

Application of Genetic Algorithm Combining Operation Tree (GAOT) to
Stream-Way Transition(101.07.15-07.17)

陳莉, 陳冠廷, 苟昌煥, 馬世瑋

Civil Engineering

College of Architecture and Design

chkou@chu.edu.tw

Abstract

The main purpose of this paper is to predict stream-way transition with genetic algorithm (GA) combined with the Operation Tree (OT), called GAOT. Therefore, the downstream stream-way transition according to the upstream conditions is forecasted by GAOT. Five main factors affect the stream-way transition including inflow position, inflow angle, slope, flow discharge, and sand content of suspended sediment were chosen as input variables. We selected two important cross sections nearby a damaged bridge of Ta-Chia River in Taiwan as a case study. The results show that GAOT has better performance than the traditional linear regression (LR) method.

Keyword : Genetic algorithms, Operation tree, Stream-way transition, Ta-Chia River, Linear regression