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An analysis of shear stress distribution in circular channels with sediment deposition based on Gene Expression Programming

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Abstract

Knowledge of the boundary shear stress distribution in channels is important because it is a key factor affecting on erosion and sedimentation rates. The presence of sediment deposits in sewers is often reported during operation, and circular channels are frequently used in sewer networks. Gene expression programming (GEP) is applied in this study to determine an equation for evaluating the shear stress distribution along the wetted perimeter of a circular channel with a flat bed, because of the presence of sediment on the bed. In view of the parameters affecting the shear stress distribution, five dimensionless parameters are applied to develop six GEP models to be used with 905 experimental data. The impact of the shear

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