Prediction of flood models for dam breaching due to overtopping

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This paper suggests dam-breach models on the basis of dam failure database. Experimental data was generated by performing 242 experiments related to overtopping failures of embankments in different flumes and by varying the independent parameters. A state of art, high speed digital camera which can take images of a section at the rate of 1000 frames per second, was used for studying the breach mechanism. So, by flow visualization, the breaching of embankments was studied and analyzed for varying soil composition as well as varying hydraulic parameters like Dam geometry, Capacity of the reservoir, Inflow discharge etc. The breach mechanism of embankment using different parameters was studied and described in three phases. Historic earthfill dam failures data from other researchers (theoretical as well as experimental) was collected and compared with the present data. The dam breach model predicts the peak discharge and time to breach in a simple but physically based manner. The geometry of the embankment, the hydraulic characteristics and geotechnical characteristics are taken into account. The application of the model was studied with present data along with other laboratory and field data. The model is compared with some previously published methods, parametric models and predictive equations.