

A study of fire and rain: dissolved black carbon in throughfall and stemflow

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The interception of rainfall by trees enriches rainwater with tree-derived dissolved organic matter (tree-DOM). The tree-DOM is then exported from the canopy via rainwater that drips from the leaves and branches (throughfall) or is funneled down the tree trunk (stemflow) to the forest floor. While emerging studies indicate tree-DOM to be an important component of terrestrial and aquatic carbon cycling, little is known about the effects of fire on the characteristics of tree-DOM. Here, we report the amount and composition of tree-DOM and fire-derived dissolved black carbon (DBC) mobilized from a fire-affected longleaf pine forest (*Pinus palustris*) located within the southeastern Coastal Plain (Georgia, USA). The measurement of DBC was carried out using the benzenepolycarboxylic acid method, which converts condensed aromatic structures to molecular markers (BPCAs) and then quantified by HPLC. Our results suggest that, while prescribed burns may alter some bulk tree-DOM characteristics (C:N ratios, colored carbon content) the quality and quantity of DBC exported from longleaf pine trees remained relatively consistent before and after the fire. The ecological drivers and implications of these results will be discussed.