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## Estimating water budget components of evapotranspiration, recharge, and runoff for Mississippi and the Mississippi Alluvial Plain

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As water resources become increasingly strained in the US and globally, the development of reliable water availability estimates is needed for making informed water use management decisions. Here we present new 800m annual estimates of water budget components of evapotranspiration (ET), surface runoff, and recharge, produced using various data sources such as soil properties, surficial geology type, stream gage and climate data for 2000-2013. Groundwater-sourced irrigation is included as a component in the local water budget, using data from USGS county-level compilations. The ET and recharge estimates compared favorably when checked against independent field data, and against other ET estimation methods. We show results for the state of Mississippi, and also for the focus area of the Mississippi Alluvial Plain, which has seen significant impacts on water resources due to irrigation and groundwater pumping. Comparisons with USGS groundwater withdrawal data indicate regions where rates of water use may be unsustainable. We summarize results of the water budget estimates for the 2000-2013 timespan for both the state of Mississippi and the Mississippi Alluvial Plain. Finally, we show preliminary results of current work to estimate water budgets on a monthly timescale, through a combination of remote sensing and ground-based data.