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Poster
Baseflows or Low flows in the dry seasons for a natural watershed are mainly controlled by local climatic characteristics – the combination of precipitation and evapotranspiration, and its soils and hydrogeology. There are plenty of literature showing that urbanization elevates peakflow and stormflow, but it is less clear how urbanization affects baseflow and low flows. We compared streamflow patterns at daily, monthly, and annual scales for ten quasi-pairs of small forest-dominated and urbanized watersheds in the eastern U.S. The watersheds are located in the humid eastern U.S. with annual precipitation ranging from 1028 mm to 1683 mm and potential evapotranspiration (PET) from 1025 mm to 1720 mm in the eastern U.S. We found that the mean annual flow/precipitation ratios were 0.26±0.13 and 0.41±0.1 for forested and urbanized watersheds, respectively. Seasonally, flows in the urbanized watersheds were about 1.7 times higher than that of forested watersheds in the growing seasons (May-Oct), but stream flows for the two types of watersheds were similar during the no-growing season (Nov – April) when seasonal high flows were found in forested watersheds. Daily flow duration curves all show higher low flows in urban watersheds. We attributed these seasonal differences in streamflow patterns to the differences in evapotranspiration (ET) between the two types of watersheds. Impervious surface and vegetation cover changes modify low flows through altering ET and soil water storage dynamics in urbanized watersheds in the eastern U.S.
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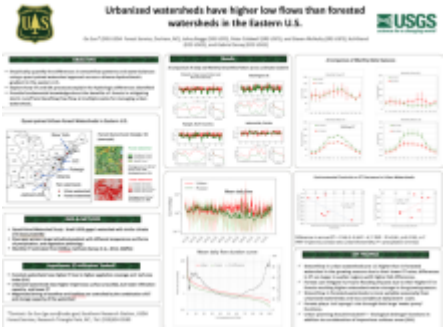

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