EARTH OBSERVATION SYMPOSIUM (B1)
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Author: Mr. ALABI BABATUNDE
Federal University of Technology Akure, Ondo State., Nigeria

Dr. A. Yekini Biodun Anifowose
Federal University of Technology Akure, Nigeria
Mr. olabanji aladejana
Nigeria
Mr. Adedeji Oluwatola I.
National Space Research and Development Agency (NASRDA), Abuja, Nigeria

EVALUATION OF GROUNDWATER POTENTIAL ZONE IN IBADAN AREA OYO STATE SOUTHWESTERN NIGERIA USING GEOSPATIAL TECHNIQUES AND ANALYTICAL HIERARCHY PROCESS.

Abstract

    With the advancement of powerful and high-speed personal computers, efficient techniques for water management have evolved. Also, recently, development and increasingly used of groundwater for many purposes has led to depletion of groundwater level also led to land subsidence. Since water is a fundamental resource for life, understanding its availability would assist governments and other relevant authorities in planning settlement, agriculture and industry. In this present study, an attempt has been made to delineate possible groundwater potential zones in Ibadan,Oyo state Southwestern Nigeria using geospatial techniques and Analytic hierarchy process (AHP).Difference thematic layers were considered in this study, these are geology, drainage density, soil, slope, land use /land cover, lineament density, geomorphology and rainfall which were prepared using Nigeria sat-X, Landsat 8, Quickbird, Digital elevation model from Shultle Radar Topographical mission (SRTM), Google earth imagery, Pedological and geological data. All these themes and their individual features were then assigned weights using Idrisi selva software and AHP calculator online respectively according to their relative importance in groundwater occurrence and the corresponding normalized weights were obtained based on the saaty's analytical hierarchy process alongside with six different GIS software. The thematic layers were finally integrated using ArcGIS 10.2 version software to yield a groundwater potential zone map of the study area. In the course of this study interoperability of these software were noted. Thus, four different groundwater potential zones were identified, namely 'excellent', 'good', 'fair', and 'poor'. The groundwater potential Zone map of the study area produced revealed that about 4.23Key words Goespatial techniques, GIS, AHP and Interoperability.