POSTER #28

Temporal Variability in Water Level in a Tallgrass Prairie and Juniper Woodland Indicate Vegetation Controls on Deep Drainage

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Vegetation and vegetation transition such as woody plant encroachment in a tallgrass prairie is reported to alter recharge processes. However, there is limited understanding on the effect of woody plant encroachment on deep drainage in mesic prairie catchments. Two monitoring wells of 3 m depth were drilled in a hydraulically conductive location as indicated by electrical resistivity imaging (ERI) in both a tallgrass prairie site and a juniper-encroached catchment site using a solid-stem auger mounted in Geoprobe 6300 TMP and the piezometers were instrumented with CTD-10 sensors for monitoring. The sensor was connected to the EM50 data logger (Decagon, Pullman, WA, USA) to measure water level (accuracy + 0.05%), electrical conductivity (accuracy + 0.01 dS/m) and temperature (accuracy + 1°C) at 15-minutes intervals. Water level was higher under the grassland than under the juniper woodland. Peak water level was recorded during 16-May 2015 in the grassland, but the water level in woodland peaked during 20-May 2015. Results indicate that vegetation can modulate recharge processes, and woody plants can decrease the water table in a perched aquifer by a significant amount. Thus, spatio-temporal variability in groundwater level can be used as an important tool in land-use and groundwater management.