

## Change Detection and Analysis of Desertification Processes in Semi Arid Land in Algeria Using Landsat Data

**Authors :** Zegrar Ahmed, Ghabi Mohamed

**Abstract :** The degradation of arid and semi-arid ecosystems in Algeria has become a palpable fact that only hinders progress and rural development. In these exceptionally fragile environments, the decline of vegetation is done according to an alarming increase and wind erosion dominates. The ecosystem is subjected to a long hot dry season and low annual average rainfall. The urgency of the fight against desertification is imposed by the very nature of the process that tends to self-accelerate, resulting when human intervention is not forthcoming the irreversibility situations, preventing any possibility of restoration state of these zones. These phenomena have led to different degradation processes, such as the destruction of vegetation, soil erosion, and deterioration of the physical environment. In this study, the work is mainly based on the criteria for classification and identification of physical parameters for spatial analysis and multi-sources to determine the vulnerability of major steppe formations and their impact on desertification. we used Landsat data with two different dates March 2010 and November 2014 in order to determine the changes in land cover, sand moving and land degradation for the diagnosis of the desertification Phenomenon. The application, through specific processes, including the supervised classification was used to characterize the main steppe formations. An analysis of the vulnerability of plant communities was conducted to assign weights and identify areas most susceptible to desertification. Vegetation indices are used to characterize the steppe formations to determine changes in land use.

**Keywords :** remote sensing, SIG, ecosystem, degradation, desertification

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