

**HYDROPEDOLOGY: A TOOL TO UNDERSTAND BRINE DISTRIBUTION  
PATTERNS IN SOIL THROUGH SPACE AND TIME**

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This research explores a novel approach to understand the spatial distribution of brine in soil over time. Hydropedology is a relatively new discipline in the field of soil science. Hydropedology integrates soil physics, hydrology and pedology to understand the spatial and temporal dynamics of moisture in soil. Hydropedology can offer a new insight to soil-water-contaminant processes by interrelating hydrologic and pedologic data at different scales: microscales (i.e. soil pores and aggregates), mesoscales (i.e. soil horizons) up to macroscales (i.e. landscapes and watershed basins). Linking together data at each scale can help explain individual and interrelated processes driving the dynamics of brine transport in soil.

This research explores the utility of hydropedology to understand brine transport within a catchment area located in the Tallgrass Prairie Preserve (Osage County, OK). A historic brine scar resides in the area investigated. The goal of this research is to utilize the approach above to devise a method that will be cost effective, time efficient and overall successful in understanding the direction and rate of brine migration in soil through time. Pedotransfer functions together with GIS technology will be introduced as a possible foundation to devising this method.

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