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# Comparative assessment of five water infiltration models into the soil

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The knowledge of the soil hydraulic conditions particularly soil permeability is an important issue hydrological and climatic study. Because of its high spatial and temporal variability, soil infiltration monitoring scheme was investigated in view of its application in infiltration modelling. Some of models for infiltration into the soil have been developed, in this paper; we design and describe capability of five infiltration model into the soil. We took a decision to select the best model suggested. In this research in the first time, we designed a program in Quick Basic software and wrote algorithm of five models that include Kostiakove, Modified Kostiakove, Philip, S.C.S and Horton. Afterwards we supplied amounts of factual infiltration, according of get at infiltration data, by double rings method in 12 series of Saveh plain which situated in Markazi province in Iran. After accessing to models coefficients, these equations were regenerated by Excel software and calculations related to models acuity rate in proportion to observations and also related graphs were
done by this software. Amounts of infiltration parameters, such as cumulative infiltration and infiltration rate were obtained from designed models. Then we compared amounts of observation and determination parameters of infiltration.

The results show that Kostiakove and Modified Kostiakove models could
quantify amounts of cumulative infiltration and infiltration rate in triple period (short, middle and long time). In tree series of soils, Horton model could determine infiltration amounts better than others in time trinal treatments. The results show that Philip model in seven series had a relatively good fitness for determination of infiltration parameters. Also Philip model in five series of soils, after passing of time, had curve shape; in fact this shown that attraction coefficient (s) was less than zero. After all S.C.S model among of others had the least capability to determination of infiltration parameters.