



## Horizontal Variability of Some Soil Properties in Wasit Governorate by Using Time Series Analysis

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**Abstract:** The study was conducted at in two pedons of Wasit Province and soil samples were collected from three depths (0-30, 30-60 and 60-90 cm). The results showed the variability of physical and chemical properties. Sand property was the most variant one as the highest coefficient variation was 114.22 per cent followed by clay. The EC also showed the highest variation (65.91%) followed by the organic matter. Thee appropriate model for describing the variability of soil properties was the moving average MA (1) model which was prevalent at all depths, followed by the autoregressive AR (1) model. In most properties, the values of forecasting do not approach their rates at previous locations. The results of autocorrelation diagram indicated that most of the soil properties have no spatial variability except for some properties in the surface depth, some of which are soil organic matter, pH and EC; while there was no spatial variability for all properties except for clay, EC and CEC in the middle depth (30-60 cm). As for the lower depth (60-90 cm), there was spatial reliability for the clay only which didn't exist at other depths.

**Keywords:** Horizontal variability, Time series, Autocorrelation, Forecasting

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