



Water in Motion: Mysteries from Northern California

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Abstract

California is in the midst of a four-year drought. How do some trees survive the drought? What are the climatic impacts of the drought? We have been carrying out intensive high-frequency monitoring of the water cycle in a small (4000 m²) steep (35° slope) watershed dubbed “Rivendell” in the Angelo Coast Range Reserve in Northern California. The data have revealed many surprises. The water table ~20 meters below the surface rises by about 1 meter after the first storms of the season. Adjacent evergreen trees transpire in different seasons. We present a simple model of the fast processes that redistribute water in the subsurface, and hypothesize that the weathered bedrock could be a non-negligible reservoir of moisture to sustain trees through dry seasons and cool the summers.

~ All are Welcome! ~