

BETTER GROUNDWATER MONITORING

A fundamental mission of ISWS has been to “survey” the waters of the state, monitoring and collecting data. The most fundamental data for understanding groundwater flow and the capacities of aquifers are groundwater level data. The Water Survey has maintained several monitoring networks throughout the state and in many different aquifers.

In recent years, old analog recorder devices have been replaced by digital devices (pressure transducers and dataloggers) capable of collecting large amounts of data in a relatively continuous manner. Many of these devices are also being coupled with telemetry, allowing for remote transmission of data and almost real-time display on our website.

Our expert groundwater modeling team uses these data in models that can display water level surfaces and changes in those surfaces as a result of disturbances. Examples include the onset and ceasing of irrigation pumping, and evidence of a recent natural gas leak out of gas storage field. As the modeling expertise and capabilities improve, we are reaching the point where we can update model outputs in an almost real-time manner.

As data are transmitted to the Water Survey from the remote monitoring sites, they undergo QA/QC, and can be displayed as hydrographs. Eventually our modelers envision that these data will be automatically added to model input files, allowing for near real-time updates of model outputs

In just a short span of years, monitoring technology has advanced to a point that continuous, real-time information is very nearly attainable. Groundwater science has quickly embraced this capability to envision robust water-quality notification systems for the near future.

This burgeoning data frequency, when applied to models, gives scientists far better understanding of the factors affecting water quality.

Such capabilities help safeguard lives and property with higher fidelity data, enhancing science-based decision-making regarding drinking water, water treatment, regulatory programs, recreation, and public safety.

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