

## **Land cover change detection using MODIS data in the Tohoku, Japan**

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In March 11, 2011 a major earthquake hit the East Japan and brought the unprecedented damages. The remote sensing technology is more affective to monitor the situation quantitatively affected and recovered area. In this study, the long-term monitoring were of the flooding range and change in the farmland before and after the earthquake to observed, combining a high-resolution and a low resolution sensor images. In this study the revival situation of farmland can be confirmed by comparing the NDVI before the disaster (2003-2010) and after the disaster (2011 or later) by using MODIS(250m) time-series data. Disaster situation of farm land by the tsunami of March 11, 2011 were analyzed using a high-resolution sensor(10m) of AVNIT-2 on ALOS. The discriminate analysis classified with 82% accuracy the texture data. It is possible to distinguish the farmland but it is difficult to distinguish the water area because disaster farmland is still covered with water. Time series MODIS data (NDVI) was used to monitor the revival situation of farmland. In the case of the farmland NDVI value of July and August 2011 was 0.7 (0.8 average year), but July and August 2012 was 0.4. In 2011 farmland was decimated since the tsunami and weeds have sprung up. In 2012, weeds have not sprung up by the farmland maintenance the change of NDVI value. In the case of a windbreak forest the damages caused by the tsunami was serious, and it turns out that it is not restored even when it is in 2012. The revival situation of affected farmland was investigated by combining a high resolution sensor, and high frequency monitoring by a low resolution sensor. The future subject needs to perform long-term monitoring using MODIS data, and needs a continued observation of the revival situation of affective area. And it is necessary a high-resolution sensors to detect the change of land use.

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