APPLICATION OF GENETIC ALGORITHM COMBINING OPERATION TREE (GAOT) TO STREAM-WAY TRANSITION

陳莉, 陳冠廷, 苟昌煥, 馬世瑋

Civil Engineering

Architecture

lichen@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 algorithm; operation tree; Stream-way transition; Ta-Chia River; Linear regression