



Thermal Band Analysis of Agricultural Land Use and its Effects on Bioclimatic Comfort: The Case of Pasinler

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Resolving the problems that arise due to the land use are not suitable for the purpose in the rural and urban areas most suitable for land use of parameters to be determined. Unintended and unplanned developments in the use of agricultural land in our country caused increases the losses by soil erosion. In this study, Thermal Band analysis is made in Pasinler city center with the aim of identifying bioclimatic comfort values of the different agricultural area. Satellite images can be applied for assessing the thermal urban environment as well as for defining heat islands in agricultural areas. In this context, temperature map is tried to be produced with land surface temperature (LST) analysis made on Landsat TM5 satellite image. The Landsat 5 images was obtained from USGS for the study area. Using Landsat bands of the study area was mapped by supervised classification with the maximum likelihood classification algorithm of ERDAS imagine 2011 software. Normalized Difference Vegetation Index (NDVI) image was produced by using Landsat images. The digital number of the Landsat thermal infrared band (10.40 - 12.50 μm) is converted to the spectral radiance. The surface emissivity was calculated by using NDVI. The spatial pattern of land surface temperature in the study area is taken to characterize their local effects on agricultural land. Areas having bioclimatic comfort and ecologically urbanized, are interpreted with different graphical presentation technics. The obtained results are important because they create data bases for sustainable urban planning and provide a direction for planners and governors. As a result of rapid changes in land use, rural ecosystems and quality of life are deteriorated and decreased. In the presence of increased building density, for the comfortable living of people natural and cultural resources should be analyzed in detail. For that reason, optimal land use planning should be made in rural area.