

## 拋石工法對於固床工下游相對漩渦強度影響之研究

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**摘要** 研究目的在於探討拋石工法對於固床工下游相對漩渦強度與局部淘刷係數的影響。本研究採用動床水工模型試驗，試驗過程中除了重複量測 5 個固床工區間、7 個特定位置的水流深度及渠床砂面高程，並得其平均數值外，當拋石保護段下游的淘刷坑達到動態平衡階段時，使用二維電磁式流速計量測 7 個特定位置的流速剖面。研究結果指出，拋石保護段末端處的 Breusers 相對漩渦強度隨著拋石長度與水深比值的增加而呈現逐漸增強之趨勢；亦即，拋石保護段長度愈長，其所產生的 Breusers 相對漩渦強度愈弱。研究結果亦顯示，由小粒徑拋石所組成的拋石工法，因為孕育出較高的局部淘刷係數及較強且具侵蝕力的水流，故其對於固床工下游溪床的保護作用相對有限。

**關鍵詞**：相對漩渦強度、局部淘刷係數、固床工。

## Effect of Riprap Protection to Relative Turbulence Intensity at the Downstream of Groundsill

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**ABSTRACT** The objective of this study is to experimentally explore the effect of riprap to relative turbulence intensity and local scour coefficient of at the downstream of groundsills. Measurements of flow depth and channel bed elevation were repeated at five intervals to achieve the average readings. Velocity profile measurements were taken using two-dimensional electromagnetic current meter and they were taken when scour hole reached the equilibrium stage. Research results of this study indicate that Breusers relative turbulence intensity at the tail end of riprap protection gradually increases with the increases of protection length-flow depth ratio. In other words, long riprap length produces smaller Breusers relative turbulence intensity. Likewise, Breusers relative turbulence intensity also increases with respect to the increases of relative roughness that induced by riprap sizes. Our findings from this study also suggest that finer the riprap sizes that bed protection constitutes of, higher the local scour coefficient and erosion capacity that stream flow possesses.

**Key Words** : Relative turbulence intensity, Local scour coefficient, Groundsill.

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