# Anthropognic Nitrate Movement into a Southern California Forest Soil. (S07-wood165520-Poster)

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## Abstract:

The mountains of southern California receive among the highest rates of atmospheric nitrogen (N) additions to North American forest ecosystems (~40 kg ha-1 yr-1). Consistent addition of anthropogenic N to forest soils threatens plant species diversity and results in high nitrate concentrations in streams. Steep mountainous terrain is expected to control solute transport through soils during precipitation and snowmelt events. This work examines the movement of water and nitrate through soils on a south facing 30 degree slope in the San Bernardino Mountains. Here, soils 1.75 m thick overlay a 2-m thick zone of weathered bedrock. Two rock fragment layers ~ 40 cm thick occur at soil depths of 35 and 130 cm. Neutron probe measurements indicate that snowmelt infiltrates to the buried rock layers and then travels downslope. Soil solution chloride and nitrate concentrations were observed to increase downslope during snowmelt along the sharp contact between the soil and weathered bedrock as well as within rock layers. This work illustrates the need to quantify differences in vadose zone solute transport due to geomorphic position especially when modeling regions of complex topography.

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