

Characterization and Monitoring Using Electrical Hydrogeology

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The majority of characterization and monitoring conducted in groundwater systems is performed using physical or chemical measurements, interpolated from a relatively small number of monitoring well locations. Significant research over several decades has demonstrated this approach is highly limiting due to the small size of flowpaths in both porous media and discrete flow aquifers.

Surface deployed continuous 2D electrical imaging techniques allow high data density evaluation of the subsurface, which can be used for both characterization and monitoring to significant depths. Mapping of 2D flow properties, observing aquifers draining and filling, and monitoring remediation will be utilized to illustrate an alternative and improved approach to site characterization and monitoring. This provides a dynamic approach to CSM development, which will be illustrated with field cases.