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Spatial variability of phosphorus adsorption in surface sediment at channel confluences: Field and laboratory experimental evidence

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Abstract: Field surveys and a laboratory experiment have been conducted to characterize the spatial variability of phosphorus (P) adsorption in surface sediment at channel confluences with a large tributary discharge. The results show that the grain size of surface sediment and the concentration of soluble reactive phosphorus in overlying water are the most important factors affecting the spatial variability of P in surface sediment. Their differences in the two combining flows can be reduced dramatically by the mixing layer, and the mixing distance can be largely decreased by the distortion of the shear layer and the complex bed morphology as they can increase

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