

# 橋脚周邊의 靜的洗掘에 관한 研究

(A study on the clear water scour around piers)

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## Abstract

Bridge piers are sometimes damaged by local scour. Although the problem of local scour around pier has been studied extensively, it has been difficult to estimate local scour depth quantitatively. This study is concerned with local scour around semicylindrical piers arranged in various types under the condition of clear water scour. Through dimensional analysis, it was found that scour depths were relative to  $Re$ ,  $Fr$ , and  $Ns$ . In the case of semicylindrical piers, the variation of dimensionless scour depth with dimensionless time (effect of  $Ns$ , pier diameter and length, incidence angle) and the variation of scour depth with vortex intensity and resistance are investigated experimentally to obtain a formula. And formula for estimating the maximum depth of scour is obtained.

## 要 旨

橋脚은 때때로 局所洗掘에 의해 손상을 받는다. 橋脚周邊의 局所洗掘 문제는 광범위하게 연구되었지만, 洗掘深을 定量的으로 算定하는 것은 어렵다. 本研究는 靜的洗掘 條件下에서 여러형태로 배치된 半圓 및 長方形 橋脚周邊의 局所洗掘에 대한 것으로 次元解析을 통하여 洗掘深은  $Re$ ,  $Fr$  및  $Ns$  등에 관계됨을 파악하여 무차원 시간에 따른 무차원 세굴심의 변화(土砂數, 橋脚徑과 길이, 迎角의 영향), 渦度, 抵抗力에 따른 세굴심의 변화들이 洗掘深算定公式를 얻기위해 실험적으로 연구되었으며 최대 세굴심 산정공식이 얻어졌다.

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