

Dynamics of flows in river bends

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Abstract. Rivers are vital for water supply, navigation, and transport of pollutants and nutrients. These benefits among others are only available and sustainable when river systems function optimally; since the flip side is flooding, loss of lives and property. Natural rivers and manmade channels are common conveyance systems that typically have meandering (curved) geometries. A better understanding of the flow dynamics as well as the associated complex flow structures in river bends is critical for developing improved engineering design methods for protecting such conveyance systems against failure due to erosion. This research is aimed at contributing towards fundamental understanding of the flow structure in river bends using computational simulations.