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Contribution of Landsat TM Data for the Detection ofUrban Heat Islands Areas Case of Casablanca

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ABSTRACT

Casablanca, main metropolis of Morocco concentrates more than 46% of the working population. She is considered as the most affected city by the increase of the temperature. We have therefore chosen to base our study on the city of Ca- sablanca. The main objective of this study is to estimate the ground temperature in order to evaluate the impact of the vegetation on cooling the ground temperature. In order to move to the achievement and to identify the formation of is- lands of warmth or coolness which occur in the urban municipalities of Casablanca, we have used the satellites images Landsat 5 TM. Graphical analysis based on studying the correlation was performed to quantify the strength of the link between the coolest urban surfaces and the green spaces. To achieve this, we used "mono-window" algorithm which re- quires knowledge of the atmospheric transmittance, the emissivity of soil and the effective temperature of the air. This study revealed a strong correlation between vegetation cover and cold areas (R^2 = 0.911) and allowed us to determine graphically that there is a strong link between the urban ground temperature and the density of buildings.

KEYWORDS

Urban Remote Sensing; Thematic Mapper; Heat Islands; Freshness Islands; Land Surface Temperature; Casablanca

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