Abstract

One of the basic soil features is the temperature in such a way that plant's growth and development as well as the process of staining relies on its changes and shifts.Furthermore, diverse methods such as evaporation and transpiration, soil ventilation, germination, roots expansion, and microbial inner soil part activities are also depend on soil temperatue. Various methods such as SeriQurieh, linear multivariable regression, artifical neural networks, enery equilibrium equation and geographicalinformation system (GIS) have been presented by reseachers to this soil feature. The base parameters in most of these methods are airand soil temperature whereas, themain feature of soil is in heat direction and the coefficient of heat that indicate thedistribtion of warm into the soil environment. The amount of soil changes along with changes in the moisture, the external density, soil type, temperature and soil organic materials so that it changes from 0/001to 0/001 cmper second. The high amounts of this coefficient shows that warmth is disrubuted faster in the environment and if the soil features remain fixed most of its parts are saturated in less moisture parts. In the present study, the amount of soil distribution in various soil level external density will be investigated. To do so, based on a conducted study through an electronic system and five burried sensor in the soil, the power of soil in transferring the heat in a soil intact soil will be measured. Then, a monodimensional equation of heat transfere in the soil based on Krank-Niklson for various amounts in the domain of its changes is selected and finally by using root criterion of trial (RMSE)the amount of heat distribution by using trial and error for various densities in the soil will be extracted.

Keywords: heat tranfere,finite differences, thermal sensor, electronic system, heat distributioncoefficient.

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Numerical Simulation and Laboratory Examination of Soil Heat Distribution Coefficient at Different Levels of Apparent Density

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