Abstract

An unsupervised technique for building extraction in urban area is proposed, which is based on the use of morphological processing especially for building index. Extracting buildings is one of the most complex and challenging tasks as there exist a lot of inhomogeneity due to varying hierarchy. The variety of the type of the buildings and also the shapes of rooftops are very inconstant. This technique proposes a solution to the problem of automatic and unsupervised change detection of rooftop structures. The morphological operation is used to extract building feature with the use of modified morphological building index (MBI). Original Morphological Building Index (MBI) can extract interest building features only for multi-temporal high-resolution satellite image. But the proposed method is insensitive to the geometrical differences of buildings caused by different imaging conditions and is able to significantly reduce false alarms and also can detect upon low-resolution imagery. Image registration is applied after extracting building feature to overlay two images of the same scene. The effectiveness of the method is validated by comparing with MBI-based Change Vector Analysis (CVA) and Multivariate alteration detection (MAD) transformation.
References


Index Terms

Computer Science

Image Processing

Keywords

Feature extraction  modified MBI  hue color histogram  image registration  RANSAC.