

Welcome to Earth Matters: Field notes on the Geology of New Mexico's Enchanting Landscapes.

Monitoring the depth to water in a groundwater well tells us important information about the health of our aquifers and provides vital data for well owners and water operators. How far does the water drop in my well when I run my pump? How long does it take the water to return to a stable level after I turn the pump off? And most importantly, is the water level dropping over time? Geoscience innovations are making it easier for the Aquifer Mapping Program at the New Mexico Bureau of Geology to answer these questions.

The depth to water in a well can be measured in a number of ways. For example, it can be measured using a steel measuring tape. Or small, pressure sensitive probes can also be hung below the water table recording daily fluctuations in the well. These types of measurements are labor intensive and require specialized training, as there is a risk entanglement with pumping equipment in a well.

Recent innovations in geoscience have allowed us to track groundwater levels - without needing to touch the water. Using acoustic devices, we can achieve real-time monitoring with sound reflections off the water surface in a well. Some devices can transmit the data directly to web-based platforms, while others store it in an easily accessible device.

The Healy Collaborative Groundwater Monitoring Network at the New Mexico Bureau of Geology was founded 7 years ago to ensure that all communities have access to these types of information. This network has grown to include over 760 wells across New Mexico, including 98 locations with real time data recorders. With support from the Healy Foundation, this monitoring program is helping communities make more informed water use decisions, detect pump failures and leaks before the problems became critical, and have provided advancing warning of declining groundwater. If you are interested in viewing this data, please visit us at maps.nmt.edu.

Celebrating Earth Science Week, this is Laila Sturgis of the New Mexico Bureau of Geology at New Mexico Tech.