

**P-5. Change Detection Using Multi-Temporal Optical Satellite Imagery
for Grassland Area in Kawatabi Field Science Center,
Tohoku University**

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The Great East Japan Earthquake on March 11, 2011 caused the Fukushima Daiichi nuclear disaster. The spread of radioactive materials due to this disaster affected many areas of eastern Japan. Some pasture in the polluted area have suspended their grazing use. To clarify the effect of the absence of cattle grazing to the pastures, we performed the land cover change detection using time series optical satellite images. We compared two test sites: a unused for grazing pasture since 2011 and a continuously grazed area even after the earthquake disaster for experiments. We analyzed both high and medium spatial resolution satellite images obtained after the Great East Japan Earthquake. The maximum likelihood supervised classification method was used to generate land cover maps. We extracted grassland from the land cover classification map. We calculated the grassland area, and the temporal change of the areas on the two test sites were compared. The result shows that the area of the unused pasture decreased from 66.0 ha on July 19, 2012 to 50.0 ha on September 26, 2018 based on the analysis of high-resolution satellite images. And the area obtained by the medium resolution satellite images analysis decreased from 69.6 ha on May 31, 2011 to 44.6 ha on May 26, 2018. On the other hand, there was no significant change in the continuously grazed area. It is recognized that the grassland area of the unused pasture has greatly decreased since the voluntary suspension of grazing from 2011.