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VEGETATIVE COVER CLASSIFICATION AND PHENOLOGY MONITORING IN A PART OF DOON VALLEY

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ABSTRACT: To understand the human interferences with environment, monitoring of land use and land cover is important which enable us to manage the changes. The present study has been aimed to monitor and classify the vegetation cover and phenological responses in Barkot Forest range, a part of Doon Valley during a long-term period of 1981 to 2015. The entire work has been done through remote sensing approach using satellite images of Doon valley obtained from LANDSAT OLI and AVHRR GIMMS 3g dataset. Land use land cover map of the location is used to identify the modifications which have been occurred particularly in the settlement land area and forest cover. Image processing technique in EDRAS imagine (2014) along with ArcGIS 10.1 have been used to detect land use land cover changes. Normalized difference vegetation index (NDVI) helps to monitor and understand the phenological behavior of vegetation cover of selected land area. Monitoring of land use land cover changes would help to manage the human actions and land encroachments. The long-term time period of 1981 to 2015 have been analyzed in the current study. Four major classes namely forest, river bed, water bodies, the settlements and agriculture have been identified using unsupervised classification in the study location. Results shows major type of land use changes in that location. A reduction in total forest area is noticed in 2015 as compared to 1981. It is observed that, during 2015, 71% of the total land area is covered with forest while only 2% area is under the open forest. However, previously 94% area of this location was covered by forest. Actually, agricultural practices are increased in this region which leads to the destruction of forest area. Moreover, climatic variability during this long-term time period also played an important role for such changes. Seasonal as well as annual changes in vegetation phenological dynamics have also been identified.

Keywords: *AVHRR GIMMS3g, Doon Valley, LANDSAT OLI, land use and land cover classification, normalized difference vegetation index, phenology*

Abbreviations: AVHRR- Advanced Very High-Resolution Radiometer, ESRI- Environmental Systems Research Institute, MODIS- Moderate Resolution Imaging Spectroradiometer, NASA- National Aeronautics and Space Administration, NDVI- Normalized difference vegetation index

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