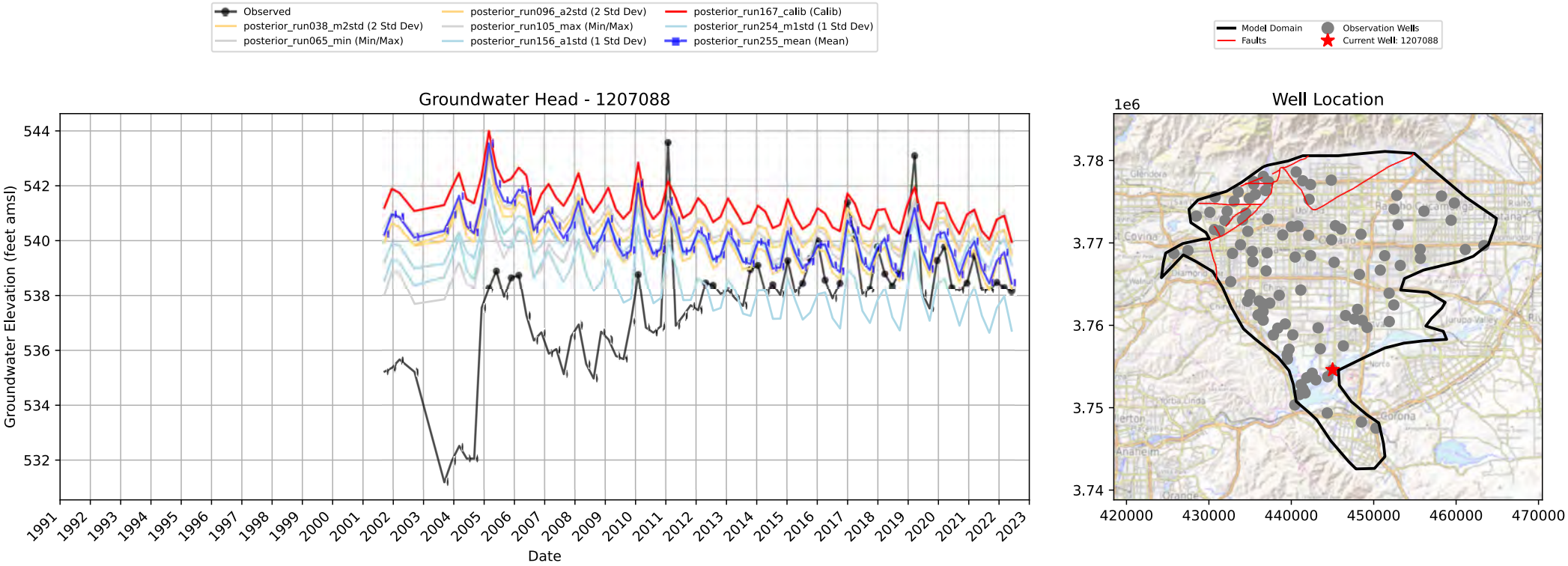

Model Domain
Faults
Observation Wells
Current Well: 1002723
Well Location
1e6

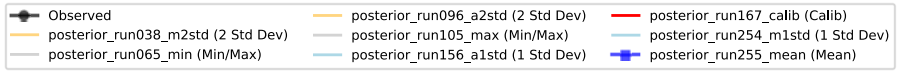

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

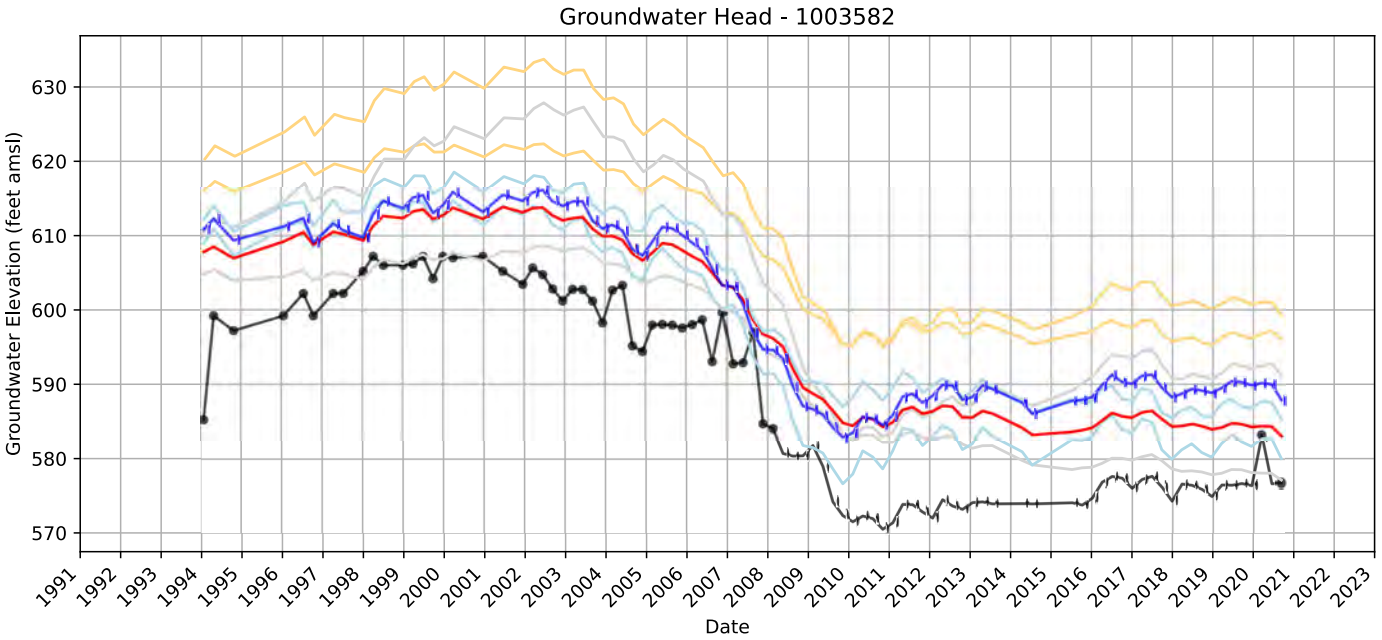

Groundwater Head - 1002489
Groundwater Elevation (feet amsl)
980
960
940
920
900
880
860
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1002489

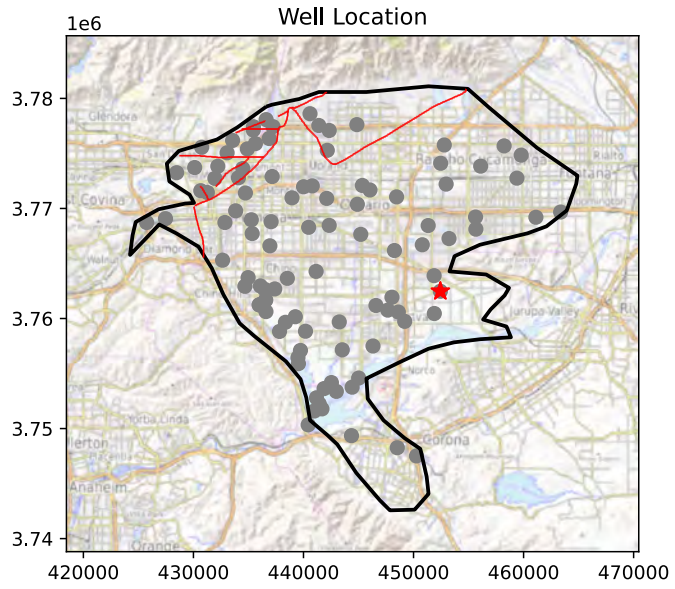

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

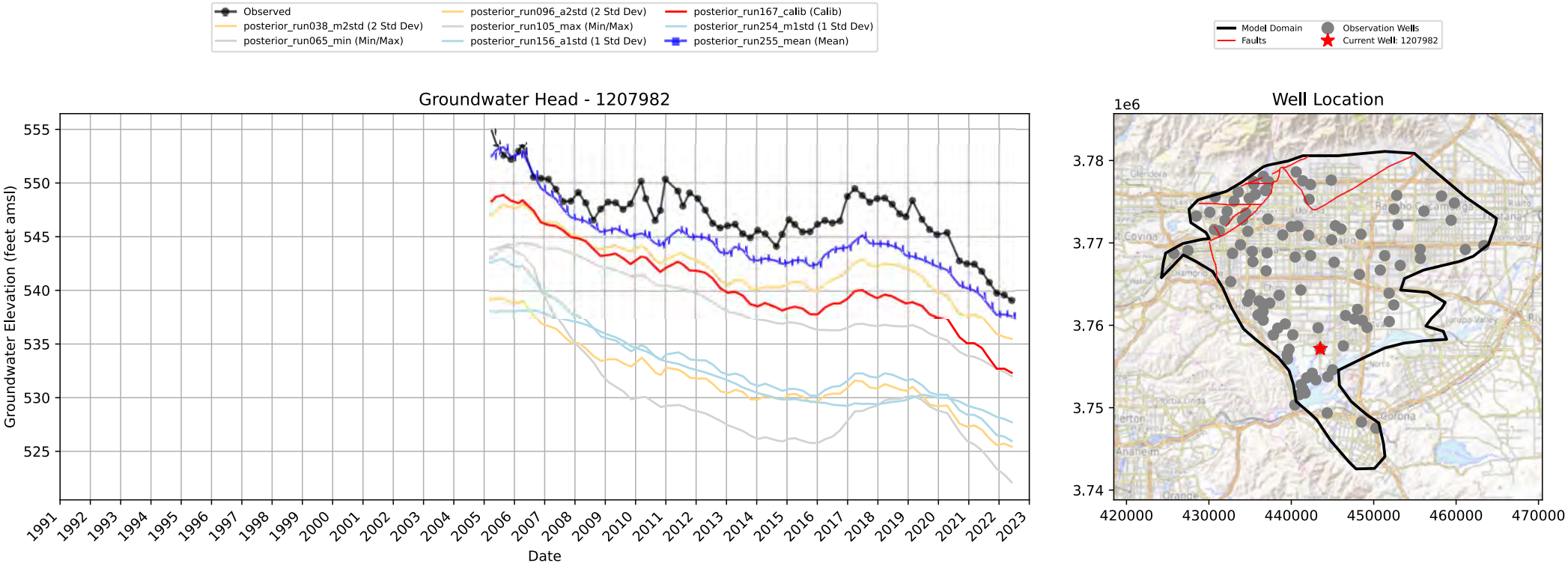

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207088
Groundwater Elevation (feet amsl)
544
542
540
538
536
534
532
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1207088
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

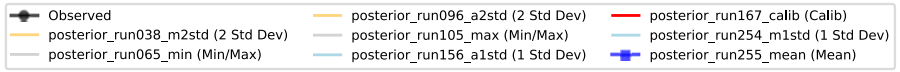

Groundwater Head - 1003582
Groundwater Elevation (feet amsl)
630
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

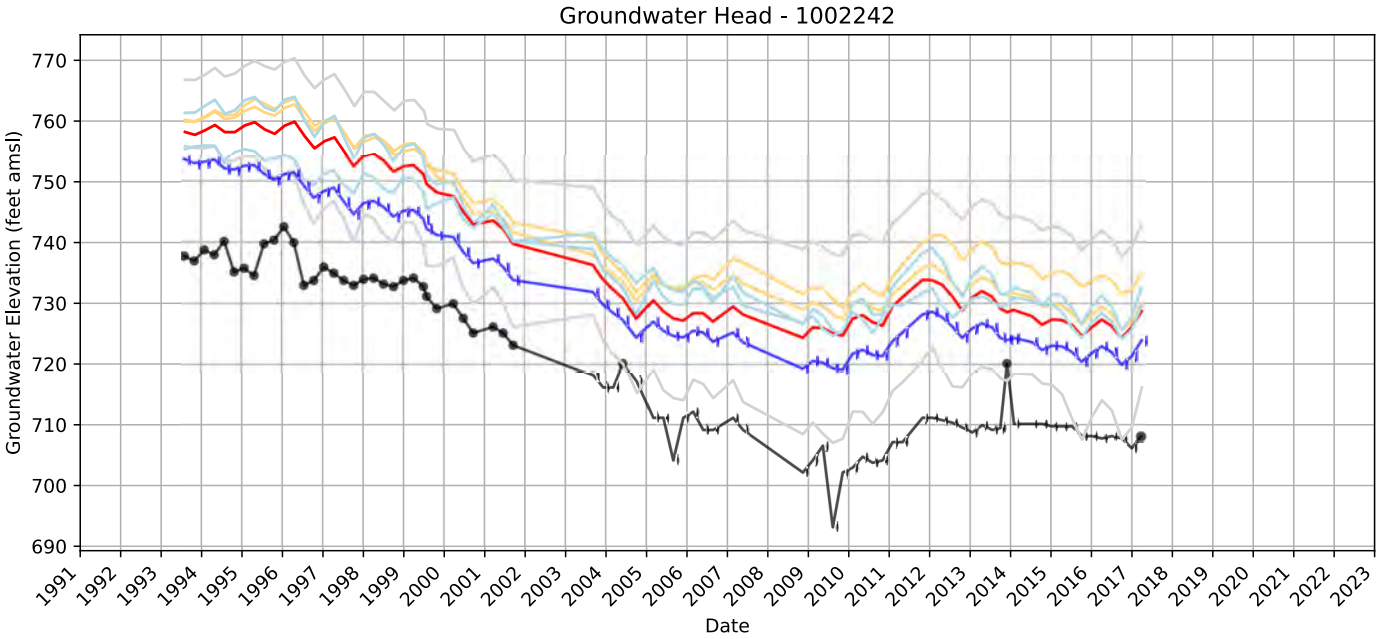

Model Domain
Faults
Observation Wells
Current Well: 1003582


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

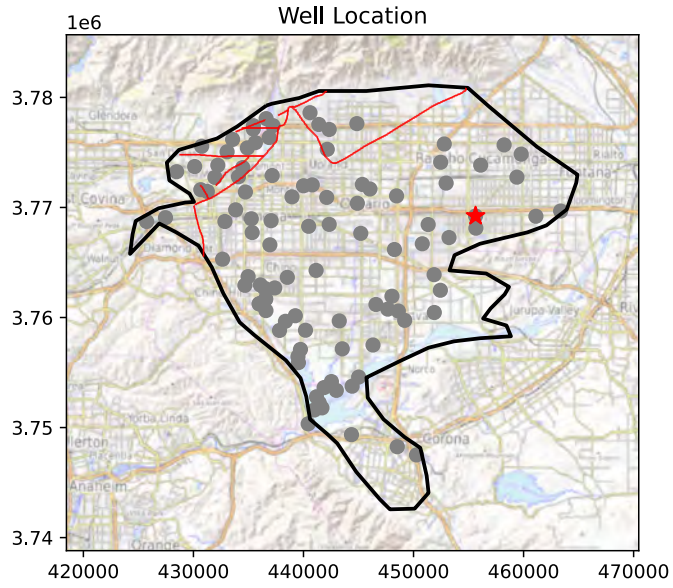

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207982
Groundwater Elevation (feet amsl)
555
550
545
540
535
530
525
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

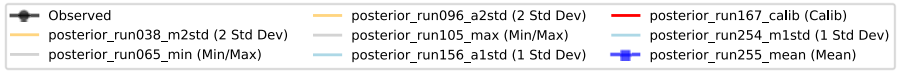
Model Domain
Faults
Observation Wells
Current Well: 1207982
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

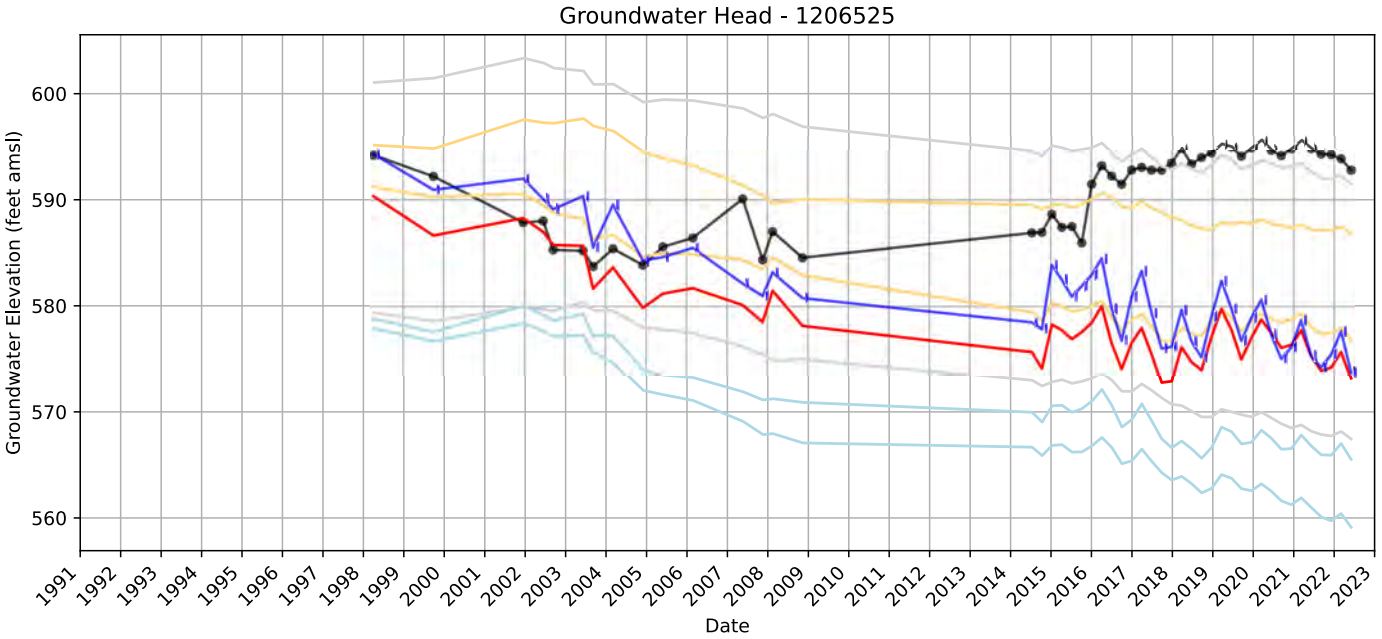

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1002242
Groundwater Elevation (feet amsl)
770
760
750
740
730
720
710
700
690
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1002242


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000







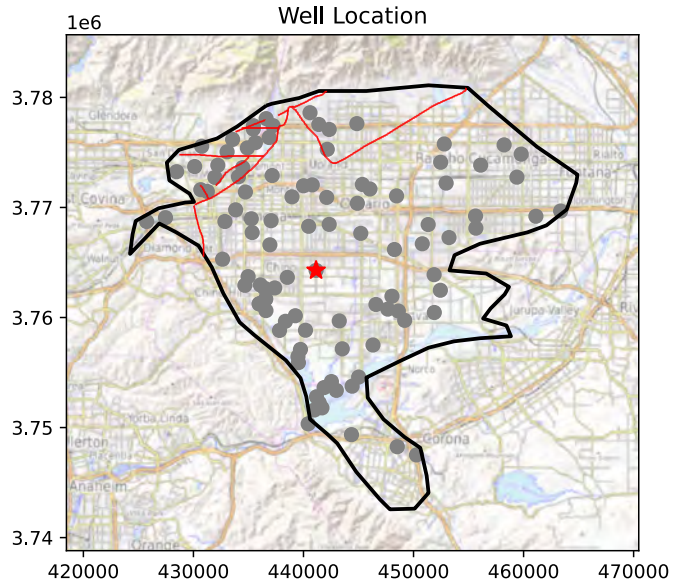
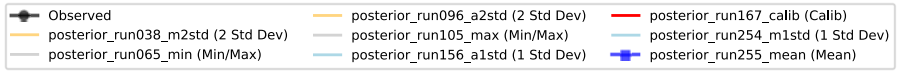
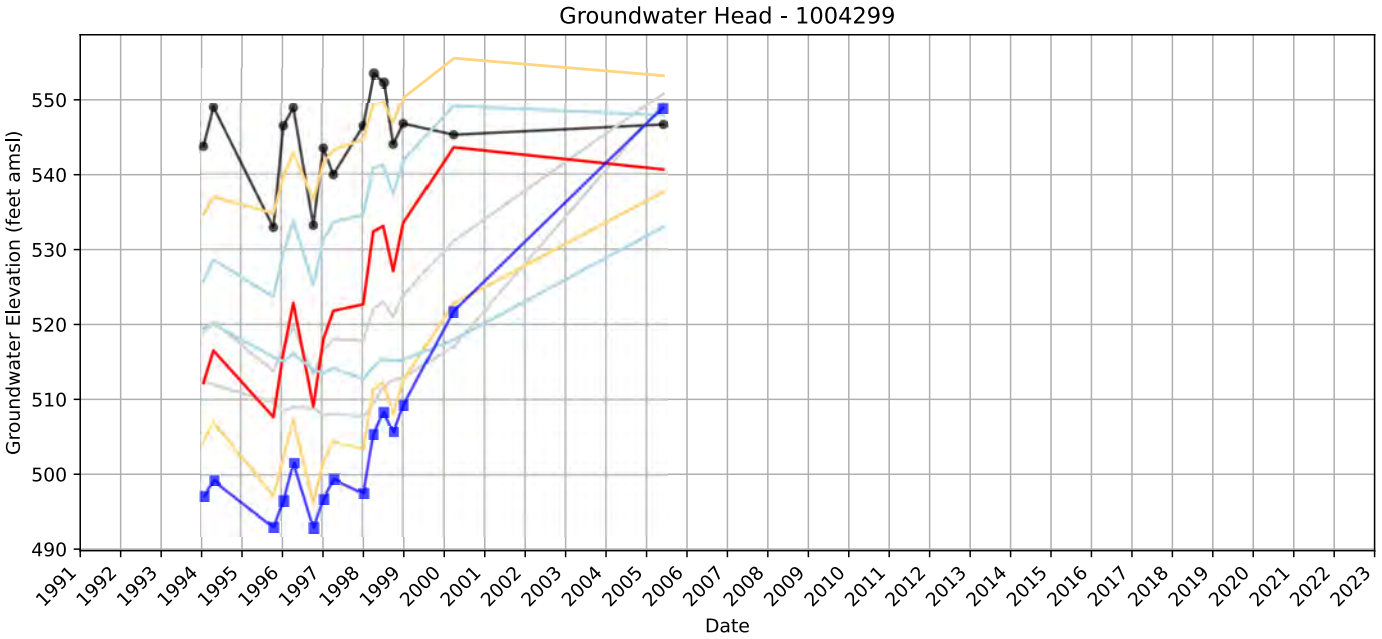
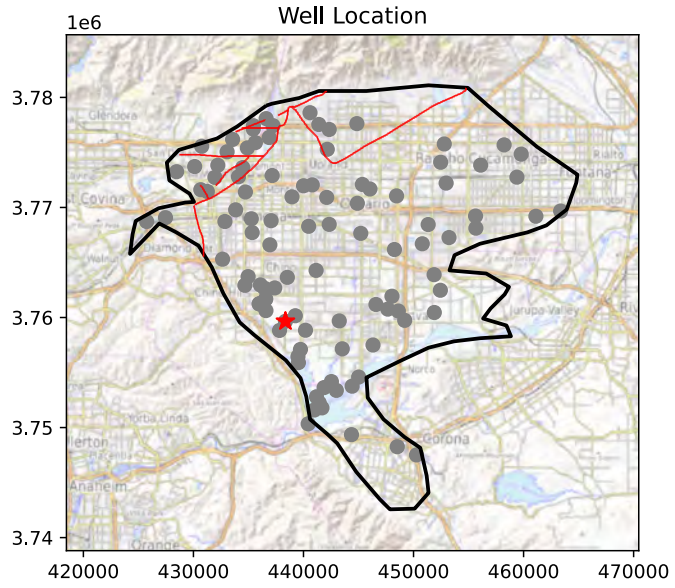


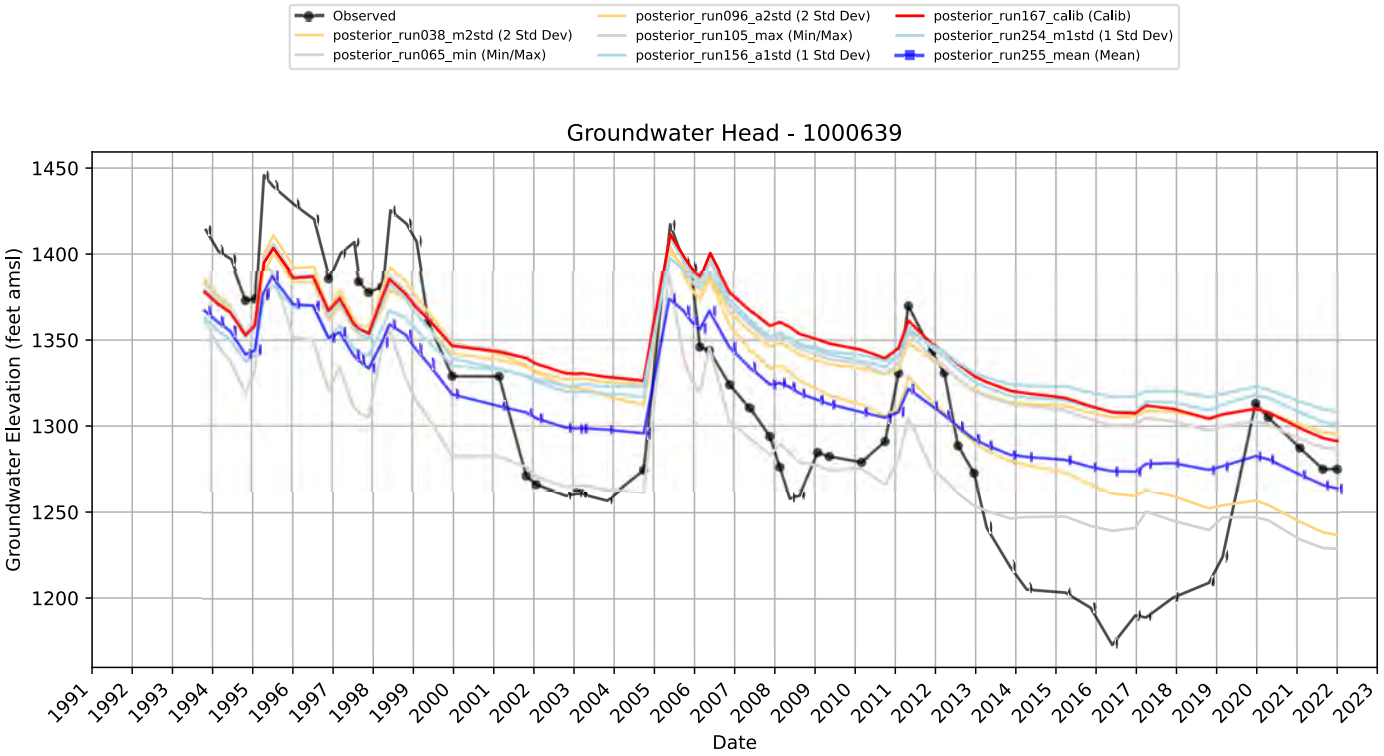
Exhibit B, Pg. 345

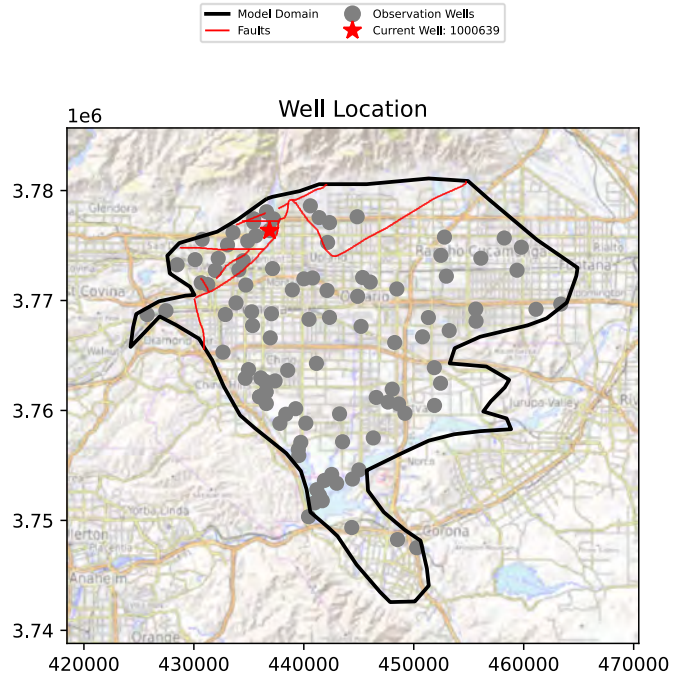

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

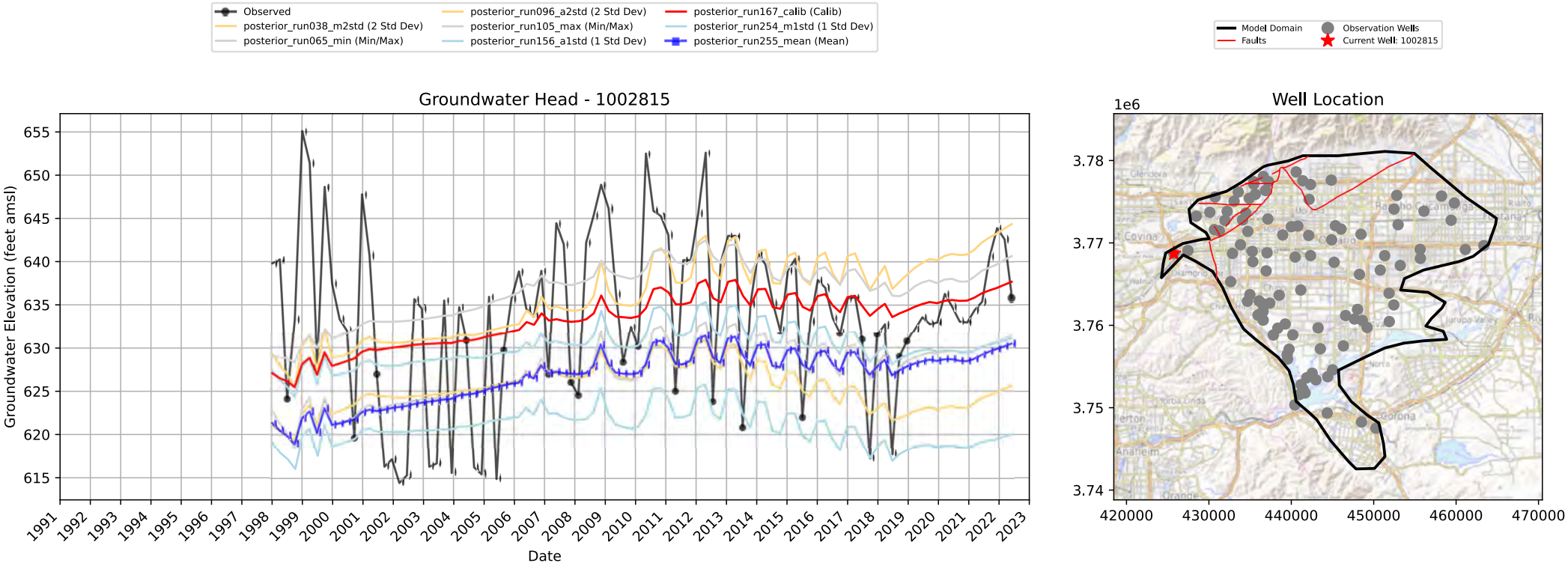

Groundwater Head - 1004299
Groundwater Elevation (feet amsl)
Date

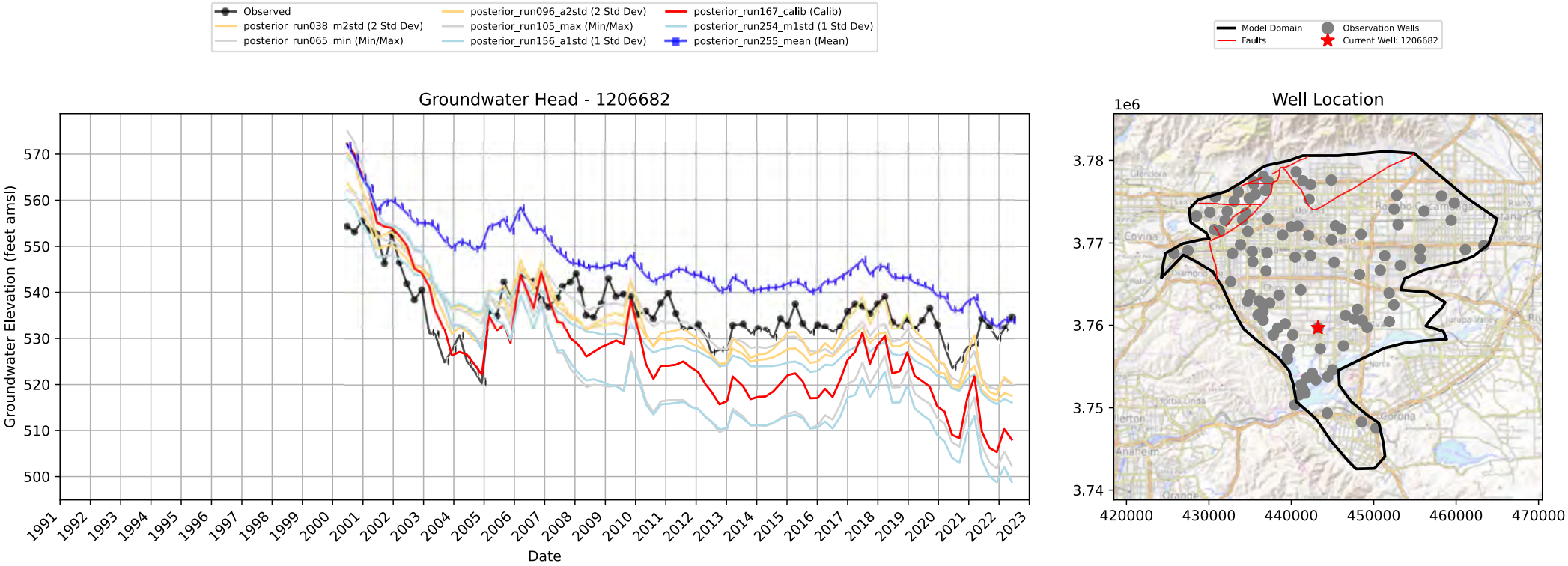

Model Domain
Faults
Observation Wells
Current Well: 1004299

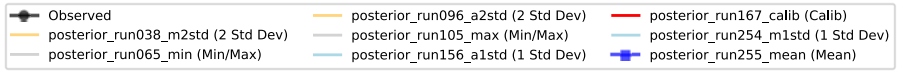

Well Location
1e6

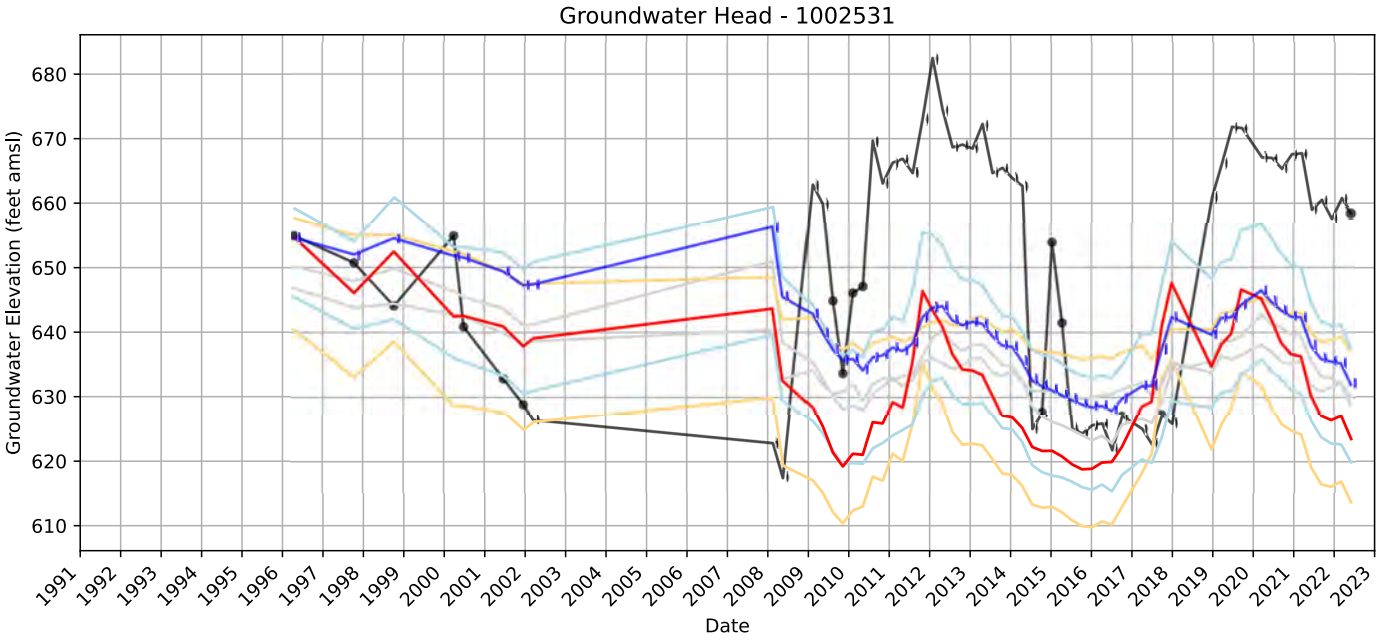

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000639
Groundwater Elevation (feet amsl)
Date


Model Domain
Faults
Observation Wells
Current Well: 1000639
Well Location
1e6

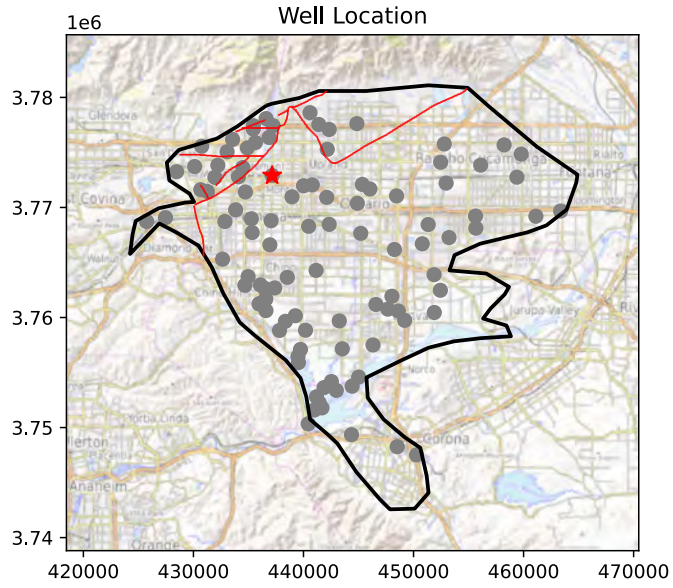

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002815
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1002815
Well Location
1e6

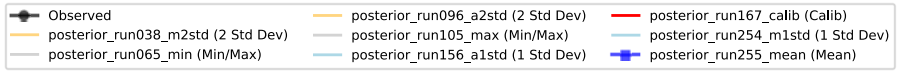

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1206682
Groundwater Elevation (feet amsl)
Date
Model Domain
Faults
Observation Wells
Current Well: 1206682
Well Location
1e6

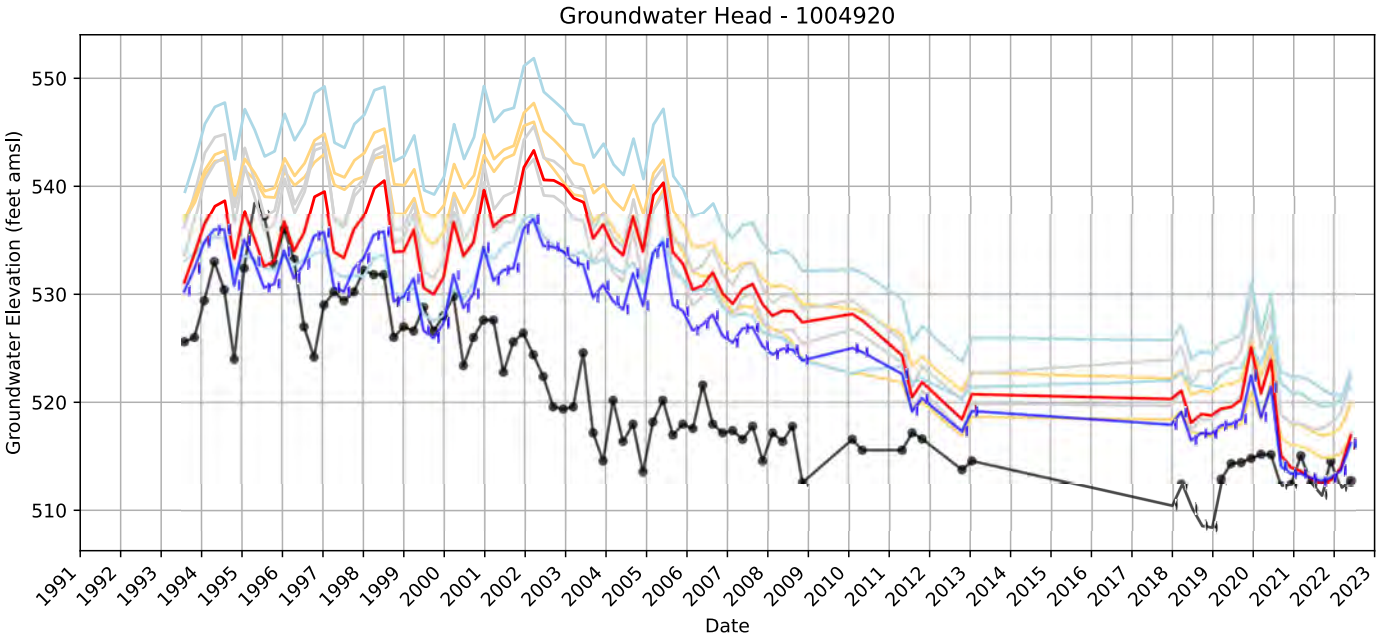

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1002531
Groundwater Elevation (feet amsl)
680
670
660
650
640
630
620
610
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
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2008
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2010
2011
2012
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2016
2017
2018
2019
2020
2021
2022
2023
Date

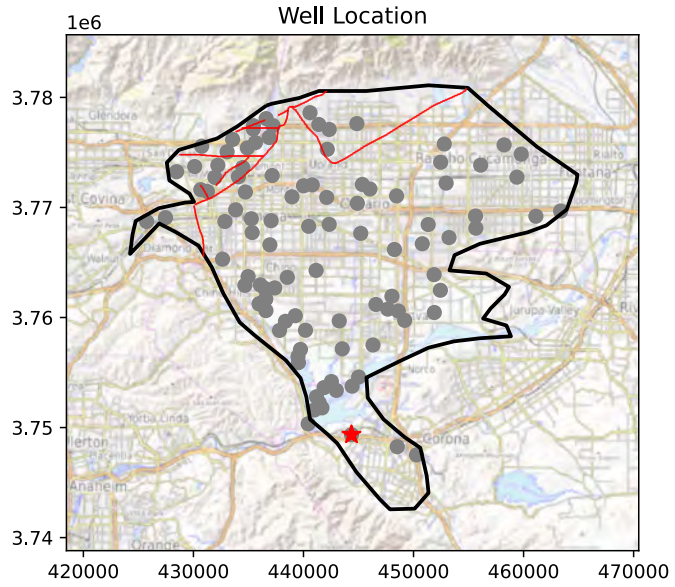

Model Domain
Faults
Observation Wells
Current Well: 1002531

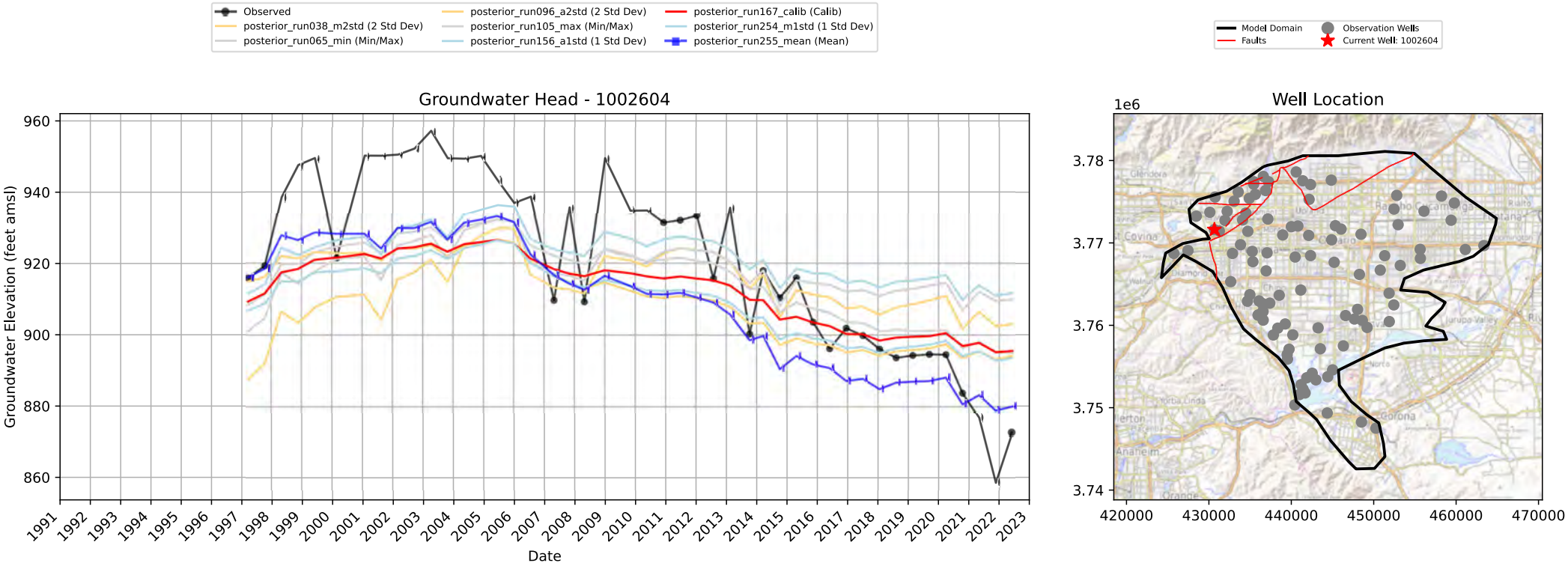

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

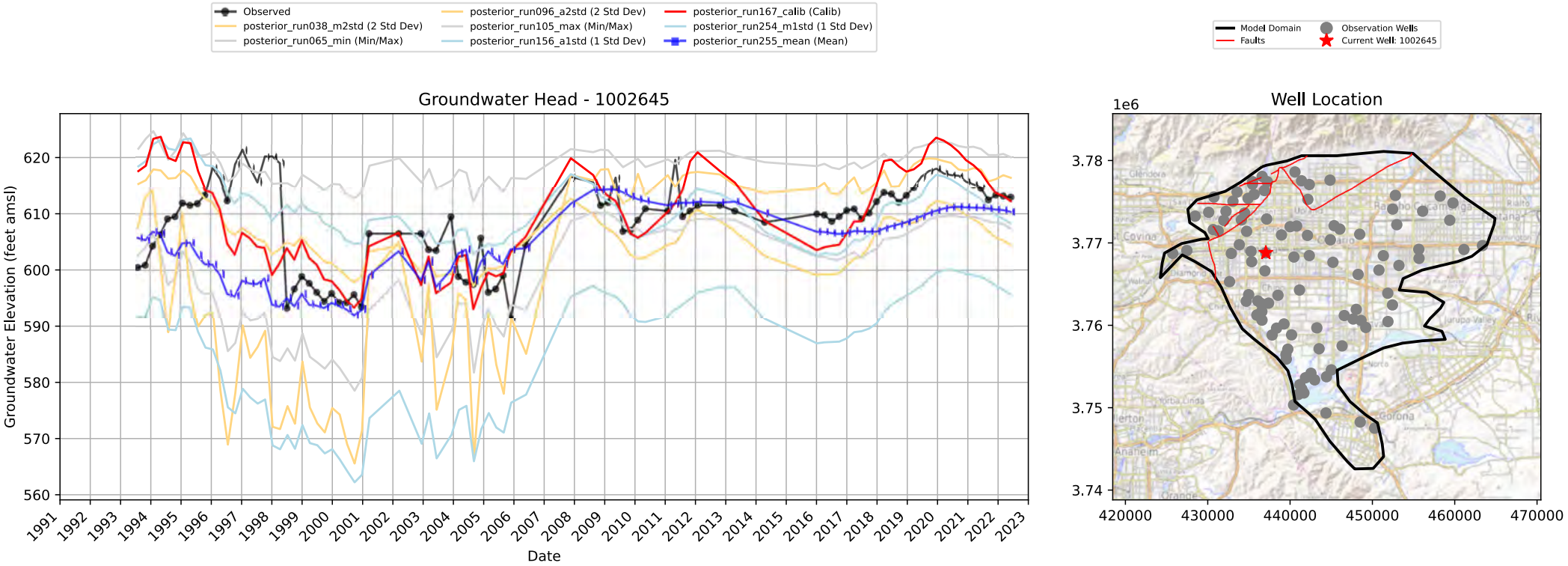

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

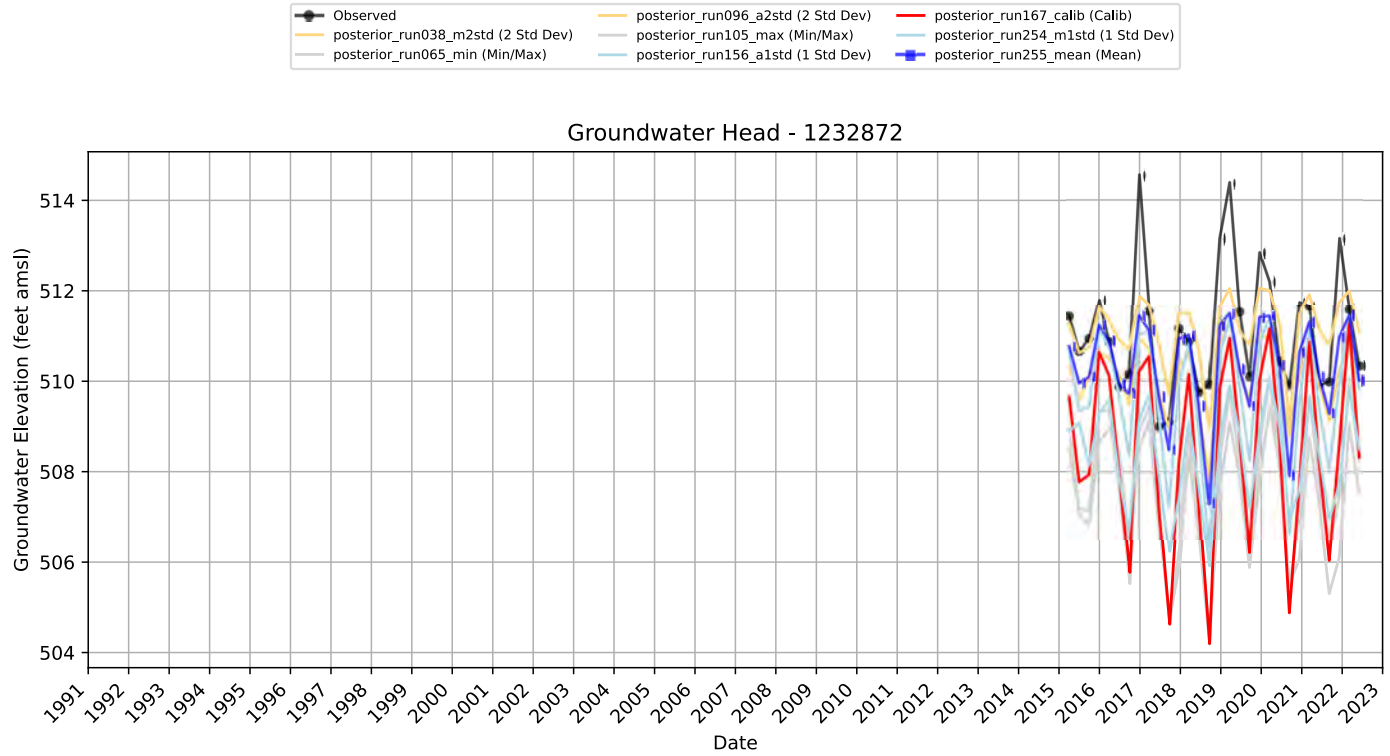

Groundwater Head - 1004920
Groundwater Elevation (feet amsl)
550
540
530
520
510
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

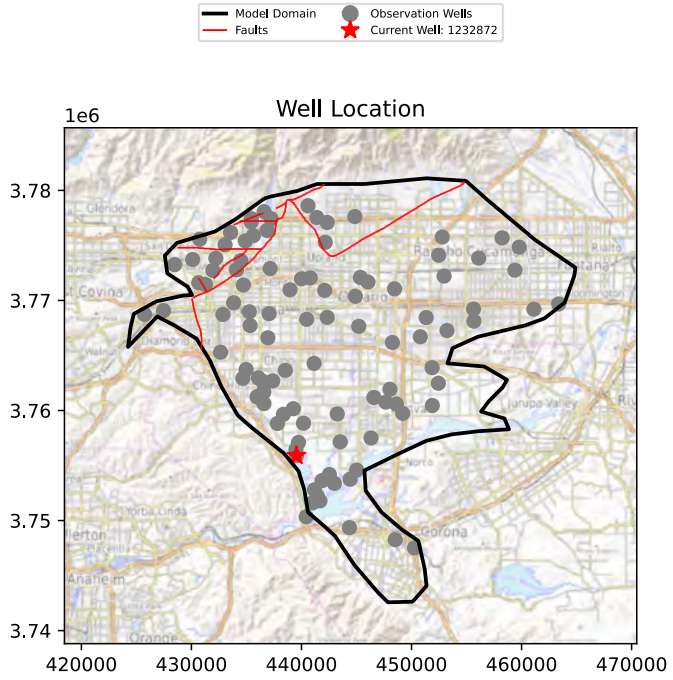

Model Domain
Faults
Observation Wells
Current Well: 1004920

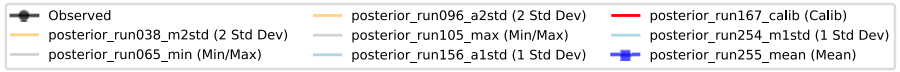

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

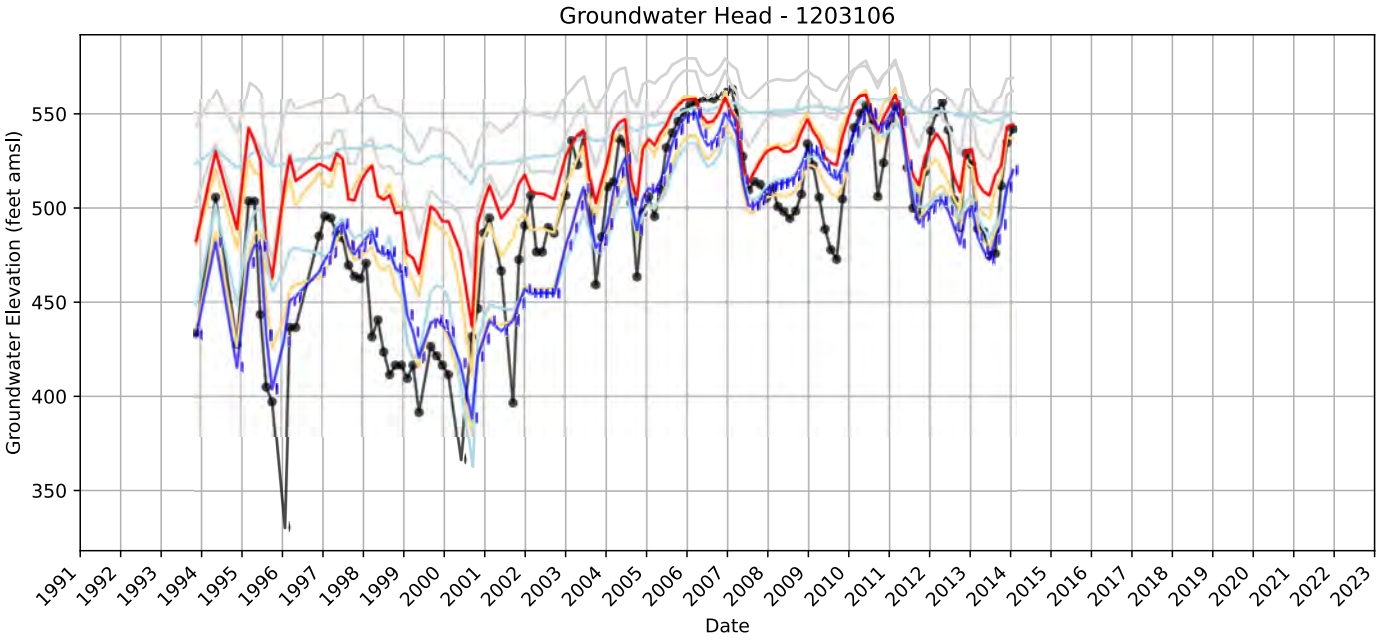

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002604
Groundwater Elevation (feet amsl)
960
940
920
900
880
860
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002604
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002645
Groundwater Elevation (feet amsl)
620
610
600
590
580
570
560
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002645
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

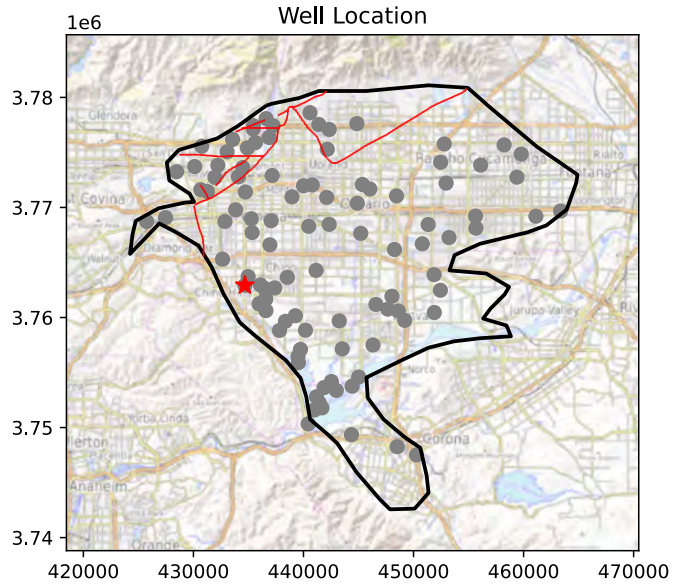

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1232872
Groundwater Elevation (feet amsl)
514
512
510
508
506
504
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
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2018
2019
2020
2021
2022
2023
Date

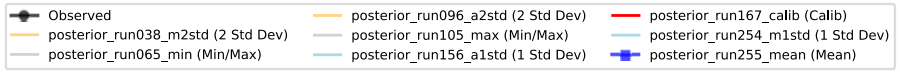

Model Domain
Faults
Observation Wells
Current Well: 1232872
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

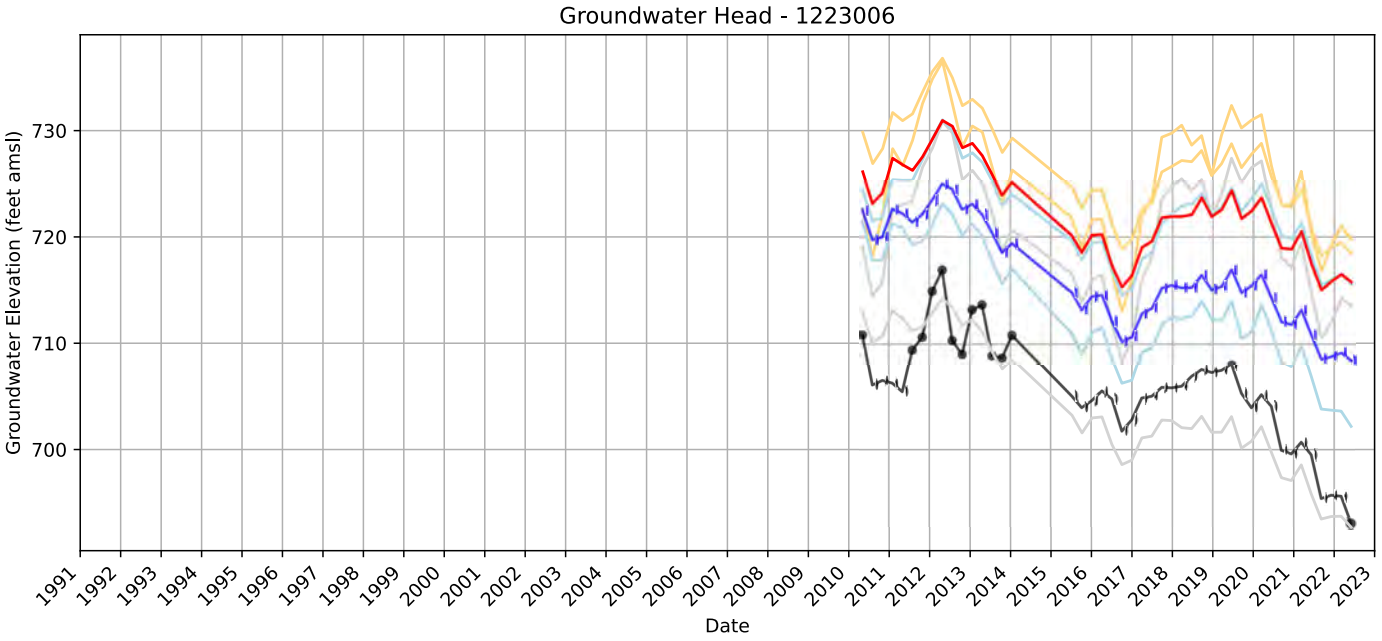

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1203106
Groundwater Elevation (feet amsl)
550
500
450
400
350
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

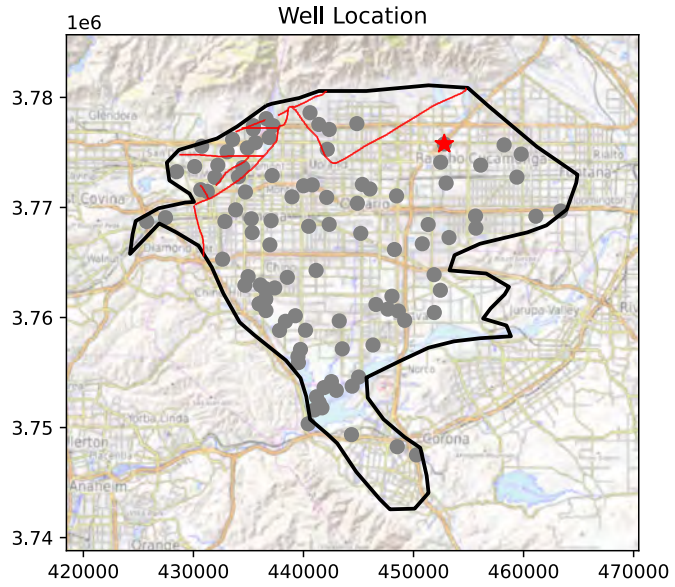

Model Domain
Faults
Observation Wells
Current Well: 1203106


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1223006
Groundwater Elevation (feet amsl)
730
720
710
700
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1223006


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

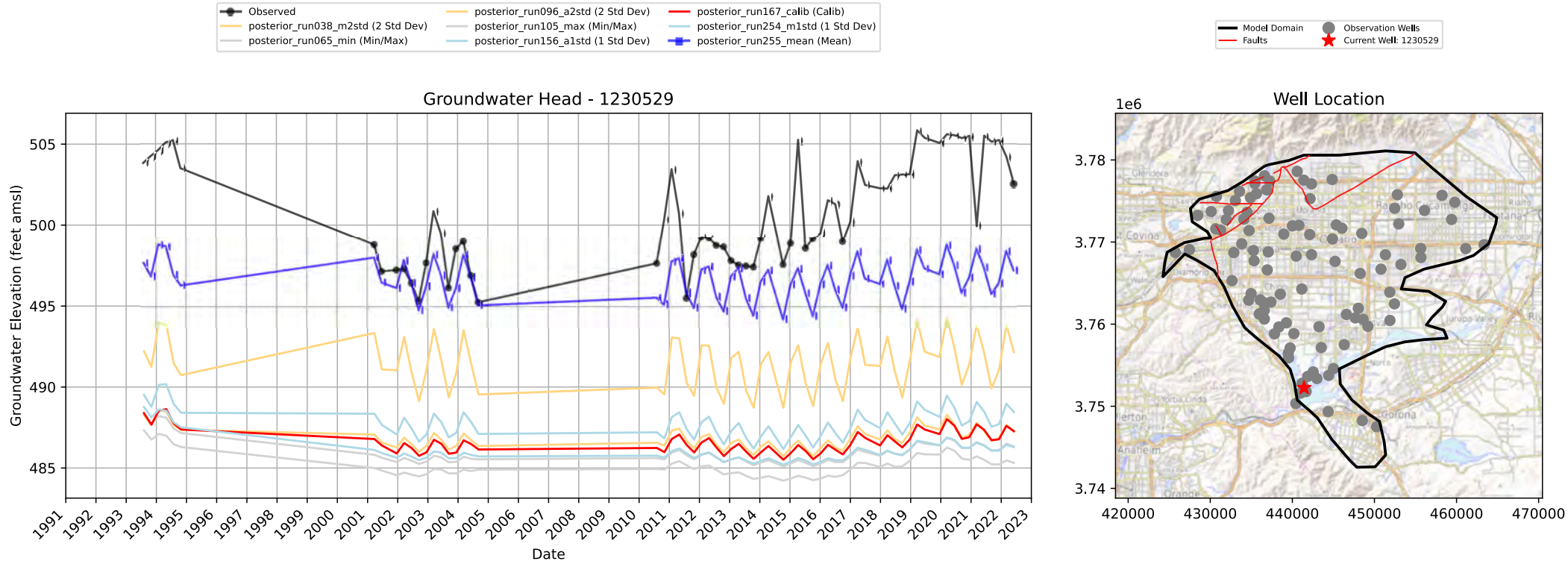
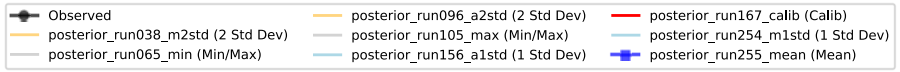
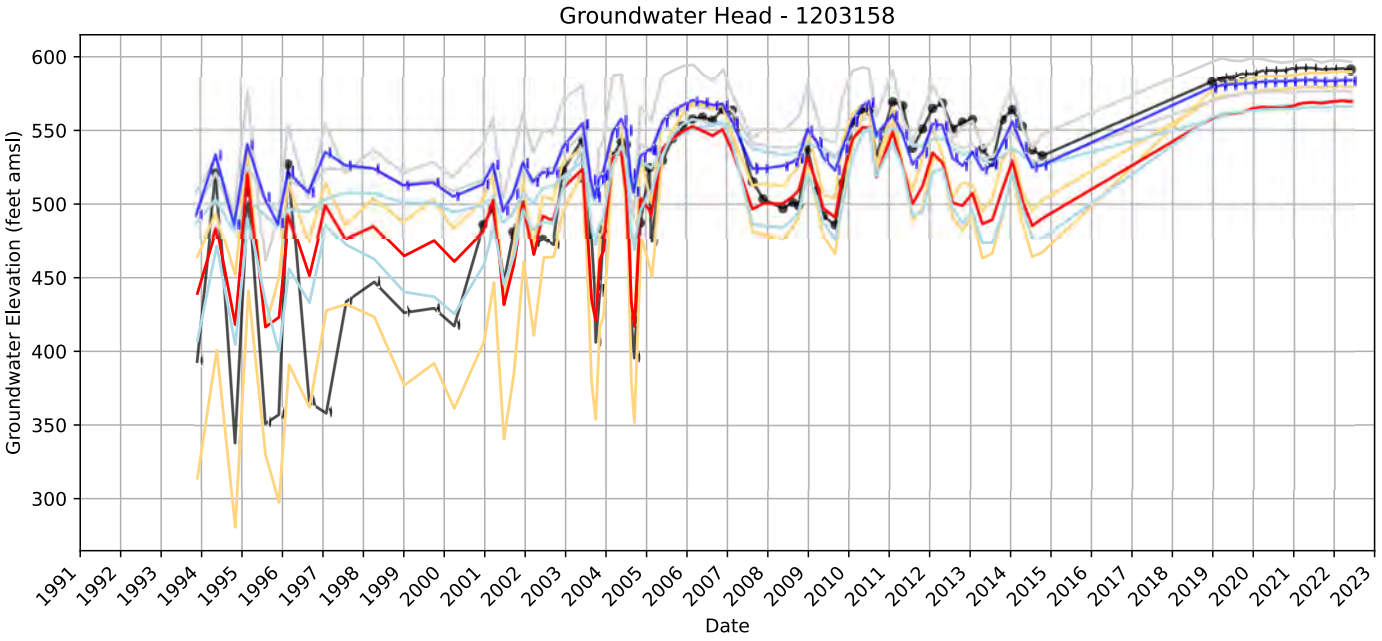
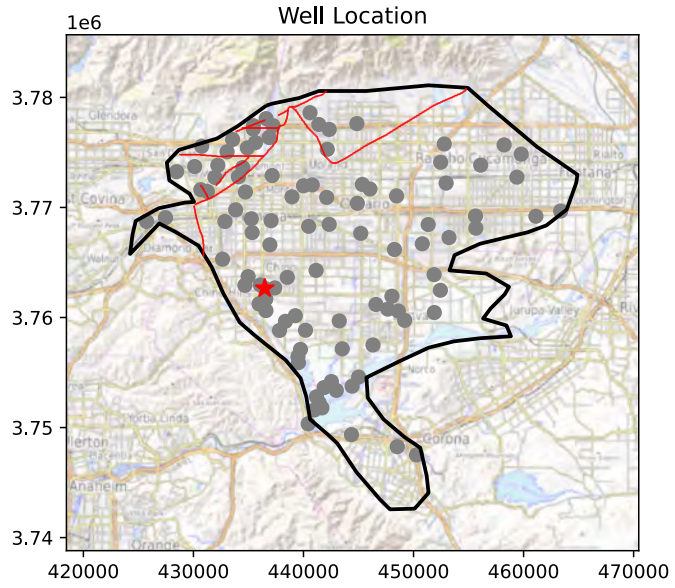


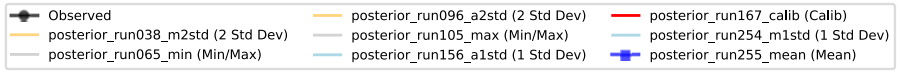
Exhibit B, Pg. 357

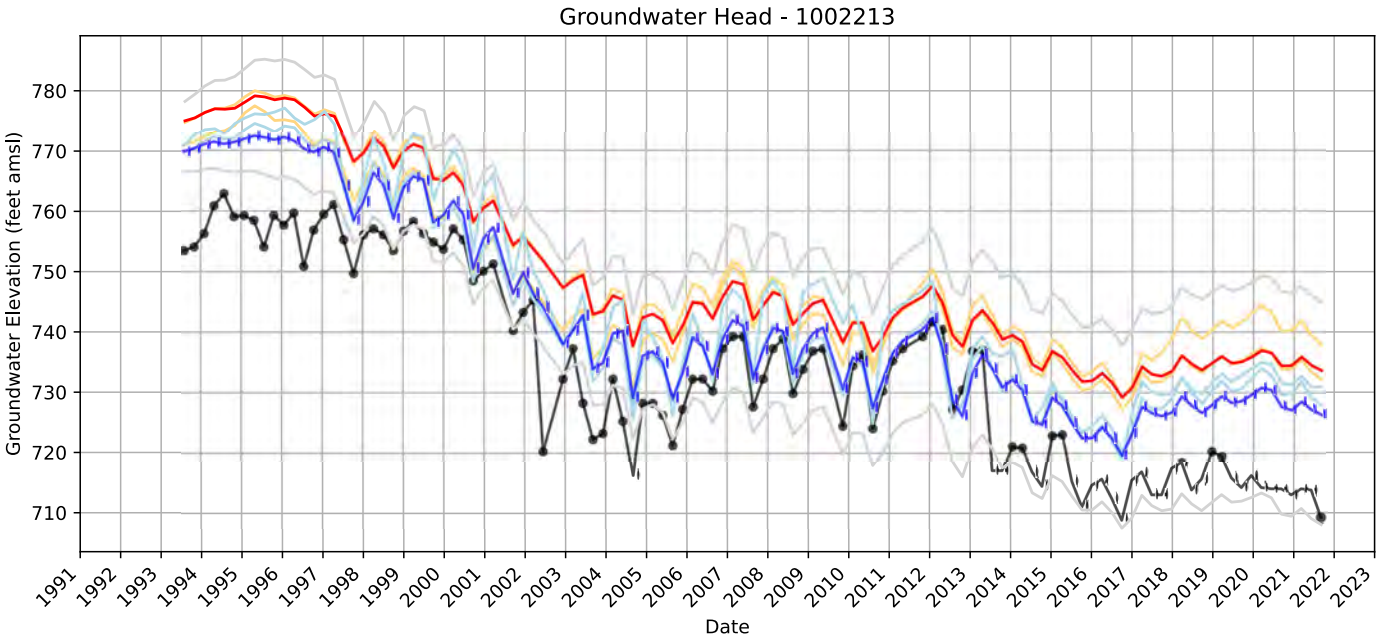

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1203158
Groundwater Elevation (feet amsl)
600
550
500
450
400
350
300
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2016
2017
2018
2019
2020
2021
2022
2023
Date

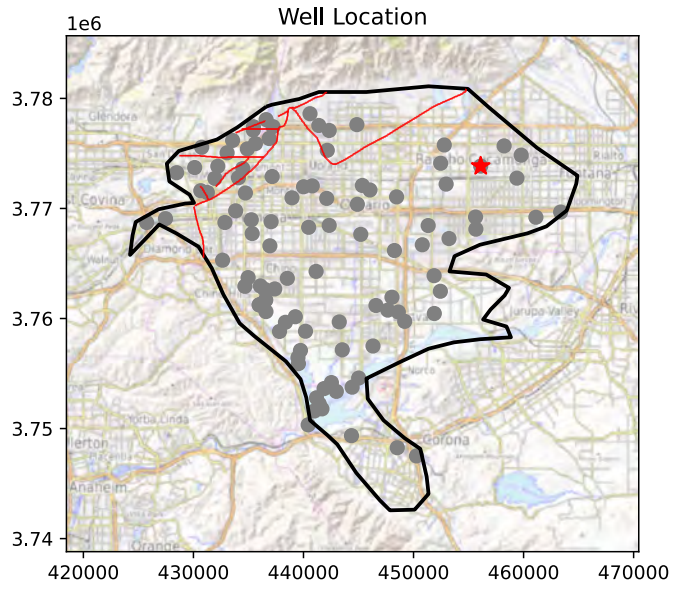

Model Domain
Faults
Observation Wells
Current Well: 1203158

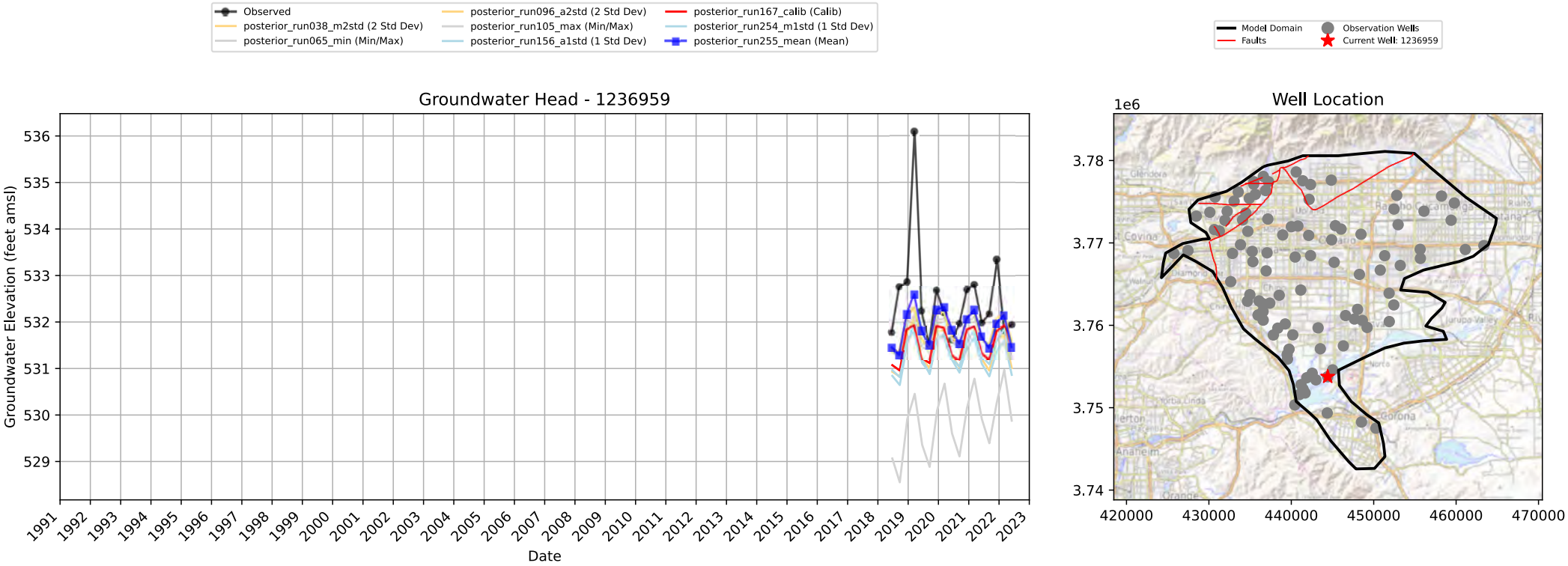

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

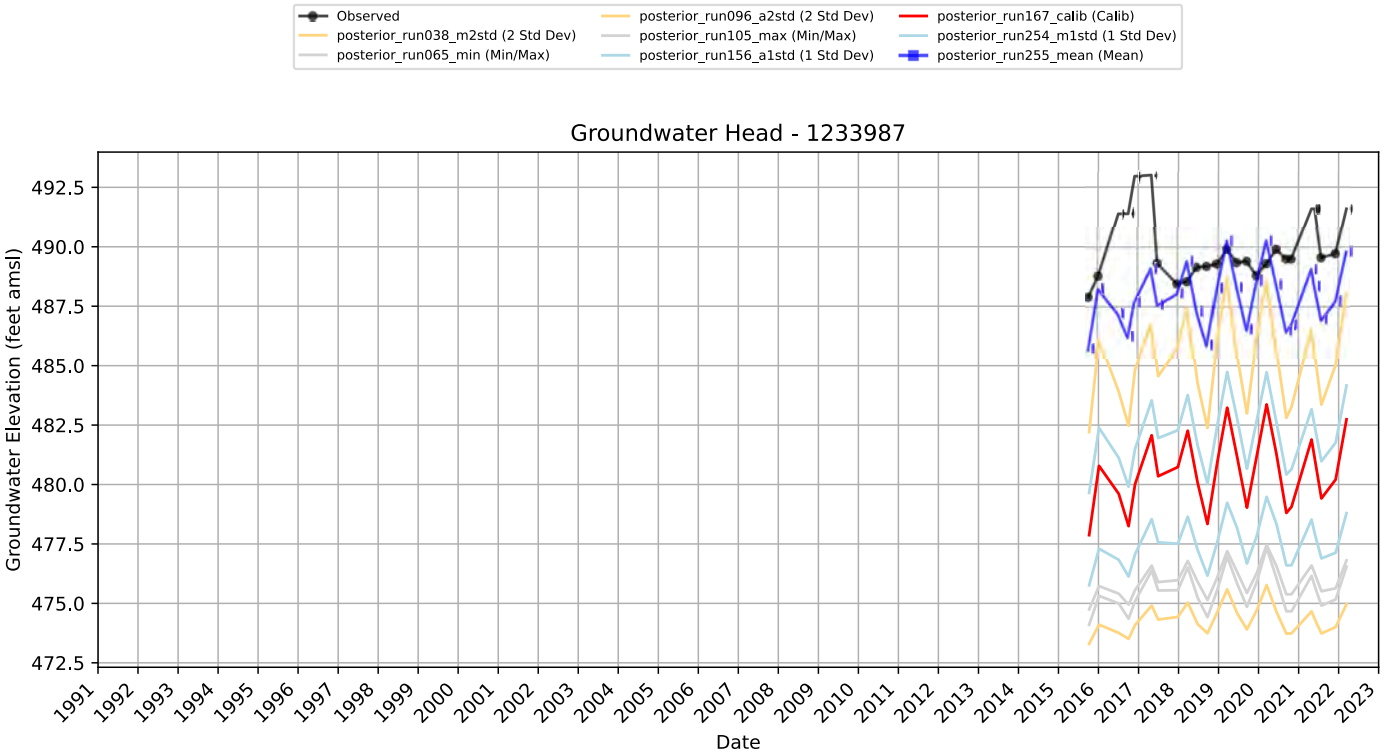

Groundwater Head - 1002213
Groundwater Elevation (feet amsl)
780
770
760
750
740
730
720
710
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

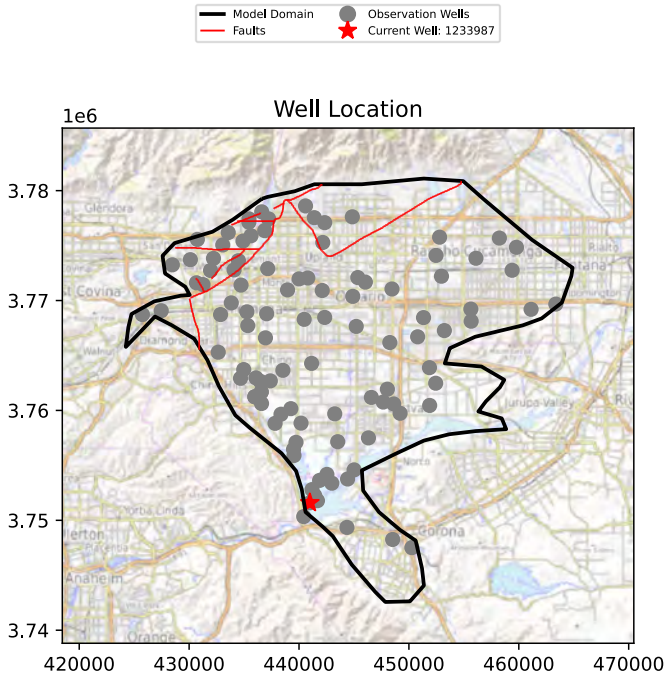

Model Domain
Faults
Observation Wells
Current Well: 1002213

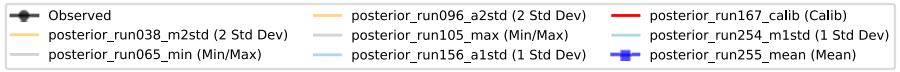

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

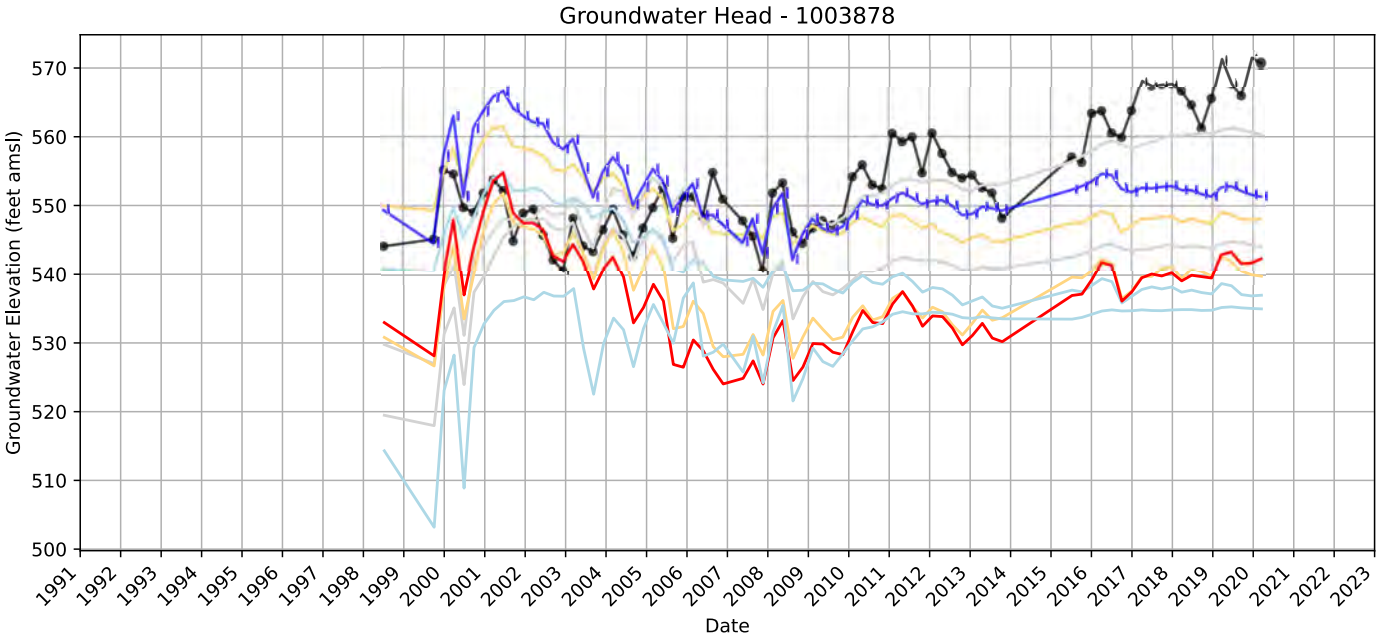

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1236959
Groundwater Elevation (feet amsl)
536
535
534
533
532
531
530
529
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

Model Domain
Faults
Observation Wells
Current Well: 1236959
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

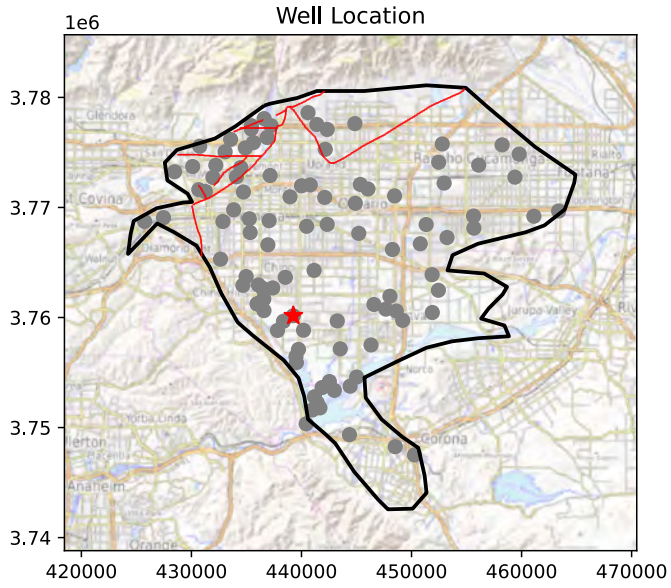

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1233987
Groundwater Elevation (feet amsl)
492.5
490.0
487.5
485.0
482.5
480.0
477.5
475.0
472.5
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
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2016
2017
2018
2019
2020
2021
2022
2023
Date

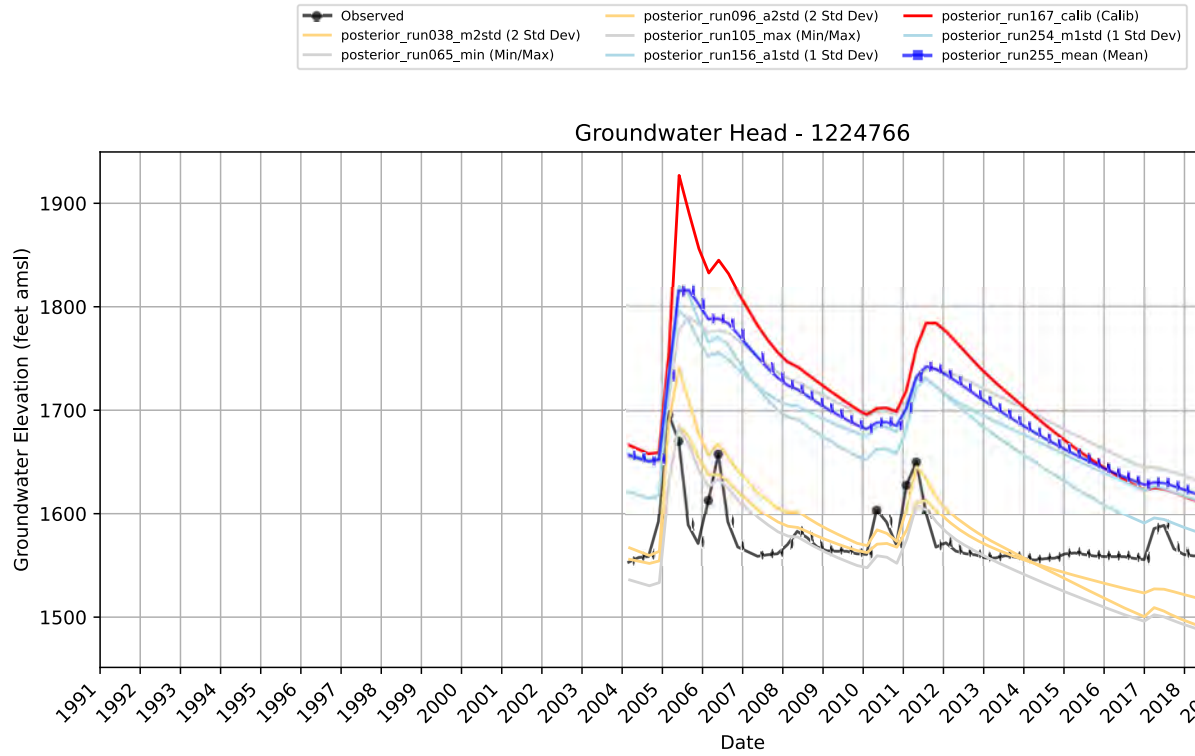

Model Domain
Faults
Observation Wells
Current Well: 1233987
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

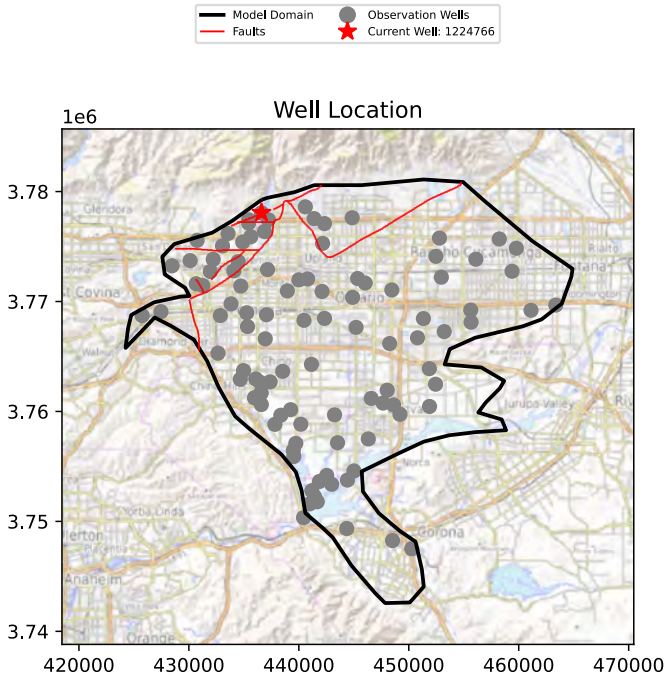

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

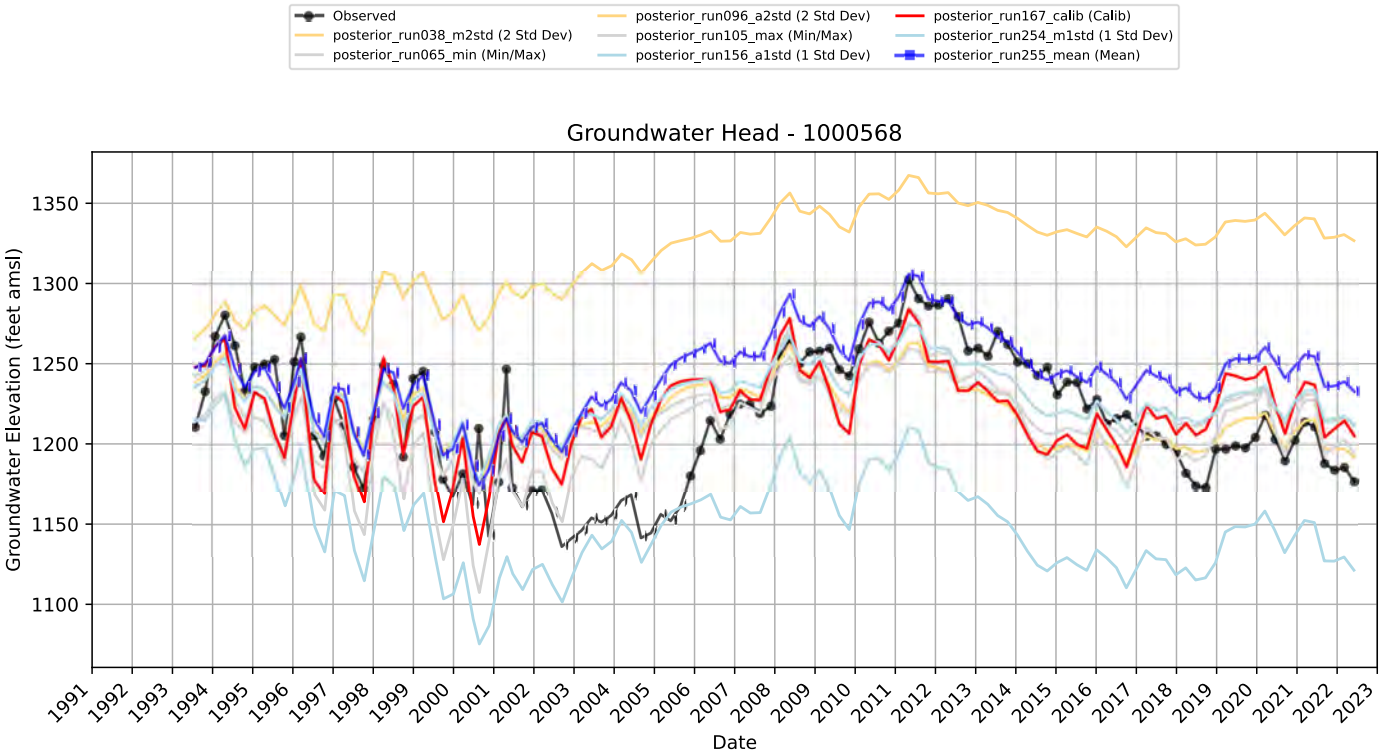

Groundwater Head - 1003878
Groundwater Elevation (feet amsl)
570
560
550
540
530
520
510
500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

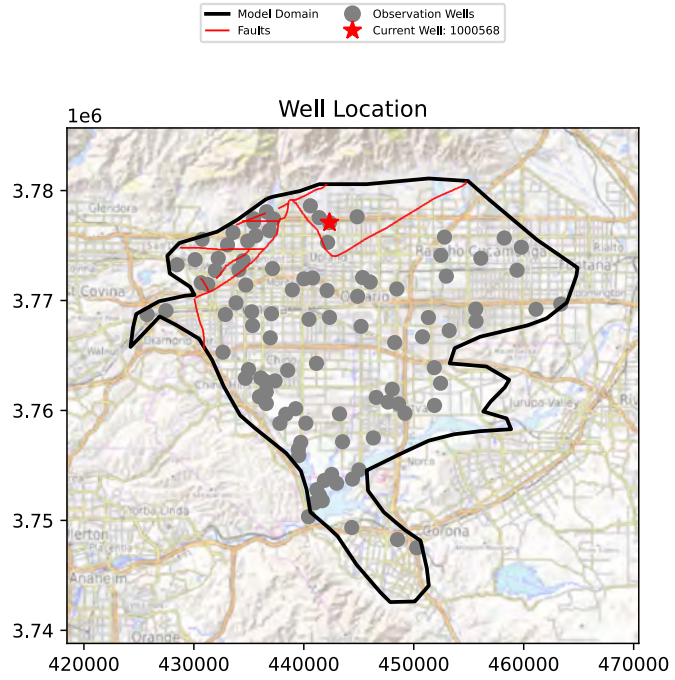

Model Domain
Faults
Observation Wells
Current Well: 1003878

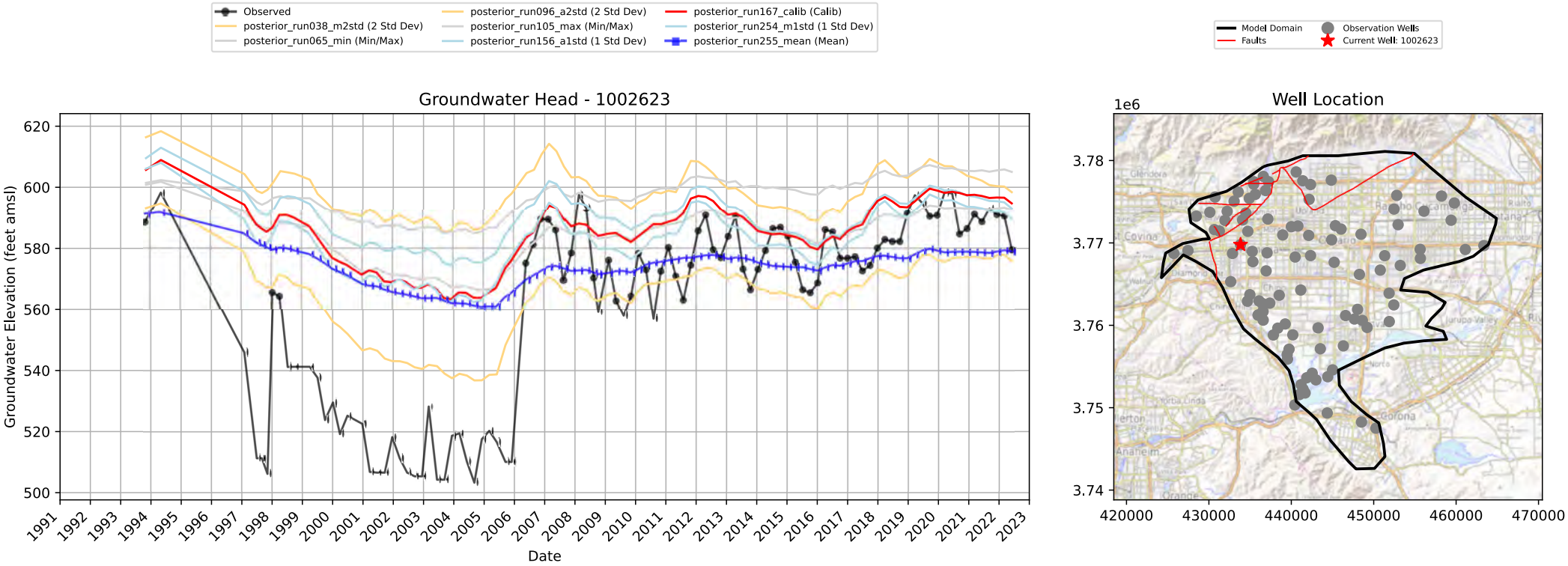

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

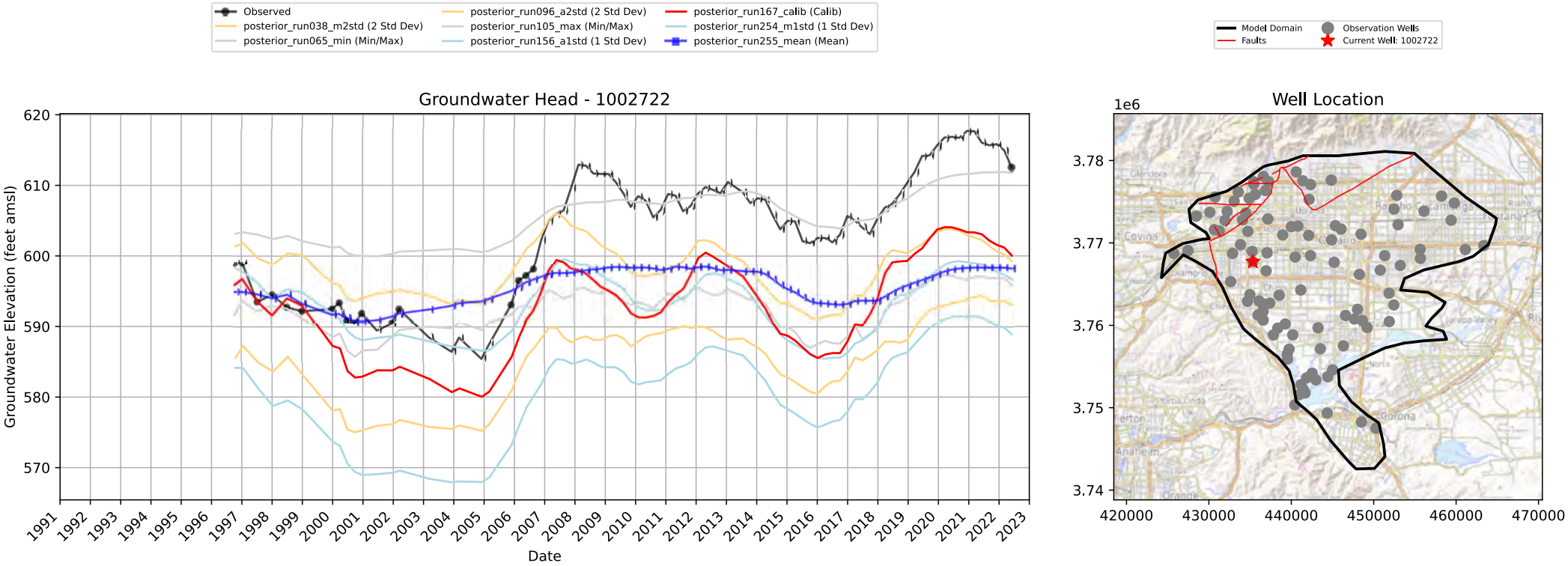

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1224766
Groundwater Elevation (feet amsl)
1900
1800
1700
1600
1500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1224766
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

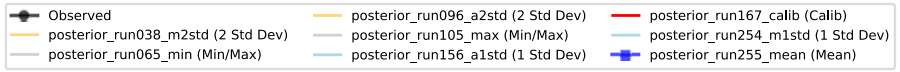

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1000568
Groundwater Elevation (feet amsl)
1350
1300
1250
1200
1150
1100
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

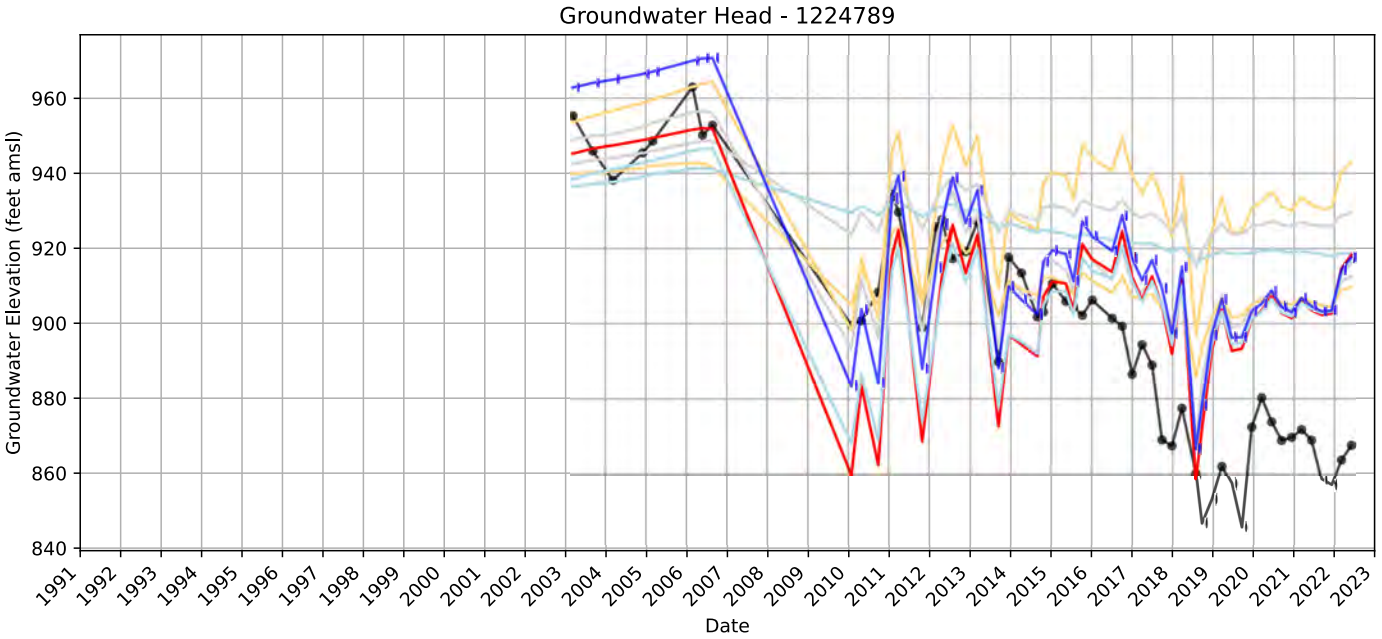

Model Domain
Faults
Observation Wells
Current Well: 1000568
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002623
Groundwater Elevation (feet amsl)
620
600
580
560
540
520
500
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1002623
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

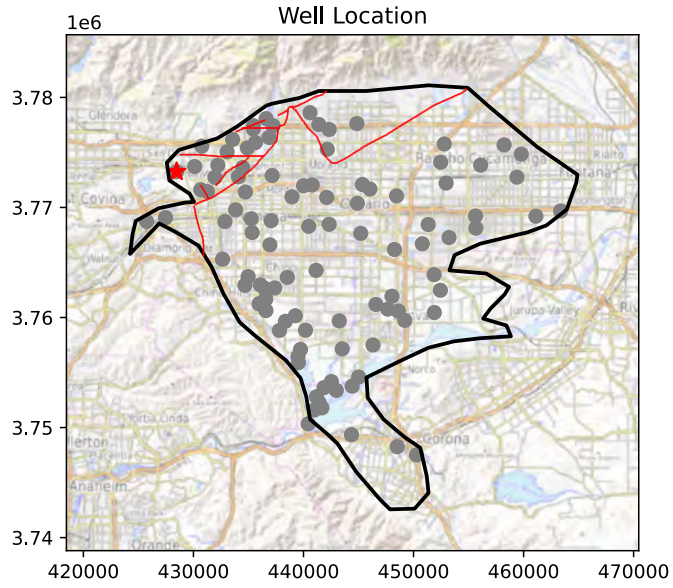

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1002722
Groundwater Elevation (feet amsl)
620
610
600
590
580
570
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

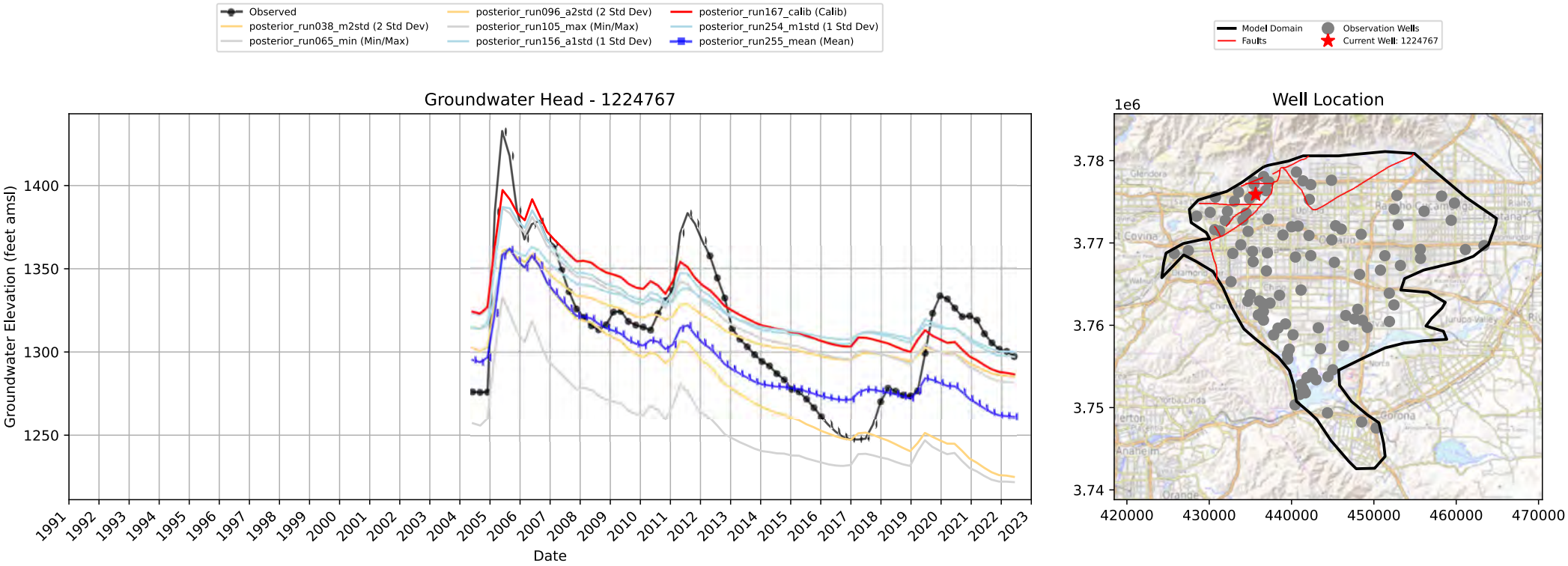
Model Domain
Faults
Observation Wells
Current Well: 1002722
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

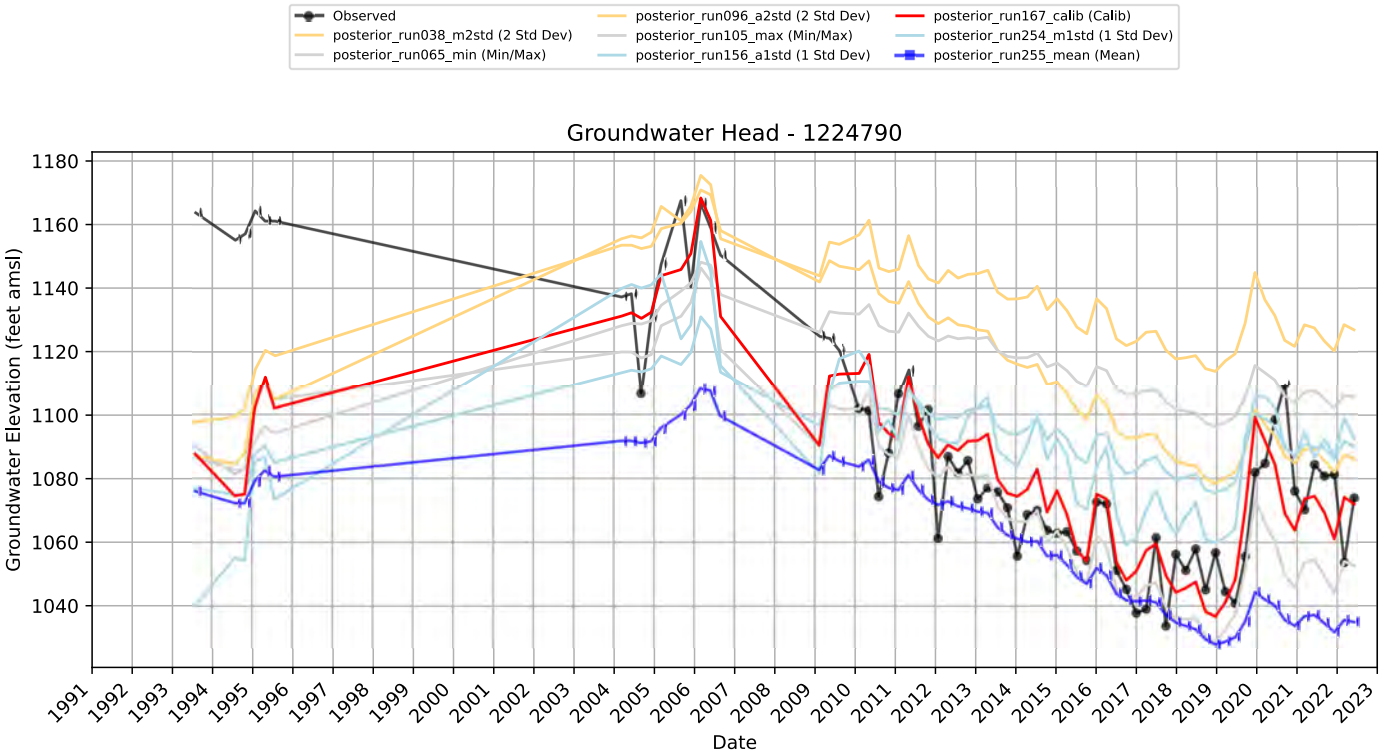

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1224789
Groundwater Elevation (feet amsl)
960
940
920
900
880
860
840
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1224789


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1224767
Groundwater Elevation (feet amsl)
1400
1350
1300
1250
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1224767
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000



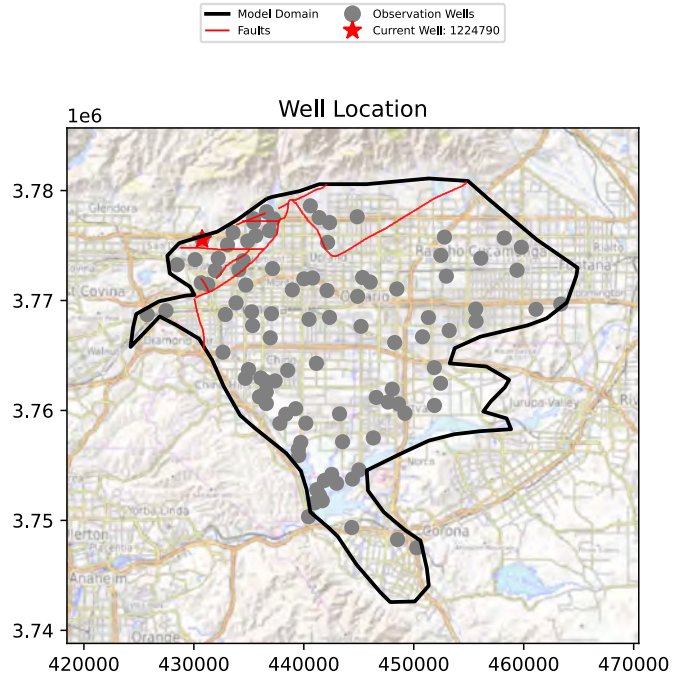
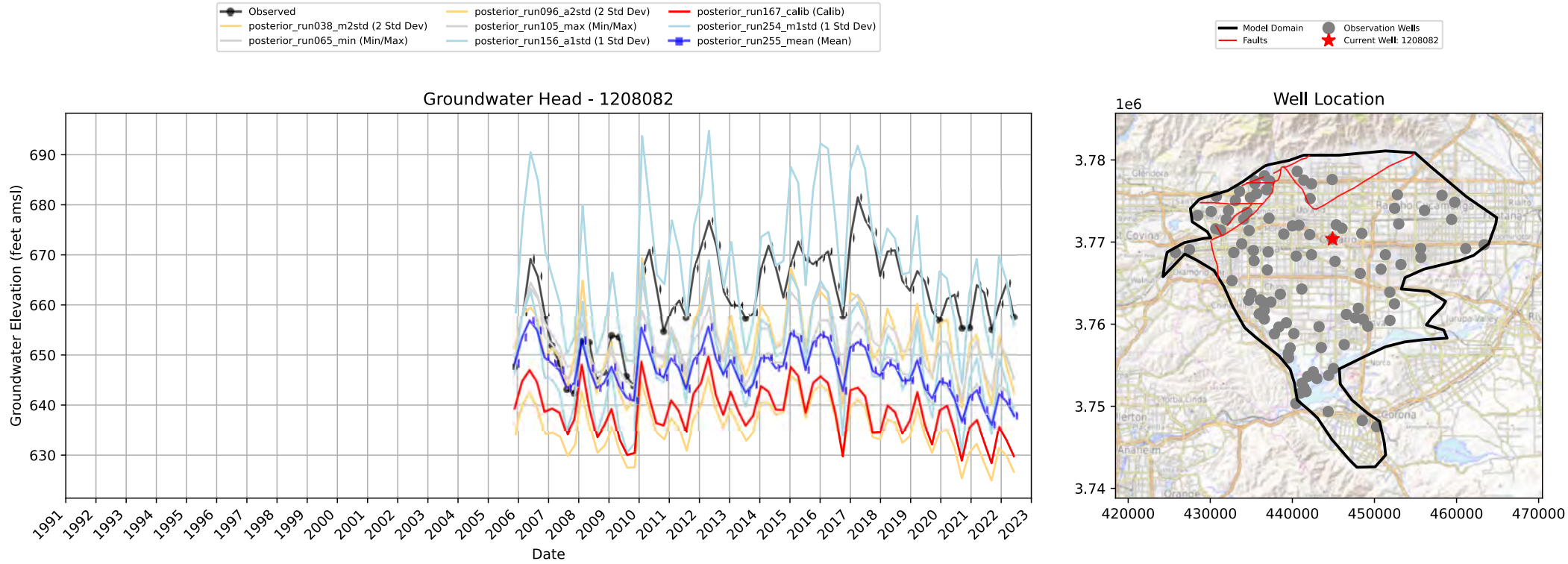
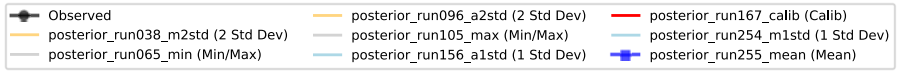
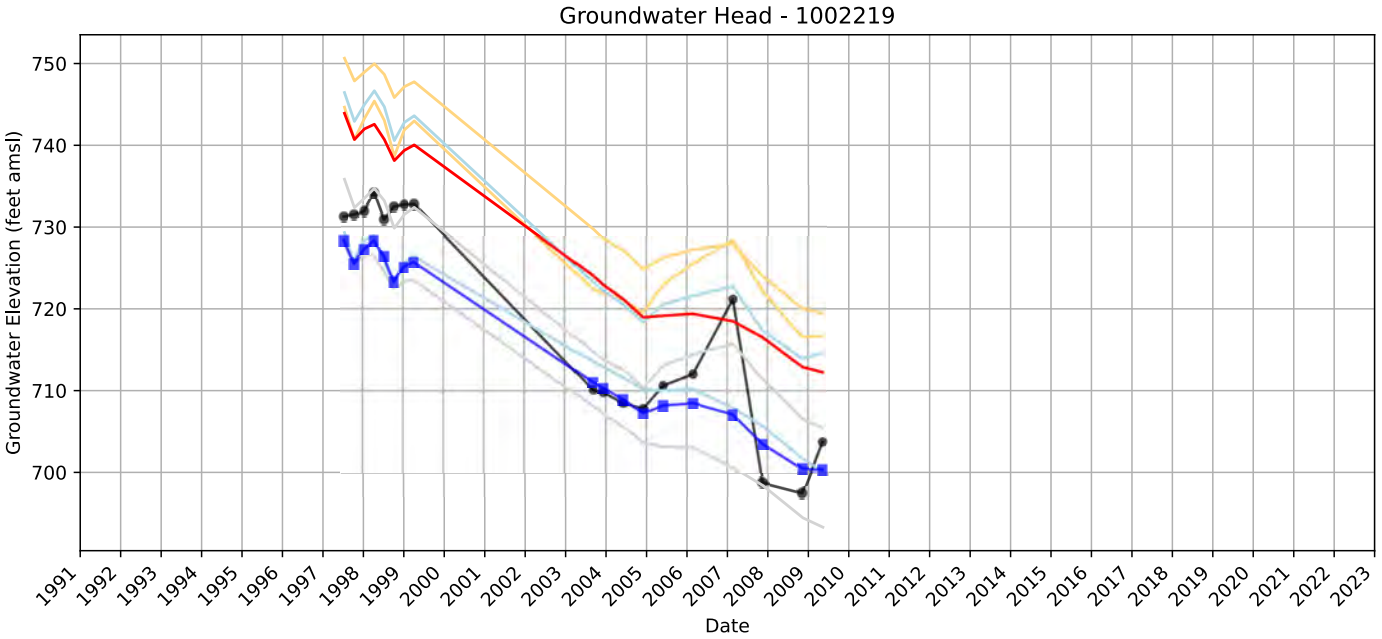


Exhibit B, Pg. 369

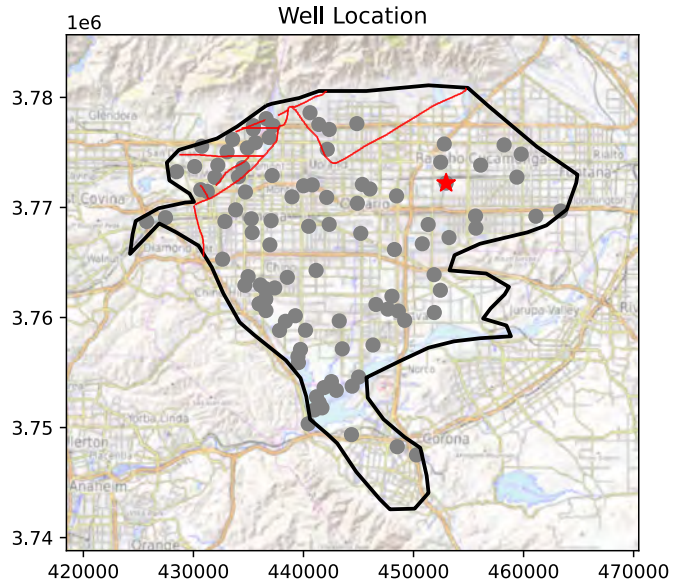

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1208082
Groundwater Elevation (feet amsl)
690
680
670
660
650
640
630
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
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2010
2011
2012
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2015
2016
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2018
2019
2020
2021
2022
2023
Date

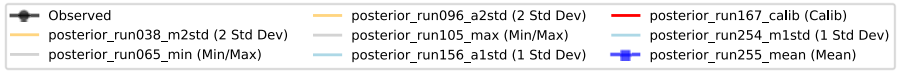
Model Domain
Faults
Observation Wells
Current Well: 1208082
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

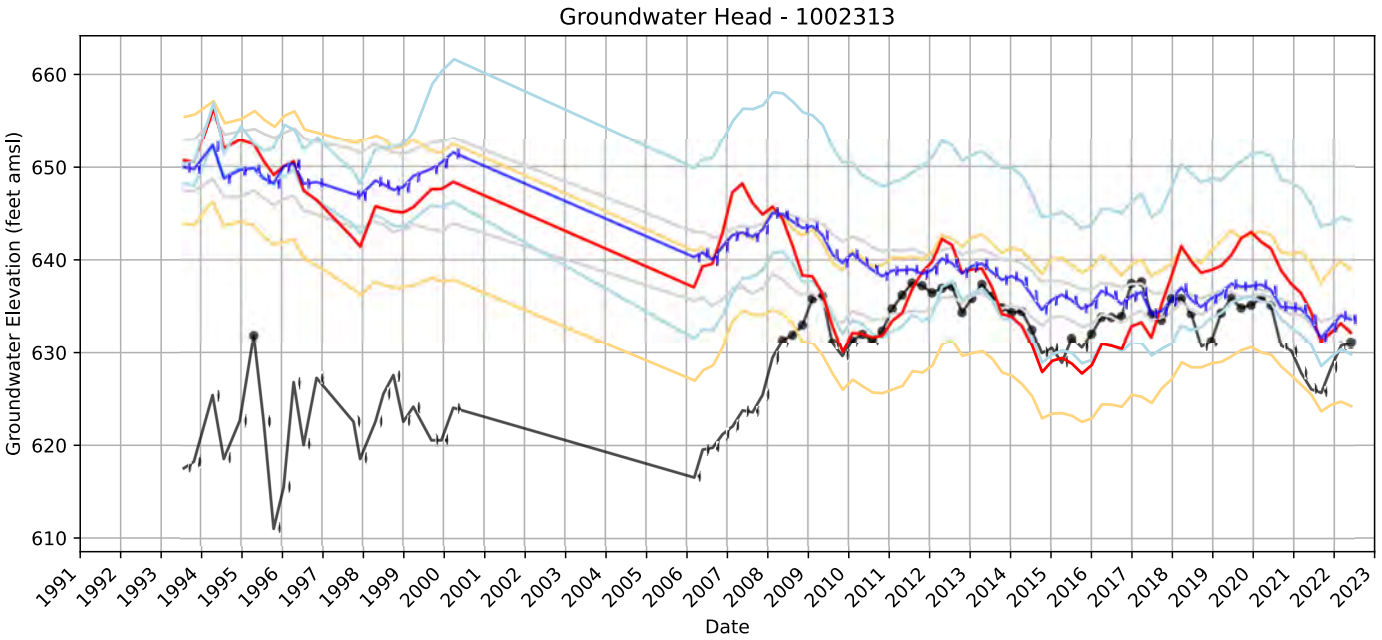

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1002219
Groundwater Elevation (feet amsl)
750
740
730
720
710
700
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

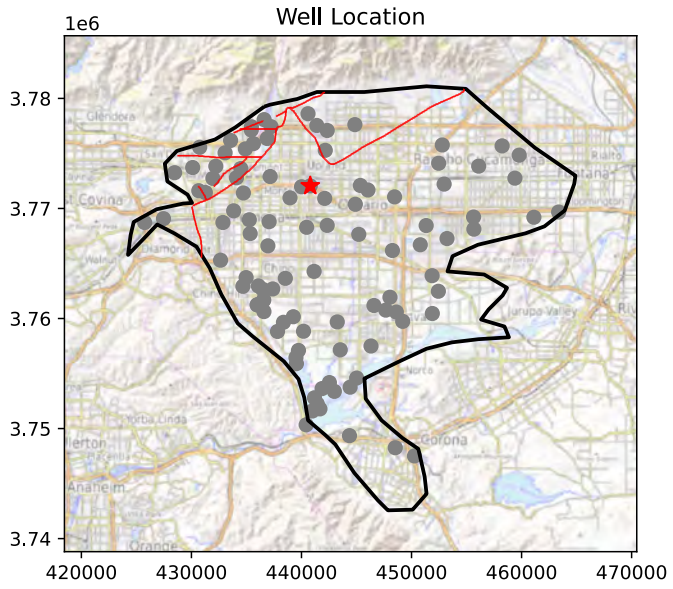

Model Domain
Faults
Observation Wells
Current Well: 1002219

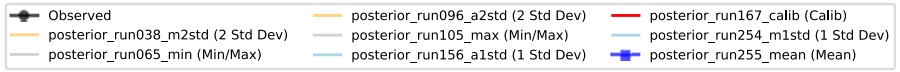

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

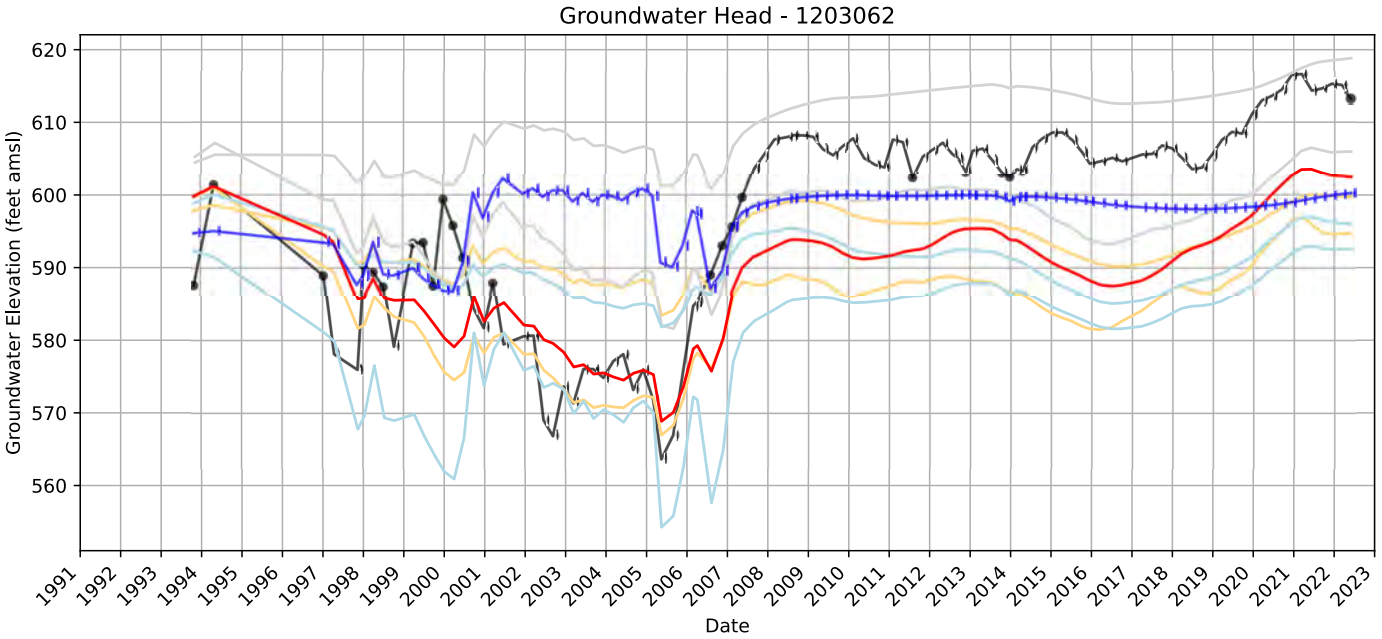

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1002313
Groundwater Elevation (feet amsl)
660
650
640
630
620
610
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
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2014
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2016
2017
2018
2019
2020
2021
2022
2023
Date

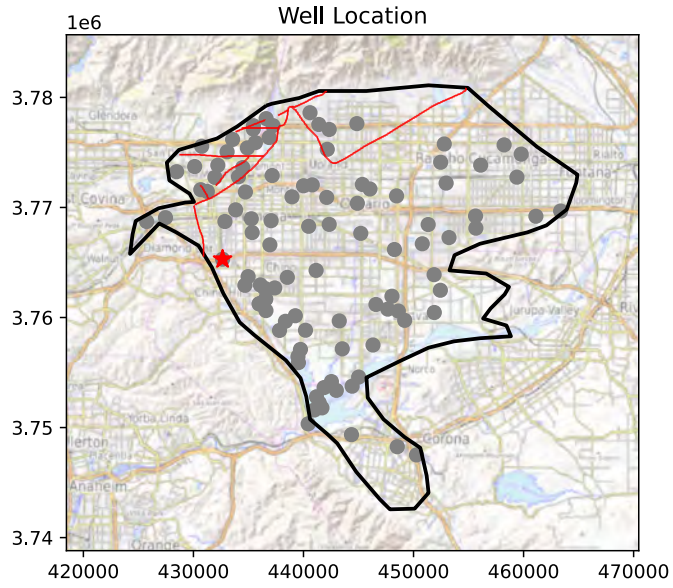

Model Domain
Faults
Observation Wells
Current Well: 1002313

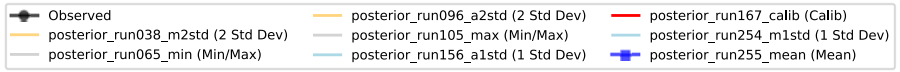

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

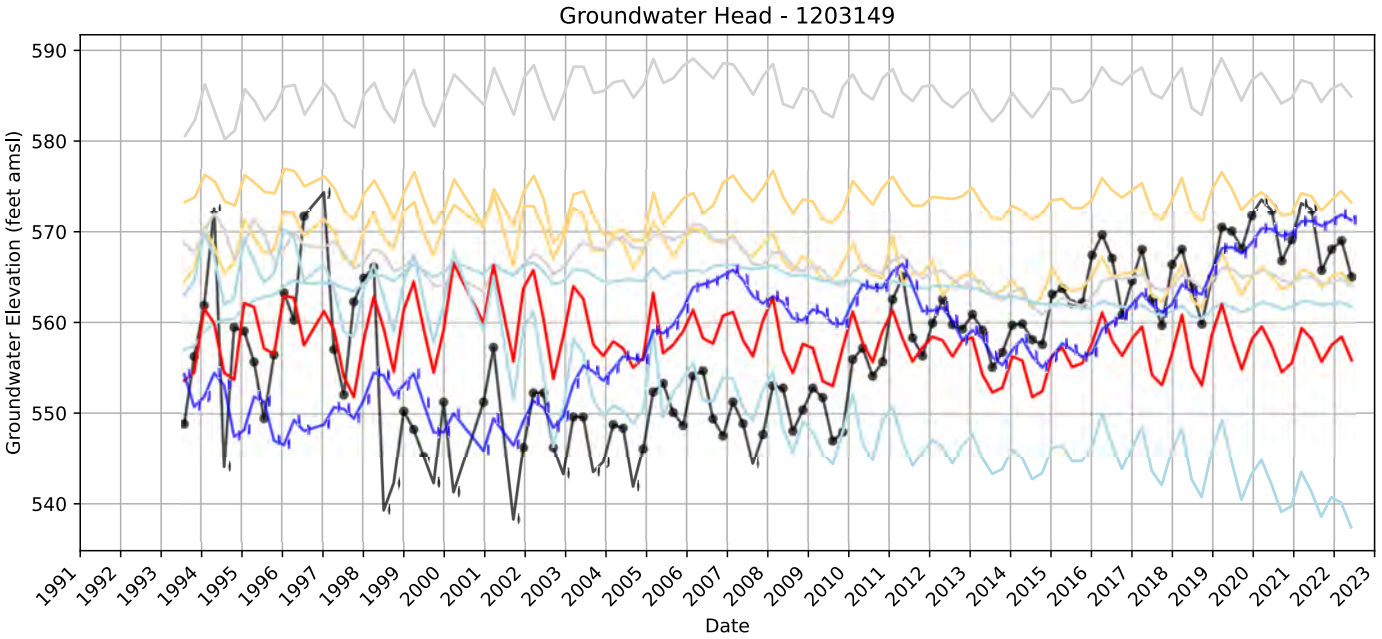

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1203062
Groundwater Elevation (feet amsl)
620
610
600
590
580
570
560
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

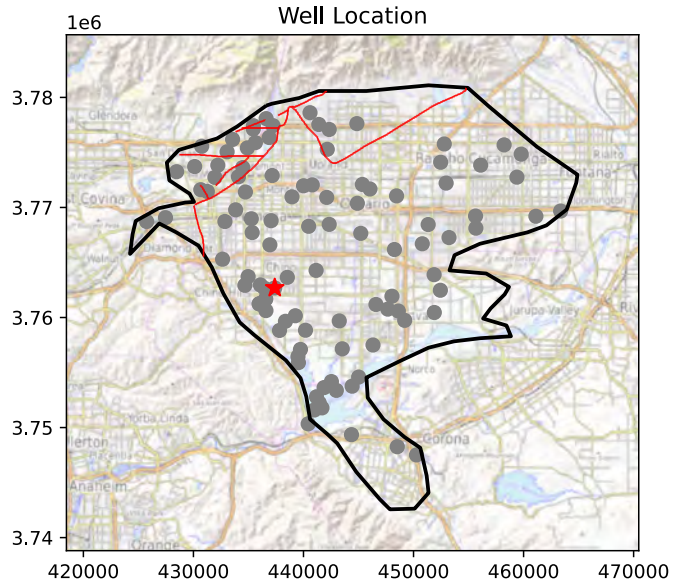

Model Domain
Faults
Observation Wells
Current Well: 1203062

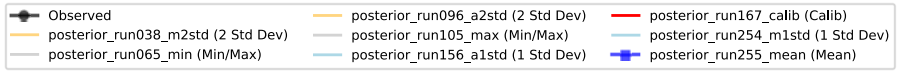

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

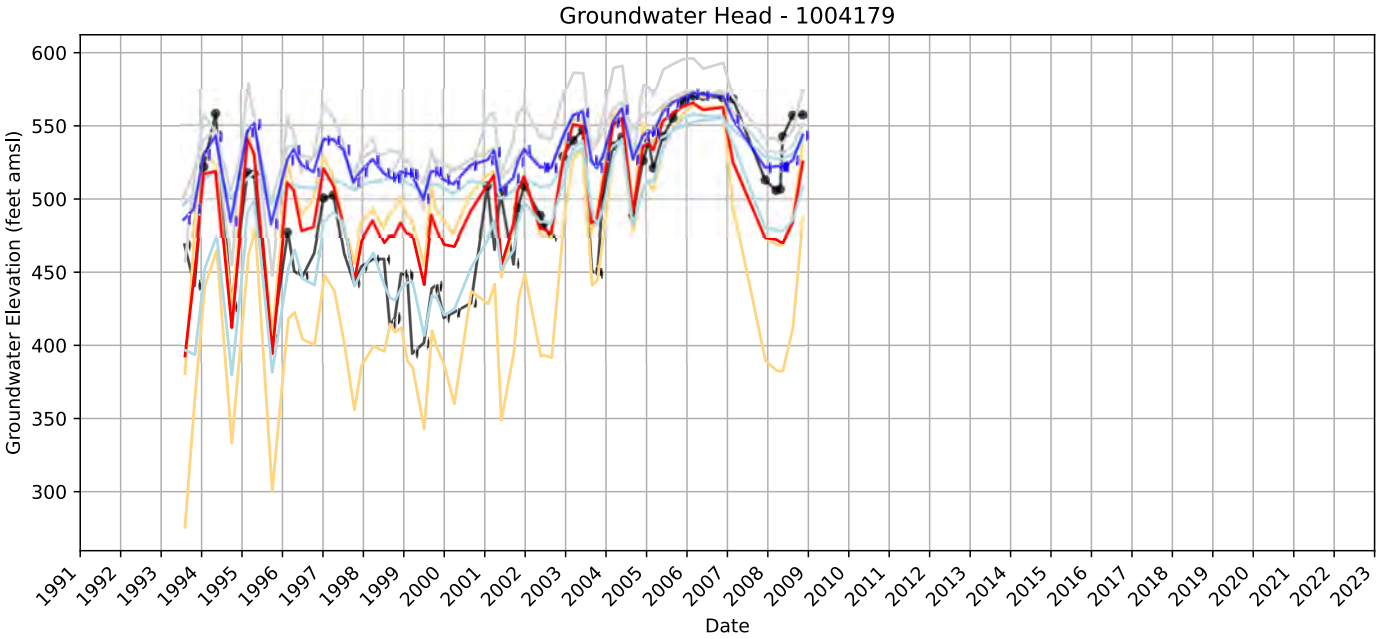

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1203149
Groundwater Elevation (feet amsl)
590
580
570
560
550
540
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date

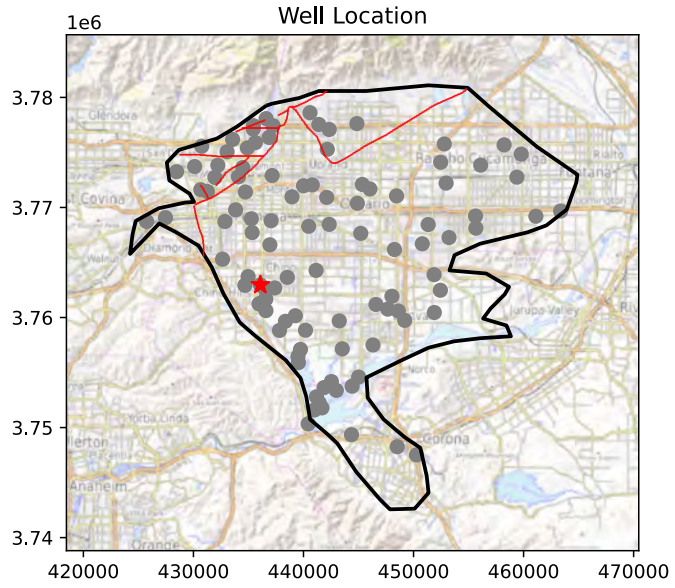

Model Domain
Faults
Observation Wells
Current Well: 1203149

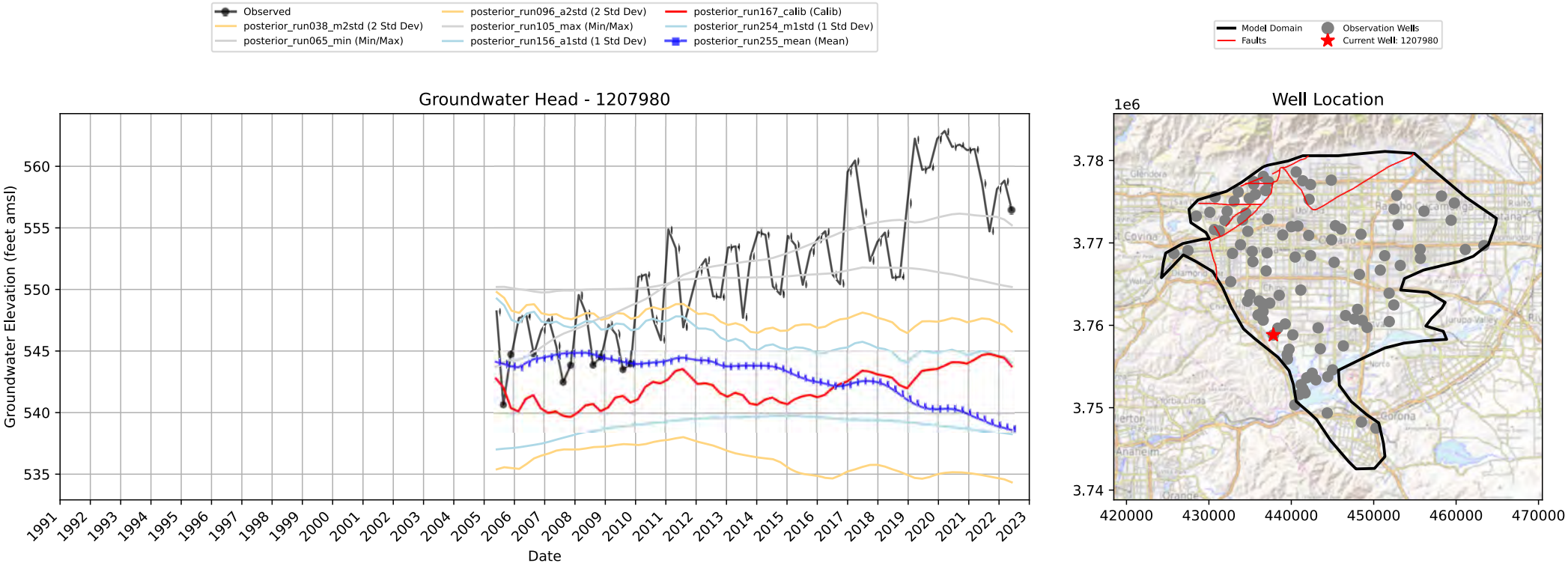

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

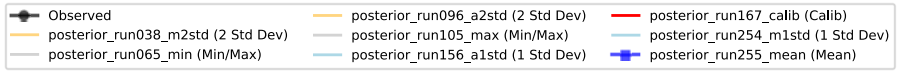

Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)

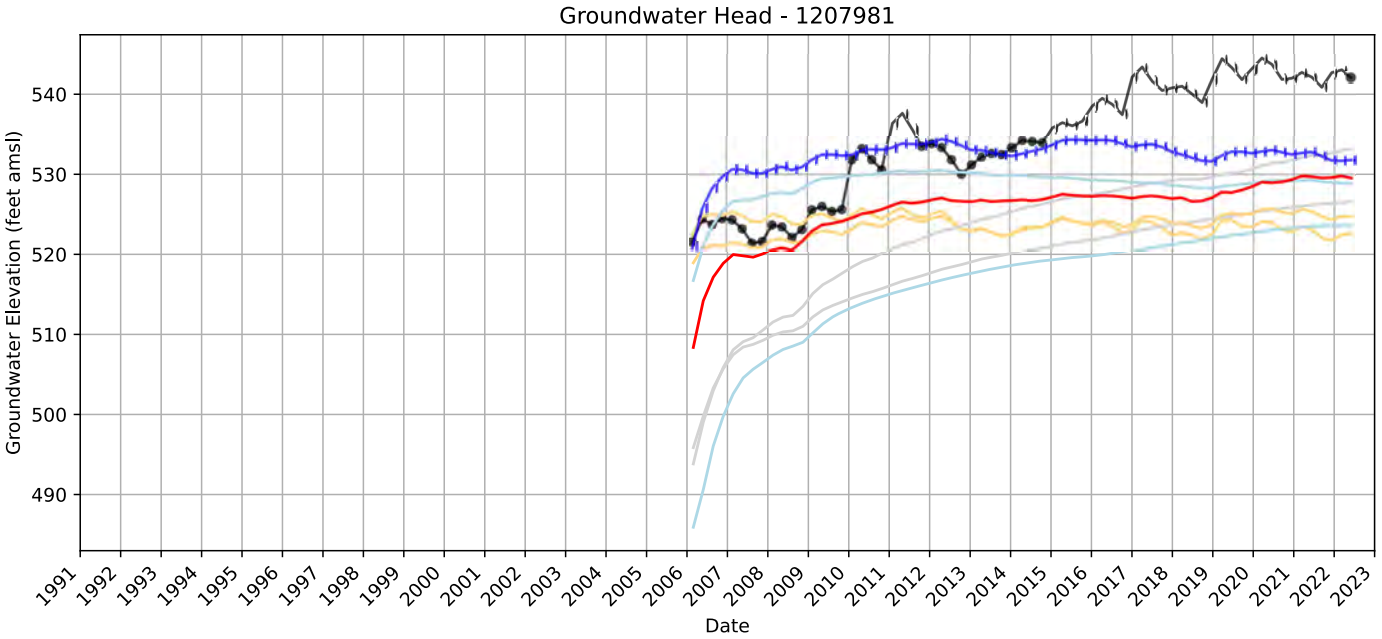

Groundwater Head - 1004179
Groundwater Elevation (feet amsl)
600
550
500
450
400
350
300
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1004179

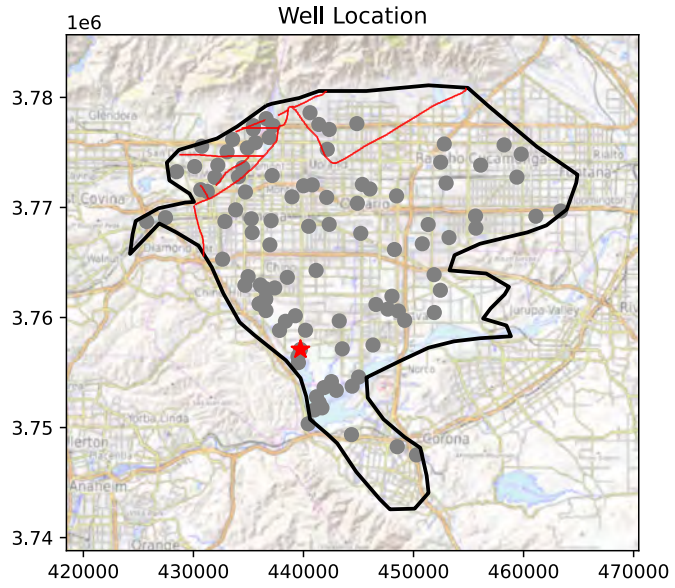

Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)
Groundwater Head - 1207980
Groundwater Elevation (feet amsl)
560
555
550
545
540
535
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date
Model Domain
Faults
Observation Wells
Current Well: 1207980
Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000


Observed
posterior_run038_m2std (2 Std Dev)
posterior_run065_min (Min/Max)
posterior_run096_a2std (2 Std Dev)
posterior_run105_max (Min/Max)
posterior_run156_a1std (1 Std Dev)
posterior_run167_calib (Calib)
posterior_run254_m1std (1 Std Dev)
posterior_run255_mean (Mean)


Groundwater Head - 1207981
Groundwater Elevation (feet amsl)
540
530
520
510
500
490
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
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2009
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2011
2012
2013
2014
2015
2016
2017
2018
2019
2020
2021
2022
2023
Date


Model Domain
Faults
Observation Wells
Current Well: 1207981


Well Location
1e6
3.78
3.77
3.76
3.75
3.74
420000
430000
440000
450000
460000
470000

E3. Comments to the Chino Basin Watermaster Draft Report on the 2025 Safe Yield Reevaluation (December 2025) Appropriative Pool (Thomas Harder & Company)

Thomas Harder & Co.
Groundwater Consulting

December 5, 2025

Mr. John Schatz, Esq.
P.O. Box 7775
Laguna Niguel, CA 92607-7775

Re: Comments to the Chino Basin Watermaster Draft Report on the 2025 Safe Yield Reevaluation

Dear John:

This letter summarizes our review of Chino Basin Watermaster's draft report entitled "2025 Safe Yield Reevaluation," dated October 2025. The 2025 Safe Yield Reevaluation summarized in the draft report is the culmination of numerous workshops, consultant and stakeholder input, and 3rd party peer review. While we were able to render opinions and comment on the Safe Yield Reevaluation (SYR) methodology and the assumptions used for input into the various models used to estimate Safe Yield, we did not have the benefit of reviewing the electronic model and parameter estimation files and, therefore, must rely on the 3rd party peer review by S.S. Papadopulos and Associates (SSP&A) for validation of the calculations used to arrive at the Safe Yield estimate (it is our understanding that they had access to the model and parameter estimation files). Along those lines, we have yet to receive responses to our January 9, 2025 "responses to responses" letter. That letter requested, among other things, that model files be provided.

It is our understanding that 45 calibrated realizations of the Chino Valley Model (CVM) were considered in the forecast uncertainty analysis to reevaluate the Chino Basin Safe Yield. The likelihood weighted average Safe Yield from the analysis was 117,500 acre-ft/yr

We have general comments, questions and recommendations regarding the following key topics:

- Deep Infiltration of Precipitation and Applied Water (DIPAW)
- Santa Ana River (SAR) Infiltration
- Model Calibration

Our remaining comments focus on the recommendations provided by SSP&A and our opinion as to whether addressing those recommendations would significantly impact the 2025 SYR.

Deep Infiltration of Precipitation and Applied Water (DIPAW)

DIPAW is the largest single contributor to inflow in the Chino Basin. Other inflows are boundary inflow ("underflow"), recharge through the streambed of the Santa Ana River, and managed aquifer recharge (MAR). Based on the water budget for Realization C,[1] of the average 174,607 acre-ft/yr of total recharge between 1992 and 2022 (including managed recharge), 86,066 acre-ft/yr (49 percent) came from DIPAW. Between 1992 and 2000, the relative percentage was 58 percent of the total recharge.

Both the 2020 and 2025 SYR evaluations have shown that the rate of recharge from DIPAW has been steadily decreasing since approximately Yr 2000. Referencing the period from Yr 2000 to 2022 from Realization C of the 2025 SYR, DIPAW reduced from 105,227 acre-ft in Yr 2000 to 60,536 acre-ft in 2022, which amounts to approximately 44,700 acre-ft/yr of reduced recharge to the basin. While there is not a 1:1 correlation between reduced DIPAW and reduced estimates of Chino Basin Safe Yield over the period between 2000 and 2020, the reductions in DIPAW appear to be a major factor in the decrease.

Review of the DIPAW estimates in the 2025 Safe Yield Reevaluation has raised some questions.

Why is the range of historical DIPAW estimates from the 45 calibrated realizations so narrow?

Prior to 2022, the stated range of annual DIPAW, based on analysis of the 45 calibrated realizations used in the uncertainty analysis, was very near the mean. By comparison, the 20th and 80th percentile deviation from the mean in the forecast appears to be as much as +/- 10,000 acre-ft in any given year (see below Figure 1). Given the uncertainty in recharge from precipitation and applied water, it would be expected that the historical DIPAW estimates (prior to 2022) would have a much greater uncertainty than indicated on Figure 6-8. On a related note, Figure 4-17 (and again on Figure 4-24) shows the range of net recharge during the historical period (1992 to 2022) to be approximately 30,000 acre-ft. Given the very narrow range of DIPAW, what process(es) is/are the source of this uncertainty in net recharge for the historical period?

[1] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Appendix B

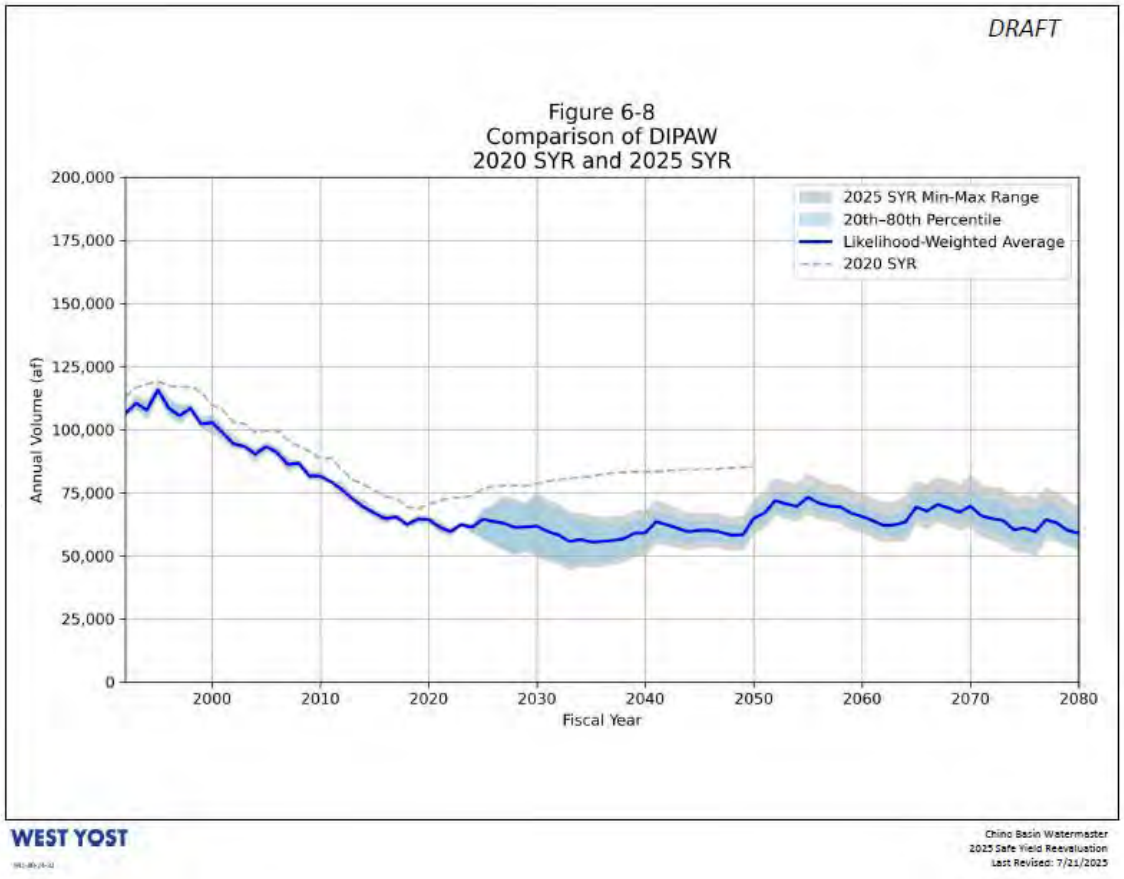


Figure 1. 2025 Safe Yield Reevaluation - Comparison of 2020 and 2025 DIPAW

Why are the 2020 SYR DIPAW estimates from the historical period (model calibration) consistently higher than the range of DIPAW from the 2025 SYR realizations?

The 2020 SYR DIPAW estimates for the historical period were consistently higher than the mean 2025 SYR DIPAW estimates and are outside the range of uncertainty for DIPAW (see gray dashed line on the above Figure 6-8). Comparison of annual 2020 DIPAW estimates with 2025 DIPAW estimates shows that the 2020 values are, on average,[2] approximately 8,500 acre-ft/yr higher than those from 2025. In some years (e.g. 1999), the 2020 DIPAW is as much as 13,500 acre-ft higher than was estimated for the 2025 SYR. It would be expected that the 2020 DIPAW estimates would be in the range of uncertainty. What changed in the updated model analysis to result in the lower DIPAW?

In answering the above questions, it would be helpful to understand which of the DIPAW factors (precipitation or applied water) has the greatest impact on the reduction. West Yost does not

[2] We compared the averages of both the 2020 SYR DIPAW and 2025 SYR DIPAW for the 1992 to 2018 period common to both analyses.

explicitly quantify each element of DIPAW in the historical water budgets published in the draft report.[3] Precipitation for the period from 1999 to 2022 was generally below the long-term average which would be expected to result in less infiltration. Decreases in applied water would generally be expected after Yr 2000 resulting from a transition of land use in the southern Chino Basin from irrigated crops and dairy to urban development.

- To what degree is precipitation vs applied water recharge a factor in controlling the reduction in DIPAW based on the current report?
- Of the applied water recharge, how much is associated with urban landscape irrigation and how much is associated with agricultural irrigation? While the draft report discusses validation of urban outdoor water use,[4] there is no discussion about changes to infiltration of applied water from agriculture or validation of the agricultural applied water recharge in the report.
- Were there changes to these DIPAW factors between the 2020 and 2025 modeling efforts? If so, which ones?
- Which factors had the greatest impact on the reduction in Safe Yield between the 2020 and 2025 SYR?

Santa Ana River Infiltration

Santa Ana River infiltration estimates also decreased between the 2020 and 2025 SYR. For the period common to both analyses (1992 to 2018), SAR infiltration decreased, on average, approximately 10,000 acre-ft/yr in the 2025 SYR relative to the 2020 SYR. While this is balanced to some degree by reduced discharge associated with rising groundwater at Prado Dam and less evapotranspiration along the SAR, there is still a net reduction in inflow of approximately 3,300 acre-ft/yr. What changed in the updated model analysis to result in the lower SAR infiltration?

Model Calibration

Based on comparison of measured and model-generated groundwater levels across the Chino Valley Model as a whole (see SYR report Figure 4-19), it appears that the model is acceptably calibrated, from a statistical standpoint, for the period from 1992 to 2022. Having said this, there are a couple of broad issues with the calibration that we request be addressed.

1. Comparison of the prior DIPAW estimates from the 2020 SYR with those obtained through the PESTPP-IES process suggest that the criteria by which the calibration is judged are not

[3] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Table 4-7; Appendix B; Tables B-7-1 through B-7-4
[4] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Table 4-2

met,[5] at least as it relates to DIPAW. As we understand it, the R4 output for DIPAW serves as input to the MODFLOW model and is allowed to vary in the PESTPP-IES process. As such, it is our understanding that the original R4 output serves as the "prior" about which the new inputs would be allowed to vary. Given our understanding, the prior 2020 DIPAW estimates should fall within the range of DIPAW estimates derived from the PESTPP-IES calibration (unless the upper and lower bounds were adjusted during the calibration process). As noted on page 3 herein, they do not.

2. There are a few calibration target wells in the west central part of the basin where model-generated groundwater levels are systematically deviating from the measured data. Correcting these localized systematic deviations may require revisiting assumptions for DIPAW in these areas.

Additional detailed comments are as follows:

R4 Validation

It is our understanding that the R4 model was not changed significantly between the 2020 SYR and the current SYR, other than to update it with more recent data. West Yost validated the R4 model by reviewing the results of recharge and streamflow calibration, updated with data through 2022, at various stormwater capture basins and streamflow gages in the basin.[6] In the west-central part of the Chino Basin, review of the measured and model-generated data indicate that the R4 model is underestimating streamflow which is resulting in underestimates of groundwater recharge.

At the Cucamonga Creek stream gage, comparison of measured and simulated streamflow prior to 2018 showed that the data scatter was centered on either side of the ideal line (see Figure 2 below).

[5] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Appendix B6 Assessment and Evaluation of PESTPP-IES Calibration Results

[6] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Appendix B

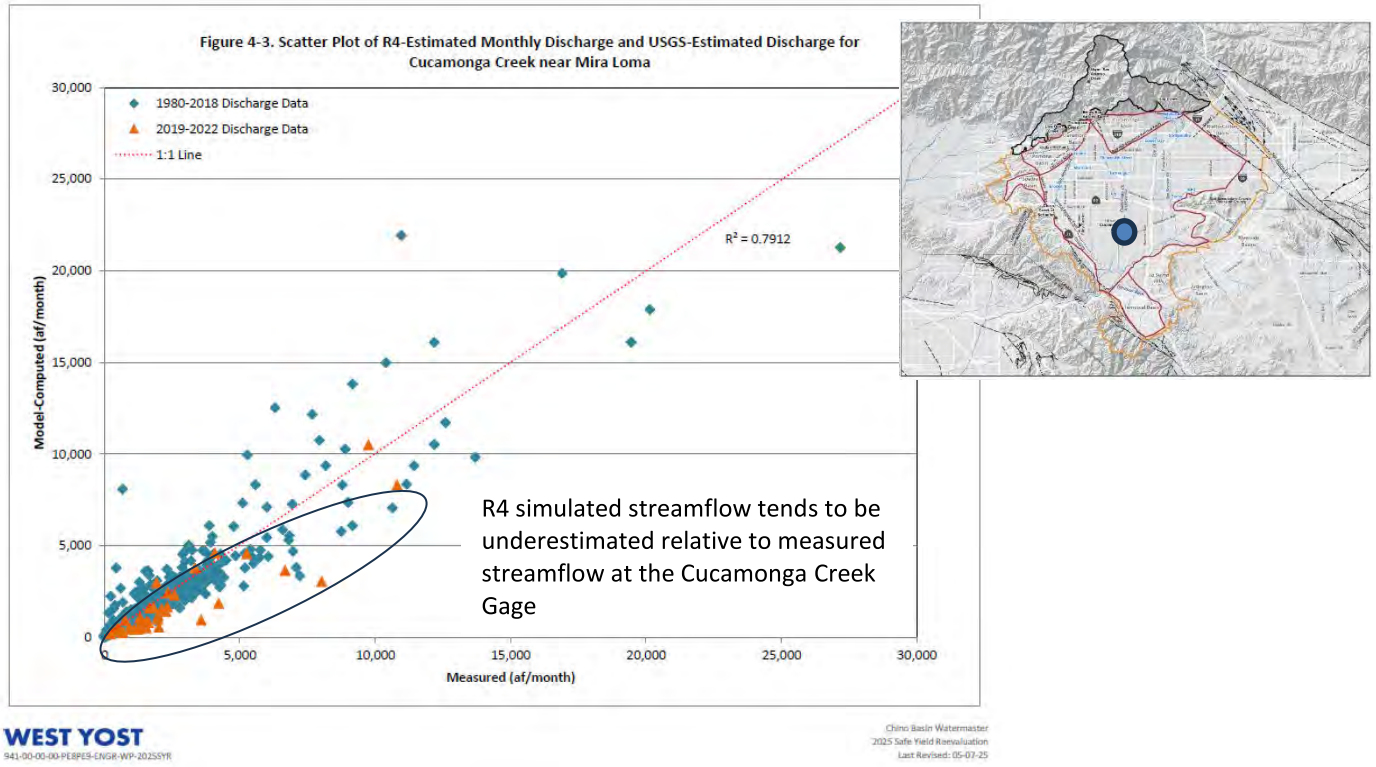


Figure 2. Measured v. Model-Generated Streamflow at the Cucamonga Creek Stream Gage

More recent simulations of streamflow at this gage indicate that the model is underestimating streamflow at this location (see Figure 2). The implication is that there is less water in the model than in the real system, particularly after 2018.

From the groundwater recharge perspective, simulated recharge in stormwater capture basins in the west central part of the Chino Basin is underestimated relative to what has been observed. For example, in the Turner Basin, simulated recharge is consistently underestimated (see Figure 3; Figure B1-6 from the 2025 Safe Yield Reevaluation draft report).

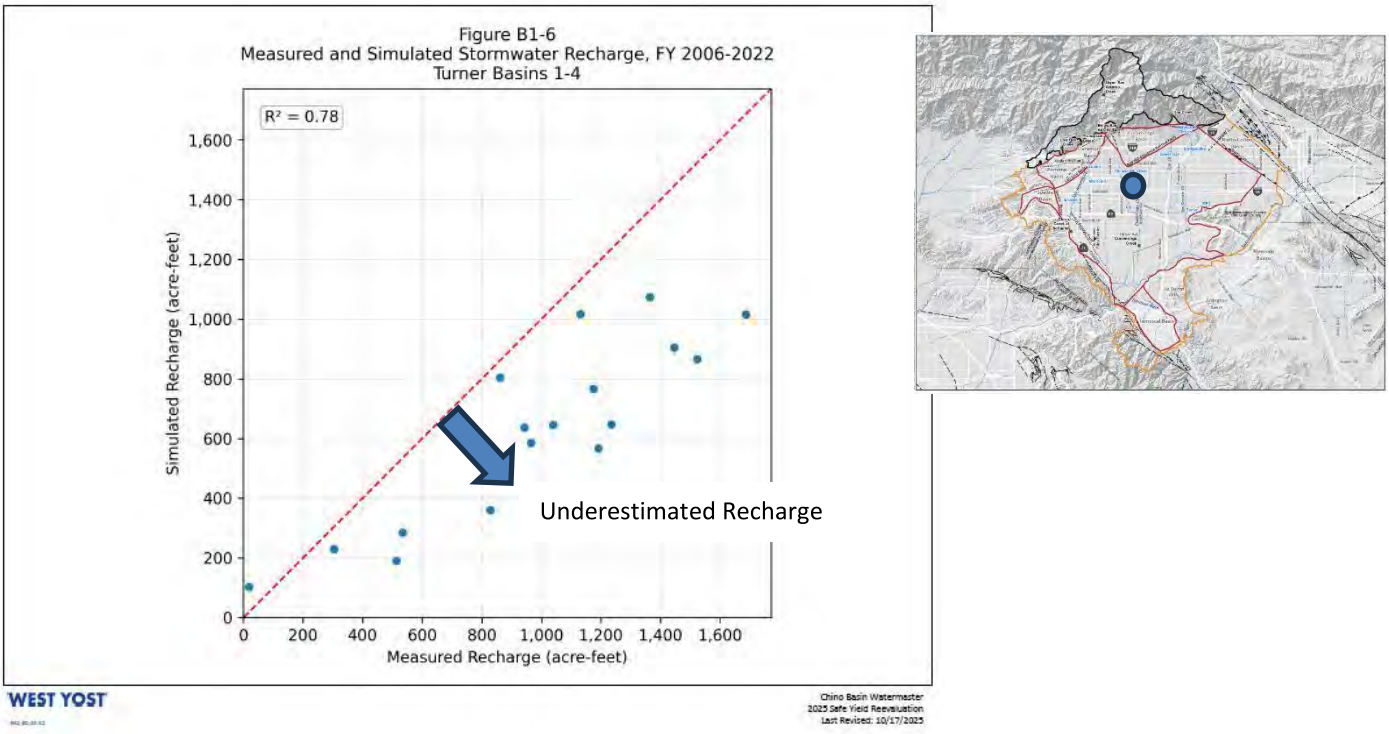


Figure 3. Measured v. Model-Generated Recharge at the Turner Recharge Basins

The same relationship is shown for the Ely Basins (see Figure 4; Figure B1-5 from the 2025 Safe Yield Reevaluation draft report).

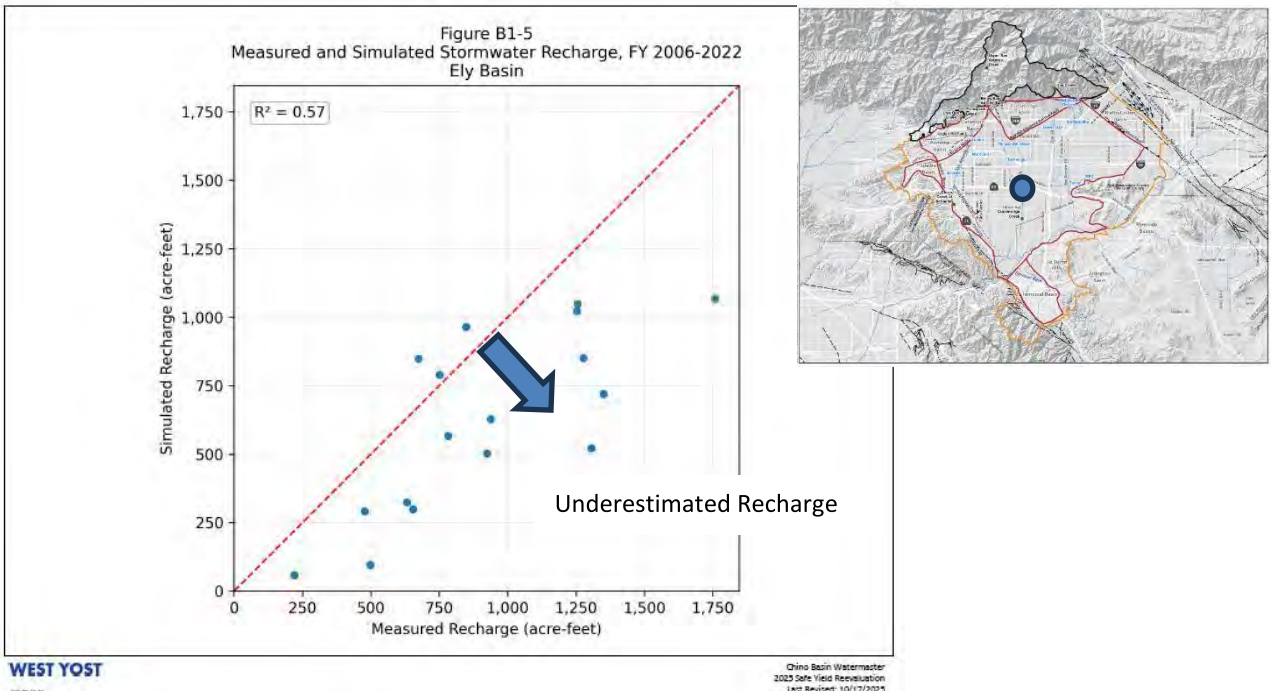


Figure 4. Measured v. Model-Generated Recharge at the Ely Recharge Basins

The implications of underestimated surface water flow and groundwater recharge in the central Chino Basin may have implications for the groundwater flow model calibration in this area, as discussed below.

Groundwater Flow Model (MODFLOW) Calibration

Comparison of measured groundwater levels with model-generated groundwater levels from some wells located in the central part of the Chino Basin shows a systematic divergence whereby measured groundwater levels are rising while simulated groundwater levels are dropping. It is noted that SSP&A noted the same diverging trends at some wells in their peer review letter.[7] As an example, a groundwater level calibration well located in the southwest Chino Basin (Well 1206525) shows an increasing measured groundwater level trend but simulated groundwater levels are dropping (see Figure 5). As groundwater pumping in the Chino Basin is metered (and therefore more certain), the implication here is that groundwater recharge is underestimated in this area. This is consistent with the R4 validation results showing underpredicted recharge in the upgradient recharge basins, described earlier herein.

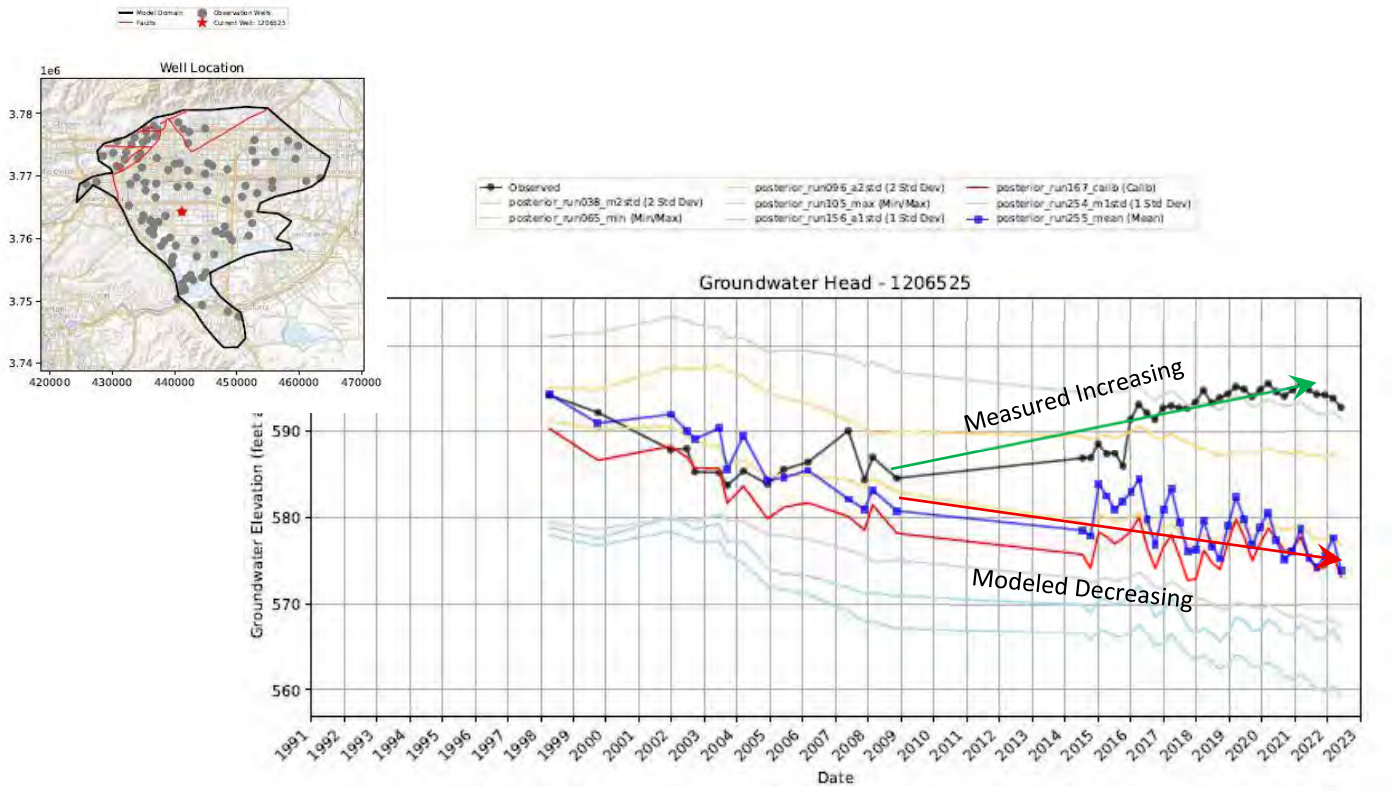


Figure 5. Calibration Well 1206525 showing deviation of measured and model-generated groundwater level trends.

[7] West Yost, 2025. Draft 2025 Safe Yield Reevaluation. Appendix E, pg. 19.

Implications of Localized Model Calibration Issues for DIPAW Estimates

It is our understanding that DIPAW is a direct result of output from the R4 model. Recharge output from the R4 model is used as recharge input to the MODFLOW model recharge package. Thus, it is possible that the same model assumptions that result in underestimates of surface water flow and recharge by the R4 model could result in underestimates in DIPAW. While not confirmed, underestimates of stormwater capture basin recharge and DIPAW could explain the systematic diverging trends in the groundwater level hydrographs at some wells in the central and southwest area of the Chino Basin. This part of the basin still has large areas of agricultural land use (see Figure 6). As noted earlier in this letter, applied water recharge from agricultural land use is not addressed in the draft 2025 SYR report. In addition to answering our questions regarding DIPAW outlined earlier herein, we recommend that West Yost reevaluate the assumptions used in the R4 model to estimate DIPAW particularly in the area of ongoing agricultural land use.

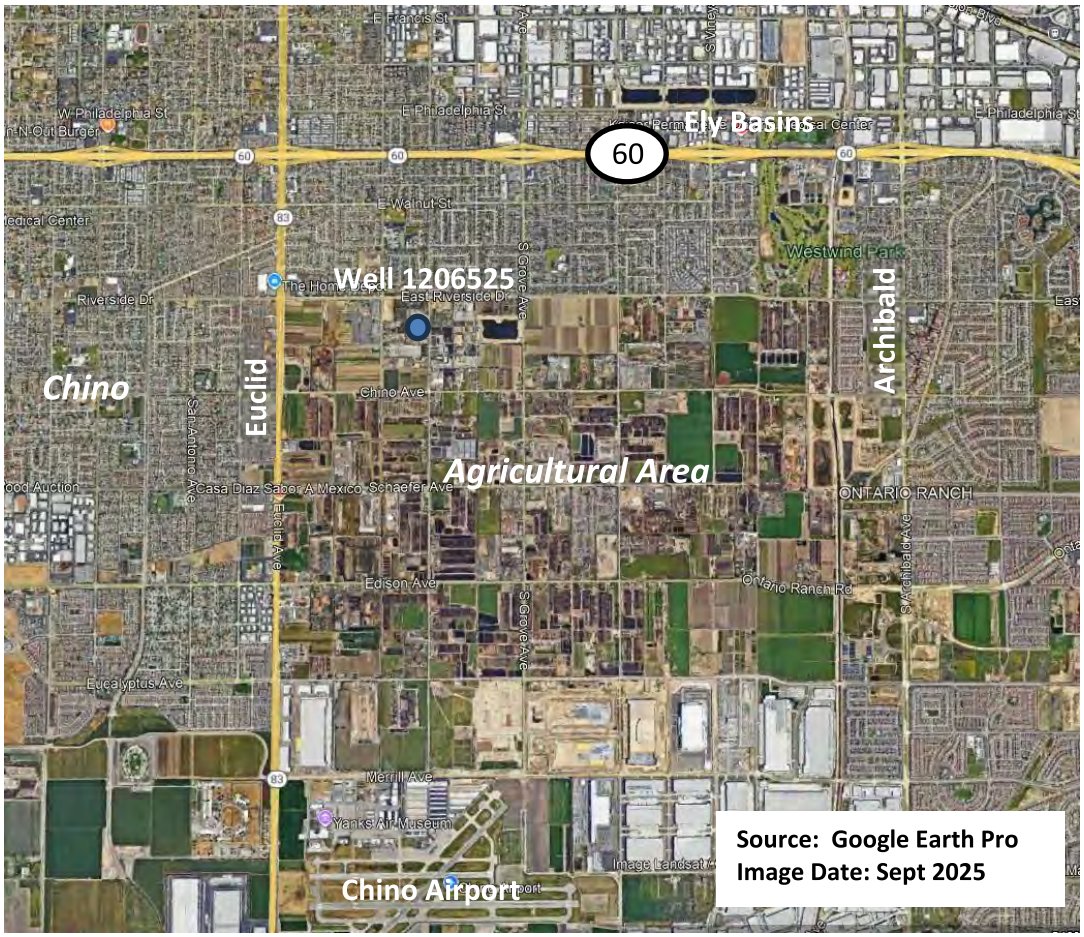


Figure 6. Aerial image of Chino Basin Between Highway 60 and the Chino Airport showing active agricultural area.

Recommendations

In support of answering the questions raised in this letter, we recommend the following prior to finalizing the Safe Yield Reevaluation:

1. Review the assumptions for surface water supply to the R4 model upgradient of the Chino Basin to ensure they are representative (Note: this is also an SSP&A recommendation).
2. Review the assumptions for agricultural applied water recharge to ensure they are representative of local conditions.
3. Provide an individual accounting of precipitation and applied water recharge components of DIPAW in the water budget.
4. We recommend a localized calibration in the areas where modeled groundwater levels show systematic deviations from measured groundwater levels (e.g. Well 1206525). This can be done by adjusting parameters within defendable ranges, including DIPAW, in the areas of concern without running PEST.

We agree with most of SSP&A's recommendations; however, we believe that several can be deferred until the 2030 update. West Yost summarized these recommendations and their proposed approach to address them during their November 6th presentation as shown in Figure 7 below. Specifically, West Yost is proposing to incorporate the near-term recommendations (the lefthand column in the figure) and defer those recommendations listed in the righthand column in the figure.

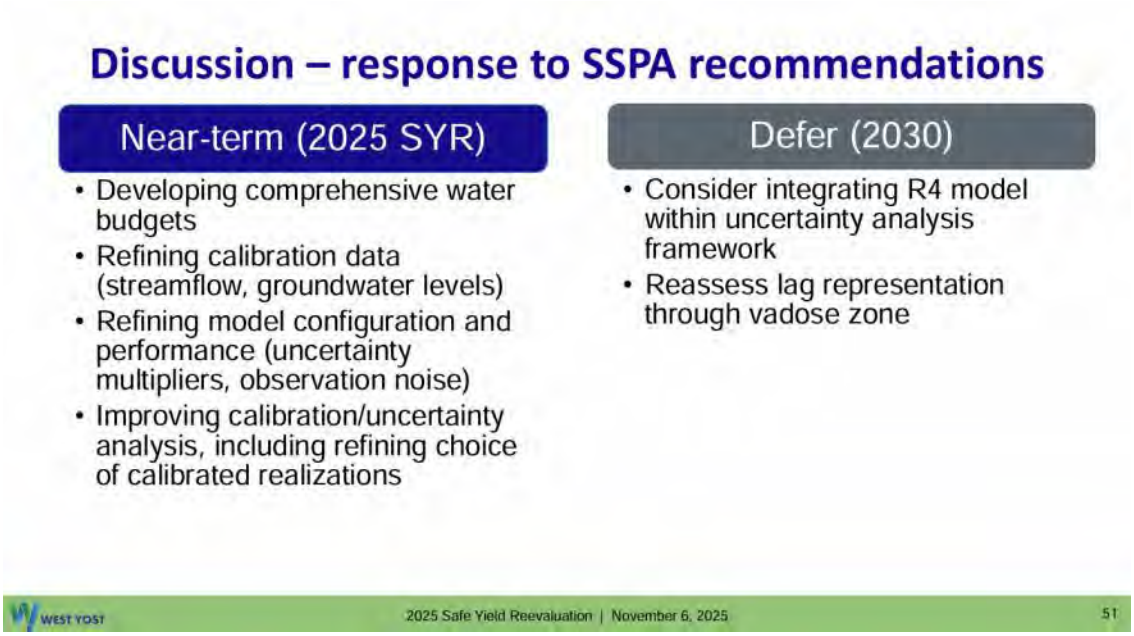


Figure 7. Slide from West Yost November 6th presentation regarding SSP&A recommendations.

We agree with West Yost's proposal to develop comprehensive water budgets and to defer integrating the R4 model within the uncertainty analysis framework and reassess lag representation through the vadose zone. Depending on responses to our questions and comments herein, it may be prudent to defer "refining calibration data", "refining model configuration and performance", and "improving calibration/uncertainty analysis, …" to 2030. We further note that R4 uncertainty and lag representation may be incorporated to some extent via recharge array multipliers but cannot provide a firm assessment regarding this issue without the model and parameter estimation input files.

As always, we appreciate the opportunity to provide our services to you and the Chino Basin Appropriative Pool. If you have any questions, please contact us.

Sincerely,



Jim Van de Water, P.G., C.HG.
Principal Hydrogeologist



Thomas Harder, P.G., C.HG.
Principal Hydrogeologist

E4. Comments on 2025 Safe Yield Reevaluation Draft Report (December 2025)
State of California (Rick Rees, WSP)

Outlook

Comments on 2025 Safe Yield Reevaluation Draft Report

From Rees, Rick <richard.rees@wsp.com>

Date Fri 12/5/2025 1:37 PM

To etellezfoster@cbwm.org <etellezfoster@cbwm.org>; Garrett Rapp <grapp@westyost.com>

Cc Stewart, Craig <craig.stewart@wsp.com>; Carol.Boyd@doj.ca.gov <Carol.Boyd@doj.ca.gov>; Medrano, Jaime@CDCR <Jaime.Medrano2@cdcr.ca.gov>; 'Tariq.Awan@cdcr.ca.gov' <Tariq.Awan@cdcr.ca.gov>; Imelda.Cadigal@cdcr.ca.gov <Imelda.Cadigal@cdcr.ca.gov>; Callahan, Lewis@CDCR (Lewis.Callahan@cdcr.ca.gov) <Lewis.Callahan@cdcr.ca.gov>; Maeda, Michael@CDCR <michael.maeda@cdcr.ca.gov>; Farrell, Jennifer@CDCR <Jennifer.Farrell@cdcr.ca.gov>

Hello Edgar and Garrett,

WSP, on behalf of the State of California, submits the following comments on the Draft 2025 Safe Yield Reevaluation Report (2025 SYR Report):

- Table 4-7. Footnote (a) of the table states that “Components not shown include groundwater pumping and managed aquifer recharge. These components are derived from historical data and, other than minor revisions, are not different between the 2020 CVM and 2025 CVM.” (2025 SYR Report, p. 4-41.) We suggest including these components for completeness. Providing the information would document “the minor revisions.”

- Section 4.3.2.3, Summary of Water Budget (Figures 4-25 through 4-27). This section shows some components of the water budget in graphical format for the 2020 CVM and for the 2025 CVM Min-Max range and 2025 CVM mean. (2025 SYR Report, pp. 4-43 through 4-45.) The 2020 SYR report included tables of all of the water budget components for the calibration period and for the projection period. We suggest including similar water budget tables to allow comparison of the 2020 CVM SYR estimates with the 2025 CVM mean, and if feasible, with water budget components of the likelihood weighted average.

- Section 7.3.1, Summary of Findings, third paragraph. The paragraph states that managed storage is impacted by Reoperation credits and Safe Yield. The paragraph further explains that Reoperation credits will no longer be available after 2030 and that producing water from managed storage can result in a greater-than-accounted decline in physical storage when the managed storage was derived from an estimated Safe Yield that was greater than actual average net recharge. (2025 SYR Report, p. 7-4.) We agree. We would add that this potential for greater-than-accounted decline in physical storage can be calculated using the annual net recharge from the calibrated model, the court-approved Safe Yield, and the amount of unused Safe Yield placed in storage each year. Reporting this value for the period since the prospective Safe Yield methodology was adopted may be helpful in illustrating how the use of managed storage can contribute to a decline in physical storage that exceeds what is calculated based on managed storage and Safe Yield (rather than on managed storage and actual net recharge). We understand that under the current methodology for calculating Safe Yield, future droughts will add to this value and above average precipitation years will reduce this value.

- Appendix E-1, Response to Recommendations from SSP&A Peer Review Report, Recommendation 8, “Avoid calibrating multipliers for DIPAW and lateral inflow” and West Yost’s response to this comment. (2025 SYR Report, Appendix E-1, p. E-3). We concur with West Yost’s response that the use of calibrating multipliers for DIPAW and lateral inflow is a reasonable approach to account for uncertainties in these water balance components in the current modeling effort.

Thank you for the opportunity to submit these comments. Please let us know if you have any questions or would like to discuss.

Rick Rees

G. Richard Rees, PG 6612, CHG 704
Principal Hydrogeologist

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E5. 2025 Safe Yield Reevaluation Draft Ontario Comments (December 2025) City of Ontario

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CITY MANAGER

December 5, 2025

Garrett Rapp, Senior Engineer - West Yost
Edgar Tellez Foster, Water Resources Manager and Planning Director
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730
Email: grapp@westyost.com and etellezfoster@cbwm.org

2025 Safe Yield Reevaluation Draft Ontario Comments

Dear Mr. Rapp and Mr. Tellez Foster,

On November 6, 2025, West Yost presented the Draft 2025 Safe Yield Reevaluation (SYR) to the Chino Basin Watermaster (Watermaster) stakeholders. Results from the West Yost analysis and subsequent peer review revealed a significant decline in Safe Yield of 13,500 acre-feet, the largest decline in the basin's history. The City of Ontario (Ontario) appreciates the opportunity to comment on this draft.

During the presentation, stakeholders noted that a figure in the report - *Figure 6-8 (Comparison of DIPAW,* p. 143) - depicts Deep Infiltration of Precipitation and Applied Water (DIPAW) stabilizing overtime rather than exhibiting a continued downward trend. This characterization appears to differ from earlier statements suggesting that the decline in Safe Yield is driven, in part, by a steady decline in DIPAW. During the September 18, 2025, Advisory Committee peer-review presentation, S.S. Papadopulos & Associates (SSPA) confirmed the relationship. In that discussion, Ontario inquired about what the DIPAW multiplier accounted for, and SSPA advised against using calibrating multipliers for purposes of refining the Safe Yield. West Yost has documented this recommendation in the current draft report.

Looking ahead, this observation creates a constructive opportunity to collaborate on enhancing future analysis and documentation. It may be useful to explore further how DIPAW trends are being represented, how they inform and correlate to Safe Yield, and how any refinements or clarifications can be incorporated into subsequent analytical cycles.

Thank you for your consideration on this matter.

Sincerely,

Chad Nishida, P.E.
Water Resources Manager

cc: Scott Burton, Utilities General Manager
Courtney Jones, Deputy General Manager

E6. 2025 Draft Safe Yield Reevaluation Report Comments (December 2025)
Monte Vista Water District

Monte Vista
Dedicated to Quality, Service and Innovation
Justin Scott-Coe, PhD, CSDM
GENERAL MANAGER

December 17, 2025

Edgar Tellez-Foster, Chino Basin Watermaster
Garrett Rapp, West Yost
By email: etellezfoster@cbwm.org and grapp@westyost.com

2025 Draft Safe Yield Reevaluation Report

Dear Mr. Tellez Foster and Mr. Rapp,

Monte Vista Water District appreciates this opportunity to provide comments on the above-referenced draft report. We acknowledge that our comments are submitted after the December 5, 2025, deadline and appreciate your consideration. We also acknowledge and fully support the comments, recommendations, and requests already provided by the Appropriative Pool, Jurupa Community Services District, and City of Ontario, including the Appropriative Pool's unanimous determination on December 11, 2025, that the technical analysis work for the 2025 Safe Yield Reevaluation (SYR) is not yet complete.

Monte Vista Water District has consistently expressed concerns regarding Watermaster's approach to the 2025 SYR. The 2025 SYR stems from the 2017 Court Order requiring Watermaster to "cause the Basin model to be updated and a model evaluation of Safe Yield, in a manner consistent with the Reset Technical Memorandum, to be initiated no later than January 1, 2024, in order to ensure that the same may be completed by June 30, 2025." In the 2020 Court Order adopting the findings of the 2020 Safe Yield Recalculation Report, Judge Reichert provides a glowing review of the Report and its "proven" methodology that has "stood the test of time," and specifically critiques the City of Chino's argument for an uncertainty analysis:

> "Chino's argument would lead to a range of Safe Yields with no particular basis for the selection of one over another. There is no logical basis on which the court could make that decision. It would result in a lengthy trial and analysts experts' opinions of varying opinions. The weight that the court gives to Wildermuth evaluation as proven itself and stood the test of time. Therefore the court selects that one."

Water District
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Sandra S. Rose, PRESIDENT
G. Michael Milhiser, VICE PRESIDENT
Tony Lopez, DIRECTOR / BOARD AUDITOR
Philip L. Erwin, DIRECTOR
Manny Martinez, DIRECTOR

Nevertheless, Watermaster decided to set aside this proven methodology and, instead, to adopt a new methodology – previously panned by the Judge – for use in conducting its required mid-term model update and Safe Yield evaluation. This introduced further complexity and, shall we say, uncertainty into an already complicated and litigious process. Along the way, the District has attempted to point out issues with Watermaster's implementation of its new methodology, from illogically formulated and weighted scenarios to inappropriately adjusted demand projections, that threaten to bear out Judge Reichert's skepticism.

The result of this mid-term evaluation, using a new methodology to update the Chino Valley Model, is an estimated reduction of 2021-2030 Safe Yield that is ***more than quadruple*** the size of the original Safe Yield reduction set by the Court in 2020 (2020: 135,000 – ***4,000*** = 131,000; 2025: 135,000 – ***17,500*** = 117,500). The 2025 Draft Report recognizes the difference between the 2020 and 2025 model calculations, but its attempt to explain why two versions of the same model would generate such diverse results is currently inadequate. Importantly, the independent peer review of the 2025 SYR recognizes that the sizable reduction in Safe Yield "represents a significant change that has important implications for stakeholders who rely on Safe Yield to guide basin management, pumping rights, and replenishment obligations." Such a significant change has not yet been adequately explained or validated.

Watermaster's stakeholders, and especially the municipal water providers that comprise the Appropriative Pool, have already expended substantial public resources on Watermaster's efforts to develop a new Safe Yield Reset methodology and to update its model. Unfortunately, the widely divergent results between the 2020 and 2025 models calls for further technical evaluation. We look forward to the Appropriative Pool's technical consultant working with Watermaster on a recommended scope of work to implement, as cost-effectively as possible, recommendations to improve the model and achieve a reasonable reevaluation of Safe Yield.

Sincerely,

Monte Vista Water District

Justin M. Scott-Coe
General Manager/CEO

cc: Watermaster Stakeholders via Ruby Favela Quintero, Chino Basin Watermaster
By email: RFavelaQuintero@cbwm.org

E7. Comments to the CBWM Draft Report on the 2025 Safe Yield Reevaluation (December 2025) Jurupa Community Services District

Jurupa
COMMUNITY SERVICES DISTRICT
Proudly serving Jurupa Valley and Eastvale

December 5, 2025

VIA EMAIL
Chino Basin Watermaster
9641 San Bernardino Road
Rancho Cucamonga, CA 91730
Attn: Edgar Tellez Foster (etellezfoster@cbwm.org)

Re: Comments to the CBWM Draft Report on the 2025 Safe Yield Reevaluation

Dear Edgar:

We write to request that Watermaster provide and/or obtain from the Court additional time to allow the parties to fully review and engage in substantive discussions regarding the evaluation of the of Safe Yield with the updated model ("2025 SYE"). Additional time is necessary to allow the Appropriative Pool ("AP") to provide Watermaster meaningful advice before Watermaster reports to the Court on the 2025 SYE.

As you know, the Court's April 28, 2017 Orders for Watermaster's Motion Regarding 2015 Safe Yield Reset Agreement, Amendment of Restated Judgement, Paragraph 6 ("2017 Court Order") required that Watermaster evaluate and update the Chino Valley Model and conduct an evaluation of the of Safe Yield with the updated model by June 30, 2025. (2017 Order, § 4.6, pp. 17-18.) Watermaster shared the preliminary model estimates on March 27, 2025, identifying a substantial decrease in the safe yield, which prompted a request for peer review. In May 2025, Watermaster developed a scope of work and began a search to retain an expert to conduct that peer review. Considering this, Watermaster asked the Court to extend its deadline to complete the 2025 SYE to October 31, 2025, which the Court granted. Watermaster has since retained S.S. Papadopulos and Associates ("SSPA") to complete the peer review. SSPA issued a Draft Peer Review of the 2025 SYE dated October 16, 2025. On October 29, 2025, Watermaster circulated the initial Draft 2025 SYR Report and Appendices ("Draft Report"). Watermaster hosted a workshop to address this initial draft on November 6, 2025, and on Monday, November 24, 2025, circulated a slightly revised draft of the Draft Report. Although Appendix E-1 to the SSPA's Draft Peer Review Report details West Yost's responses to the recommendations made by SSPA, including recommendations to address certain recommendations in the current 2025 SYE, any such revisions made in the revised draft are not highlighted or otherwise identified.

Nevertheless, Watermaster requested any comments to the Draft Report be submitted less than two weeks later, by Friday, December 5.

The AP retained Tomas Harder & Co. to assist in the review and analysis of what is now a 218-page Draft Report and 606 pages of appendices. On December 5, 2025, the Appropriative Pool submitted a ten-page letter raising several comments and questions regarding the Draft Report. We share these comments and questions, and respectfully request that Watermaster provide time sufficient to allow West Yost, SSPA, and/or Watermaster to respond to these comments and questions, and for the parties to digest and potentially continue a dialogue to ensure that all affected parties have a fair opportunity to understand the basis for the significant purported change in the Safe Yield over such a relatively small period of time and the import and steps appropriate in response to the modeling.

We note that the report states that the differences between the 2020 and 2025 models "are not attributable to any single factor but reflect refinements in the model processes that more accurately represent the range of possible conditions in the 2025 CVM." (Draft Report, § 4.3.2, p. 4-42.) Table 6-3 appears to indicate that the modeling projects net recharge to decrease through FY 2031-2040, but then increase for FY 2041-2050. Ultimately, we need to understand the basis for the current and change and whether that basis provides any reason for a more moderated approach to assessing the safe yield over time. To plan for our customers' future water needs, we need to have a better understanding of whether continued refinements in the modeling process will result in such extreme changes moving forward, what actions or inactions could further reduce the safe yield, and how we can utilize modeling results to take measures to optimize or maximize the safe yield on a move-forward basis.

The additional time we are requesting is necessary to provide opportunity for JCSD and other parties to analyze these reports and to meaningfully to engage in the Watermaster process before Watermaster submits anything regarding the 2025 SYE to the Court for potential approval.

Sincerely,

Chris Berch, P.E.

cc: Garrett Rapp (grapp@westyost.com)
Todd Corbin (tcorbin@cbwm.org)
Chris Diggs (chris.diggs@pomonaca.gov)

E8. Responses to Comments on May 2026 Draft of the 2025 Safe Yield Reevaluation Report

COMMENTS AND RESPONSES FROM STATE OF CALIFORNIA/WSP (RICHARD REES, PG, CHG)

Comment 1 – General Comment

We greatly appreciate the efforts made by the Parties, Watermaster, and Watermaster's Engineer in improving the Safe Yield Reset Methodology in 2022 and improving the Chino Valley Model (CVM) model to account for uncertainty in the model parameters and future conditions that may affect Safe Yield or cause material physical injury. We believe the improvements will enhance Watermaster's ability to prevent overdraft, avoid undesirable results, and manage groundwater sustainability in the Chino Basin into the future.

Response:

Comment noted. Watermaster appreciates the State's engagement in the 2025 SYR process.

Comment 2 – General Comment

Appendix A – The difference in recharge from DIPAW overlying the MODFLOW Domain between the Runoff/Rootzone model and the MODFLOW RCH package was attributed to the approximation of spatially varying lag time in the Runoff/Rootzone model. Could the difference also be partially attributable to MS4 recharge or similar source(s) of recharge not accounted for in the Runoff/Rootzone model? In other words, how MS4 recharge is implicitly accounted for though the model calibration process? Note also the typo "MODLFOW" in Table A-13.

Response:

The water budgets in Appendix A were intended to demonstrate that the outputs from the component models of the CVM are reasonable and properly translated into required inputs to other model components. In this case, the comparison is between DIPAW to the vadose zone estimated by the Runoff/Rootzone model and DIPAW to the saturated zone applied to MODFLOW through the RCH package for calibrated realization C.

The difference between these two water budget terms reflects the combined effect of translating Runoff/Rootzone recharge to the MODFLOW RCH package and applying calibrated spatial multipliers to the recharge input. These multipliers allow the groundwater-model calibration to account for uncertainty in the magnitude and spatial distribution of recharge. Therefore, although the difference could reflect uncertainty in recharge processes generally, the available data do not support attributing the difference to MS4 recharge or to any other specific recharge source.

The CVM does not explicitly assign recharge to individual MS4 projects or separately quantify MS4 recharge. However, to the extent that existing MS4 facilities and similar features affect observed runoff, streamflow, soil moisture, infiltration, and groundwater-level responses, their aggregate effects may be reflected in the calibrated model behavior. This does not imply that the difference between the Appendix A water-budget terms represents MS4 recharge. Rather, the calibration adjustments represent

aggregate uncertainty in recharge magnitude and distribution, not a separate accounting of MS4 recharge or other individual recharge sources.

Accordingly, the Appendix A comparison should be interpreted as a consistency check on the translation of Runoff/Rootzone-estimated DIPAW to the MODFLOW RCH package, including calibration adjustments. The comparison does not provide a basis for attributing the difference to any specific recharge source. The typo in Table A-13 has been corrected in the final report.

Comment 3 – Specific Comment

Figure 4-19 – The subheader to the figure title "Pilot Point Scenario 3,…" does not make sense based where this figure is introduced in the text. Should this be "Pilot Point Scenario 5,..?"

Response:

You are correct. This is updated in the final report.

COMMENTS AND RESPONSES FROM APPROPRIATIVE POOL/THOMAS HARDER & COMPANY (THOMAS HARDER, PG, CHG)

Comment 1

I appreciate the opportunity to work with the Chino Basin Watermaster, your consultant West Yost, and your peer reviewer S.S. Papadopoulos and Associates to address our comments to the Draft Safe Yield Reset work. My feeling is that the process was transparent and collaborative, and West Yost was responsive to our concerns regarding the original draft report. I also believe that the Safe Yield estimate resulting from the effort is more representative of basin conditions than previous estimates.

Response:

Comment noted. Watermaster appreciates the Appropriative Pool's engagement and participation throughout the 2025 SYR process.

Comment 2

Through the Safe Yield Reset process, it has become apparent that the historical decline in the Deep Infiltration of Precipitation and Applied Water (DIPAW) inflow term of the Chino Basin water budget is a primary reason for the recent reduction in the Safe Yield of the basin. The primary cause of this reduction is likely the land use change from agriculture to urban conditions observed after approximately 1998 and the associated paving and construction over bare soil that previously facilitated recharge. Historically, the Chino Basin has developed a Recharge Master Plan to identify recharge opportunities, such as from captured storm flow runoff, to capture and recharge more water that is flowing out of the basin. It is recommended that the Watermaster initiate studies and/or revisit previous studies to identify options to replace the lost recharge associated with the land use changes that have occurred in the basin.

Response:

The 2025 SYR confirms that the long-term decline in DIPAW is a primary driver of the reduction in Safe Yield, and that this decline is largely related to historical land-use change from agricultural to urban conditions. Watermaster is required to update the Recharge Master Plan every five years, with the next update commencing in Fiscal Year 2026/27 and scheduled for completion in Fall 2028.

As noted in Section 7 of the 2025 SYR Report, Watermaster recommends using the Recharge Master Planning process to evaluate opportunities to enhance recharge in the Basin and potentially mitigate historical declines in Safe Yield. This process will provide an appropriate forum to evaluate recharge opportunities, including stormwater capture, recharge facility improvements, and other projects that could increase locally available recharge. Watermaster appreciates the Appropriative Pool's input and looks forward to its continued engagement in that process.

Comment 3

Prior to the next Safe Yield Reset, it is recommended to revisit the Safe Yield redetermination methodology, not in the interest of wholesale changes, but as a means of making sure the process is as efficient as possible while allowing for new scientific and technical advances to be incorporated to the extent that they provide for a more representative Safe Yield estimate.

Response:

Consistent with the scoping process for the 2025 SYR and prior Safe Yield recalculations, Watermaster will solicit input from the parties before initiating the 2030 Safe Yield Recalculation. That process will provide an opportunity to evaluate whether targeted refinements to the Safe Yield methodology are warranted to improve efficiency, incorporate new scientific or technical information, and continue supporting a representative estimate of Safe Yield.

Comment 4

I recommend that the Watermaster reconsider its moratorium on release of the Chino Valley Model files to the Appropriative Pool and their consultants. A thorough independent evaluation of model analyses by Watermaster staff cannot be conducted without having access to these files. It is my understanding that Watermaster may be concerned that 3rd party reviewers change the files to suit a certain outcome. But these changes can easily be identified through modern file comparison software and pointed out by Watermaster staff and/or consultants. Access to the model files for independent review will allow for more meaningful feedback to Watermaster consultants on the efficacy of any analyses to improve the Safe Yield of the basin.

Response:

Watermaster recognizes the importance of transparency and meaningful stakeholder review of model analyses. During the 2025 SYR process, Watermaster provided extensive technical documentation, model results, water budgets, calibration information, and opportunities for review and discussion with the parties and peer reviewers. Access to the model is the subject of a Watermaster Board resolution,

approved by the Court, and is beyond the technical findings of the 2025 SYR. Accordingly, concerns regarding access to the model are more appropriately addressed separately from finalization of the 2025 SYR Report.

COMMENTS AND RESPONSES FROM CITY OF ONTARIO (CHAD NISHIDA, PE)

Comment 1

As depicted in the report - *Figure 6-17 (Likelihood-Weighted Exceedance Curve,* p. 159) - abrupt stepwise decreases in average net recharge near the 25% and 75% probabilities of exceedance were revealed. Subsequent correspondence from WY indicated that these features result from reduced variability and increased separation among climate scenario groups. Nevertheless, this pattern was not evident in prior iterations of the analysis and represents a notable change in the characterization of projected net recharge uncertainty. The observed discontinuities range from 4,000-6,000 AFY between climate scenario groups, which is significant. If the transitions were smoothed, or alternatively, if the wet- and dry-climate scenario results were connected, would the resulting envelope establish a range of potential recharge outcomes? The area between these bounds appears to represent a spectrum envelope of plausible future recharge conditions and may provide a more readily understandable depiction of manageable uncertainty compared to a discrete step change between climate scenario groups. As with *Figure 4-17 (Simulated Net Recharge for Chino Basin, p. 37),* Ontario suggests depicting net recharge as a range, with associated minimum and maximum values for consideration. Ontario requests clarification and consideration of the impact when considering prudent management discretion.

Response:

The Projection Ensemble was developed to evaluate a discrete set of plausible future conditions, not to produce a smooth distribution of projected net recharge. The stepwise pattern in Figure 6-17 reflects the discrete structure of the ensemble and the separation between climate scenario groups. The differences among climate scenarios are apparent in the Projection Ensemble, particularly for FY 2021 through 2030, when projected net recharge is strongly influenced by assumed rainfall over the remainder of the decade.

The stepwise changes in the exceedance curve should not be interpreted as thresholds or abrupt changes in Basin behavior. They reflect the distribution of the modeled scenarios included in the Projection Ensemble. It is possible that additional scenarios, if developed between the climate scenario groups, could produce net recharge values between the plotted steps. However, interpolating or smoothing the curve would imply a continuous probability distribution that was not explicitly simulated and could overstate the precision of the analysis.

The results shown in Figure 6-17 are intended to support comparison of the likelihood-weighted average net recharge with other reference values, including the current Safe Yield and the range of projected outcomes from the ensemble. The minimum and maximum values from the ensemble are available in the underlying results and are reflected in the plotted curve.

The 2022 Safe Yield Reset Methodology requires development of a Projection Ensemble and determination of the Tentative Safe Yield based on the likelihood-weighted average net recharge from that ensemble; it does not provide for determining or presenting Safe Yield as a range. Therefore, while the range of ensemble results is useful for understanding uncertainty and informing management discretion, it does not replace the likelihood-weighted average as the basis for determining the Tentative Safe Yield.

Comment 2

Ontario appreciates the stakeholder input and looks to modeling as a tool aiding future decision making. With the potential decline in Safe Yield and Peace II Agreement expiring in 2030 (i.e., Desalter Replenishment Obligation re-operation water), the Appropriative Pool annual production right will be significantly affected. The proposed significant reduction in Safe Yield could also affect existing and future Storage and Recovery programs, potentially resulting in changes in storage operations and requiring further evaluation of potential material physical injury if locally available supplies are not retained within the Basin. Such impacts raise important considerations regarding long-term water supply reliability, regional drought preparedness, and the sustainable management of Basin resources for current and future water users.

Response:

The 2025 SYR recognizes that a reduction in Safe Yield, the expiration of Reoperation credits after 2030, and future use of storage may affect Basin operations and long-term water supply planning. The revised report includes additional discussion of these issues in Section 7, including recommendations for storage management planning, recharge master planning, and operational optimization to help Watermaster and the parties evaluate future Basin operations while avoiding Material Physical Injury. These recommendations are intended to support future decision-making regarding pumping, recharge, storage, and recovery operations under the updated Safe Yield.

CHINO BASIN WATERMASTER
Case No. RCVRS 51010
Chino Basin Municipal Water District v. City of Chino, et al.

PROOF OF SERVICE

I declare that:

I am employed in the County of San Bernardino, California. I am over the age of 18 years and not a party to the action within. My business address is Chino Basin Watermaster, 9641 San Bernardino Road, Rancho Cucamonga, California 91730; telephone (909) 484-3888.

On October 14, 2026, I served the following:

1. EXHIBIT B (APPENDIX E)
   TO DECLARATION OF GARRETT RAPP IN SUPPORT OF MOTION REGARDING 2025 SAFE YIELD REEVALUATION, AMENDMENT OF RESTATED JUDGMENT, PARAGRAPH

/ X / BY MAIL: in said cause, by placing a true copy thereof enclosed with postage thereon fully prepaid, for delivery by the United States Postal Service mail at Rancho Cucamonga, California, addresses as follows:
See attached service list: Mailing List 1

/___/ BY PERSONAL SERVICE: I caused such envelope to be delivered by hand to the addressee.

/___/ BY FACSIMILE: I transmitted said document by fax transmission from (909) 484-3890 to the fax number(s) indicated. The transmission was reported as complete on the transmission report, which was properly issued by the transmitting fax machine.

/ X / BY ELECTRONIC MAIL: I transmitted notice of availability of electronic documents by electronic transmission to the email address indicated. The transmission was reported as complete on the transmission report, which was properly issued by the transmitting electronic mail device.
See attached service list: Master Email Distribution List

I declare under penalty of perjury under the laws of the State of California that the above is true and correct.

Executed on October 14, 2026, in Rancho Cucamonga, California.

By: Ruby Favela Quintero
Chino Basin Watermaster

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