



Sedimentation Monitoring at the Tseng-Wen Reservoir after Catastrophic Typhoon

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ABSTRACT

After Typhoon Morakot in 2009, the sediment deposition in TsengWen Reservoir increased greatly due to the severe landslides in upstream watershed. The water resources supply has been facing a stern challenge in recent years. Therefore, it is crucial for reservoir operation to quantitatively estimate the sediment yield in upstream watershed. The measurement results from the Tseng-Wen Reservoir storage capacity, Typhoon Morakot caused by siltation of sediment in the reservoir up to 9000 m³. According to the results of sediment budget model (SBM) numerical simulations show, of which 60% comes from the mainstream of the river upstream catchment; remaining 40% is from the catchment area surrounding the reservoir. In addition to the estimation method of numerical simulation technology, this project uses airborne LiDAR (LiDAR, Light Detection And Ranging) to produce 1 meter resolution digital terrain model of the Tseng-Wen Reservoir watershed topographic variation. Through digital terrain analysis methods to estimate sediment production, transport and accumulation amount of catchment areas, to understand the latent potential catchment sediment disaster area, and then draw up watershed conservation management strategy.

KEY WORDS: Sediment Budget, LiDAR, DEM, Tseng-wen Reservoir