An Approach to Accurate Validation of Change Detection Retrieval of Land Cover Based on Change Vector Analysis Algorithm

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Abstract: The study of land cover change is an important problem in the Earth Science domain because of its impacts on local climate, radiation balance, biogeochemistry, hydrology, and the diversity and abundance of terrestrial species. Most well-known change detection techniques from statistics signal processing and control theory are base on spatial-temporal data sets from Earth Science; it is lack of information to result validation due to limitations such as lack of ground truth data and the inability to take advantage of seasonality and spatial-temporal autocorrelation inherent in Earth Science data. In our work, we seek to address these challenges with new change detection techniques that are based on data mining approaches. Specially, in this paper we have performed a case study for a new change detection technique for the land cover change detection problem. We study land cover change in the Quang Tri province, focusing on the Tanh Linh area and perform an extended study on the entire province. We also perform a comparative evaluation on forests in the entire province. These results demonstrate the utility of temporal data for the land cover change detection validation problem.

Keywords: Change Detection, Change Vector Analysis, Accurate Validation.