Correlation between clay and other earths habitats
Hawthorn (Abdanan - Ilam) using the statistical

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ABSTRACT: Zagros forests that line the West Country band, play a crucial role in preventing erosion, climate and environment of the region and the stylized play. There is also a variety of plant and animal species distinct from other areas of the region and has attracted the attention of many researchers in the life sciences. Hawthorn species in 17 genera that are very spread out and there is a genus Crataegus pontica in Iran. Hawthorn genera Rosace family related and mixed with trees and shrubs that are in America, Europe and Asia have been established. In this study, we investigated the correlation of clay soils with different parameters that will determine the percentage of clay and soil organic matter, salinity, soil nitrogen is correlated. In this review the implementation krigings results showed that the lowest interpolation error is related to soil salinity.

Key words: Hawthorn, Geostatistics, co-clay

INTRODUCTION

Zagros forests that line the West Country band, play a crucial role in preventing erosion, climate and environment of the region and the stylized play. There is also a variety of plant and animal species distinct from other areas of the region and has attracted the attention of many researchers in the life sciences. Georgians Sailor, 1366 (Georgian Sailor, 1366) Crataegus species in 17 genera that are very spread out and there is a genus Crataegus pontica in Iran (Hassemi et al, 2012). Hawthorn 5 to 15 feet tall when mature look. Spherical fruits (like apples) and small branches, small sharp reversal 1-3cm long. In most genera, or at the edge of the Dandanhdarnd Lvhand leaves on long branches and the branches leaves grow in a spiral form horrent Khvshhand (Fyps et al, 2003). The statistical technique for identifying systematic changes in the components of natural materials such as soil. Due to the interaction between soil and vegetation, soil survey and its variations is essential. In this regard, one of the most basic information on land resources is undoubtedly a map soil properties. So with the help of an interpolation method with minimal data may be attempting to map soil properties (Webster, 2000). Geostatistics methods, the spatial correlation between the values of variables are examined in a region. Geostatistics in different ways depending on variables, suggest that carefully. Correlation between clay content in the soil parameters using Geostatistics Many studies have been conducted in the field of tree characteristics such as standing balance, height, diameter, leaf area index Bayvms studies have been conducted in the country and abroad. In forest inventory, Muslim, et al (2006) estimated the spatial and volumetric balance of the Caspian forests studied by using Geostatistics. The results of this study showed that all kriging Drvnyabyha skewed and not much considering the effect Modify piece, a good estimate of the balance of the offer. Marshyv and colleagues (2007), Geostatistics applied in this study to improve the precision of forest biomass in Brazil looked. They concluded that Geostatistics method to estimate the biomass map of the study area. Chen and colleagues (2009), and co-kriging using soil samples with 100 concentrations of copper, zinc, cobalt, nickel, manganese, mercury, and cadmium in agricultural soils of East China Interpolation and map them to achieve . Perez (2007), Spatial variability of soil erodibility parameters including sand, clay, silt, organic matter studied the variability factors, the results showed that kriging is more accurately estimated. The purpose of this study was to estimate the best co-determination is clay soil than other parameters.
MATERIALS AND METHODS

About the area
The study area within the protected area Dynarkvh Abdanan geographical characteristics’11 57 32’ N
54 32 minutes north latitude and east longitude 40 17 47’ minutes’11 21 47’ is located. The stone units of old most
of the lower part of the core of the anticline Sarvak ¬ Dynarkvh and Seifi over the place. Other formations from
the old to the new order are: Svrgah, Ilam and Upper Cretaceous period Gurpi all of the Quaternary deposits
and vowed to continue ¬ We find, in general, the study area is composed of chalk and limestone rocks on is
Sarvak. Height loss increases with the thickness of soil erosion repre ¬ ¬ It suggests that a reduction in the
heights of vegetation. Soil texture is medium to heavy and everything comes down to a depth of more ¬ ¬ ¬
going to be light-textured soils. ¬ where the vegetation has been degraded soils exposed to severe water
erosion gully is abundant in the area, ¬ see. So any stress, whether mechanical or biochemical trees that can
affect ¬ (Saman Consulting Engineers Waterways, 2004). Used only synoptic stations near the study area,
which has a relatively high DEHLORAN synoptic stations (from 75 to 91 years) will be ¬. The maximum annual
rainfall figures Station 2/648 mm ¬ m, the minimum annual rainfall of 9/169 milli ¬ meters and an average
annual rainfall of 1/300 milli ¬ meters (4/3 ± 1/300) is.

Soil samples from a depth of 50 cm30-0 created and then air dried to a laboratory that were then
passed through a sieve of 2 mm was measured parameters. In order to find a suitable auxiliary krigings percent
organic carbon, clay content, salinity, and nitrogen concentrations were measured. Percent organic carbon
using titration, clay, electrical conductivity (EC) of the saturation extract is measured using a conductivity meter.

Statistics and Geostatistics Nayz­hay
Geostatistics methods and data normalization condition Nalyzvaryvgrom. Evaluation of data normality
using the coefficient of skewness. When this ratio is greater than 1, the log should be tested for normality using
the Kolmogorov - Smimov done. Linear correlation between variables was calculated using SPSS version 16
and Geostatistics analysis using Arc GIS version of the GS and 2/10 were carried out
As in classical statistics, multivariate methods for estimating there, Geostatistics can be based on the
correlation between co­acting methods, interpolation more accurately done.
Co equation is as follows (Hassani Pak 1386):

\[ z(x_i) = \sum_{i=1}^{n} \lambda_i \cdot z(x_i) \sum_{k=a}^{n} \lambda_k \cdot \gamma(x_k) \]

Where \( Z(x_i) \) the estimated value \( (x_i) \), \( (yi) \) the variable weight \( z \), \( (yk) \) the weight of an
auxiliary variable \( y \), \( Z(x_i) \) the observed value of the original variable, \( \lambda(x_k) \)the observed value of the auxiliary
variable.

Assess the accuracy
In order to evaluate the results of statistical analyzes, the statistic is RSME. Matter how much Shtsnjy
this statistic is less than the desired method of showing spatial variations of a parameter that is more
convenient. To this end, about 30% of the data (N = 20) were randomly selected and used as the benchmark
data were excluded from all analyzes.

\[ MSE = \frac{1}{N} \sum_{i=1}^{N} (y_i - y_i^\wedge)^2 \]

\[ RMSE = \sqrt{\frac{\sum_{i=1}^{n} (y_i^\wedge - y_i)^2}{N}} \]

The best estimate, an estimate that has minimal mean square error and minimum mean square error is
squared. Therefore considering the three parameters MSE and RMSE statistics and the correlation coefficient
between the calculated and observed values (r2) were evaluated. The RMSE values less than the amount that
crosses radjustt and $r^2$ $r$, the greater the models applied statistical accuracy will be higher.

RESULTS

After the data of 50 soil samples were measured in a laboratory, then the statistical analysis were the statistical indicators are such as minimum, maximum, mean and skewness obtained from the data normality was assessed. Normally distributed data, provided that the coefficient skewness of data must be less than 1. Results obtained indicated that the data are available from such features. After normalizing the data, soil survey data, 70% ($N = 30$) maps available for the dependent parameters krigings, respectively. Below the map in Fig.
Table 1. Results of the evaluation error of method cokriging for soil clay.

<table>
<thead>
<tr>
<th></th>
<th>Co-clay-ec</th>
<th>Co-clay-om</th>
<th>Co-clay-N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>-0.28</td>
<td>-0.27</td>
<td>-0.30</td>
</tr>
<tr>
<td>Root mean square error</td>
<td>6.247</td>
<td>6.33</td>
<td>6.30</td>
</tr>
<tr>
<td>Standard mean square error square</td>
<td>0.928</td>
<td>0.94</td>
<td>0.938</td>
</tr>
<tr>
<td>Standard error of the mean</td>
<td>6.858</td>
<td>6.73</td>
<td>6.82</td>
</tr>
<tr>
<td>R</td>
<td>0.559</td>
<td>0.330</td>
<td>0.339</td>
</tr>
<tr>
<td>R^2</td>
<td>0.313</td>
<td>0.109</td>
<td>0.115</td>
</tr>
<tr>
<td>R_adjust</td>
<td>0.232</td>
<td>0.004</td>
<td>0.010</td>
</tr>
</tbody>
</table>

According to the results of salinity than root mean square error and the error in the amount of organic matter and nitrogen at 928. Has According to these results, the error rate is less salty due to the r^2 coefficient of salt is higher than that of organic matter and nitrogen chiefly higher., with the characterization and assessment of R, R^2, Radjust salinity is higher than the other depends on two parameters. clays typically have higher salinity, soil texture, the salinity of the soil caused by the concentration of ions in solution soil and the soil surface (top, et al, 2000).

**DISCUSSION AND CONCLUSION**

Statistical results are based on the interpolation accuracy krigings appropriate method for determining the clay. Suitable significant relationship between the main variables and covariates are available. After analyzing the results of this study conclude that: Using Information Systems - GIS could be used as an information tool helped to increase the accuracy and speed in Soil maps have. On the other hand, using the interpolation method of Geostatistics, statistical analysis and forecasting can be in different locations based on geographic location and phenomena to be analyzed. Results indicate that krigings better results than other parameters by salinities auxiliary parameters help in determining the percentage of clay in the study area shows. In terms of comparison with other covariates in terms of RMSE and r^2 is a better result than shown.

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**REFERENCES**