



Using tracer injected into a river for the estimation of the spatial distribution of inflow to a river reach.

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A modeler's belief about the spatial pattern of inflow into a river reach can be crucial in determining their conceptual model of the processes within a catchment. Several approaches using both natural and artificial tracer have been used to determine source areas. One such technique is the constant injection of conservative tracer to a river reach so once a steady state has been reached simple mass balance relates changes in the concentration of the tracer to inflow. This is extended to include situations where the steady state has not been reached and the tracer load cannot be considered as constant at each point in the reach. By considering the assumptions inherent the analysis of such an experiment a representation of the observational uncertainties is derived. Bayesian inference applied to compute distributions of inflows to the reach. The methodology is demonstrated using experimental data from the Can Vila catchment in Catalunya.