

## **DEVELOPMENT DESIGN FLOOD WAVE FOR SEEPAGE ANALYSIS THROUGH LEVEE IN THE HAN RIVER**

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In recent years, Korea has experienced damages due to the great floods such as Typhoon 'Rusa' and 'Maemi'. Especially, levee failure caused the loss of lives and poverty around riverine area. It has known that there are several causes in levee failure in flood time. The foundation underseepage and seepage through embankment is assumed to be one of reasons of the levee collapses. There are two ways to estimate seepage flow. One is an analysis on steady state condition. Another is on unsteady state condition. Up to now, the former has been used by engineers widely in Korea. This method has, however, a weakness not to consider the duration time and recession slope of flood hydrograph. It may bring about over- or under-estimation in design of levee section. In this study, the method to determine the design flood waves was developed using hydrological data from 19 flood events in period of 1976-2003 and using the original project flood hydrographs, collected from eight water level stations in the Han River basin that is one of the major basins in Korea.

In this study, three methods of design flood wave were developed for the suitable method of seepage flow analysis. To develop the methods, the past flood events were analyzed for eight water level stations in the Han River. The methods are the method using design flood hydrographs, the method using design flood and the past flood hydrographs (composite flood wave) and the method using relationship between composite flood wave and design flood wave (modified design flood wave).

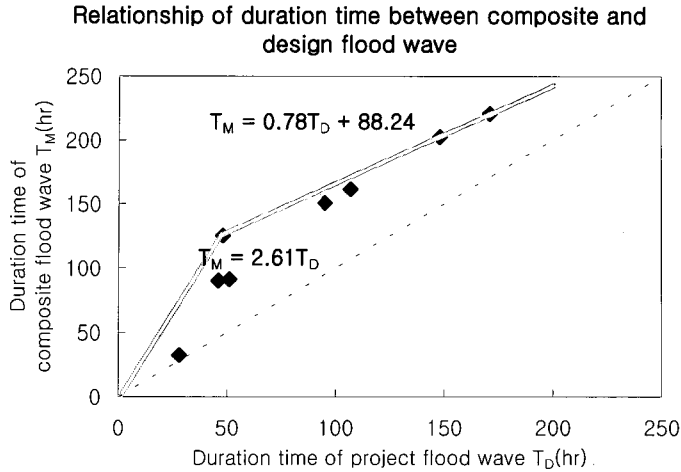


Fig. 1 Relationship of duration time between composite and design flood wave

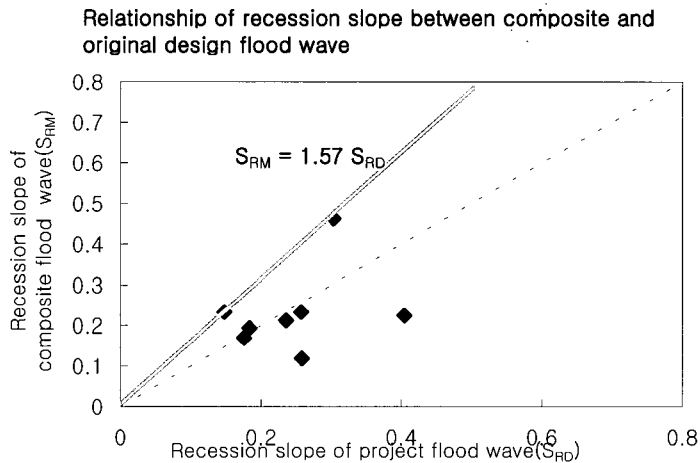


Fig. 2 Relationship of recession slope between composite and design flood wave

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