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Longitudinal dispersion in natural channels: I. Experimental results from the River Severn, U.K.

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Abstract.

Abstract: A tracer experiment using Rhodamine WT dye was carried out to measure longitudinal dispersion in a 14-km reach of the River Severn in Wales, U.K. The river's discharge was measured at six points and the depth, width and cross-sectional area were measured at 86 points along the test reach. The channel geometry was close to being statistically uniform. Discharge and velocity were both nearly constant. Dye concentrations were recorded at stations between 210 and 13775 m downstream of injection. Dye was injected over a short interval as a near-uniform line source across the channel. These conditions make the data useful for testing mathematical theories of dispersion. They are presented in full.

Keywords: Channels; dispersion; tracers; River Severn

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