

URBAN EVAPOTRANSPIRATION IN A HUMID ENVIRONMENT - ORLANDO, FLORIDA, USA

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An areally-integrated assessment of ET flux was obtained using eddy covariance methods over an urban/suburban landscape in the humid sub-tropical environment of Orlando, Florida, USA. Mean annual ET during the 3.5-year study period was 921 mm. On average, ET returned a large fraction of rainfall to the atmosphere (72 percent). But annual rainfall varied much more on a year-to-year basis (922 to 1,746 mm) than did urban ET (843 to 974 mm). Interestingly, 12-month periods of relatively high ET occurred during drier periods and 12-month periods of relatively low ET occurred during wetter periods. These results may be related to the generally drier atmosphere and less cloud cover that occur during lower rainfall periods. In addition, this largely urban environment is not subject to large soil moisture limitations because of the prevalence of lawn irrigation and lakes. Corroboration of the ET measurements was provided by independent water budgets for two watersheds that make up much of the source area for the ET measurements. An urban analogue to the “crop coefficient” concept was derived for the studied landscape. This metric was combined with an available satellite-based, State of Florida reference ET product (<http://fl.water.usgs.gov/et/>) to provide a method for transferring the results of this study to similar landscapes for other time periods and geographic areas. The results of this investigation in a humid, sub-tropical urban setting are compared and contrasted with urban ET estimates for other environments.

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