



General characteristics of causes of urban flood damage and flood forecasting/warning system in Seoul, Korea Young-II Moon^{1, 2}, Jong-Suk Kim^{1, 2} ¹ Department of Civil Engineering, University of Seoul, Seoul 130-743, South Korea ² Urban Flood Research Institute, University of Seoul, Seoul 130-743, South Korea

Abstract Due to rapid urbanization and climate change, the frequency of concentrated heavy rainfall has increased, causing urban floods that result in casualties and property damage. As a consequence of natural disasters that occur annually, the cost of damage in Korea is estimated to be over two billion US dollars per year. As interest in natural disasters increase, demands for a safe national territory and efficient emergency plans are on the rise. In addition to this, as a part of the measures to cope with the increase of inland flood damage, it is necessary to build a systematic city flood prevention system that uses technology to quantify flood risk as well as flood forecast based on both rivers and inland water bodies. Despite the investment and efforts to prevent landside flood damage, research and studies of landside-river combined hydro-system is at its initial stage in Korea. Therefore, the purpose of this research introduces the causes of flood damage in Seoul and shows a flood forecasting and warning system in urban streams of Seoul. This urban flood forecasting and warning system conducts prediction on flash rain or short-term rainfall by using radar and satellite information and performs prompt and accurate prediction on the inland flooded area and also supports synthetic decision-making for prevention through real-time monitoring. Although we cannot prevent damage from typhoons or localized heavy rain, we can minimize that damage with accurate and timely forecast and a prevention system. To this end, we developed a flood forecasting and warning system, so in case of an emergency there is enough time for evacuation and disaster control.

Keywords: urban flooding, flood risk, inland-river system, Korea

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