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Observations on Dam Overtopping Breach Processes and Prediction

Research conducted over the last decade has led to an improved understanding of the physical processes associated with the response of an earthen embankment to overtopping flows. This research has demonstrated that vegetation and cohesive soil material properties play an important role in the erosion processes and rate of erosion during overtopping. The overall breach process has been observed to involve vegetation failure, surface detachment, headcut development and migration, and breach widening. Computational procedures based on the results of this research are being incorporated into new software tools for use in evaluating the safety of dams and levees subjected to overtopping during extreme flood events. Proper application of these tools and correct interpretation of the computational results requires that the user understand the concepts represented and the extent to which simplification of complex processes is required in development of the computational procedures.