

In this lecture we will discuss how to combine the output of fuzzy clustering algorithms to detect the changes in remote sensing images. In this regard we select two classical fuzzy clustering algorithms, namely fuzzy c-means (FCM) and Gustafson Kessel clustering (GKC). For clustering purpose various image features are extracted using the neighborhood information of pixels from the difference image. To assign a pixel-pattern to either of two groups (for changed and unchanged regions) maximum of the two membership-values (given by FCM and by GKC for the same pattern for same cluster) is considered. It has been observed experimentally that the changes are detected more efficiently using the proposed ensemble-based procedure. To show the effectiveness of the proposed technique, experiments are conducted on three multispectral and multitemporal remote sensing images. Results are compared with those of existing stand-alone fuzzy clustering based algorithms and found to be superior.