

SUB-URBAN FOREST WATER USAGES IN ATLANTA: STUDYING SAP FLOW IN SELECTED TREE SPECIES

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Abstract. Hydrologic cycle processes such as soil moisture content, plant water flow and transpiration, couple with climate variables can help us to better understand forest function in the ecosystem. Under scenarios of urban sprawl forest patches in suburban Northern Atlanta play an important role in controlling processes of the water cycle in the head waters of local streams and as conservation areas considering the presence of unique native vegetation. The purpose of this research is to produce a botanical description of a suburban forest and to quantify water dynamics on selective tree species as an indicator of the function of native/local vegetation in the water cycle of northern Atlanta.

The research is in its preliminary stages of equipment calibration and data collection. Data collection will start in spring 2011 and will cover the growing season until late Summer 2011. We are testing Time Domain Reflectometry (TDR) sensors to read sap flow measurements in individual *Pinus taeda* trees and soil moisture at 10cm depth. Coupled with climatic variables this information will allow us to determine tree and soil water contents, as well as, elements of the local water cycle. The results will help us to assess temporal variation of water fluxes and will be used to support a larger study that includes different tree species during a full year.