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Some Extensions of Dams with Inputs Forming a Stationary Process

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Abstract

This paper investigates the stochastic behavior of semi-infinite reservoir with a discrete-valued stationary input process and a unit release whenever it is possible. The present work shows how, by suitable manipulations of the equation governing the dam content process, the stationary of the dam being empty can be obtained, as also can (with a few additional assumptions) be the expected value of the dam content in the stationary case. Results obtained are applied to one-stream and two-stream storage models with different cases of inputs such as independent, Markovian, mixed, bivariate Markov and moving-average.

Keywords: Discrete-Valued Stationary Process, Dam Content, One-Stream Storage Model, Markovian Iputs.