

## 應用數位影像處理於主流交匯實驗之量測

陳樹群<sup>[1]</sup> 彭思顯<sup>[2]</sup>

**摘 要** 本研究應用數位影像技術於高含砂支流入匯主河行為之實驗量測，主要可分為兩大部份：一是針對主流交匯時流場之量測，係採用 Voronoi 影像追蹤法，於試驗區放置示球，將拍攝之交匯影像處理後取得流場分析；另一是使用雷射光筆投射於交匯後形成之泥砂堆積體，以擷取之各剖面經由座標轉換得出數位地形資料，所獲得之相關結果均可作為數值模擬之參考。另外，經由本研究之實驗分析，亦提出當交匯角度為 90 度時之堵河係數經驗公式，其定性結果與前人研究相當符合。

**關鍵詞：**數位影像處理、Voronoi 影像追蹤法、交匯型態。

## Experiment of Confluence between Main River and Tributary by Applying Digital Image Processing

Su-Chin Chen<sup>[1]</sup> Szu-Hsien Peng<sup>[2]</sup>

**ABSTRACT** This study is to survey the confluence behavior of a tributary with hyperconcentrated flow and the main river by applying digital image processing. The experiment includes two parts: the first is that the velocity fields can be obtained using the Voronoi imaging method to analyze the images through low-pass and high-pass filters when adding the trace-particles; the second is that the digital terrain data were computed via coordinates transformation from profiles extracted by laserlines. The above results will become a reference for numerical modeling in the future. Finally, the empirical formula is proposed for the confluence angle being 90 degree where it can describe whether the landslide dam phenomenon occurs or not. This formula matches the previous research in qualitative analysis.

**Key Words:** digital image processing, Voronoi imaging method, confluence modes.