

COMPARING SEASONAL SOIL ANTECEDENT MOISTURE BETWEEN TWO SUB-ALPINE HILLSLOPES USING ERT

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Soil antecedent moisture and regional geology have important controls on storage in subalpine zero order catchments. Storage is a critical, yet relatively unknown hydrologic property that affects availability of water, vegetation distribution, and biogeochemical and ecological processes. In this study, we compared the change in moisture content through time in two zero-order catchments hillslopes in Wyoming to understand how the soil antecedent moisture affects hydrologic response. We hypothesized that rate of input is controlled by regional geology, and a faster input rate will correlate to how quickly deep-soil dry zones become wet enough to hydraulically connect. Using time-lapse electrical resistivity, we measured the change in soil water content change between winter and summer, onset of snowmelt. We found that colluvial deposits in one site yielded higher infiltration rates, but shorter memory over the monthly and seasonal scales. The other site, a saprolitic, deeper soil, experienced slower infiltration rates, and longer memory effects.