SPATIOTEMPORAL LAND COVER CHANGE AND ESTIMATION OF LAND DEGRADATION FACTORS BASED ON VEGETATION STRUCTURAL CHARACTERISTICS IN THE SEMI- ARID ZONE OF ALGERIA

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Desertification is one of the most important problems due to global climate change. Many factors contribute to the degradation of the environment and the Algerian steppe. The first is related to human activities, such as land use change. Other factors include natural degradation due to changes in temperature, humidity and wind. Analyzing land use change helps decision makers to ensure sustainable development and understand the dynamics of our changing environment. In recent years, the study area, Nâama in Algeria, has undergone many changes due to rapid urban growth and poorly planned infrastructure development. In this study, the work is mainly based on classification criteria and degradation factors for the identification of physical and climatic parameters in the spatial analysis of change in order to determine the vulnerability of
steppe formations and their impact on desertification. To this end, we have classified land use by combining several spectral indices in particular, which can be calculated from satellite data on each Land sat satellite spectral band, to construct multiband input data for a supervised classification approach based on a support vector (SVM), By applying this method to Land sat archival imagery in the period 15 years. Vegetation indices combined with classification are used to characterize forest and steppe formations. Using GIS, we integrated different factors, climatic parameters with rainfall and land surface temperature combined with land use, land cover and slope; we adopted proposals from expert judgments to determine weights in order to assign weights to each parameter. This allowed us to determine changes in land use and clarify the situation with regard to desertification. The results of this study provide information about the different components of the steppe, that could help highlight the extent of degradation and change, which

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affects the environment of the steppe, allowing an analysis of the desertification process in this region.