



Mean areal rainfall improvement using radar rainfall estimation technique by considering geographic character for dam operation

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Efficiently dam operation is necessary to secure water resources and to respond to floods. For the dam operation, the amount of dam inflow should be accurately calculate. Rainfall information is important for the amount of dam inflow estimation and prediction therefore rainfall should be observed accurately. However, it is difficult to observe the rainfall due to poor density of rain gauges because of the dam is located in the mountainous region. Moreover, ground raingauges are limited to localized heavy rainfall, which is increasing in frequency due to climate changes. The advantage of radar is that it can obtain high-resolution grid rainfall data because radar can observe the spatial distribution of rainfall. The radar rainfall are less accurate than ground gauge data. For the accuracy improvement of radar rainfall, many adjustment methods using ground gauges, have been suggested. For dam basin, because the density of ground gauge is low, there are limitations when apply the bias adjustment methods. Especially, the localized heavy rainfall occurred in the mountainous area depending on the topography. In this study, we will develop a radar rainfall adjustment method considering the orographic effect. The method considers the elevation to obtain kriged rainfall and apply conditional merging skill for the accuracy improvement of the radar rainfall. Based on this method, we are going to estimate the mean areal precipitation for hydropower dam basin. And, we will compare and evaluate the results of various adjustment methods in term of mean areal precipitation and dam inflow.

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