Abstract Title (12 Times New Roman) Two Line Maximum (Cap First Word & Proper Nouns)

Student Name in Italic, Ty Ferré and Co-Author[1]

Hydrology and Atmospheric Sciences
The University of Arizona

Body of Abstract

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- Word count no more than 200 words.
- Add footnote if co-author is not in the same department as student.

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[1]Co-Author's Institute, Department & Location

Optimal use of ground-based gravity and piezometer-response data in constraining a ground-water flow model

Jeff T.Cordova, T.P.A.Ferré, and M.C.Hill[1]

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Geophysical methods offer potential benefits for hydrologic investigations because they incorporate noninvasive, non-destructive measurements that are hydrologically relevant. Few formal assessments of the utility of geophysical data for constraining hydrologic models, however, have been done. This study compares the utility of relative-gravity measurements to the utility of water-level measurements for constraining aquifer parameters in a model of transient ground-water flow in an unconfined aquifer. Water-level responses to pumping in a homogeneous aquifer are simulated using the computer program MODFLOW 2000. Gravitational responses at land surface are calculated from these water-level responses on the basis of the change in water storage throughout the domain. The infinite slab approximation is then used to invert these gravity responses to water-level measurements. All water-level and gravity observations and inverted water-levels are used to constrain the aquifer storage coefficient and transmissivity using the computer program UCODE. Results demonstrate that the estimated aquifer parameters are comparable when the quantity of gravity measurements is equal to the quantity of water-level measurements. Aquifer parameters computed from the inverted water-levels were not comparable to the aquifer parameters computed from observed water levels.

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