

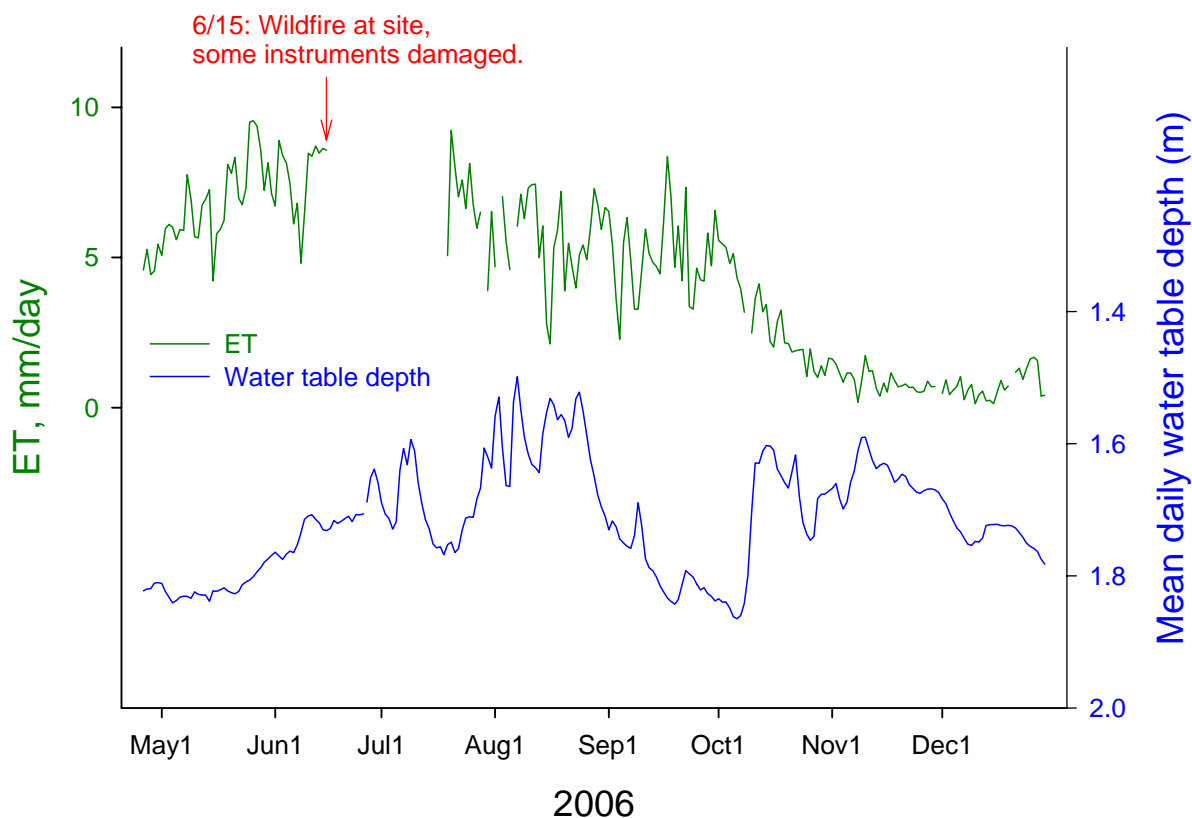


US Army Corps
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Urban Flood Demo Program & Southwest Demo Program

Evapotranspiration, Water Table Fluctuations, and Riparian Restoration

ET and Depth to Water Table, Albuquerque
South Valley Site, Late April--December 2006



Products

Databases and a final report with daily ET and 30-minute water table measurements and a vegetation map showing areas of significant vegetation change between 2002 and 2006 in the Rio Grande Albuquerque reach that can be used to scale ET measurements.

Benefits

Research will provide defensible estimates of water use in a Rio Grande riparian ecosystem affected both by restoration and wildfire.

Problem Restoration efforts that remove non-native understory vegetation or dense monotypic stands of non-native vegetation from riparian zones (the bosque) are designed to reduce consumption of water. Quantification of the response of evapotranspiration (ET) and water table depths to non-native understory removal or to eradication of dense stands of non-native species like salt cedar or Russian olive is needed to provide defensible estimates of water savings from restoration activities. In addition to restoration assessment, it is also important to monitor the effects the increasing role of fire and post-burn management have on ET and water tables.

Description We will monitor the ET and water table responses of a site with understory removed (Albuquerque South Valley) and a site with dense non-native species (salt cedar) removed. In addition, we will investigate how a wildfire in June 2006 has affected evaporative rates and water table fluctuations at the Albuquerque site, which is in close proximity to the river. We will also establish and maintain an eddy covariance ET site along a reach of the Rio Salado, where a 2006 herbicide application removed the riparian vegetation. There is a strong need to quantify the evaporative losses from bare sand under both wet and dry conditions. The summer monsoon season will allow us to make such measurements for both dry and wet sand conditions in the Rio Salado. Scaling the information on ET at the various sites will require the use of remote sensing methodology. Using 2006 multispectral SPOT imagery, we will update a 2002 vegetation classification that was developed for the middle Rio Grande to show where major changes in vegetation due to fire or mechanical removal have occurred in the last four years.

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Collaborators New Mexico EPSCoR and USACE, Albuquerque District

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