

ADAPTIVE CHANGE DETECTION METHOD WITH BAYESIAN APPROACH FOR VERY-HIGH RESOLUTION SATELLITE IMAGES

Donna Monica (1)

¹ Indonesian National Institute of Aeronautics and Space,
Jalan Lapan No. 70, Pekayon, Pasar Rebo, Jakarta Timur 13710 Indonesia

Email: donna.monica@lapan.go.id

Abstract: One of the problems in change detection is setting up the threshold to decide whether an area is changing or unchanging. In many cases, the threshold is different for every image and thus needed to be input manually in a trial and error fashion. Change detection becomes more difficult when it comes to high and very-high resolution satellite images, in which the pixels have high spectral variability, as opposed to mid resolution satellite images. This paper proposed an adaptive change detection method for very-high resolution satellite images using Bayesian approach. The a-priori probability logarithm in Bayesian approach allows the threshold to constantly change based on the context of the images, hence resulting in a more refine classification of changing and unchanging pixels in an image. The experiment shows that the proposed method gives a better result than other change detection methods such as principal component analysis (PCA) and image differencing.

Keywords: change detection, very-high satellite images, Bayesian approach