



School of Natural Resources
and the Environment

Seminar Series: Fall 2023

**HOW COME THE RAIN CAME BACK, BUT THE STREAMS DIDN'T?
DROUGHT LEGACY EFFECTS SIGNAL THE NEED TO ACCOUNT FOR
DEEP WATER STORAGE AND DRYING**

SPEAKER: Dana Lapidés, USDA-ARS

DATE: Wednesday, October 18th

TIME: 3:00-4:00 pm

LOCATION: ENR2 S210 & Zoom

ABSTRACT:

Over the past few years, the western United States has seen an increase in extreme events from drought, wildfire, and tree mortality to heavy flooding and mudslides. These increasingly volatile conditions challenge our ability to forecast water supply and adapt to changing conditions. In this talk, we will explore two climate mysteries. (1) In 2021



in California, following a few years of drought, water supply models severely underpredicted actual water supply for the first time in 100 years, signalling that there is something important that we're not accounting for—something that used to be relatively invariant that is now changing. (2) Dynamic Global Vegetation Models (DGVMs) are our best tools for learning about how climate and fire result in changes to vegetation communities, carbon cycling, and the resulting water balance. However, they have historically struggled in Mediterranean environments, where climate change is resulting in some of the most dramatic impacts. By reviewing contemporary understanding of hydrological processes that comes from research at critical zone observatories, we see that accurately representing root-zone water storage may be the key to solving both of these mysteries. While this idea is not new, our ability to quantify root-zone storage is new. By using new measures of root-zone storage, we substantially improve our ability to forecast water supply in years following drought and to capture vegetation dynamics in Mediterranean regions.

The School of Natural Resources and the Environment
ENR2, 3N
1064 E. Lowell St.
Ph.: (520) 621-7255 | Fax: (520) 621-8801

