

## River and groundwater level fluctuation analysis after barrage construction in riverside, South Korea

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Changes in river have brought to the change of groundwater hydrogeology and water quality. Also, the understanding of the interaction of groundwater and surface water is essential for the managing of effective water resource. In case of South Korea, there is increasing the interest of groundwater development and management in riverside through large river maintenance projects lately. The river water level was elevated than in the past and it is expected to the changes in the interaction between the existing groundwater and surface. This study analyzed the relationship between surrounding river water level and groundwater level in the 91 locations of groundwater observation wells, also was supposed to classify the similar pattern of groundwater by performing multivariate analysis. At the result of factor analysis, it is shown that the high and low factor in correlation between river water level and groundwater level were caused by receiving the significant external influence. In the result of cluster analysis, the middle and upper area of river were similar to the fluctuation pattern with river water level and groundwater level and the downstream area of river was shown with a low correlation. This is due to the characteristic showing a distribution of the alluvium in various types at the downstream area in compared to middle and upper area. In the future, the research is undergoing to analyze the time series of a point in time to account for the external influences of the effects on the groundwater level.