

RELEVANCE OF LARGE EVENTS TO RESERVOIR SEDIMENTATION

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In Austria reservoir sedimentation is an increasing problem and there is an urgent need for basin and reservoir management. In order to improve the management of the reservoirs and to reduce the downstream technical and ecological impacts the processes responsible for reservoir sedimentation have to be investigated. The study reservoir has a volume of 1.5 million m³ and the main structure is an arch dam with a maximum height of 39 m. Since the operation of this daily – to weekly storage reservoir started in 1978 already two times the sedimentation covered the bottom outlet and reached or partially covered the water intake, therefore endangering the whole system. In 1987 and 1999 up to 52000 m³ of sediment were flushed out of the reservoir via the bottom outlet. In between sediments were flushed via the headrace and turbines. Additionally up to 6000 m³ per year of deposited bedload had to be dredged in the upper part of the reservoir. The analysis shows so far that especially the large events are responsible for the extreme deposition of bedload in the upper part and finer sediments near the dam, causing problems for the management. Investigations of the source areas are performed in the whole basin. The main origins of the material are deep-seated gravitational slope deformations (causing debris flows and mass movements), shallow landslides and linear erosion in the headwaters of the channels.