

Detection of hydrocarbon seepages using hyper spectral remote sensing in FR DI Khan, Pakistan: A case study

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Hydrocarbon seepages have been detected using wide variety of techniques in various studies all around the globe. These studies are primarily based on the concept that hydrocarbon seepages cause surface alteration of soils, and minerals and stress on vegetation in the seepage area. The current study envisages detection of hydrocarbon seepages using hyperspectral remote sensing. Hydrocarbon seepages have been reported in many locations in, and around Federally Administered Tribal Areas (FATA) of Pakistan where hydrocarbon seepages, and their effects on rocks, and soils have been observed and documented. Hyperspectral data of Hyperion has been used to map these seepages in Frontier Region Dera Ismail Khan (FR DI Khan) of the tribal belt of Pakistan. Spectral Angle Mapper (SAM) and Mixture Tuned Matched Filtering (MTMF) algorithms have been used for classification. In this study, hydrocarbon seepages have been successfully identified and confirmed in the field.