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# 天然河川水位-流量率定曲線分類研究

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**摘　　要**　水位-流量率定曲線之推估繪製及應用，一直是水資源規劃及工程建設中之重要基本工作。台灣河川因具有流域狹小、坡度陡峻、沖刷及淤積情形嚴重與洪枯流量懸殊等特徵，造成台灣河川底床沖淤及河道變動頻繁，使得水位-流量率定關係十分不穩定，亦使得傳統使用之指數型率定曲線適用性受到侷限。而台灣地區中央管河川目前有水位流量站共 142 站，各站之地理位置、水文、地文及河川特性等皆不盡相同，故水位-流量率定曲線的資料點分佈及適用之繪製方法也各有所異。本文對淡水河、八掌溪、曾文溪、卑南溪、花蓮溪及及蘭陽溪等六條河川所有之水位流量站(共 30 站)進行實地現勘研究，並根據考察結果及歷年水位流量資料的蒐集分析，將各站之水位-流量關係分爲長期穩定型、年穩定型、分段型及散亂型四類。由分類結果可看出不同河川型態及河道斷面的變化，水位-流量資料點會有不同的分佈的狀況。且同一條河川，因水位流量站的設置位置不同，其水位-流量資料點的分佈亦有不同，故應針對個別水位站特性採用不同之繪制分析方法。本研究根據不同測站之水位-流量關係類別，研擬適用之水位-流量率定曲線繪製方式，將可供水位-流量率定曲線繪製應用時之參考。

**關鍵詞**：水位-流量率定曲線，指數型率定曲線，類神經網路。

# Study on the Classification of Stage-Discharge Rating Curve in Natural Rivers

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**ABSTRACT**　The estimation and application of stage-discharge rating curve are always the basic and important task of hydraulic and water resource engineering. Streams in Taiwan are characterized with narrow and small drainage areas, steep longitudinal slope, severe scour and deposition and great variations in stream-flow discharge between dry and wet periods. These characteristics result in the frequency of scour and deposition in river bed, rapid changes in cross sectional geometry, and the unstable of stage-discharge relationship. There are 142 stage-discharge gage stations in important rivers in Taiwan. Since the gage position, hydrology and physiographic condition, and the characteristics of river are not the same in Taiwan rivers. The distribution of stage-discharge data and the suitable rating curves will be different. This study investigated six rivers which include Tan-Shui River, Pa-Chang Chi, Tseng-Wen Chi, Pei-Nan Chi, Hua-Lien Chi, and Lan-Yang Chi. According to the results of

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investigation and the analysis of history measurement data, the classification of stage-discharge gage station is carried out, and suitable method is recommended for each classification. Finally, the analysis reveals that the recommended method for the rating curve will get better fitting for stage-discharge measurement data.

***Key Words:*** Stage-discharge rating curve, Log form rating curve, neural network.