Desalination and Water Treatment
www.deswater.com
doi: 10.5004/dwt.2021.27566

241 (2021) 223–229
November

The use of GIS-based genetic algorithm in water pollution control planning

Lin Liu

Faculty of Mathematics and Physics, Southwest Forestry University, Kunming 650224, China, email: linliu8213@163.com

Received 25 June 2021; Accepted 23 September 2021

ABSTRACT

The study aims to ensure the coordinated development of different factors involved in water pollution control planning, such as environment, economy, and society. The model algorithm is combined with geographic information system (GIS). The effectiveness of the algorithm and the empirical knowledge of expert system are used to realize the optimal planning of water pollution. On the basis of previous studies, mining algorithm is used as a starting point, and the required parts are developed on the basis of genetic algorithm optimal planning scheme and BP (back propagation) water quality prediction and assessment through the constructive method. After that, the related research is used to verify the water pollution control planning method. The model algorithm is closely combined with GIS, and the model algorithm is combined with the empirical knowledge of expert system to realize the water pollution control planning. In this way, when the relevant data are sufficient, it will reduce a lot of simulation and experiment, greatly reduce the waste of human and material resources, and provide a shortcut to a certain extent.

Keywords: Genetic algorithm; Water pollution control; Geographic information system; Decision support