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Bed shear stress measurement using flexible micro-rods

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River morphodynamics is related to turbulent processes; and among influential factors shear stress is one of utter importance. Precise shear stress determination using direct and indirect methods has being investigated in recent years. Also, instantaneous fluctuation in wall shear stress distribution which can potentially affect erosion processes is being discussed currently. Here, a new method of indirect shear stress measurement using PDMS (Polydimethylsiloxan) flexible micro-rods is evaluated. Their flexural behavior in the flow within the boundary inner layer allows for the calculation of instantaneous shear stress values. The method is already used in medical fluid mechanics and now it is adopted for open channel investigations. A series of measurements were performed in order to investigate these micro-rods and their applicability to fluvial studies. This method may improve our understanding of boundary proximity region and enhance our insight into near bed momentum transfer mechanisms.