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Abstract

Topography composed of elevation, slope, and aspect, that through the influence microclimate and chemical and physical properties of land affects the amount of organic carbon. Because of the height difference between hydrology and temperature regime in mountainous regions are collaborating and that difference has led to differences in the composition and distribution patterns of vegetation, the soil and organic matter decomposition rate is. Effect of climate change on soil organic carbon storage and its distribution is different in different regions, and the main factors creating differences, temperature and rainfall levels are on the order and the growth rate plant species and organic carbon mineralization rate impact.to evaluate these factors first ETM+ satellite images of 2002 North range lands, Karaj river basin prepared, then image processing and image classification as supervision and unsupervision was done. Then NDVI, TNDVI, VI, IR/R, Square IR/R indices obtained for study area and on the basis of these indices study area units was specified. Digital elevation model (DEM) using the region as a 1:50000 topographic map was produced before. Using Arc- GIS image and maps physiographic, location sampling based physiographic units changes and temperature change with the opposite slope directions sample have been made. By using GPS, 24 positions for surface samples and 4 pedons determined and sampled. Physical and chemical sample properties have based on size and by using dry sieve and OC, N and C/N ratio respectively specified in them. Then, using Exel software existing relationships between different parameters were studied. The results showed that, with increases. In the slope of the north and west due to the ability to maintain more moisture, have organic matter, more than the southern and eastern slopes. Correlation coefficients obtained included: correlation coefficient between organic matter and elevation 0.84, correlation coefficient between organic matter and CEC 0.52, correlation coefficient between organic carbon and precipitation 0.82, and correlation coefficient between organic matter and %N and C/N ratio are respectively 0.85 and 0.62. with doing physical size fraction, seen that %OC, %N and C/N ratio in the second stage of sampling is more than the first and third stages. During the test mineralogy, smectite clay was dominant in the region.

Key word: Physiographic, Climate, Carbon Sequestration, GIS, RS.