



## **Spatial Variability Some Physical and Chemical Properties Soil surface In Dasht-e-Tabriz Different Landforms**

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Spatial distribution of soil properties at the field and watershed scale (region scale) affect yield potential, hydrologic responses, and transport of herbicides and  $\text{NO}_3$  to surface or groundwater. The present study aim was to evaluate some physical and chemical properties spatial variability and frequency distribution within and between landforms of Dash-e-Tabriz in the northwest of Iran. For this evaluation 98 samples from soils surface of layer according to grid sampling design and with 500-1000 meters distance based on soils variability were selected and analysed. Landforms were hill, piedmont plain, plain, river alluvial plain and lowland. The study of soil variables frequency distribution showed that  $\text{Bd}$ ,  $\text{CEC}$ ,  $\text{CaCO}_3$ ,  $\text{pH}$ , clay and silt follow normal distribution, which to study their variation one can use parametric statistical method. Variables such as  $\text{MWD}$ ,  $\text{N}(\text{total})$ ,  $\text{SAR}$ ,  $\text{EC}$ ,  $\text{P}(\text{available})$  and sand showed log-normal distribution, that for their variation study, should first be transformed to a logarithmic scale. The variables frequency distribution increase within landforms, which in lowland, hill, and river alluvial plain they showed normal distribution and only  $\text{EC}$  in piedmont plain and sand,  $\text{OC}$  and  $\text{N}(\text{total})$  in plain had log-normal distributions. The results indicate significant differences of soil properties distribution among landforms, which clay,  $\text{pH}$ ,  $\text{EC}$ ,  $\text{SAR}$  and  $\text{MWD}$ ,  $\text{CEC}$ ,  $\text{Bd}$ ,  $\text{N}(\text{total})$ ,  $\text{OC}$ ,  $\text{P}(\text{available})$ , sand, silt were strongly and moderately spatial dependent respectively and  $\text{CaCO}_3$  had no spatial dependence and it is following nugget model. These results indicate that strong spatial dependence due to the effects of intrinsic factors such as parent material, relief and soil types. Also soil properties variations result from variation in depositional environments and or differences in pedogenic or hydrologic processes for different landform positions, and so it can be affected by the flood irrigation, fertilizer addition, high water table level or agriculture practices. These effects may cause data departure from normal distribution and cause skewness (positive or negative) for soil mapping unit.

Key words : Spatial Variability, Frequency Distribution, Landform,  $\text{EC}$ ,  $\text{SAR}$ ,  $\text{CEC}$ ,  $\text{MWD}$ , Dasht-e-Tabriz