

RESERVOIR SEDIMENTATION ESTIMATION USING GENETIC PROGRAMMING TECHNIQUE

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ABSTRACT

To a certain extent, all reservoirs are subjected to the problem of sediment deposition universally. Depending on the amount of material deposited the shortening of reservoir capacity and useful life result in several unpredictable consequences. To determine the total quantity of deposition, as well as the pattern and distribution of deposits in a reservoir, hydrographic survey is the only direct measurement method. These hydrographic survey methods are being considered as expensive, time consuming and cumbersome. In the present study, an attempt has been made to employ genetic programming (GP) soft computing technique to estimate the volume of sediment retained (S_v) in the Pong Reservoir, India. It was found that GP model captured the trend and magnitude of S_v very well. Moreover, GP model provided input-output relationship in the form of computer programs which may be easily used by end user. Also, GP can be effectively used to capture the non-linear relationship between the input and output with short length of data.