AOGS 2006

An Establishment of Operation and Management System for a Reservoir with Flood Control Purpose

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The first objective is to establish operation and management system for a reservoir with flood control purpose. The reservoir operation and management system can be maximized to achieve desired flood control capacity while keeping the conservation storage for later use after rainfall as reservoir inflow is predicted by using the real-time rainfall data, not the forecasted ones. In operation and management system for a reservoir with flood control purpose, simple reservoir inflow predicting model can be used to provide useful information on the magnitude of the lowering of reservoir water level for flood control purpose before rainfall begins. For real-time reservoir inflow predicting model, study area is divided into subbasins and the flood runoff from each subbasin is computed by Clark method. The channel flood routing is then computed by Muskingum method. The model accuracy is enhanced by calibrating the parameters with computed reservoir inflow using observed release rate and water level change of reservoir at each time step. Once a decision is made on the reservoir operation rule by considering reservoir release capacity and downstream conveyance, this rule is connected with real-time reservoir inflow predicting model. With this reservoir operation and management system, it is possible to maximize the flood control capacity while keeping the conservation storage for later use after rainfall. The reservoir operation and management system is thought to be useful for single reservoir system with flood control purpose or existing reservoirs where modification is planned for additional flood control.