摘要

本研究擬以現地調查停積土石流上之石礫排列，以探究土石流流運時其顆粒之內部作用，進而瞭解土石流之性狀。因此本研究以火炎山自然保留區為對象，調查土石流堆積上石礫之軸向排列特性；並藉由渠槽試驗模擬土石流發生、流動至停積之過程，以其結果與現地相佐，進而探求石礫於土石流之排列特性。本研究之渠槽試驗並非模擬選定之試區條件而設計，而以單純化之試驗條件說明土石流石礫排列之特徵，以及坡度與試料組成之差異對於石礫排列有何影響。

室內試驗結果顯示，渠槽出口外土石流扇狀堆積段之石礫排列呈同心圓形，其長軸多垂直於流線排列，由中央至邊緣從垂直流路、指向流路中央，最後轉變至平行流路方向；渠槽下游堆積段中間部之石礫以垂直流路為主要排列方式，於兩側部則以平行流路為主；而渠槽上游堆積段之石礫順沿土體流運方向運移，其長軸多平行於流路。現地調查結果因地形複雜而與室內試驗結果稍有不同，其谷口下游堆積段之石礫排列呈變形之同心圓形，先端部以垂直流路或指向流路中央為主，但後續部分因地勢仍維持谷中堆積之排列特性；谷中堆積段結果則與渠槽堆積段相符。

關鍵字：土石流、石礫軸向

ABSTRACT

The purpose of this study was going to investigate the axial aspect of gravels on the debris flow deposition in order to realize the deposition characteristics of debris flows. This study selected the gravel bed region on Mt. Huoyan as studied area to investigate the trend of gravel axis on debris deposition zone. Besides, a flume experiment was conducted with different slope and different composition of soil material to find the rule of gravel axial aspect in debris flow, and to compare with the results of field investigation.

The results of flume experiment showed that the main direction of gravel axis in the middle of the channel was vertical to the streamline of flow, however, others on the both-side was parallel to the streamline of flow. Furthermore, gravel axis displayed a pattern of concentric circle on the fan-shaped accumulation. The main direction of gavel on the fan-shaped accumulation usually oriented to the center of the deposited debris.

Keywords: Debris flow, gravel axial