

Investigating the Relationship between Flow Fluctuation and Basin Characteristics of the Dam Basins

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ABSTRACT

It is imperative to understand fluctuation patterns in river flows for better use of water resources and efficient prevention of potential risks from flood-induced disasters. The flow fluctuation is affected by different types of factors for basin's hydro-climatological and topographical characteristics. The magnitude of the flow fluctuation is usually quantified by an index called the river regime coefficient (RRC), defined as the ratio of the maximum flow to the minimum flow over a specific period. However, there is a limitation in selecting the specific period and representing a long-term pattern. Therefore, we analysed several indexes for the flow fluctuation and investigated their relationships with basin characteristics such as shape factor, drainage density, etc. Here, the indexes were estimated for the ten dam basins in Korea, for which daily inflow data for 36 years from 1986 to 2021 were secured. We also evaluated each index with respect to the long-term pattern in the flow fluctuation by comparing a method of averaging the annual index with that of calculating the index from average values of the annual flow characteristics. Finally, we examined the correlation between the long-term indexes for flow fluctuations and various characteristics of the dam basins.

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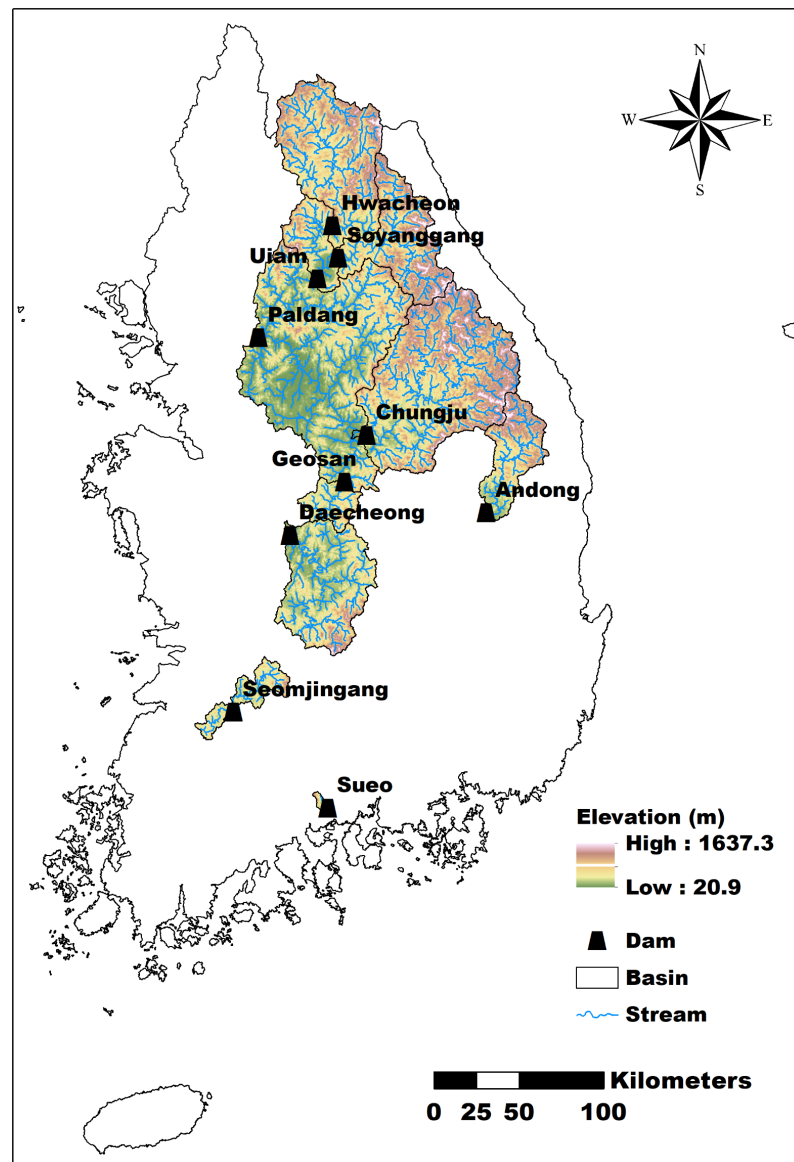


Fig. 1 Ten dam basins with river networks and elevations

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