Transpiration Coefficients and Eddy Covariance Estimates of Evapotranspiration of Great Basin Phreatophytes. (S01-steinwand181810-Poster)

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Abstract:

Evapotranspiration (ET) from phreatophytic plant communities constitutes a large component of the hydrologic balance in the arid west, but remains poorly understood. The purpose of this study was to measure ET from phreatophytic plant communities in the Owens Valley, California using eddy covariance (EC) methods to compare with estimates of ET derived from leaf area index (LAI) measurements and transpiration coefficients. Measurements were collected at three sites during 2000-1. The EC instruments operated reliably most of the summer, and the energy balance closure ranged from 59 to 70%. Measured ET varied with plant community and water table depth. At one site with low LAI and relatively deep water table, LAI declined by midsummer and ET approximated precipitation. At sites with shallower water table, LAI and ET were higher and peaked in midsummer. Generally, the transpiration coefficients overestimated ET compared with EC measurements, but the agreement between methods improved when corrections to the EC measurements were included to account for lack of energy balance closure.

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