

COMPARISON BETWEEN CONCEPTUAL PHYSICAL MODEL OF RESERVOIR SEDIMENTATION AND A 3D NUMERICAL MODEL

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Abstract: Morphological changes in dam reservoirs are one of the complicated phenomena which are controlled by different parameters in nature. Rivers deposit deltas wherever they reach standing water, i.e. a reservoir. In general, the sand tends to deposit out to form a fluvial Topset and an avalanching Foreset, and the fine material tends to deposit out as a Bottomset. Conventionally numerical models together with field measurements are applied to predict reservoir sedimentation. Another efficient methodology for studying sediment transport in nature is physical models, which are small scale or conceptual form of prototypes. In this research program a 3D-flume with expanded width was designed, as a conceptual model of dam reservoir. The flume is 20m long, varying in width from 30cm to 180cm and has a constant bed slope. Delta progression phenomenon has been monitored using 29 tests; for each test different effective parameters were considered. Also, SSIM-3D has been used as a numerical model for simulation of sedimentation in the reservoir with the same geometry of physical model. Finally the results have been compared and the results are presented as tables and graphs.