

Flood Frequency Analysis using Daily Flood Data based on SWAT model

Nam Won Kim¹ and Jeong Eun Lee²

Water Resources Research Division, Water Resources & Environment Research Department, Korea Institute of Construction Technology (KICT), South Korea

Abstract. One of traditional methods to estimate design flood is performing frequency analysis from observed hourly flood data. In South Korea, we are able to get sufficient amount of daily and hourly flood data at certain point. However, most of watershed does not provide adequate amount of spatial and temporal flood data for estimating flood frequency. In this study, SWAT modeling based flood frequency analysis was suggested. Firstly, we selected a watershed (e.g. Chungju Dam Watershed, ~6,648km²) having adequate amount of daily/hourly flood data to estimate ratios between daily and hourly flood frequency. For the same watershed, SWAT simulated daily flood data to carry out frequency analysis. Previously produced ratios from observation were applied to the daily flood frequency generated by SWAT simulation, which can produce results of hourly frequency. From this procedure, we are able to compare hourly frequency from SWAT with observed hourly frequency. This method could be an alternative to estimate design flood for watersheds where do not have sufficient hourly or daily flood data.

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¹ Water Resources Research Division
Water Resources & Environment Research Department
Korea Institute of Construction Technology (KICT)
1190 Simindae-Ro, Ilsanseo-Gu, Goyang-Si, Gyeonggi-Do, 411-712, South Korea
Tel: +82-31-910-0256
e-mail: nwkim@kict.re.kr

² Water Resources Research Division
Water Resources & Environment Research Department
Korea Institute of Construction Technology (KICT)
1190 Simindae-Ro, Ilsanseo-Gu, Goyang-Si, Gyeonggi-Do, 411-712, South Korea
Tel: +82-31-910-0275
e-mail: jeus22@kict.re.kr (Corresponding author)