



Advantages of Non-Intrusive Social Network Data Analyses and Geoinformatics Methodologies

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Introduction

Water is the most not unusual and considerable useful resource on earth. Generally, water is known as the basis of the life of life. Guy significantly depends on water for both home and business usage so therefore the search for water for all purpose in life has drift from regular look for water to prospecting for constant and dependable subsurface or groundwater from boreholes. In Nigeria, presently, groundwater exploration has rescued the citizenry from acute shortage of water. Groundwater may be defined as the water present beneath Earth's surface in soil pore areas and in the fractures of rock formations. It is derived basically from percolation and tension free interface of impermeable rock formation. Its miles stored in and movements slowly via geologic formations of soil, sand and rocks known as aquifers. Aquifers are geologic formation that could shop water and can be extracted in commercial/economic portions. They may be generally made from gravel, sand, sandstone, or fractured rock and so forth. Water can circulate thru those substances due to the fact they've large connected areas (porous) that make them permeable.

The speed at which groundwater flows depends on the size of the spaces in the soil or rock and how properly the spaces are related, water in the aquifers is introduced to the floor evidently via a spring or can be discharged into lakes and streams. Groundwater also can be extracted via a well drilled into the aquifer. In different to determine the groundwater bearing formations (aquifer zones), geophysical strategies are hired. The Electric Resistivity Method (ERM) has been located to be very reliable for groundwater studies over time. The various geophysical strategies generally hired in subsurface investigations, the Electric Resistivity Method (ERM) has particular benefit in hydrogeology as it responds to variations in conductivity of the groundwater bearing formations. The objectives of this approach inside the groundwater research are to find groundwater bearing formations, estimation of intensity to the water desk, thickness and lateral extent of aquifers, intensity to bed rock, delineation of weathered quarter and so on. Electric resistivity method has gained significant significance inside the discipline of groundwater exploration due to its low fee, smooth operation and efficacy to stumble on the water bearing formation. Drilling of boreholes for groundwater exploration has been of development to the not unusual hand-dug wells that do dry up for the duration of the dry season and technique to get safe and transportable water free from contaminants.

Geoinformatics

The have a look at location is harmony Secondary College Compound, Owo, Owo nearby government that is a plain terrain located inside the North Senatorial District of Ondo country. Its topographic elevation is between 318m and 321m above sea level placed in the rainforest belt of Nigeria with a climate of long wet season (April to October) and a brief dry season (November to March). Groundwater recharge is often via meteoric precipitation (rainfall) and lateral base drift. The Precambrian Basement complicated rocks of south western Nigeria underlie the look at region. The lithological gadgets recognized to be migmatite gneiss is mainly concealed by means of the unconsolidated basement regulate within the area. The unconsolidated alter underlain through fractured/fresh bedrock usually takes place in an ordinary basement terrain.

The electrical resistivity approach is an active geophysical approach. This technique makes use of differences in electric capacity to pick out subsurface fabric. It employs an synthetic source that is introduced into the ground via a couple of electrodes, the electrodes by means of which modern-day is introduced into the floor are referred to as cutting-edge electrodes and the electrodes between which the capability difference is measured are called the potential electrodes. An appropriately acknowledged modern from a resistivity meter is brought on to drift from one outer electrode to the alternative into the earth and a measurement is taken of the voltage among the two inner electrodes. Having measured voltage and cutting-edge, an easy system is used to set up depth and composition of the strata the floor apparent resistivity is calculated from parameters and the geometric thing of the electrode array used. Electric resistivity technique is basically primarily based on Ohm's law measuring resistance. Resistance is defined because the voltage divided with the aid of the present day ($R=V/I$), where in V is the potential difference throughout the cord and i is the electrical cutting-edge via it, the price of a cloth's resistance depends at the resistivity of that material. Resistivity is the cost of resisting power of a positive cloth to the waft of a shifting modern-day. Resistivity values of rocks are managed by using chemical composition of the minerals, density, porosity, water content, water fine and temperature. Resistivity varies to a massive volume in exceptional rocks. Igneous and metamorphic rocks display a number 102 and 106 Ohm-m and the sedimentary rocks display a hundred to one zero five mm. however, within the porous formations which include particularly weathered and fractured rocks and unconsolidated sediments, the resistivity is controlled extra by way of the amount and first-class of water present than the actual rock resistivity. Those resistance values are transformed to apparent resistivity values using the formulation $\rho_a=kV/I$ the true resistivity of a formation is calculated based on the apparent resistivity values acquired. Via plotting obvious resistivity values as ordinate and electrode spacing as abscissa on double logarithm paper, a easy curve can be received passing through specific factors. This curve is called vertical electrical sounding curve or field curve. From those discipline curves, layer parameters can be determined and subsurface hydrogeological conditions can then be interpreted by using the use of every person of the interpretation strategies.

The electrical resistivity method is completed the use of a set of geophysical tool which are resistivity meter, electrodes, cable wires, engineering hammer, measuring tapes and so on., quantitative and qualitative interpretation is executed to interpreted subject information

to others is depending on the goal of the survey and depth of records required. The maximum common are the Winner association, Schlumberger arrangement, Dipole-Dipole association; Pole-Dipole association, and many others. The schlumberger and winner arrays are used for shallow investigations. Dipole structures are commonly employed for deeper research. However, Schlumberger electrode configuration becomes hired on this research work due to its gain over other methods each in the discipline survey as well as inside the interpretation of information. In schlumberger electrode configuration,

4 electrodes are used and are positioned on a immediately line on the planet but with $AB=5MN$ i.e. the capability electrodes (M&N) are intently spaced in a manner that it does now not exceed one-5th of the spacing of the modern electrodes at the same time as the contemporary electrodes are extensively spaced until the observed voltage becomes too small to measure. The schlumberger sounding commonly have better resolution, more probing depth and much less time-ingesting field deployment.