**Detection of Land Cover Change in Mie Prefecture**

**Using Sentinel-2 Time Series**

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***ABSTRACT***

Land cover is important information for understanding the natural environment and for considering national land use planning. Automatic detection of land cover change from satellite images will improve the efficiency of land cover information utilization. The objective is to detect land cover change in Mie Prefecture using the Sentinel-2 time series. Multispectral Instrument (MSI) onboard Sentinel-2 was used because it has a higher spatial (10 m) and temporal (5 days) resolution than other medium spatial resolution images. Since optical sensors are affected by clouds, accurate cloud discrimination is required for accurate detection of land cover change. However, the Sentinel-2 cloud mask has low accuracy, therefore, a cloud mask was created in this study using the Advanced Himawari Imager (AHI) onboard the geostationary orbit satellite Himawari. The cloud mask generated from time series AHI data was applied to the pre-processing step of change detection by the Sentinel-2 MSI. To adapt to seasonal differences, land cover changes are detected by comparing time-series data from two consecutive years. In addition, the influence of remaining thin or small clouds and those shadow were considered in change detection by taking the median of time series samples. The degree of change was calculated by comparing the data for consecutive two years. Land cover change was detected by applying the threshold to the calculated degree of change. Accuracy was evaluated using validation data generated by visual discrimination of Sentinel-2 images. The false positive error of land cover change was greatly reduced by using the AHI generated cloud mask.　(256 words)

**Keywords:** cloud screeing, Himawari AHI, land cover change, Sentinel-2 MSI, time series analysis