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Development of a laboratory system and 2D routing analysis to determine solute mixing within aquatic vegetation

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ABSTRACT

A laser induced fluorometry (LIF) system was developed to quantify mixing within spatially variable aquatic vegetation. A comparison is made between intrusive fluorometry techniques and the application of LIF, to quantify mixing in real vegetation in the laboratory setting. LIF provides greater spatial resolution when compared to point fluorometry. Furthermore, LIF is non-intrusive. A two-dimensional routing procedure is used to calculate the longitudinal and transverse velocities and mixing coefficients from a single pulse injection of tracer within a vegetation patch.