

5th International Conference on **GIS and Remote Sensing**

September 16-17, 2019 | Rome, Italy

Disagreement components of different classifiers in land use classification of northeastern IranHadi Memarian Khalil Abad¹, Mahboobeh Hajibigloo², Vahed Berdi Sheikh² and Chooghi Bairam Komaki²University of Birjand, Iran¹Gorgan University of Agricultural Sciences and Natural Resources, Iran ²

Land use changes, particularly deforestation is considered as a major environmental challenge in the Caspian Hyrcanian mixed forest Eco region in southern shores of the Caspian Sea. The Gorganrood River basin in northeast of Iran which drains into the Caspian Sea was selected for land-use classification using Landsat 8 imagery of the year 2017. Major goal of this study is to assess the accuracy of two approaches namely, pixel-based supervised classification and the object-oriented one. Therefore, six classifiers including Minimum Distance Classification (MDC), Maximum Likelihood Classification (MLC), Neural Network Classification (NNC) and Support Vector Machine (SVM) are used in the pixel-based approach, and Support Vector Machine (SVM) and K -Nearest Neighbor classification (KNN) in the object-based approach. Their accuracies of both approaches are assessed; as well nine combinations of scale level (SL30, SL50, and SL70) and the nearest neighbor (NN3, NN5, and NN7) in the K-Nearest Neighbor algorithm (KNN) and three combinations of scale level (SL30, SL50, and SL70) in the SVM algorithm are investigated for the object-based classification. Accuracy assessment is performed using two main disagreement components, i.e., quantity disagreement and allocation disagreement. The evaluation results indicated verified that for land use mapping the SVM algorithm using a 50 pixel segmentation in the object-based classification having a quantity disagreement of 2.03, an allocation disagreement of 4.58, and an overall accuracy of 92.65 % and a kappa coefficient of 0.91 was more accurate than the KNN in the object-based classification and MLC, MDC, NNC and SVM algorithms in the pixel-based classification. Finally, the SVM-SL50 algorithm in the object-based classification is suggested as an optimal classifier for extraction of land use class maps due to its good accuracy and high consistency within the study area.