

Contribution to the failure wave modeling of a silted dam

Simulation of failure wave propagation for a dam is an important factor in the study of failure risks of this structure with an earthquake. For a precise analysis of the phenomenon, we must consider the effect of the mud contained in the receiving reservoir which may be, as the dam fails, almost instantly mobilized and transported to the downstream toe of the dam. In this study, a numerical modeling of wave failure for a silted dam is performed. The model deals, upstream from the dam, with flow and erosion of the sediment contained in the receiving reservoir. On the downstream side, it deals with the wave propagation and sediment transport in the valley. The simulation results are exploited, on the one hand, to develop the mapping of areas subject to flooding, and the areas of sediments depositions that are transported, on the other hand.