Surface sealing effect on dry-land ecohydrology: New insights from field experiments and long-term numerical simulations

presented by
Shai Sela
Post-doctoral Associate, Soil and Crop Sciences, Cornell University

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12:20 – 1:10 pm
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Abstract:
Rainfall-induced soil surface sealing is a wide-spread phenomenon in dry climates, substantially affecting hydrological fluxes. Surface sealing leads to runoff initiation and therefore is commonly perceived as a desertification agent, reducing plant water availability. This presentation synthesizes a series of recent papers which highlight that, on the contrary, the presence of surface sealing is beneficial to dryland vegetation. Using field and lab experiments, a suite of 1D/2D hydrological numerical models and long term climate data from the Negev desert (Israel), we show that surface sealing increases plant water availability. The seal layer can act both as a water allocating factor during rainfall events increasing water availability for vegetation downstream, and an evaporation suppressing factor during the drying intervals, increasing water availability locally. The conjunction of these processes place surface sealing as a key player in shaping the eco-hydrology of dry climates, increasing the resilience of local vegetation to dry climatic conditions.

Light refreshments will be served starting at noon.