Review of GMA 14 Joint Planning Groundwater Model

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Objectives

- Review GULF Model (Knight et al, 2023).
- Review model revisions undertaken by Lone Star GCD.
- Document findings in a report.

Knight, J.E., Ellis, J.H., White, J.T., Sneed, M., Hughes, J.D., Ramage, J.K., Braun, C.L., Teeple, A.P., Foster, L., Rendon, S.H., Brandt, J., Duncan, L.L., Traylor, J.P., and Pattison, C.N., 2023, MODFLOW 6 model and ensemble used in the simulation of groundwater flow and land-surface subsidence in the northern part of the Gulf Coast aquifer system, 1897–2018: U.S. Geological Survey data release, https://doi.org/10.5066/P9XM8A1P.

GULF Review

- Model is well documented, and all the relevant files are readily available
- Like most models, there are certain aspects that can be improved
  - » Groundwater head calibration
  - » Subsidence calibration
  - » Groundwater pumping
  - » Uncertainty estimation

GMA14 Model Review

- The revised model is referenced here as the GMA14 Model.
- Continual engagement to provide review and feedback to the development and calibration team.

GMA14 Model Changes

- Temporal discretization
- Groundwater observations
- Groundwater pumping
- Aquifer properties
- Subsidence/interbed clay properties

Review Documentation

- Ongoing