

Ismail Elkhachy^{1,*}

¹ NAJRAH UNIVERSITY, FACULTY OF ENGINEERING, CIVIL ENGINEERING, SAUDI ARABIA

* Corresponding Author i.elkhachy@yahoo.com

Determination of land use changing is an important component of regional planning for applications ranging from urban fringe change detection to monitoring change detection of land use. These data are very useful for natural resources management. On the other hand, the technologies and methods of change detection also have evolved dramatically during the past 20 years. So it has been well recognized that the change detection had become the best method for researching dynamic change of land use by multi-temporal remotely-sensed data. The objective of this paper is to assess, evaluate and monitor land use change surrounding the area of NajraH city, Kingdom of Saudi Arabia (KSA) using Landsat images (June 23, 2009) and ETM+ image (June. 21, 2014). The post classification change detection technique was applied. At last, two-time subset images of NajraH city are compared on a pixel-by-pixel basis using the post classification comparison method and the from-to change matrix is produced, the land use change information obtained. Three classes were obtained, urban, bare land and agricultural land from unsupervised classification method by using Erdas Imagine and ArcGIS software. Accuracy assessment of classification has been performed before calculating change detection for study area. The obtained accuracy was found between 61% to 87% percent for all the classes. Change detection analysis showed that rapid growth in urban area has been increased by 73.2%, agricultural area has been decreased by 10.5 % and barren area reduced by 7% between 2009 and 2014. The quantitative study indicated that the area of urban class has unchanged by 58.2 14km²'>,gained 70.3 14km²'> and lost 16 14km²'>. For bare land class 586.414km²'> has unchanged, 53.214km²'> has gained and 101.514km²'> has lost. While agriculture area class, 20.214km²'> has unchanged, 31.214km²'> has gained and 37.214km²'> has lost.

Keywords Land use; Remote sensing; Change detection; Satellite images; Image classification.