Challenge: Changes in groundwater-levels can reflect very relevant water issues in the arid southwest, such as variations in nearby surface-water flows, fluctuations in aquifer recharge, and changes in groundwater storage. As collaborators from New Mexico Bureau of Geology and Mineral Resources (NMBGMR) at New Mexico Tech, U.S. Geological Survey (USGS), New Mexico Office of the State Engineer (NMOSR), and New Mexico State University (NMSU), we seek to address the groundwater storage component of the Statewide Water Assessment initiated and funded by the New Mexico Water Resources Research Institute.

Our objective is to quantify changes in groundwater-levels and groundwater storage in regions of New Mexico. We are currently compiling high-quality groundwater-level data into an ArcGIS-database. We will then use these data to develop regional groundwater-level change contour maps over selected time intervals. The intervals of assessment are based on the frequency of the measurements for the particular region, such as 5 to 10 year intervals. Finally, we will use the contour maps and estimates of aquifer properties to quantify regional changes in groundwater storage.

We are in the data compilation phase of this project. The interpretation of groundwater-level measurements is complicated by the irregular spatial and temporal distribution of the data and New Mexico’s complex geology. In some regions, our study highlights data gaps where future work is needed. Documenting changes in groundwater-levels can identify areas where water-quality changes may be imminent, may help initiate additional water conservation efforts, and provides the State with a useful tool for groundwater quantity and quality management.

**Why Assess Groundwater Levels?**

Water in New Mexico is scarce. We currently rely on groundwater for approximately 50% of our water supply (Langworth et al., 2013). Models of surface-water flows in the Upper Rio Grande predict future decreases in water supply, along with seasonal changes and greater variability in flow (Llewellyn and Alley, 2001). In the arid southwest, water-level changes may indicate depletion of the aquifer, along with seasonal changes and increased variability in flow (Llewellyn and Alley, 2001). In the arid southwest, water-level changes may indicate depletion of the aquifer, along with seasonal changes and increased variability in flow (Llewellyn and Alley, 2001).

Short-term and long-term water-level changes can reflect very relevant water issues in the arid southwest, such as variations in nearby surface-water flows, fluctuations in aquifer recharge, and changes in groundwater storage. As collaborators from New Mexico Bureau of Geology and Mineral Resources (NMBGMR) at New Mexico Tech, U.S. Geological Survey (USGS), New Mexico Office of the State Engineer (NMOSR), and New Mexico State University (NMSU), we seek to address the groundwater storage component of the Statewide Water Assessment initiated and funded by the New Mexico Water Resources Research Institute.

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