

# The comparison of traditional and object based classification methods

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**KEY WORDS:** Object based classification, eCognition, Land use Classification

## **ABSTRACT:**

Land Use/Land Cover classification data have proven to be valuable assets for many governmental agencies, such as natural resource managers. Traditional classification methods (pixel-based) have difficulty with high resolution imagery (like Worldview-2, GeoEye-1), resulting in a “salt and pepper” appearance. Newer object-based methods may prove to be more accurate. This study compared an object based classification procedure with a traditional pixel-based methodology (supervised classification) when applied to medium-spatial resolution satellite imagery merged with high-spatial resolution aerial imagery.

Because of correlation between some of the bands of the merged image, Principal Component Analysis (PCA) was used to reduce redundancy in the data. Field data was collected in the study area to serve as a reference for the accuracy assessment. A training set was produced by selecting and identifying specific LULC class-types using high-spatial resolution aerial imagery. This training set was used by both of the classification methods (supervised and object-based) to identify the various cover types within the study area. An accuracy assessment was performed on each image utilizing error matrices, the Kappa coefficient, and a two-tailed Z-test.