

# Land cover classification using monthly statistics datasets from the Global Change Observation Mission-Climate (GCOM-C)/Second-Generation Global Imager (SGLI)

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Global land cover products support the study of global environmental changes. In particular, global studies of the change in predicting plant productivity require a global land cover product with reliable vegetation classifications. Therefore, global land cover products are currently derived using satellite remote sensing. The goal of our study is producing reliable global land cover map with 250m spatial resolution by the International Geosphere-Biosphere Programme (IGBP) class scheme.

The Global Change Observation Mission-Climate (GCOM-C) satellite was launched on December 2017 by JAXA (Japan Aerospace Exploration Agency). The Second-Generation Global Imager (SGLI) aboard GCOM-C is an optical sensor that observes reflected with 19 bands from 380 to 1,200 nm. The spatial resolution of several bands used in land cover classification algorithm is 250m and the whole globe can be scanned approximately in every two days. It is effective to be able to use frequency observed satellite data to investigate phenology characteristics.

Data sets used in this study are SGLI Land Surface Reflectance Monthly L2 Statistics 250m data sets obtained from November 2018 to October 2019. They are corresponded to areas from 60 degrees north to 60 degrees south latitude, from 180 degrees west to 180 degrees east longitude using WGS 84. To determine land cover classification conditions, we examine the land cover feature of sample area with various indices which are Normalized Difference Vegetation Index (NDVI), Enhanced vegetation index (EVI), Chlorophyll Index Green(GVI), UPDM coefficients (Cv,Cs,Cw) and UPDM modified vegetation index(MVI).

We report the results of the feature analysis of each land cover class and show the first results of global land cover map using these indices.

Keywords: Global land cover map, IGBP class scheme