Biogeography Based Groundwater Exploration


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Abstract

In this paper, we have proposed the implementation of Groundwater Possibility Retrieval System to detect the groundwater possibility using the burgeoning technique of Biogeography Based Optimization and Case based reasoning retrieval. In the case base used in this study, Geology, Land form, Soil, Land use, Slope and Lineament play a decisive role in determining ground water possibilities. These attributes are integrated and analyzed by the experts to predict the groundwater possibility. A stored case in case base is a preselected combination of these attributes having solution class. The cases reveal three solutions: high groundwater possibility, moderate possibility and low possibility. It is assumed that initially there are three habitats: High, Moderate and Low habitat. This is because according to BBO, solutions are analogous to the habitats. The cases are assumed to be the species that are residing in these habitats and their attributes are assumed to be the features of species.
High, moderate and low habitats consist of species revealing high, moderate and low groundwater possibility respectively. Assume an input case (case without solution class) as an input species that is to be placed into an isolated habitat. Based on HSI, emigration takes place from other habitats to an isolated habitat. Isolated habitat is now consisted of species that are more similar to an input species. Case retrieval method is applied to find out the best match from the emigrated species to an input species. Thus solution class of a best matched species is transferred to an input species as its solution class.

Reference


Index Terms

Computer Science
Intelligent Systems

Key words

Biogeography
Biogeography Based Optimization
Case based Reasoning
Case retrieval
groundwater possibility