Analyzing the vegetation condition of the Sarigol protected area over four decades and predicting its changes in 2025

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Abstract

One of the important applications of satellite remote sensing technology is mapping and monitoring changes over time. The aim of this study was to detect the vegetation condition of the Sarigol protected area in Esfarayen region of Northern Khorasan province using Landsat-MSS, TM and ETM^+ images over 36 years. After applying geometric and radiometric corrections, the map of vegetation cover and its changes was achieved via different image analysis techniques and the post-classification method. Finally, modeling techniques were used to forecast the vegetation status of the Sarigol for the year 2025. Results showed a significant increase in shrub vegetation cover about 76000 hectares during the 36 years from 1973 to 2009. The results of vegetation modeling also showed that vegetation cover will continue to increase in 2025 due to the rehabilitation of rangelands and bare lands. According to the results, it can be said that the technology of remote sensing can be used as an effective tool for monitoring and analyzing vegetation cover in protected areas and also it can provide clear evidence for management related differences in vegetation cover.

Keywords: Remote sensing, monitoring, modeling, Sarigol protected area, Esfarayen