



Applicability Evaluation of Real-time Standard Flow Index to Develop Termination Criteria at Each Drought Response Stage on Multi-purpose Dams

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This study proposes the real-time Standard Flow Index (SFI) to develop termination criteria in order of drought response stages and evaluates its performance for historical severe drought events on multi-purpose dams in Nakdong River Basin. To this end, the SFI values were derived considering drought occurrence probabilities from the generated daily dam inflows for 500 years using the Stochastic Analysis Modeling and Simulation (SAMS). Then, the SFI values from three multi-purpose dam (Andong-Imha, Hapcheon and Miryang) watersheds are combined together in order to derive the representative SFI values and classified into six groups (WET, Normal, Moderate Drought, Severe Drought, Extreme Drought, and Exceptional Drought) for Nakdong River Basin. As a result of applying to multi-purpose dams, the derived SFI values could identify the historical severe drought events in 1994, 2000, and 2008 ? 2009 with respect to severity and period of droughts well. From the graphical comparison results between SFI and standard precipitation index (SPI) against historically operated reservoir storage for Andong-Imha multi-purpose dam, the SFI is better to describe the historical extreme droughts rather than SPI with respect to the rising and recession parts of the historically operated reservoir storage graphs.

Acknowledgments: This work is supported by the Korea Agency for Infrastructure Technology Advancement (KAIA) grant funded by Ministry of Land, Infrastructure and Transport (Grant No. 17AWMP-B0830660-04).