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Author: Mrs. Madina Amiraslanova
Azerbaijan National Aerospace Agency, Azerbaijan

ANALYSIS OF VEGETATION CHANGES IN OIL-CONTAMINATED LANDS BASED ON MULTISPECTRAL IMAGING AND GIS TECHNOLOGIES

Abstract

Environmental pollution caused by oil and oil products has attracted a lot of attention in recent years. Due to the increase in oil production and accidents, petroleum compounds are the most common contaminants in soil. Because they contain a large amount of highly toxic compounds, they cause physical, chemical and biological damage to soil organisms. Detection and mapping of oil-contaminated areas based on satellite monitoring is very beneficial both in terms of time and cost. In the article, oil-contaminated soils on the Absheron Peninsula were investigated and evaluated using multispectral satellite images. Materials for identifying possible changes in vegetation cover on oil-contaminated soils using satellite data and GIS technologies are also presented. The article presents studies on the possibility of using remote sensing materials for monitoring oil-contaminated areas. The condition of degraded lands contaminated with oil and oil-containing wastes was analyzed. The results of experimental studies characterizing the spatial distribution of the values of NDVI and SAVI vegetation indices in oil-contaminated soils are presented, based on which the condition of vegetation in soils contaminated with petroleum products was evaluated. Based on this, a map of oil-contaminated areas was drawn up on the areas, and the changes occurring in this area were analyzed for different years based on a comparative analysis. The issues raised have been resolved by GIS technologies, deep learning, machine learning and a geodatabase of polluted areas has been established.