ASSESSMENT OF SAFE AQUIFER YIELDS WITHIN THE SALT BASIN IN NM AND TX.

Elizabeth Evenocheck$^1$ and Mark Person$^2$

$^1$New Mexico Tech, Socorro, NM, 87801, Elizabeth.Evenocheck@student.nmt.edu
$^2$New Mexico Tech

The Bureau of Reclamation and the New Mexico Interstate Stream Committee is trying to assess the available groundwater resources within the Salt Basin. This basin is situated to the east of the Rio Grande extending from southern New Mexico into northwestern Texas. It is a large, sparsely populated, semi-arid, and hydrologically closed basin. The goals of this study are to determine the water budget and how much water can be sustainably pumped. A secondary goal is to determine if a new well field on the New Mexico side of the basin can maintain safe aquifer yields. A three-dimensional numerical groundwater flow model is being developed to answer these questions. Currently, a steady-state model is being calibrated to observed water levels and stream fluxes. Once the steady-state calibration is complete, a transient model will be developed, and finally scenarios will be run to determine safe aquifer yields. Prior studies have estimated recharge to range between 29,000 acre-feet/year to 142,112 acre-feet/year. These discrepancies are similar for evaporative discharge and hydraulic conductivities. Our work aims to more accurately define recharge, evapotranspiration and hydraulic conductivity using inverse modeling.

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