

実験的検証を伴う砂防ダム上流における土石流の堆積・侵食過程の 数値解析

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要旨: 土石流メカニズムの理解と予防策についての研究は、流域内の土砂管理や土砂災害の防止のために重要である。通常、透過型の砂防ダムは土石流を貯えることにより土砂災害を防ぐものとして使われている。砂防ダム上流での土石流堆積過程及び通常洪水流による堆積土砂侵食のメカニズムを研究するため、数値解析と実験を行った。砂防ダム上流での土石流堆積を計算する新たな式を明らかにした。解析と実験は不透過型砂防ダムと格子型砂防ダムを用いた。

キーワード: 土石流, 砂防ダム, 侵食/堆積, 数値解析, 実験

Numerical Simulation on Debris-Flow Deposition and Erosion Processes Upstream of a Check Dam with Experimental Verification

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Synopsis: The understanding of behavior and mechanism of debris flow, and the study of preventive measures are very important in order to manage the sediment disaster in the river basin and prevent the downstream hazards. A check dam is commonly used for preventing the sediment disaster due to debris flow by storing the harmful sediment discharge. The numerical simulations and experiments have been carried out to investigate the mechanism of debris flow deposition process upstream of a check dam, and flushing out of deposited sediment due to erosion process by a normal scale flood flow. A new deposition equation to calculate debris flow deposition upstream of a check dam is also developed. The simulations and experiments have been performed using closed type and grid type check dams.

Keyword: debris flow, check dam, erosion/deposition, numerical simulation, experiments