

A review on the longitudinal dispersion in channels

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As a reason of global climate change as well as increasing in the world's population, providing sufficient needs, especially water, is becoming increasingly difficult for human in the last decades. Water stress/scarcity is expected to rise sharply in numerous regions on the world. On the other hand, technologically and economically it is almost impossible to provide fresh water using any industrial way especially in undeveloped countries. Furthermore, current freshwater resources are vulnerable against chemical, biological, and nuclear pollutants. So, the fresh water resources should be protected against all kind of pollutants. The main fresh water sources are streams (rivers, channels). On the other hand, convective longitudinal dispersion is the most desired parameter on the stream pollution. The dispersion coefficient represents the rate of pollution and it is the most desired parameter in any air or water pollution modeling study. In many practical and natural situations, two or one dimensional dispersion coefficients are often required for modeling. In natural channels, a one-dimensional equation of motion is significant and the estimation of the longitudinal dispersion coefficient must be obtained prior to modeling by various procedures that are available in the literature. The main purpose of this paper is to present a large review and criticism on the longitudinal dispersion phenomenon.

Biography

Zeynel FuatToprak had his Ph.D. from Istanbul Technical University in 2004. He is member of the "Chamber of Civil Engineering", "Society of Fuzzy System", "DU natural hazards research and application center", "Fuzzy Logic and its Technology", "Oriental Studies Association", and "ASCE (During Ph.D. studies)". He brought a new method called SMRGT into literature. He organized and/or placed in the list of scientific and organizing committees of numerous scientific meetings. He has worked as reviewer for more than 20 international journals indexed by SCI. Currently he is working as vice-chair of Civil Engineering Department at Dicle University and invited as associate professor at Water Research Center of King Abdulaziz University.

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