

Remotely Sensed Data Fusion to Extract Vegetation Cover in the Cultural Park of Tassili, South of Algeria

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Abstract : The cultural park of the Tassili, occupying a large area of Algeria, is characterized by a rich vegetative biodiversity to be preserved and managed both in time and space. The management of a large area (case of Tassili), by its complexity, needs large amounts of data, which for the most part, are spatially localized (DEM, satellite images and socio-economic information etc.), where the use of conventional and traditional methods is quite difficult. The remote sensing, by its efficiency in environmental applications, became an indispensable solution for this kind of studies. Multispectral imaging sensors have been very useful in the last decade in very interesting applications of remote sensing. They can aid in several domains such as the de-tection and identification of diverse surface targets, topographical details, and geological features. In this work, we try to extract vegetative areas using fusion techniques between data acquired from sensor on-board the Earth Observing 1 (EO-1) satellite and Landsat ETM+ and TM sensors. We have used images acquired over the Oasis of Djanet in the National Park of Tassili in the south of Algeria. Fusion techniques were applied on the obtained image to extract the vegetative fraction of the different classes of land use. We compare the obtained results in vegetation end member extraction with vegetation indices calculated from both Hyperion and other multispectral sensors.

Keywords : Landsat ETM+, EO1, data fusion, vegetation, Tassili, Algeria

Conference Title : ICIE 2014 : International Conference on Industrial Ecology

Conference Location : Istanbul, Türkiye

Conference Dates : May 22-23, 2014