



Accuracy assessment of global land cover datasets in South Korea

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Land cover is an important factor in determining the biogeochemical characteristics and natural resource management of the earth. As the application of land cover is emphasized, the various global land cover datasets have been produced with satellite data. However, these datasets have a sensitive problem such as misclassification for land cover types. The goal of this study is to analyze accuracy assessment of global land cover datasets in South Korea. This study was conducted by four steps: 1) collection of global land cover datasets such as MODIS_IGBP, MODIS_UMD, GLC2000, and Globcover2009, 2) production of reference dataset in South Korea, 3) reclassification of global land cover and reference datasets, 4) calculation of consistency between the datasets using overall accuracy and Kappa coefficient. Reference dataset was produced using level-2 land cover map and 1:5,000 digital forest map obtained from national institution. The land cover type of global land cover and reference datasets were reclassified as scenario 1 (eleven classes) and scenario 2 (seven classes) to compare with the consistency. The consistency between global land cover and reference datasets was analyzed using overall accuracy and Kappa coefficient. In the case of scenario 1, the overall accuracies of MODIS_IGBP, MODIS_UMD, Globcover2009, and GLC2000 were 0.42, 0.41, 0.35, and 0.41, respectively. In addition, each Kappa coefficient was 0.33, 0.32, 0.26, and 0.28, respectively. In scenario 2, the overall accuracies of MODIS_IGBP, MODIS_UMD, Globcover2009, and GLC2000 were 0.74, 0.74, 0.51, and 0.62, respectively. In addition, each Kappa coefficient was 0.62, 0.61, 0.37, and 0.45, respectively. From these results, the MODIS_IGBP, among the four global land cover datasets, had the highest accuracy and Kappa coefficient. These results indicated that the MODIS_IGBP dataset is the most suitability to analyze land cover in South Korea. The MODIS_IGBP dataset can be utilized as a basic data to validate land cover map produced new satellite data in the future.