A spectral and textural fusion technique using SVM algorithm on satellite image classification

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In this paper, a data fusion approach based on image classification of remote sensing data is introduced. The fusion of spectral, textural and contextual features is implemented through a classifier based on a support vector machine (SVM) algorithm. Experiments were carried out using ASTER data on Tokyo bay area, with the object classes of seawater,river, building, airport apron, runway and grass. Three experiments are presented: 1) Spectral DN of VNIR bands, 2) Computable textural features based on Gray Level Co-occurrence Matrix, described as Contrast,Correlation, Energy and Homogeneity, 3) GLCM matrix, are nputted into SVM classifiers, respectively. The results indicate that SVM-based classifier, as a means of fusion technique for spectral and textural features, has a general applicability for remote sensing data classification.