Prediction of Scour around Hydraulic Structures using ANN, ANFIS & Genetic Programming

(304.PREREDAC.6035262)

by

H Md Azamathulla

December 2009

When a structure (spillway or bridge pier) is placed in a hydraulic/marine environment, the presence of the structure will change the flow pattern in its immediate neighborhood, resulting in these changes usually cause an increase in the local sediment transport capacity and thus lead to scour. Scour can induce failure of hydraulic and marine structures. Costs involved for repair of the failed parts of river/coastal structures where the failure is due to scouring typically run at the level of US$2–10 million per failure (Lillycrop and Hughes, 1993).The purpose of this work is to give an overview of soft computing of flow and scour processes, describing principal ideas (regression equations, ANN, ANFIS and GP), important features, procedures (equations), shortfalls, etc.