## Vadose Transport Processes in an Irrigated Watershed. (S01-seaman114439-Poster)

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## Abstract:

On the DOEs Savannah River Site, irrigation of a forest watershed using groundwater containing low levels of tritium has been used as a means of reducing tritium releases to Fourmile Branch, a tributary to the Savannah River. Estimates of public exposure indicate that evapotranspiration of tritiated irrigation water by the tree canopy is considerably less hazardous to the public than its ingestion as drinking water. A series of vadose tracer studies are being conducted to better understand the processes controlling water movement within the irrigation site in order to maximize evapotranspiration and minimize tritium movement below the rooting zone. A given tracer experiment consists of an intense irrigation event (2 in), after which tritium movement through the profile is monitored under normal precipitation conditions using suction lysimeters and soil cores. The resulting data is being used to develop and validate a vadose transport model using the HYDRUS1D code. Mass balance calculations indicate that 80 percent of the tritium is lost to evapotranspiration within the first 6 months. Experiments are underway to help with incorporating root uptake and transpiration within the model.

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