On the effects of Schmidt number and particle settling velocity on the calculated sediment concentration profile ALI KHOSRONEJAD, Post Doctoral Associate, St. Anthony Falls Lab. — The numerical simulation of natural stream flows is a powerful tool which is generally used to achieving the following goals: tracing the contaminants in natural waterways, computing the suspended sediment concentration, computing the bed evaluation of waterways, etc. In most natural rivers, the flow is turbulence and therefore the turbulent diffusion plays a critical rule in scalar term dispersion. To evaluate the effect of turbulent diffusion, the Schmidt number is widely used. In this paper, the effect of different Schmidt number on the calculated sediment concentration profiles is investigated. Also, the effect o sediment particle settling velocity of the computed sediment concentration profile has been investigated. Some standard test cases including net entrainment from a mobile bed, net deposition to the bed, dye material advection dispersion, have been chosen. For the net deposition, net entrainment and dye advection-dispersion the experimental data of Jobson and Sayre (1970), van Rijn (1981) and Jobson and Sayre (1970), respectively, has been used to comparing the model results by Schmidt numbers and settling velocity values. As the results, the most appropriate parameters for which a better prediction is achieved are presented for each case.

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